Arcati Mainframe Navigator

2025

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Welcome to the Arcati Mainframe Navigator 2025

The mainframe industry continues to evolve, demonstrating its resilience and strategic importance in enterprise IT. This year's Arcati Mainframe User Survey presents a deep dive into key trends shaping the industry. With a record number of respondents, the findings reinforce the stability of mainframe careers and highlight the platform's role in revenue generation.

The adoption of modern technologies continues to reshape mainframe strategies. While most respondents are running the latest versions of zOS, we also see a growing focus on hybrid cloud integration, security advancements, and AI-driven automation. The industry is balancing modernization efforts with strategic workload migration, ensuring the mainframe remains a central component of enterprise IT landscapes.

Looking ahead, organizations face a divided strategy—some expanding their mainframe investments, others shifting workloads to distributed environments. Hybrid IT strategies will define the coming years, and businesses must balance innovation with cost efficiency. Workforce challenges, particularly the need for skilled professionals, remain a pressing concern, making training and knowledge-sharing critical to long-term success.

At Planet Mainframe, we are dedicated to fostering an engaged and informed community. This survey is not just about numbers—it's about understanding the people, organizations, and strategies that sustain this industry.

We extend our gratitude to all survey participants and acknowledge the invaluable support of our sponsors who make this publication possible including our Strategic Partners Broadcom, DataKinetics, and Vertali. I also want to thank our Guide and Directory Sponsors: Action Software, ASPG, Baer Consulting LLC, BMC, Enterprise Performance Strategies, and Bsecure.

Thank you for being part of this dynamic industry. We look forward to another year of insights, discussions, and advancements in the mainframe world.

Amanda Hendley
Managing Editor, *Planet Mainframe*

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Mainframe Security in 2025:
Countering New Threats, Using AI, and Getting the Basics Right

Introduction

As we moved into 2025, two trends were front of mind for many of our clients: their continued efforts to achieve a Zero Trust security stance in the face of an evolving threat landscape, and the unstoppable rise of artificial intelligence – countering the risks of AI while seizing the opportunities it presents.

Both trends are linked to the fact that, for many organizations, the mainframe has been seriously overlooked in the past as a cybersecurity risk. And yet vulnerabilities clearly exist, from flaws in code and configuration that can be exploited by criminals, through supply chain and vendor product risks that expose the organization, to insider threats. In short, the threat is real, and growing. IBM's Cost of a Data Breach Report 2024 found that the global average cost of a data breach in 2024 was USD 4.88 million, a ten percent increase on the previous year, and the highest total ever.

Slaying the cyber beast

The cyber threat landscape is continuing to evolve, powered by creative criminals, new tech, and a connected world. It might be likened to the mythical Greek monster, the Hydra: cut off one head and two more cyber threats spring up in its place, presenting new and more complex challenges. At the same time, the mainframe is now mainstream, as much a part of enterprise IT as anything else. And the platform is, of course, hackable. Vertali's mainframe security team has done so many times, as part of formal security assessments and penetration testing, all be it in a safe and secure manner. But once a bad actor gains access, the resulting damage can be catastrophic. Creating backdoors means attacks can escalate even after the initial threat is eliminated.

AI and quantum computing - the latter for complex concurrent computations and so cracking digital encryption faster - add to today's threat complexity, bringing the potential to assist security professionals as well as new opportunities for hackers. Recent technologies bring new back doors and vulnerabilities; today's mobile apps can significantly compromise cybersecurity, with smartphones a target for malware, and therefore another potential route into the mainframe (alongside, in a connected IoT world, things like fridges and exercise bikes, which have even less in the way of security controls). Increasingly, mobile platforms are used to access and process sensitive data: personal and corporate email, messaging services, corporate and financial data, and more.

This all requires robust policies, governance and technology-driven oversight, for both bring-your-own devices and corporate-provided tech: clear policies plus proven mitigating technologies to protect against breaches and data loss, and including logging and monitoring of all devices. And this is just one tiny piece of a hugely complicated jigsaw.

The double-edged sword of AI

It's everywhere and it's growing, across all areas of business and increasingly the public sector. In January 2025, for example, the UK government launched the AI Opportunities Action Plan to improve efficiency and have an impact on areas ranging from healthcare and education to improving roads and supporting small businesses.

Generative AI brings new risks and challenges as well as opportunities. In our world, on the plus side, we're already seeing rapid developments in areas such as Enhanced Threat Detection and Prevention, Automated Security Responses, Enhanced Encryption and Data Privacy, and Vulnerability Management.

On the debit side, AI is already used by criminals to identify vulnerabilities, develop more sophisticated phishing attacks, and automate the exploitation of security flaws. Mainframe security strategies have to evolve fast to counter these threats, but integrating AI technologies and tools into mainframe environments can be a complex ask, and can require significant investment in time, people and resources. We must also be wary that over-reliance on AI and automation does not lead to complacency, with human oversight overlooked.

So, what can we expect from AI?

In enhanced threat detection and prevention, we can look to AI-powered security analytics: analyzing vast amounts of data, identifying patterns, and detecting anomalies that may show a security breach. That can lead to more proactive and adaptive security measures, Generative AI can also automate intelligent security incident responses, and reduce the time lag between detection and targeted action - isolating affected systems and automatically applying patches and updates. AI can be used to dynamically adjust access controls based on real-time assessments of user risk, ensuring only authorized and verified users can access critical mainframe resources. In vulnerability management and predictive maintenance, generative AI can be used to analyze system behaviors, code and configurations to anticipate and predict vulnerabilities before they can be exploited. And so on.

The changing nature of AI-driven security

As AI becomes more commonplace in mainframe security and operations, we will need to ensure that our usage complies with the necessary regulatory standards and requirements. We will have to ensure transparency and auditability for security-related actions taken with AI involvement. And in terms of the new skills needed, we will see a rising demand for professionals with expertise in both mainframe environments and AI, and ideally security. Continuous training and ongoing professional development will be crucial for our security teams to keep up with, and benefit from, evolving AI technologies and approaches.

Remember the basics: mainframe security 101

In this short paper, we've taken a look at the threat landscape, and at the risks and opportunities presented by AI. It's worth adding this third element to any discussion of strategy. With continuous innovation and new functionality, such as AI and extending to developments such as Pervasive Encryption (PE), multi-factor authentication (MFA) and file integrity monitoring (FIM), it's important that we don't forget the basics, and suffer from what a colleague calls "shiny object syndrome". Buildings are only as strong as the foundations they are built upon, and it's the same in mainframe security. We need be on top of the detail and have those basics in place if we're going to achieve a true Zero Trust stance. We have a blog on this topic, but I can summarize the main points here.

Authentication - logging on or connecting to the mainframe. Accountability can only be assured if you can be sure that whoever or whatever is accessing your system is who or what they say they are. Are your password rules strong enough? How often do you require a password to be changed. Have you implemented the RACF encryption algorithm KDFAES? If you use MFA, how is it used?

Access management - the insider threat allied with phishing and ransomware pose a serious risk; no amount of encryption will prevent someone with valid access to your data from editing, copying, or selling it to the highest bidder. They may even re-encrypt it using their own key. Issues to consider in access management include:

- **Data ownership** – do you know who owns what data on your system?
- **Role-based access control** – role-based security to restrict access to authorized users, implementing mandatory or discretionary access control, is important.
- **Approval process** – all requests should be subject to some level of approval before being actioned, with different levels of access, or access to sensitive functions/data, requiring different approvals.
- **Automated systems** - can complicate issues, requiring other factors to be considered, including issues around Privileged Access, and the principle of Least Privilege.
- **JML** – redundant accounts and access can provide a way to bypass security controls. Rigorous JML processes should reduce the risk, provided they are followed.
- **Recertification** – with high numbers of users and profiles, recertification of mainframe access can be tricky and time consuming. But this is a key control that safeguards your data.
- **Privileged access and accounts** – issues to consider include the number of accounts with privileged access, is this access recertified regularly, are privileged accounts behind a break-glass process, and is the usage of such accounts logged, monitored and alerted on?

Encryption: regulations, standards and best practice increasingly require the use of encryption. Risks that still need to be addressed include key management (where and how are keys generated? How are keys distributed? How often are keys changed/rotated? Are keys backed up?) and ICSF and cryptographic services (are the key datasets protected correctly? Are the datasets backed up and ae the backups protected? Is key usage audited? Who has access to the ICSF Panels?)

Dealing with complexity and ensuring observability

From conversations internally and with clients, we are seeing increasing awareness and interest around complexity and observability. These will continue to come to the fore, and of course are closely linked to wider issues around cyber security, how AI can be used, and why getting the basics right is so important.

So many mainframe deployments now sit at the centre of a highly complex web of applications and services. As we've seen, especially during and since the pandemic, the modern mainframe is now a hub for digital transformation. To help deal with this complexity, we will continue to see AIOps tools and approaches that combine AI and automation to streamline and optimize systems management and operations. Observability is critical, of applications and systems, and today that means extending our horizons further, across different software and servers, for multi-cloud, on-premises mainframe, and hybrid environments. Having that 360° view is more important than ever. Security matters feed into and out of all that, and AI has the potential to be a golden thread running throughout. Let's see what's changed, and what's new, when we gather our thoughts in 12 months and look ahead to 2026.

Leanne Wilson
Senior Technical Delivery Manager / Senior Security Consultant
Vertali Ltd.

With more than 13 years' experience in mainframes, systems engineering and cybersecurity, Leanne Wilson leads Vertali's mainframe technical delivery of security and infrastructure projects. She focuses on helping organizations around the world to secure, protect and optimize their mainframe infrastructure and related applications.

Follow the Leaders: 5 things we learned from the latest tech stack trends

Mike Dickson
Head of Product Marketing
Broadcom Mainframe Software

When it comes to business, getting your tech stack right is a big deal. The ideal mix of cloud, mainframe, and distributed servers can strategically slash IT costs and even outperform rival organizations. With IT now consuming over 34% of total operating costs, how businesses balance their tech stack can be the difference between leading the market or falling behind.

Last year, Broadcom partnered with Rubin Worldwide, the world's leading researcher in business and technology economics to examine how businesses are using their tech stacks and what it means for their bottom lines. What we found was compelling. Leading companies are investing more in cloud and mainframe to outpace the competition.

A lot has occurred over the past year, however. Markets have shifted. Trends have changed. GenAI has taken center stage. And consumer expectations have continued to rise. What does this mean when it comes to IT strategy and tech economics? To get answers, we tapped Rubin Worldwide again to analyze how the latest shifts and trends have impacted our inaugural "Technology Asset Class Optimization" study.

After crunching the numbers and surveying the most recent technology investment choices and performance of 2,400 global companies, this is what we found.

1

Striking the right balance reduces businesses' cost per transaction. In a first-of-its-kind analysis of the "Technology Cost of Goods" - that is, how much it costs to complete one transaction - this year's report found that companies who are running more workloads on cloud and mainframe are able, on average, to complete transactions for less cost. This means they're getting a better return on their IT investment; more for less. This trend is true across industry sectors, but especially pronounced in transportation, retail, healthcare, and finance.

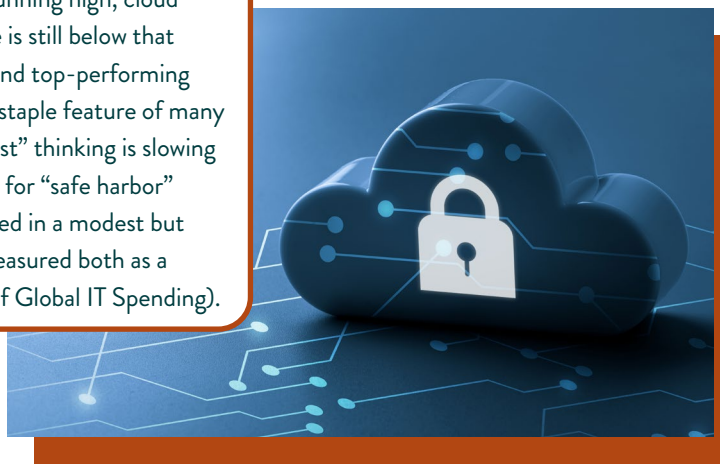
For example, best-in-class airlines who invest more heavily in mainframe reduce their cost per passenger by over 35% when compared to both cloud heavy companies and average performers (e.g. $7.63 cost per customer for mainframe heavy orgs vs $10.78 per customer for average performers and $11.71 per customer for cloud heavy orgs). Furthermore, mainframe heavy companies enjoy a 20% reduction in the cost per retail transaction, cost per hospital bed, and overall cost in insurance coverages when compared to cloud heavy and/or average performers. (See full chart for details).

2

Hybrid IT still dominates. And for good reason. Consistent with last year's findings, a hybrid cloud and mainframe stack outperforms any individual asset class when it comes to improving lead time, change failure rates, and mean time to recovery (MTTR). It's no wonder top-performing organizations earmark the bulk of their IT spending on cloud and mainframe. More specifically, best-in-class performers invest 10% more in cloud and 10% more in mainframe on average.

3

Inflation is cooling the cloud. With IT inflation running high, cloud is getting more expensive, not less, and its usage is still below that of mainframe and distributed for both average and top-performing organizations. While cloud is undoubtedly still a staple feature of many high-performing hybrid architectures, "cloud first" thinking is slowing and becoming more selective as companies look for "safe harbor" options, such as mainframe. This trend is reflected in a modest but continued downward shift in cloud spending (measured both as a percent of Global IT Services and as a Percent of Global IT Spending).



4

The value of Mainframe continues to increase. Since last year when the first edition of this study made abundantly clear that, "[n]othing scales like the mainframe," the latest found even more efficiencies and performance gains at leading organizations who rely on mainframe. Over the past year, the unit cost savings of mainframe increased from 60% to 67%, whereas cloud and disturbed were slightly down at 20% and 10% to 18% and 9% respectively. The takeaway: hybrid organizations who lean in on mainframe are lowering their data, transaction, and overall IT costs of goods.

5

"On-premise" is still the majority. Similar to last year's findings, 87% of global compute power happens on-premise. And as organizations rebalance their tech assets, this year's study found that "some public cloud workloads are being repatriated to on-premise platforms." That's largely due to "unforeseen costs" of running certain workloads in the cloud and "unexpected expenses" to re-architect and migrate to the cloud.

In conclusion, this year's Technology Asset Class Optimization report found that mainframes lower transaction costs of high volume environments demonstrably better than any other technology. On top of that, organizations that are "mainframe heavy" consistently outperform those with an overreliance on cloud or distributed. This is especially pronounced in travel, financial, retail, and insurance sectors. And it applies to established technologies as well as emerging ones—generative AI very much included.

The good news is we now have the data and models that allow IT leaders to evaluate and plan technology investments with the same rigor and language as financial investments. By examining their technology contracts against planned business volatilities, IT decision makers can consider the scalability of each technology asset before deciding which mix and balance is right for them.

While much has changed over the last year, one thing remains the same: Following the tech stack choices of leading organizations can have a measurable impact on your bottom line, and mainframe's influence and value is playing an even greater role. Is your tech stack optimized to deliver the highest economic impact? To learn more, please get in touch or read the latest Technology Asset Class Optimization report.

What Steam Can Teach Mainframes

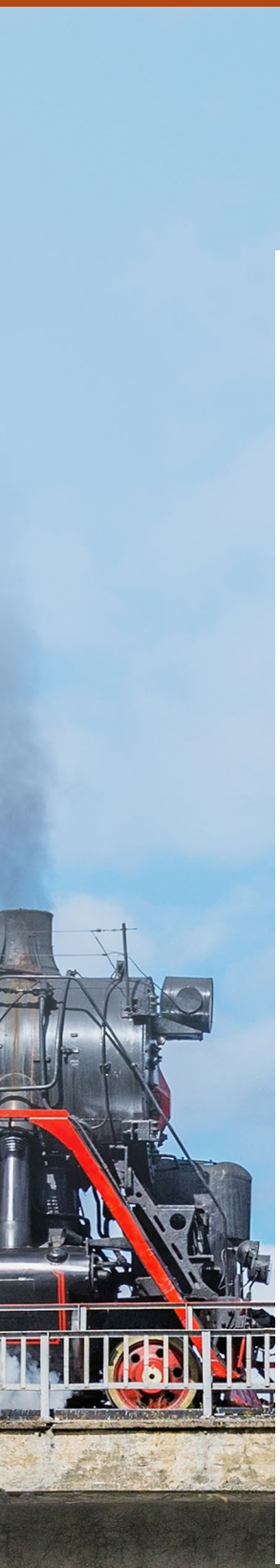
Allan Zander
CEO, *DataKinetics*

My father passed away recently, and I found myself thinking about him. He had many hobbies, but only one that caught my attention: building small-scale models. He had a steam train from when he was a boy, and at times, he would work on a small model railroad. Of course, I "helped" him, which sparked a bit of passion and interest in wanting to build a model railroad of my own.

Reflecting on his model steam train led me to think about steam as a transformative technology. Do we mainframe enthusiasts have a lesson to learn from the steam engine?

As a mainframer, I am quick to respond to the "all aboard!" conductor's song that the mainframe isn't going anywhere. We insiders know how much mainframes power the world's financial systems, how important the code is that runs those systems, and how critical the mainframe infrastructure is to those networks. It's true that ATM transactions, credit card processing, consumer data analytics, census number crunching, payroll processing, transaction recording, and insurance underwriting occur thanks to Big Iron.

But let's be cautious. While I believe there is comfort for many years ahead in the mainframe space, the one thing we can count on is change.



The First Act

When the steam engine was created, it was seen as a marvel. Sure, some critics noted that steam engines were remarkably expensive, and they required a team of talented individuals to keep them running and humming along. Sound familiar? However, the engineering and systems supporting steam energy were solid. The developers thought that they could control steam to an amazing extent.

It was not only the steam locomotive that changed the world; harnessing steam was a key catalyst of the Industrial Revolution. Steam appeared everywhere that needed mechanical energy, and people were convinced that the world would run on steam.

"Already the steam-engine works our mines, impels our ships, excavates our ports and our rivers, forges iron, fashions wood, grinds grain, spins and weaves our cloths, transports the heaviest burdens, etc. It appears that it must some day serve as a universal motor, and be substituted for animal power, waterfalls, and air currents."— Sadi Carnot, 1824

Even though steam was life-changing, it didn't stop with moving a locomotive. Next came superheaters created to heat steam beyond the temperature at which water boils. (Imagine convincing a room of executives that now you need extra special boiled water).

A steam superheater's primary benefit is that it significantly increases the efficiency of a steam power plant. Superheated steam has a higher energy content than saturated (normal) steam, which allows for better turbine performance and improved heat transfer in industrial applications. It also reduced the risk of hydraulic water surges (water hammer) and corrosion.

Act Two: It's Electric

Of course, progress dictates that change is inevitable. A second Industrial Revolution hit as electricity became cheaper to transfer to homes and businesses than steam. As might be expected, electricity faced critics too. Electric companies took out ads aimed at businesses, touting the benefits of electricity for efficiency and safety.

Electricity was considered more of a scientific curiosity than a useful phenomenon until the last part of the nineteenth century. I imagine the people behind steam saying things like, "Well, of course, electricity is an option, but that's mostly replacing gas and for lights. Factories have large investments in steam power, and they're not likely to change and adopt electrical engines and systems. I can see niche applications for electricity – maybe for locomotives that need to run underground where steam isn't as practical, but electricity depends on a huge, distributed infrastructure. I think we will see steam for a long while."

Thomas Edison opened the first commercial power plant, and now, electricity is ubiquitous. We hardly think about it. When was the last time an ad tried to convince you to try electricity?

The Third Act

Then, the mainframe came along, pioneering and propelling the third Industrial Revolution: the digital age. Problems that previously took a human mathematician 20 hours to solve took about 30 seconds for the ENIAC. Industries requiring robust computing capabilities quickly adopted mainframes.

Like steam and electricity, once they were embraced, new industries built up around them. The mainframe became not only a key business system but, at times, even a source of differentiation. Competitors offered scalability and reliability to do more—and faster—than any other company.

I bet the conversations in the board rooms about buying the first mainframe sounded eerily similar to the conversations about buying the first steam engine for a factory, and the first electric wiring for a hotel.

That steam superheater novelty of its day is comparable to in-memory technology in the mainframe. In-memory technology helps address effectively manage I/O in a mainframe. I/O contributes to the mainframe's legendary scalability, but it's also among the highest drivers of cost. Managing memory means managing computing efficiency and computational performance. Improved efficiency and performance then increase the value of the investments, ultimately attracting more revenue –exactly what management seeks. And why not? Everyone wants to reduce maintenance costs while simultaneously increasing productivity with the same investment.

The digital era prioritizes speed, scalability, and real-time access to information, relying on in-memory computing to enable new applications and architectures. In-memory technology has advanced dramatically from early mainframe systems—where memory was limited and optimized for large-scale batch processing--to systems where vast amounts of data can be processed in real time for faster and more flexible applications across industries.

The Fourth Act

Here we are now, somewhere at the beginning still of the fourth Industrial Revolution, where the biological and computational worlds may start to fuse together. Things like AI, robotics, 3D printing, and quantum computing may create applications that we can't even conceive of yet.

Perhaps learning a bit from the steam revolution, I've built my career and a great company in DataKinetics. (DataKinetics is a bit like a specialized superheater company of the steam era, and we have risen to become the gorilla in our space). I'm proud of our mainframe heritage and still enamored by steam. I appreciate it as a mechanical engineer; it appeals to the whimsy of a one-day retirement project, and it brought me closer to my father as we bonded over one of his hobbies.

"But looking around today – I don't see many steam engines. One day that will be true for the mainframe."

In the meantime, like the steam engine, let's be grateful for a great platform. Let's innovate around it. Both the mainframe and steam boosted major industrial revolutions. I am proud to say – and I believe --that the mainframe will be around for a very long time still. However, complacency breeds quickly, and in being dismissive or singularly focused, the next thing you know, there are suddenly no steam engines.

The steam era and digital era are both marked by technological revolutions that reshaped societies, economies, and cultures. Both have driven massive societal change, but the digital era is arguably more profound in its speed and scope of transformation. Let's take pride in the platform that still powers the world's financial systems, but not have so much hubris that we ignore the history of steam.

All aboard!

Cheryl Watson's

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2025 Mainframe User Survey

Profile of Respondents

The 2025 Mainframe User Survey, conducted from November 2024 to January 2025, received double the number of respondents compared to the previous year. Most participants responded via individual email invitations from Planet Mainframe and the Mainframe Virtual User Groups for CICS, Db2, and IMS. Duplicate IP addresses were removed, and incomplete but quality-reviewed submissions were included.

North America accounted for the largest share of respondents (44%), followed by Europe (35%). The Asia/Pacific region slightly decreased (12%), while South America (7%) and the Middle East/Africa (3%) saw slight increases.

Technology companies (Software Vendors and Systems Integrators) led responses at over 45%, followed by Finance and Banking (24%), Insurance (7%), and Government (6%). Other industries collectively accounted for 15%.

Multi-Purpose Mainframers

Intending to capture seniority in technical roles, we also allowed respondents to select multiple roles. While the data didn't strongly indicate seniority levels within technical roles, it highlighted the versatility required of mainframe professionals:

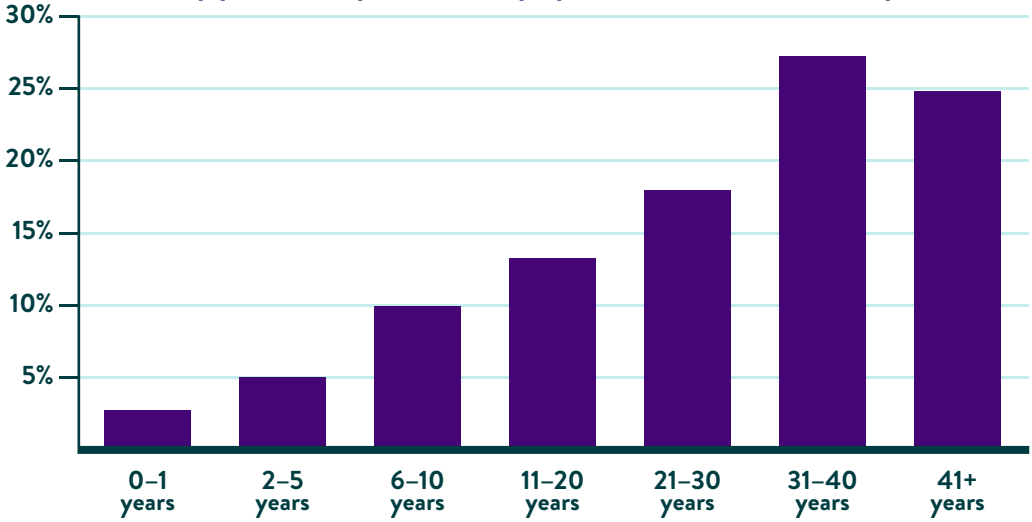
- 30% of respondents hold at least two technical roles.
- 14% balance three or more roles.
- Systems Administrators frequently serve as System Programmers and, in 30% of cases, also as Security Specialists.

This data reinforces what we often hear in the industry—mainframe professionals are not just specialists; they are multi-skilled technologists managing complex, interwoven responsibilities within their organizations.

Sticking Around for Decades

The survey confirms the stability and longevity of a mainframe career. An impressive 70% have worked in the field for 20+ years, and 27% have been in mainframe roles for 31-40 years. That kind of career duration is rare in technology, where rapid shifts and short tenures are more common.

How many years have you been employed in mainframe-related positions?



Several factors contribute to the remarkable longevity in our field:

- Demand Outpacing Supply – Companies rely on experienced professionals to keep their systems running smoothly, yet the talent pipeline—while improving—still isn't keeping pace with demand. Companies are offering strong incentives for employees to stay on past retirement.
- Generational Shifts – Many younger IT professionals are drawn to newer technologies, which raises the average age and tenure of mainframe specialists.
- A Strong Professional Network – The tight-knit mainframe ecosystem fosters a sense of loyalty and belonging, making it more than just a job—it's a community people want to stay in.

The Mainframe's Role in Business Operations

The Arcati Mainframe Survey tracks the mainframe's role in business operations and revenue production across industries. To do this, respondents estimate what percentage of their organization's business revenue is generated by mainframe applications.

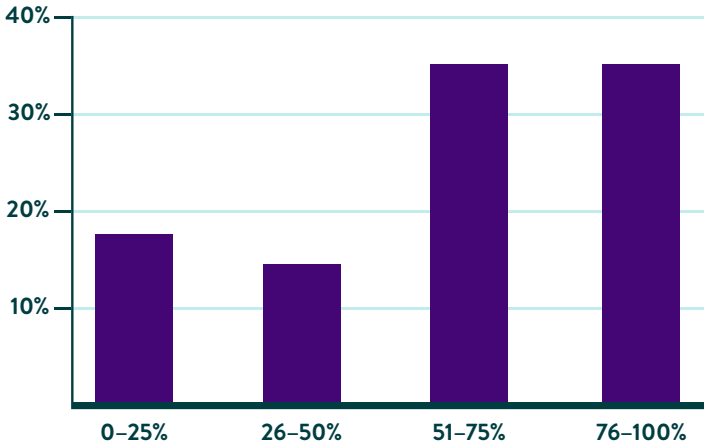
Over 67% reported that over half of their organization's revenue is tied to mainframe applications. A noticeable 30% declined to answer, likely due to a lack of visibility or company policies.

The mainframe's continued dominance in high-volume transactions and core business processes remains evident. Even in organizations where the mainframe isn't perceived as the central system, it remains deeply embedded in operations, reinforcing its strategic importance.

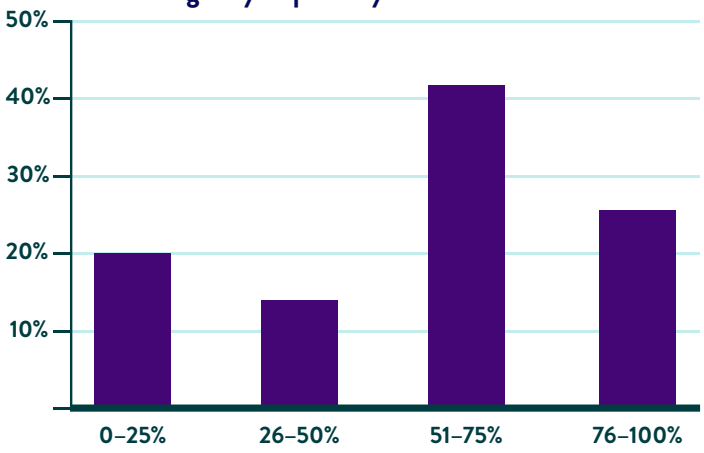
Beyond revenue, we also explored how extensively organizations rely on mainframes for running applications. As shown to the right, 67% of respondents reported that most of their organization's applications still run on mainframe systems.

Even among organizations where mainframe applications account for 25% or less of total workloads, the technology still plays a critical role in mission-essential functions. This suggests that despite ongoing modernization efforts, the mainframe remains indispensable, especially in hybrid IT environments. As businesses continue integrating cloud and distributed solutions, the challenge will be striking the right balance between modernization and maintaining the reliability of mainframe systems.

What percentage of your business revenue (transaction if government) is handled by mainframe applications?



What percentage of your revenue-generating applications are running fully or partially on the mainframe?



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Your Mainframe Specs

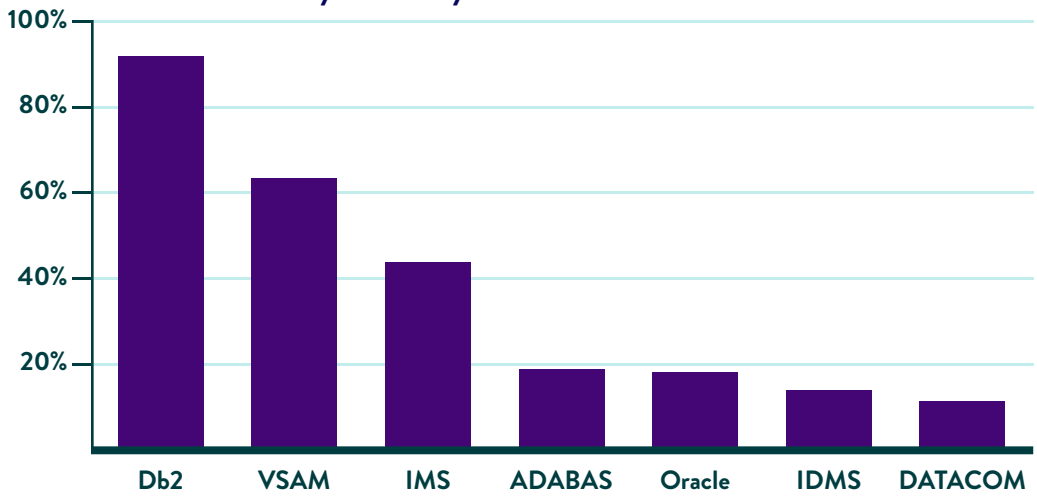
Note: The survey question referenced z/OS 2.5 as the "Current" release, though z/OS 3.1 is now the latest version. For this report, we assume that respondents who selected "Current (2.5)" referred to z/OS 3.1, though their responses may include users of both versions.

Survey results show that 69% of respondents are running either z/OS 3.1 or z/OS 2.5, highlighting the widespread adoption of IBM's most recent mainframe operating systems. However, 20% of users are still on z/OS 2.4, suggesting that a portion of organizations have yet to upgrade. Much older versions are in use - even OS/390 (2%), a legacy operating system phased out over two decades ago—underscoring the incredible longevity of mainframe environments.

Db2 Reigns Supreme

Db2, IBM's relational database, continues to be a popular choice for enterprises requiring strong transactional integrity, SQL support, and integration with modern analytics and AI workloads. It's not surprising that over 92% of our respondents reported using it.

What database do you use in your mainframe environment?



Db2 compatibility with VSAM (Virtual Storage Access Method), the second-most selected database, makes it a great choice for businesses modernizing legacy applications while maintaining data consistency. In fact, 67% of companies using Db2 also use VSAM.

IMS often works in tandem with Db2, but where IMS handles high-speed transactions, Db2 manages complex queries and reporting. Just under half of those Db2 users are also utilizing IMS.

The following table provides a comparative overview of the most widely used databases among our respondents:

DATABASE	TYPE	STRENGTHS	BEST USE CASES	WORKS WELL WITH
Db2	Relational (RDBMS)	SQL support, high performance, analytics integration	Complex queries, reporting, modern applications	VSAM, IMS
IMS	Hierarchical	Ultra-fast transactions, high-volume processing	Banking, insurance, real-time transactions	Db2, VSAM
IDMS	Network	Strong data relationships, high efficiency	Legacy applications, performance-critical workloads	DATACOM
VSAM	File Storage	Fast data retrieval, efficient indexing	Data storage for Db2, IMS, and other databases	Db2, IMS
DATACOM	Network	High-volume transaction processing, reliable	Mission-critical workloads, large-scale systems	IDMS
ADABAS	Inverted List	Fast access, scalable	Legacy applications, paired with Natural language	Natural
Oracle	Relational (RDBMS)	Enterprise-level SQL support, cloud compatibility	Hybrid architectures, cloud integration	Distributed & cloud systems

When it comes to Db2 versions, the majority of respondents (56%) are currently running Db2 13, the latest version released on May 31, 2022. Meanwhile, 35% are still operating on Db2 12, indicating a gradual but steady transition to the newer release.

Notably, shortly after our survey launched, IBM introduced Db2 12.1 (often informally referred to as Db2 14) on November 14, 2024. Given this, adoption trends may shift in the coming months as organizations evaluate their upgrade plans.

Looking ahead, 54% of respondents with insight into their organization's strategy reported plans to upgrade their Db2 environment, while 46% had no immediate plans. These findings suggest that while many organizations are actively modernizing, a significant portion remains cautious, likely balancing upgrade costs, stability, and integration with existing workloads.

The Growth and Decline of Mainframe Usage

MIPS remains the primary measure of mainframe capacity, though it doesn't always reflect actual workload performance. This year's survey reveals shifting MIPS distribution, with organizations scaling up or optimizing efficiency.

Smaller mainframe deployments (1-500 MIPS) more than doubled from 10% in 2024 to 24% in 2025, possibly due to new adopters, workload modernization, or companies downsizing while maintaining critical functions. Meanwhile, mid-sized shops (501-1,000 MIPS) dropped sharply from 20% to just 5%, suggesting organizations in this range either expand into higher MIPS tiers or consolidate operations through hybrid solutions.

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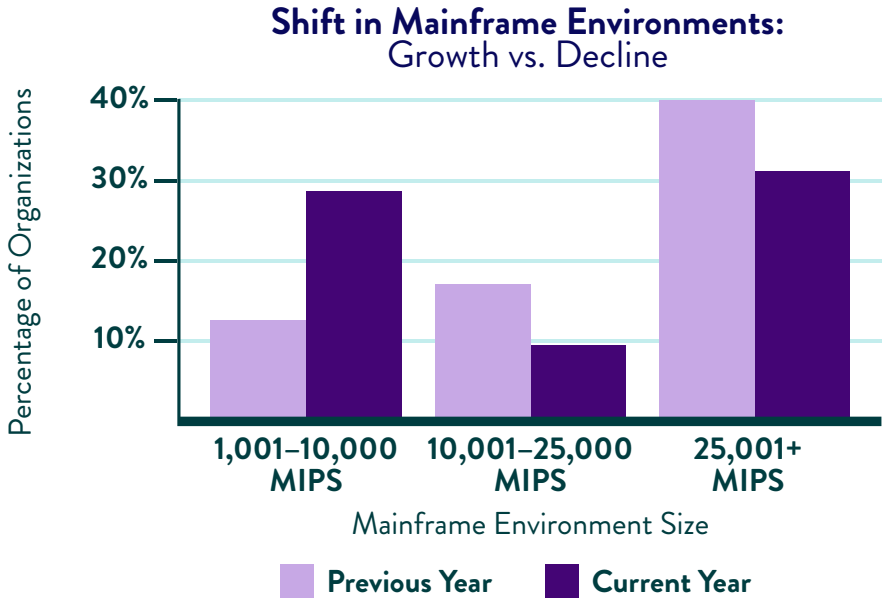
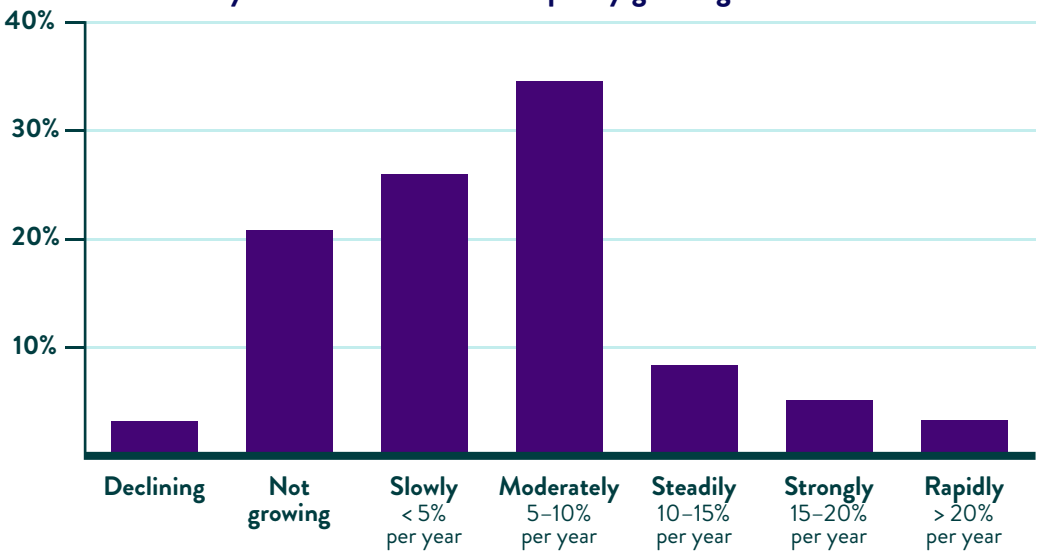


The 1,001-10,000 MIPS category grew significantly, more than doubling from 13% to 28%, indicating substantial investment in transaction-heavy workloads and modernization. At the high end, 10,001-25,000 MIPS declined from 17% to 9%, and the 25,001+ category shrank from 40% to 30%, suggesting large enterprises are restructuring rather than simply reducing capacity. Instead of outright downsizing, they are likely optimizing workloads, leveraging cloud-based extensions, or integrating specialty engines like zIIP and IFLs.

How fast is your mainframe MIPS capacity growing?



Regarding MIPS growth, most organizations are expanding gradually rather than scaling aggressively. Nearly 7% reported a decline, while 21% saw no growth, meaning 28% are maintaining or reducing capacity, often for cost or efficiency reasons. The majority (57%) are growing cautiously, with 24% increasing under 5% per year and 33% growing at 5-10% annually. Only 8% are expanding at 10-15% per year, with even fewer exceeding that rate.

The continued growth in the 1,001-10,000 MIPS range reinforces that mainframes remain essential for enterprise computing, even as companies work to balance performance, cost, and scalability.

What Do These Trends Mean for the Mainframe Landscape?

This year's data show a split in mainframe strategies—some organizations are expanding to support growing workloads, while others are restructuring, optimizing, or shifting to hybrid models. The continued growth of the 1,001-10,000 MIPS category reinforces the mainframe's ongoing role in enterprise computing, even as companies work to balance performance, cost, and scalability.

When asked what's driving mainframe growth, respondents pointed to organic business expansion (61%), new applications and workloads (43%), and mergers and acquisitions. Digital transformation continues to fuel demand for high-throughput computing, making the mainframe essential for transactions, e-commerce, and large-scale operations.

Organizations aren't just scaling existing workloads—many are introducing new services that leverage mainframe infrastructure. Of those citing business expansion, 39% also pointed to new applications, showing that modernization is a key driver.

However, not all organizations are growing their mainframe environments. More than 50% of those selecting "Other" reported no growth or declines, with some migrating workloads to distributed and open systems. This trend plays out in multiple ways:

- **Migration & Optimization**: Some organizations shift workloads to cloud or hybrid environments, often as part of real-time processing modernization.
- **Digital Transformation Variance**: While many companies are expanding, some reallocate digital workloads off the mainframe, contributing to stagnation in certain areas.
- **Workload Redistribution**: The decline in 10,001-25,000 and 25,001+ MIPS categories suggests organizations are optimizing rather than simply growing their mainframe footprint.

When asked how workloads are divided across platforms, responses confirmed that core, high-volume, transaction-heavy processes remain on the mainframe. At the same time, UI, analytics, and newer business applications are increasingly offloaded to distributed or cloud platforms.

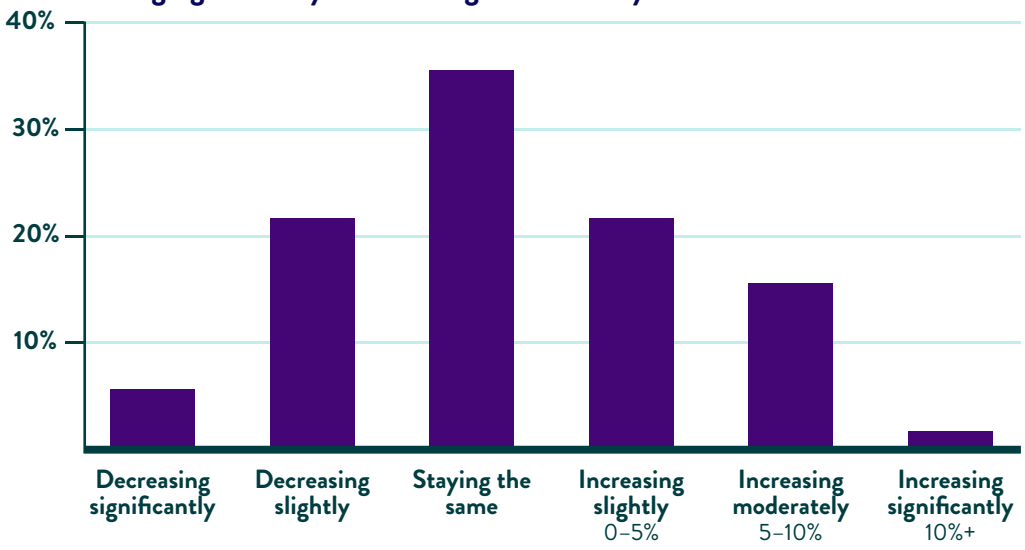
Budgeting for the Mainframe

Mainframe-related costs remain a significant part of IT budgets, but organizations are taking a measured approach to spending across infrastructure, software, and staffing. While investments in IBM Z hardware and software are increasing, workforce budgets remain stable or cautiously rising, reflecting a balance between modernization and cost control.

Spending on IBM Z hardware and software is up for 52% of organizations, with most seeing modest growth (0-10%) and only 5% reporting increases over 10%. Despite modernization efforts, mainframes remain a significant cost, with 51% of organizations dedicating at least 26% of their IT budget to mainframe-related expenses. However, 11% allocate just 0-5%, suggesting a reduced reliance on mainframes or that mainframe costs are just a tiny part of a larger enterprise IT strategy.

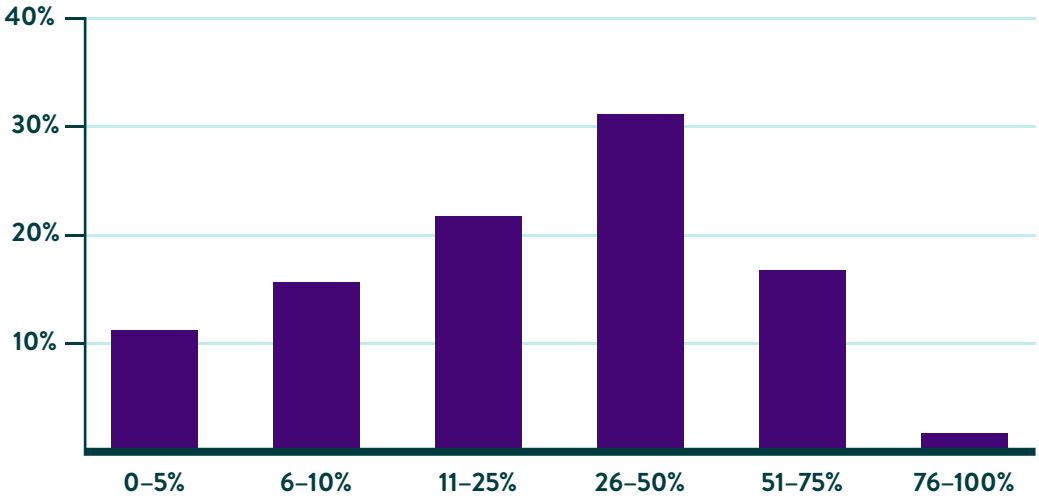
While infrastructure spending is rising, staffing budgets tell a different story. 26% of respondents reported cuts to workforce spending, likely due to automation, outsourcing, or hybrid IT strategies. Meanwhile, 35% kept staffing budgets steady, and 39% reported slight to moderate increases (0-10%), with only 1% expanding by more than 10%.

How has your organization's spending on staffing and resources for managing IBM Z systems changed in recent years?



Economic challenges in 2024 affected IT hiring across North America and Europe, with slow growth, hiring freezes, and rising competition for skilled roles. The tech industry saw a 30% decline in software development job postings, leading companies to prioritize essential roles.

What proportion of your total IT budget is spent on mainframe-related costs?



Despite these challenges, mainframe spending remains resilient, with organizations modernizing IBM Z environments while carefully managing workforce costs. Companies focus on efficiency and long-term sustainability, ensuring that mainframes remain critical to their IT strategy without unnecessary budget expansion.

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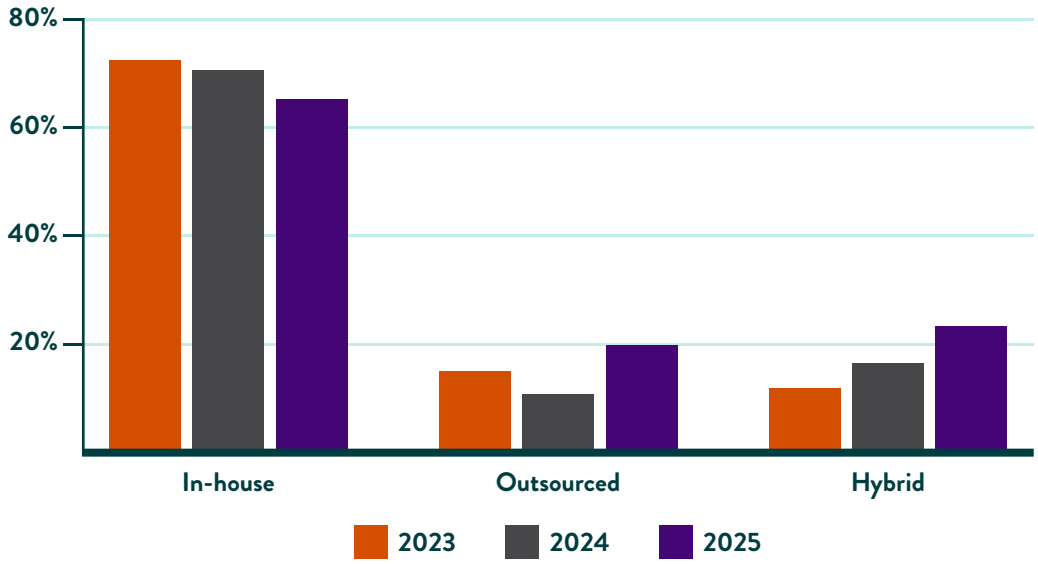
Who's Managing the Mainframe

Responses reveal a slight decline in entirely in-house mainframe management, dropping from 70% in 2024 to 66% in 2025. While most organizations still manage their mainframe data centers, the trend suggests a gradual shift toward outsourcing and hybrid approaches.

Are your mainframe data center systems managed in-house or outsourced?



Outsourcing doubled from 9% in 2024 to 20% in 2025, indicating organizations increasingly use third-party providers for mainframe operations to cut costs, address skill gaps, or integrate cloud services. Hybrid models rose the last three years to 24% in 2025. This reflects a trend towards combining in-house management with outsourcing for cost savings and control over critical workloads.

The Forrester Mainframe Developer Study confirms the shift toward hybrid IT models, with 56% of mainframe developers having experience in cloud or distributed platforms and increasing demand for modern IDEs, DevOps toolchains, and test automation.

The Reliable and Critical mainframe

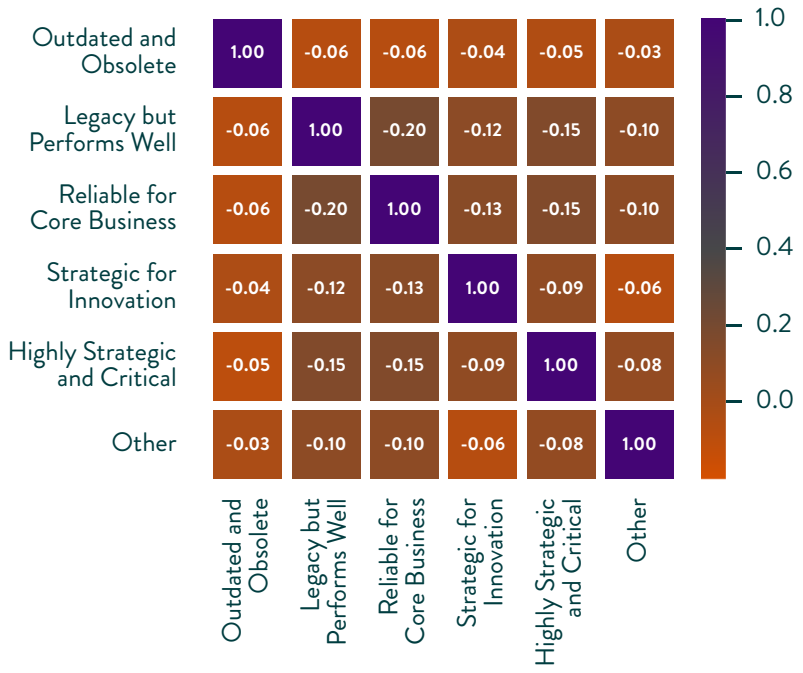
Even among users, mainframe perceptions are divided. While many organizations recognize the mainframe as reliable and essential for core business operations, **it is also associated with legacy systems rather than innovation. As the matrix correlation shows**, organizations that view the mainframe as highly strategic are more likley to see it as an enabler of business innovation, suggesting that modernization efforts play a key role in shaping sentiment. However, fewer organizations make this connection, indicating that while the mainframe remains a critical asset, it is not always perceived as future-ready.

The "Outdated and Obsolete" sentiment is relatively isolated, with weak correlations to other perspectives. This suggests that while skepticism exists, it is not the prevailing view. Instead, the challenge lies in overcoming the "legacy" label. Without modernization and integration with AI, cloud, and automation, organizations may struggle to shift perceptions.

The opportunity lies in repositioning the mainframe as an adaptable, future-proof technology. Companies investing in talent, innovation, and modernization will sustain their infrastructure – and change the narrative from legacy maintenance to strategic evolution. The future of the mainframe depends not just on its capabilities but on how well organizations communicate its value.

The Future of Mainframe Strategy

Correlation Matrix of Mainframe Perceptions



Survey results show a divided approach to mainframe strategy. While some organizations plan to maintain or modernize, others are migrating workloads or reducing reliance.

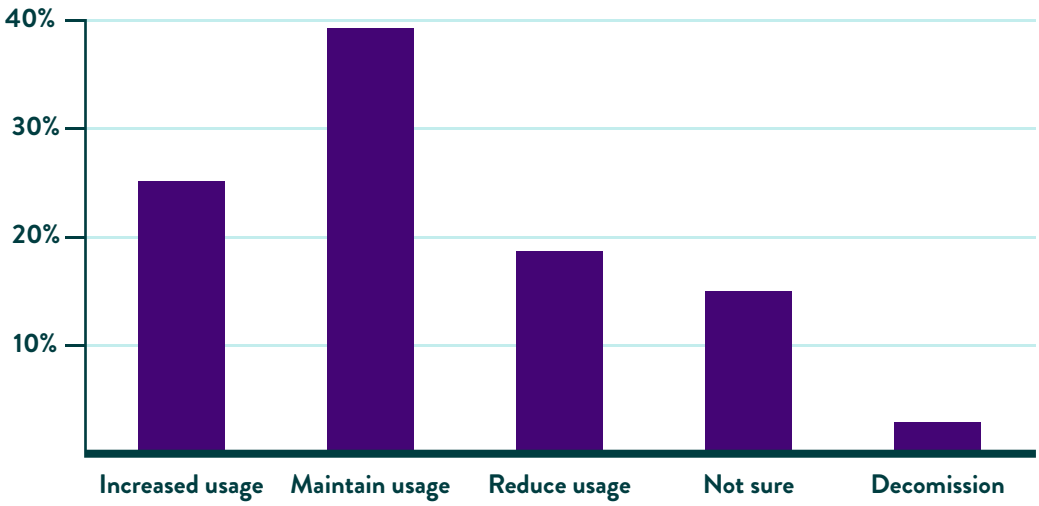
It's a near 50/50 split on workload migration—52% keeping workloads on the mainframe, 48% planning to migrate. Key drivers include shifting to SAP HANA, modern ERP platforms, and cloud services like AWS, Azure, and OpenShift, often in phases. Rising hardware/software costs and talent shortages push some toward Linux and distributed systems. Migration is often leadership-driven, with mixed success—one respondent noted a fixed annual migration target for 20 years.

However, modernization-in-place remains strong. 59% expect to modernize core applications on the mainframe, while 51% plan to maintain existing applications. Repatriation is rare—only 24% move workloads back to the mainframe, while 60% report no returns, indicating that once workloads leave, they rarely come back.

New development on IBM Z is limited—67% do not plan new applications. However, almost one-third continue investing, particularly in API integrations, AI, Java conversions, and industry-specific applications (mainly banking and finance).

The long-term future of mainframes depends on how well modernization efforts keep pace with evolving cost, performance, and IT flexibility demands.

What are your organization's plans for mainframe usage in the next 5 years?



Linux

Linux adoption and Java-based applications continue to grow. 32% of respondents use IBM LinuxOne, primarily for development/testing (48%), web/app servers (48%), containerized applications (44%), and database management (40%). Over 50% use LinuxOne for at least three of these cases.

Top Workloads on LinuxOne

Development and testing environments	48%
Web and application servers	48%
Containerized applications (e.g., Kubernetes, OpenShift)	44%
Database management	40%
Core transaction processing	28%
Data analytics or AI workloads	20%
Security and compliance-focused applications	16%
IDAA	8%
Monitoring and Deployment Tools	4%

Hybrid deployments dominate: 54% use LinuxOne in hybrid setups (on-prem/cloud), and another 54% integrate it with IBM Z, reinforcing its role in mission-critical workloads.

Meanwhile, 30% run LinuxOne as a standalone system, and 25% use it for minimal-integration cross-platform applications, showcasing flexibility.

Most organizations use LinuxOne as part of a hybrid or IBM Z strategy, while fewer deploy it independently or for niche workloads.

Analytics in Mainframe Environments

The 2025 survey highlights widespread analytics adoption, focusing on performance, capacity planning, and security.

Performance monitoring (76%) remains the top use case, reinforcing its role in system efficiency. Capacity planning (58%) reflects a growing emphasis on resource management. Security monitoring (27%) and anomaly detection (24%) show increased focus on risk mitigation.

Incident response (28%) demonstrates rising reliance on analytics-driven intelligence, while AI/ML adoption (6%) remains niche. Chargeback and cross-platform comparisons remain underutilized. However, growth in security, forecasting, and optimization signals a maturing analytics strategy.

Top 10 Uses for Analytics


Performance monitoring & optimization


Cost optimization & resource management


Capacity planning & forecasting


Security and compliance monitoring


Real-time operational intelligence


Business intelligence & reporting


Incident response & troubleshooting


Storage and workload management


Anomaly detection & predictive maintenance


Application performance management

The most selected analytics tools align closely with the top use cases, showing strong industry trends in performance optimization, capacity planning, and security monitoring.

Use Case	Top Tools Used & Percentage
Performance Monitoring & Optimization	IBM ZPCA (22%), IDAA (26%) IntelliMagic Vision (15%)
Capacity Planning & Forecasting	IBM ZPCA (22%), SAS on z/OS (26%)
Real-Time Operational Intelligence	IDAA (26%), Splunk for Mainframe (18%)
Incident Response & Troubleshooting	Splunk for Mainframe (18%) BMC AMI Ops Insight (19%)
Security & Compliance Monitoring	BMC AMI Ops Insight (19%) Syncsort Ironstream (9%)
Cost Optimization & Resource Management	Broadcom MICS (4%), Easytrieve (18%)
Anomaly Detection & Predictive Maintenance	IBM Watson ML (9%), SAS on z/OS (26%)
Application Performance Management	IBM z/OS Data Gatherer (15%) Rocket Analytics (10%)
Business Intelligence & Reporting	Easytrieve (18%), SAS on z/OS (26%)
Storage & Workload Management	IBM IntelliMagic Vision (15%) Broadcom MICS (4%)

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Organizations prioritize performance, capacity, and security analytics, with IBM ZPCA, IDAA, and Splunk leading adoption. Predictive analytics and AI tools remain low but have future potential.

Emerging Technologies

Organizations prioritize modernization, AI, and security while integrating open-source frameworks like Zowe and DevOps.

Top Trends in Mainframe Technology Adoption

- Modernization & Integration (61%)
- AI & Machine Learning (48%)
- Security Enhancements (45%)
- Open Source & Zowe (41%)
- DevOps & CI/CD (31%)
- Quantum-Safe Cryptography (23%)
- Observability & Cloud-Native Development (10-14%)
- Blockchain Integration (6%)

Currently, 39% have modernization tools in production, and 35% have implemented security enhancements like encryption and zero trust. AI/ML adoption is in early stages, with only 13% in production, while 32% are planning and 22% are testing. AI's impact on IBM Z is unclear—53% don't know, and opinions are split on whether workloads will move on (19%) or off (17%) IBM Z.

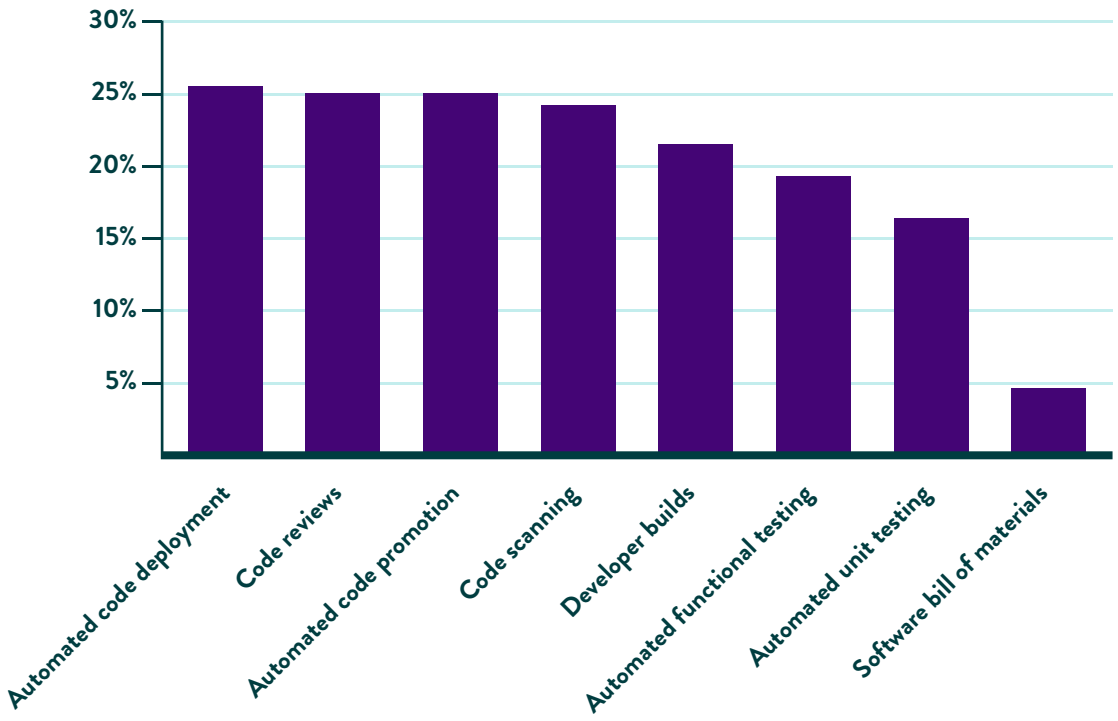
AI's IMPACT on IBM Z

Tendency to pull workload onto IBM Z	19%
Tendency to pull workload off IBM Z	17%
No plans to adopt AI	11%
Don't know	53%

DevOps on the Mainframe

DevOps is gaining traction but remains a work in progress. While code scanning (28%) and code reviews (27%) are adopted, only 25% classify their DevOps maturity as high. Automated testing and deployment are still developing, with unit testing (37%), functional testing (35%), and code deployment (27%) progressing slowly.

Notably, Software Bill of Materials (SBOM) adoption lags, with 63% having no plans, raising concerns about supply chain security.



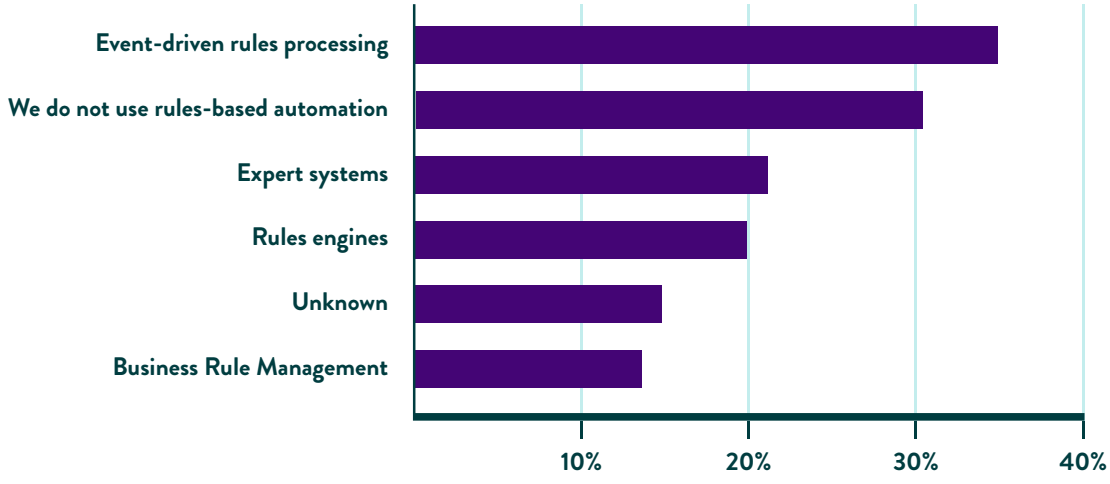
Rules-Based Automation & AI

Adoption of rules-based processing is uneven—Almost half (45%) don't use it or are unsure. Meanwhile 34% use event-driven rules, and 23% leverage expert systems, but advanced AI-driven automation (3%) remains rare. Policy-based management (15%) and rule engines (19%) indicate some movement toward structured automation.

As modernization and AI adoption grow, intelligent automation will likely streamline operations and strengthen compliance.

The Forrester Mainframe Developer Study highlights automation as the top priority for accelerating development, with AI-assisted coding and chatbot-based code explanation emerging but still in early adoption.

What are the main techniques your organization uses for rules-based automation on mainframe systems?



Security in the Mainframe Environment

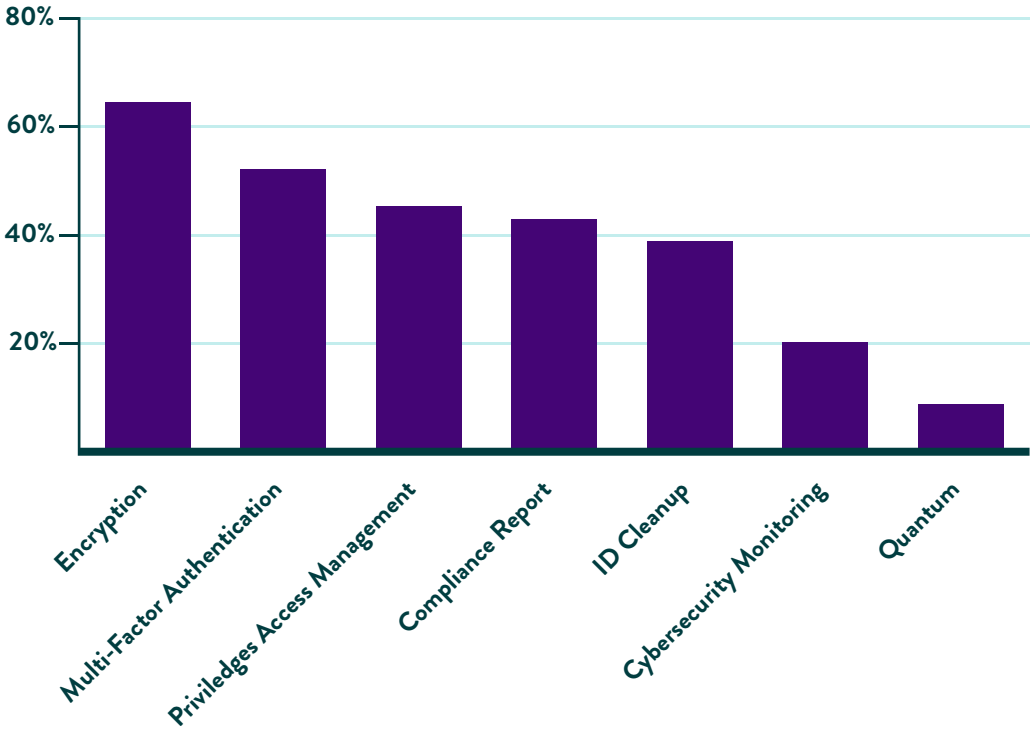
Despite the general belief that mainframes are highly secure, 53% of users express concern, though only 5% are "apprehensive." Evolving threats continue to drive security improvements.

Top 5 Respondent Risk Areas

- Data breaches
- Unplanned downtime on mainframe systems
- Ransomware attacks on mainframe systems
- Compromised Credentials
- Insider threats

Security and availability go hand in hand, as 53% also worry about downtime.

Which Mainframe Security Tools and Capabilities are you using?



However, gaps remain—21% report insufficient cybersecurity monitoring. Quantum-safe security adoption is low (7%), suggesting organizations are slow to adopt next-gen security measures.

Organizations must proactively strengthen mainframe security as cyber threats evolve and regulations tighten.

The "2024 Mainframe Market Pulse: Cybersecurity and Compliance Insights Study" found that government and financial services sectors, which heavily rely on mainframes, reported 4.7 times more security vulnerabilities (lacking proper controls) due to the integration of external technologies with the mainframe.

In the whitepaper, "Mainframe Cybersecurity and Compliance Demands Continuous Vigilance", we learn that 89% of middle managers found cyber security compliance somewhat (57%) to extremely (32%) challenging.

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Talent and Training

Organizations must upskill employees while attracting new talent to meet growing modernization needs. This year's survey highlights the most in-demand skills and strategies for workforce development.

The most in-demand mainframe skills are:

- System administration and performance tuning (62%) — critical for infrastructure management
- Advanced programming (55%) and mainframe basics (52%)
- Security skills (49%) — slightly lower, possibly due to reliance on external security teams

Organizations use multiple strategies, with internal training (77%) leading, followed by external training (46%), hiring (38%), and vendor partnerships (38%).

When it comes to practical training methods, online courses (55%) and in-house training programs (54%) lead the way, while vendor-led training (35%) and certifications (29%) play a secondary role.

Hiring remains active but measured.

- 50% plan to hire for mainframe roles in the next year; 20% within 1-2 years
- 23% have no hiring plans, 17% are uncertain
- Non-mainframe hiring is slightly lower (48% active, 34% uncertain)

The data emphasize the importance of internal upskilling, with organizations prioritizing flexible learning solutions and vendor collaborations to develop and retain mainframe talent.

Non-mainframe hiring

Hiring for non-mainframe IT roles is slightly lower, with 48% actively recruiting and 34% uncertain about future needs.

The data highlights the importance of upskilling mainframe teams. While hiring continues, internal development remains the priority, with organizations investing in training, online education, and vendor collaborations to build and retain talent.

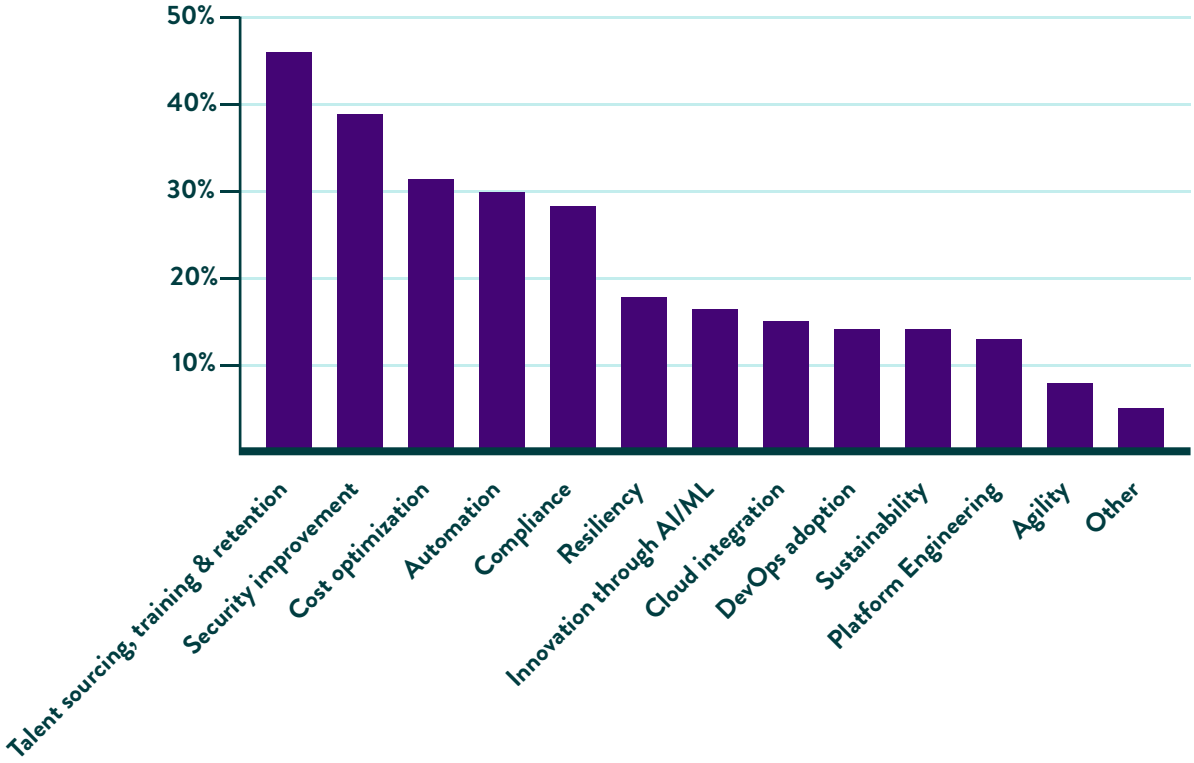
Priorities and Hurdles to Success

While organizations prioritize modernization, security, and talent retention, challenges like skills gaps, costs, and misconceptions hinder progress. Addressing these barriers is key to maximizing mainframe investments.

- Talent sourcing and retention (46%) are the top priorities, yet 62% cite a skills gap. Internal training, partnerships, and certifications are essential to closing this gap.
- Security (39%) remains a focus, but concerns over legacy vulnerabilities and insider threats persist. Organizations must modernize security postures and address misconceptions about mainframe resilience.
- Cost optimization (31%) is a key goal, yet 48% cite high maintenance costs. True savings come from better coding, resource optimization, and automation, not just cost-cutting.
- Automation (30%) and compliance (28%) are priorities, but integration challenges (18%) slow progress. Hybrid cloud strategies and DevOps adoption can improve agility.

Organizations must rethink how mainframes fit into enterprise strategy to meet modern IT objectives. Those that address skills gaps, improve cost efficiency, and strengthen security will be better positioned for long-term success.

What are your top 3 priorities for next year related to IT and mainframe?



Why Mainframe?

We also asked respondents to provide open-ended responses about the main benefits of the mainframe for their organizations. Here is a weighted breakdown of themes based on frequency:

- Reliability & Stability (50%) – The top-cited benefit, with 99.9% uptime and minimal outages. Many contrasted this with frequent cloud and distributed platform downtimes.
- Scalability & Performance (30%) – Mainframes excel in batch processing and high-speed transactions, handling large-scale workloads efficiently.
- Security (20%) – Strong encryption, centralized administration, and controlled access make mainframes more secure than other platforms.
- Cost-Effectiveness & TCO (10%) – Despite high initial costs, mainframes offer long-term efficiency, longevity, and lower per-transaction costs.
- Longevity & Proven Technology (10%) – With over 50 years of evolution, mainframes maintain consistent tools, processes, and skills, unlike constantly shifting distributed platforms.

Bonus Insights — Some respondents noted that mainframes are easier to manage than distributed environments, citing centralized administration and streamlined deployment examples. Others praised the mainframe ability to adapt to modern workloads while excelling in traditional transactions.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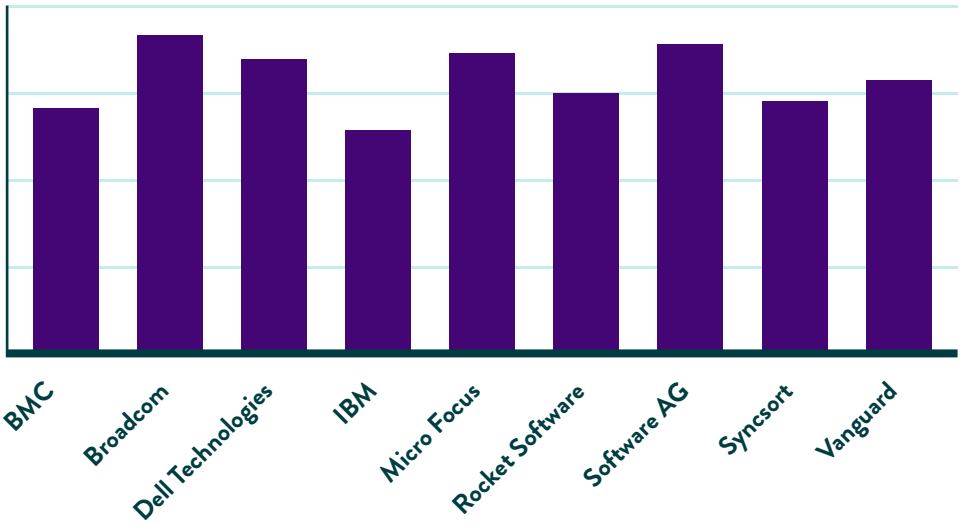
Vendor and Service Provider Engagement

A strong mainframe ecosystem depends on vendors and service providers for reliability, modernization, and efficiency. Satisfaction levels vary, with IBM leading among software vendors, followed by BMC, Broadcom, Rocket Software, and Syncsort.

On the services side, Kyndryl received the highest satisfaction, with Ensono and HCL also rated highly. However, many respondents indicated that external service providers are irrelevant to their operations, reflecting a preference for in-house management.

As modernization efforts expand, vendor partnerships will be critical in aligning mainframe operations with long-term IT goals. Organizations seeking modernization may benefit from highly rated vendors to drive value.

Which vendors are you currently engaged with for your mainframe operations?



Conclusion

This year's survey reaffirms a central truth: the mainframe remains indispensable in enterprise IT, even as organizations modernize and diversify. From high-reliability transaction processing to security, scalability, and cost-effectiveness, the mainframe continues outperforming other platforms. While hybrid cloud adoption and distributed systems expand, mainframe investments remain strong, with most organizations prioritizing modernization-in-place over large-scale migrations.

At the same time, organizations face critical challenges in ensuring long-term sustainability. Talent shortages persist, making internal training and vendor partnerships essential for skills development. Security concerns remain despite efforts to strengthen defenses with encryption, multi-factor authentication, and privileged access management, though gaps in cybersecurity monitoring highlight ongoing risks.

Automation and AI will likely play a more significant role, with organizations exploring rules-based processing, policy-driven automation, and intelligent workload management to boost efficiency and reduce costs. DevOps, AI, observability, and security enhancements will be pivotal in bridging legacy systems with modern architectures.

The thriving enterprises of the near future will embrace the mainframe as a foundation for innovation—leveraging its resilience, reliability, and scalability while integrating new models for agility and automation. As companies refine their hybrid IT strategies, one thing is clear: the mainframe isn't fading into the background—it's evolving alongside the future of enterprise computing.

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Activities: Software Vendor

Specialist Areas: System management (including performance management, capacity planning, job scheduling, output management), Asset and change management, Security

Platforms supported: z/OS

Software Pricing: Monthly/annual license charge, Processor/capacity-based pricing

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Phone: +41 41 748 62 66

Email: sales@actionsoftware.ch

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Hugo Prittie
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hugoprittie@actionsoftware.ch

Regions Served:
Europe / Middle East / Africa

adesso Transformer Deutschland GmbH

About:
adesso Transformer stands for economic and tailor-made application modernization of Mainframe Legacy Applications. The success of our approach is based on a hybrid modernization mix consisting of automatic code transformation, replacement by standard software, reengineering and replattforming. Our range of services includes consulting, conception and implementation of the best fitting migration and modernization strategy for the customer.

Product/Service Information:
We support your company in modernizing your legacy applications - from the first analysis to migration, implementation and maintenance. Together we select the best possible modernization option for your company. Our adesso Transformer Tool Suite enables us to transform your legacy applications fast and inexpensive into modern architectures and programming languages.

Activity: Systems integrator / VAR
Specialist areas: Web integration and legacy reengineering tools
Mainframe platforms supported: z/OS
Non-mainframe platforms: Linux
Software pricing options: Other

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Phone: +49 231 7000 7000
Email: office@adesso-transformer.com
Website: https://www.adesso.de/de/adesso-transformer/
Region: Europe / Middle East / Africa

Advanced Software Products Group Inc (ASPG)

About:
Headquartered in Naples, Florida, Advanced Software Products Group, Inc. has provided the IT community with cutting-edge software solutions, support, and services since 1986. With a worldwide network of support, including active roles as an IBM Partner in Development and Microsoft Certified Partner, ASPG remains a leader in the optimization of data center performance. ASPG offers innovative software solutions for Data Security, Storage Administration, Capacity Planning, System Productivity, and CICS Productivity. Data centers worldwide have made ASPG software solutions their products of choice.

Product/Service Information:

- Mainframe Data Encryption [MegaCryption]
- IDMS Data Encryption [MegaCryption IDMS]
- IMS Data Encryption [MegaCryption IMS]
- Password Reset & Synchronization [ReACT]
- RACF Administration & Reporting [ERQ]
- DB2 Encryption [MegaCryption DB2]
- Cryptography Management [CryptoZ]
- SMF Data Management [SMFUTIL]
- ICF Catalog Management [CIM]
- On-line CICS Help [Help/Key]
- RACF Auditing & Reporting [ERA]
- User Provisioning [ProACT]
- Offline Access Recovery [OAR].

Activity: Software vendor

Specialist areas: System management; storage management; security; other

Platforms supported: z/OS Software, IBM i, AIX, Other Unix. Linux, Windows, Other

Software pricing options: Monthly/annual license charge

Non-mainframe platforms supported: IBM i, AIX, Other Unix. Linux, Windows, Other

Pricing options: Monthly/annual license, other

Address: 3185 Horseshoe Drive, South Naples, FL 34104, USA

Phone: 239 649 1548 or (800) 662-6090

Email: aspgsales@aspg.com

Website: www.aspg.com

Sales Contact:
Jonathan Thompson
+1 800 662 6090
aspgsales@aspg.com

Regions Served:
USA / Canada / South America
Europe / Middle East / Africa
Asia Pacific

Applied Performance Technologies, Inc

About:
Applied Performance Technologies, Inc. is a 21st-century IT Capacity and Performance Management company offering solutions designed for busy, cost-conscious IT professionals who want maximum value and performance.

Product/Service Information:
PerfTechPro's zAnalytics® is a software solution to provide automated data collection, analysis, reporting and modeling. It is a Capacity Planning and Performance Measurement tool specifically designed for the cost conscious and savvy 21st Century data center. zAnalytics is the next evolution in Mainframe Capacity Planning tools.

Activity: Software vendor
Specialist areas: System management
Mainframe platforms supported: z/OS
Software pricing options: Monthly/annual license charge

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Email: info@perftechpro.com
Website: www.perftechpro.com
Region: USA / Canada / South America

Atos

About:
Atos is a global leader in digital transformation with 110,000 employees and annual revenue of c. € 11 billion. European number one in cybersecurity, cloud and high-performance computing, the Group provides tailored end-to-end solutions for all industries in 69 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos is a SE (Societas Europaea), listed on Euronext Paris.

The purpose of Atos is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

Activity: Outsourcing/mainframe hosting services
Specialist areas: System management, Data management, Storage management, Asset and change management, Security, Cloud/mainframe modernization
Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z
Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400, Power Systems, AIX, Other Unix, Linux, Windows, Cloud, Other

Software pricing options available: Monthly/annual license charge, Processor/capacity-based pricing, Workload/usage-based pricing, Other

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Region: USA / Canada / South America, Europe / Middle East / Africa, Asia Pacific

Baer Consulting, LLC

About:
Founded in 1982, Baer Consulting (BCL) is a Managed Solutions Provider of IBM Mainframe services and support. BCI (Baer Consulting Inc.) is now BCL (Baer Consulting LLC). We're excited to continue serving customers in the IBM Mainframe industry with exceptional service, reliability, and expertise as a part of IT Service Alliance (ITSA). Baer's expertise in end-to-end mainframe software support—from the operating system to middleware and databases—positions ITSA to play a pivotal role in supporting critical IT infrastructure for mid-market and enterprise customers.

Baer Consulting LLC provides Mainframe Managed Hosting, Mainframe Managed Services, Mainframe Outsourcing, and SME Technical Staffing

Activities: Outsourcing / Mainframe Hosting Services

Specialist Areas: System management (including performance management, capacity planning, job scheduling, and output management), Data management (including database performance and management), Storage management (including backup/recovery), Security, Network performance/ management, Cloud/mainframe modernization

Platforms Supported: z/OSVM/VSELinux on IBM Z; We're excited to continue serving customers in the IBM Mainframe industry with exceptional service, reliability, and expertise as a part of IT Service Alliance (ITSA). Baer's expertise in end-to-end mainframe software support—from the operating system to middleware and databases—positions ITSA to play a pivotal role in supporting critical IT infrastructure for mid-market and enterprise customers.

Software Pricing: One-time charge, Monthly/annual license charge, Processor/capacity-based pricing, Workload/usage-based pricing

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Website: www.baer-consulting.com

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Regions Served:
USA / Canada / South America

Black Hill Software

About:
Black Hill Software is based in Australia and has been developing and selling the EasySMF family of tools since 2010.

Product/Service Information:
The EasySMF tools simplify and modernize SMF processing. The original EasySMF Windows Software provides a suite of SMF reports designed to help Systems Programmers manage z/OS systems and investigate problems.

Several Java based tools are also available. EasySMF:JE provides Java classes to map SMF records for custom or ad-hoc reporting. SMF records and reports can be converted to JSON for further processing by other tools. EasySMF:RTI connects to the z/OS SMF Real Time Interface and allows real time SMF reporting using Java. EasySMF:Events connects to the SMF Real Time Interface and forwards event data from SMF to Splunk.

The Java reporting tools can run on z/OS using zIIP processors, or on other Java platforms.

Activity: Software vendor
Specialist areas: System management, Storage management, Cloud/mainframe modernization
Mainframe platforms supported: z/OS
Software pricing options: Monthly/annual license charge

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Region: Asia Pacific

BMC

About:
BMC helps customers run and reinvent their businesses with open, scalable and modular solutions to complex IT problems. BMC works with 86% of the Forbes Global 50 and partners around the world to create their future. Our history of innovation, industry-leading automation, operations and service management solutions combines with our unmatched flexibility to help organizations free up time and space to become an autonomous digital enterprise that conquers the opportunities ahead.

With BMC AMI, experience a transformation that not only automates but also simplifies mainframe management. Unlock the full potential of your mainframe by leveraging DevOps, AIOps, DataOps, and security. And by integrating generative AI, you can accelerate problem-solving and enhance decision-making. Automate workflows, ensure peak performance, and enhance agility with a dynamic, responsive, and future-ready platform designed for innovation and resilience.

Activities: Software Vendor

Specialist Areas: System management (including performance management, capacity planning, job scheduling, output management), Data management (including database performance and management), Storage management (including backup/recovery), Security, Programming/testing, Cloud/mainframe modernization,

Platforms supported: z/OSLinux on IBM Z; LinuxWindowsCloud

Software Pricing: Monthly/annual license charge, Processor/capacity-based pricing, Workload/usage-based pricing

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Phone: +1 855 834 7487

Website: https://www.bmc.com/

Regions Served:
USA / Canada / South America
Europe / Middle East / Africa
Asia Pacific

Broadcom Mainframe Software Division

About:
Broadcom Mainframe Software Division empowers enterprises to amplify the value of their Mainframe investments in ways that drive their business forward. Our market-leading DevOps, AIOps & Automation, Cybersecurity & Compliance, Data Management, and Foundational & Open Software solutions enable clients to adopt common tools using industry standards and integrate mainframe as part of their hybrid cloud. Our commitment to partnership extends beyond software, where we invest to deliver ever-greater value and capabilities, to Beyond Code programs that give customers the power to achieve greater business success with the platform.

Broadcom continuously invests in people, skills, and technologies to deliver continuous value to customers. Through the Beyond Code initiative, Broadcom partners with customers to ensure greater overall success is obtained from their mainframe investments. This approach includes programs that strengthen workforce resiliency, optimize operations, and drive better business outcomes through a wide range of no-cost programs tailored to support customers where and when they need it most—including flexible licensing, no-fee rationalization, expert knowledge sharing, white-glove support for critical change events, and more.

Operational Analytics & Management: Combine big data, machine learning and AI with mainframe expertise to deliver meaningful and actionable insights to augment and automate day-to-day operations and deliver exceptional customer experiences.

Automation: Reduce manual effort by enabling customers to proactively optimize resources and orchestrate automation across enterprise applications and systems.

Databases & Database Management: Store, organize, and manage mainframe data to ensure optimal performance, efficient administration, and reliability of critical systems.

Application Development & Testing: Attract the next generation of developers by offering a contemporary hybrid experience built on VS Code, Git, and CI/CD automation. Our open-first approach enables in-place modernization combined with adoption flexibility.

Cybersecurity and Compliance: Mainframes hold the most valuable information in the world, making them a lucrative target for everything from insider attacks to data theft. Ensure your strategy minimizes the risk and delivers the compliance you need for your most vital enterprise data and infrastructure. Manage and elevate mainframe access with modern practices such as multi-factor authentication and managing access for privileged users. Protect sensitive mainframe data to ensure compliance, continuously monitor for risk and proactively respond to bad actors.

Security Insights Platform: Ensure a trusted environment for customers and their employees by quickly interpreting and assessing mainframe security posture and developing remediation steps.*Security Insights Platform*: Ensure a trusted environment for customers and their employees by quickly interpreting and assessing mainframe security posture and developing remediation steps.

Activity: Software vendor

Specialist areas: System management; data management; stoSystem management; data management; storage management; cybersecurity and compliance; AIOps & Automation; DevX & DevOps; open mainframe and open source solutions; asset and change management; programming/testing; network performance/management

Mainframe platforms supported: z/OS, VM/VSE

Non-mainframe platforms supported: IBM i, AIX, Unix, Linux, Windows

Pricing options: Monthly/annual license, processor/capacity-based, workload/usage based, other

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Web: mainframe.broadcom.com/

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EMEA: +49 6085 98713-21
AsiaPac: + 86-10-8477 6300

Bsecure - The Mainframe & Security Company

About:
Bsecure—The Mainframe & Security Company consultancy specializes in audit and security compliance in large business environments based on IBM z/OS mainframe infrastructures. It offers its Professional Solutions and Services in Spain, Portugal, and other European Community countries, as well as in Mexico, Peru, Ecuador, Argentina, Brazil, Chile, Uruguay, and Colombia.

Bsecure distributes DataPASS. A unique, worldwide service that continuously improves Compliance, Audit, and security in z/OS environments to comply in less than one month with the new European Union directives DORA and NIS2 for any Financial Institution! We are experts in ethical intrusion in Mainframe environments. The only company worldwide with an online training course to learn how to hack mainframes and how to avoid it.

Activity: Audit & Security services provider for Mainframe Infrastructure

Specialist areas: Security, Cloud/mainframe modernization

Mainframe platforms supported: z/OS

Software pricing options: Monthly/annual license charge

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Phone: +34910053089

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Website: www.go2bsecure.com

Sales Contact:
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angel.gomez@go2bsecure.com

Regions Served:
Europe / Middle East / Africa

Can Do Systems, Inc.

About:
Can Do Systems develops top-notch software products for IBM's z/OS operating system. The first Y2K software testing solution in the world, TICTOC, our date and time simulation product, was developed by Can Do back in 1992.

Can Do Systems' staff consists of people who have been in the z/OS, and MVS systems software development field for a combined total of more than fifty years. We've kept up with the times, though, and are committed to using the latest technologies to provide our customers with products that support the latest z/OS hardware and software."

Product/Service Information:
TICTOC for z/OS® and CICS® is date and time simulation software for IBM Z™. It helps software development teams ensure that their software performs as intended with virtual date and time testing. It may also be used to simulate multiple time zones and to trigger date and time sensitive applications in both test and production program environments. TICTOC's date and time simulation supports numerous IBM and vendor products, including DB2, LE, IMS, and many other software products.

Activity: Software vendor
Specialist areas: Programming/testing, Other
Mainframe platforms supported: z/OS
Software pricing option: One-time charge, Monthly/annual license charge, Other

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Phone: +1 646 340 9144
Email: sales@candosys.com
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Regions: USA / Canada / South America, Europe / Middle East / Africa, Asia Pacific

Cartagena Software Limited

About:
Founded in 1991, Cartagena Software develops and delivers targetted solutions to reduce risk and exploit new technologies, which are easy-to-use, flexible, and efficient. We continue the legacy of experience in storage (StorageTek), automation (Cybermation), and security (Rubin services). Cartagena is a member of IBM PartnerWorld, exhibits at SHARE, and participates in IBM's z Systems Technical Disclosure Meetings. We are partners with EMC, Fujitsu, IBM, and Oracle.

Service partners include Kofill (Asia), 4Bears and StorageD (Brazil), GlassHouse Systems and Eclipsys Solutions (Canada), Rubin (Germany), SoftPlex (Japan), Trident Services (USA).

Our head office is in the Greater Toronto Area, Canada.

Product/Service Information:
zTrustfer Cloud storage file transfer: Reduce storage costs with our new zTrustfer server running on z/OS, providing hardware-independent backup and restore using Cloud object storage. Interfaces include built-in web-server, and batch client. Backups are compressed and encrypted, and tracked using built-in SQL database management system or external MySQL. zTrustfer authenticates users and protects cloud credentials via SAF/RACF and secure certificates, not passwords. The server is multi-threaded, exploits zIIP, and provides graphical reports.

Prevent file damage with Immutable copies. Contact us for evolving capabilities!

Activity: Software vendor
Specialist areas: System management, Storage management, Security
Mainframe platforms supported: z/OS
Software pricing option: One-time charge Monthly/annual license charge Processor/capacity-based pricing

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CPT Global

About:
CPT Global is an independent IT consulting firm with a strong focus on mainframe and emerging technologies. For over 30 years, the company has helped 80% of the world's largest banks and many other Fortune 500 companies maximize their IT investments and enhance their mainframe capabilities.

Our consulting services span three main areas: Modernization, Optimization, and Assurance.

For enterprises that depend on mainframes, CPT Global leverages its specialist team to identify undiscovered savings, risks, and opportunities in our clients' mainframe technology to deliver a more cost-efficient, better-performing mainframe.

Product/Service Information:
CPT Global stands out from the competition through our tailored services and extensive expertise in Mainframe Modernization and Performance Tuning & Engineering.

For Mainframe Modernization, we offer a wide array of services. These include strategic advice, DevOps for mainframes, rationalizing licenses, upgrading legacy COBOL, migrating to the cloud, switching to alternative technologies, and providing off-mainframe testing environments. We focus on solving client challenges like increased digital transactions, resilience risks, and diminishing mainframe specialists.

What sets us apart is our global experience and strong partnerships with industry leaders. We've successfully served various industries worldwide, using our partnerships to deliver the best solutions to our clients.

In Performance Tuning & Engineering, we work to ensure systems perform at their best. We identify and fix system inefficiencies, make improvements, and monitor performance to ensure optimal operation.

We don't believe in one-size-fits-all solutions. Instead, we tailor our services to each client's specific needs. This personalized approach, combined with our deep mainframe knowledge, distinguishes us in the market.

Activity: Consultant
Specialist areas: System management, Data management, Storage management, Programming/testing, Cloud/mainframe modernization
Mainframe platforms supported: z/OS, Linux on IBM Z
Non-mainframe platforms: Power Systems, IBM i, i5/OS, and OS/400, Power Systems, AIX, Other Unix, Linux, Windows, Cloud
Software pricing options: One-time charge, Monthly/annual license charge, Other

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Website: https://cptglobal.com/
Region: Asia Pacific

CSE

About:
Through the excellence of its range of services and with its role as aggregator and facilitator, CSE allows Client Banks to govern change and align themselves with the inevitable and competitive dynamics of transformation, both process and market.

Operational efficiency, flexibility and investments in resources, technology and research represent the reference principles of the CSE philosophy.

Specialist areas: System management, Storage management, Asset and change management, Security
Mainframe platforms supported: z/OS
Non-mainframe platforms: Linux, Windows
Software pricing options : Processor/capacity-based pricing

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Email: massimiliano.guerra75@gmail.com
Region: Europe / Middle East / Africa

DataKinetics

About:
As the global leader in Mainframe Performance and Optimization Solutions, DataKinetics is relied upon by the world's largest banks, credit card, brokerage, insurance, healthcare, retail and telecommunication organizations to dramatically improve their mainframe data throughput and processing. Fortune 500 companies trust DataKinetics. With over 45 years of experience in the field of Mainframe Performance and Optimization, we continually help our clients leverage existing systems, resolving issues through optimization that hold them back, and enabling plans to propel them forward. Leveraging the experience and success of working with our global clients, we deliver proven solutions with worldwide success.

We continue to work with:

- • 3 of the top 5 global banks
- • 3 of the top 5 global credit card companies
- • 3 of the top 5 American property and casualty insurance companies
- • 2 of the top 5 American health insurance companies

Product/service information

This is pure high-performance in-memory technology for mainframes that can solve batch processing, throughput capacity, mobile traffic, resource usage, rules processing and other challenges IT organizations face in their mainframe datacenters. tableBASE accelerates Db2 applications, improves mainframe application performance, makes Db2 data more accessible, reduces CPU and MSU usage, and helps to reduce operational expense. All this without the need to make changes to your Db2 database or your application logic. Preparing for IBM's Tailored Fit Pricing (TFP): TFP brings cost certainty to mainframe shops interested in controlling their yearly mainframe spend. By first lowering your R4HA usage baseline with tableBASE, you can get the most out of TFP. Using tableBASE will lower the resource usage baseline—allowing you to benefit more from future growth pricing (which comes at a sharply reduced rate; much lower than your committed MSU rate). Combining tableBASE and TFP is a sure-fire way to control costs, and to find more capacity for your growing workloads.

Activity: Software vendor.

Specialist areas: Data management

Mainframe platforms supported: z/OS, VM/VSE, Linux

Non-mainframe platforms supported: Linux, Windows,

Pricing options: One-time charge; monthly/annual license; processor/capacity-based

Phone: 613-523-5500

Email: info@dkl.com

Web: https://dkl.com

Sales contacts:
America +1-800-267-0730

DINO-Software Corporation

About:
Dino-Software Corporation (DINO) develops enterprise-wide solutions for the management, analysis, protection, and repair of complex z/OS mainframe environments. DINO has long been acknowledged for its superiority in ICF catalog management and technical support, helping organizations ensure their business-critical assets remain online and recoverable in a disaster. Their flagship product, T-REX, incorporates over two decades of experience gained from the original Softworks® developers who devised the Mechanic® and later Catalog Solution®, and it rapidly became the fastest-selling ICF catalog management and recovery tool ever released. This formula of producing superior products, at a reasonable cost, all backed up by first-class support from industry experts, has allowed DINO to enjoy unprecedented growth and rapidly establish DINO technology as the gold standard in enterprise-wide z/OS management solutions.

Activity: Software vendor
Specialist areas: System management; data management; storage management; other
Mainframe platforms supported: z/OS
Non-mainframe platforms: Windows
Software pricing options : Monthly/annual license, processor/ capacity-based, other

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Phone: +1 703 768 2610
Email: sales@dino-software.com
Website: https://dino-software.com

Product/service information:
T-REX is the fastest and most comprehensive ICF catalog management product available to analyze, diagnose, report, backup, repair, reorganize, recover, and assist with the overall maintenance and ensure continuous operational capabilities of the ICF catalog environment. T-REX prevents downtime, improves throughput, automates recovery & repair in record speed, REORGs catalogs while OPEN, and pays for itself with just one broken object. GUI optionally available.

Universal Data Manager (UDM) is a z/OS-based solution providing a consolidated global view via a GUI of the Enterprise storage environment, extending Automation, Auditing, Monitoring, Reporting and Control Functions of data and related storage objects with a mouse click. No distributed servers required. Simple and superior alternative to legacy tools such as CA Vantage, IBM Omegamon, BMC Mainview.

TERADON delivers Fast REPRO Mergecat for closed or open Datasets.

VELOCI-Raptor (VR) reduces application overhead by continuously and dynamically optimizing the VSAM batch buffering strategy, eliminating redundant requests and increasing throughput.

HSM Adminisaurus (HSA) is a consolidated management tool providing extensive reporting, fast & comprehensive auditing, in-depth processing analysis, and simplified administrative functions to help establish and maintain a healthy HSM environment.

XTINCT provides permanent DASD and Tape data erasure and meets federal and international regulatory requirements.

Realtime Defrag—24x7 nondisruptive DASD optimization for zOS & Db2—Defrag, Combine, Release without downtime.

Direct Computer Resources

About:
During a period where more people than ever are working from home, Direct Computer Resources' mainframe software products allow you to mask, edit, and manage your data safely, efficiently and affordably. DataVantage software products create production-like data for non-production uses such as DevOps, testing, analyses, and more. Data Masking functionality protects sensitive information enabling compliance with corporate policies and government regulations including GDPR, HIPAA, and CCPA (among others) while reducing the risks of data breaches.

Activity: Software vendor
Specialist areas: Data management, Security
Mainframe platforms supported: z/OS
Software pricing options available: Monthly/annual license charge, Processor/capacity-based pricing

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Phone: 1 877-704-0077
Email: wvitiello@datavantage.com
Website: www.datavantage.com
Region: USA / Canada / South America

Product/Service Information:

- DataVantage® for Db2 for z/OS & DataVantage® for IMS DataVantage® software for z/OS provides data management capabilities including browsing, editing and copying. Data masking functionality creates productionlike data for non-production uses such as DevOps, training, testing, and more, while enabling compliance with corporate policies and government privacy regulations.

  Features:
  Data Masking masking protects sensitive information
  Logical compare highlights differences between two database tables
  Creates smaller test databases that reflect production conditions to explore multiple logic paths
  Provides easy before-and-after testing reports for internal audits
  Multiple reloads enable customization of test databases
  DataVantage for IMS 5.1 users get free upgrade to 7.2 with support

- DataVantage® Data Masking Express™ is an affordable z/OS data masking-only software that creates production-like data for nonproduction uses, enabling compliance with corporate policies and government regulations. It runs alongside current data management software, and installs as an application program in less than four hours. A single installation can mask any one or all combinations of z/OS data such as Db2 or IMS, or Db2 plus IMS, VSAM, and Sequential files. Competitively-priced subscriptions are CPU-based regardless of processing capacity.

  Features:
  Buy only data masking
  Affordable annual subscription with no upgrade fees
  Multiple data masking methods

DTS Software

About:
DTS Software is recognized worldwide as the leader in enterprise storage management software. Our integrated suite of software products helps our customers to monitor, manage, and control their storage subsystems. We specialize in storage software tools and solutions developed for the IBM z/OS, Hitachi VOS3, and Fujitsu MSP operating systems.

DTS Software provides superior function and features that allow managers and users to more effectively utilize their investment in storage systems. Our software is designed to solve many of the problems encountered by storage administrators and operations staff – allowing a limited number of administrators to manage a rapidly expanding storage environment. DTS Software was founded in 1991, is headquartered in Raleigh, North Carolina, and has more than a thousand customers in the US, Canada, Europe, and Asia.

Product/Service Information:
STORAGE is one of the fastest-growing items in most installations' budgets, yet a large percentage of this critical resource is often wasted. Inadequate standards enforcement, poor JCL practices, and system limitations often result in misdirected data and underutilized resources.

DTS Software's STORAGE CONTROL CENTER family of products is an integrated suite of storage management programs that allows users to get the most out of their storage dollars. The Storage Control Center products improve disk space utilization, prevent storage-related errors, allow installations to monitor the storage subsystem in real time, and proactively control the use of storage space.

Complete and total satisfaction is of paramount importance to us. All our efforts at DTS Software are driven by attentiveness to customer needs and responsiveness to the demands of the market. DTS Software is committed to providing products that will let you effectively and reliably manage your storage subsystem, now and well into the future.

Activity: Software vendor
Specialist areas: Storage management
Mainframe platforms supported: z/OS
Software pricing options: Monthly/annual license charge

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Website: https://www.dtssoftware.com/

Enterprise Systems Associates, Inc. (ESAi)

About:
Enterprise Systems Associates Inc. (ESAi) has tools for database productivity, enterprise-wide test data management, data masking, performance, audit and security for mainframe and distributed systems. Our mission is to help IT get the job done, efficiently, on-time and under budget. Thus maintaining service-level agreements and realizing operational savings. Qualified database and IT staff resources are in short supply, and workloads are increasing. Our innovative solutions help you meet challenges through automation optimizing workloads, and reducing cost, machine and staff efforts. We distribute for European authors including SPR, UBSHainer,GmbH. Contact us to learn about these quality solutions.

Product/Service Information:
DBARS™ access recording services for Db2® can record all accesses to the sensitive Db2 tables selected - read, write and data definition. The product provides database audit and protection (DAP) and database activity monitoring (DAM) in one solution. DBARS unique intercept technology does not depend on Db2 tracing or log records. Efficient, flexible recording and auditing is now possible with optional alerting and blocking to protect against corporate data breaches.

XDM™ is an enterprise-wide Test Data Management (TDM) tool that enables staff to find and order the data that fits their needs, manage data across different environments and automatically deliver data where it's needed. This comprehensive TDM solution facilitates data refresh, PII data masking/encryption, cloning and highly efficient data provisioning. It supports Db2 LUW, Oracle, MS-SQL, PostgreSQL, Db2 z/OS, VSAM, IMS, Cloud, DevOps and more. The XDM suite enables developers, DBAs, test/QA and general IT staff to tackle daily challenges with flexible, repeatable, error-free processes.

BCV5™ is a high speed copy/migrate/clone tool that automates copies/refreshes of Db2 z/OS® objects and environments. This highly regarded product delivers source to target refreshes in a fraction of the effort, time and CPU required by other solutions. The Masking Tool™ option adds powerful masking of sensitive data during the copy or simply mask in-place Get fast, repeatable, error free migrations and refreshes with BCV5.

BCV4™ is a leading Db2® and/or IMS® subsystem cloning tool that reduces cloning from hours/days down to minutes. Db2, SAP and PeopleSoft users can have clones and system copies in record time.

BPA4DB2™ is a buffer pool tuning product that replaces old, dated vendor solutions with a new level of expert analysis. It identifies, recommends, and performs ongoing monitoring and health alerts to ensure optimum performance of your Db2 systems. BPA4DB2 saves on staff tuning efforts and transferring volumes of trace data required by other solutions.

SQLQC™ easily identifies, analyzes and provides automated alerts on problem SQL from mainframe or distributed systems. It offers actions for improvements, simulation and overall performance advise. SQLQC's quality control technology helps shops with increasingly complex workloads maintain performance and service levels.

ULT4DB2™ is a log tracker/analyzer for Db2 answers the question "Why is a good, reasonably priced log analyzer so hard to find?" Functions include Undo/Redo, identify, and data propagate. A faster, better, more economical alternative.

ICPU™ gives programmers the ability to easily identify code causing CICS® application performance problems. Its very low overhead allows use in production or test environments.

Activity: Software vendor, distributor
Specialist areas: System performance, test data management, sensitive data masking, database auditing and protection as well as automated Db2 cloning and data provisioning
Mainframe platforms supported: z/OS, VM/VSE, Linux on Z
Non-mainframe platforms: Unix, Linux, Windows, Cloud
Pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage based

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Email: sales@esaigroup.com
Website: www.ESAIGroup.com

Enterprise Performance Strategies, Inc.

About:
Enterprise Performance Strategies, Inc. (EPS) has assisted hundreds of installations with their z/OS performance needs. Our services include z/OS performance education, consulting services, and our premier z/OS SMF performance reporting software; Pivotor®, created by Peter Enrico and Scott Chapman, who are well-known in the industry for their performance expertise. We specialize in extending our extensive knowledge to ensure that your workloads meet their performance objectives while resource usage is optimized. We also work to ensure your mainframe environment runs as efficiently as possible. Education is a pillar of our organization, so not only do we look forward to sharing our knowledge with other mainframers, but we have also embedded actual intelligence in our product. Our mission is to help organizations attain optimal mainframe performance.

Pivotor® z/OS Performance Reporting — In contrast to other z/OS reporting products, Pivotor® features built-in expert knowledge and actual intelligence to help optimize your environment.

Supported Analysis Areas:

- Workload Analysis
  - CICS, DB2, IMS, IDMS, MQ, WebSphere
  - Batch, File I/O
  - TCP/IP, zERT, z/OS Connect
- Resource Analysis
  - Processor, disk, storage
- MSUs Analysis
  - MLC R4HA, TFP
- Transient Analysis for high frequency data
- Much more

Some of Pivotor's intelligence features:

- Regular access to performance experts
- State-the-Art Outlier analysis
- Exception analysis
- Playlist analysis
- Long-term analysis with dynamic data aggregation
- Enhanced long/short-term reporting
- Custom reporting
- Drill down
- Dashboards

z/OS Performance Health Check® War Rooms — For insightful, cost-effective analysis that digs deep into the performance of your mainframe environments, this unique offering has greatly benefited dozens of clients.

z/OS Performance Workshops —Interactive performance workshops featuring topics such as general z/OS, WLM, CP, tuning, Parallel Sysplex, and much more. During the workshops, students work with their own data. Workshops are not just learning, but also a productive analysis of your environment.

z/OS Performance Webinars —EPS regularly hosts a series of free bi-weekly performance webinars, followed by a Q&A, that cover a wide range of z/OS performance and capacity planning topics. Webinars available for download.

Activity: Software vendor

Specialist areas:: System management (including performance management, capacity planning, job scheduling, output management)

Mainframe platforms suported: z/OS, VM/VSE

Software pricing options: Monthly/annual license charge

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Phone: +1 813 435 2297

Email: contact@epstrategies.com

Website: https://www.pivotor.com/

Sales Contact:
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Regions Served:
USA / Canada / South America
Europe / Middle East / Africa
Asia Pacific

Fischer International Corporation

About:
For more than 40 years, Fischer's vision for software development has been to provide innovative solutions designed to leverage and enhance the mainframe's place in the enterprise. Accelerate time to productivity with Fischer solutions for the mainframe. Interactive Output Facility (IOF), provides value with a strategic diagnostic ability and bottom-line problem resolution. Additionally, Fischer's strategic partnership with LogOn provides maintenance and support for various IBM products including QuickSelect for Db2 and Netview FTP.

Better IOF JES2 Management tools, better function.

Complete JES2 Management with a powerful toolset: IOF includes the ultimate job summary screen with online help on each display panel for easy access to better function. IOFSend, a popular tool, delivers batch job information in HTML form directly to a designated and authorized email. IOF training includes a functionality site available to access IOF tips and tricks with training videos. Very functional and user friendly, use commands from other JES2 management products to start using IOF with a minimal learning curve. IOF is the user's choice for JES2 management in many Fortune 500 data centers. Visit: www.FISC.com and click on the IOF button.

Through a partnership with LogOn Software, Fischer offers QuickSelect for Db2 for plug and play performance gains, no JCL or Db2 changes required. Minimize static SQL: Email: information@fischerinternational.com to learn of all the IBM products maintained and supported through our partnership.

Enterprise Software:

The principles of Zero Trust are the foundation for Fischer's full suite identity solution. When you can control all aspects of identity, you will have a more secure business. We offer automated provisioning, identity governance, password management, and access management. Request a demo at www.FischerIdentity.co

Activities: Software Vendor

Specialist Areas: System management; data management; storage management; security; other Mainframe platforms supported: z/OS, VM/VSE

Mainframe platforms supported: z/OSVM/VSE

Non-mainframe platforms supported: Windows

Software Pricing: One-time charge, monthly/annual license, other

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Email: Information@FischerInternational.com

Website: www.FISC.com

Regions Served:
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Europe / Middle East / Africa
Asia Pacific

Fujitsu Germany GmbH

About:
Fujitsu in Germany, Austria and Switzerland

Fujitsu is a leading full-service information and telecommunications provider that supports its customers in all aspects of digital transformation. The company combines IT services and products with future-oriented digital technologies - such as artificial intelligence (AI), the Internet of Things (IoT), Analytics, Digital Annealing, Container Technology as well as Multicloud-, SAP-, ServiceNow- and Security-Solutions - and creates new values together with its customers and partners. The range of products and services can be tailored to individual needs - from conception to implementation, operation, and orchestration of digital ecosystems. In Germany, Austria and Switzerland, Fujitsu has more than 4,000 employees and has with over 10,000 channel partners in these three countries one of the most powerful partner networks in the industry.

Product/Service Information:
The BS2000 SE Infrastructure combines standard mainframe technology with the technology of the open world. This makes the SE Series the optimal platform for running business-critical applications both on /390 and x86 technology. Customers can select the ideal platform for each application and will thus get the most out of their mainframe investments. With its comprehensive set of functions, the BS2000 mainframe operating system provides the best possible support for existing and new IT infrastructures, enabling the integration of latest technologies, as e.g. Cloud Computing, AI, Edge Computing, Blockchain and DCMA. With its open interfaces it offers future-proof integration into modern application architectures. The extensive scalability of the BS2000 platform reaches into the very highest performance bands. BS2000 services offer uncompromising availability and operational security for BS2000 systems with utmost profitability and cost transparency. Your IT infrastructure is designed more efficiently and becomes more sustainable for the future as we design and implement intelligent solutions in partnership with you. Fujitsu's Third-Party Mainframe Services is specialized in providing a Mainframe Managed Service offering positioned around the support of IBM Enterprise z and i platforms to customers across North West Europe and North America. We are a key provider in the provision of Third-Party IBM Mainframe Managed Services and provide end-to end PaaS, in addition to tailored mainframe professional services designed around client TCO improvements.

We support customer requests for digital transformation!

Activity: Hardware vendor
Specialist areas: System management, Data management, Storage management, Asset and change management, Security, Web integration and legacy reengineering tools, Network performance/ management, Cloud/mainframe modernization, Other
Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z
Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400, Power Systems, AIX
Software pricing options: One-time charge, Monthly/ annual license charge, Processor/capacity-based pricing, Workload/usage-based pricing

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Region: Europe / Middle East / Africa

Franklin Skills

About:
We partner with workforce boards, funding partners, technology associations and training partners committed to developing exceptional talent and closing business critical skills gaps.

Franklin Skills connects employers with top tech talent through coaching, reskilling, upskilling, and apprenticeships. From IBMz Application Developers to Mainframe Administrators, our programs boast a 95% success rate and a 90+ Net Promoter Score from partners. Build your workforce with proven results.

Specialist Areas: Technical Training, Apprenticeships, Reskilling and Upskilling

Mainframe platforms supported: z/OSVM/VSELinux on IBM Z

Non-mainframe platforms supported: LinuxWindowsCloud

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Website: www.franklinskills.com

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Regions Served:
USA / Canada / South America
Europe / Middle East / Africa
Asia Pacific

IBA Group

About:
At IBA Group, we're revolutionizing mainframe development by seamlessly integrating DevOps and open-source technologies, including Zowe. With a robust partnership with IBM since 1993 and a dedicated team of over 250 experts, we specialize in delivering future-proof solutions compatible with modern IDEs. Our services encompass end-to-end application development, support, and cutting-edge Mainframe DevOps solutions, leveraging a comprehensive tech stack featuring Jenkins, Git, Docker, and the Zowe ecosystem. This approach not only enhances efficiency and agility but also accelerates the delivery of high-quality software solutions. Embracing these innovations, IBA Group is committed to maximizing the potential of mainframes, empowering teams, and shaping the future of mainframe development. Discover more at ibagroupit.com/services/mainframe.

Information Systems Asset Management, Inc.

About:
Founded in 1996, ISAM specializes in helping procurement, vendor management, and data center managers manage software expenses and license compliance risk. ISAM's GreenBook is the software industry's largest and most comprehensive database which contains more than 100 million software cost, product usage and categorization data points from over 900 software vendors across 1,000 data centers worldwide.

Armed with the knowledge of industry software benchmarks, GreenBook provides the backbone for numerous applications to guide data centers to best in class software licensing and costs.

Product/Service Information:
Mainframe Advisory, SAM Advisory, SAM Maturity, Compliance Mgmt, Audit Defense, Benchmark, Negotiation Support, License Optimization, ISAMaaS.

Activity: Consultant
Specialist areas: Asset and change management, Cloud/mainframe modernization, Advisory services around all aspects of Software Asset Management

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Region: USA / Canada / South America

Interskill Learning

About:
Interskill is the mainframe industry's most delivered, most awarded, most IBM credentialed mainframe training! Interskill works closely with IBM, Broadcom, BMC and the industry's leading vendors to ensure our massive mainframe training resource covers the broad range of topics needed by the modern mainframe workforce. Interskill's mainframe training is so widely used that over 80% of all IBM digital credentials awarded globally for mainframe training are powered by Interskill training!

Product/Service Information:
Interskill's massive, mainframe training resource of over 400 online courses, videos, assessments, hands-on labs, coaching/mentoring tools, reporting and analytics, forms the low-cost, year-round, on-demand core of mainframe workforce training programs worldwide! IBM digital badges benchmark mainframe skills and drive mainframe personnel to seek and complete more training, delivering superior training ROI and optimal mainframe skills across all mainframe job roles! This is how the mainframe industry trains!

Activity: Education/research
Specialist areas: System management, Data management, Storage management, Asset and change management, Security, Programming/testing, Network performance/management, Cloud/mainframe modernization
Mainframe platforms supported: z/OS, VM/VSE, Linux on IBM Z
Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400, Power Systems, AIX, Other Unix, Linux
Software pricing options: Monthly/annual license charge

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Macro 4 Limited

About:
With over fifty years' experience in mainframe software development, Macro 4 helps IBM mainframe users to:

- Deliver fast, seamless and secure web and mobile access to mainframe and non-mainframe applications
- Analyse and fix failures in mission-critical applications, quickly and efficiently
- Develop software troubleshoot problems and resolve program errors with unprecedented speed
- Create a secure testing and debugging environment using accurate test data
- Measure and report on application performance, quickly identifying opportunities for performance improvement
- Assure printing and digital delivery of business documents to support key business processes

Product/Service Information:
Macro 4 is a developer of software solutions that increase operational efficiency in IBM's mainframe environments and enable rapid modernization of mainframe applications and development processes. Today, these solutions are delivering significant cost savings as well as assuring the reliability of core applications in thousands of IT departments globally. Eclipse, browser and 3270 interfaces meet the access needs of every user.

Activity: Software vendor
Specialist areas: System management, Data management, Asset and change management, Security, Programming/testing, Web integration and legacy reengineering tools, Cloud/mainframe modernization, Open-first DevOps
Mainframe platforms supported: z/OS, VM/VSE
Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400, Power Systems, AIX, Other Unix, Linux, Windows, Cloud
Software pricing options available: One-time charge, Monthly/annual license charge, Processor/capacity-based pricing, Workload/usage-based pricing

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Email: market@macro4.com
Website: www.macro4.com
Region: Europe / Middle East / Africa

Max Training ApS

About:
Skills and competencies are two of the biggest challenges Mainframe customers face, but based on experience, it doesn't need to be like that. Imagine if you could focus on business and growth. We created a modular solution for companies committed to solving their Skills and Competency Challenges. The solution's value lies in its results (reaching a specific goal within a specific time).

- Skills and Risk Management: Get insight into the past and current skills of Mainframers in the organization. Understand needs, redundancies, and gaps within your teams, departments, and the organization.

- Education: standard and customer courses. Remote-online or on-site. - Workshops: cover specific topics that are either customer specific or not covered by any course.

- Academies: to prepare a person or team for a specific role. Core z/OS (7 weeks); SysOp; SsProg (8 to 30+ weeks; Developer (Cobol, PL/1, Test Driven Development)

Activities: Skills, Education, Training, Academies, Risk Management

Specialist Areas: System management (including performance management, capacity planning, job scheduling, output management), Data management (including database performance and management), Storage management (including backup/recovery), Asset and change management, Security, Programming/testing, Web integration and legacy reengineering tools, Network performance/management, Cloud/mainframe modernization,

Mainframe platforms supported: z/OSVM/VSELinux on IBM Z

Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400Power Systems, AIXOther UnixLinuxCloud

Software Pricing: Case Specific

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Regions Served:
USA / Canada / South America
Europe / Middle East / Africa
Asia Pacific

MQGem Software Limited

About:
MQGem Software is a small company producing affordable tools to support users of IBM MQ on all platforms including z/OS. Our tools help you to administer and monitor your queue managers, and manipulate messages on your queues.

To help you administer and monitor your queue managers, we offer our GUI Admin tool, MO71, our command line admin tool, MQSCX which can be run natively on z/OS and our event processor, MQEV which also can be run natively on z/OS. For message manipulation, we offer the Q and QLOAD tools which can run natively on z/OS and the GUI MQEdit utility which can connect to z/OS.

Activities: Software Vendor

Specialist Areas: System management (including performance management, capacity planning, job scheduling, output management)

Mainframe platforms supported: z/OS

Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400Power Systems, AIXOther UnixLinuxWindowsCloud

Software Pricing: Monthly/annual license charge

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Email: support@mqgem.com

Website: https://www.mqgem.com

Regions Served:
USA / Canada / South America
Europe / Middle East / Africa
Asia Pacific

Mullins Consulting Inc

About:
Mullins Consulting focuses on delivering services that improve application and database performance, deliver higher availability, and better protect and secure your vital corporate data. Services include consulting, writing, education, speaking, and more

Product/service information:
Craig S. Mullins, principal consultant of Mullins Consulting, has been working with IBM mainframes his entire career; and with Db2 since Version 1. The primary focus of service delivery is to improve and optimize the performance and management of Db2 for z/OS systems.

Activity: Consultant
Specialist areas: System management; data management
Mainframe platforms supported: z/OS
Non-mainframe platforms supported: Other
Pricing options: Other

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Oh7FoxEasy LLC

About:
Oh7FoxEasy has taken over where The Edge Information Group left off by enhancing the EPA product to support the most recent mainframe compilers.

Product/Service Information:
EPA2, the Executable Portfolio Analyzer, analyzes executable libraries (PDS or PDSE) and provides a wealth of detailed information about each executable to assist application developers with the complicated task of knowing all of the intricacies of the overall application.

Activity: Software vendor
Specialist areas: Asset and change management, Programming/testing
Mainframe platforms supported: z/OS
Software pricing options: One-time charge

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Phone: 770 712-9887
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Website: www.oh7foxeasy.com
Region: USA / Canada / South America

PopUp Mainframe

About:
Pop Up Mainframe is revolutionizing mainframe accessibility by providing modern solutions tailored to evolving enterprise needs. Our focus is on delivering innovative tools that enhance efficiency and simplify mainframe operations.

Pop Up Mainframe offers cutting-edge solutions designed to streamline mainframe development, testing, and deployment. Our platform provides a flexible, on-demand mainframe environment that empowers organizations to optimize their workflows without traditional infrastructure constraints.

Activity: Software vendor
Specialist areas: Mainframe Modernization, Application Development & Testing, DevOps & CI/CD for Mainframe
Mainframe platforms supported: z/OS
Software pricing options: Subscription Model
Website: https://www.popup-mainframe.com/

QMSI-Quintessential Mailing Software Incorporated

About:
QMSI's charter is to significantly reduce the cost of postal processing for mainframe mailers. QMSI software is exclusively IBM Mainframe. QMSI's principals, developers - and customers - are accessible to anyone who sees the value in - and wants to learn about - lowering CPU overhead, I/O resource utilization and overall processing time ... with the guarantee of saving money! Our customers will tell you "QMSI prices are not based on MIPS or MSUs and QMSI never increases costs for licensed CPUs; so there is no renegotiating - ever!" Adding a CPU is easy and inexpensive.

Armed with the knowledge of industry software benchmarks, GreenBook provides the backbone for numerous applications to guide data centers to best in class software licensing and costs.

Product/Service Information:
QCODE is the only modern USPS CASS-Certified software that takes full advantage of IBM's zSystem hardware and software. QCODE can run on a zIIP (eliminating IBM's MSU charges!) and QCODE's unique DataSpaceDataBase (DSDB) is a significant reason for QCODE's great performance. Placing your page data sets on SSD (Solid State DASD) devices, makes QCODE's performance "amazing!" All while utilizing less CPU and I/O resources, and running faster than all other CASS products. QSORT is the only single-purpose presort for First Class Mail (cards, letters and flats) that does not contain all the extra code and overhead found in other multi-purpose products. It's the perfect complement to QCODE and ready for the USPS Full Service requirements. QVIEW is a sub-second response time, online query tool for USPS Zip4 database look-ups. It is a complementary component of QCODE, and runs under CICS, IMS or CA's IDMS.

Together or individually, these products provide the most cost-effective, resource-efficient Postal Processing software available on IBM Mainframes. How is this possible? Because this entire software application suite was designed by system-level software architects.

QMOVE is coming soon!

Activity: Software vendor.
Specialist areas: Other
Mainframe platforms supported: z/OS
Pricing options: Monthly/annual license

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Rocket Software

About:
In today's rapidly evolving business landscape, the imperative to modernize is not just about staying relevant; it's about setting the best course for your enterprise, influencing your industry, and potentially reshaping global markets.?? Trusted by over 12,500 customers and 750 partners, and with more than 3,000 global employees, Rocket Software is the global technology leader and partner of choice that empowers the world's leading businesses on their modernization journeys, spanning core systems to the cloud. It enables small and large enterprises in many industries, including most of the Fortune 500, to maximize their data, systems, and infrastructure to deliver critical services that power our modern world. An authority in mainframe modernization, Rocket provides mainframe modernization tools and expertise that empower enterprises looking to modernize their applications without massive rewrites. Rocket Software boasts partnerships with the leading names in IT and mainframe, including IBM.

From day one, Rocket Software has been committed to developing and building tools to help organizations get more out of their mainframe investments and derive business value. Rocket Software supports and leverages their deep relationship with IBM to share expertise and guide customers achieving mainframe modernization through products including: Rocket® Mainframe Application Testing and Debugging helps developers rapidly identify program problems and apply corrective solutions and test fixes. Rocket® Mainframe Integrity Assessment Services provides a proactive approach to continuously ensuring mainframe integrity at the code. Services are designed to help users achieve compliance, both internal and external. Rocket® Mainframe Security Services provides a comprehensive suite of mainframe security services to ensure adherence to industry regulations, Rocket® Mainframe Compliance Assessment Services delivers a proactive approach to assessing mainframe compliance. Rocket Software is also committed to supporting the people and culture around IBM Z with its Z Center of Excellence. Comprised of IBM Z experts and IBM Champions, this group is dedicated to sharing Rocket Software's expertise, insights, and guidance for customers as they navigate the complexities that come with mainframe modernization.

Activities: Software Vendor

Specialist Areas: System management (including performance management, capacity planning, job scheduling, output management), Data management (including database performance and management), Storage management (including backup/recovery), Security, Web integration and legacy reengineering tools, Cloud/ mainframe modernization

Mainframe Platforms Supported: z/OSVM/VSELinux on IBM Z

Non-Mainframe Platforms Supported:
Power Systems, IBM i, i5/OS, and OS/400LinuxWindowsCloud

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Website: Rocketsoftware.com

Regions Served:
USA / Canada / South America
Europe / Middle East / Africa
Asia Pacific

RSH Consulting

About:
RSH Consulting, Inc. is a professional services firm established in 1992 and dedicated to helping clients strengthen their IBM z/OS mainframe cybersecurity by fully exploiting the capabilities and latest innovations in RACF. RSH staff is comprised entirely of exceptionally experienced technicians led by a recognized RACF expert. Our finely honed processes and extensive software toolset enable us to deliver the highest quality services efficiently and cost-effectively. For your next RACF project, contact RSH.

Product/Service Information:

RACF Security Reviews: RSH reviews pinpoint even the most obscure security exposures and identify opportunities for improving RACF administration and performance. We scrutinize all RACF controls to ensure critical system resources are protected. RSH looks beyond RACF to examine mainframe security policies, standards, and procedures, and to inspect RACF-interface configuration options in other system software. This holistic approach provides a more insightful picture of the overall mainframe security posture. Knowing your security exposures is essential to prioritizing remediation. RACF Implementation Services: RSH can tackle almost any RACF implementation, enhancement, or remediation task, whether large or small and no matter how intricate. Our services are customized to meet specific client needs and budgets and range from occasional advisor to ad hoc assistance to complete hands-on implementation. RSH staff can work independently or as teammates alongside client staff. We provide clear explanations of what was done and why so that clients can properly maintain controls going forward. RACF Training: RSH is at the forefront of training the next generation of RACF administrators, technicians, and auditors. Our course series, ranging from basic administration to advanced technical topics, offers the ideal pathway for expanding your staff's RACF skills.

Activity: Consulting
Specialist areas: Security
Mainframe platforms supported: z/OS

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Email: info@rshconsulting.com
Website: https://www.rshconsulting.com

RSM Technology Ltd

About:
irst founded in London in 1980 to serve the UK, RSM now provides its services worldwide, either directly or via selected partner organisations.

Product/Service Information:
RSM provides technical education and training via open-enrolment (public) courses and as exclusive, one-company presentations. These can be live, over the Internet via RSM's Virtual Classroom Environment service or on-site at customers' locations. RSM's courses are suitable for all personnel working in the IBM mainframe computing environment, including software developers/programmers, systems programmers, DBAs, operations personnel, and managers.

Activity: Technical education and training
Specialist areas: IBM Z systems mainframes, including z/OS and all its subsystems

Address: West Barn, Brightwell Farm, Brightwell Baldwin, Oxfordshire, OX49 5NP
Phone: +44 (0)1494 45 13 13
Email: courses@wdr.co.uk
Website: www.rsm.co.uk

SecuriTeam Software Ltd.

About:
SecuriTeam Software is a software development company concentrates in IBM legacy system's security. Our aim is to develop a solution for each security vertical exist on these platforms. We started with Security assessment automations and documentation and will release an "on z"n code review product under our brand IronSphere.

Product/Service Information:
Our products are branded as IronSphere. Our flagship product is IronSphere Inspector. A solution to continuously monitor security controls on Z & I and perform DISA STIG based security assessments. The product can monitor hundreds of Lpars of any kind, since each agent installed on an Lpar reports to an on-prem virtual appliance. The end-user is using a browser to ao authenticate and access findings and documents. IronSphere Inspector is fully automated and is installed on some of the largest organizations in the world.

Activity: Software vendor
Specialist areas: Security
Mainframe platforms supported: z/OS, VM/VSE
Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400
Software pricing options: One-time charge, Other

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Region: Asia Pacific

Software AG

About:
Software AG helps you create effortlessly connected experiences for your customers, employees and partners with an enterprise iPaaS that integrates anything, anywhere, any way you want. By bringing together applications, data, B2B with APIs and events in the same AI-enabled integration platform, you can run a high-performing enterprise and constantly improve it based on data.

Get end-to-end visibility and governance across geographies, IT environments, and complex business ecosystems, with hybrid multi-cloud connectivity, and enterprise-grade security relied on by the most powerful banks, governments, and corporations in the world.

Trusted by the world's best brands for more than 50 years, Software AG is a pioneer in software innovation and understands the value of enterprise software. Businesses and governments around the world rely on mission-critical applications built on the Adabas & Natural development platform. Our proven application modernization capabilities can connect mainframe applications, data and people to the cloud, new technologies, channels, and services so you can build on your strengths and become part of a truly connected world.

Activity: Software vendor
Specialist areas: Data management, Storage management, Security,Programming/testing, Web integration and legacy reengineering tools, Cloud/mainframe modernization, Other
Mainframe platforms supported: z/OS, Linux on Z
Non-mainframe platforms supported: Linux, Cloud, Other
Software pricing options: Monthly/annual license charge, Processor/capacity-based pricing, Workload/usage-based pricing, Other

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Email: adabas.natural@softwareag.com
Website: www.softwareag.com

The Source Recovery Company Inc

About:
Source Recovery started in 1994 when reverse engineering source from a load module was thought to be impossible. Over the past 29 years, we've recovered over 10,000 programs using our patented ReSource technology.

Product/Service Information:
We recover COBOL and Assembler source code directly from the mainframe executable. Our results are guaranteed to be 100% functionally equivalent to the original executable.

Activity: Software vendor
Specialist areas: Asset and change management, Programming/testing, Web integration and legacy reengineering tools, Cloud/mainframe modernization
Mainframe platforms supported: z/OS
Software pricing options: One-time charge

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Region: USA / Canada / South America

TONE Software Corporation

About:
Tone Software develops and markets business software to increase z/OS mainframe efficiency and modernize host operations, reduce z/OS support costs, and increase the productivity of z/OS IT teams responsible for critical business applications.

Based in Anaheim, California, TONE is a privately owned company that answers to customers, not shareholders. Leveraging more than 40 years of extensive mainframe expertise, TONE is committed to delivering quality z/OS software and exceptional support and service to every client.

TONE products are marketed and supported throughout North America, Europe, and Australia through the Anaheim headquarters and international agents. Tone's solutions include:

- OMC-FLASH JES2, JES3, and JES3plus SPOOL viewing and management
- JES2Mail, JES2FTP, Mail2ZOS and CICS2PDF z/OS output transformation and electronic delivery solutions
- OMC-PRINT and OMC-TCP/IP host VTAM and TCP/IP output routing and printing
- DYNA-STEP dynamic STEPLIB and ISPF library management
- TRX TSO resource and performance management

TONE's mainframe solutions modernize host operations, enabling users to manage and control the z/OS, TSO, JES2, JES3, JES3plus and VTAM infrastructure. Tone's solutions reduce system resource consumption, increase host productivity, and lower operational costs.

Activity: Software vendor
Specialist areas: System management
Mainframe platforms supported: z/OS
Software pricing options: One-time charge, monthly/annual license, processor/capacity-based, workload/usage-based
Non-mainframe platforms supported: Cloud
Pricing options: Monthly/annual license, processor/capacity-based, workload/usage-based

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Trident Services

About:
Trident Services has provided z/OS solutions and systems consulting services since 1978. Trident has established a solid reputation for the excellence of its software and the expertise of its consulting staff while continuing to keep pace with industry changes, emerging technologies and client needs.

Our flagship software, zOSEM (zOperating System Environment Manager), is one solution for total system management of z/OS. Trident's zOSEM simplifies and modernizes z/OS management by implementing dynamic controls of functions, delivers improved system throughput, better control of JCL standards, optimizes HSM, and includes resource routing functions to significantly reduce ISV footprint, helping you reduce ISV and MLC charges. The latest release of zOSEM introduces step-level routing, which allows for further reduction of software license footprints by routing only the job step to a penalty box or LPAR.

Activities: Software Vendor

Specialist Areas: System management (including performance management, capacity planning, job scheduling, output management), Data management (including database performance and management), Storage management (including backup/recovery)

Mainframe platforms supported: z/OS

Software Pricing: One-time charge, Monthly/annual license charge, Processor/capacity-based pricing

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Triton Consulting Ltd

About:
Triton Consulting is a highly focused, independent data management and digital transformation service provider. We're proud to be home to four IBM Gold Consultants, seven IBM Data and AI Champions, and some of the most highly qualified Db2 experts in the world. For over 25 years, we've been providing consultancy services, offering expert advice across all areas of information management. We deliver a broad range of high-level consultancy services, including senior project management, technical planning, technical architecture, performance tuning, and systems programming. We also offer services, from large-scale data migrations and tool replacements to the implementation of processes, tooling, and culture designed to speed up your application development and deployment life cycle—all to help your business drive change and transform services. Our services are available to clients worldwide.

Mainframe Consultancy Services

- Mainframe DevOps (Ansible, Jenkins, OpenShift)
- Db2 for z/OS Version Upgrades
- Cloud Migrations
- Db2 for z/OS Tool Replacement
- Mainframe Cost Management
- Data replication
- Database design and implementation
- Db2 system and application performance reporting, management and tuning

Z Mainframe Availability and Resiliency Service (ZMARS)

Our Z Mainframe Availability and Resiliency Service (ZMARS) is designed to enhance your Db2 server's resilience, ensure continuous application service availability, improve recovery speed, and boost overall system performance. We work closely with you to uncover potential vulnerabilities in your Db2 for z/OS environment. By focusing on your unique infrastructure and requirements, we ensure your systems are optimised for resilience and availability. The ZMARS service consists of multiple modules, giving you the flexibility to choose which ones to include or prioritize based on your specific needs.

- Database Backup and Recovery
- ZPARMS
- Software Maintenance
- Db2 for z/OS Single Points of Failure
- Disaster Recovery
- Workload Manager
- CICS Attach
- IMS Attach
- Automation
- Database Housekeeping
- Distributed Application Connectivity to Db2 for z/OS
- Db2 for z/OS Application Design and Quality Assurance
- Db2 System Application and Performance Monitoring

Activities: Consultant

Specialist Areas: System management (including performance management, capacity planning, job scheduling, output management), Data management (including database performance and management), Storage management (including backup/recovery), Asset and change management, Security, Programming/testing, Web integration and legacy reengineering tools, , Cloud/mainframe modernization,

Mainframe platforms supported: z/OSVM/VSELinux on IBM Z

Non-mainframe platforms supported: Power Systems, AIXOther UnixLinuxWindowsCloud

Software Pricing: Monthly/annual license charge

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Vertali

About:
Headquartered in the UK, Vertali provides expert IBM mainframe skills and resources to organizations around the world. We know IBM Z technology inside out, so you benefit from more experience, expertise, and insights than anyone else can offer. Working with world-leading organizations in finance, retail, utilities, governments, and 100% focused on IBM mainframe infrastructure, we help you secure and optimize your mainframe operations, reducing costs and increasing ROI.

Vertali offers:

- A large pool of IBM Z skills and resources
- Senior mainframe professionals vetted for their experience, integrity and communications skills

Vertali provides world-class mainframe infrastructure and security services plus software that help our clients around the world to navigate and profit from change, mitigate risk, and achieve their technology and business objectives. We help you to plan, deliver, maintain, and update your mainframe strategy.

Mainframe Consultancy Services:

- Mainframe Infrastructure Services
- Software Migrations
- Storage Migrations
- Capacity and Planning
- Project Delivery

Mainframe Support Services:

- Infrastructure Managed Services
- Extended Incident Support Services

Mainframe Security Services:

- Assessment/Audit Remediation
- Mainframe Penetration Testing
- Application Penetration Testing
- Product Penetration Testing
- Mainframe Security Assessment
- Security as a Service (Admin and/or Engineering)
- Cyber Resiliency (New Service for 2025)

Mainframe Software

- Bespoke Mainframe Software Development: offering clients bespoke mainframe software development services designing tailor-made mainframe solutions that fully align with your unique business requirements
- zTrust: easy-to-use browser-based mainframe software:
- zTrust for Networks: designed for network forensic analysis and network micro-segmentation
- zTrust Password Synchronisation: synchronises password changes across multiple Enterprise Security Management (ESM) systems in real time
- zTrust for SMPe: a security and compliance solution specifically designed to aid the management of mainframe software and subsystems

Activities: Consultant

Specialist areas: System management, Data management, Storage management, Asset and change management, Security, Programming/testing, Network performance/management

Mainframe platforms supported: z/OS

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Virtel

About:
Virtel, a division of the SysperTec Group, is an independent software publisher founded in 1993 that develops, markets, and supports a comprehensive suite of System Z application modernization solutions. Virtel has more than 30 years' experience helping organizations modernize access, usability, and integration of legacy mainframe applications to improve productivity, save money, and simplify support. Virtel sells and supports it solutions directly from its headquarters outside Paris, through a US-based support team, and a small network of authorized resellers around the world.

Virtel Web Suite is a comprehensive and highly scalable set of System Z application enablement solutions to improve and extend the access, usability and integration of legacy 3270 mainframe applications. It is comprised of 3 solution sets that utilize the same underlying System Z centric Virtel protocol conversion technology.

- Virtel Web Access (VWA) securely serves 3270 screens as standard HTML5/JavaScript web pages over encrypted HTTPS connections. VWA replaces outdated TN3270 terminal emulators and expensive VTAM session managers to save organization money, simplify support and improve mainframe application security.
- Virtel Screen Redesigner (VSR) transforms 3270 application screens into modern web pages that produce a genuine web experience, without making any changes to the mainframe application. VSR is a no-code solution which overcomes issues earlier generations of 3270 web enablement tools experienced and is a simpler, faster and more cost-effective solution than redeveloping, replacing, or rehosting 3270 applications.
- Virtel Web Integration (VWI) creates highly scalable real-time connections to integrate CICS, IMS, TSO and other mainframe applications with server, web or Cloud applications. VWI exposes host transactions either through legacy 3270 screen UIs or screenless COMMAREA transactions

Activities: Software Vendor

Specialist Areas: Security, Web integration and legacy reengineering tools, Cloud/mainframe modernization,

Mainframe platforms supported: z/OSVM/VSE

Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400

Software Pricing: Monthly/annual license charge

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VirtualZ

About:
VirtualZ is an innovative mainframe software company revolutionizing data access for AI, BI, modernization, and digital transformation. Our patented products—Lozen™, PropelZ™, and Zaac™—enable secure, real-time access to IBM Z data across hybrid cloud environments. We partner with leading technology providers like IBM, AWS, Google, and Snowflake, as well as consulting firms such as Accenture, Kyndryl and Mainline, to deliver seamless enterprise solutions. Our no-code software simplifies ETL, report migration, legacy tape modernization, and mainframe storage integration, reducing costs and accelerating digital initiatives. As the first and only women-founded, women-led mainframe ISV, VirtualZ is committed to driving innovation and diversity in enterprise computing. Our software empowers organizations to unlock the full potential of their mainframe investments while seamlessly integrating with modern cloud and analytics platforms.

VirtualZ delivers cutting-edge software solutions that transform how enterprises access and manage IBM Z data. Our product families—Lozen™, PropelZ™, and Zaac™—enable seamless, secure, and cost-effective data integration between mainframes and hybrid cloud environments without requiring data replication. Lozen™ provides real-time, read-write access to mainframe data from any platform, eliminating the need for complex ETL processes. It accelerates application modernization, AI/BI initiatives, and hybrid cloud strategies. PropelZ™ is a no-code data extraction and migration solution that simplifies report migration, SMF data archiving, and legacy tape modernization by seamlessly moving mainframe data to cloud-based analytics and storage platforms. Zaac™ redefines mainframe storage by enabling direct access to cloud and SAN storage, reducing on-premises storage costs while maintaining security and performance. Our professional services, in collaboration with partners like IBM, AWS, Google, Accenture, Kyndryl, and Snowflake, ensure smooth implementation and optimization for diverse enterprise use cases. VirtualZ solutions eliminate the need for traditional ETL, enhance data accessibility, and drive digital transformation, all while maintaining mainframe security and reliability. Whether for real-time analytics, storage modernization, or cloud integration, VirtualZ empowers organizations to maximize the value of their IBM Z investments.

Activities: Software Vendor

Specialist Areas: Data management (including database performance and management), Storage management (including backup/recovery), Web integration and legacy reengineering tools, Cloud/mainframe modernization,

Mainframe platforms supported: z/OS

Software Pricing: One-time charge, Monthly/annual license charge

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Weintraub Systems Consulting

About:
Serves clients modernizing their mainframe systems and applications. Independent consulting including product and managed services vendor evaluation and selection, contract negotiations.

We provide consulting services to users of mainframe systems.

Activities: Consultant

Specialist Areas: Cloud/mainframe modernization,

Mainframe platforms supported: z/OSVM/VSELinux on IBM Z

Non-mainframe platforms supported: Power Systems, IBM i, i5/OS, and OS/400Power Systems, AIXCloud

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zdevops

About:
It's all about having a passion for your job and being proud of all the awesome things you do.

Product/Service Information:
Support tools. Output management, Mattermost intergration, USS/Splunk Interfacing

Activity: Consultant
Specialist areas: ystem management, Data management, Storage management, Asset and change management, Security, Programming/testing, Web integration and legacy reengineering tools, Network performance/management, Cloud/mainframe modernization, Tailor Fit Solutions
Mainframe platforms supported: z/OS
Software pricing options: Processor/capacity-based pricing, Other

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Glossary of Terminology

Definitions of some mainframe-related terms

This glossary is intended as an aide memoire for experienced mainframers and a useful reference for those new to the z/OS world.

#

3270
: IBM's family of dumb, block-mode synchronous screen and printer terminals, which became the standard for terminal/mainframe connectivity.

3270 data stream
: Format used by 3270 devices for communication, and much used for emulation to make PCs look like dumb terminals.

5250
: Terminal standard for the iSeries/400, System/3x etc.

A

ABARS
: Aggregate Backup And Recovery Support. A disaster recovery feature within DFSMShsm for automatically creating files containing back-ups of critical data. The main use of ABARS is to group all the datasets relating to a particular application together.

Abend
: ABnormal ENDing. IBMspeak for an unexpected termination to a program run, eg a crash.

Above the line
: In z/OS, z/VM, and VSE/ESA, above the line refers to virtual/real memory locations with an address greater than 16MB. The 16MB limit resulted from earlier operating systems supporting 24-bit addressing.

ACB
: Access Control Block. The control block used to tie an application program to a VSAM dataset.

Access control
: Enforcing rules governing use of computer resources by restricting both the use and type of use to authorized individuals and the computer resources they are responsible for.

Access method
: IBM-specific jargon for software that moves data between main storage and I/O devices.

ACF/VTAM
: Advanced Communications Function / Virtual Telecommunications Access Method is IBM's proprietary telecommunications software.

ACID
: This acronym describes the properties of a transaction. Atomicity refers to a transaction's changes to the state—either it all happens or nothing happens. Consistency refers to the state of a transaction. It must not violate any of the integrity constraints associated with the state. Isolation refers to the transaction not being affected by others. Durability refers to the survival of changes to state after a transaction completes.

ACL (1)

Access Control Lists specify which users are permitted to access a file or program function. The ACL format is determined by the External Security Manager (ESM). RSH

ACL (2)

Automated Cartridge Library. Synonymous with ATL (Automated Tape Library).

ACO

Automated Console Operations. Automated procedures that replace or reduce the number of actions an operator takes from a console in response to system or network activities.

ADA

Programming language much loved by the military (ADA is a US government standard), which uses it for writing systems for controlling guided missiles and the like. Withdrawn August 1994.

Address Resolution Protocol

The Internet Protocol (IP) used to dynamically map IP addresses to physical hardware Media Access Control (MAC) addresses.

Address space

The virtual storage allocated to an executing task in a mainframe. Generally used within z/OS to mean the space used by one of batch job, system task, or TSO user.

Agile

A modern alternative to waterfall models of project development in which requirements and solutions emerge through collaborative working between developers and users. It results in rapid changes and innovative solutions to problems.

AI

Artificial Intelligence is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions), and selfcorrection.

AIOps

Originally, Algorithmic IT Operations, although sometimes thought of as artificial intelligence for IT operations, it refers to software that uses machine learning to help IT teams evaluate and act faster and more accurately.

AIX

Advanced Interactive eXecutive. IBM's version of Unix for mid-range systems (System p). It is one of four commercial operating systems that are certified to The Open Group's UNIX 03 standard. It is currently supported on IBM Power Systems alongside IBM i and Linux.

AJAX

Asynchronous Javascript And XML is a way of creating interactive Web applications using a group of technologies together. These technologies include XHTML (or HTML) and CSS; the Document Object Model; and the XMLHttpRequest object.

AMASPZAP

z/OS batch utility to apply a fix directly to object code in situ. Often protected against unauthorized use because of its additional ability to make direct changes to disk.

AMODE

Addressing MODE. Attribute of z/OS programs indicating the length (in bits) of the addresses used in the program. Introduced in MVS/XA to differentiate between the then new 31-bit addressing that expanded the addressable space from 16MB (24 bit) to 2GB. z/ OS introduced 64-bit addressing.

AMS

Access Method Services. z/OS and VSE subsystem for performing various data-related actions on VSAM and ICF catalogs, including defining VSAM datasets, and deleting and copying most dataset types. In short, a multi-purpose utility. Also known as IDCAMS because that is the program name.

Analytics

Extracting hidden value from the massive volumes of data.

Ansible

This popular open-source software is a provisioning, configuration management, and application-deployment tool enabling infrastructure as code.

APAR

Authorized Program Analysis Report. An official report of a software error to IBM. Also used to refer to the patch supplied by IBM to fix the error (PTF is the correct term).

API

Application Program(ming) Interface. Documented programming procedures to access a given piece of software; typically an entry point name and parameter list. The re-use of APIs can speed up application development.

APL

A Programming Language, conceived within IBM by K E Iverson, and popular on the mainframe in the late '70s and early '80s to support end-user activities.

APM

Application Performance Management monitors and manages the performance and availability of software applications in order to meet business needs.

App

This usually refers to a mobile application found on Android and Apple smartphones and tablets.

Applet

A small application program written in the Java that can be retrieved from a Web server and executed in a browser.

APPN

Advanced Peer-to-Peer Networking architecture is an enhancement to SNA architecture. It can handle dynamic multipath routing.

ARM

Automatic Restart Management is a sysplex-wide integrated restart mechanism that can restart MVS subsystems after an abend, restart workloads on another MVS image after an MVS failure, and restart a failed MVS image.

AS/400

Application System/400. IBM's mid-range processor, announced in June 1988. It was replaced by the IBM Power Systems in April 2008. Now called IBM i.

ASCII

American Standard Code for Information Interchange. A modification of the international code which has become a de facto standard (except for IBM which also uses the EBCDIC code) for transmitting data. Uses seven bits plus a parity bit, and includes alphanumeric and control characters. ASCII must be converted to EBCDIC for uploading to IBM mainframes.

ASM
: Auxiliary Storage Manager. The part of z/OS that looks after the I/O operations relating to paging—specifically the pages and page slots on external storage (typically DASD).

Assembler
: Programming language that allows the user to get close to the hardware on IBM mainframes. Assembler statements correspond one-to-one with mainframe, machine-level instructions.

ATL
: Automated Tape Library (also known as Automated Cartridge System—ACS, tape silo, or silo). Type of mass storage system (MSS) in which industry standard tapes are loaded by a robotic arm.

Augmented reality
: Using a device, such as a smartphone or tablet, to view an object, such as server, and see on that device additional information about the object—such as performance information.

Auxiliary storage
: All storage needing a channel I/O to access it (basically cache, SSD, disk, tape, mass storage).

AWLC
: Advanced Workload License Charges is a new monthly licence pricing metric from IBM and applies to z196s.

B

BaaS
: Blockchain as a Service—like Software as a Service (SaaS)—is where cloud-based solutions are consumed to build, host, and operate blockchains while the cloudbased service provider keeps the infrastructure agile and operational.

Backout
: A process that removes all database updates performed by an application that has abended (qv). BAL Basic Assembler Language. The machine language on the original S/360 from which the modern Assembler languages are derived.

Bandwidth
: A measure of how fast a network can transfer information, originally measured in Hertz (Hz), but now used for any measure of network throughput. The more precise definition: frequency range within a radiation band required to transmit a particular signal. Measures the difference between the highest and lowest signal frequencies in millions of cycles per second.

BASIC
: Beginners All-purpose Symbolic Instruction Code. Universal interactive programming language.

Batch
: An accumulation of data brought together for processing or transmission, usually unattended. Less formally, the processing of such data, as opposed to online processing where a user is present to respond interactively.

BCD
: Binary-Coded Decimal. A binary-coded notation in which each of the decimal digits is represented by a binary numeral. This differs from the pure binary notation, where the entire number is represented as a single binary numeral.

BCS
: The Basic Catalog Structure and the VVDS are the two parts of the ICF catalog. The BCS contains dataset and alias names and volume serial numbers.

BCU

A Balanced Configuration Unit comprises processor memory, I/O, storage, and DB2 resources. It is the smallest combination of these that work together efficiently. As more work is added to the system, so more BCUs can be added. This avoids any one component being too big in terms of the others.

BDAM

Basic Direct Access Method allows programmers to access specific blocks of data on DASD.

Benchmark

An agreed workload used as a standard against which to compare the performance of different hardware/software. For a benchmark to be useful it needs to be a public standard.

Big Data

The SNA/APPN command used to activate an LU-LU session following the successful completion of the SNA/APPN session initiation processing.

Big SQL

This allows users to access Hadoop-based data using familiar SQL statements. It utilizes InfoSphere BigInsights.

Bimodal IT

Gartner's management of IT model where one strand is very conservative and unwilling to change and the other strand embraces rapid application development and is tightly linked to business needs.

BIND

The SNA/APPN command used to activate an LU-LU session following the successful completion of the SNA/APPN session initiation processing.

BIOS

Basic Input/Output System. The I/O component of a simple operating system defining the interface between the operating system and the outside world.

Bitcoins

Bitcoins originated in a 2008 concept paper by Satoshi Nakamoto. Bitcoins are a virtual currency that are 'mined' by solving complex algorithms and are usually stored in a digital wallet. Bitcoin exchanges are completely private, which makes them popular with criminals! Many legitimate companies offer products for sale using bitcoins.

BLOB

Binary Large OBject. A generic term for a file containing some kind of binary data (text, image, document, sound, etc). Typically, BLOBs can be transferred and manipulated across a wide range of platforms.

Block

A string of data elements, such as characters, words, or physical records, that are recorded or transmitted as a unit.

Blockchain

A blockchain is a distributed database that maintains a continuously growing list of ordered records. Blockchains are secure by design and an example of a distributed computing system. Once recorded, the data in a block cannot be altered retroactively.

Bluemix

Bluemix is an open-standards, cloud-based platform for building, managing, and running all types of apps, for Web, mobile, big data, and smart devices. It includes Java, mobile back-end development, and application monitoring, all provided as-a-service in the cloud.

BMS
Basic Mapping Support. An interface between CICS and an application to control the movement and presentation of datastreams to and from a dumb terminal. BMS allows data to be displayed without allowing for display-dependent formatting characters.

Boolean
An operation that follows the rules of Boolean algebra.

Boot
To prepare a computer system for operation by loading an operating system.

BPAM
Basic Partitioned Access Method is a low-level access method used to access Partitioned DataSets (PDSs).

Breach
This is where a cyberattack has gained access to a network and the mainframe, giving unauthorised access to data and backups to hackers.

BSAM
Basic Sequential Access Method, along with QSAM, is an access method used to access sequential datasets.

Bus
Generic term in data communications to describe a wiring topology (such as that used in Ethernet) in which devices are connected along a single linear medium.

BYOD
Bring your own device is the policy many companies are adopting to allow employees to bring their own mobile devices (laptops, tablets, and smartphones) to their workplace, and to use those devices to access privileged company information and applications.

BYOI
Bring Your Own Identity is the growing practice of taking a validated identity with you and so not needing to remember different user-ids and passwords for different environments. There are security issues.

Byte
A string of 8 bits that represents one EBCDIC character. The IBM mainframe architecture is organized around the concept of the byte.

C

C
A programming language developed at Bell Labs in 1972, so named because its predecessor was named B. Unix was written in C.

C/C++
An optional, separately priced feature of z/OS, available with or without Debug Tool. The C/C++ IBM Open Class Library is included with z/OS, but is only enabled when C/C++ is licensed.

Cache
High-speed buffer between a fast device and a slow device. In large IBM systems cacheing may take place in the CPU (in main or expanded storage), the controller, device head-of-string, or the device itself (eg in a track buffer). It is used to reduce access time.

Capacity on Demand
Processors can be purchased with extra capacity already on-board but not functioning. When extra capacity is required at a site, it is turned on. This is non-disruptive and customers don't pay for the extra capacity until they start using it.

Catalog
: A dataset that contains information about other datasets, eg type, location, size, format. The z/OS master catalog usually also contains entries for user catalogs.

CCL
: Communication Controller for Linux (CCL) on zSeries runs the Network Control Program (NCP) software product in Linux, enabling users to get rid of their legacy 3745 communication controllers running NCP-based SNA workloads to zSeries servers.

CDS
: Configuration DataSet.

CGI
: Common Gateway Interface. A mechanism used by HTTP servers to invoke arbitrary programs for additional processing of certain requests; typically, those involving database access.

Change management
: The methodology for planning and controlling software changes.

Channel
: A specialized computer used in the IBM mainframe architecture to control transfers between devices and the processor unit. The channel offloads some of the processing associated with I/O from the main CPU.

Channel adapter
: Hardware unit to attach a channel to a processor.

Channel attached
: Devices that are directly attached to the processor by cable rather than over a communications link.

Channels
: CICS TS 3.1 introduced a replacement for sizerestricted COMMAREAs—they are channels and containers. Any number of containers can be passed between programs and they are grouped together in channels.

CHPID
: CHannel Path IDentifier. A single byte binary value used to uniquely identify each channel path on an eServer zSeries and previous mainframe systems.

CICS
: Customer Information Control System. General purpose TP monitor for terminal-oriented and intersystem transaction processing in z/OS and VSE/ESA environments. Now with added SOA.

CICS Explorer
: This is a system management tool for CICS systems that's based on the Eclipse platform.

CICSplex
: A CICS complex (CICSplex) is a group of intercommunicating CICS systems.

CICSPlex System Manager (CPSM)
: This provides system management as well as automation and workload management.

CKD
: Count Key Data is a way to format disk drive using cylinder number, track number, and physical record.

Client/server
: Generic term for systems (also known as server/ requester) in which one machine provides a range of services to one or more other machines.

CLIST

Control language used to manage interactive applications in the z/OS TSO environment. Largely superseded by REXX.

Cloud computing

A new name for something similar to client/server computing. A user launches a browser and clicks a link. Somewhere else an application launches and work is done. The mainframe seems to have always worked in this way. Organizations like Microsoft, Amazon, and Google are trying to become big players in this 'new' paradigm.

Cloud Paks

IBM Cloud Paks are AI-powered software that come with pre-integrated data, automation, and security capabilities. They help create hybrid cloud platforms.

CMOS

Complementary Metal Oxide Semiconductor. A chip technology used widely by IBM in its processors, superseding the water-cooled ECL chips on the mainframe.

CMS

Conversational (originally Cambridge—the lab where it was built) Monitor System. Operating system running under VM, and providing timesharing and program development facilities.

COBOL

Programming language, very widely used for commercial applications on the mainframe. Some sources suggest that CICS and COBOL account for 85% of all transactions processed.

Communication Server

IBM's all inclusive, multi-platform, software bundle that provides a plethora of terminal emulation, Web-to-host, and networking capabilities.

Compile

The translation of a high-level programming language (source program) into a machine language program (an executable program).

Compiler

A program that translates high-level programming languages into machine language programs

Composite applications

A composite application is an application built by combining multiple services. This tends to mean taking part of a really useful mainframe application and combining it with some other code so that the mainframe application becomes available over the Web

Compression

Generic term for a method of reducing the amount of space needed to store data, by encoding the data. This is achieved through the elimination of empty fields, gaps, redundancies, and unnecessary data to shorten the length of records or blocks.

Connector

One way of integrating CICS applications as Web services is to use connectors on the mainframe and use native interfaces to permit tight integration with the target application.

Containers

CICS TS 3.1 introduced a replacement for sizerestricted COMMAREAs—they are channels and containers. Any number of containers can be passed between programs and they are grouped together in channels. Channels are deleted when no programs are using them.

Control Point

SNA/APPN/HPR functionality that performs authorization, directory services and configuration management.

CORBA
: Common Object Request Broker Architecture. Set of standards for distributed object management from the Object Management Group (OMG).

Coupling
: Generic term used to mean connecting of processors together into a more or less tightly-knit computing complex. Used specifically by IBM to mean the connection of multiple eServer zSeries processors in a Sysplex. Coupling Facility Hardware from IBM, where common tables can be shared in a Sysplex, for high-speed cacheing, update locking of shared data, list processing and workload balancing between multiple processors.

CPC
: Central Processor Complex.

CPU
: Central Processing Unit. Processor. The part of a computer that executes instructions.

CRM
: Customer Relationship Management refers to the way organizations manage their relationships with customers—including finding, marketing to, selling to, and servicing these customers.

CTG
: CICS Transaction Gateway provides J2EE standardsbased access to CICS applications, which means it's an easy way to make existing CICS applications part of a Service-Oriented Architecture (SOA).

CTC
: Channel-To-Channel connections would link two mainframes and provide high-speed communication.

Cyberattack
: Bad actors trying to and often successfully gaining access to a network and the mainframe, then exfiltrating often confidential data.

CyberSecurity Mesh Architecture (CSMA)
: An integrated approach to securing IT assets regardless of their location. It redefines the perimeters of cybersecurity to the identity of a person or a thing. Gartner predicts that this will reduce the financial implications of cyber incidents by 90% in less than two years.

Cylinder
: The tracks, in an assembly of magnetic disks, that can be accessed without repositioning the access mechanism.

D

DASD
: Direct Access Storage Device. IBMspeak for disk.

DAT
: Dynamic Address Translation. The process by which virtual addresses are converted into real addresses during instruction execution.

Data dictionary
: A data dictionary (DD) is a database containing information about the way items of data are used. Typically a DD contains details of data names, data usage, data structures, data models, and so on.

Data lake
: A data lake is a repository of data stored in its natural format. This could be in a Hadoop-based repository.

Data mining
: The practice of using a data warehouse for highly complex, ad hoc queries.

Data Privacy Passports
: These were introduced with the z15 mainframe. They enable users to protect and provision data, and revoke access to that data at any time. They not only work in the z15 environment, but also across an enterprise's hybrid multi-cloud environment.

Data sewer
: What happens to a data lake as more and more records are added.

Data warehouse
: General term for a collection of database, middleware, and query tools that allow fast, flexible access to nearoperational corporate data.

DataOps
: This is an automated, process-oriented methodology, that's used to improve the quality and reduce the cycle time of data analytics.

DataPower
: IBM WebSphere DataPower SOA Appliances is a family of pre-built, pre-configured rack mountable network devices that accelerate Web services deployments while extending SOA infrastructure.

Dataset
: A unit of data storage and retrieval consisting of one or more data records. Outside of the IBM mainframe environment, people call them files.

DB2
: Database/2. Relational database management system first announced for mainframe environments in 1983. Originally promoted as an end-user tool, but is now IBM's preferred DBMS for just about everything and runs on all platforms.

Db2ZAI
: IBM Db2 AI for z/OS empowers the optimizer in the Db2 for z/OS engine to determine the best-performing query access paths, based on a site's workload characteristics.

Debug
: The human problem determination process for software. Literally, to remove bugs.

DEDB
: Data Entry DataBases are one of two types of IMS fast path database. These databases do not have indexes and are stored in VSAM files.

Defragmentation
: The use of a software utility to improve access and retrieval time by rewriting fragmented data to contiguous sectors of a computer storage medium.

Denial of Service
: An insidious, carefully-orchestrated attack on computer systems or networks to overload their resources with a barrage of requests in the hope of discovering overloadinduced vulnerabilities within the targets or to just disrupt the mission-critical activities of an enterprise.

DeOS
: No longer is DDoS (Distributed Denial of Service) our only worry, we need to think about Destruction Of Service attacks.

Device
: Any computer peripheral, such as tape or DASD, or any object that appears to be a peripheral.

DevOps
: Part DEVelopment and part OPerations, DevOps is a philosophy emphasizing the collaboration and communication between software developers and other IT people, so that building, testing, and releasing software, can happen rapidly, frequently, and more reliably.

DevSecOps
: DevSecOps is DevOps with security consideration introduced earlier in the life cycle of application development in an attempt to minimize vulnerabilities.

DFSMS
: Data Facility Storage Management Subsystem. An element of z/OS and also available for z/VM, as DFSMS/VM. The idea is that you simply tell the system about your storage, back-up, performance, and other requirements of the data, and the system does the rest for you. Of course, it's not really that simple.

DFSMSdfp
: DFSMS Data Facility Product. A component of DFSMS that provides functions for storage, data, program, and device management, in conjunction with distributed data access. Enables the definition of the services to be assigned to new datasets. Handles catalog management and access methods.

DFSMSdss
: DFSMS DataSet Services. An optional, separately priced feature of DFSMS that handles device migration, copy, space management, and dump/restore. It also converts existing data between non-SMS and SMS volumes, and provides an interface for storage administrators (ISMF).

DFSMShsm
: DFSMS Hierarchical Storage Manager. An optional, separately priced feature of DFSMS. It is a sophisticated automated system for both back-up and hierarchical storage management. It includes an ISPF interface for end users who wish to migrate, recall, back-up, or recover individual datasets, or to override the default migration and/or back-up parameters.

DFSMSrmm
: DFSMS Removable Media Manager. Its goal was to integrate the system managed storage principles of DFSMS into all removable media, most notably tape and optical.

Digital reinvention
: Successful digital reinvention follows a fundamental rethink or reimagining of how an organization operates and how it engages with its environment and customers.

Digital Transformation (DX)
: Another way of describing the inevitable change in technology that occurs in businesses that plan to stay in business.

Disruptive technology
: Henry Ford said: "If I had asked people what they wanted, they would have said faster horses". That's an example of a disruptive technology—something that changes the way people do things.

DL/I
: Data Language/I. The I is the Roman numeral One. The data manipulation language within IMS DB. DL/I is also the product name for IBM's VSE/ESA implementation of IMS DB.

DLSw
: Widely-used SNA/APPN(/NetBIOS)-over-TCP/IP transport mechanism which, however, unlike EE, does not support SNA COS or routing.

DMZ
: A De-Militarized Zone is used in the on-going war against viruses and malware etc. Typically, one computer accepts incoming data and send outgoing data. Behind it is a firewall, and behind that is the protected LAN.

Docker
: Docker is a software container platform. Everything you need to make the software work is packaged into this container. It includes libraries and settings to run on any platform. This way, you get an efficient, lightweight, selfcontained system, plus the assurance that the software will always run the same, no matter where it's deployed. IBM has Docker Enterprise Edition for IBM Cloud.

Domino
: Web server technology from Lotus (June 1996), which allows browsers to interact with Notes and access Notes databases. Now closely integrated with WebSphere.

DRaaS
: Disaster Recovery as a Service is the replication and hosting of physical or virtual servers by a third-party to provide failover in the event of a catastrophe.

E

EBCDIC
: Extended Binary Coded Decimal Interchange Code. Coded 8-bit character set (giving 256 characters) used by IBM mainframes.

e-business
: Used to refer to business transactions that use the Internet.

ECI
: The External Call Interface is used by CICS to allow non-CICS programs to invoke programs under CICS.

Eclipse
: Eclipse is an Open Source IDE. IBM's version is sold as WebSphere Studio Workbench. The Eclipse platform comprises the platform run-time, the workspace, the workbench, the Standard Widget Toolkit (SWT), the Version and Configuration Management (VCM), and the help system. Eclipse comes with a large number of plug-ins. The user interface for Eclipse is known as the workbench.

Edge computing
: Putting some computing power at the furthest reaches of the network to control IoT devices, for example.

EE
: HPR-over-UDP/IP, created by committee and codified in RFC 2353 in 1998, which permits SNA/APPN networking, replete with native COS and routing, across IP networks.

EJB
: Enterprise JavaBeans. A server-side, transactionoriented extension to the JavaBeans component model specification published by Sun. EJB are JavaBeans, but have no user interface and are designed to run within a special EJB container. In principle, any properly coded EJB should run within any fully compliant EJB container.

Enqueue
: The z/OS expression (often abbreviated to ENQ) for requesting resource serialization. ENQ can be used to put a user-named entry in the system resource queue in order to prevent another program using a serially usable resource.

Enterprise Content Management (ECM)
: This refers to a way of organizing and storing an organization's documents, and other content, that relate to the organization's processes. Nowadays, ECM can be used when talking about strategies, methods, and tools used throughout the life-cycle of the content. ECM also covers the capture, search, and networking of documents with digital archiving, document management, and workflow.

Enterprise Extender
: Enterprise Extender (EE) is a combination of SNA encapsulated in IP packets, so it can be thought of as a kind of protocol.

EPI
A CICS External Presentation Interface service is an implementation of a service that can be created from a 3270 terminal. EPI provides communication with 3270 terminal-based CICS applications.

ERP
Enterprise Resource Planning systems try to integrate all the data and processes that exist within an organization into a single unified system. Error log A dataset or file that contains a record of machine checks on device errors, which are stored for later analysis.

ESB
An Enterprise Service Bus is a software architecture construct that is standards-based and flexible. It is an attempt to separate the service being called and the required transport medium.

ESCON
Enterprise System Connectivity. The high-speed fibre-optic channel architecture (using a serial, packetswitched protocol) first available on ES/9000 and 3090Js and many peripherals. Replaced by FICON in May 1998, though still available.

ESDS
Entry Sequenced DataSet is a VSAM sequential dataset.

ESM
External Security Manager is a vendor software product that performs security authorization checking. RACF, ACF2, and Top Secret are ESMs. ESMs verify a user's identity, determine whether a user is permitted to access a dataset (ie file) or resource, log a user's activities, and decide whether a user can view or administer controls. RSH

ESS
The Total Storage Enterprise Storage Server, codenamed shark, is a high-speed data storage product.

EWLC
Entry Workload Licence Charges allow customers only pay for peak z/OS usage, not for full machine capacity.

F

FBA
Fixed Block Architecture is a way of formatting disk drives where space is allocated in fixed-length blocks rather than cylinders.

FDBR
Fast DataBase Recovery creates a separate IMS control region (the Fast Database Recovery region) to monitor an IMS subsystem. If it detects a failure, it will recover any database resources that are locked by the failed IMS, so they're available for other IMS subsystems.

FHE
Fully Homomorphic Encryption allows users to perform addition and multiplication operations on encrypted data, which, when decrypted, gives the same output as would have been produced using unencrypted data.

Fibre optic channel
Channel technology which replaced copper bus-andtag channel cables with fibre-optic links.

FICON
FIbre CONnection. Mainframe channel that implements the ANSI FCS transport. Each FICON channel can handle over 4,000 I/O operations per second, equivalent to eight ESCON(qv) channels. The FICON channel link speed is 100MB/sec full duplex, compared with 17MB/sec simplex with ESCON links.

Firewall
: Specialized software designed to prevent unauthorized access to a computer system while permitting validated, non-harmful interactions to get through.

Flat file
: Any file (dataset, mainframe parlance) stored in a file access method without an index which, of course, eliminates all relational DBMSs.

Floating point
: One of several methods of storing numbers on an IBM mainframe and most other computers. Similar to scientific notation, such as 3.75 times 10 to the 25th power, only it is 2 or 16 that is taken to some power.

FLPA
: The Fixed Link Pack Area is an area of storage containing modules loaded at IPL time.

FORTRAN
: FORmula TRANslation. A programming language best suited for engineering, scientific, and mathematical applications.

Fragmentation
: When an operating system writes data to disk or other storage media, and there is insufficient contiguous space, the data is then written to discontiguous sectors. The result is fragmented data. Fragmentation can cause increased data access times because the operating system must search different tracks for information.

FTP
: File Transfer Protocol is an application layer protocol that uses TCP and Telnet services to transfer bulk data files between machines or hosts.

Fog computing or fog networking or fogging
: This is an architecture that uses edge devices to carry out a substantial amount of computation, storage, and communication locally and routed over the Internet backbone.

FWLC
: Flat Workload License Charge. A flat monthly charge for a software product, no matter what size of zSeries server it is being run on.

G

Gamification
: A way of making using the software more fun—like in a game—and so people are more likely to do it. It has applications in mundane tasks such as updating a knowledgebase.

Gateway
: One way of integrating CICS applications as Web services is to use gateways, which run off the mainframe on middle tier servers and may well use traditional methods, such as screen scraping.

GDG
: Generation Data Group. Collection of (z/OS non-VSAM) datasets all with the same logical name (GDG Base Entry); the individual datasets are uniquely identified by the generation number which is stored as part of the dataset name.

GDPR
: General Data Protection Regulation applies to any organization storing data about EU citizens.

GDPS
: Geographically Dispersed Parallel Sysplex is an application to manage z/OS remote copy configuration and storage subsystems, to automate various tasks, and perform failure recovery for a sysplex located at two sites.

GTF
: Generalized Trace Facility. An optional z/OS utility that records system events, which can be used for problem diagnosis.

GitHub
: A Web-based Git version-control repository hosting service, which is available on mainframes.

GUIDE
: Guidance for Users of Integrated Data processing Equipment. For many years, an international user group for users of large IBM equipment. Main GUIDE interests were in applications and the commercial world. Depending on the area of the world you live in, it either stepped aside for SHARE or merged with SHARE (now GUIDE/SHARE in Europe, for example).

H

Hackathon
: A caffeine-rich events where teams use APIs to create customer-friendly applications quickly.

Hadoop
: An open-source software framework for storage and large-scale processing of data-sets, ie Big Data. On a mainframe, it runs in a Linux partition (Linux on System z).

Hadoop Distributed File System (HDFS)
: A filesystem used to store Big Data.

HALDB
: High-Availability Large Databases are the newest (since V7) IMS databases. They are like souped-up very big full-function databases.

HBase
: This is a non-relational, distributed database, written in Java that is used to store Big Data.

HCD
: Hardware Configuration Definition is an interactive tool used to define the hardware configuration.

HDA
: Head/Disk Assembly. The read/write head and associated bits and pieces that read data from disks. The implication is also of a sealed unit, at least from the customer perspective, as opposed to a removable disk pack.

HFS
: Hierarchical File System comes with Linux and refers to the way files are stored.

HiperBatch
: A way of running batch jobs in hyperspace, so there was far less I/O and things ran faster.

HMC
: Hardware Management Console used to manage hardware.

Host
: A computer system that is a server and/or serves attached terminals. Often used to refer to mainframe.

HPR
: High-Performance Routing is an extension to APPN networking providing improved routing performance and reliability.

HSA
: High-Speed Adapter is the name for subchannels on some servers.

HTML
HyperText Mark-up Language is a “mark-up language” for defining the structure of a document—eg Web pages.

HTTP
HyperText Transfer Protocol is the protocol used to request, transfer, and display hypertext documents.

Hub
A generic term for a device that has a single connection to the host and many connections for other devices to connect to it.

Hybrid cloud
Public and private cloud services can be integrated with on-premises infrastructure to a produce a hybrid cloud environment with orchestration, management, and application portability across all three.

Hybrid working
Working from anywhere, including, but not restricted the office and home.

I

I/O
Input/output. Refers to the transmission of data into or out of a processor’s memory. This would include communication lines and peripherals such as disk drives.

ICETOOL
An enhanced DFSORT utility that includes the OUTFIL feature.

IBM i
An operating system running on IBM Power Systems. It was originally named OS/400 and ran on AS/400s.

IBM Z
IBM’s mainframe family of processors, eg z15, z14, etc.

ICF
Integrated Catalog Facility contains catalog information about datasets. It is made up BCS and VVDS. ICF Integrated Coupling Facility is a component of a Parallel Sysplex. It allows multiple processors to share, cache, update, and balance data access.

ICSF
Integrated Cryptographic Service Facility is part of MVS security, protecting data on the mainframe.

IDAA (IBM DB2 Analytics Accelerator)
This high-performance appliance integrates IBM Netezza and zEnterprise technologies, providing fast results for complex and data-intensive DB2 queries on data warehousing, business intelligence, and analytic workloads.

IDCAMS
Access Method Services. Multi-purpose batch VSAM utility program.

IDE
Integrated Development Environment. Salesmen say it stands for “It Does Everything”, and unlucky customers as “I Do Everything”! An IDE could be a glorified text editor right up to all-singing all-dancing software like Eclipse and Visual Studio.

IEBCOMPR
z/OS Compare Datasets utility does a logical compare of datasets. Replaced by SuperC in ISPF/PDF.

IEBCOPY
z/OS Library Copy utility for copying members of a partitioned dataset (PDS), unloading a PDS into a sequential dataset and back again. Unloading is especially useful for copying a PDS to tape.

IEBGENER
: z/OS Sequential Copy/Generate Dataset utility. Replaced by ICEGENER in DFSORT and several non-IBM products.

IEBPTPCH
: z/OS Print-Punch utility for producing a hard copy of datasets and library members. Replaced by ISPF/ PDF's hardcopy capabilities.

IEBUPDTE
: z/OS Update Dataset utility. Can only be used for PDS members and sequential datasets with fixed-length records no greater than 80 bytes in length.

IEHLIST
: z/OS List System Data utility for listing a VTOC or the directory of a PDS.

IEHMOVE
: z/OS Move System Data utility for moving or copying logical collections of operating system data. Replaced by DFSMSdss.

IETF
: Internet Engineering Task Force. An open community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet.

IFL
: Integrated Facility for Linux. Dedicated Linux processor on the zSeries.

IIOP
: Internet Inter-ORB Protocol is an object-oriented protocol that makes it possible for distributed programs written in different programming languages to communicate over the Internet.

IML
: Initial Microcode (sometimes Machine) Load. The first step in starting up a mainframe, during which the firmware is automatically copied into the machine.

IMS
: Information Management System. Vintage but extremely powerful system for transactional workloads, still underpinning many of the world's business-critical applications. Composed of two systems: Database Manager (IMS DB) and a Transaction Manager (IMS TM).

IMS catalog
: The IMS catalog contains information about IMS program resources, database resources, and relevant application metadata that IMS controls.

IMS Connect
: This is an integrated TCP/IP gateway for IMS, allowing user-written applications to access IMS data and transaction services from any TCP/IP client. It also supports callout from IMS applications to outside services.

IND$FILE
: Mainframe file transfer program.

Info/Man
: IBM Information/Management. Software problem, change and configuration management software. Now called Tivoli Information Management for z/OS.

Integrity Monitoring
: Integrity Monitoring (IM) software offers security features such as whitelisting; early warning of infrastructure (parmlib, system files) changes; unusual activity by users; and surgical restore jobs; as well as regular checking that changes to data and backups are not unauthorized; and sending alerts.

Internet of Things (IoT)

This refers to devices such a remote sensors, CCTV, weather satellites, etc that will be monitoring thrughout the day, and producing data that can be captured and analysed.

IOCDS

Input/Output Configuration DataSet. The dataset specifying the I/O devices that can be connected to a mainframe.

IOCP

Input/Output Configuration Program. The program describing the I/O configuration to the channel subsystem.

Internet of Everything (IoE)

The concept originated at Cisco, who defines IoE as "the intelligent connection of people, process, data, and things". With IoT, all communications are between machines, IoE adds machine-to-people (M2P), and technology-assisted people-to-people (P2P) interactions to machine-to-machine (M2M) communications.

IP

Internet Protocol. An Internet protocol that routes data through networks. IP acts as an intermediary between the higher protocol layers and the physical network. It does not provide error recovery or flow control.

IP address

The numerical Internet Protocol (IP) address of an Internet computer. Every computer has a unique numerical IP address. IPv6, which offers 64-bit addressing, is meant to replace IPv4, which only offers 32-bit addressing. One day, all the addresses available with 32-bit addressing are meant to be used up!

IPL

Initial Program Load. The first part of the process of loading an operating system into a machine.

IRC

Inter-Region Communication is a CICS facility providing communication between CICS regions using functions such as Multiregion Operation (MRO) and Distributed Program Link (DPL).

IRD

Intelligent Resource Director. z/OS feature for redistributing workloads on the fly.

ISHELL

ISHELL (ISPF Shell) is the name of the panel displayed after issuing the ISH command. It can be used to view files and directories.

ISPF

Interactive System Productivity Facility. Menu and screen management system.

ISPF/PDF

ISPF/Program Development Facility. ISPF facility providing access to application development services for end users and programmers. Incorporates C and REXX programming support, and some support for programmable workstations.

ISV

Independent Software Vendor. A software vendor which isn't part of and/or doesn't belong to a hardware manufacturer.

IT4IT

This Reference Architecture prescribes holistic management of the business of IT with continuous insight and control, enabling 'Boundaryless Information Flow' across the entire IT Value Chain. It provides prescriptive guidance on how to design, procure, and implement the functionality needed to run IT. The endto- end, 'how to' emphasis of the IT Value Chain and IT4IT Reference Architecture also enables the state of services that IT delivers to be systematically tracked across the service life-cycle.

ITIL

Information Technology Infrastructure Library. ITIL provides a framework of best practice guidance for IT service managers. The actual ITIL publications cover areas such as service strategy, service design, service transition, service operation, and continual service improvement.

J

J2EE

Java 2 Platform, Enterprise Edition. The Java Software Development Kit (SDK) tools, APIs, and run-time (ie execution) environment targeted at Java developers building enterprise-class, server-side applications.

Java

An object-oriented programming environment developed by Sun towards the end of 1995. Java creates applets which can be downloaded across the Internet, and which will allow clients to interact with objects on the Web and intranet servers.

Java Virtual Machine

The facility allowing Java applets/source code to run on a computer.

JavaBeans

A platform-independent, software component technology for building reusable Java components called Beans. The JavaBeans component model specifies how to build reusable software components, how the resulting Beans describe their properties to visual rapid application development tools, and how they communicate with each other. Beans can be combined to create applications or applets.

JavaScript

An interpreted scripting language.

JCA

Java EE Connector Architecture can connect existing CICS applications to external Java applications using the CICS Transaction Gateway.

JCICS

The CICS Java class library (JCICS) can be used by Java applications to access CICS services. JCL Job Control Language. The language used on the mainframe to describe the steps of a batch job (files to be used, programs to be run, etc).

JDBC

Java DataBase Connectivity. An API that is designed for use by Java database applications, and has the same characteristics as Open Database Connectivity (ODBC).

JDK

Java Development Kit. Software development kit from Sun consisting of a Java compiler, a debugger, standard Java classes, and a Java run-time (ie JVM) for Unix.

Jenkins

A continuous integration tool used most often for software development

JES2 and JES3

Job Entry Subsystem 2. One of two batch processing subsystems available for z/OS, both developed in the 1960s and with a different heritage and different control statements. Each reads batch jobs in, schedules their execution and spools their output. JES2 is by far the more popular.

JMS

The Java Message Service is a Java API to messageoriented middleware (MOM). JNDI Java Naming and Directory Interface is really two APIs used to keep track of, and access, dispersed data.

JNI
The Java Native Interface is a programming interface for writing Java native methods and embedding the Java virtual machine into native applications.

JSON
JavaScript Object Notation is an open standard format using human-readable text to send data objects as an alternative to XML.

JSP
JavaServer Pages. Uses XML-like tags and scriptlets to encapsulate logic that fills out the dynamic content of HTML pages.

JVM
See Java Virtual Machine.

K

Kantara Initiative
This is an organization dedicated to advancing technical and legal innovation related to digital identity management. It isn't a standards body, buts make recommendations to standards bodies about digital identity management.

Kerberos
Security system for Unix environments derived from MIT's Project Athena. Uses a trusted server to ensure that there are no unwanted systems in the network.

Kernel
The core of an operating system that performs basic functions such as allocating hardware resources.

Kilobit
1024 bits, or 2 to the 10th power, when referring to processor storage, real and virtual storage, and channel volume. However, when referring to disk storage capacity it is 1000 bits. Abbreviated as Kb.

Kilobyte
1024 bytes, or 2 to the 10th power, when referring to processor storage, real and virtual storage, and channel volume. However, when referring to disk storage capacity it is 1000 bytes. Abbreviated as KB.

KSDS
Key Sequenced DataSet is a type of VSAM dataset in which the physical location of records is controlled by the key used.

Kubernetes
This is an open-source container-orchestration system for automating application deployment, scaling, and management. It was originally designed by Google.

KVM
Kernel-based Virtual Machine is a virtualization module in the Linux kernel that allows the kernel to function as a hypervisor.

Kyndryl
Once IBM's Managed Infrastructure Services business, in 2021 it became a separate company.

L

LAN
: Local Area Network. A generic term for the transport mechanism for a local (eg site or building) network. The thing that makes current LANs special is their intimacy with the connected machines; effectively the LAN acts as an extension to the internal bus of the attached system, and allows a single system to be built from physically dispersed components.

Language Environment
: LE provides a common run-time environment for major programming languages. The common library of runtime services includes message handling, condition handling, storage management routines and time/date functions.

Latency
: A measure of response time. On a disk drive, how long it takes for the first bit of requested data to rotate under the head. In a network, the minimum elapsed time for a message to be transmitted, consisting of the aggregate delay contributed by the communications links and devices along the way.

LDAP
: Lightweight Directory Access Protocol. An Internet directory management standard that provides a consistent way to manage user access to network resources, such as information, applications and systems.

LDS
: Linear DataSet is a type of VSAM dataset that can be kept permanently in memory thus improving performance.

Legacy system
: The description given to any system that's been around longer than the programmer who wants to change it. Some 'legacy systems' can be comparatively recent and, despite popular perceptions, they are certainly not exclusive to the mainframe.

Liberty profile
: This is a cut down version of the WebSphere Liberty product. It provides a way for CICS, IMS, and DB2 users to easily allow their applications to link to apps running in mobile devices and the Internet of Things.

LIFO
: Last In, First Out. A queuing technique where the most recent addition to the queue is processed first. Also known as a push-down stack.

Linear Dataset
: A VSAM dataset type, similar to an ESDS, but which always has 4096 byte blocks, and which can be kept permanently in memory for enhanced performance.

Linux
: An Open Source Unix variant that seems to run on everything from workstations (where Microsoft haters insist it will replace Windows) to mainframes (where IBM has spent bags of money making it run well).

Listener
: An application that 'listens' for input on a line and then acts on it.

Load module
: A program in a form that can be loaded into memory for immediate execution.

Logical Partitioning
: A way of dividing up a processor's capacity under PR/ SM into physically separate areas (LPARs or Logical PARtitions) for resilience, performance or security reasons.

LPA
Link Pack Area. The z/OS area used for resident programs, eg those programs which are most frequently used and (usually for performance reasons) should not be loaded by each application program from libraries stored on disk.

LPAR
Logical PARtitioning is a way of dividing up a processor's capacity.

LSR
Local Shared Resources. A technique for improving CICS performance by the sharing of a common buffer pool for VSAM datasets.

LU
SNA's software interface (or 'port') through which end users gain access to the SNA network. LU 6.2 SNA's protocol suite for program-to-program communications.

LUW
Logical Unit of Work is the amount of work that will be backed out in the event of a failure. For example, a CICS transaction is processing away happily and then something goes wrong. The LUW defines how much of what has been processed will be backed out and how much that occurred previously can be left. Large LUWs are efficient providing that failures are rare. Small LUW use processing power, but are more efficient for recovery after a failure.

M

M2M
Machine-to-machine is used when talking about machines, devices, and equipment that can communicate with each other. And that communication can be wired or wireless.

MAC
Media Access Control. Generic term for the way in which workstations gain access to transmission media.

Macro
A preprocessor (precompiler), and the statements it processes, for Assembler. Generates Assembler instructions and machine instruction mnemonics as well as allowing assembly time conditional logic.

Mainframe
A high-performance computer serving many people at once and running many different applications concurrently.

Man-in-the-Middle
Data siphoning scheme where fraudulent software manages to insert itself, undetected, between two network partners by actively emulating the two partners being deceived.

MapReduce
A process used on Big Data at runtime that maps the data and reduces it.

Master catalog
The z/OS catalog where the search begins for a dataset.

MCM
The MultiChip Module (MCM) contains the Central Electronic Complex (CEC) of a S/390 system.

Measured usage
The method of charging for software based on the monthly usage. Same as Usage-based pricing.

Megabit
1,048,576 bits. Abbreviated as Mb.

Megabyte
: Roughly one million bytes—actually 1,048,576 bytes. Abbreviated as MB.

MFLOPS
: MegaFLOPS. One MFLOPS is one million floating point operations per second—a common measure of numerically intensive compute power.

MIB
: Management Information Base. Generic term (often used specifically in relation to the SNMP management protocol) for the database of the objects managed in a network—usually a LAN.

Microcode
: Although it can have very specific alternative meanings, its most common usage is as a synonym for firmware.

Microsecond
: 1/1,000,000 of a second.

Microsoft
: The company that made the shrewd move of persuading IBM to use its DOS operating system for the IBM PC. The rest is history.

Middleware
: Though it defies definition, its primary role is to provide connectivity and other shared services between platforms. There are numerous types.

MIME
: Multipurpose Internet Mail Extensions. An encoding format allowing e-mail messages containing a variety of media forms (audio, video, image, and text) to be sent across the Internet.

MIPS
: Million Instructions Per Second (or Meaningless Indicator of Processor Speed). A crude and not very meaningful way of expressing raw computer power, widely used for comparing the power of different mainframe models and for demonstrating the futility of comparing the mainframe with other platforms.

Mirroring
: The technique of constantly maintaining a parallel copy of critical datasets, so that the duplicate data can be used if there is a problem with the main data.

MLPA
: The Modified Link Pack Area is an area of storage used to contain re-enterable routines from APF-authorized libraries.

MobileFirst
: MobileFirst is a set of mobile software, services, and solutions for businesses offered by IBM.

MOM
: Message Oriented Middleware. For example, WebSphere MQ.

MongoSQL
: This is an Open Source NoSQL database that uses JSON-like documents with dynamic schemas for speed.

MPF
: Message Processing Facility. A utility in z/OS that controls message display and message processing, typically to suppress unnecessary system messages. A first step towards automated operations.

MQSeries
: Messaging and Queueing Series—see WebSphere MQ.

MRO
Multi-Region Operation is a function of the CICS Inter- Region Communication facility enabling communication between CICS regions.

MSDBs
Main Storage DataBases are one of two types of IMS fast path database. These databases do not have indexes and are stored in VSAM files.

MSS
Mass Storage System is hardware for storing large amounts of archive data, typically involving the use of a jukebox mechanism to retrieve discrete data cartridges.

MSU
Millions of Service Units. Measure of mainframe compute power, used selectively by IBM as an alternative to MIPS. Opinions vary as to how the two metrics compare.

MTBF
Mean Time Between Failures. The average value of the length of time between consecutive failures under stated conditions of a system.

MTO
Master Terminal Operator. Software enabling a terminal to control a subsystem, eg CICS.

MTTR
Mean Time To Recovery or Repair. The average time required for corrective maintenance. See also MTBF.

Multiplexer
A generic device (also known as a mux) that combines data from two or more devices, transmits the data as a single datastream over a high-speed communications medium, and disentangles (de-multiplexes) the data at the other end.

Multi-point
Communications configuration in which a single primary node communicates with two or more secondary nodes (which cannot communicate with one another, except through the primary). Also known as multi-drop.

MVP
Minimum Viable Product is often created at hackathons.

MVS
Multiple Virtual Storage. In z/OS's long history, MVS has the honour of being its name for the longest period (about 20 years), and the operating system is still referred to as MVS by many mainframe technical specialists. Popularly believed to stand for Man Versus System.

N

Nabla containers
These are a new type of container designed for strong isolation on a host. Nabla replaces the typical VM hypervisor interface of hypercalls and vmexits with simple system calls (syscalls), and so reduces the attack surface.

Nanosecond
1/1,000,000,000 of a second.

NAS
Network Attached Storage.

.NET

.NET is a Microsoft strategy for creating Web services. In essence, a Windows user should be able to run applications locally or over the Web without noticing the difference. Visual Studio .NET is a development environment that is currently available.

NetView

SNA network management product. Announced mid-1986. Although it started off life as a rather halfhearted bundling of various mainframe-centric network management products (including NCCF, NLDM, NPDA, VNCA, and NMPF), by mid-1995 it had turned into a fully-fledged distributed network management system, with a strong focus on distributed Unix boxes as network management workstations. Replaced by Tivoli NetView and other products.

NFS

Network File System. Set of Unix protocols (originally developed by Sun Microsystems) for file sharing across a LAN. Built on top of Ethernet and TCP/IP.

NJE

Network Job Entry. JES facility enabling multiple hosts to share job queues and system spools.

Node

In SNA, a total unit of network-attachable functionality, realized in software, that gets implemented within a device or runs on a computer.

NoSQL

NoSQL databases don't have to use SQL, but may. They are different from traditional relational databases.

Notes

Lotus groupware product that IBM took on in June '91.

OAuth

This is an open standard for authorization. It allows people to access third-party Web sites using their validated Facebook or Twitter IDs.

OCR

Optical Character Recognition. OCR software is used to convert scanned documents into machine-readable text files.

ODBC

Open DataBase Connectivity. An API created by Microsoft that allows Windows applications to access relational databases, such as DB2 and Oracle, and other data sources using SQL statements.

OEM

Original Equipment Manufacturer. An OEM is a manufacturer who makes a product and sells it to another company, which puts its own badge on it and sells it to the end user.

Office 365

A Cloud-based version of Microsoft's Office suite of enterprise-grade productivity applications. As well as Word and Excel, users get Outlook, SharePoint, Forms, and Team sites.

OLAP

On-Line Analytical Processing. A term coined by database guru Ted Codd and used to refer to multidimensional analysis and reporting applications of the EIS and Information Warehouse type.

OLE

Object Linking and Embedding. Microsoft-sponsored standard for moving and linking data and other objects between applications and systems in Windows.

OLTEP
On-Line Test and Execution Program. IBM engineer's tool for analysis of hardware problems.

OLTP
On-Line Transaction Processing. Generic term for highthroughput, very resilient transaction systems. OLTP tends to be used to refer to systems with some degree of fault tolerance.

OMG
Object Management Group. A group of vendors responsible for standards for object management and interoperability including CORBA, UML, MOF and CWM. IBM joined in 1991.

OMVS
The OMVS command is used to invoke the z/OS Unix shell.From here you can use shell commands or utilities requesting services from the system. You could also write shell scripts and run shell scripts or programs written in C.

Online Reorganization (OLR)
Using OLR with IMS HALDBs, the databases remain available to applications throughout the OLR reorganization process.

Open Systems
Computer systems that provide either interoperability, portability, of freedom from proprietary standards, depending on your perspective.

OpenEdition
'Open' version of MVS that was replaced by Unix System Services in z/OS and OpenEdition Shell and Utilities in z/VM.

OpenID
This provides a way for users to consolidate their digital identities by having a single OpenID when connecting to different Web sites.

ORB
Object Request Broker. A specialized object that allows other objects to communicate with each other to make and receive requests and responses. OS/390 Replacement for MVS, announced in 1995. Now superseded by z/OS, but still used in some mainframe sites.

OSA
Open Systems Adapter is an integrated hardware feature allowing zSeries 900 platforms to provide connectivity directly to clients on LANs.

OSA Express
Open Systems Adapter-Express are an IBM adapter family consisting of integrated hardware features that are designed to provide direct connection for zSeries and S/390 Parallel Enterprise Servers G5 and G6 to high speed routers and switches, to other high-speed servers, and to clients on LANs.

OSAM (Overflow Sequential Access Method)
This is an IMS-specific access method that optimizes the I/O channel program for IMS access patterns.

OTC
One Time Charge. An initial license charge. Caused a furore when the concept was introduced, but people seem to have got used to it now. At the beginning of 1999, OTC was dropped from any mainframe software product for which a monthly charge option was available.

OTE
: Open Transaction Environment was introduced with CICS TS 1.3. Its aim is to open up the CICS application execution environment, allowing applications to be defined to execute under their own TCBs within CICS and allowing CICS to better exploit multiple processors.

OTMA (Open Transaction Manager Access)
: This IMS facility is a transaction-based connectionless client/server protocol that functions as an interface for host-based communications servers accessing IMS TM applications using the Cross Systems Coupling Facility (XCF).

Outsourcing
: The notion of contracting out part or all of your IS function to an outside organization. Used to be often used synonymously with facilities management, although strictly speaking facilities management involves delegating responsibility for the whole service rather than just part of it.

P

PaaS
: Platform as a service provides a platform, allowing customers to develop, run, and manage Web applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app.

Page
: An essential process within virtual storage technology. Fixed sized blocks (typically 4096 bytes) of memory are freed up by writing their contents to a paging device until any virtual address within that block is referenced.

Parallel Sysplex
: See Sysplex.

Parity bit
: A binary digit check bit appended to a group of binary digits to make the sum of all the digits, including the appended binary digit, even or odd, depending on whether Even or Odd Parity is being used.

Parmlib
: Parameter Library. A dataset in z/OS containing parameter settings. The most important is SYS1. PARMLIB which contains parameter settings for z/OS and many key subsystems.

Parse
: The analysis of the operands entered with a command in addition to the creation of a parameter list for the command processor. It can also refer to the initial processing of source code by a compiler, when it divides up each program statement into its component parts, also known as tokens.

PASCAL
: Programming language, mainly used in academia, though even there it is rarely seen these days.

Patch
: A code modification to correct a reported problem that is sent to software product users after the release of a product.

PAV
: Parallel Access Volumes are used to eliminate I/O supervisor queueing against DASD. Thus improving the performance of anything accessing the disk devices.

PCI
: Peripheral Component Interconnect. Extremely popular PC bus standard originally promoted by Intel and soon supported by IBM, even though it meant dropping its beloved MCA.

PCMCIA
: Personal Computer Memory Card International Association. Industry-standard interface (not just for memory, but for modems, network interfaces, etc) for laptop and notebook computers.

PDF
: Portable Document Format. File definition format used by Adobe Acrobat.

PDS
: Partitioned DataSet. A z/OS feature that is really made up of datasets within a dataset. Each PDS is made up of zero or more members. Each member has all the characteristics of a standard sequential dataset, though all members share the same attributes: those that were defined for the PDS when it was allocated. Each member has a one- to eight-character name that follows the same rules as a level of a standard z/OS dataset name (DSN). Each PDS has a directory of its members, which can also (optionally) contain other information, known as Statistics, which are maintained by software such as the ISPF/PDF editor.

PDSE
: Partitioned DataSet Extended. Software which enables the space freed by expired or deleted PDSs to be reused. Introduced in 1989 in an attempt to address the limitations of the PDS.

Peer-to-peer
: A form of distributed system in which all participating nodes can function as both client and server.

PERL
: Practical Extraction and Reporting Language. A general-purpose Unix scripting language, which is popular for writing CGI programs. Its speed and flexibility make it well suited for form processing and on-the-fly page creation.

Pervasive encryption
: Available with Z14s, it generally means the ability to encrypt everything everywhere without interfering with the user experience. The Z14 can “pervasively encrypt data associated with any application, cloud service, or database all the time”.

Petabyte
: 1024 terabytes (TB)—2 to the fiftieth power, or 1,125,899,906,842,624 bytes. Abbreviated as PB.

PF key
: Program Function key. A single keystroke can be used to perform a specific command.

PGP
: Pretty Good Privacy. Encryption technology which uses the public key approach. Messages are encrypted using a public key, but can only be decoded using a private key kept by the intended recipient of the message.

Phishing
: A malicious scheme to obtain the credentials necessary to access a secure system by masquerading as that system and fooling people into entering the soughtafter credentials.

Picosecond
: 1/1,000,000,000,000 of a second. A time span during which even <insert your least-liked company name here> would not be able to put up prices.

PING
: Packet INternet Groper. A test of reachability in TCP/IP networks. A PING is a program used to test the ability to reach destinations by sending an echo request and waiting for a reply.

Pipeline
: In Linux and other Unix-like operating systems, a pipeline is a set of processes chained together. Output from one process is then input for the next process until all the processes have executed.

PL/I

Programming Language/One. Language developed by IBM. A sort of love-child of COBOL and FORTRAN, it was widely used on the mainframe for many years but never quite achieved the 'universal standard' status that IBM had hoped.

Plain text

Data that is not encrypted. Typically refers to data while it is being transmitted across a network.

PLPA

Pageable Link Pack Area is part of memory containing system-level programs that may be run by multiple address spaces.

Polling

Generic name for a method for controlling devices (eg networked workstations or terminals), in which a computer calls (polls) each device in turn to see whether it wants to communicate.

POP

Principles of Operation. The name of the manual that defined the S/360 and subsequently the S/370 architecture.

Port

Generic noun and/or verb. As a noun, it means a point at which data can enter or leave a data network or individual device; as a verb it means to convert a piece of software written for one environment so that it runs in another.

POSIX

Portable Operating System Interface Standard. Operating system interface standard from the IEEE, designed as a procurement reference standard for ensuring source-level application code portability.

PostScript

Language/protocol cum page description language developed by Adobe Systems for driving high-resolution page printers.

Power Systems

Originally, IBM had the System i running IBM i (OS/400) and the System p series running AIX or Linux. In 2008, IBM merged the two lines of servers and workstations under the same name, Power Systems, with identical hardware and a choice of operating systems, software, and service contracts.

PPP

Purchasing Power Parity is Gustav Cassel's theory (1920) that, in an efficient market, identical goods must have only one price.

PR/SM

Processor Resource/Systems Manager. Logical partitioning hardware technology that makes a single system, even if it has only one processor, look like multiple systems each of which is a Logical PARtition (LPAR).

Private area

Area within z/OS which contains the user's own data/ programs.

Private key

A key known only to the sender or receiver of an encrypted message.

Problem State

A term used in performance measurement to indicate when the machine is performing end-user work. The opposite is Supervisor State, when the machine is spending time generally managing itself.

PROLOG
PROgramming in LOGic. Language mainly used for developing artificial intelligence and expert systems.

PROP
PRogrammable OPerator. A facility in z/VM that allows remote control of a virtual machine, enabling limited automation of routine operator activities.

Proprietary
Proprietary is used to refer to architectures and standards owned by a hardware or software vendor. The term is usually used in opposition to 'open'.

Proxy server
A server that receives and fulfils requests intended for another server.

PRPQ
Programming Request for Price Quotation. IBM terminology for a customer request for a price quotation on alterations or additions to the functional capabilities of system control programming or licensed programs.

PSLC
Parallel Sysplex License Charge, a monthly license charge designed to support the design of a Parallel Sysplex cluster. In a fully qualified Sysplex environment, PSLC software charges are based on the total MSU value for only those machines where the products execute.

PSW
Program Status Word. A hardware register (double word) in the mainframe. The PSW contains the address of the next instruction to be executed and, when an application or system software error occurs, why it happened and other status information.

PTF
Program Temporary Fix. An official IBM temporary patch to a program—often less temporary than IBM and its users would wish. PTFs are distributed on PUTs. Sometimes the term APAR is used instead of PTF.

Public key
A published key value used as one of the two keys in public key encryption.

PWFI
The pseudo wait-for-input option means an IMS MPP region can stay scheduled until another input message appears, avoiding additional application program termination and rescheduling.

Q

QMF
Query Management Facility. Query and report-writing system for DB2 with some analysis and graphics features.

QSAM
Queued Sequential Access Method is an access method for communicating with sequential datasets.

R

RACF
Resource Access Control Facility is IBM's External Security Manager (ESM) for z/OS and z/VM.

RAG
Red/Amber/Green status lights used to indicate in an easily interpretable way the status of a system, with red indicating poor system health.

RAID
: Set of redundancy standards for disk subsystems (RAID 0-6), developed by the University of Berkeley and adopted by the RAID Advisory Board.

RAM
: Random Access Memory, also known as system memory, is the amount of physical memory that is addressable by and directly accessible to the processor chips on the motherboard.

Ransomware
: This is downloaded software that stops you using your PC. The software will usually ask for money before control of your computer is given back to you. Just running anti-virus and anti-malware software is not enough these days. Examples of ransomware include: Brolo, Crowti, FakeBsod, Krypterade, Reveton, and Tescrypt. The number of ransomware attacks is increasing all the time.

RAS
: Reliability, Availability, and Serviceability—the three most desirable properties for IBM computers.

RDBMS
: Relational DataBase Management System. Database system based on relational principles. DB2 is IBM's preferred RDBMS for just about every platform.

Read-only mode
: A mode that does not allow updates to the data being read.

Real storage
: The combination of central and expanded storage. Also known as processor storage.

Red teaming
: This refers to the practice of viewing a problem from an adversary or competitor's perspective—and that usually means looking at issues with security.

Redbook
: A more readable version of an IBM manual Relational database A type of database that allows information in one set of database tables to be connected to information in another set of tables without requiring duplication of information.

RESTful
: REST (Representational State Transfer) is an architectural style used to build Web services that are lightweight, maintainable, and scalable. A service based on REST is called a RESTful service. It links mainframe applications with mobile and cloud apps.

REXX
: Restructured EXtended eXecutor language. A widely used job control language, REXX has become a replacement for existing procedural languages such as CLIST. REXX is an effective programming language in its own right with powerful string processing facilities.

RJE
: Remote Job Entry. Dedicated RJE terminals include 2780/3780 or 3770.

RMF
: Resource Measurement Facility. On-line performance and resource monitor for z/OS. Also includes a formatter for printing performance reports. An optional, separately priced feature of z/OS.

RPA
: Robotic process automation is a way to automate repetitive or routine tasks that are usually performed by knowledge workers. It uses metaphorical software robots. Employees are then free to perform highervalue work.

RPG
Report Program Generator. Programming language widely used on the eServer iSeries 400 and its predecessors, AS/400 and System/3x. As its name implies, originally used mostly for report generation and very strong sort/merge facilities, where it can be used completely non-procedurally.

RRDS
Relative Record DataSet is a type of VSAM file. Each record is accessed directly by its record number.

RSM
Real Storage Manager. The part of z/OS that controls real memory.

S

SAF
System Authorization Facility is the z/OS security API and is invoked by either the RACROUTE macro or z/ OS Unix callable services. Resource Managers (eg CICS, TSO, JES) use RACROUTE to request security authorization checks. SAF passes the request to the External Security Manager (ESM) for a response.

SAML
Security Assertion Mark-up Language addresses the issue of Single Sign-On (SSO). The SAML specification defines three roles: the principal (typically a user), the identity provider (IdP), and the service provider (SP).

SAN
Storage Area Network.

SAP (System Assist Processor)
A System Assist Processor is a specialized processor that assists a central processor on a mainframe.

SASE
Secure Access Service Edge (pronounced “sassy”) is the combination of wide area networking (WAN), and network security services like CASB, FWaaS, and Zero Trust, into a single, cloud-delivered service model.

SCEM
Supply Chain Event Management examines all possible events and factors that might disrupt a supply chain.

SCM
Supply Chain Management applies to all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption. It is the process of planning, implementing, and controlling the operations of the supply chain as efficiently as possible.

Screen scraping
A programming technique for interacting with online host applications that generate text-only display output. The display output is read (scraped) right off a virtual screen by the workstation-based software and input generated on a virtual keyboard. What the user sees is quite different, and usually includes a GUI.

SDEPS (Sequential Dependents)
Sequential dependent segments (SDEPs) may be included in an IMS Data Entry Database (DEDB).

SDSF
System Display and Search Facility. Online tool for programmers and operators monitoring jobs awaiting execution in the JES2 input spool queues and, most commonly, viewing the printed output of batch jobs in the Held output spool queues, to save printing it on paper.

Serial number
Term used to denote the machine which you own today, which may be very different from the one you originally bought.

Server
: A device providing database information, or Web pages, any other information. It usually has a number of clients or users of this data.

Service Level Agreement
: Generic term for an agreement between a user and the people providing a computer service. The SLA specifies such things as response time, availability, etc.

Service Unit
: The basic charging unit in usage-based pricing.

Servlet
: A Java applet, without a user interface, that is executed on a Web server. Often used to replace CGI routines, because they support dynamic HTTP requests.

SFM
: Sysplex Failure Manager is used when one of the systems in a parallel sysplex fails. It is responsible for recovery of the system and subsystem.

SGML
: Standard Generalized Mark-up Language. The canonical mark-up language from which HTML and XML are derived.

Shift left
: This is an approach to software testing and system testing in which testing is performed earlier in the lifecycle. That means it's moved to the left on the project timeline. Similarly, quality and security can be moved earlier in the software life-cycle. Although, I'm sure you've spotted the flaw in the thinking—if too much is shifted to the left, then everything is back where it started!

SIEM
: Security Information and Event Management software products and services combine security information management and security event management. They provide real-time analysis of security alerts generated by applications and network hardware.

SIGP
: SIGnal Processor.

Site Reliability Engineer (SRE)
: An SRE will spend half their time on developing new features, scaling, and automation. The other half of their time will be spent on operator-type tasks. They will not only fix problems as they occur, but will also identify the root cause of the problem and create an action plan to address them—ensuring, as far as possible, that the incident doesn't happen again. Often, this will result in more automation.

Skeuomorphism
: Is making one thing look like something else, eg making the digital interface look like a paper one—you often see it with calendar applications that look like desktop paper calendars. The GUI emulates real physical objects that the user will be familiar with. Including skeuomorphism in a UI design is a good idea because it makes an unfamiliar interface look like something familiar—and, therefore, its use becomes more intuitive.

SLA
: A Service Level Agreement is a formally negotiated agreement between two parties (the IT department usually being one of them) where the level of service is formally defined.

SMF
: System Management Facilities. Function within z/OS which collects data on all system activities for use in accounting, performance monitoring, capacity planning, etc. SMF creates log entries (SMF records) of this data.

SMP/E
System Modification Program / Extended is used to install most software products.

SMS
System Managed Storage. The philosophy of letting the computer system manage the storage of data rather than having it done by a human data administrator.

SMTP
Simple Mail Transfer Protocol. The protocol allowing the transmission of e-mail messages across the Internet.

SNA
Systems Network Architecture. IBM's extremely powerful but complex data communications architecture defining levels of protocols for communications between terminals and applications, and between programs. While SNA-only networks have all but disappeared, SNA applications are still very much in evidence in the large enterprise.

SNMP
Simple Network Management Protocol. Unix protocol originally developed for management of TCP/IP networks.

SOA
A Service-Oriented Architecture is a collection of services that communicate with each other. The services are self-contained and do not depend on the context or state of the other service. Mainframe applications become available to Web browsers and now mainframe applications can call other Web services.

SOAP
Simple Object Access Protocol. A lightweight form of middleware for accessing services, objects, and servers in a platform-independent manner.

Sockets
Software interfaces that allow two Unix application programs to talk to one another using TCP/IP protocols.

Solution Consumption License Charges
SCLC applies to a number of Monthly License Charge (MLC) software programs. It offers pay-as-you-go pricing for the actual consumption of CPU, or a 20% saving for a minimum monthly commitment.

Spark
A popular fast engine for large-scale data processing.

Spool
Simultaneous/Shared Peripheral Operation On-Line. DASD storage used as a temporary storage area between devices—eg printer and processor.

SQA
System Queue Area. Storage area in z/OS.

SQL
Structured Query Language. IBM and ANSI standard (they diverge and converge regularly with the passage of time) for access to relational databases.

SRB
Service Request Blocks are requests to execute a service routine and they are usually initiated by system code executing from one address space to perform an action affecting another address space.

SRM
System Resources Manager. Software which is meant to improve throughput by optimizing the use of system resources.

SSCP
: SNA's System Services Control Point, in a hierarchical network, typically implemented on a mainframe within VTAM, that is responsible for directory services and configuration management. Now superseded by the peer-to-peer oriented functionality of APPN/HPR control points.

SSL
: The Secure Sockets Layer is a much-used protocol for managing the security of messages sent over the Internet.

Stand-alone dump
: A display of all used memory locations, typically stored on DASD or tape, created with a program that does not required the operating system to be functioning normally.

Superuser
: A user ID with minimal security restrictions.

Supervisor State
: A term used in performance measurement to indicate when the machine is spending time generally managing itself. The opposite is Problem State, when the machine is performing end-user work.

SupportPac
: A SupportPac is supplied by IBM and contains complementary software, which may be new utilities, or class libraries, or things that IBM thinks will make the product more usable or work better.

SVC
: SuperVisor Call. An interface to operating system functions that is used to protect the operating system from inappropriate user entry. It can also refer to the SVC Assembler mnemonic or machine language instruction it represents.

Swagger
: A simple yet powerful representation of your RESTful API. With the largest ecosystem of API tooling on the planet, thousands of developers are supporting Swagger in almost every modern programming language and deployment environment. With a Swagger-enabled API, you get interactive documentation, client SDK generation, and discoverability.

Swapping
: The process of transferring a complete program between main memory and auxiliary storage (usually disk).

Syncpoint
: A point in a transaction's life when updates are committed. In a distributed environment, where the transactions may be across several databases, the syncpoint enables the commit to be delayed until all the participants can commit simultaneously.

SYSGEN
: System Generation. The process of creating a customized version of an operating system. In the IBM environment this was a complex, error-prone and timeconsuming process.

System i
: Formerly iSeries and now called just i—a later incarnation of the AS/400 family of hardware that runs on Power hardware.

System p
: Formerly pSeries—this is the latest incarnation of the RS/6000 family of hardware.

System z
: Formerly zSeries—this is the name for mainframes running z/OS and/or z/VM and/or other operating systems. Now called IBM Z.

SYSOUT
z/OS output intended for a printer. The name comes from the JCL DD parameter SYSOUT, where SYSOUT=A means send the output to the JESx Class A spool queue.

Sysplex
SYStem comPLEX. A processor complex which is formed by loosely coupling System/390 processors together into a single unit (using channel-to-channel adapters or ESCON/FICON fibre-optic links); the processors are synchronized using the Sysplex Timer, and can be managed as a single system image.

T

Tablet
For many executives, the must-have device is an iPad from Apple or an Android device from Samsung and other suppliers. As a consequence, these now need to be connected to corporate data, with all the concomitant security issues.

TCB
Task Control Blocks represent tasks executing within an address space. There are usually several TCBs associated with each address space, so more than one task could be running in any one address space at any one time. TCBs are created when a program issues the ATTACH macro to initiate a new task.

TCP/IP
Transmission Control Protocol/Internet Protocol. Set of protocols for the network and transport layers of a packet-switched data network, most notably the Internet. Developed in the US for the Department of Defense ARPAnet system and has become the de facto standard for most forms of data communication.

telnet
The remote, or virtual, terminal protocol for the Internet. Allows users to log-in to their home machine from any other machine, or vice versa.

Telum processors
IBM's new 7-nanometer chip, which is designed to handle AI workloads faster, and improve security and fraud detection for mainframes used by financial services organizations such as banks and insurance companies.

Terabyte
1024 gigabytes or 1,099,511,627,776 bytes. Abbreviated as TB.

TeraFLOPS
1000 GigaFLOPS, a measure of supercomputer performance.

Third platform
This is meant to represent the next phase of the IT revolution. The first platform is the mainframe; the second is the PC; and the third comprises cloud services, mobile computing, social networking, and big data analytics.

Threadsafe
Originally introduced with CICS 3.2, threadsafe refers to the ability of an application to process multi-threaded programs at the same time safely.

tn
Refers to tn3270, tn3270e and tn5250 collectively or interchangeably.

tn3270
Specialized TCP/IP telnet protocol which provides compatibility with a 3270 datastream by emulation of the screen buffer. Used for mainframe host access across the Internet and internally within organizations to replace SNA terminal-to-host access with TCP/IP.

tn3270e
: Improved version of tn3270 that supports colour, the 3270 System Request key and other capabilities not present in tn3270.

TPF
: Transaction Processing Facility. Low-function but high performance mainframe TP monitor for very large communications systems. Derived from ACP (Airline Control Program), which was derived from PARS (Programmed Airline Reservation System).

TPIPE
: IMS Connect communicates with IMS through logical connections called transaction pipes (TPIPEs).

Transport layer
: The network layer responsible for quality of service and accurate delivery of information, ie error detection/correction occurs here.

TSO
: Time Sharing Option. These days, everyone just says TSO when they mean TSO/E.

TSO/E
: Time Sharing Option/Extensions. An element of z/OS that provides an on-line interactive environment for programmers and users. Best known for the ISPF/PDF environment that runs on TSO/E. Can also be used to test batch programs.

TXSeries
: A merging of CICS, Encina and IBM Transaction Server.

U

UCB
: Unit Control Block is used to control access to devices.

UDDI
: Universal Description Discovery and Integration is a directory model for Web services. UDDI is a specification for maintaining standardized directories of information about Web services, recording their capabilities, location, and requirements.

Unified Resource Manager
: The Unified Resource Manager is an integrated System z management facility responsible for platform management on z196s. This tool set enables clients to install, monitor, manage, optimize, diagnose, and service resources and workloads from a single point.

Unit of work
: The statements executed between one commit point and the next—usually a group of SQL statements which would need to be rolled back as a group if any single statement in the group could not be executed. It's the basic recovery unit.

Unix
: A misspelling of UNICS (UNiplexed Information and Computing Service). A hardware-independent operating system originally for minicomputers.

Unix System Services
: A full function Unix implementation under z/OS that complies with the POSIX standard. Originally introduced as OpenEdition.

Usage pricing
: The principle of charging for software on the basis of the amount of work done, eg the number of transactions or the amount of batch data processed.

User catalog
: In z/OS, an ICF catalog created to reduce the number of entries in the Master Catalog, thereby improving performance.

V

VIO
: Virtual I/O. Hyper-efficient z/OS paging technique. Simulates DASD using real storage and so avoids the overhead of channel activity.

VIPA (Virtual IP Addressing)
: This frees hosts from depending on a particular physical network interface for communication with a TCP/IP stack.

Virtual storage
: A technique for giving programs the illusion that they have massive quantities of main storage to themselves. The technique works by allowing programs to address lots of virtual memory, but making the operating system page the required data in and out of real main store and to and from a paging device at the appropriate time. The technique enables cheap DASD to be used instead of expensive main storage.

Virtualization
: A way of dividing up a computer's components and sharing them in order to maximize their usefulness.

VM
: Virtual Machine. Mainframe operating system which can act as a hypervisor, enabling users to run multiple OSs on a single machine. There are two components to VM—the hypervisor itself, which provides resources to the virtual machines; and CMS, which provides conversational and timesharing facilities. VM was on the way out when IBM discovered a new role for the software: z/VM can host hundreds (technically thousands) of Linux images on the mainframe at a fraction of the cost of distributed hardware.

VOLSER
: Volume Serial Number. The key identifying a tape or other storage volume. Maximum six characters. Most installations use a six-digit VOLSER for in-house tapes to easily differentiate them from DASD volumes.

Volume
: The unit of physical storage. Originally the volume equated to a single disk or tape, but logical volumes are more the norm today, especially with most current DASD devices emulating previous products and VTS doing volume stacking on tape.

VPA
: A Virtual Personal Assistant is piece of AI (artificial intelligence) just for you. It can schedule meetings and tell you what the weather's like.

VSAM
: Virtual Storage Access Method (aka Very Slow And Mysterious). IBM mainframe proprietary software for direct (by key or by record number) or sequential processing of fixed and variable length records on DASD.

VSE
: Virtual Storage Extended. For many years, VSE was IBM's principal operating system for small to mediumsize mainframes. A few years back it looked as if VSE support would slowly be withdrawn, but customer support is strong and the re-dubbed z/VSE now looks set to continue for some time.

VTAM
: Virtual Telecommunication Access Method. The main SNA subsystem resident in the mainframe, which manages session establishment and data flow between terminals and application programs, or between application programs.

VTOC
: Volume Table Of Contents. The area of a disk used to store the directory of components, including datasets, held on that volume. Anything that takes DASD space is listed in the VTOC. For example, the index and data components of a VSAM KSDS file are listed in the VTOC, but not the cluster name, which is only listed in the catalog.

VVDS
: The VSAM Volume DataSet along with the BCS make up the ICF catalog structure. The VVDS is a special type of ESDS. It is created automatically whenever a VSAM component (including a BCS) is allocated on a volume which does not yet have a VVDS. The VVDS is always called SYS1.VVDS.Vvolser.

VWLC
: Variable Workload License Charge. IBM software pricing scheme that allows users to license a product for a capacity less than the total capacity of the system. Replaced by AWLC on zEnterprise mainframes.

W

WAS
: WebSphere Application Server. IBM's Java application server. WAS for z/OS version 6.0.1 supports J2EE 1.4 and many mainframe-specific functions.

Watson Explorer
: Watson Explorer combines content and data from different systems and presents it in a single view.

Web 2.0
: A practically meaningless term in itself (the Web is not software with version and release numbers) that can be used as a way of highlighting some of the new technologies that are available over the Internet and identifying the companies that are using them, like Google Earth, Flickr, etc.

WebSphere
: An IBM Internet-focused software platform that supports e-business applications and sits at the heart of IBM's middleware strategy. The foundational products are WebSphere Application Server and WebSphere MQ.

WebSphere Application Server (WAS) Liberty profile
: This is a cut-down version of WAS containing only the features required by the applications used on the server.

WebSphere MQ (WMQ)
: Originally MQSeries. IBM software/middleware that provides a message queuing infrastructure; it sits on various systems in a heterogeneous environment, providing integration between disparate systems and applications.

WebSphere Optimized Local Adapters (WOLA)
: A part of WAS for z/OS that provides a low-overhead communication mechanisms for exchanging high volumes of messages.

Web service
: Web services are essentially "mini" applications that include a description of what another application does, how to accesses it, and what data it requires. They are often utilized in integration projects where disparate systems may have difficulty interacting with each other without the use of the common standards.

WLM
: Workload Manager. Feature within SRM for simplifying the management of system resources such as CPU and storage. eWLM reportedly adds the ability to define business performance objectives across disparate systems.

WMLz
: IBM Watson Machine Learning for z/OS lets users build machine learning models using their IDE and platform of choice and then deploy scoring services within transactional applications and monitor them on IBM Z.

Workload License Charges
: An IBM software licensing scheme which charges according to required software capacity, not hardware capacity.

WSAT
: Web Services Atomic Transaction is now supported in CICS TS 3.1. Web services can be configured to take part in an extended or global unit of work. This is known as an atomic transaction. Recoverable updates are not committed or backed out until instructed to do so by the Web service.

WSDL
: Web Services Description Language is the standard format for describing a Web service. A WSDL definition describes how to access a Web service and what operations it will perform. WSDL (along with SOAP and UDDI) is one of the three foundation standards of Web services.

WSRR
: WebSphere Service Registry and Repository is used with WebSphere in SOA environments.

WTO
: Write To Operator. A message sent to the mainframe operator console from JCL or an application program.

X

XML
: eXtensible Mark-up Language is a W3C recommendation and provides a standard approach for describing, capturing, processing, and publishing information.

X-Terminal
: A type of terminal developed in the Unix world that provides a GUI type environment (usually X-Windows) without the need for a programmable workstation.

Z

z/Architecture
: IBM's latest architecture for mainframes and peripherals.

z/OS
: The latest incarnation of MVS, the principal operating system for the IBM mainframe. Announced in October 2000, it brought with it support for 64-bit addressing and a broad range of technical innovations. As well as running on zSeries machines, it also runs on System/390 G5 and G6 processors and Multiprise 3000 systems.

z/OS Connect
: z/OS Connect is built on IBM WAS Liberty profile running on z/OS, and is a gateway providing a way to consume data and services hosted on IBM Z from mobile, cloud, and Web applications.

z/OSMF
: z/OS Management Facility allows users to manage various aspects of a z/OS system from a browser. It's intelligent, and helps users more easily manage and administer a mainframe system by simplifying day-to day operations and administration of a z/OS system.

Z/TPF
: The latest version of the Transaction Processing Facility, a low-function but high-performance TP monitor for very large data communications systems.

z/VM
: The latest version of the much-loved Virtual Machine, a hypervisor that enabled users to run multiple operating systems on a single machine.

zAAP
: A Java co-processor for the z890 and z990, which allows customers to offload Java application processing without paying software costs for the additional capacity.

Zap
: Affectionate name for various utilities (AMASPZAP, aka SUPERZAP in z/OS), which can be used to apply a fix directly to object code in situ. Zapping is a bad thing—it creates programs in which the object code does not agree with the source, and which are hence totally unmaintainable.

zBX
: The zEnterprise BladeCenter Extension (zBX) on operates as a tightly-coupled extension to the z196 and z114 mainframes through a high-performance private network. Users then add POWER7 or System x blades to four racks.

zCX
: z/OS Container Extensions let users run Linux on Z applications as Docker containers in a z/OS system to directly support z/OS workloads.

Zero day vulnerability
: This is a hole in a piece of software that is unknown to the vendor.

zFS
: zSeries File System is a Unix file system that can be used in addition to HFS.

zIIP
: z9 Integrated Information Processor. A co-processor similar to zAAP (the idea is that you pronounce them ZIP and ZAP), but designed to off-load DB2 work and integrate data across the enterprise. Like zAAP, you pay for the hardware but do not incur IBM software charges for the additional capacity. Minimum requirement: z9- 109 with z/OS 1.6 or later and DB2 V8.

Zombie computers
: These are used to spread e-mail spam and launch distributed denial-of-service (DDOS) attacks.

Zombie data
: This is old forgotten data that you thought you'd deleted, but hadn't.

Zombie programs
: These are the programs that hackers use to gain access to your computer. They are often called 'bots'.

Zoom
: Video-conferencing software that now seems to be everywhere. Used for business meetings and family chats.

Zowe
: Zowe is the first Open Source framework for IBM Z. It allows development and operations teams to securely manage, control, script, and develop on the mainframe like any other cloud platform. These new developers do not need to have previous mainframe experience!

ZTNA
: Zero Trust Network Access is a way of working requiring the strict verification of every individual and device that attempts to access a network or other business resource.