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Mainframe Reframed for the Application Economy

A Point of View for IT Operations Professionals looking to adapt and evolve their Mainframe Systems for today's Application Economy

CA Mainframe Solutions

ca technologies

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Executive Summary

Challenge

We are in the midst of a customer revolution. Technology is empowering customers as never before—creating the need for new levels of transparency, availability and reliability to meet customer demand. At CA Technologies, we believe this customer revolution is the foundation of a new application economy. In the application economy, every company must re-examine their business models to create new value. **As this transformation occurs, pressure on all areas of IT is mounting, including on the mainframe platform, apps and back-end systems it hosts.**

Opportunity

The trends of the application economy directly influence IT trends for how existing investments in mainframe systems should be managed. As the number one independent software vendor (ISV) based on revenue for mainframe software and the number two software vendor based on revenue for IT operations management software,[1] CA Technologies believes mainframe systems will in the future be:

- An interdependent part in the application ecosystem—instead of independent
- An enabler for the business—instead of a barrier
- A strategic asset that can be leveraged—instead of a cost

Organizations who understand the value and criticality their mainframe technology will continue to invest when faced with the challenges and uncertainties presented by this new application economy. These challenges play directly into the mainframe's classic strengths, and the community of mainframe ISVs continues to innovate to meet challenges head on.

Benefits

Acting on the opportunity of the application economy by leveraging your mainframe investment, the benefits are clear-cut:

- Achieve optimal customer experience levels.
- Quickly launch new services and support new revenue streams.
- Reduce costs–improve efficiency and reallocate resources.

Section 1

The Challenge: Customers Driving Change in the Application Economy

We are in the midst of a customer revolution. Technology is empowering customers as never before—creating the need for new levels of transparency, availability and reliability to meet customer demand.

> For example, by 2017, a full **two-thirds of customer transactions will be self-service**—conducted without your employees getting involved.[2] By 2025, your customers will engage with businesses via a staggering figure of **40 *trillion* mobile transactions per day.[3]**

At CA Technologies we believe this customer revolution is the foundation of a new application economy. In the application economy every company must re-examine their business models and leverage software to create new value. For example, this is driving auto manufacturers to think of the car dashboard as a continuously updating software platform and financial services to view their mobile app as a primary driver of gaining consumer loyalty and lifetime value.

The same changes that bring benefits and opportunities can also bring new potential security threats. At the heart of this customer revolution is the concept of "connectedness;" customers are closer to vendors and each other. This new level of connection is what allows business to target customers more effectively and allows customers to switch purchase decisions very easily. However, the phenomenon of digital identity theft means that employees, customers and partners that you trust might be not be themselves, but criminals appearing to be them.

As this transformation occurs, pressure on all areas of IT is mounting, including on the mainframe platform, apps and back-end systems it hosts.

New Customer Demands

Today, **25 percent of users abandon an application within a three second delay.[4]** As one can imagine, this puts new pressure on IT to raise the bar on service level agreements, availability and performance. With focus on customer experience comes heightened service level agreements between IT and the lines of business. But it is not just the heightened focus on service levels that create challenges for IT organizations, it's the nature and characteristics of the transactions and the exponential growth in volume that impact the mainframe. No longer is the mainframe a batch-based processing engine; it is an online real-time processor. IT departments should be considering this paradigm shift as they look to the future.

New Technologies and Business Models

In the application economy, organizations will adapt to new technologies and business models in order to accelerate the speed at which value is delivered to customers, such as:

- **Mobility and the Internet of Things** are generating more mobile transactions and mobile processing loads. Already, mainframes are seeing increasing levels of transaction volumes and must find new ways to gain efficiencies while continuing to provide peerless transaction processing reliability, availability, scalability and securability (RASS).
- **Cloud computing** is transforming data centers, transforming IT as a business and is top of mind for CIOs. The interplay of mainframe and cloud is providing new opportunities, such as taking advantage of Linux® on z Systems™.
- **Big data** is where 60 percent of organizations are looking for new growth.[5] Efficient access to data across the IT landscape is becoming paramount to growth and requires accessing mainframe structured data, such as customer data, which can then be analyzed alongside unstructured social media data.

Section 2

The Opportunity for IT Organizations with Mainframe Systems: Mainframe Reframed

Along with the rest of the IT infrastructure, mainframe systems are expected to do more now than in the past. Yet this can be a challenge. There is constant cost pressure to stay flat or decrease budgets. Mainframe systems can be perceived as a barrier particularly as they may require specialized skills and knowledge. More so, new types of demands are hitting the mainframe team, from the desire to standardize across IT operations, to the need for easier data access for the latest big data project to the requirement to support cloud and mobility. So how can you do it all? **IT operations needs to reframe the mainframe and consider a new path forward.**

From Independent to Interdependent: Connect Mobile-to-Mainframe Applications

Here's an example of the interdependencies of mobile-to-mainframe applications. The three largest banks in the US now have 50 million consumers using mobile banking and that adoption rate is growing 15 percent annually.[6] Many of the things consumers can now do on those mobile applications, such as check their bank balance, require hits back onto the critical transaction processing component of the financial services data center; the mainframe—but without generating new revenue for the bank.

The mainframe's role in service-oriented architectures is well established and technologies such as XML and REST APIs are more widely implemented in order to solve the increasing needs for interoperability and data access. Companies recognize that the mainframe is here to stay and that millions of lines of high-quality COBOL code continue to run the most important business applications in the world.

To connect mobile-to-mainframe applications, consider:

- **Enabling developers to use common tools** across environments to ensure they can use fewer tools to connect mobile, web, applications and mainframe platforms.
- **Speeding time to market and improving quality with software change management** that manages software assets and artifacts and their change histories across multiple development teams. CA Endevor® Software Change Manager manages software assets for mainframe along with CA Application Lifecycle Conductor for the broader enterprise.

From a Barrier to an Enabler: Unleash the power of data on the mainframe.

Data is knowledge, information, value and power in the application economy. Mainframe systems store a staggering amount of data—80 percent of corporate data in diverse industries such as financial services, healthcare, transportation and telecommunications sits on a mainframe.[7] The challenge has always been how to address the barriers whether real or perceived in accessing data due to opacity of data layout and documentation, lack of resources to fulfill the number of data access requests and minimal time windows due to batch processing jobs and data security requirements.

The key to making the data more accessible while avoiding security challenges is largely in the policies, controls and training put in place. But with inside threats and identity theft, tools that detect damaging behavior quickly when it happens are now essential rather than a fortress mentality alone that assumes you can keep the criminals out.

To unleash the power of data on the mainframe, consider:

- **Managing mainframe databases effectively** by putting in place practices to manage DB2, Datacom, IDMS and IMS databases and data as cost effectively and efficiently as possible with the most updated software.
- **Modernizing security and compliance practices** in order to secure data and improve compliance for accessibility of data on the mainframe. The mainframe remains one of the most secure platforms, but complacency and neglect can lead to risk. Ensuring that mainframe access entitlements are being removed with a tool like CA Cleanup is critical. More advanced steps such as defining valid access and identifying your critical data are areas where CA is innovating right now.
- **Accessing and analyzing big data** off the mainframe can be achieved more easily than you might guess, for example with tools such as vStorm Connect Data Streaming for Big Data.

From a Cost to a Strategic Asset: Create mainframe platform flexibility for the future.

What's keeping you up at night? What we hear from customers most frequently is that justifying the perceived high cost and proving the value of the mainframe platform is a challenge. Managing costs isn't anything new to the IT industry, but the value element might actually surprise you. For organizations that leverage mainframe systems:

- Forty-eight percent of organizations are actively delivering new business services that engage mainframe systems.[8]
- Fifty-one percent of IT management and staff covers both mainframe and distributed systems.[8]

It turns out that mainframe systems can be managed as a strategic asset that can create value—if you consider how to create mainframe platform flexibility for the future.

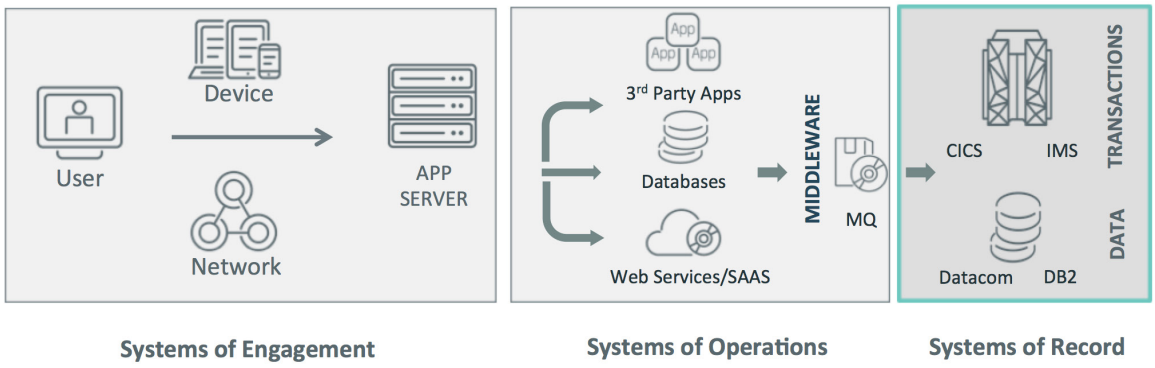
Integrating Service Offerings Across the IT Environment

Service levels are under pressure from both the proliferation of users and from the increased complexity of application architectures that traverse the entire IT infrastructure. In addition, organizations must deliver on these increased service levels in frequently siloed organizational structures that have only loosely strung together policies and bespoke fragile integrations.

To truly provide an optimal application experience you must be able to trace the experience from the user end point through the systems of engagement to the systems of record and back such as shown in Figure 1. This is enabled with solutions such as CA Cross-Enterprise Application Performance Management, which provide an end-to-end view of your mobile-to-mainframe applications.

Figure 1.

End-User Experience Driven Application Flow



Automating Workloads to Run Smoother Operations

Workload automation drives critical business services that are very visible, such as ATMs, e-commerce digital properties, payroll processing, manufacturing, logistics distribution and healthcare systems. This automation acts as a "heartbeat" of a data center and is the "glue" that brings IT and business together in a carefully choreographed, strategic business model. Application workloads can be managed using cross-enterprise workload automation systems and spread across multiple z Systems and distributed infrastructures, deploying thousands of processes.

The availability of critical business services improves as workload automation is leveraged to coordinate activities across business services and the underlying data center components. Applications will service the business better because they're run more effectively with fewer outages and more rapid remediation. Automation can be applied to correct problems that previously involved a technician to fix. From the perspective of an IT professional, being removed from day-to-day reactionary problem remediation can afford the opportunity to step away from the process-by-process operational management and extend your view to the business level. The combination of CA Workload Automation mainframe solutions with CA Workload Automation iDash helps provide that the heartbeat of the business runs more smoothly and that IT operators can mitigate potential problems before they happen.

Turning IT Data into Actionable Insights

Actionable insights are needed across IT to become more proactive, timely and effective in the managing and understanding of enterprise applications and the overall IT infrastructure that supports them. This is particularly true on the mainframe, where there may not be enough skilled resources to triage, interpret and respond to an increasing number of requests. The pressure of improving service levels in a customer centric and competitive environment requires that IT organizations get smarter about how they manage their mainframe.

Organizations need to evolve from a "break and fix" to a "predict and prevent" IT operations approach. CA is aggressively working on enhancements to existing solutions and new innovations that will correlate data from multiple sources for more in depth root cause analysis, real-time prediction and increased actionable insights into the behavior of your mainframe systems and databases designed to help you prevent problems before they occur and resolve them faster if they do.

Thinking Transactional Density: A New Concept for z Systems in an Application Economy World

Why is transaction processing important? Because the workloads hitting IT systems are being driven by the explosion of mobile apps being deployed on an upsurge of mobile devices. The loads are unpredictable and there may not be a "ramp up." Many of these new transactions are essentially read-only and are being executed simply because they have become incredibly simple for end-users to do so, for example hitting the same system repeatedly with the query "Did that check clear yet?"

A key differentiator between z Systems and distributed systems can be described through the concept of **"transactional density",** which is the ratio of compute services delivered for a workload to compute equipment in service. Compared to distributed systems, mainframes can deliver significantly higher transactional density through a number of key capabilities.

The z Systems hardware, PR/SM hypervisor, z/OS™ operating system and transaction managing software all work in concert to enable the overall system to reach and maintain 100 percent utilization for extended periods of time. Even highly virtualized x86 systems cannot reach this level of utilization.

Incremental capacity for z Systems can be delivered instantaneously, further improving transactional density. Bringing a new processor and memory to bear on a problem merely requires a mouse click and is completely transparent to the running workload; everything gets what it needs as it is effectively parceled out by the system. Conversely, to increase capacity in the distributed world, a new blade must be provisioned, new networking resources need to be defined and appropriate software must be loaded and booted. This process is nowhere near instantaneous and likely reduces transactional density. It is also unclear if additional capacity means adding web serving, app serving, database serving or all three capabilities. At some point, adding more simply does not improve the situation from a business service point of view. Distributed systems eventually run out of scalability due to the complexity of the communications paths between them.

With a z Systems infrastructure, you can use what you need, when you need it and pay for it while you use it, maximizing utilization and minimizing "white space" costs. With distributed (or even hybrid cloud), you either lose business during the ramp up or over provision to account for the fact that the ramp up takes precious time. And then, resources are further wasted during the scale down.

Section 3

The Benefits: Do more for your business.

In a situation where budgets are flat and demands are growing, the question is: **can you achieve both cost containment and revenue support for your business?** Leveraging your mainframe platform strategically will yield many benefits:

- **Achieve optimal customer experience levels** by exceeding service levels on both uptime and downtime. By understanding the complete topology of an application's infrastructure and how the mainframe services are part of the complex application ecosystem, an optimal customer experience can successfully be planned and designed.
- **Quickly launch new services** and support new revenue streams by providing application developers, systems developers and big data analytics professionals more efficient access to your business critical mainframe data.
- **Reduce costs and improve efficiency and reallocate resources** to more strategic business initiatives by maximizing your existing resources, integrating your service offerings and leveraging actionable insights. For example, with CA Technologies Core Systems Consulting Program, there is significant opportunity to standardize, integrate and save (on average $900,000 plus for reference customers).[9]

Section 4:

Conclusions

As an IT operations professional who oversees or directly manages mainframe systems, it is critical to understand where the application economy is headed and how new demands placed on the mainframe will bring new opportunities. The question is: can you reframe your approach to mainframe and do both cost management and support new revenue? The answer is, you can, if you understand how to take advantage of the opportunities at hand and leverage leading ISVs such as CA Technologies to support.

Connect with CA Technologies at ca.com

CA Technologies (NASDAQ: CA) creates software that fuels transformation for companies and enables them to seize the opportunities of the application economy. Software is at the heart of every business, in every industry. From planning to development to management and security, CA is working with companies worldwide to change the way we live, transact and communicate – across mobile, private and public cloud, distributed and mainframe environments. Learn more at **ca.com**.

1 Gartner, "Market Share Analysis: IT Operations Management Software, Worldwide, 2014," May 2015

2 Gartner, "Why You Need to Rethink Your Customer Self-Service Strategy," March 2015

3 IBM®, "Technology Economics of the mainframe Part 3 – mainframe and Mobile," January 2015

4 Aberdeen Group, "Reaching the Top of your Web Performance Mountain," May 2013

5 Vanson Borne survey commissioned by CA Technologies, "The State of Big Data Infrastructure Management: Benchmarking Global Big Data Users to Drive Future Performance," July 2015

6 Bank Innovation, "Mobile User Growth Eases at Bellwether Banks," 15 April 2015

7 Computer Weekly, "Can the mainframe Remain Relevant in the Cloud and Mobile Era?" March 2014

8 Enterprise Systems Media commissioned by CA Technologies, "Infrastructure & Operation Trends Survey," March 2015

9 CA Technologies Core Systems Consulting Program can create custom ROI business cases upon request to assist our customers in identifying the potential quantifiable value which solutions from CA Technologies can bring to their businesses.

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