Business Strategy and Innovation: Cloud Computing is Elevating the Role of IT Mainframes

Scott Fagen
Chief Architect - Mainframe

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Changing the way the mainframe is managed forever!

1. THE MARKET

*Mainframe Platform Drivers*

- Business Growth
- Hardware Evolution
- Mainframe Virtues

2. THE CHALLENGES

**Control Costs**
- Do More...
- "...with less"
- "...with nothing"

**Sustain Critical Skills**
- Build next generation team dynamically
- On ramp for next gen is long and complex

**Increase Agility**
- Provision services faster
- Multiplatform data center
- Solve critical issues

3. THE STRATEGY

**Maximize Value**

**Simplify Management**

**Practical Innovation**

4. THE PROGRAMS

**Promises Made**

- Maximize Value
- Simplify Management
- Practical Innovation

**Promises Kept**

1. MVP
2. Mainframe Software Manager
3. CA Compliance Manager for z/OS Enterprise APM
Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics (On-demand self-service, Broad network access, Resource pooling, Rapid elasticity, Measured Service); three service models (Cloud Software as a Service (SaaS), Cloud Platform as a Service (PaaS), Cloud Infrastructure as a Service (IaaS)); and, four deployment models (Private cloud, Community cloud, Public cloud, Hybrid cloud). Key enabling technologies include: (1) fast wide-area networks, (2) powerful, inexpensive server computers, and (3) high-performance virtualization for commodity hardware.

Source: National Institute of Standards and Technology
mainframe is important

85%

Source: CA customer surveys
### Cost

**Hardware/Software:**
- Cloud computing delivers the same capability, with the same availability, reliability and other QoS at **less cost than traditional delivery of IT services**
- Cloud computing capability is priced in a **pay as you go** model
- There is a clear mapping of value back to cost

**OPEX:**
- Cloud computing reduces need for highly skilled *(expensive)* FTEs for managing infrastructure
- Allows the company to focus on their areas of expertise, delegating some workload to a provider who is expert at delivering that service

**Agility, Competitiveness:**
- Cloud computing enables a customer to rapidly add/delete capacity (elasticity)
- Cloud providers are focused on rapid deployment
- Reduces the “lost opportunity cost” in an “ossified datacenter”
what’s so important about the advent of cloud?

Traditional IT
— Pay for hardware
— Pay for software
— Pay for services
— Pay for people
— Pay for systems management, security, and maintenance

Cloud based offerings
— Pay for the **result**

Cloud changes the economic game:
*Which model do you think is more attractive to your management?*
mainframe is essential

73% 79%

Source: CA customer surveys
cloud or clouds...?

- **Public / Community**
  - Available to the general public or a group of customers

- **Private**
  - Infrastructure for a single organization

- **Hybrid**
  - Binds together 2 or more private and community clouds
CIO living with a “new normal,” but enterprise IT needs a game changer

New Normal

Demand for Shorter Cycle Times

Transformative Market Opportunity

Consumerization of IT

Business Demand for IT Services

IT Budget

Recession

Demand for IT Services

Cycle Times

Public

Private

Collapse Cycle Times
Business demand for IT services drives CIO priorities: Rationalize, optimize and innovate to grow

- **Business Demand for IT Services**
- **Consumerization of IT**
- **Demand for Shorter Cycle Times**
- **Innovate to Grow**
- **Rationalize & Optimize**

**IT Budget**

**Recession**
additional complexity is created by the cloud, but the concerns remain the same

Top 5 challenges of cloud computing
- Management of hybrid world
- Performance monitoring
- Reliability/service assurance
- Automating service delivery across platforms
- Security
IT maturity influences how you will engage with the cloud

The longer your organization has been around, the greater the likelihood you have “all of the above” in your datacenter. The issue for IT is to continue to maintain value in the heritage technologies while gaining value from new technologies.

Only brand new IT can be completely sourced via the public or community cloud.

How do you rationalize heritage IT into a coherent private cloud?
the important first step

IT must partner with the business to shift from delivering diverse technologies (that shine through to your internal and external customers) to collaborate on the production of business services that have specifiable and measureable performance criteria (or qualities of service), for example:

— Speed/transaction rate
— Availability/uptime/SLA
— Cost per unit of service delivered
— Recoverability, RPO, RTO
— Adherence to regulations
QoS – how much and at what cost?

Platinum

Gold
QoS – how much and at what cost?
QoS – how much and at what cost?

- Not all business services are created equal
- QoS requirements should be tied to the business service being delivered and that decision should influence the underlying infrastructure
what services should run where...?

— Decision criteria
  – Can you model your price-performance?
  – Can you model your technical performance?
  – What is your current SLA?
  – What is the SLA you need?
  – How can you manage performance relative to the SLA?
  – What are the regulatory issues?
what is most core and critical asset your business can least afford to lose?
it’s the data, stupid…

Compliance and Audit Management

- Security
- Backup
- Recovery
- Availability
- Retention
- Content Classification
- Transport/Delivery
- Platform
- Storage
- Encryption
- DLP

Business Continuity
— How do you maintain DR readiness/availability
— Who owns the data? How are security/integrity maintained?
— How fast do you need to recover data?
— Where is the data physically located? What platforms are involved? Is encryption required at rest? In flight?
— How do you keep up with ever changing regulations?

— What elements of your core data can be stored/transmitted into the cloud?
Cloud Service Providers operate on a similar sales model as the “departmental server” providers did 20 years ago.

Bypass your traditional IT department and get to Nirvana

- Reduce costs
- Improve QoS
- Gain superior flexibility and control

Question: *Is this really true?*

Answer: *It depends!*
“It’s your fault!”

- It’s the mainframe!
- It’s the network!
- It’s the database!
- It’s the application!

- Do you have integrated monitoring across your systems?
- How do you integrate monitoring cloud services into your current infrastructure?
from where to where...?
When parts of your business services are in the cloud – QoS is impacted by:

- Physical distance
- Number of hops
- Network bandwidth

Virtualization effects at the cloud provider can impact service delivery to your apps:

- Other users can overrun processor or network bandwidth
- DoS attack against cloud provider may affect all customers
what’s missing?
regulatory challenges – you are still responsible
what can you measure?
"You Can't Manage What You Don't Measure"

CA NetQoS Performance Center

Interfaces Over Threshold

<table>
<thead>
<tr>
<th>Status</th>
<th>Interface</th>
<th>Traffic Direction</th>
<th>Speed (bps)</th>
<th>Average Utilization</th>
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<tbody>
<tr>
<td></td>
<td>Boston::Boston - Serial 2/0.0 - T1 Link</td>
<td>In</td>
<td>1.54 Mbps</td>
<td>88.77 %</td>
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<td>1.54 Mbps</td>
<td>56.56 %</td>
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</table>
the cloud management challenge

Do your providers:
- Give you the metrics you need?
- Give you the metrics in the form you need?

Integrated monitoring and performance management is critical
the key challenges?
systems & infrastructure complexity

Who’s monitoring REAL user experience, based on a BUSINESS SERVICE view?

Service Path?

<table>
<thead>
<tr>
<th>Service Path?</th>
<th>Online Banking</th>
<th>Call Center</th>
<th>CRM</th>
<th>SAP</th>
<th>B2B</th>
<th>Online Shopping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Systems</td>
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<td></td>
</tr>
<tr>
<td>Applications</td>
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<td></td>
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<tr>
<td>Databases</td>
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<tr>
<td>Servers</td>
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<tr>
<td>Storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network</td>
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</tbody>
</table>

Service Performance?

- Degraded service performance
  1. Losing money and ground to competition
  2. Employee productivity severely impacted

99.999% available

Losing money and ground to competition
Employee productivity severely impacted

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what do you know?
end-to-end transaction visibility: link transactions to the infrastructure

Understand End-User experience; establish SLAs

Monitor business transactions through the IT infrastructure; measure response & SLAs

Proactively detect issues; diagnose root cause of application-based problems

**Affected User List for Incident 1009**

<table>
<thead>
<tr>
<th>User</th>
<th>Login Name</th>
<th>Impact Level</th>
<th>User Group</th>
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</thead>
<tbody>
<tr>
<td>Thorson, Jane</td>
<td>thorson</td>
<td>Critical</td>
<td>Online</td>
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<td>Blumfield, Rose</td>
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<td>CallCenter</td>
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<tr>
<td>Green, Silas</td>
<td>sgreen</td>
<td>High</td>
<td>Online</td>
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<tr>
<td>Jellico, Michael</td>
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<td>High</td>
<td>Online</td>
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<td>Mclroy, Dermot</td>
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<td>High</td>
<td>Online</td>
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<tr>
<td>Tuomo, Jesper</td>
<td>juomo</td>
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<tr>
<td>Alb, Fiona</td>
<td>fialba</td>
<td>Medium (Default)</td>
<td>Dublin</td>
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<tr>
<td>Allgood, Stephanie</td>
<td>allgood</td>
<td>Medium (Default)</td>
<td>CallCenter</td>
</tr>
</tbody>
</table>

**Diagram**

- **Back End**
  - SAP
  - PSFT
  - Siebel
  - CTG
  - IMS DB
  - DB2
  - Datacom
  - MQ
  - z/OS

- **Mainframe**
  - MAINFRAME
  - PSFT

- **Network**
  - WAN/WWW
  - Router
  - Firewall
  - Switch
  - Load Balancer
  - Web Servers
  - Portal

- **User**
  - End User

- **Front End**
  - App Server
  - Web Services
  - 3rd Party Applications
  - Databases

**Summary View**

- Trading
  - Login
  - Place Order
  - View Orders
  - Options Trading

- Portfolio
  - Login
  - Assets View
  - Edit Profile
  - Trans Summary
  - Open Account
  - My Portfolio

**End User Experience**

- Proactively detect issues; diagnose root cause of application-based problems
- Monitor business transactions through the IT infrastructure; measure response & SLAs
- Understand End-User experience; establish SLAs

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how cloud changes the game....
the new application monitoring reality
the best approach...
put the work where it makes the most sense

“...in the long run the marketplace rewards those that make the optimum use of the right computing resources in the right way as evidenced by business performance”

*Dr. Howard Rubin, CEO and Founder Rubin Worldwide
mainframe – the original private cloud

Scalability, Virtualization, Elasticity, On-demand Provisioning, Multi-tenancy, SLA Management, Charge-back and Billing
account for everything

- Don’t just measure the obvious
  - Hardware cost
  - Software cost

- How about?
  - People
  - Power
  - Air conditioning
  - Floor space

- Check into EAGLE and RACE studies from IBM
System z lowers IT spending across many industries

- 44% lower IT cost per credit card transaction
- 31% lower IT costs per consumer loan
- 25% lower IT cost per megawatt hour
- 24% lower IT cost per hospital bed
- 20% lower IT cost per airline passenger
- 26% lower IT cost per new vehicle
- 25% lower IT cost per retail store
- 23% lower IT cost per barrel of oil

Source: Dr. Howard Rubin, CEO and Founder Rubin Worldwide
• http://www.rubinworldwide.com
mainframe cloud benefits...

1. Security

2. Scalability

3. Lower management costs
   
   — More...
     
     — Increased agility/responsiveness
     
     — Rapid on-demand provisioning
many are already leveraging cloud services

Can you leverage any of these to your advantage?
— Some things run better on a Mainframe
— Some things run better on Distributed
— Some things run sufficiently well in the cloud
— And some do equally well on any/all/a combination
— Some services need everything to run
— What areas do you have the skills...?
— What existing infrastructure do you have...?
— Avoidance of platform proliferation

— No bias, simply a business decision
zEnterprise - intensified boundary line conflict

Forrester Research Inc., “ZEnterprise Should Change The Role Of The Mainframe In Application Strategy Decisions”, August 27, 2010
where should the work go?

Data Intensive

IO Bound

Mixed Low (MQ, OLTP)

Database / Dynamic HTTP

Java light (data intensive)

Skewless OLTP

Protocol serving

Mixed High (Multiple CPU intense Apps)

Java heavy (CPU intensive)

CPU intensive

Optimal for System z

Optimal for other platforms
—To enable hybrid cloud services...
—To deliver internal, private cloud services...
—To support use of public cloud services...
Customers of IT do not care about the infrastructure; they only care about the service, its availability and its cost

— Your organization probably has some set of initiatives underway – figure out a way to “help”

— The most obvious means to a mainframe private cloud is by leveraging Linux on System z
  – IFL cost per “core” is a fraction of z/OS processing cost
  – with the right set of management and security tools in place

— Providing System z qualities of service, hardware, software and systems programming staff can elevate the platform to indispensable status – making it the de facto platform for private cloud
talk to the business

IT must recast its role as a partner in delivering business services, providing leadership in the exploitation of technology to automate and increase the velocity of those services.
Summary

- IT complexity is still an issue
- Cloud is happening and has the potential to both increase or decrease complexity
- Monitoring and measurement remain crucial to achieving success in the cloud connected world
- The Mainframe will NOT go away
- The power of your applications is in YOUR data
  - Integration of cloud and Mainframe is inevitable
- The Mainframe can already be used to deliver the “Cloud advantage”
- IT needs to partner with the business to deliver a set of continuously improving services
mainframe is important

85%

Source: CA customer surveys
mainframe is essential

73% 79%

Source: CA customer surveys
discussion
thank you