Smarter Computing in the New Era of IT

The IT infrastructure that enables a Smarter Planet

Doug Balog
General Manager
IBM System z
Today, 71% of CEOs identify technology change as the most important external force impacting their organizations\(^1\)

Cloud, analytics, social and mobile aren’t simply remaking computing…

“All clients are experiencing the phenomena of what we call ‘front office transformation’ – social media, devices, mobility – all reshaping the way they want to engage their customers, and how they capitalize on big data and analytics.”

— Ginni Rometty  
Chairman, President and CEO IBM

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Organizations are embracing this technological shift to reshape the value they deliver

What if you could empower the general public to create citizen-centric applications with access to years worth of city data?

*Self-service secure cloud portal* and mobile applications enrich civic life

What if you could enable the real-time integration of data seamlessly and securely to provide trusted information for critical analysis on increasing amounts of rapidly changing data?

*Real-time integration of data* facilitates monitoring and mitigates risk
The world is changing. Is your infrastructure ready?

Connected devices will surge to 22 billion by 2020\(^2\), with digital content rocketing to 8 zettabytes by 2015 (90% unstructured)\(^3\)

The time is now to…

Unlock the power of big data to deliver more actionable insight

Leverage cloud to speed time to market and improve efficiency

Secure critical information to protect and reduce risk

$5.5 million is the average total organizational cost of a data breach\(^4\)

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1 IDC, Game Changing Virtual Technology: Major Shifts and Innovations that will Forever Change your IT Business
2 Forrester, BT 2020: To Thrive In The Empowered Era, You’ll Need Software, Software Everywhere, Phil Murphy, January 30, 2012.
3 IDC, IDC Predictions 2012: Competing for 2020, Doc #231720, December 2011,
An IT infrastructure to enable a smarter planet

A Smarter Computing approach is…

Responsive…  Data Ready

Efficient…   Cloud Ready

Safe…        Security Ready

# zEnterprise: The Modern IBM Mainframe Platform

<table>
<thead>
<tr>
<th>Feature</th>
<th>Detail</th>
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<tbody>
<tr>
<td>Process complex analytics queries up to</td>
<td>2000x faster</td>
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<tr>
<td>Highly available hybrid computing</td>
<td></td>
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<tr>
<td>Centralized management</td>
<td></td>
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<td>Manage tens of thousands of virtual servers</td>
<td>in a single system</td>
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<tr>
<td>Elastic, scalable cloud computing</td>
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<tr>
<td>Protection of data and access/usage</td>
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<tr>
<td>Delivers the highest certification level for</td>
<td>enterprise-class servers: EAL5+</td>
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<td>Ultimate security</td>
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<tr>
<td>Built-in cryptography</td>
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<tr>
<td>Security intelligence</td>
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- Integrated
- Agile
- Trusted
System z: Integrated by design
*Enabling information-centric computing*

Semiconductor Technology
Microprocessor Design
Systems Design
Virtualization & Operating Systems
Compilers, Tools & Java Virtual Machine
Optimized Middleware

Linux
z/OS
z/VM
z/VSE
z/TPF
Java
The growing IBM zEnterprise System ecosystem

56%  yty revenue growth in 4Q12, best absolute dollar amount since before 2000

180+ new accounts since 3Q10 zEnterprise launch, with 1/3+ in growth markets

220+ hybrid computing units shipped since 3Q10

3/4+ of Top 100 enterprises have installed IFLs

1,000+ schools in 67 countries are part of the IBM Academic Initiative for System z

7,400+ ISV apps run on IBM System z; 90 new ISVs added in 2012 (as of 4Q12)

4Q12: 66% yty The most absolute number of shipped MIPS in the quarter in our history.
The value of System z

"When you really need a vehicle that does many things, particularly business analytics, very well and offers few compromises, System z probably is your answer. It should be at the top of your selection short list." – Steve Bartlett, The Clipper Group

"The new zEnterprise EC12 solutions are one more proof point that IBM mainframes are viable offerings, capable of meeting the critical business needs of today and tomorrow, and IT executives should include them in their analysis." – Cal Braunstein, Robert Frances Group

"IBM's PureSystems are ramping quickly and System z mainframes may highlight a new pecking order in the data center."

– ZDNet (23 Jan 2013)
Smarter Computing.
The IT infrastructure that enables a Smarter Planet

- **Data Ready** to deliver more actionable insight
- **Cloud Ready** to speed time to market and improve efficiency
- **Security Ready** to protect and reduce risk

**System z.** The secure cloud for data.
Demands to be more responsive to clients drives **data** to top of mind

83% of CIOs ranked business intelligence and analytics as a high priority in their visionary plans\(^1\)

2X likelihood that organizations embracing business analytics will substantially outperform their industry peers\(^2\)

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2 The New Intelligent Enterprise, a joint MIT Sloan Management Review and IBM Institute of Business value analytics research partnership.
System z delivers a Data ready IT infrastructure that delivers more actionable insights

Shared access to trustworthy information

Actionable insights on operational data

Maximum availability of business insight

A zEnterprise data solution will...

- Allow access to unstructured data, no matter where it resides, through secure virtualized file storage and information lifecycle management
  
  *Optimizes access to billions of files*

- Bring intelligence to the transaction using accelerated analytic architectures
  
  *Ability to process complex queries up to 2,000x faster*

- Empower clients with insights at the highest point of impact with IBM’s low latency system and storage designs
  
  *Faster analytics with 99.999% uptime*
Marriott is realizing performance benefits from the new zEC12 implementation that will boost the performance and reduce the operating cost of our industry leading customer reservation system. We intend to provide the industry's best customer experience based on the business intelligence and booking rules that rewards our loyal customers.”

– Misha Kravchenko

What if you could analyze petabytes of structured and unstructured data to avoid risk, grow business and increase customer satisfaction?
The continuous need for speed and efficiency drives cloud computing to top of mind for clients

60% of CIOs ranked cloud computing as high priority in their visionary plans, up from 33% in 2009¹

2/3 of organizations fall behind schedule when deploying new IT capabilities²

System z delivers a **Cloud ready** IT infrastructure that speeds time to market and improves efficiency

A zEnterprise cloud will…

**An efficient, scalable infrastructure**

- Improve utilization, enhance flexibility, and drive down costs with scale-out, scale-up and scale-within technologies

  *Achieve up to 80% reduction in data center footprint*

**Improved speed and flexibility**

- Realize faster deployments leveraging IBM’s patterns of expertise with integrated systems management, service automation and self-service provisioning

  *Ability to deploy systems in less time*

**Business innovation**

- Deliver IT without boundaries through the use of advanced orchestration technologies

  *Experience efficiency gains up to 20%*
What if you could deploy an IBM Cloud solution that could shrink a data center footprint by 80 percent, reduce energy consumption by 58 percent, and cut administrative workload by 50 percent?

"Of all the technologies we investigated, the IBM zEnterprise hybrid solution came out on top. zEnterprise offered the combination of flexibility, high-performance and rock-solid reliability we needed."

– Kumar Sivakumaran, Advanced Middleware Engineer
The need to protect data, cloud and a business’ reputation has elevated security to a boardroom issue.

71% of CIOs and IT Managers identified security as their most significant challenge in adopting mobility.

$5.5M The average total organizational cost of a data breach.

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System z delivers a **Security ready** IT infrastructure that protects critical information and reduces risk

**Data security & integrity**

- Protect and verify data at every stage in the data chain with built-in security across the entire stack

  96 out of top 100 banks trust IBM to secure their sensitive financial information

- Ensures that the right people have access to the right data at the right time and place through role-based access controls

  Zero setup time to achieve trusted protection from the hardware to the OS

**Trusted identity & access management**

**Minimal overhead to meet compliance requirements**

- Mitigate risks in real-time, and improve productivity with automated policy-based security compliance reporting and monitoring

  Save up to 70% in security audit and compliance overhead
What if you could create the ultimate security environment, including an enterprise-wide encryption service?

“What we’re finding with the IBM Crypto Co-Processors is we can scale easily 10 x where we are today with no impact to our Crypto Graphic processing and our capability to complete our transactions in the fastest time available today.”

– Tom Kesselring, Vantiv
System z. The secure cloud for data.

- Operational Analytics
- Efficiency at Scale
- Ultimate Security
### zEnterprise Industry Solutions for a Smarter Planet

#### Banking
- IBM Financial Transaction Manager on zEnterprise
- SAP Bank Analyzer on zEnterprise
- IBM Core Banking Solution on zEnterprise
- FSS Business Intelligence and Data Analytics Solution
- IBM Smarter Analytics Anti-Fraud Infrastructure for zEnterprise

#### Insurance
- IBM Smarter Analytics: Anti-Fraud, Waste and Abuse Solution for Insurance
- IBM Genelco® Insurance Administration Solution
- IBM zEnterprise Insurance Integration Hub

#### Government / Smarter Cities
- IBM zEnterprise Starter Edition for Cloud for Government
- IBM Intelligent Operations Center for Smarter Cities
- IBM Smarter Infrastructure for Social Services - Curam on zEnterprise**
- IBM Enterprise Asset Management (Maximo) for Government**

#### Healthcare / Life Sciences
- IBM Smarter Analytics Signature Solution: Anti-Fraud, Waste and Abuse
- IBM Health Plan Integration Hub

#### Retail
- IBM zEnterprise Smarter Analytics for Retail**

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** Launch 2/5/13

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**Smarter Cities with IBM zEnterprise**

**City Operations – Intelligent Operations Center**
Information available when you need it to make the best decisions real time

**Social Program Management**
**Curam on zEnterprise**
Trusted and secure citizen’s integrated data to create and improve citizen services

**IBM Enterprise Asset Management (Maximo) for Government**
Optimal management by integrating data and using analytics on high value assets for quick time to value

"Working with IBM enabled us to take an innovative approach. Instead of following the long processes of other governments or even the private sector, we were able to get things up and running quickly."

-- Gordon J. Bruce, director and CIO of the Department of Information Technology, City and County of Honolulu

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IBM Smarter Analytics Anti-Fraud Infrastructure for zEnterprise

Foundational infrastructure to quickly integrate real-time analytical and reporting capabilities with operational systems

Why System z for fighting fraud*:

- **Less leakage**: 7x the transaction rate of remote scoring with a 7x reduction in response time, with more fraudulent requests detected pre-payment.
- **More efficient warehousing**: 26x throughput and 33x price/performance improvements compared to competition.
- **Reduction of data movement cost**: typical 4yr cost just to transfer/house z/OS data on distributed systems for analysis: $8M+ USD.

*These results are based on internal competitive measurements
IBM Enterprise Key Management Foundation

A highly flexible and secure key management system that leverages a client’s investment in System z cryptography

Ultimate Security on zEnterprise

Data Protection
Only the System z provides an integrated encryption infrastructure – from the server, to the z/OS operating system, and protecting sensitive data over the internet, on databases, and tape.

Auditing
Up to 70% in security audit savings.

Compliance
zEnterprise enables a reduction of risk and simplification of governance and compliance.

Transaction Processing
Vantiv, the #1 Largest processor of PIN Debit transactions in the US, performs over 2 billion crypto transactions per month
System z Future Announcement Previews

**Operational Analytics**
z/OS V2.1… Foundation for today ‘s Solutions
- Extend the power of the zEC12 to drive qualities of service
- More power for data serving & analytics
- Enhanced security to protect data and manage access
- Extended service support period

**Ultimate Security**
z/OS Management Facility V2.1 …Simplified, Efficient Management of z/OS
- Manage software inventory more effectively
- Improved workflow of admin tasks
- Simplified security configuration

**Efficiency at Scale**
z/VM 6.3….Cloud Ready
- Higher server consolidation ratios to leverage economies of scale
- Improved price performance with more efficient processor utilization

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System z Priorities for 2013

- Leverage marketplace momentum to drive ecosystem growth
- Assist client adoption to the new zEnterprise technologies
- Lead the industry discussion around high-end systems and Smarter Computing
- Continue the System z culture of innovation to solve complex business problems
ibm.com/smartercomputing