Smarter Computing. **zEnterprise System Strategy and Direction**

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IBM System z

A defining moment is before us:
Business and IT face significant challenges

90% of the world's data was created in the last two years, but **1 in 2** business leaders don't have access to data they need.

Data

External threats are rated as a **big challenge** with **two-thirds** of CISOs expect to spend more on security over the next two years.

Security

Enterprises see **private cloud as the on ramp** to cloud for the next 24 months.

Cloud

BYOD challenges are top of mind with **58%** of users admitting using their own devices to access their employers network every day.

Mobile

Organizations are Embracing this Technological Shift to Reshape the Value they Deliver

Nationwide® On Your Side℠

What if you could save $15M in capex and opex in three years with an infrastructure that is optimized for diverse computing needs?

Secure private cloud drives higher utilization and better economies of scale

BANCA CARIGE

What if you could use real-time operational analytics to deliver individualized services and promotions to customer?

Enhanced data hub enables superior performance for complex analytics workloads

Smarter Computing. Foundation for a Smarter Planet

Cloud

Social

Operational Data

Mobile

Security

Strategic Priorities for System z.
Enhance … Optimize … Expand:

Operational analytics capabilities

Dynamic and efficient shared hybrid computing infrastructure

Capacity, throughput to handle high-volume mobile workloads

Qualities of service for multi-tenant, centrally managed workloads, ie., clouds

Intelligent, secure data vault with auditable protection

Continuous availability innovations

| Efficient at Scale | Operational Analytics | Ultimate Security |

In a data-driven world … the right technology maximizes the business value of information

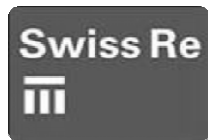| zEnterprise	Attribute	Distributed
Analytics Integrated with core systems	**Single Business View**	Multiple, siloed data stores in multiple systems
Insights built on operational data	**Real-time, Predictive insights**	Analytics built upon aged copies of data
Single management point for consistent governance	**Data Governance**	Inconsistent governance models with limited scope for consistency across data
Centralized static data	**Data Management**	Data copied and moved multiple times
End-to-end encryption of data at rest and in motion with full audit trail - built-in	**Data Security and Accountability**	Security bolted on in ad-hoc and inconsistent basis
Centralized, methodical processes for disaster recovery	**Business Continuity**	Inconsistent, unreliable distributed processes

Operational analytics with zEnterprise

What if you could uncover critical insights and put them in the hands of decision makers in real time to significantly increase profitability?

IBM zEnterprise.

Delivering actionable insights within the life of the business transaction

Mobile access to real-time insights via a secure cloud portal ensures an information-driven business

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NLB

MIAMI-DADE COUNTY

IBM

In a budget conscious world … the right technology delivers efficient Enterprise Private Clouds

zEnterprise EC12	Attribute	Distributed
£81.18 / VM / month at 200 VMs to £29.92 / VM / month at 3200 VMs	**Economies of scale**	£83.62 / VM / month at 200 VMs to £65.39 / VM / month at 3200 VMs
Power draw / VM is 22.4 Watts at 250VMs to Power draw / VM is 8.5 Watts at 3200 VMs	**Energy consumption**	Power draw / VM is 30.8 Watts at 250 VMs to Power draw / VM is 30.8 Watts at 3200 VMs
Highest security classification of any commercially available server	**Security**	Disparate products and third party appliances that require integration for lesser security classification
Single point of control across heterogeneous resources	**Systems management**	Disparate products that require integration within a single platform
Automated re-allocations of resources based upon business priority of workloads	**Workload management**	Limited workload management, generally at a core level limited to within a single system
Proven scaling of a single zCloud for Call Centers with 35,000 users and sub-second response times	**Scalability**	Performance degrades as I/O demand increases

Cost and power comparison estimates provided by IBM UKI in January 2013

The ideal enterprise private cloud with zEnterprise

What if you could empower citizens to create user-centric applications with access to years worth of data?

IBM zEnterprise.

A highly secure and scalable enterprise cloud for efficiently running multiple critical applications

Self-service secure cloud portal and mobile applications enrich client's experience

In a world where trust is paramount … The right technology has security "built in" at every level

zEnterprise	Attribute	Distributed
Built in, scalable, tamper resistant encryption – bullet proof	**Data Encryption**	Typically third party appliances bolt-ons
Integrated approach that protects data from creation, through archive to end of life	**Securing the lifecycle of data**	Multiple components, add-on SW with different keys, policies, and procedures.
A single point of control for authentication and accountability	**Consistent Policy Based Access**	Multiple tools with different access controls, repositories and authorization protocols
Hardware enforced isolation across thousands of workloads in a single system	**Secured Isolation**	Multiple isolated solutions across multiple systems and networks
Built in secure, highly available centralized key repository and management	**Public Key Infrastructure**	Appliances can create single points of failure and be difficult to achieve highly scalable configurations
Highly granular and detailed records for extreme accountability and auditing	**Auditing**	Multiple often inconsistent audit systems making regulatory compliance difficult
Within system virtual networks and private networks across heterogeneous platforms	**Network Security**	Security added to open networks exposing up to hundreds of separate infiltration points

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The secure foundation for the enterprise

What if they could create the ultimate security environment, including an enterprise-wide encryption service?
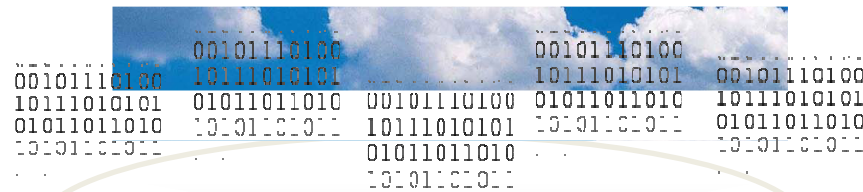
IBM zEnterprise.

Delivering unmatched security for critical business processes, applications and data

Secure environment that can complete transactions in the fastest time available

Life's transformation in the digital age

When paying bills on-line all my account information is available to only those authorized

Mom is on a business trip and her playlist can be downloaded at the airport without delay

Complete view of personal financial information analyzed and presented via dashboards enables better financial decisions

Mobile technology application *always-on to support students*

Enabling solutions that drive business value

Banking

IBM Smarter Analytics Anti-Fraud Infrastructure for zEnterprise: *Architecture for banking fraud prevention on System z.*

Insurance

IBM Genelco Insurance Administration Solution: *Customer-centric and rules-based core Life, Health and Annuity solution.*

Smarter Cities

- **Intelligent Operations Center:** *Integrated data visualization, real-time collaboration and deep analytics to help city agencies.*
- **Social Services (Curam):** *Secure end-to-end social program service delivery, meeting citizens' needs.*
- **Asset Management (Maximo):** *Support weapon systems, facilities, transportation and IT assets with a single platform.*

Healthcare

- **IBM Health Plan Integration Hub:** *Code and policy management supporting ICD-10 and future transformations.*
- **IBM Smarter Analytics Signature *Solution*: Anti-Fraud, Waste and Abuse for Healthcare:** *Analytics to detect suspicious claims before payment.*

Retail

IBM zEnterprise Smarter Analytics for Retail: *Customer analysis and business performance management*

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IBM zEnterprise: The modern mainframe

Process complex analytics queries up to 2000x faster

Real-time operational analytics

Enterprise data hub

High-volume transaction processing

Manage tens of thousands of virtual servers in a single system

Elastic, scalable, virtually limitless expansion

Shared everything design

Hybrid computing

Delivers the highest certification level for enterprise-class servers
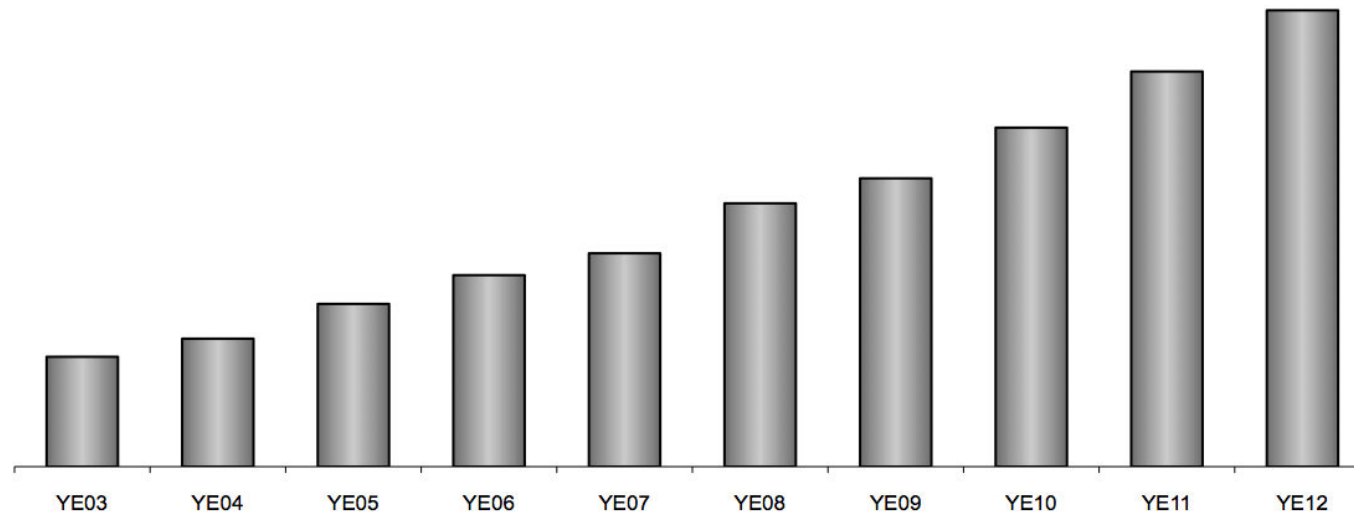
Ultimate security

Built-in cryptography

Unmatched resiliency and availability

The growing IBM zEnterprise System ecosystem

System z Total Installed Capacity

Bar chart showing growth from YE03 to YE12.

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

56%	**180+**	**220+**	**3/4+**	**1,000+**	**7,200+**
yty revenue growth in 4Q12, best absolute dollar amount since before 2000	new accounts since 3Q10 zEnterprise launch, with 1/3+ in growth markets	hybrid computing units shipped since 3Q10	of Top 100 enterprises have installed IFLs [IFL = Linux-on-z Only Engine]	schools in 67 countries are part of the IBM Academic Initiative for System z	ISV apps run on IBM System z; 90 new ISVs added in 2012

[as of 4Q12]

Next steps

> Leverage marketplace momentum to drive ecosystem growth

> Assist client adoption to the new zEnterprise technologies

> Continue the System z culture of innovation to solve complex business problems

Thank you