



**UNIVERSITÉ DU
MAINFRAME**

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**Annonces IBM System z9
Mark Anzani**



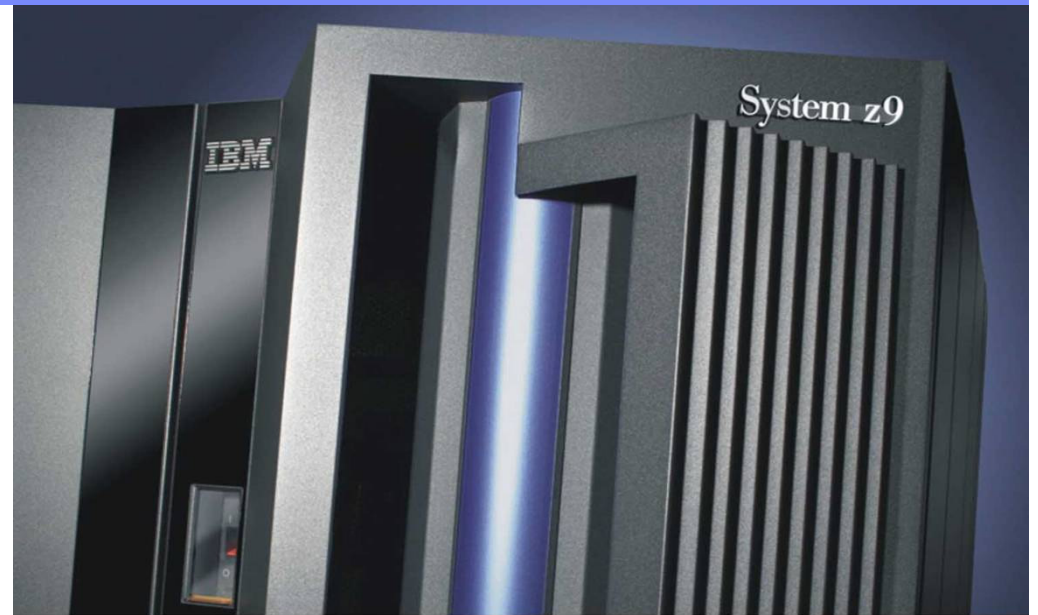
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OVERLAP

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Rethink the role of the mainframe - Take control of your infrastructure



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The transition to On Demand Business has changed the focus



- | | | |
|---|------------------|---|
| <ul style="list-style-type: none"> ▪ Initial trials of e-business ▪ Internet as a low cost channel ▪ Applications decisions determined independently by user departments ▪ Addressing direct costs and the perceived dis-economies of the mainframe | <p>to</p> | <ul style="list-style-type: none"> ▪ Becoming the on demand business ▪ Internet as a competitive differentiator ▪ Integrated applications and infrastructure that spans the value chain ▪ Addressing indirect costs and delivering differentiated economic value on the mainframe |
|---|------------------|---|

Today's focus – delivering profitable growth

On Demand Business New opportunities? New requirements on IT?

What we hear from our customers



On demand means we are open 24/7. How do we ensure that we attain the highest levels of availability

As IT requirements continue to grow, how do we meet the requirements for power, cooling and for floor space

How do we realize the true value in our data assets and create real time information to power decision making



This is what keeps me awake at night, balancing increasing security requirements with the need for the business to be open

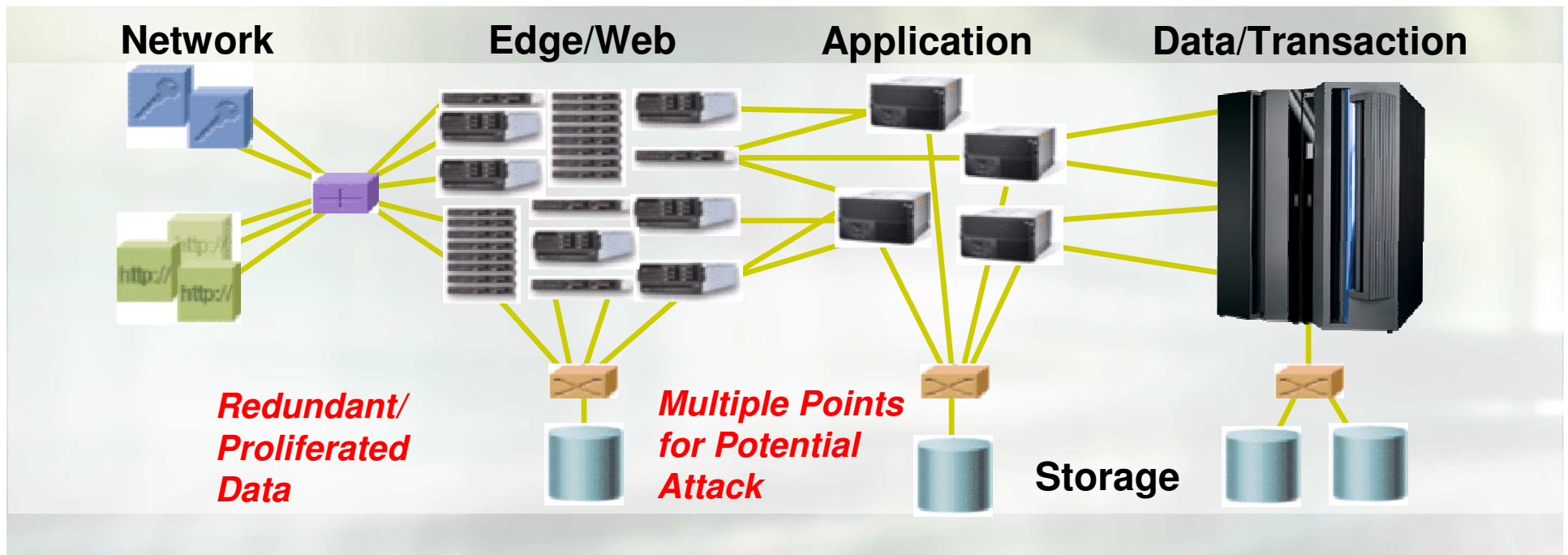
Controlling costs is no longer just about hardware or even software . . . it's about the cost of management and complexity

How do we ensure our systems can ramp up to meet increasing demands as we drive to generate profitable growth



The Journey to On Demand

Traditional Operating Environment



Common View of Data 	Integration 	Workload Management 	Security 	Business Resilience
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Delivering on the Mainframe Charter



Innovation

- Continue to “Raise the Bar” on technology leadership
- Focus on enterprise wide roles
 - ▶ Security
 - ▶ BR and Workload management
 - ▶ Data Hub and Business Integration
 - ▶ On Demand solutions from the System z platform



Value

- Attractive for new workloads
- Continued focus on specialty engines & accelerators
- Provide flexibility to support broad market
- Generation to generation Price / performance improvements



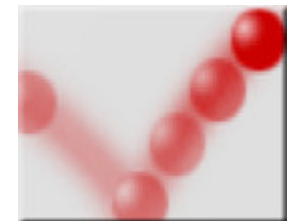
Community

- Drive ISV & partner relationships
- Build new skills in marketplace
- Focus on emerging geographies

Security



Business Resilience



Workload Management



Integration



Enterprise wide roles
Rethinking the role of the mainframe

IBM's Systems Strategy

Virtualize
Everything

Commit to
Open

Collaborate
to Innovate



- Reliability
- Dynamic Logical Partitioning
- On/off Capacity On Demand
- Automation
- Virtualization



A new era of mainframe systems – the IBM System z9



- **Addressing Scalability and performance**
 - ▶ High capacity CP, up to 54 CPs in a single server
 - ▶ More memory, more channels, more bandwidth available
 - ▶ Increased performance capabilities for DB2 with new Modified Indirect Data Address Word (MIDAW) Facility
- **Addressing security and resiliency**
 - ▶ Improved hashing algorithms and more flexible cryptographic implementations
 - ▶ Introduction of IBM Encryption facility for z/OS (10/05)
 - ▶ Enhanced book availability and driver maintenance
- **Extending mainframe leadership capabilities**
 - ▶ Improved virtualization with up to 60 LPARs
 - ▶ Strengthened data serving with announcement of the **IBM System z9 Integrated Information processor (zIIP)** (01/06)

A mainframe designed to protect and grow with your on demand enterprise

Introducing the IBM System z9 Business Class and the IBM System z9 Enterprise Class



- **IBM System z9 Business Class (z9 BC)**
 - ▶ **Lowering the barriers to entry - delivering System z9 technologies in a smaller, cost-reduced package:**
 - Low entry point of just 26 MIPs
 - 'Right sized' with huge choice of capacity settings
 - Designed for affordable growth with up to 7 specialty engines and highly granular capacity

- **IBM System z9 Enterprise Class (z9 EC)**
 - ▶ **All the strengths of the z9-109...PLUS**
 - Increased flexibility with new subcapacity configurations
 - Additional opportunities for new workloads and cost savings with an all new specialty engine

- **Choose a configuration that is right for you**

- **Choose the upgrade path that best fits your needs**

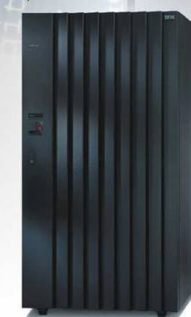


Now there is a System z9 for everyone

And the hardware evolution continues



- **Extending System z data serving capabilities**
 - ▶ **New specialty engine for data serving and data mining**
 - Designed to help lower costs and free up capacity for new workloads
 - ▶ **New technologies that span both servers and storage deliver:**
 - 25% to 65% improvement in FICON channel large data transfer MB/sec
 - New lower cost of entry for Fibre connectivity with z9 BC
- **Up to 30% price / performance improvement over previous generation mainframe servers with higher capacity IBM System z Application Assist Processor (zAAP) specialty engine**
- **z9 BC – 75% more specialty engines available than on the z890**
- **Data serving roadmap**



A vision for System z advanced data serving
System z Enterprise Hub for Mission Critical Data

◆ With a strong foundation for transaction processing, built on 40+ years of technology innovation, System z servers with z/OS and DB2 can provide a premier platform for data serving, today and into the future*

◆ IBM plans to continue to invest in new solutions to address customers' strategic information on demand goals*

<p>Today's Capabilities</p> <ul style="list-style-type: none"> • Industry-leading data integrity and security • Data sharing solution for centralized view of data • Scalability and availability for enterprise class workloads • Comprehensive systems and data management environment 	<p>Extension of capabilities*</p> <ul style="list-style-type: none"> • New specialty engine (zAP) with DB2 optimization for mission-critical ERP, CRM, and Data Warehousing workloads* • Database support improves regulatory compliance and autonomies • Support of encryption capability (tape subsystems with z/OS centralized key mgmt) • Data protection to achieve highest levels of security certifications 	<p>Future direction*</p> <ul style="list-style-type: none"> • Additional zTP evolution • DB2 enhancements to help improve scalability and reduce complexity and management costs • DB2 table scan acceleration via zSAP003 • Support of encryption capability (disk subsystem) with z/OS centralized key mgmt • Handle larger volumes of data, with improved scalability
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ON DEMAND BUSINESS

Delivering technology innovation that matters

We have delivered economic value on System z

- **Generation to generation price / performance improvements for hardware, software and maintenance***
- **Flexible ‘pay for what you use’ pricing methodologies available through capacity on demand and subcapacity software pricing**
- **Attractive for new workload with specialty engines and low cost z/OS operating environment**
- **Designed to reduce the hidden costs of computing that are rapidly accelerating in many environments:**
 - ▶ The costs of Systems Management
 - ▶ The costs of downtime
 - ▶ The costs of Security Breaches
 - ▶ On-going energy costs



* - z900 to z990 to z9-109



And continue to deliver additional value

■ New for IBM System z9 Business Class

- ▶ 26 MIPS entry point
- ▶ More granular capacity settings help improve “right-sizing” your hardware and software costs
- ▶ Generation to generation price / performance improvements*
 - 10% reduction in chargeable MSUs
 - Up to 23% reduction in hardware maintenance costs
 - Up to 37% hardware performance improvement for Linux (IFLs), Java (zAAPs), and Internal Coupling Facilities (ICFs)
 - Lower cost IFL, zIIP, zAAP now \$95K**
 - Typically, no charge MES upgrades on IFLs and zAAPs

■ New for System z9 Enterprise Class

- ▶ Enhanced flexibility for better cost alignment

■ New for IBM System z9

- ▶ New IBM System z9 Integrated Information Processors (zIIPs) designed to reduce the cost of certain DB2 Workloads
- ▶ SoD for new VSE pricing metrics***
- ▶ Simplified OoCoD upgrades



* When compared to z890s

** US Price only, prices vary outside of the US

**** IBM intends to provide new software pricing for z/VSE V4 (tm) when running on select processors, subject to applicable terms and conditions. IBM expects this new software pricing metric to provide a more granular subcapacity pricing option

Rethink the future – the journey to On Demand computing

Extending the reach of Mainframe Qualities of Service into enterprise wide roles:

- ▶ Enterprise security management
- ▶ Enterprise business resiliency management
- ▶ Enterprise hub for data & SOA
- ▶ Enterprise workload management

Enterprise-wide approach can help offer incremental value from IT:

- ▶ Align IT to the business opportunities
- ▶ Efficiencies of infrastructure wide management help to:
 - Reduce cost
 - Reduce complexity
- ▶ Adaptable to ongoing business change
- ▶ Security for peace of mind

Extending zSeries Business Resiliency Strengths
Creating a "Secure Vault" for Heterogeneous Environments

Today's Capabilities

- Up to 100% uptime
- Minimal system downtime
- Enable capabilities for user level

Extending zSeries Business Integration Strengths
"Flexible Business Integrator" for Heterogeneous Environments

Today's Capabilities

- An industry across all
- An industry processing
- Deep hardware stack integration

Extending zSeries Workload Management Strengths
"Intelligent Business Director" for Heterogeneous Environments

Today's Capabilities

- Autonomous resource performance
- Intelligent utilization
- World Class by over

A vision for System z advanced data serving
System z Enterprise Hub for Mission Critical Data

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- ▶ IBM plans to continue to invest in new solutions to address customers' strategic information on demand goals*

Today's Capabilities

- Industry-leading data integrity and security
- Data sharing solution for centralized view of data
- Scalability and availability for enterprise class workloads
- Comprehensive systems and data management environment

Extension of capabilities*

- New specialty engine (zIP) with DB2 exploitation for mission critical ERP, CRM, and Data Warehousing workloads*
- Database support improves regulatory compliance and autonomies
- Support of encryption capability (tape subsystem) with z/OS centralized key mgmt
- Data protection to achieve highest levels of security certifications

Future direction*

- Additional zIP exploitation
- DB2 enhancements to help improve usability and reduce complexity and management costs
- DB2 table scan acceleration via DSG000
- Support of encryption capability (disk subsystem) with z/OS centralized key mgmt
- Handle larger volumes of data, with improved scalability

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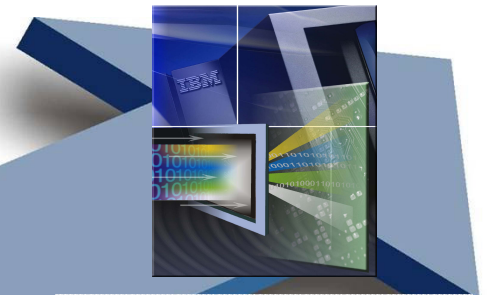
ON DEMAND BUSINESS

Roadmaps for planned delivery of future capabilities

More choice for your business

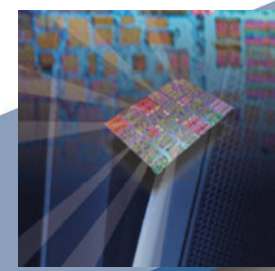
Evolution of specialty engines

Building on a strong track record of technology innovation with specialty engines, IBM introduces the System z9 Integrated Information Processor



IBM System z9 Integrated Information Processor (zIIP)

Designed to help improve resource optimization for eligible data workloads within the enterprise



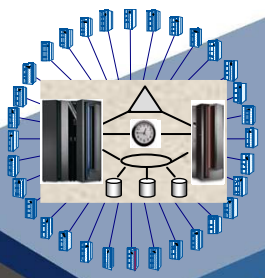
IBM System z Application Assist Processor (zAAP) 2004

Designed to help improve resource optimization for z/OS Java technology-based workloads



Integrated Facility for Linux (IFL) 2001

Support for new workloads and open standards



Internal Coupling Facility (ICF) 1997

Centralized data sharing across mainframes

IBM Storage Ready for System z9 and FICON Express4

IBM System z9 and IBM storage 4 Gbps FICON/FCP connectivity may help to:

- Support faster link speeds and shorter backup windows
- Enable channel and link consolidation to help simplify management and reduce the cost of the storage infrastructure
- Support easier migration to 4 Gbps bandwidth with auto-negotiating links



*IBM has a full range of
Disk, SAN, Tape, Software,
& Services for System z9*

Disk

DS8000 – 4 Gbps FICON/FCP Planned 2Q06*
DS6000 – 2 Gbps FICON/FCP

SAN

IBM SAN256B and SAN32B-2 4 Gbps FCP, FICON planned 2Q06
IBM SAN 140M, SAN32M and SAN256M (Planned 2006*) 4 Gbps FICON/FCP
Cisco MDS 9500 and 9216 4 Gbps FICON/FCP

Virtualization

IBM SVC 4 Gbps FCP for Linux on System z Planned 2Q06*
VTS 2 Gbps FICON/FCP
TS7510 Virtualization Engine™ – 2 Gbps FCP for Linux on System z Planned 2Q06*

Tape

IBM TS1120 4 Gbps FCP Tape Drive
IBM TS1120 Tape Controller 4 Gbps FICON Planned 2Q06*
IBM LTO Gen 3 - 4 Gbps FCP for Linux on System z Planned 2006*
IBM 3494 and 3584 Tape Libraries
IBM TS3310 Tape Library - 4 Gbps FCP for Linux on System z Planned 2Q06*



Extending sub-capacity to the z9 EC

Increased business flexibility with more choices

- Choose a server sized to meet your business objectives**
 - ▶ Introducing sub-capacity engines on the z9 EC
 - ▶ Four capacity settings per engine
 - ▶ New lower entry – 66% smaller than z9 EC current entry
 - ▶ A total of 24 new settings, each with less capacity than the full capacity 8-way
 - ▶ Additional engines can be specialty engines or CBU's
- Availability of all current z9 EC features and functions when running with sub-capacity processors ***
 - ▶ Enhanced book availability and advanced driver maintenance functions are available on multi book systems
- Any to any upgradeability available within the new sub-capacity matrix, as well as to current z9 EC capacity settings**
- Sub-capacity CBU's now available on z9 EC (and z9 BC)**



Granularity, bringing the System z9 to a new set of customers

* Only 8 general purpose processors can be sub-capacity

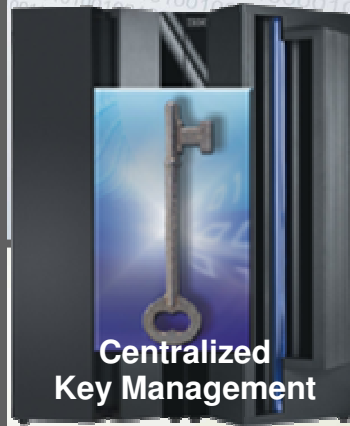
Tape Encryption with Key Management on System z

Why z/OS centralized key management?

- Can help to protect and manage keys
 - Highly secure and available key data store
 - Long term key management
 - Disaster recovery capabilities
- Single point of control
- Over a decade of production use

Encryption Facility for z/OS, V1.1

Data Encryption in the Server



- Flexible options for business partner exchange
- Partners can encrypt and decrypt using no-charge Java client
- Supports public key or password based exchange
- Plans to support OpenPGP standard*



Data Encryption in TS1120*



- Highly secure tape library
- High performance archive encryption
- Transparent to existing processes and applications
- Can help provide audit compliance

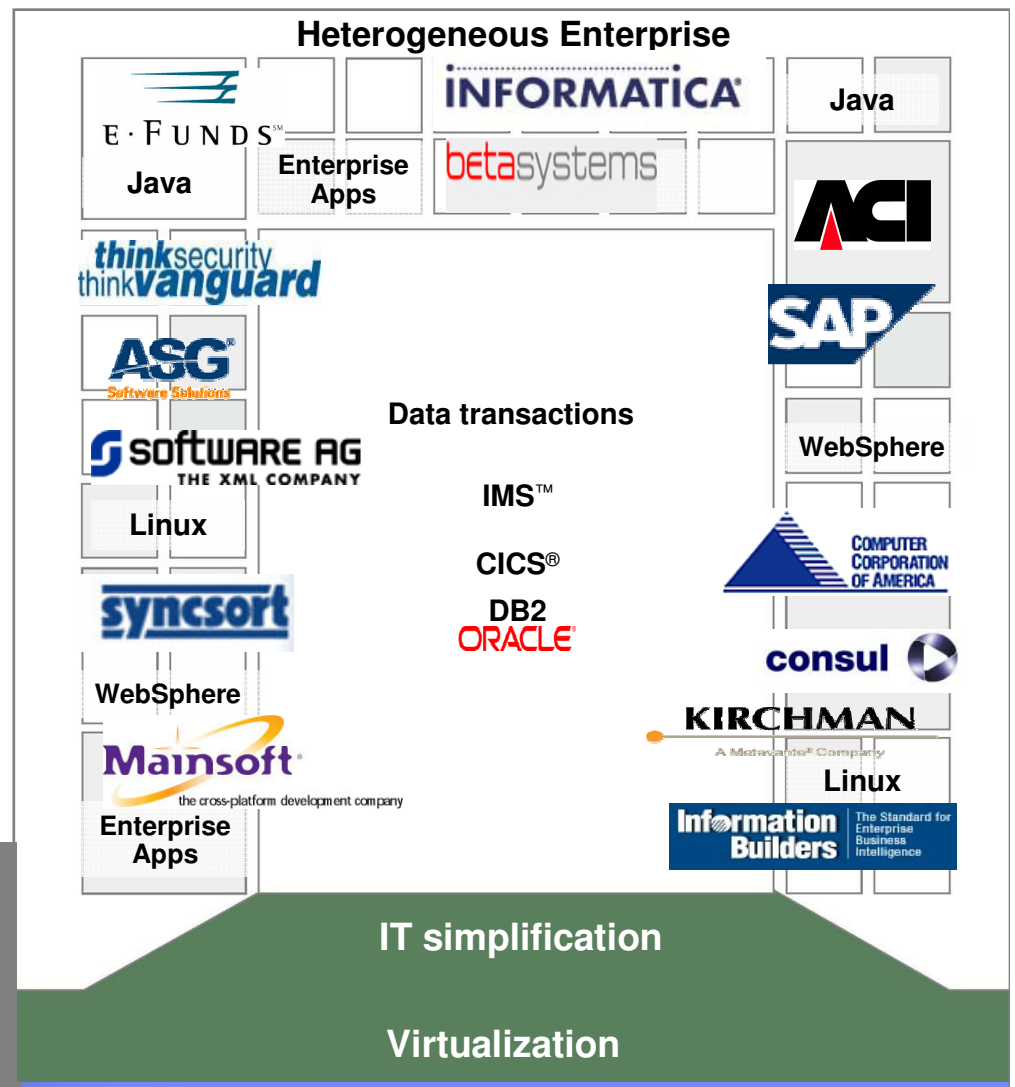
*Plans for encryption in IBM System Storage™ 2H2006**



Enterprise scope

ISVs continue to leverage technology and support the platform

- Increased investments and resources in enablement, technical support, and GTM for ISVs enabling on WebSphere z/OS and other IBM middleware
- Over 30% growth in Linux applications and tools; more than 800 applications today
- Strong data serving support – majority of partners surveyed view zIIP as beneficial
- Majority of ISVs maintaining OS currency; 78% within 6 months of GA
- Strengthened relationships and teaming
 - ▶ z/OS and ISV development collaboration
 - ▶ Industry solution reference architectures
- Partner testimonial
ibm.com/systems/z/testimonials/partners/



“IBM's newest upgrades to the System z9 server platform continue to enhance an already superior platform for delivering WebFOCUS, our scalable Enterprise Business Intelligence solution. The development of the zIIP engine will give our customers one more way to optimize the configuration of their servers to the needs of the reporting and analysis applications we provide.”

- Gerald Cohen, President/CEO of Information Builders

A System z9 for everyone

If you ...

- ... need an entry size mainframe*
- ... have smaller I/O attachment requirements*
- ... want IFL options without making a big CPU requirement*
- ... are smaller, but still growing - just in small increments*
- ... don't have a large support staff*
- ... use z/VSE to run your business.*

If you ...

- ... want to replace your server with one that has the same number of engines – but would like more IFLs, zAAPs or zIIPs*
- ... want to replace your standalone coupling facility or Linux only server with a machine that has more capacity per engine and better I/O bandwidth*
- ... like to grow in smaller increments but want help with investment protection, or need a larger server*
- ... agree that availability is important – but one book is enough.*

If you ...

- ... have a large disk installment so in turn have large I/O requirements*
- ... need a current mainframe that can replace your z900 ... with more and smaller processors*
- ... require maximum availability, with things like enhanced book availability*
- ... have a CBU farm – and like the control of having your disaster recover site right in your own shop.*

The System z9 offers management capabilities, security and scalability - to help you stay competitive.

The z9 BC R07 may be the perfect option.



The z9 BC S07 is just what you asked for.



The enhanced z9 EC is for you.



Leadership in systems innovation

- **New family member and capacity settings gives you a choice in selecting the right sized mainframe for your business**
- **Leadership in data and transaction serving with continued IBM platform focus to enable on demand business across the enterprise**
- **Helping to improve capacity and performance in accessing data with the next generation of 4 Gbps FICON/FCP**



System z continues to leverage its leadership in security and resiliency, intelligent management, and business integration capabilities and offers new options for managing the IT infrastructure