Improving the Customer Experience
Redefining enterprise IT for digital business

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Director z Systems Platforms

The market is moving, forcing businesses to transform

Explosion in transaction growth

driven by mobility and the Internet of Things

Analytics is moving to real time

to capture new opportunities at the point of impact

Hybrid cloud is the new standard

for delivering service, agility, trust and efficiency

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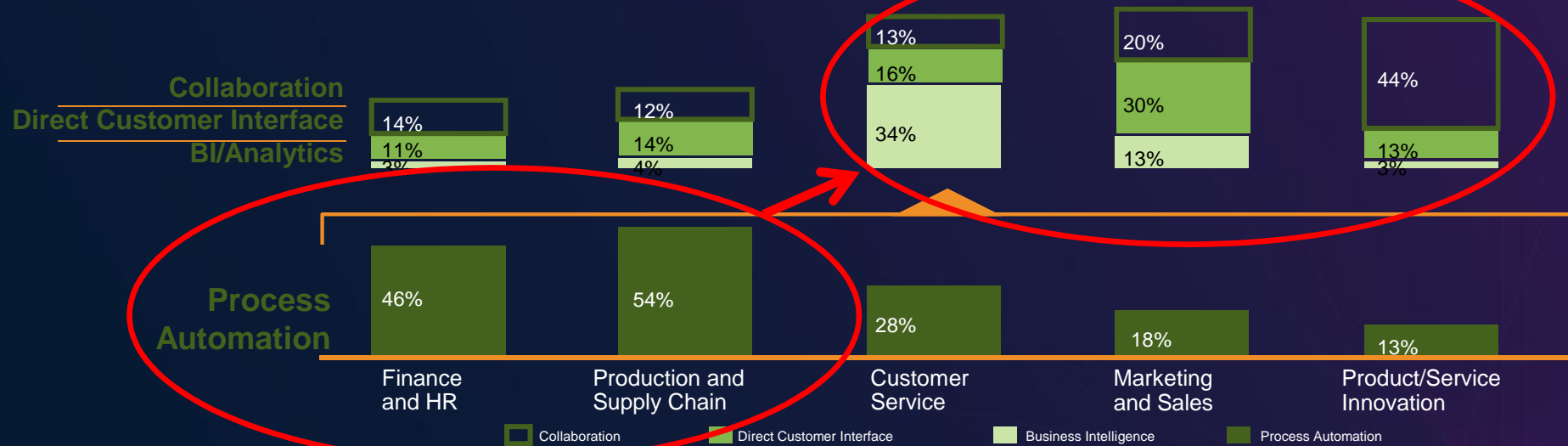
Consumers are empowered...

Customer experience

is the new measure

of success

Gets us to the demographic **of one**

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As process automation matures, focus is shifting to business value

Percent of Processes with Potential Value from IT

Collaboration
Direct Customer Interface
BI/Analytics

14%	12%	13%	20%	44%
11%	14%	16%	30%	13%
3%	4%	34%	13%	3%

Process Automation

46%	54%	28%	18%	13%
Finance and HR	Production and Supply Chain	Customer Service	Marketing and Sales	Product/Service Innovation

☐ Collaboration ☐ Direct Customer Interface ☐ Business Intelligence ☐ Process Automation

§ Investments/deployment of process automation solutions are maturing and reaching diminishing returns.

§ As these systems mature, the focus is shifting to new buyers and new deployment patterns.

§ New buyers in customer service, marketing, sales and offering innovation areas.

Source: The Corporate Executive Board; Analysis based on APQC Process Classification Framework, v5.0

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Enterprise Mobility needs to be…

Engaging

- User friendly
- Fast and seamless
- Context-Aware data
- Personalized information
- Device specific

85%
of consumers prefer
mobile apps over
mobile websites

Empowering

- Simple, task oriented
- Data Driven Insights
- Access to information, when the user needs it
- Listens to user feedback and changes quickly

80%
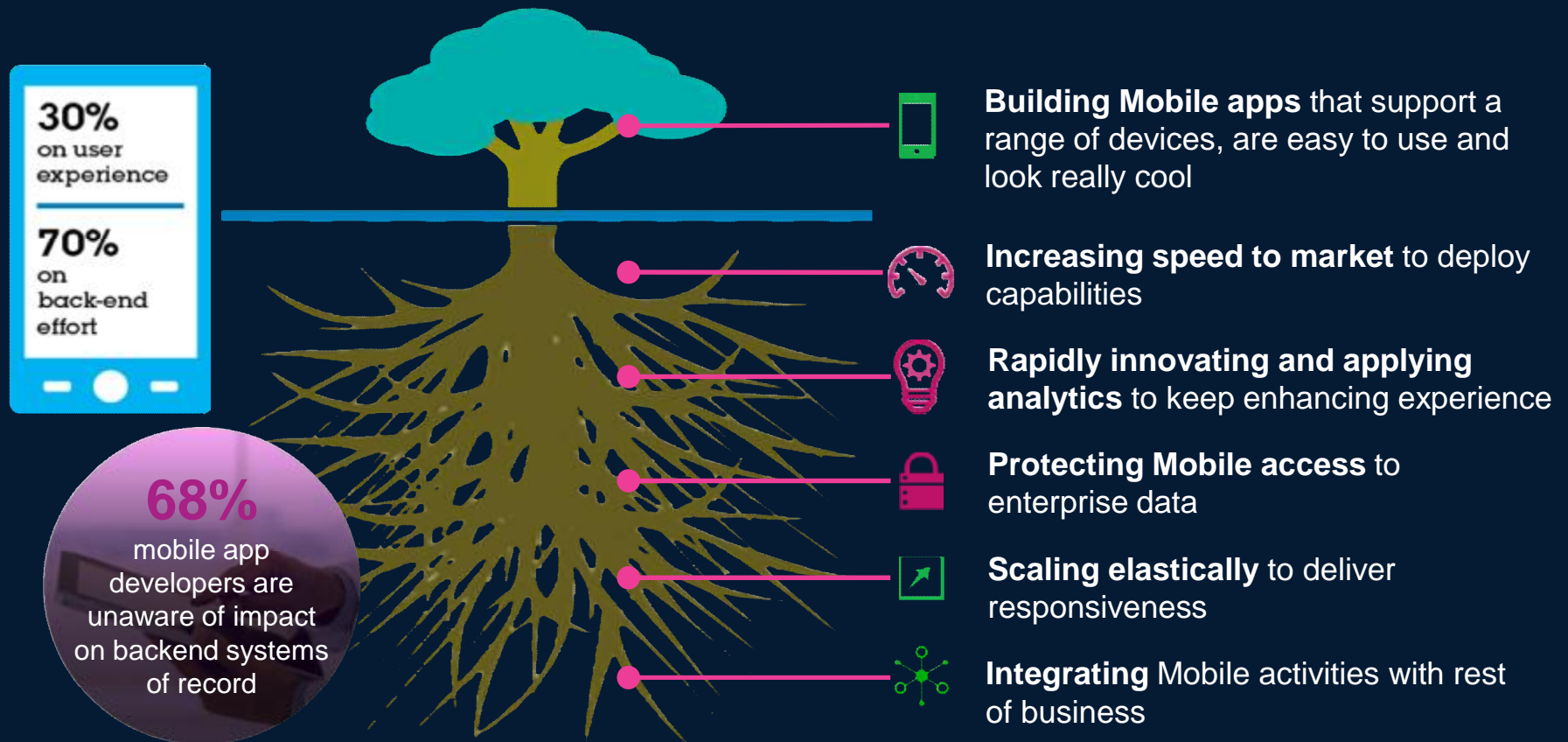of mobile apps
are used once,
then deleted

Trustworthy

- Always on and available
- Security access and authorization
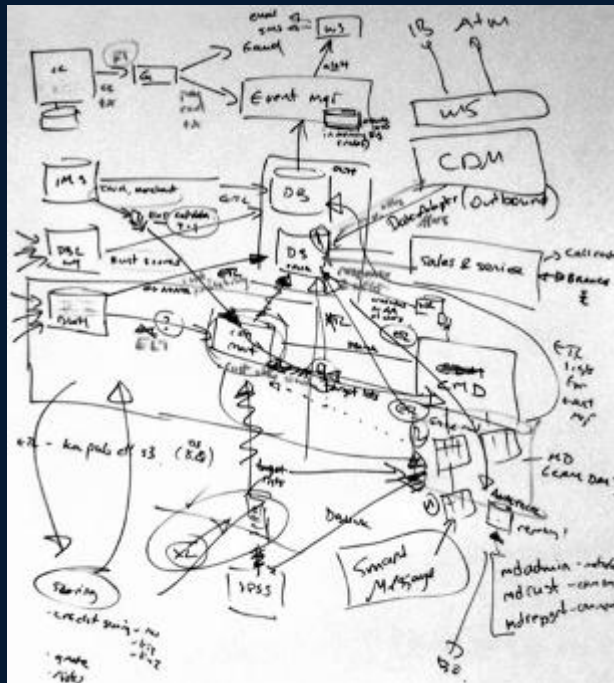- Protects against fraud
- Assesses risk
- Continues to learn

70%
Security executives
have cloud and
mobile concerns

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Rethinking Infrastructure for Mobile Moments

30% on user experience

70% on back-end effort

68% mobile app developers are unaware of impact on backend systems of record

Building Mobile apps that support a range of devices, are easy to use and look really cool

Increasing speed to market to deploy capabilities

Rapidly innovating and applying analytics to keep enhancing experience

Protecting Mobile access to enterprise data

Scaling elastically to deliver responsiveness

**Integrating** Mobile activities with rest of business

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Analytics implementations have grown in complexity

Significant complexity
Separated data warehouses

Analytics latency
Transactional data is not readily available

Lack of synchronization
Data is not easily aggregated and fresh

Data duplication
Multiple copies of the same data

Excessive costs
Of moving data around

…And a new deployment strategy is needed

Transactions

Analytics
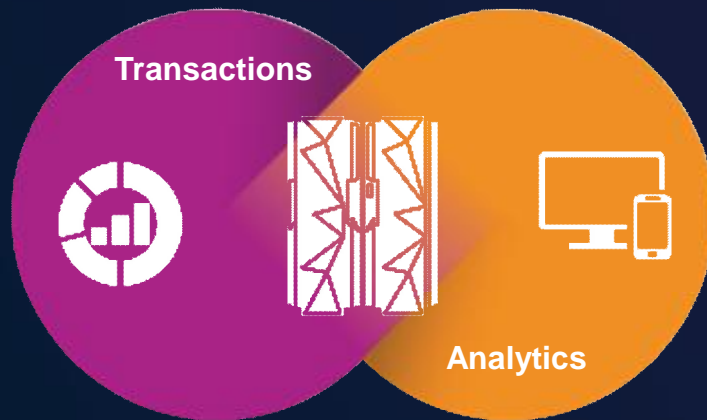
- Right-time insight at point of impact
- Increased business agility
- Improved data governance and security
- Reduced infrastructure cost and complexity

72%
say greatest value will come
from analyzing transactional data

55%
of enterprise applications need
mainframe to complete transactions

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What does Cloud really mean?

- Cloud is NOT a product or a technology
- **Cloud is a methodology for delivering computing services**
- Cloud is the ability for **users** to provision and expose new environments or services:
  - In a self-service fashion
  - Backed by automation
  - In a manner that preserves the security and integrity of the environment.

IBM z Systems provide the infrastructure to support all dimensions of cloud service delivery

Private Cloud
z Systems as the foundation of the most secure, scalable private cloud infrastructure
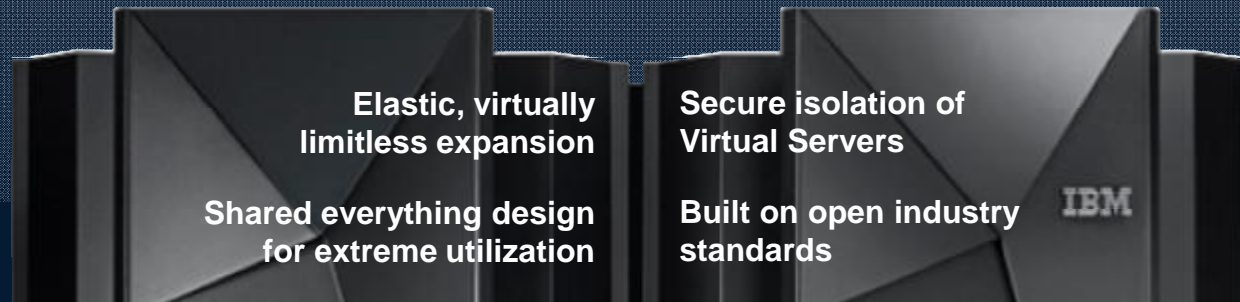
Hybrid Cloud
Leveraging BlueMix and interoperability with SoftLayer, AWS and other public cloud offerings

Public Cloud
Enabling MSPs/CSPs to deliver differentiated mainframe-based service offerings

Elastic, virtually limitless expansion

Shared everything design for extreme utilization

Secure isolation of Virtual Servers

Built on open industry standards

IBM

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In the complex world of digital business, Security and Availability are now a board level discussion

The indirect cost of security breaches and downtime can far outweigh the direct costs

70% — Of security executives have cloud and mobile concerns[1]

614% — Mobile malware growth in just one year[2]

$5.65M — Average cost of a security breach in the US[3]

$7.9K — Average cost of one minute of downtime[4]

Build a vault around your crown jewels with System z

Users

Data

Transactions

Source: [1] 2013 IBM CISO Survey
         [2] 2012-2013 Juniper Mobile Threat Report
[3] IBM client examples
[4] http://www.datacenterdynamics.com/focus/archive/2013/12/one-minute-data-center-downtime-costs-us7900-average

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Strategic Priorities for z Systems

Data Server of Choice

Stack Performance

- Get workload done faster
- Scale capacity with workload
- Co-optimize hardware & software

Data-Serving

- Deliver more data … faster

Business Analytics

- Workload-optimized
- Big Data Integration
- OLTP à In line Analytics

Most Secure & Reliable

Security

- Auditable protection of data
- Isolation for multi-tenancy
- Simplify management & compliance

System Availability

- Apply analytics to IT operations

Sysplex Availability

- Enhanced GDPS
- Active-active solutions
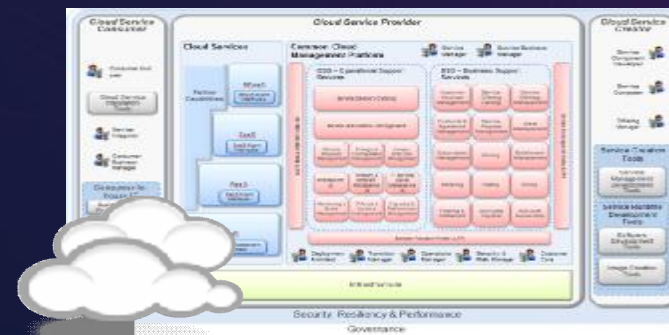- Asynchronous data replication
- Simplification and autonomics

Enterprise Cloud Leadership

Enterprise Cloud

- Enable cloud-based delivery
- Dynamic shared infrastructure
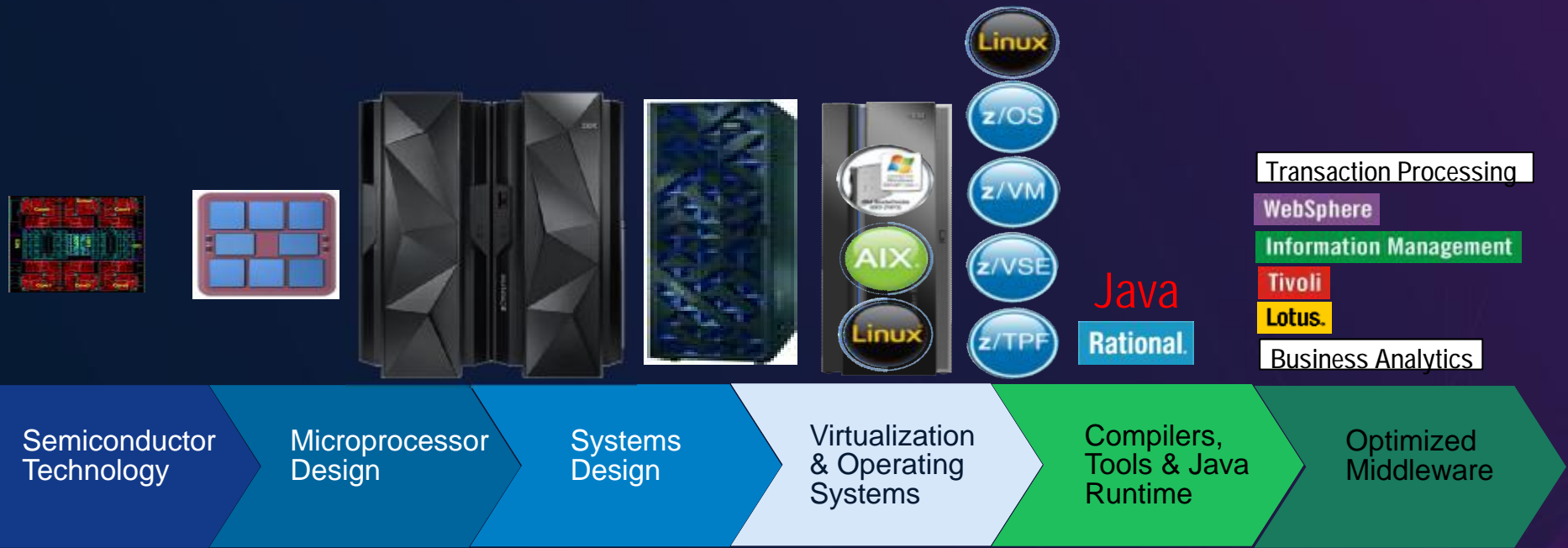- Software Defined Env, Open Stack

Heterogeneous Workloads

- Linux consolidation
- Extend platform management
- Integrate mobile workloads
- Cross-platform integration
- Industry Solutions

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z Systems: Integrated by design

Linux
z/OS
z/VM
z/VSE
z/TPF

AIX
Linux

Java
Rational.

Transaction Processing
WebSphere
Information Management
Tivoli
Lotus.
Business Analytics

| Semiconductor Technology | Microprocessor Design | Systems Design | Virtualization & Operating Systems | Compilers, Tools & Java Runtime | Optimized Middleware |

Data Ready | *Cloud Ready* | *Security Ready*

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IBM z13

Redefining enterprise IT for digital business and mobile app economy

Over $1 billion investment
with more than 5000 developers

Co-created with clients

Extending core strengths
of the mainframe

Exceptional customer experiences over **mobile**

Insights at the point of impact with integrated **analytics**

Efficient & trusted service delivery through **cloud**

z Systems

IBM z Systems

Pushing the boundaries of system innovation with the new IBM z13

Up to 10TB RAIM Memory delivers up to 50% better response time

Accelerated Analytics for Numeric-Intensive Workloads with Single Instruction Multiple Dataset (SIMD)

30% Better Performance for Linux and Java with Simultaneous Multi-Threading (SMT)

Specialty Engines: zIIPS, IFLs, and ICFs to optimize performance across diverse workloads

Crypto Express5S providing dedicated cryptographic processing for security of transactions and data, 2x faster

Up to 141 Processor Cores with 5GHz performance and unprecedented scales for data and transaction growth

Up to 320 Separate Channels of Dedicated I/O for massive data and transaction throughput

Up to 17x Faster Analytics than the Competition with IBM DB2 Analytics Accelerator

Up to 8,000 Virtual Machines in one Systems with new open-standards based KVM hypervisor

zEDC accelerated data compression to reduce data transfer volumes & storage costs by up to 75%

IBM z Systems

Designed for transaction processing and data serving

- New **8-core** Processor Design in **22nm Silicon Technology**

- Micro architecture enhancements to **increase instructions per cycle**

- Larger *caches to optimize* data serving environments

- *Simultaneous multi-threading* *delivering more throughput per core and* substantial economies of scale with for Linux and zIIP-eligible workloads

- *Single Instruction Multiple Data (SIMD)* improves performance of complex mathematical models

- Up to 2X *improved cryptographic performance* with enhanced Central Processor Assist for Cryptographic Functions (CPACF)

- Improved *on chip hardware compression* helping to save disk space and cut data transfer time

"The world's premier transaction and data engine"

IBM **z Systems**

Modern and open tools for z Systems

Java 8 and z13
Optimized CICS, IMS and DB2 transactions

Up to **50%**
improvement in throughput for generic applications

Up to **2X**
improvement in throughout per core for security enabled applications

COBOL, PL/I & C/C++ Compilers
z13 exploitation for increased performance

Up to **14%**
reduction in CPU time

Up to **17%**
throughput improvement

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zEnterprise Data Compression (zEDC)
Helps you keep more active data

Capture new opportunities with lower cost of keeping data online

- Efficiently **compress active data** using a dedicated compression accelerator
- **Industry standard compression** for cross platform data distribution

Typical Client Use Cases:

- **Disk savings** with improved utilization of storage tiers with DFSMSdss™ use of compression
- **Compression for sequential files** with less CPU costs
- **Shorten encryption time** with hardware compression and IBM Encryption Facility for z/OS
- **Fast, secured data transfer across the enterprise** with IBM Sterling Connect:Direct for z/OS Standard Edition V5.2
- **Transparent acceleration** of Java compressed applications

*DFSMShsm™ ***

Use up to 58% less disk space and up to 80% less CPU compared to using DFSMShsm with the COMPACT keyword

*BSAM/QSAM****

*Compress data up to 4X, with up to 80% reduced CPU ***

*Java 7*****

Up to 90% reduction in CPU time with up to 74% reduction in elapsed time vs. using zlib software

*Connect:Direct for z/OS 5.2******

Up to 80% reduction in elapsed time for z/OS to z/OS file transfers

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More memory makes a difference

- **Enable totally new types of applications**
  - Perform faster table scans with in memory data for faster response time; reduce CPU by avoiding IO, make possible new types of analysis

- **Accommodate growing workloads without changes to applications to gain benefits**
  - Run sorts using large memory to improve elapsed times
  - Keep the entire Cognos Dynamic Cubes end-to-end application online for faster decision making

- **Support modern memory heavy computing languages and architectures**
  - Larger Java® heaps without an increase in paging
  - Improves IBM MQSeries® V8 ability to manage increasing messaging volumes generated by today's mobile and cloud applications

- **Reduce need to fine tune memory and leverage the tuning capabilities in DB2®, IMS™ and CICS®**
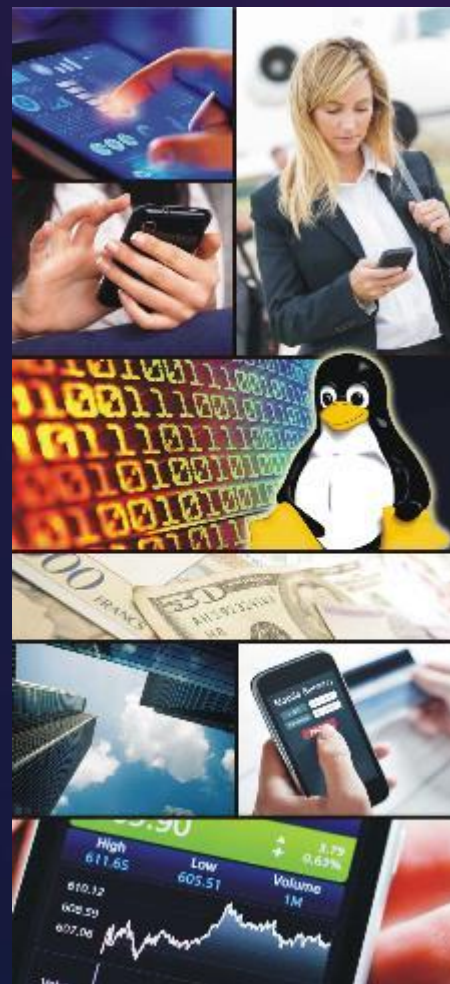
DB2 Buffer Pool simulator tool available as a DB2 (V11) deliverable. Provides an accurate benefit estimation of increasing buffer pool size for DB2.

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Trusted, secure and available

Leveraging z Systems cryptographic capability can help reduce risk and enhance the security of workloads

- **Securely transfer more data across the Internet (SSL and IPSec) at a lower cost** with performance enhanced CPACF and next generation Crypto Express5S

- Extend **enhanced public key support for constrained digital environments** using hardware accelerated Elliptic Curve Cryptography (ECC) helping applications like Chrome, Firefox, and Apple's iMessage

- Avoid reformatting of databases with new exploitation of VISA **format preserving encryption** (VFPE) for credit card numbers

- **Continuous Availability and Disaster Recovery functions for Linux** on IBM z Systems™ and z/VM customers with new GDPS virtual appliance

- IBM zAware extended to Linux on z to increase availability by **detecting unusual application or system behaviors** for faster problem resolution

- IBM intends to support the use of cryptography algorithms and equipment from selected providers in conjunction with z Systems in specific countries

* All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

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z Systems + DS8870:
Enable Your Infrastructure for Systems of Insight

IBM is uniquely positioned to provide this value long before competitors

16Gb host adapters	Improve network performance and minimize latency for database log writes with zHyperWrite and Metro Mirror
FICON® Dynamic Routing	Reduce cost with improved and persistent performance for supporting I/O devices
Forward Error Correction	Preserve data integrity with more redundancy on the information transmitted via 16Gb adapters
zHPF Extended Distance II	Increase remote data speed with 50% better IO performance for remote mirror
Fabric Priority	Improved resiliency capabilities while enhancing the value of FICON Dynamic Routing

Only IBM designs mainframe capabilities to strengthen the synergy with DS8870

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Why IBM z13

- EXECUTE 30K TRANSACTION A SECOND, UP TO 2.8B A DAY

- PROVIDE SUBS-SECOND MOBILE TRANSACTION RESPONSE TIME, EVERY TIME

- SCORE EVERY TRANSACTION TO PREVENT 100% OF FRAUD, WITHOUT IMPACTING TRANSACTION PERFORMANCE

- RUN CONSISTENTLY AT 100% UTILIZATION

- FULLY ENCRYPT EVERY TRANSACTION END TO END, AND NEVER COMPROMISE CLIENT OR CORPORATE DATA

- DELIVER PUBLIC AND PRIVATE CLOUD SERVICES WITH 100% UPTIME, ONE SYSTEM

- ANALYZE TRANSACTIONS ON THE FLY, MAKING TERADATA-STYLE SYSTEMS OBSOLETE .

IBM **z Systems**

z13: a new system

designed for mobile, analytics

and trusted cloud

With the highest speeds, the most diverse workloads, and simply the best security on the planet

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THANK YOU!

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