

A decorative graphic in the top left corner consists of several overlapping circles of various colors (yellow, orange, red, purple, blue) that are divided into segments, resembling stylized sunbursts or data points.

Delivering Innovative Solutions to Meet Current and Future Market Demands

Ray Jones

Vice President, System z Worldwide Software

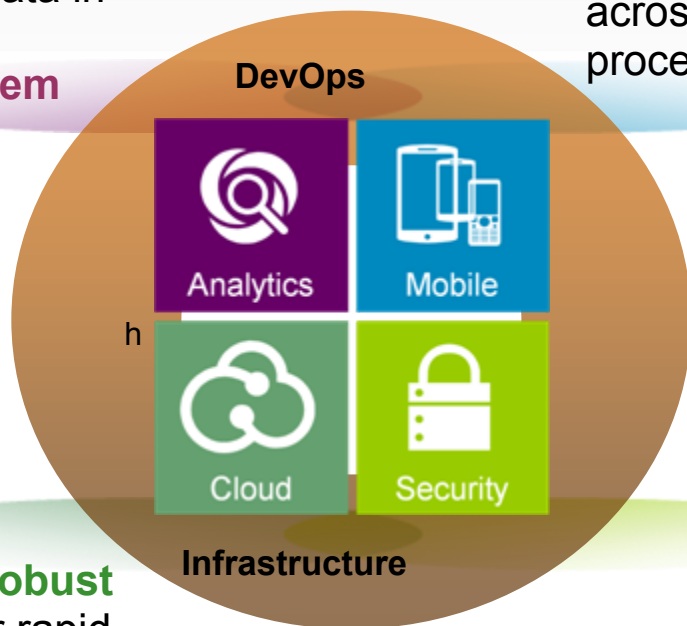
IBM Software Group



Create a competitive advantage in the digital era

Operational and analytics applications reside with the data in **a single fully virtualized system**

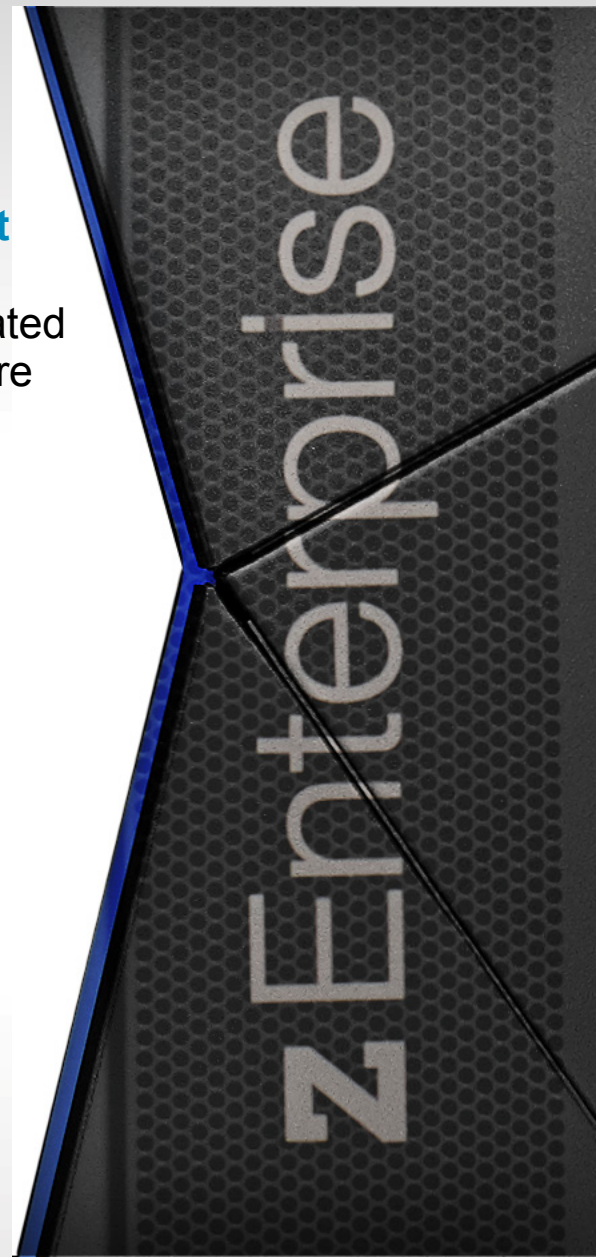
Creating **Intelligent interaction** in transactions integrated across mobile & core processes



A **flexible and robust** infrastructure for rapid delivery of high quality services

A **trusted computing** platform to support secure growth in transactions and data

...make the extraordinary possible!!!





A Journey to a Smarter Planet





IBM®



zEnterprise EC12: An optimized design which delivers unique value

Comprehensive integration enabling information-centric computing



New innovations available on zBC12 and zEC12



Do a Proof of Concept Today

NEW

Data Compression Acceleration

Reduce CP consumption, free up storage & speed cross platform data exchange to compress data

Up to 4X system data compression

NEW

High Speed Communication Fabric

Optimize server to server networking with reduced latency and lower CPU overhead

Up to 80% reduction in network latency

ENHANCED

Flash Technology Exploitation

Improve availability and performance during critical workload transitions, now with dynamic reconfiguration; CF exploitation

Up to 10X faster response time and 37% increase in throughput vs. disk

ENHANCED

Proactive Systems Health Analytics

Increase availability by detecting unusual application or system behaviors for faster problem resolution before they disrupt business

2 clicks vs. hours to find difficult or unusual problems

NEW

Hybrid Computing Enhancements

x86 blade resource optimization; Alert & notification for blade virtual servers; Latest x86 OS support; Expanding future roadmap; DataPower Virtual Appliance SoD

Up to 84% lower TCA with fit-for-purpose cloud architectures

NEW

zIIP & zAAP Specialty Engines:

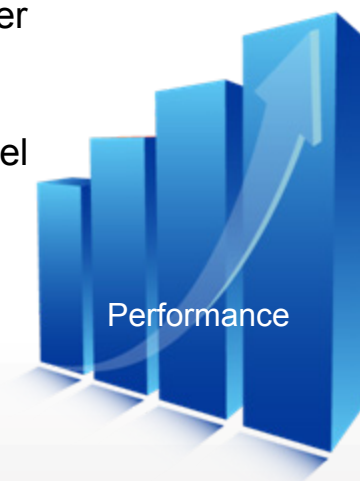
New 2:1 ratio for zIIP/zAAP to CP for improved new workload economics

Improve performance of COBOL applications

Deploy business critical COBOL applications optimized for target System z servers to shorten processing time and reduce operating cost

Modern, advanced optimization

- Based on proven compilation technology shipped in Java on System z since 2006
 - Provides COBOL-specific optimizations
 - Enables COBOL users to fully exploit z/Architecture
- Provides significant performance improvements over Enterprise COBOL V4¹
 - Many well structured, CPU-intensive batch applications have shown performance increases greater than 10%
 - Many numerically intensive programs have shown performance increases greater than 20%
 - Better exploitation of z hardware, specifically z10, z196, z114, zEC12, zBC12
 - Savings to customers in terms of CPU utilization and ability to meet Service Level Agreements.
- Provides a solid framework to enable timely delivery of z/Architecture exploitation and advanced optimizations
 - Lays groundwork for delivering release-to-release performance improvement roadmap for COBOL on System z



¹ Results are based on an internal compute-intensive test suite. Performance results from other applications may vary.

Operating systems focused on exploiting



z/OS Version 2.1 & z/OSMF 2.1



- Fast memory to memory data transfers with SMC-R (like HiperSockets between processors)
- Handle huge volumes of data with 100-way (SMP) support in a single LPAR
- Shorten batch windows with 40% shorter file recall time
- Improve SAP workload performance with 175x faster zFS V5 directory lookup
- Leverage Crypto-as-a-service for Linux[®] to extend IBM System z reach as a crypto hub

z/VM[®] Version 6.3



- Supports more virtual servers than any other platform in a single footprint with support for 1TB of real memory,
- Increased performance for large VMs with a 4x increase in memory scalability while maintaining greater than 90% resource utilization
- More efficient use of CPU resources for better price performance

60%

reduction in MIPS requirement
for host system size

\$1.00/day

for a virtual Linux server

520

Linux virtual servers on zBC12 with
40 virtual servers per IFL.



How Customers are Leveraging System z Transactions and Data Today

Did you know, on z/Linux, we're seeing exciting growth with Worklight In 4Q13, z/Linux accounted for 45% of all IBM Worklight revenue

150M monthly mobile banking transactions with **< 30 milliseconds** end-to-end response time



System z is the Smartphones Coolest Accessory and the foundation for a mobile enterprise



▪ Avoids **\$1.5M** per year in energy costs, while growing mobile transactions



Brings the branch to the client and enables personalized services to support **10M** new customers

New B2E mobile based inventory management system on System z keeps shelves freshly stocked with what customers want, saves over **2.4M** per year for ROI in only **16 days**





Mobile workloads Impact Systems differently than web workloads.

- Increase in peak and off-peak transactions. Expect 10-50% growth as you add a mobile channel.
- Increased query or “read-only” transactions. As many as 50% of mobile transaction could be “read-only”.
- Unanticipated spikes in workload due to popular apps, features or special offers. No traditional times for workload spikes.
- Inefficient applications written by “non-professional” coders. Drives up transaction rates.

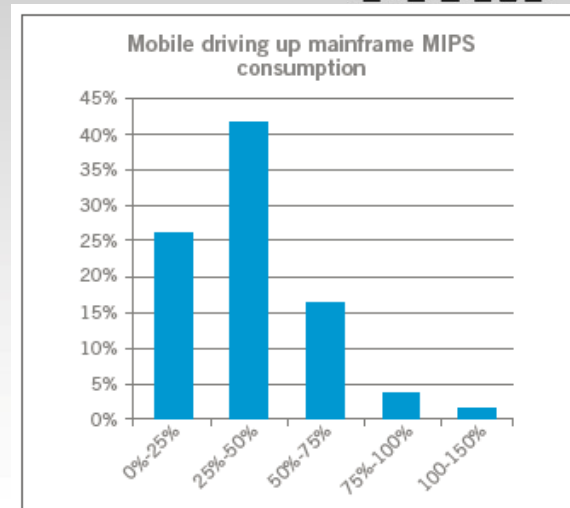


Chart 7: The increased use of mobile applications has increased MIPS consumption by more than two-fifths (41 percent), with 2 percent saying it has more than doubled.



Chart 4: 91 percent of CIOs say now that customer-facing applications are using the mainframe and performance expectations on it have increased.



New System z Mobile Workload Pricing

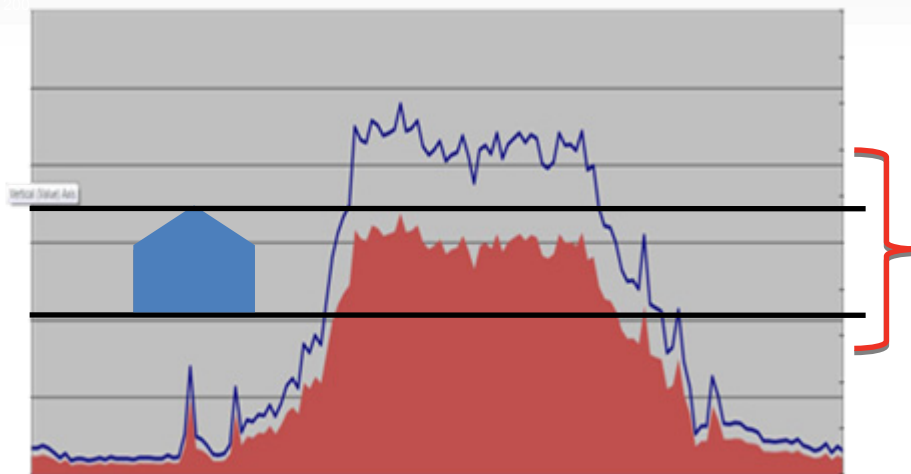


enables IT investments to scale with growth & business returns of mobile



No Infrastructure Changes Required

Improving the economics of mobile computing



Up to 60% reduction in incremental growth from mobile transactions



System z – Surviving even the most devastating Japan earthquake!





Continuous Availability over Unlimited Distances with Active Sites Technology



Expand System z continuous availability solution that provides time to recovery in seconds with automated query workload balancing across multiple data centers.

- New automated query workload balancing across data centers through the latest release of GDPS Active-Active Continuous Availability with **IBM Multi-site Workload Lifeline v2.0**
- Improved non-relational z/OS data integration and replication of data between IMS and VSAM databases with **InfoSphere Data Replication and Federation Solutions for z/OS**
- New network automation, and network and systems management among systems with **NetView Monitoring for GDPS**



DB2 11: The Database for Enterprise OLTP and Analytics

Affordable for every workload with out-of-the-box savings

- Up to 10% for complex OLTP
- Up to 15% for update intensive batch
- Up to 40% for queries

Business critical analytics

- Expanded SQL, XML and analytics capabilities
- Hadoop integration, NoSQL/JSON support
- In-transaction real-time scoring
- Advanced analytic capabilities with mobile support

Enhanced Resiliency and Continuous Availability

- Fewer planned outages, fewer REORGs, faster recovery
- Transparent archiving, access warm/cold data in single query

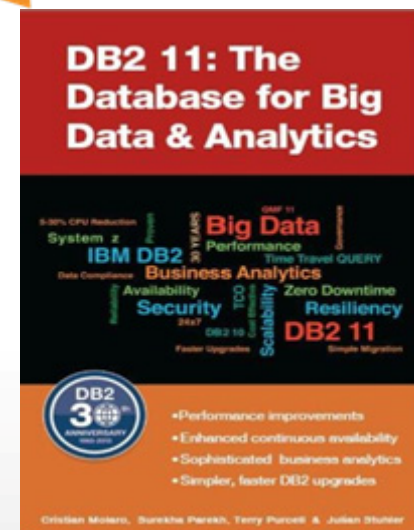
Simpler, faster upgrades for faster ROI

- 16x faster catalog migration
- No application changes required for DB2 upgrade
- Product quality and stability – raised the bar

Announce
Oct. 1


GA
Oct. 25

Day 1 SAP
Certification



DB2 11: The Database for Big Data & Analytics

30% CPU Reduction
 System z
 IBM DB2
 Data Compression
 Performance
 Time Travel QUERY
 Big Data
 Business Analytics
 Availability
 Security
 TCO
 Scalability
 Zero Downtime
 Resiliency
 DB2 11
 DB2 10
 Faster Upgrades
 Simple Migration


 • Performance improvements
 • Enhanced continuous availability
 • Sophisticated business analytics
 • Simpler, faster DB2 upgrades

Christian Molteni, Suresha Parekh, Terry Purcell & Julian Stunter

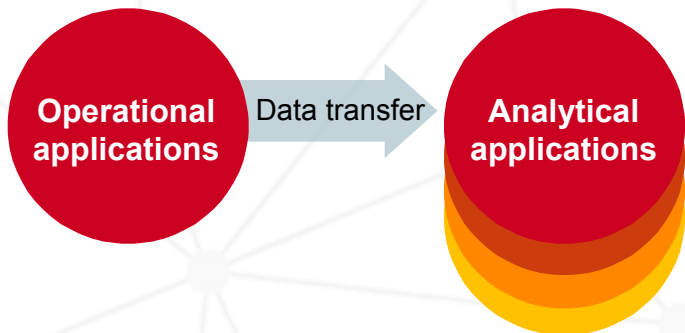


Bring Business and IT analytics to the data rather than the data to the analytics



Extract, Transform and Load (ETL)

1TB ETL per day, Initial copy plus three derivatives costs **>\$8 million** over 4 years



Multiple copies of data
Transaction and analytics isolation
Significant compute power

Source: CPO internal study. Assume dist. send and load is same cost as receive and load.. Also, assume 2 switches and 2 T3 WAN connections.

The most valuable insights occur when the analysis executes where the data originates

72%

of respondents plan to analyze transactional data from enterprise applications

80%

of world's corporate data resides or originates on mainframes



Integrating Big Data Analytics with DB2 for z/OS

• Much of the world's operational data resides on z/OS	Unstructured data sources are growing fast
--	--

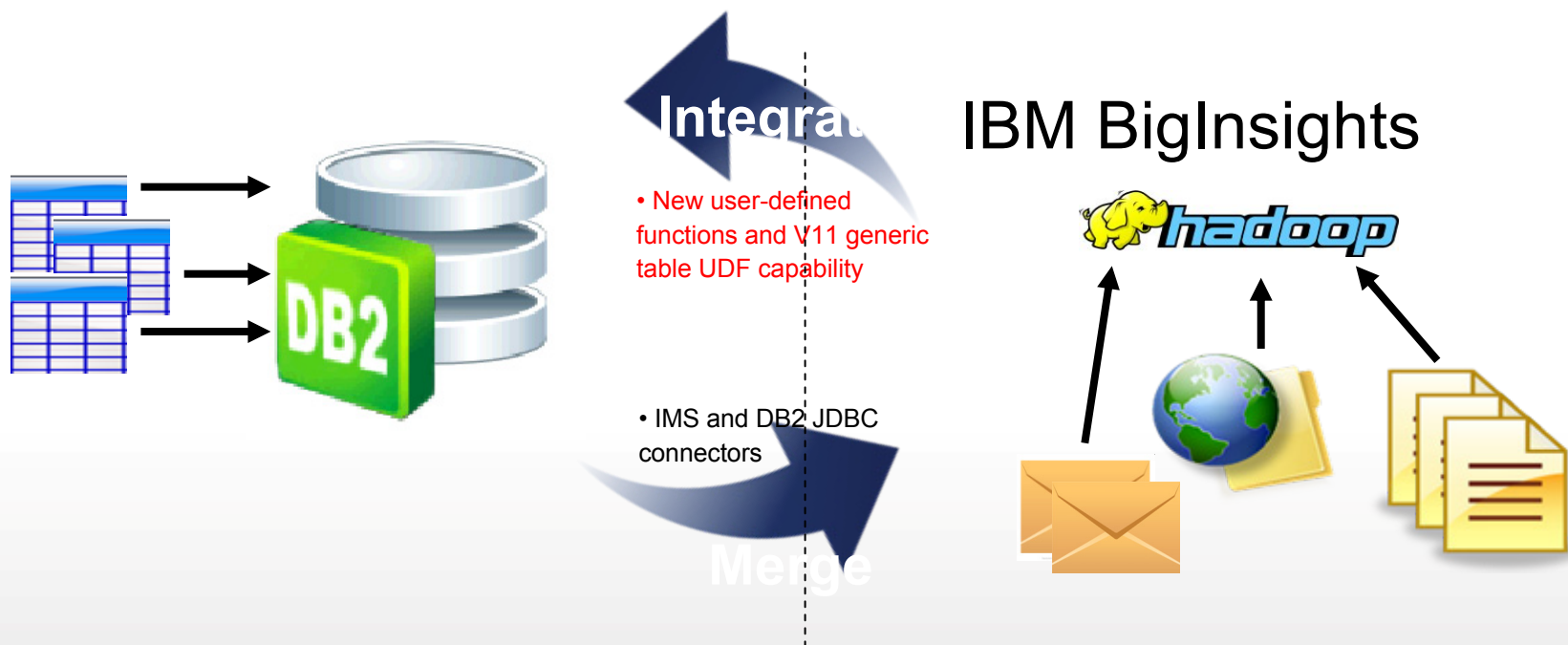
•Two significant needs:

1. Merge this data with trusted OLTP data from zEnterprise data sources
2. Integrate this data so that insights from Big Data sources can drive business actions

New V11 features enable this

• Connectors to allow BigInsights to easily & efficiently access DB2 data

• DB2 is providing the connectors & the DB capability to allow DB2 apps to easily and efficiently access hadoop data sources





Optimize and Innovate with IMS



IMS 13

delivers...

- **Speed & scalability**
 - **117,292 TPS on a single system!**
 - **800%** increase over IMS 12
 - Increased workload throughput by **130%**
- **Affordability**
 - **10%** CPU savings for traditional workload
 - **62%** CPU savings for Java workload
 - Value Unit Editions available for IMS DB and IMS TM
- **Simplicity**
 - Deliver IMS apps and data to mobile and cloud developers in a secure, governed, and optimized way with the IMS Mobile Feature Pack
 - Native SQL from COBOL
 - Dynamic database management

IMS 13 – available today! (GA 4Q2013)

Beta (QPP) experience

- *Highest quality rating (94/100) in IMS history*
- *Three IMS 13 clients in production prior to GA*

Adoption

- *The fastest adoption rate of recent releases with 75 clients and partners already on IMS 13*

IMS vNext – QPP Announce in 4Q2014

Optimize and extend the value of your IMS investment in the era of Data, Cloud & Engagement

- *Simplified, standards-based management and integration for hybrid cloud, analytics, mobile, and big data*
- *Improved IMS TCO and Qualities of Service*



[Join us on LinkedIn](#)

“With IMS as our core orchestration and business logic execution layer, we have **true 24/7 service capability** and the ability to manage growth without worrying about scalability.”

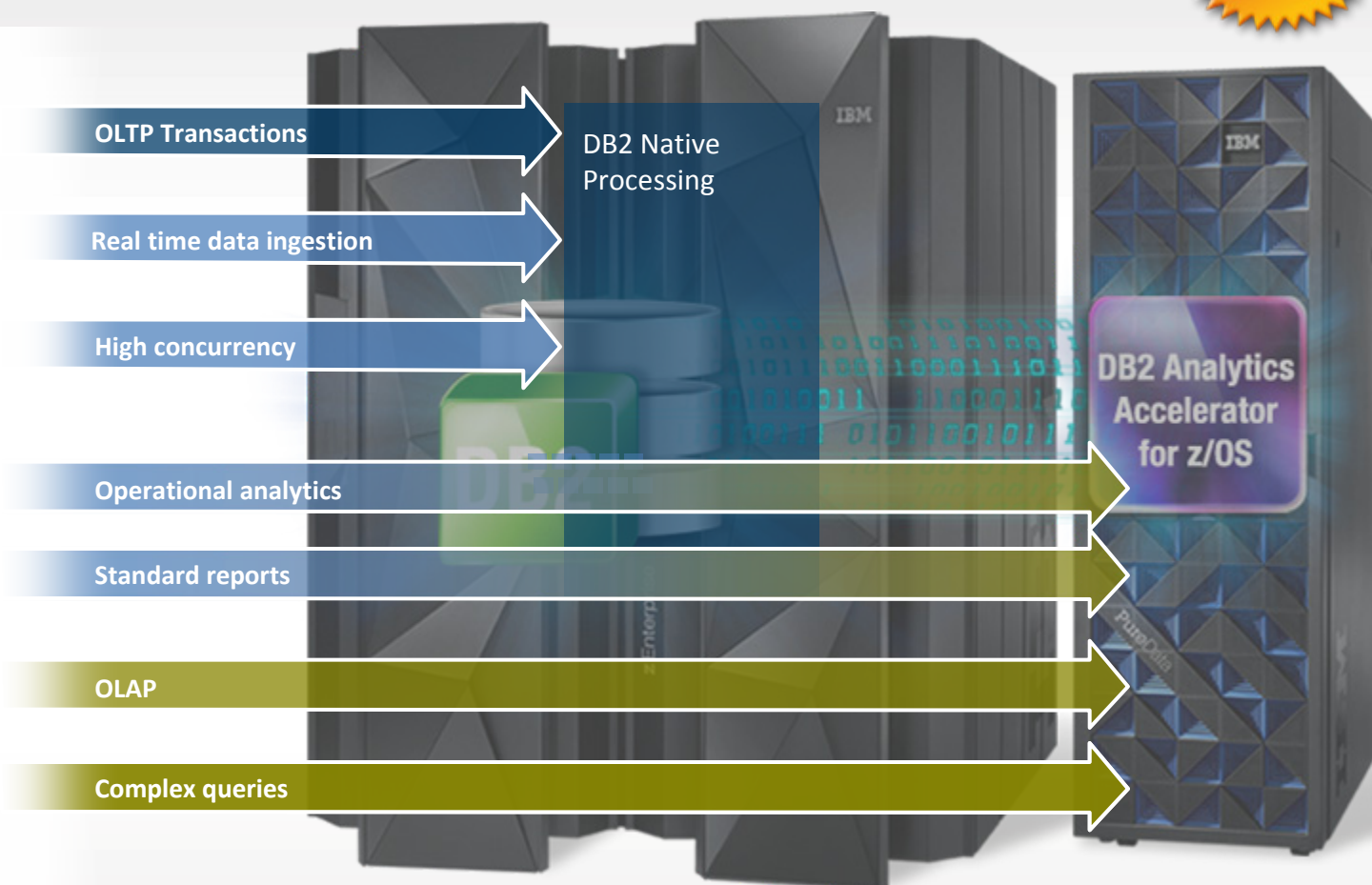
- Jay Prag, CIO Hogan Channels, FNB





An easy entry point into zEnterprise analytics

A single, workload-optimized system for both operations AND warehousing



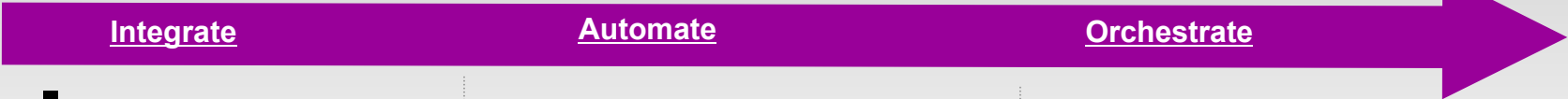
- **CPU savings** for DB2 query workloads including short running operational analytics and reporting **now with static SQL, multi-row FETCH, and multiple encodings on the same Accelerator**
- **DB2 analytics accelerator benefits** data warehouse, OLAP and complex queries with **improved enterprise robustness, scalability and high performance storage saver**



System z delivers an Open Cloud infrastructure



IBM Products & Offerings



Integrate

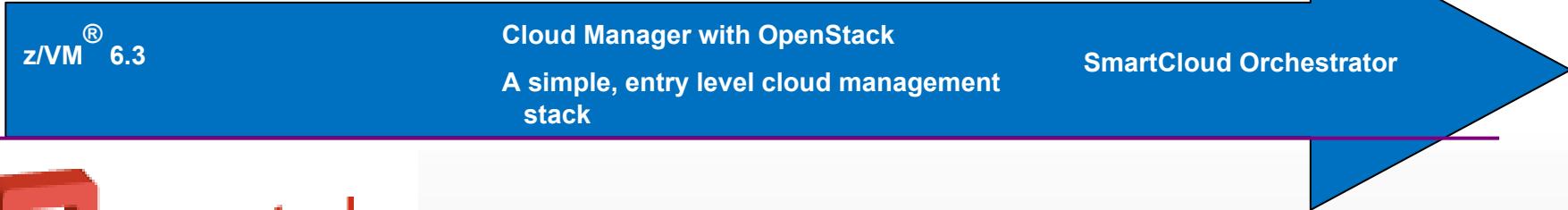
- IBM zEnterprise®: zEC12, z196, zBC12, z114
- Linux® on System z
- IBM Wave – hypervisor manager
- IBM Infrastructure Suite for z/VM and Linux – one suite to manage your z/VM and Linux on System z environment
- IBM Enterprise Cloud System

Automate

- Tivoli Application Management for zEnterprise
- Tivoli Asset and Financial Management for zEnterprise

Orchestrate

- Tivoli Application Resilience for zEnterprise
- Tivoli Security for zEnterprise



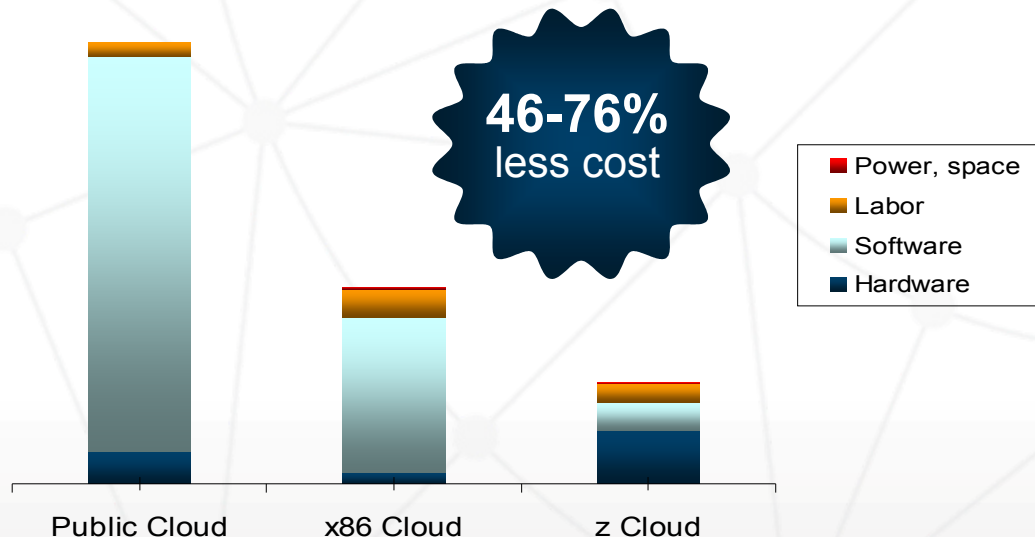
openstack™
CLOUD SOFTWARE

Public vs. private cloud: Which option costs less to deliver mixed workloads?



Nationwide
On Your Side™

Case Study: 225 workloads



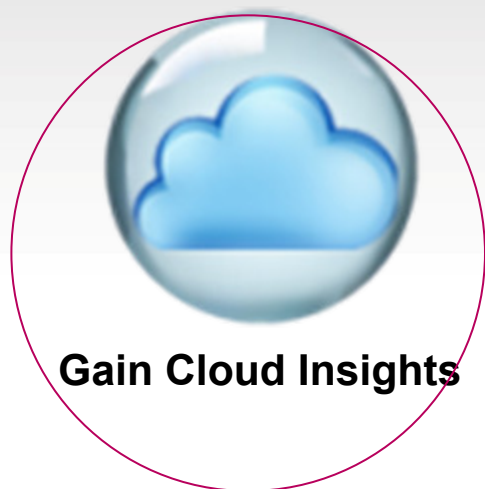
Saving \$46M in capital and operational expenditure with an infrastructure that is optimized for diverse computing needs

Server configurations are based on consolidation ratios derived from IBM internal studies. Prices are in US currency and will vary by country. Amazon case includes costs of hardware (instances, data in/out, AWS support, free tier/reserved tier discounts), middleware and labor. zEnterprise and x86 cases include costs of hardware (OS, virtualization, cloud mgmt), middleware, power, floor space and labor.



IBM IT Operations Analytics

End-to-end analytics for improved performance and workload management



Optimize:

- Improve Performance across IT Infrastructure

Search:

- Quickly analysis large volume of log data
- Match Log-files with alerts and metrics

Predict:

- Pro-Active Outage Avoidance
- Predict Problems before occurrence

IBM Analytics solutions for System z

Optimize

Capacity Management Analytics (CMA)

Search

IBM Cloud Analytics -
Log Analysis z/OS
Insight Packs

Predict

OMEGAMON & NetView
w/ IBM zAware



Unmatched security and availability for trusted computing in the digital era

99.999%

Design point for application availability

Encryption

Of data at rest or in flight

Security

NEW! InfoSphere Guardium V9.1

Enhanced protection of high-value data and automated compliance policies

ENHANCED! IBM zEnterprise Smarter Analytics for banking

Optimized Fraud Detection and Prevention on System z with enhanced fraud detect rules, models & orchestration



vantivTM

Advanced encryption for new payment methods



You know? you can do
this with your mobile
device now.





Securing mobile apps for System z

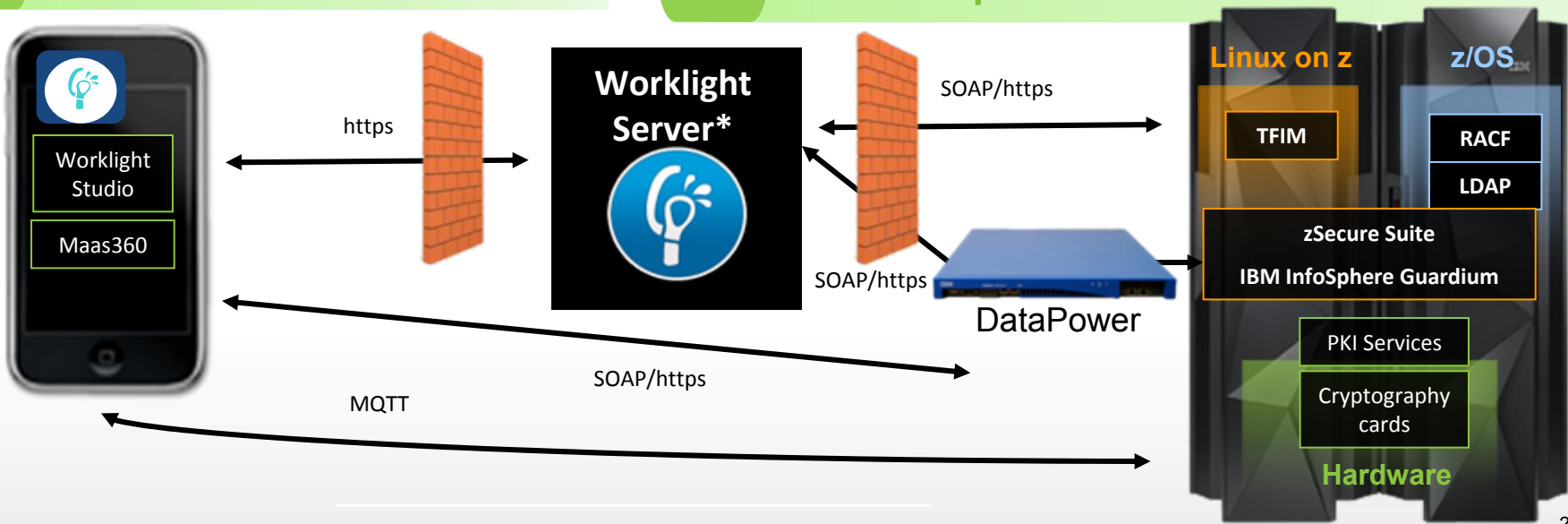


1 Unified management and security control for mobile devices
Fiberlink MaaS360
Trusteer

2 Enforce web and mobile security policies
IBM DataPower
IBM CastIron

3 Protect against fraudulent and unauthorized access
IBM Security Access Manager for Mobile
Arxan Application Protection for IBM Solutions

4 Security foundation for System z mobile workloads
IBM Security zSecure Suite, RACF, LDAP,
IBM Security QRadar SIEM,
IBM InfoSphere Guardium





Continuous delivery of software-driven innovation

Over 50%

of projects are over budget and often lack critical features

45%

experience delays due to troubleshooting and fine-tuning issues in production

DevOps

ENHANCED! Rational Developer for System z v9.0.1 and Rational Developer for the Enterprise *New out-of-the-box debugging capabilities with a new powerful and modern GUI-based debugger*

ENHANCED! Rational Team Concert Enterprise v4.0.6 *Lifecycle automation, collaboration and traceability from conception to deployment*

ENHANCED! UrbanCode Deploy v 6.0.1 *Provides support for deployment of Java and WAS on z/OS, common in multi-tier applications*



Nationwide[®]

Improved code quality by **50%** over a three-year period



The future of next-generation mainframe systems

Cognitive systems

Atomic level storage

Neurosynaptic chip

Optical circuits

Hybrid computing 2.0

Greater parallelism

Hybrid clouds

Natural intuitive interfaces

Advanced, open KVM virtualization

Self check-pointing and invisible failover

Tamper-proof processing





Thank You