

IBM System z Technology Summit



Meeting the Business Analytics & Data Warehousing Needs of Your Users

*IBM Business Analytics & Data
Warehousing on System z*





**Generate
More Revenue**

Reduce Risk

**Predict Future Outcomes
with Greater Confidence**

Lower Costs



Business Analytics

Better
Outcomes



Smarter
Decisions



Actionable
Insights



Relevant
Information

Analytics correlates to performance



3x

Organizations that lead in analytics outperform those who are just beginning to adopt analytics



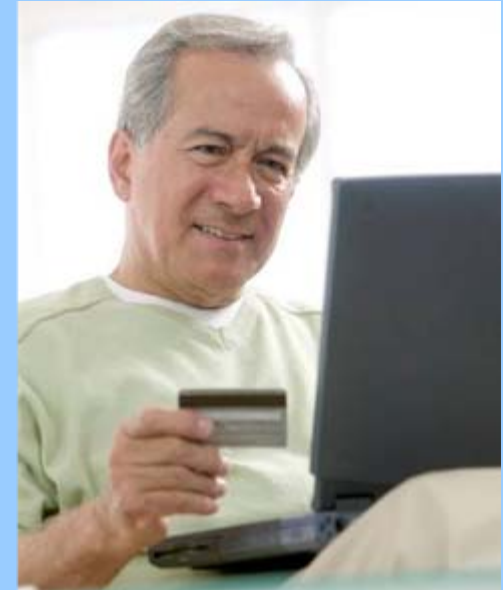
5.4x

Top Performers are more likely to use an analytic approach over intuition*

*within business processes

Market Dynamics are Shifting

- **Business Analytics is now mission critical**
 - *Need to support broader users*
 - *Users are more intense with increasing data access demands*
 - *Requirements for high scalability, availability & performance*
- **Asked to do more with less (IT & Business)**
 - *Better access to relevant information*
 - *Need economies of scale*
 - *Consolidation with reduced complexity*
- **Corporate regulatory compliance**
 - *Driving intense scrutiny of data security policies*
- **Environmental concerns still top of mind**



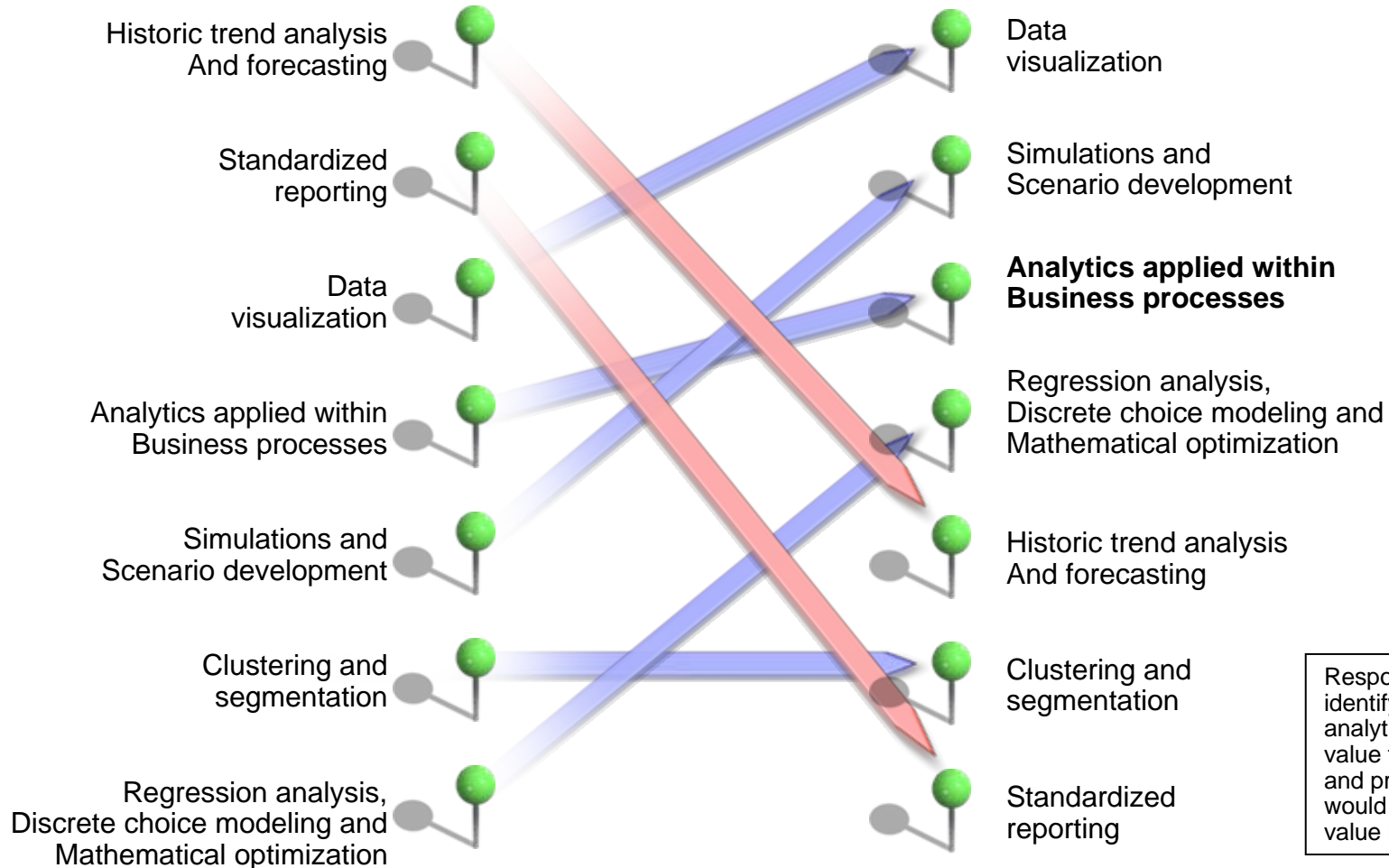
By 2014, externalizing BI will increasingly become an expected aspect of most companies' relationships with customers and partners.

Externally focused BI programs will frequently go beyond information dissemination by facilitating a collaborative decision-making process that breaks through the firewall to involve stakeholders from organizations in a broad ecosystem

Source : Gartner, Prepare for Customer-Facing Business Intelligence, Kurt Schlegel ,October 2010

What matters is changing

Results of New Intelligence Enterprise Survey of nearly 3,000 executives



Respondents were asked to identify the top three analytic techniques creating value for the organization and predict which three would be creating the most value in 24 months.

Source: MIT Sloan Management Review, 10 Data Points: Information and Analytics at Work, N Kruschwitz and R Shockley, Fall 2010

All departments, all users, in all roles across the organization need access to business insights



Executives



Business Managers



Line of Business Manager



Business Users



Business Analyst

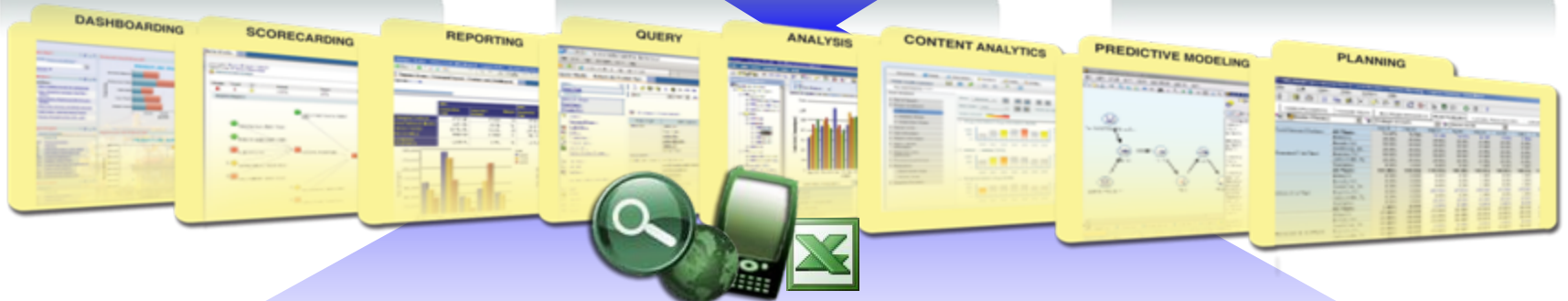


Financial Analyst

How are we doing?

Why?

What should we do next?



Real-time or historical; operational or strategic

Guided or self-service access and exploration...

Foresight using Statistical, and Predictive Analytics...

Common Business Model



Message Sources



Relational Sources



Application Sources



OLAP Sources



Modern and Legacy Sources

Today, many business users are not getting to the information they need, when they need it



60%+ of CEOs need to do a better job capturing and understanding information rapidly in order to make swift business decisions

47% of users don't have confidence in their information

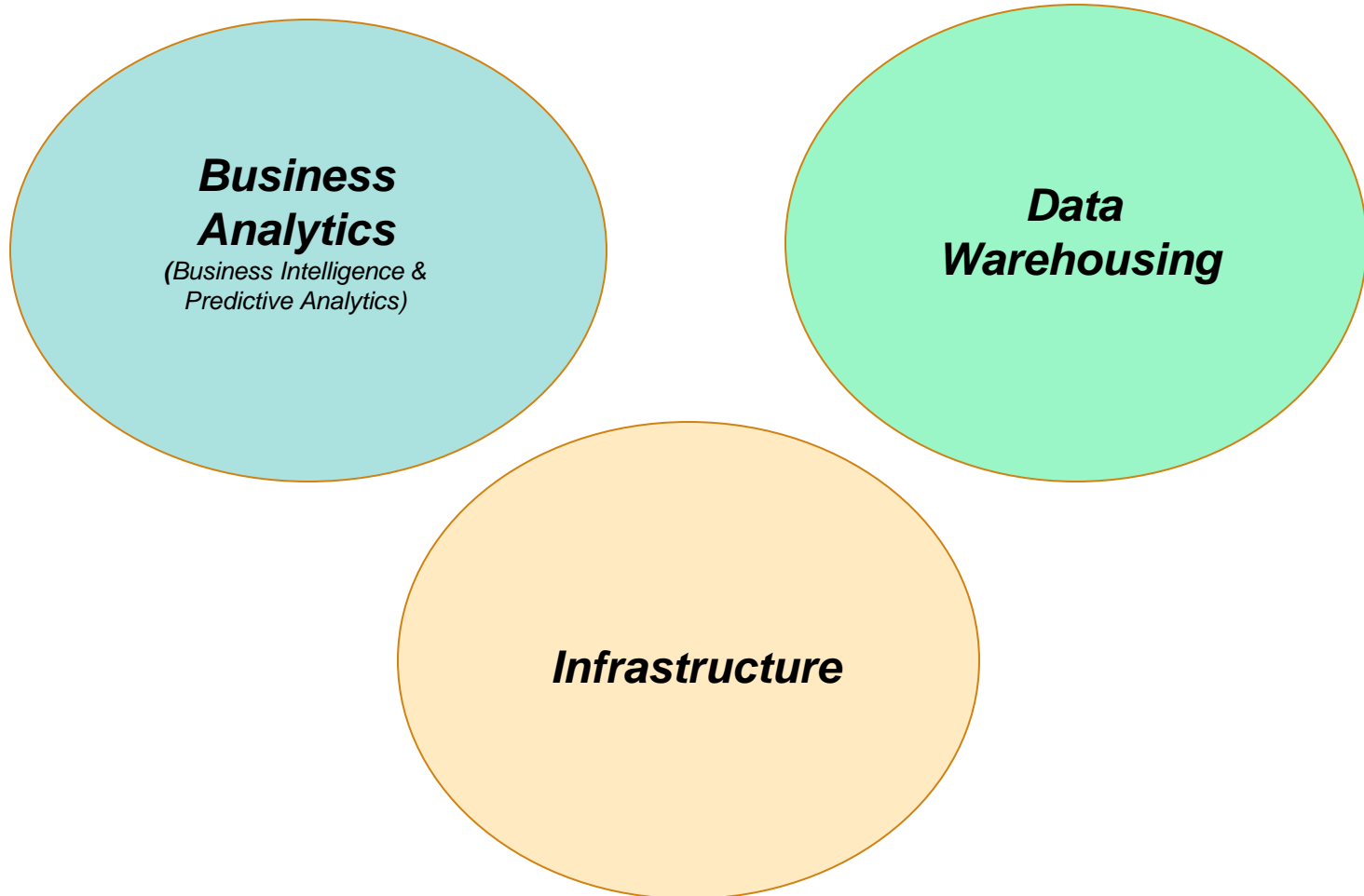
59% of users say that they miss information that might be of value to their jobs because they can not find it

27% of managers time is spend searching for information

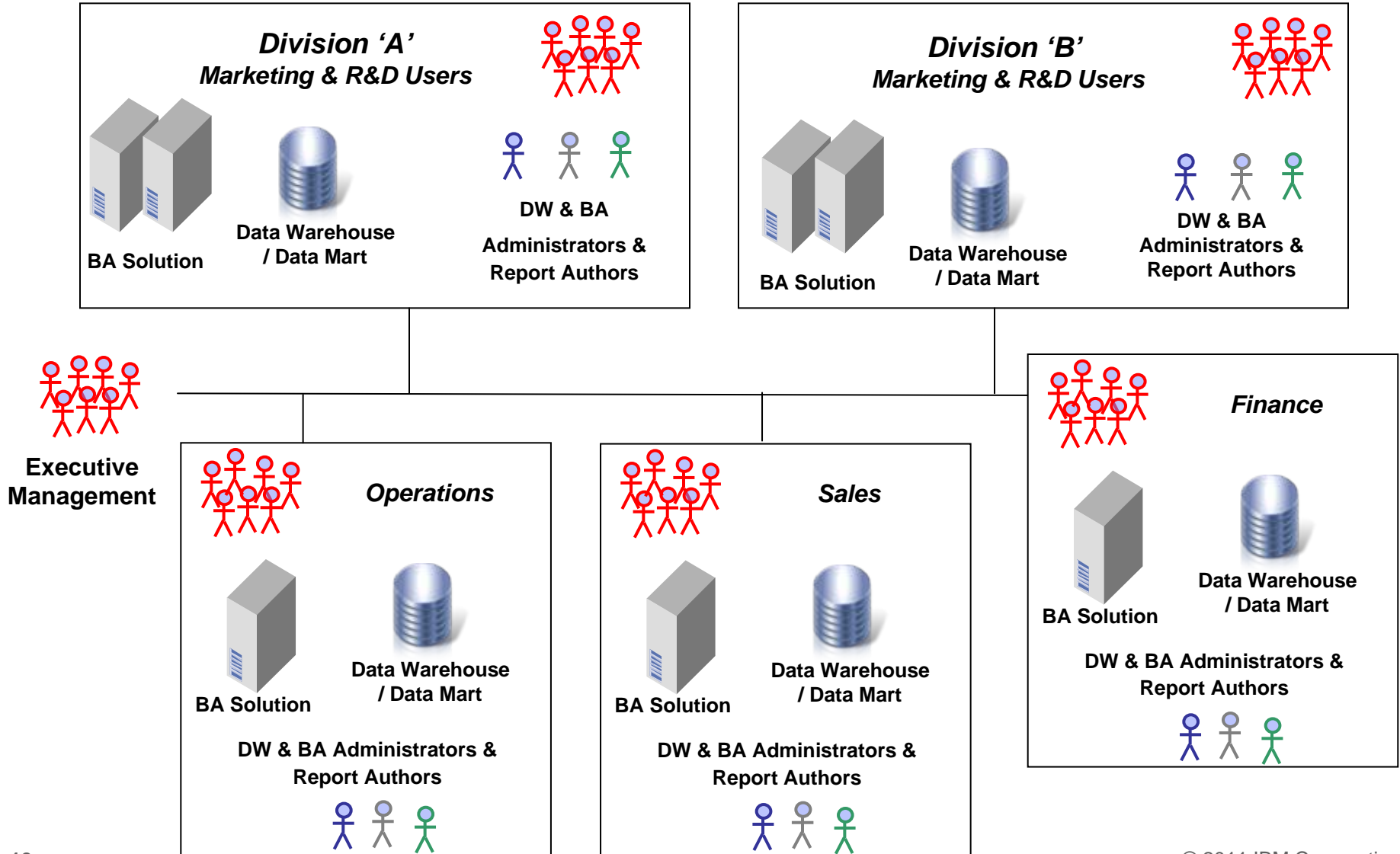
50% of the information they obtain has no value to them

*Sources: IBM & Industry Studies, Customer Interviews
IBM CIO Survey, June 19, 2007
Accenture survey, January 04, 2007*

Key components for Business Analytics success are being implemented & managed in isolation



Today's Traditional Infrastructure – a siloed approach



Business Analytic not keeping pace with changing business requirements

- Supporting multiple BA tools
- Disparate tools lack functionality users need access to more data
- Users need access to diverse types of data (transactional & historical)
- Infrastructure costs are a barrier to entry
- BA taking too long to deploy, access, and grow
- Information quality/security is in question

Only 8.2% of the employees of a typical organization regularly use BI applications



Data Warehouses have become isolated

- Information to drive the business is known but not available to the decision makers
- Information in the DW is limited to a small number of people in the organization
- Little to no interactivity with other systems
- Not built with the same criteria as the operational systems
- Difficult to manage and maintain multiple servers and copies of the data
- Minimal control over who is accessing the data

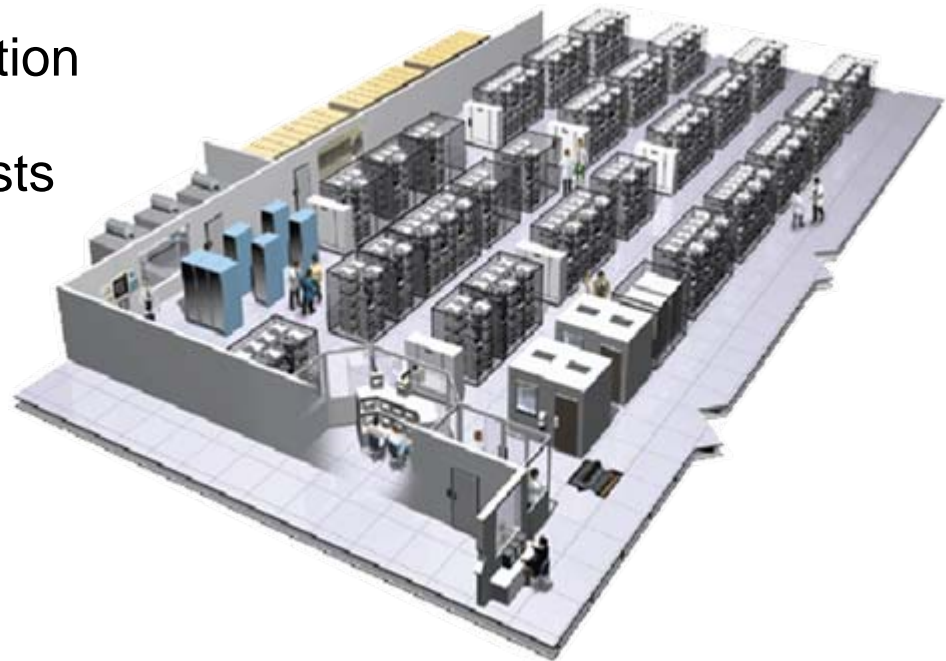
“Nearly 70% of data warehouses experience performance-constrained issues of various types.”

- Gartner 2010 Magic Quadrant

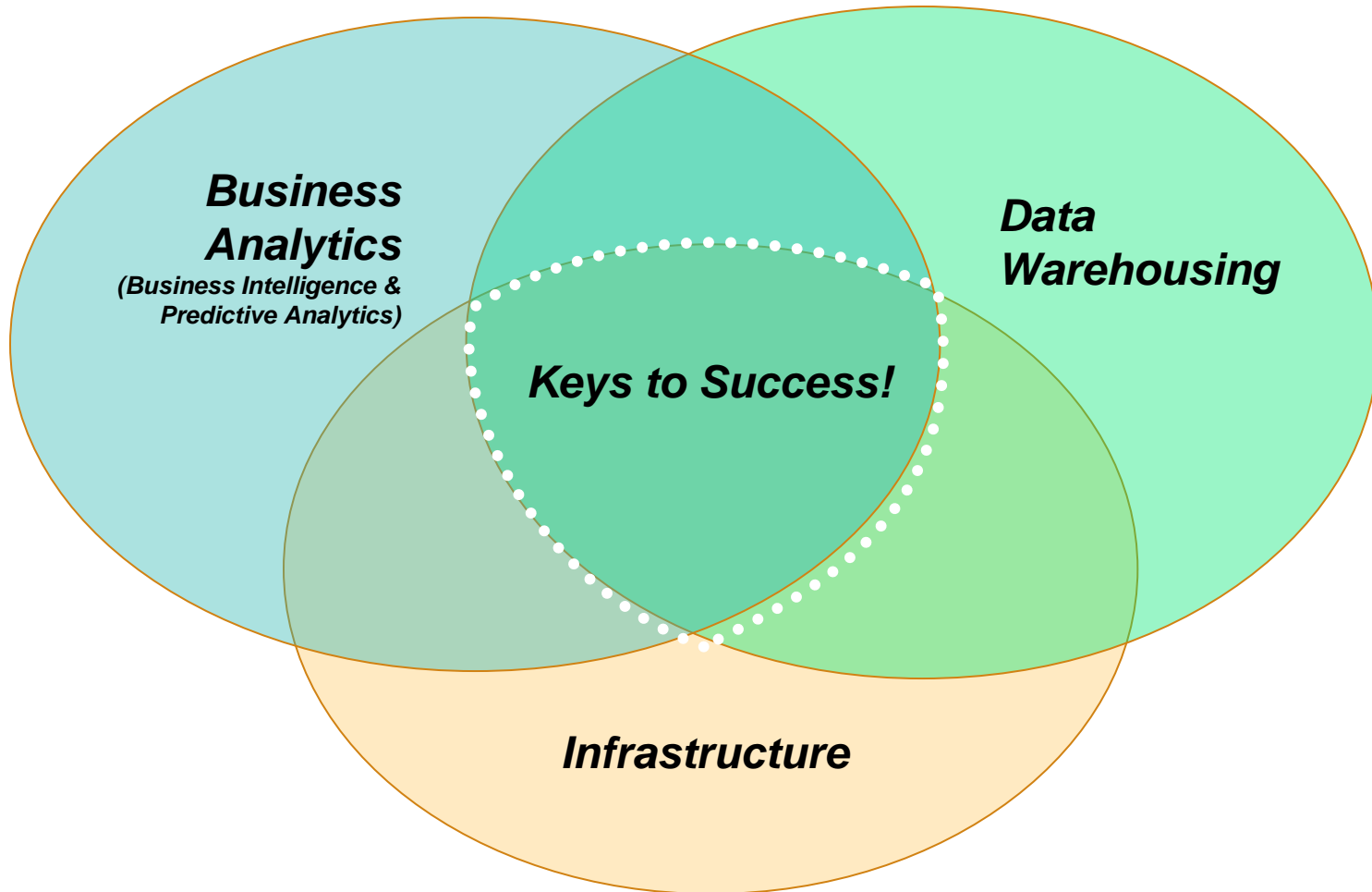


Infrastructure complexity and cost on the rise

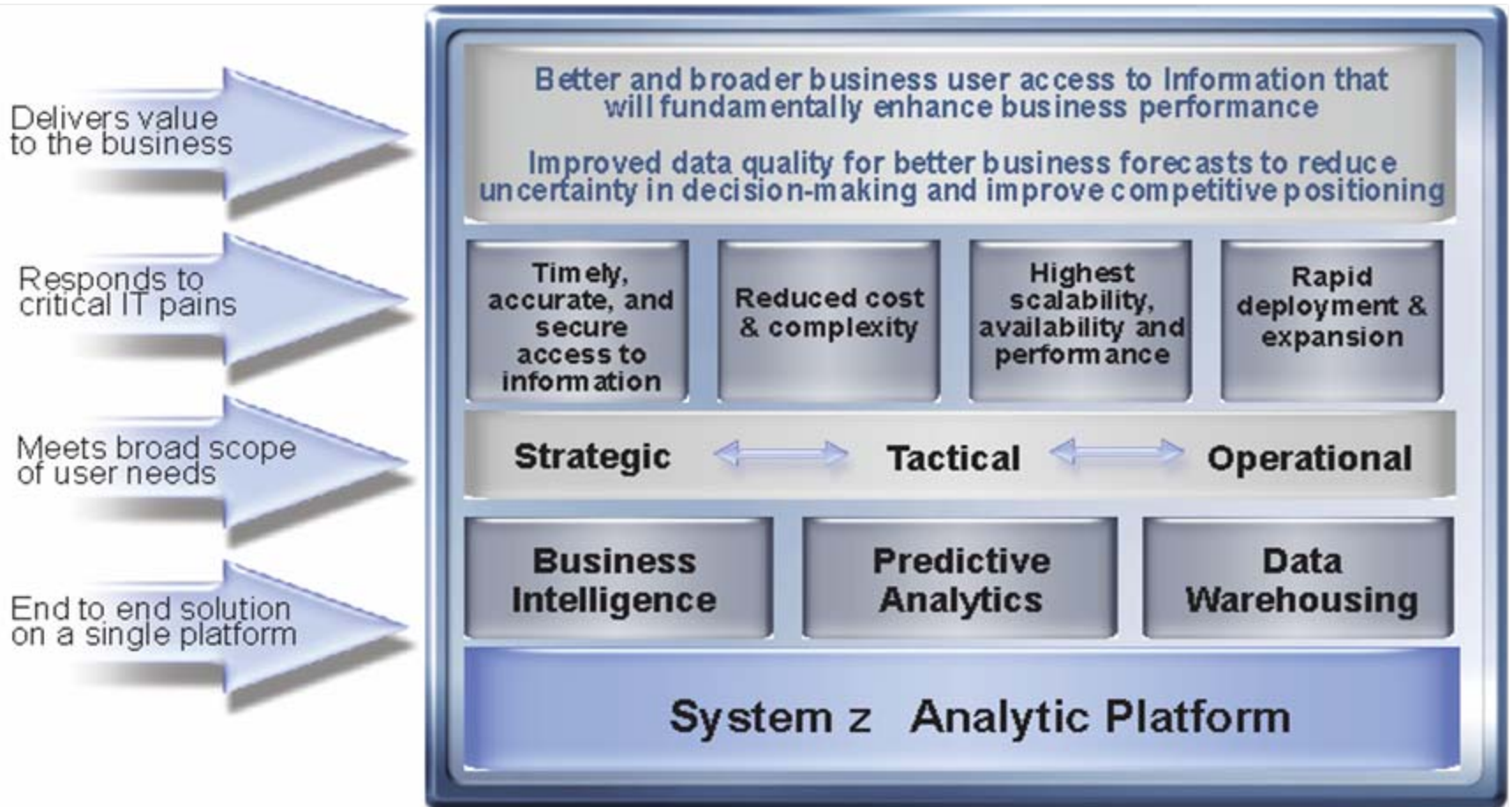
- Growing physical servers and network gear
- Excessive energy usage and heating problems
- Inadequate power and cooling infrastructure
- Data Silos and Data Synchronization
- Linear per processor software costs
- Linear Staffing Costs
- Frequent outages



A successful strategy requires the integration of all key components



A new option: IBM Business Analytics and Data Warehousing on System z



Customers Select System z to Meet Critical Business Needs

High business growth



HIGH SCALABILITY

Continuous business operations



HIGH AVAILABILITY & RELIABILITY

Flexibility and speed to respond



EXTREME VIRTUALIZATION

Reduce business risk



INDUSTRY LEADING SECURITY

Green strategy
Energy and space



EFFICIENCY

Secure Cloud Services



CLOUD

Companies are recognizing mainframe cost savings

Based on an analysis of actual IT spend and business performance, comparing companies with greater than average mainframe mix vs. less than average mainframe mix...*



44%

lower IT cost per credit card transaction



31%

lower IT cost per consumer loan



25%

lower IT cost per mega watt hour produced



24%

lower IT cost per hospital bed



20%

lower IT cost per airline passenger



26%

lower IT cost per new vehicle



25%

lower IT cost per retail store



23%

lower IT cost per barrel of oil

"...in the long run the marketplace rewards those that make the optimum use of the right computing resources in the right way as evidenced by business performance"

Dr. Howard Rubin, CEO and Founder, Rubin Worldwide

The value of System z to an Enterprise BA & DW Initiative

Timely, Accurate & Secure Access to Information

- ✓ Provides faster access to transactional data on System z through co-location
- ✓ Speeds up business decisions / faster access to broader, more detailed data
- ✓ Protects against unauthorized access to data
- ✓ Minimizes data duplication to increase user confidence in the data

Reduced Cost & Complexity

- ✓ Reduces total cost of computing through consolidation/standardization
- ✓ Reduces complexity through a simple, flexible architecture
- ✓ Reduces administration cost up to 50%

Highest Scalability, Availability & Performance

- ✓ Applies the industry's highest availability to mission critical business information
- ✓ Quickly implements cost effective disaster recovery
- ✓ Scales up to more users, out to more functionality and data
- ✓ Drastically improves query response times up to 1000X

Rapid Deployment & Expansion

- ✓ Provides agility to align strategy with minimal expense and disruption to the business
- ✓ Offers a cost effective enterprise solution that can grow incrementally with growing business requirements
- ✓ Flexible deployment options to accommodate unique business needs

End to end Business Analytics & Data Warehousing Solution on a single platform

➤ IBM System z



➤ InfoSphere Warehouse
➤ Smart Analytics Optimizer

➤ Cognos BI
➤ SPSS Predictive Analytics



Cubing Services



Powercube Services

➤ DB2 for z/OS VUE
➤ DB2 Utilities Suite



ELT

Operational Source Systems - Structured & Unstructured Data



IBM Cognos Business Intelligence for Linux on System z

*Business
Analytics*



■ Full range of BI capabilities

- Query, reporting, analysis, dashboarding, realtime monitoring

■ Delivers information where, when and how it is needed

- Self-service reporting and analysis
- Automated delivery of information in context
- Author once, consume anywhere

■ Purpose-built SOA platform

that fits client environments and scales easily

IBM SPSS

- **Full breadth of predictive analytics**
 - Data collection, statistics, data mining, predictive modeling, deployment services...
- **Putting prediction in hands of the business**
 - Decision Management
- **Driving better business outcomes**
 - Attract and retain more profitable customers
 - Detect and prevent fraud
 - Improve resource allocation

Business Analytics



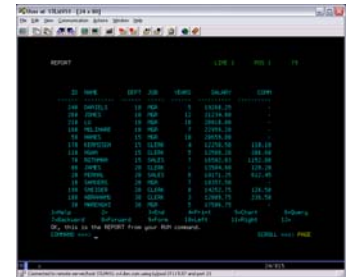
QMF 10 Enterprise Edition – what you need to know

Enhanced to meet the challenges of today's Business Analytics requirements

- **Business Analytics functionality added to QMF for Workstation and QMF for WebSphere**

- 150 additional analytic functions (new)
- Executive dashboards & graphical reports (new)
- Enhanced metadata layer (new)
- Entity Relationship Diagrams (ERDs) make query creation simple (new)
- Easy mapping of data across the enterprise with new data source environments
- JDBC support access to any database (new)
- OLAP (MDX) support (new)
- Embed QMF content into 3rd party or in-house developed BI solutions (new)

.. then



.. Now!



- **Key benefits:**

- Rapid development/easy deployment of enterprise Business Analytics solutions
- Lightweight installation and administration
- Minimal learning curve - zero coding, drag-drop authoring model
- New QMF content remains fully compatible with existing QMF objects
- Embeddable BI – can be integrated into web and Java apps
- Database-based licensing model – not user or application server-based
- **And** it is now available as QMF-VUE, a feature of DB2 VUE 9 and 10 as of 5/13/2011!

IBM InfoSphere Warehouse

- Adds core DW and analytics capability to DB2 for z/OS
- Advanced physical database modeling and design
- In-database data movement and manipulation capabilities
- Multidimensional reporting and analysis of data with Cubing Services

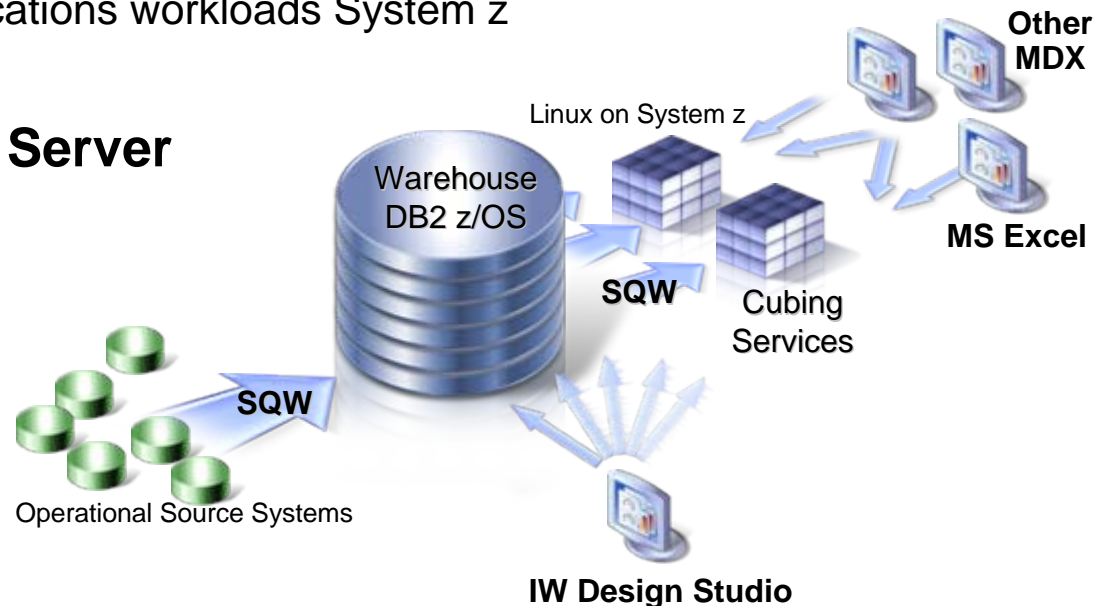
**Data
Warehousing**

IBM DB2 Value Unit Edition

- Offers the same robust DB2 for z/OS data server at a one-time charge price
- Available for eligible net new applications workloads System z

IBM InfoSphere Information Server

- Profiles, cleanses and integrates information from heterogeneous sources to drive greater business insight faster, at lower cost



IBM Smart Analytics Optimizer

Capitalizing on the best of relational and columnar databases

**Data
Warehousing**

What is it?

The IBM Smart Analytics Optimizer is a workload optimized, appliance-like add-on that enables the integration of business insights into operational processes to drive winning strategies. It accelerates select queries, with unprecedented response times.



How is it different

- **Performance:** Unprecedented response times to enable 'train of thought' analyses frequently blocked by poor query performance.
- **Integration:** Connects to DB2 through deep integration, providing transparency to all applications.
- **Self-managed workloads:** queries are executed in the most efficient way
- **Transparency:** applications connected to DB2 are entirely unaware of the accelerator
- **Simplified administration:** appliance-like hands-free operations, eliminating many database tuning tasks

Breakthrough Technology Enabling New Opportunities

IBM Smart Analytics Optimizer V2

- **Next generation Smart Analytics Optimizer**
 - Capitalizing on Netezza technology
 - Access through and highly integrated with DB2 for z/OS

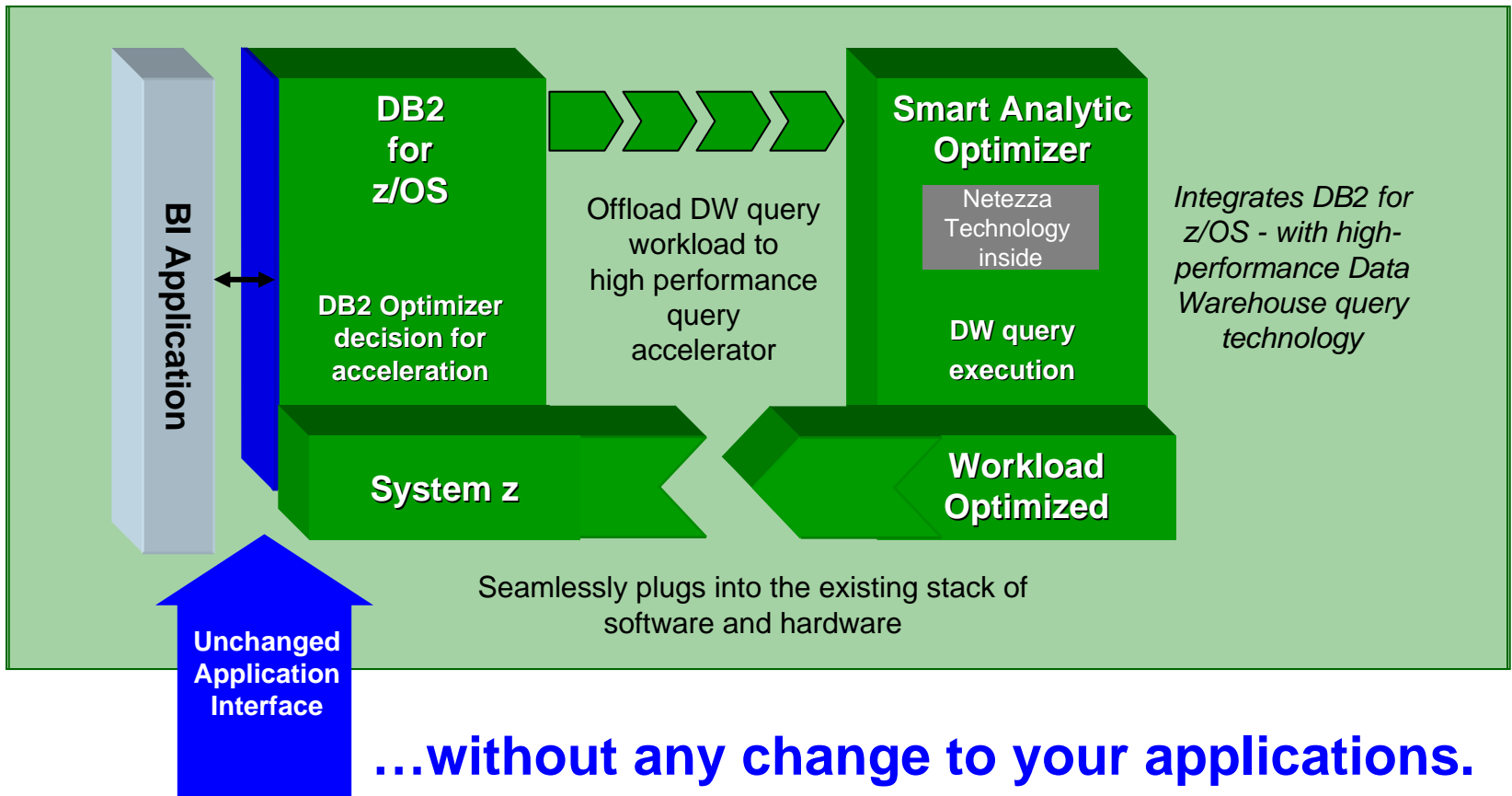
- **Beta begins in 3Q 2011**

- **Investment protection**
 - The full value of ISAO V1 will be applied to ISAO V2

Optimizing to the Workload

Marrying the best of each environment

Total solution remains centrally managed by System z...



...without any change to your applications.

IBM Smart Analytics Optimizer

Continuing to the next version with the original focus

Basic design tenets for version 1 and beyond

- Drive down the costs of data warehousing and business analytics
- Increase the business impact of information analytics
- Provide acceleration that is transparent to the DB2 for z/OS applications
- Capitalize on the qualities of service of System z
- Provide deep integration with DB2
- Replicate data onto the Smart Analytics Optimizer to enable multiple acceleration techniques



Capitalizing on Netezza Technology

- **The Netezza TwinFin® system is the fourth generation Netezza appliance that once again sets the standard for price/performance for [data warehousing and business intelligence](#) (BI).**
- **Blade-based streaming architecture – commodity blades and storage combined with Netezza’s patented data filtering using Field Programmable Gate Arrays (FPGAs)**
- **Appliance simplicity – Easy to deploy and manage; dramatically simplifies your data warehouse and analytics infrastructure**
- **Delivers high performance out of the box, with no indexing or tuning required. With integrated hardware, software and storage leading to shorter deployment cycles and faster time to value for BI and analytic initiatives.**

Key Enhancements in V2 Release

- **Extending acceleration to significantly larger number of queries**
- **Expanded size of the data to be accelerated**
- **Improved concurrent query execution**
- **Incremental update by partition**
- **DB2 9 and DB2 10 for z/OS support**
- **Supported only connected to z196 (zEnterprise) forward**

IBM zEnterprise System

A New Dimension in Computing

Infrastructure



*Unified management for a smarter system:
zEnterprise Unified Resource Manager*

- Unifies management of resources, extending IBM System z® qualities of service end-to-end across workloads
- Provides platform, hardware and workload management

*The world's fastest and most scalable system:
IBM zEnterprise™ 196
(z196)*

- Ideal for large scale data and transaction serving and mission critical applications
- Most efficient platform for Large-scale Linux® consolidation
- Leveraging a large portfolio of z/OS® and Linux on System z applications
- Capable of massive scale up, over 50 Billion Instructions per Second (BIPS)

*Scale out to a trillion instructions per second:
IBM zEnterprise BladeCenter® Extension
(zBX)*

- Selected IBM POWER7® blades and IBM System x® Blades¹ for tens of thousands of AIX® and Linux applications
- High performance optimizers and appliances to accelerate time to insight and reduce cost
- Dedicated high performance private network



¹ All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represents goals and objectives only.

IBM zEnterprise 196: The heart of the new machine

The industry's fastest and most scalable enterprise system

Infrastructure

Dramatic improvement over IBM System z10™:

For Linux

Up to **60%**

Improvement in performance

for **35%**

Less cost

For z/OS

Up to **40%**

Improvement in performance

with **60%**

More capacity

- **With no increase in energy consumption**
- **And even better performance with new software**

IBM

5.2 GHz superscalar processor

Up to 96 Cores, 1 to 80 configurable for client use

Up to 3 TB RAIM memory

Over 100 new instructions

1.5MB L2 Cache per core, 24MB L3 Cache per processor chip

Cryptographic enhancements

Optional water cooling

IBM Smart Analytics System 9600

Unprecedented Value in Deploying New Business Analytics

*Flexible
Deployment
Options*

An integrated solution of hardware, software and services that enables customers to rapidly deploy cost effective game changing analytics across their business.

- ✓ Broad Analytic capabilities
- ✓ Powerful Warehouse capabilities
- ✓ Scalable & fully-integrated IBM hardware
- ✓ Set-up services & single point of premium support



What it delivers

- Pre-integrated end to end solution on a single platform
 - Reporting, Analysis, Dashboarding & Data Warehousing
- Reduced total cost of acquisition
 - Competitively priced solution
- Faster time to value
 - Delivered fully integrated/ready to go
- Improved performance
 - Pre-tested and optimized

***Delivers business results
in days, not months***

IBM Smart Analytics Cloud

*Flexible
Deployment
Options*

Creates ...

That delivers ...

Smart Analytics Cloud

A private cloud within the enterprise

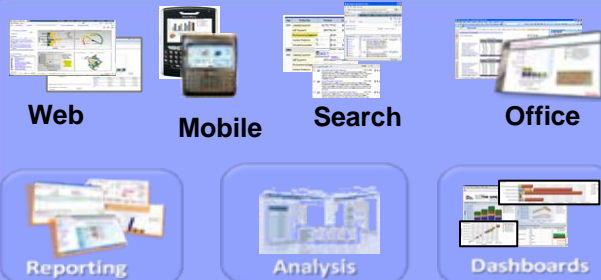
A solution for delivering business intelligence to the entire organization

The solution components ...

IBM software

Cognos 8 BI

A broad range of BI capabilities



Open, enterprise-class BI platform

IBM hardware

IBM System z

Centralize, Virtualize & Simplify the BI infrastructure



IBM Services

- **Phase 1:** Create awareness of, a strategy for and a governance foundation for BI across the organization
- **Phase 2:** Preparation for the Smart Analytics Cloud
- **Phase 3:** Install the base cloud, integrate into the corporate enterprise and test the cloud use cases
- **Phase 4:** Educate the enterprise for on-going success with the Smart Analytics Cloud



IBM Professional Services

Accelerated Success

- New “how-to” books deliver expertise
 - BI Strategy Book
 - BI on Cloud
 - BI Redbook
- Workshops to help shape strategy
 - Champion workshops
 - Business Analytics experience
- Services & Training
 - Proven practice workshops, learning assessment and user adoption services
 - Broader portfolio of self-paced training options
- Growth in communities
 - Innovation Center
 - DeveloperWorks, C^3 Blog
 - Twitter, facebook and linked-in





Miami-Dade County

Selects IBM System z platform to expand their IBM Cognos 8 BI enterprise infrastructure



*... We are now **able to expand the usage of our Business Intelligence reporting**. By the end of 2010, we will have **users from over 42 County departments with over 1500 users creating and consuming reports with stable environments on System z**.*

—Jaci Newmark, Project Lead, Enterprise Business Intelligence Architecture,
Miami-Dade County

- ✓ **11 days to go from distributed to System z deployment model**
- ✓ **Consolidated multiple BI deployments onto a single platform**
- ✓ **Consolidate multiple, disparate data sources onto a single platform**
- ✓ **Ensured 99.999% availability & complete disaster recovery plan**



University of North Carolina Health Care

Deploys a hybrid data warehouse solution combining the strengths of InfoSphere and DB2 software on System z and System p platforms



With the deployment of the Carolina Data Warehouse for Health, we have been able to increase the timeliness of the information available to our researchers, staff and physicians," "Because the system can also support general queries that relate to the diagnosis and treatment of a wide array of patients, we are now able to make more intelligent decisions leading to improved patient care."

*Donald Spencer, MD, MBA,
Associate Director of Medical Informatics, UNC Health Care*

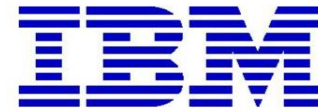


Numius' Client Success Story

Uses DB2 for z/OS and Cognos 8 BI for Linux on System z

- ✓ Produced 400 reports in the same time as 1 report in the old environment
 - ✓ 400 reports ran in 45 minutes as opposed to 1 report in 46 minutes
 - ✓ Easily supported 130 concurrent users, as opposed to 8 on the source environment
- ✓ No reports timed out, not one user was rejected. Even when the system slowed down, it remained stable
- ✓ The client would not need to redesign his application to achieve his objective of reaching out to a large community
- ✓ This solution helps improve waste control in Belgium by informing producers, consumers and authorities faster and more thoroughly

Jo Coutuer, Senior Business Intelligence Architect, Numius



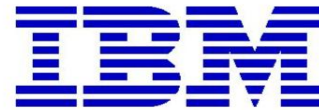
IBM Cognos BI Total Cost of Ownership Study

Explores the TCO of choosing an x86 based infrastructure vs. System z for a Cognos 8 BI deployment using proven IBM TCO measurement methodology



- ✓ Average savings over 5 years of with a System z deployment: 36%
- ✓ Reduction in high availability costs with System z: 50%
- ✓ System administration savings alone pay for System z investment.





Blue Insight, The IBM internal Private Analytics Cloud



“

*Our commitment to informed decision making led us to consider private cloud delivery of Cognos via System z, which is the enabling foundation that makes possible **+\$25M savings over 5 years.***

”

-IBM CIO Office

- ✓ Consolidated 115 multi-product, departmental BI deployments to 1 Cognos 8 BI on System z
- ✓ Support for our global workforce (2009: 72K, 2010: 130K, 2011: 200K)
- ✓ Realizing value from +60 data sources across IBM
- ✓ Projected \$25M in savings (60% Consolidation, 35% Standardization, 5% Automation)

Industry Analysts Agree



*“In short, I believe that **mainframes are the most modern platforms available** in the commercial marketplace today.”*

Source: Clabby Analytics, Migrate From Mainframe? To What?, Joe Clabby, June 24, 2010

*“Companies that buy into outdated hype about its complexity fail to realize the potential **performance gains associated with mainframe use.**”*

Source: Aberdeen Group, The Fable of Mainframe Complexity, Max Gladstone,
May 5, 2010

*“Clients wishing to **evolve** their legacy application portfolios **into more-modern technologies and architectures can do so on the IBM mainframe.**”*

Source: Gartner, Mainframe Modernization: When the Platform Is the Solution,
Dale Vecchio, 8 January 2010

*“The mainframe has long been recognized as a platform with an **enviable reputation for reliability, security, and efficiency**, Ovum considers that IBM by exploiting these characteristics has produced the next generation of data centre and cloud centre management platforms.”*

Source: Roy Illsley, Principal Analyst, Ovum



Typical Utilization for Servers


Windows: 5-10% Unix: 10-20% **System z: 85-100%**

System z can help **reduce** your floor space
up to **75%-85%** in the data center



Thank You

*For additional information please visit
www.ibm.com/software/data/businessintelligence/systemz/*



System z can lower your total cost of ownership, requiring **as little as 30%** of the power of a distributed server farm running equivalent workloads

The cost of storage is typically **three times more** in distributed environments



IBM Product Portfolio

Business Analytics and Data Warehousing on System z

Business Intelligence

- Cognos 10 Business Intelligence

Predictive Analytics

- SPSS Statistics 19
- SPSS Modeler
- SPSS Collaboration and Deployment Services

Data Warehousing

- DB2 for z/OS VUE (Value Unit Edition)
- InfoSphere Warehouse
- Smart Analytics Optimizer

**Solution Edition for Data Warehousing (pricing option)*

Data Integration and Movement

- InfoSphere Information Server
- InfoSphere Change Data Capture
- InfoSphere Replication
- InfoSphere Federation
- Global Name Recognition

Master Data Management

- InfoSphere Master Data Management Server

InfoSphere Industry Models

- Banking, Insurance, Retail, Telco, Health Payor, Health Provider, Financial Markets

Flexible Deployment Options

- IBM Smart Analytics System 9600
- IBM Smart Analytics Cloud
- IBM Services

Information protection & compliance on the System z platform

- Reduce number of security intrusion points by reducing the complexity of the architecture
- Secure data with cryptography, encryption, user identification, authentication at all levels
- Apply security capabilities rated the highest by government agencies
- Provide granular protection with column access control at the cell level
- Apply administrative authorities without allowing data access
- Use legendary built-in security and trace features for end-to-end auditing capabilities

