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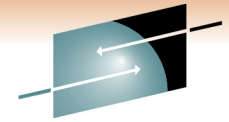
Deploying a Secure, Reliable, and Efficient Business Intelligence Solution using zEnterprise

Beth Hamel
Silicon Valley Labs, IBM Corporation

March 2, 2011 1:30 – 2:30
Session 8433



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**Generate
More Revenue**

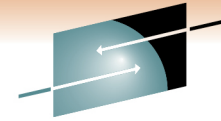
Reduce Risk

**Predict Future Outcomes
with Greater Confidence**

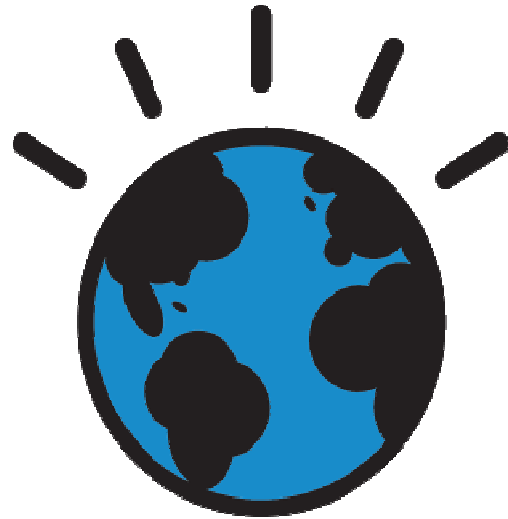
Lower Costs



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Business Analytics

**Better
Outcomes**



**Smarter
Decisions**

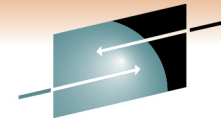


**Actionable
Insights**



**Relevant
Information**

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Analytics correlates to performance



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



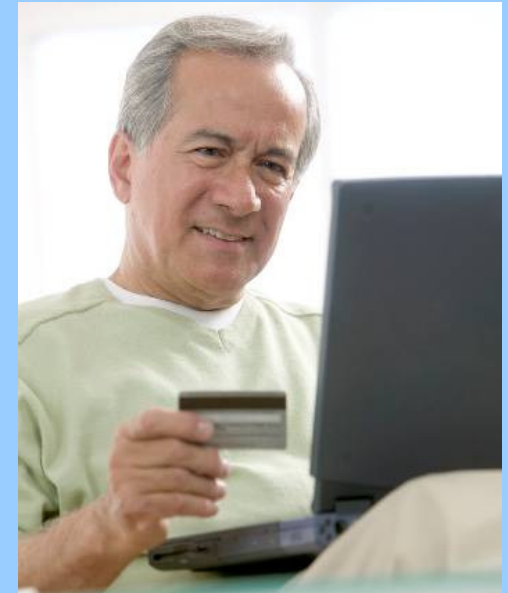
Top Performers are more likely to use an analytic approach over intuition*

*within business processes

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Market Dynamics are Shifting

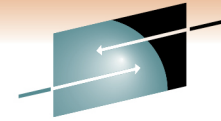
- Business Analytics is now mission critical
 - *Need to support broader users*
 - *Users are more intense with increasing data access demands*
 - *Requirements for high scalability, availability & performance*
- Asked to do more with less (IT & Business)
 - *Better access to relevant information*
 - *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.

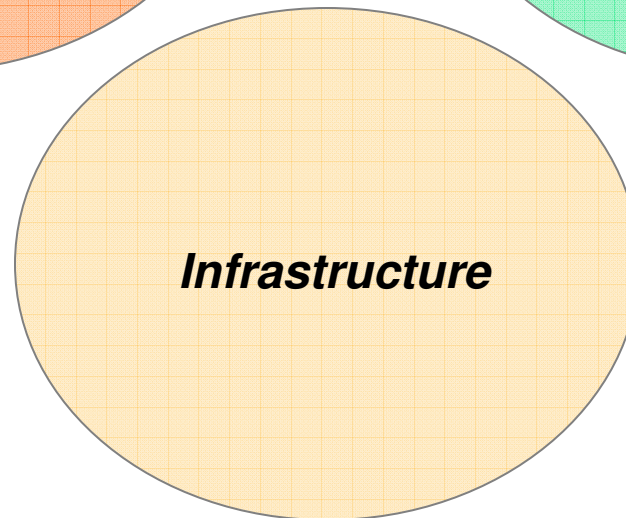
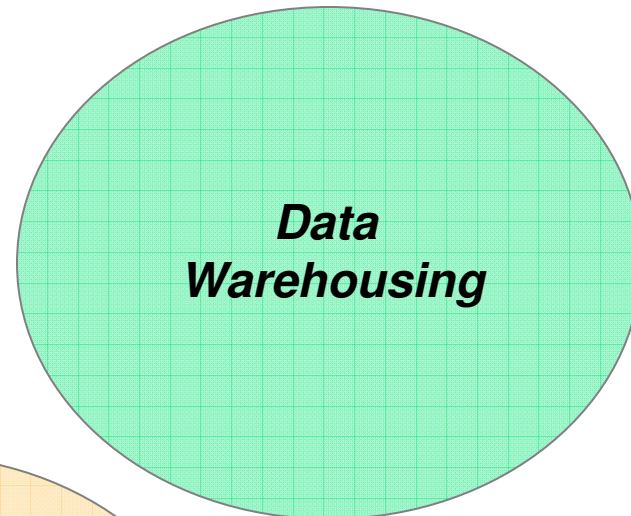
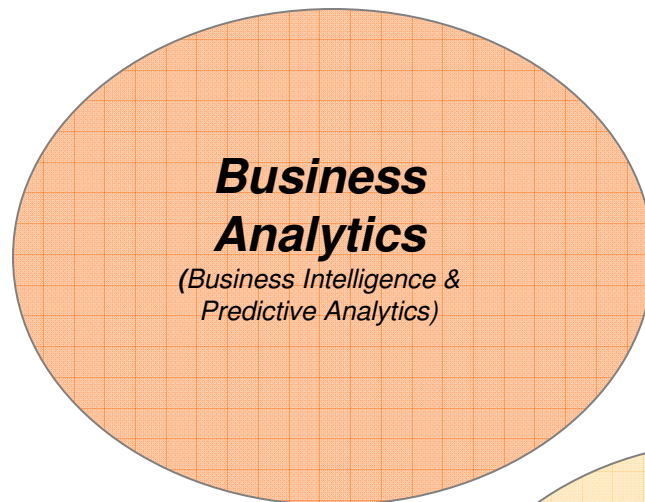
Externally focused BI programs will frequently go beyond information dissemination by facilitating a collaborative decision-making process that breaks through the firewall to involve stakeholders from organizations in a broad ecosystem

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



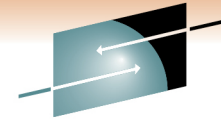
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Key components for Business Analytics success are being implemented & managed in isolation



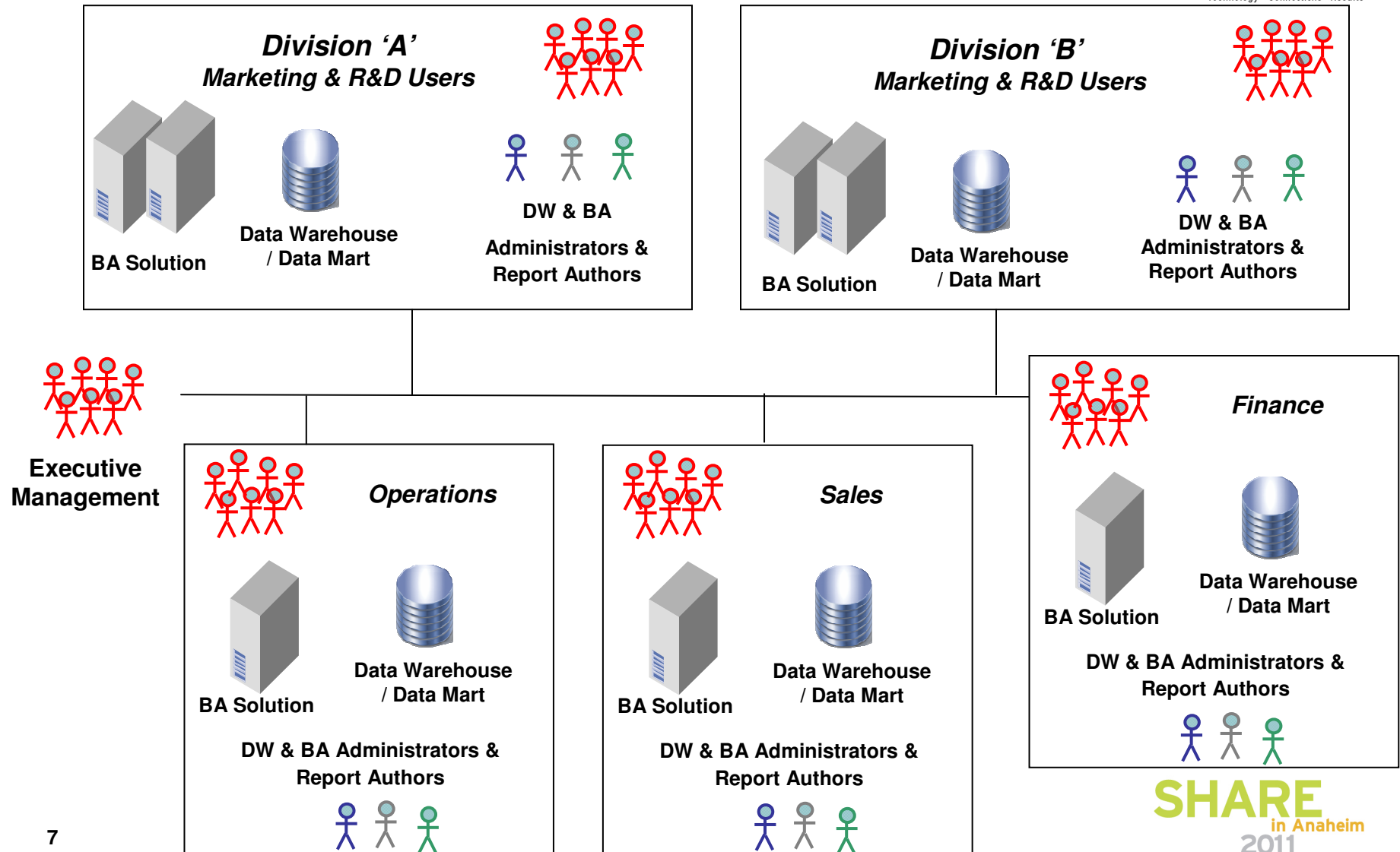
Today's Traditional Infrastructure

– a siloed approach



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Data Warehouses have become isolated

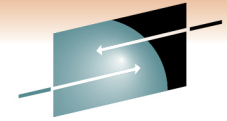


- Information to drive the business is known but not available to the decision makers
- Information in the DW is limited to a small number of people in the organization
- Little to no interactivity with other systems
- Not built with the same criteria as the operational systems
- Difficult to manage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



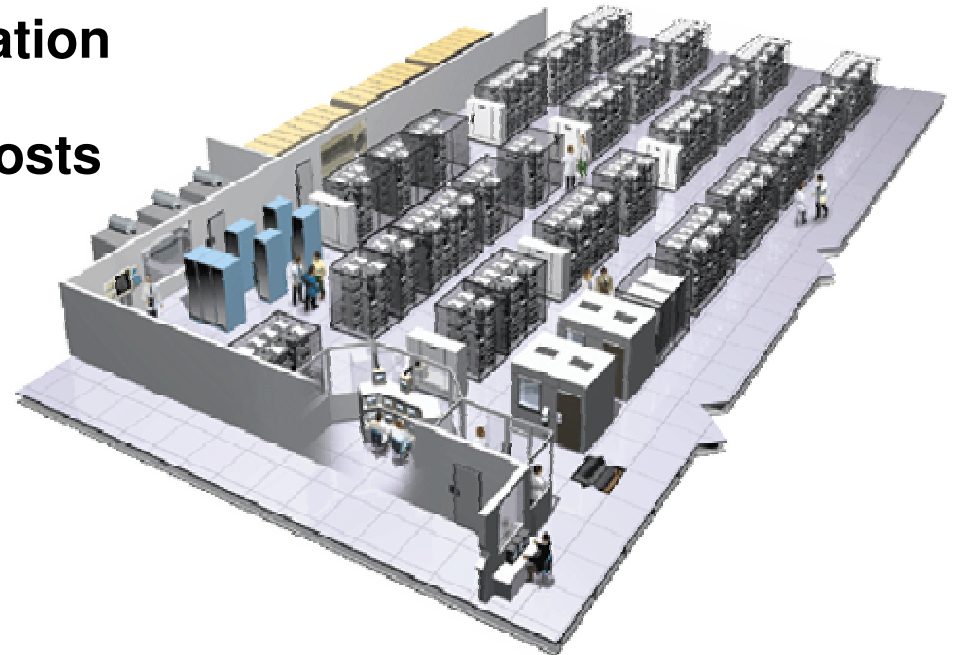
“Nearly 70% of data warehouses experience performance-constrained issues of various types.”

Infrastructure complexity and cost on the rise

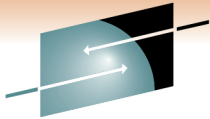


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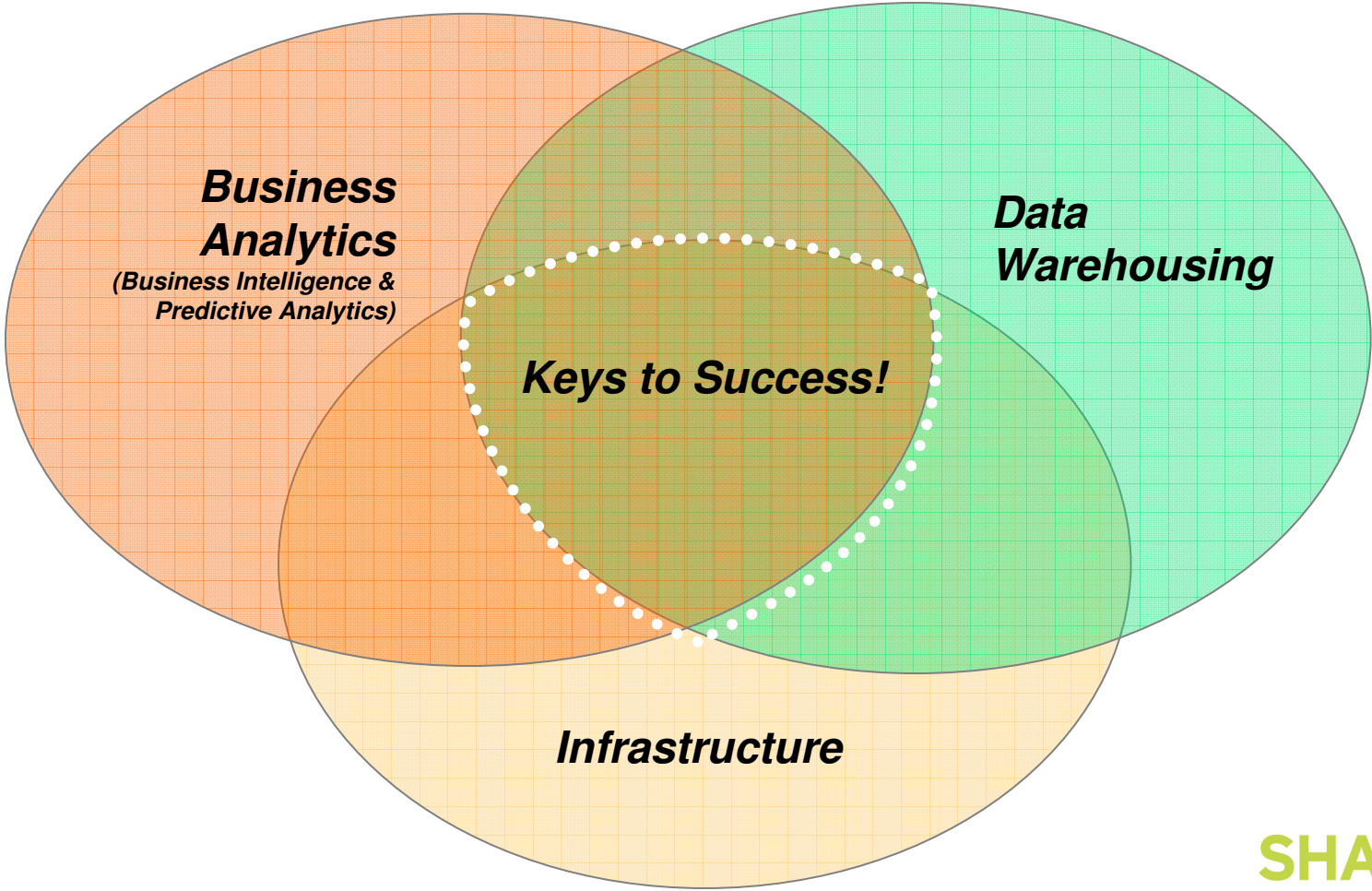
- Growing physical servers and network gear
- Excessive energy usage and heating problems
- Inadequate power and cooling infrastructure
- Data Silos and Data Synchronization
- Linear per processor software costs
- Linear Staffing Costs
- Frequent outages

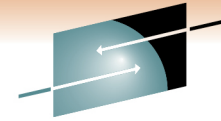


A successful strategy requires the integration of all key components



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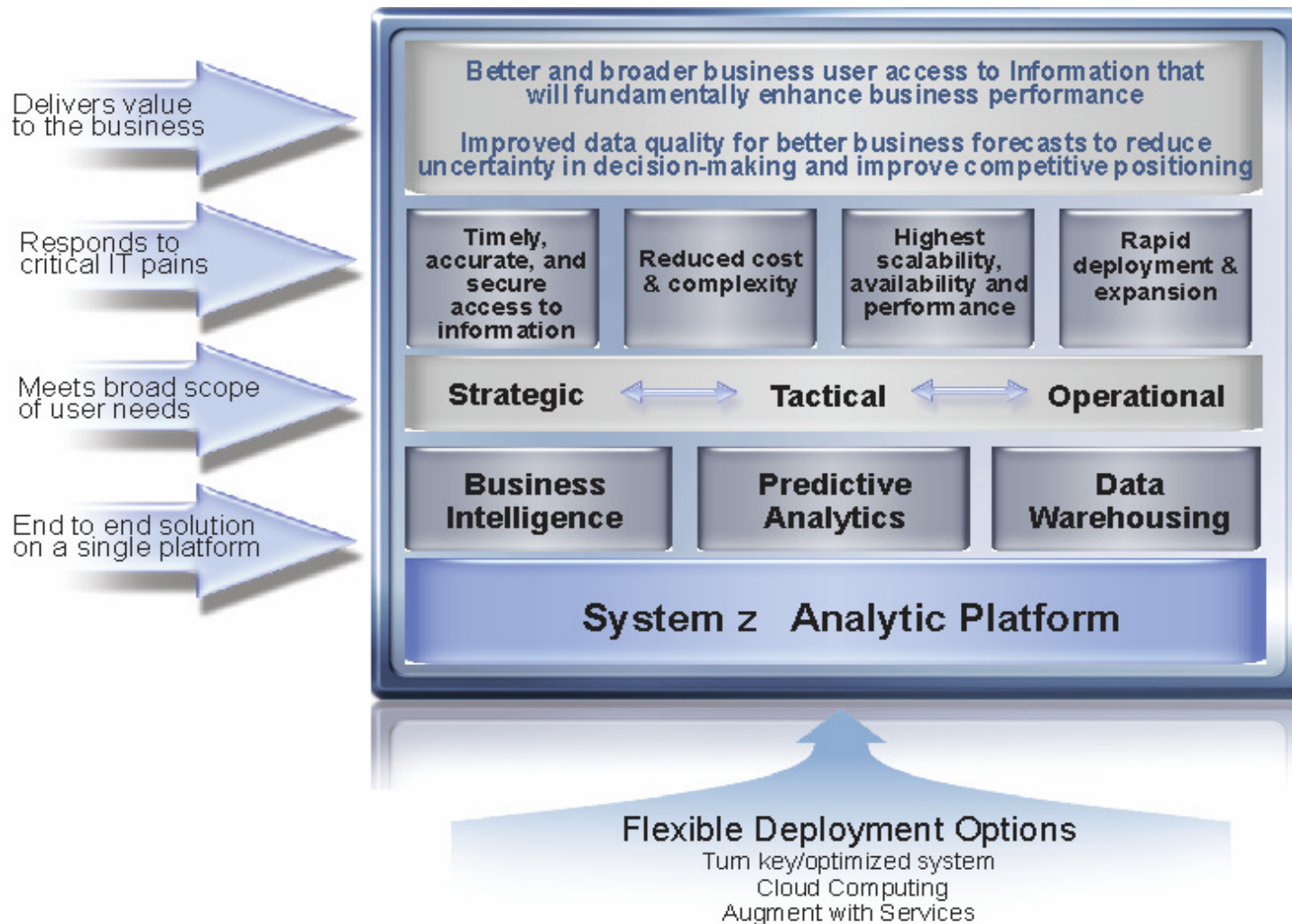




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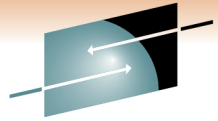
A new option ...

IBM Business Analytics and Data Warehousing on System z



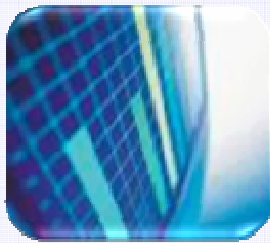
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Customers Select System z to Meet Critical Business Needs



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High business growth



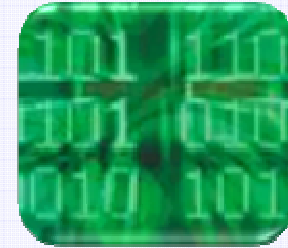
HIGH SCALABILITY

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

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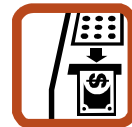
Companies are recognizing mainframe cost savings

*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



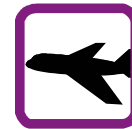
25%

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



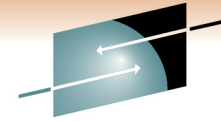
23%

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



S H A R E

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

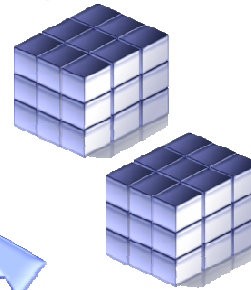


➤ InfoSphere Warehouse
➤ Smart Analytics Optimizer



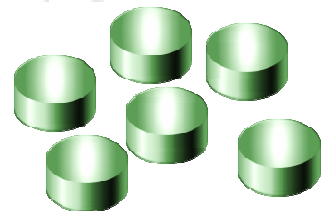
➤ Cognos BI
➤ SPSS Predictive Analytics

Cubing Services



Powercube Services

➤ DB2 for z/OS VUE
➤ DB2 Utilities Suite



Operational Source Systems - Structured & Unstructured Data

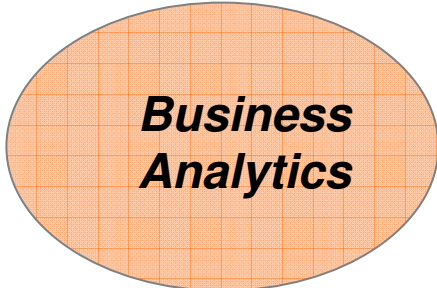


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IBM Cognos Business Intelligence for Linux on System z



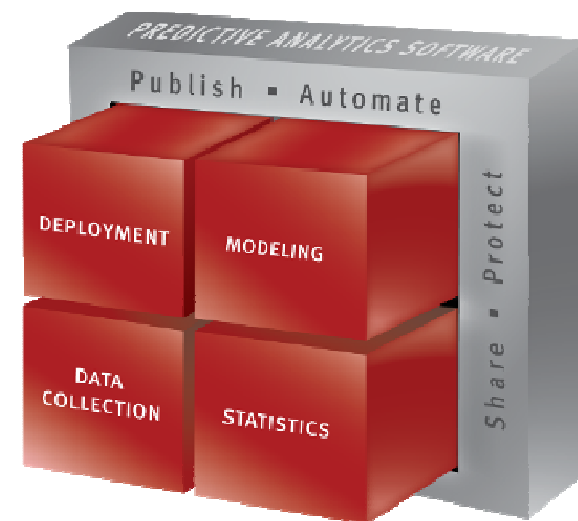
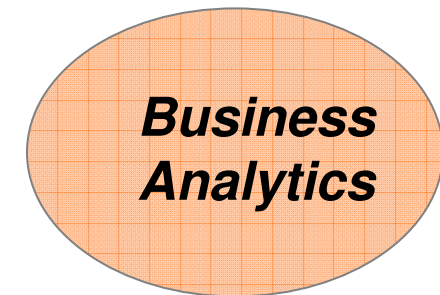
- **Full range of BI capabilities**
 - Query, reporting, analysis, dashboarding, realtime monitoring
- **Delivers information where, when and how it is needed**
 - Self-service reporting and analysis
 - Automated delivery of information in context
 - Author once, consume anywhere
- **Purpose-built SOA platform**
that fits client environments and scales easily

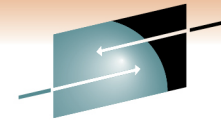


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IBM SPSS

- **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





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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

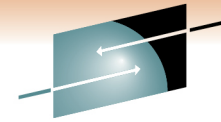
IBM InfoSphere Information Server

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



IBM zEnterprise System

A New Dimension in Computing



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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

Infrastructure

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

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)



- 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

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IBM zEnterprise 196: The heart of the new machine
The industry's fastest and most scalable enterprise system

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

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

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IBM Smart Analytics Optimizer

Capitalizing on the best of relational and columnar databases



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.



**Data
Warehousing**

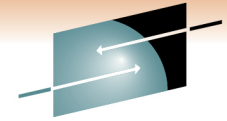
How is it different?

- **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

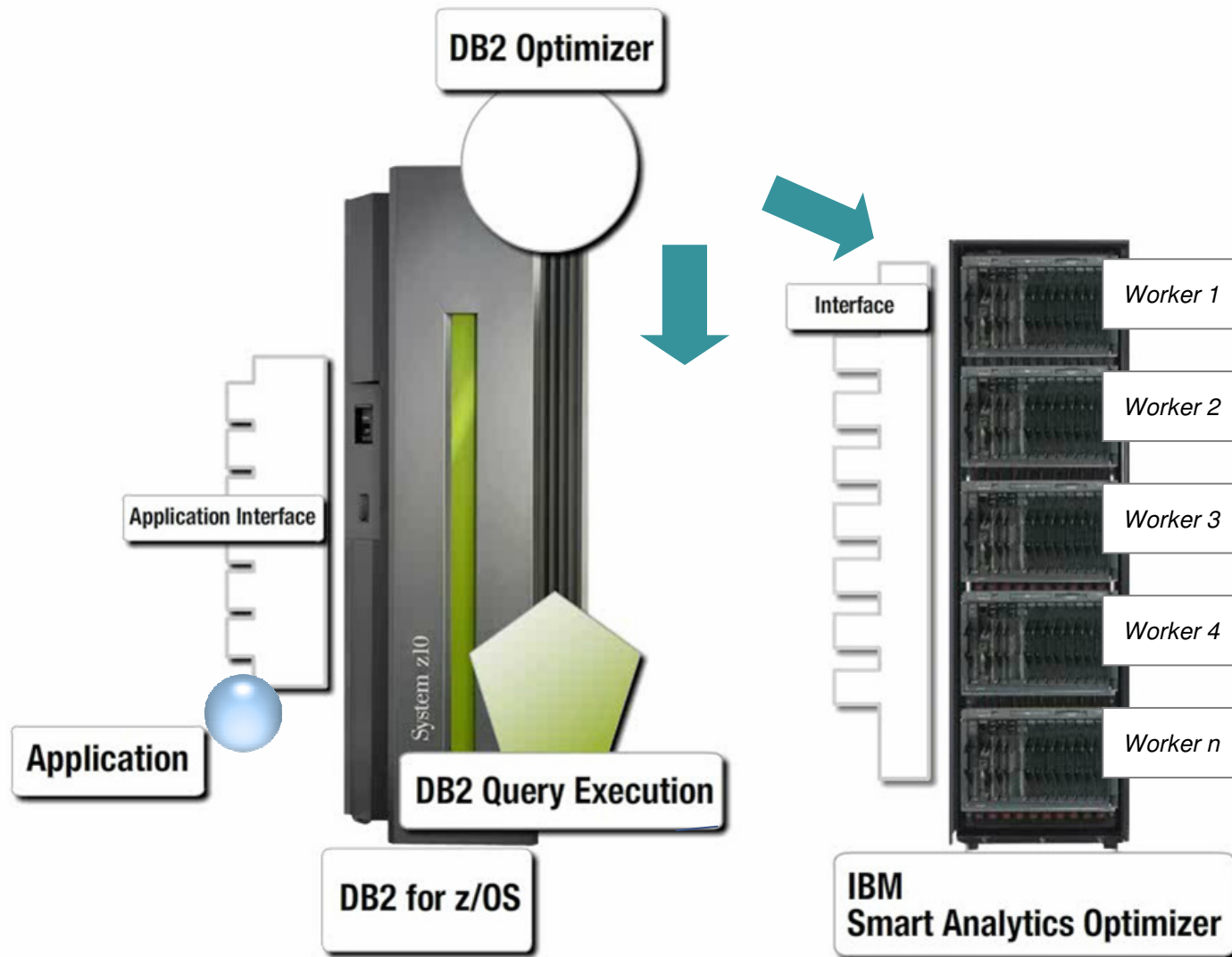
²¹ **Breakthrough Technology Enabling New Opportunities**

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Query Execution Flow



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The z Enterprise System – Three Components

A system of systems that unifies IT for predictable service delivery



1. IBM zEnterprise 196

- Ideal for large scale data and transaction serving and mission critical applications
- Most efficient platform for Large-scale Linux consolidation
- Capable of massive scale up, over 50 Billion Instructions per Second (BIPS)

2. zEnterprise Unified Resource Manager



- Single management umbrella to extend System z workload management across z/OS, Linux on z, Power 7 and x86

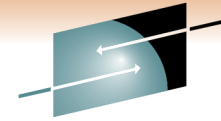
3. zEnterprise BladeCenter Extension (zBX) “Chassis”



ISAO

- Selected IBM **POWER7 blades (AIX)** and **System x Blades* (Linux)** for tens of thousands of applications
- High performance optimizers and appliances (**ISAO and DataPower**) to accelerate time to insight and reduce cost
- Scales out to trillions of instructions / second
- Dedicated high performance private network

Another Way to Look at it From a Data Warehouse / BA on System z Perspective



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1. IBM zEnterprise 196

- DB2 for z/OS VUE
- Cognos
- SPSS
- Infosphere Data Warehouse
- Infosphere Server
- Etc.

2. zEnterprise Unified Resource Manager

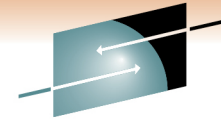
Single management umbrella to extend System z workload management across z/OS, Linux on z, Power 7 and x86

3. zEnterprise BladeCenter Extension (zBX) "Chassis"



IBM Smart Analytics System 9600
-Everything above packaged and delivered with services

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IBM Smart Analytics System 9600

Unprecedented Value in Deploying New Business Analytics

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***

*Flexible
Deployment
Options*

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IBM Smart Analytics Cloud

Creates ...

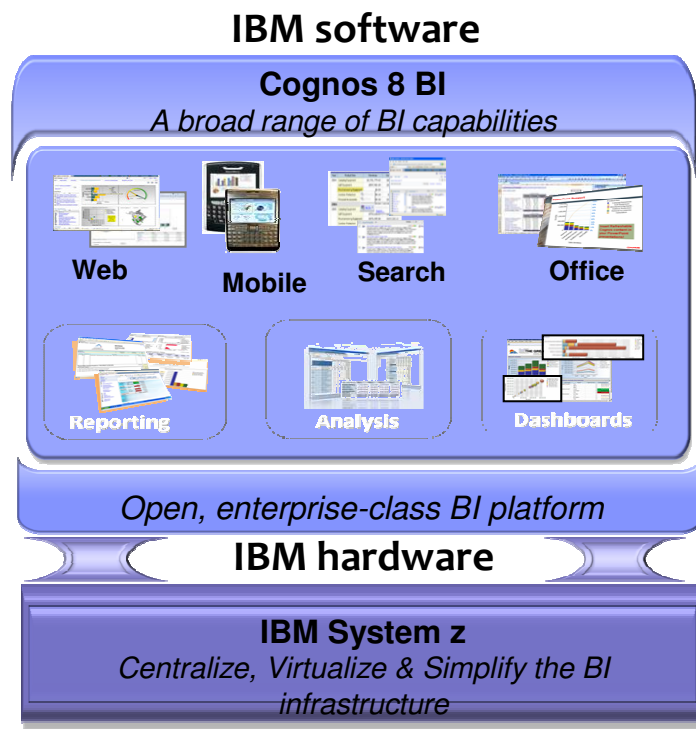
That delivers ...

Smart Analytics Cloud

A private cloud within the enterprise

A solution for delivering business intelligence to the entire organization

The solution components ...



IBM 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



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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

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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



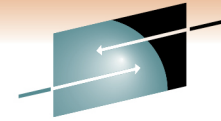
Numius' Client Success Story

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

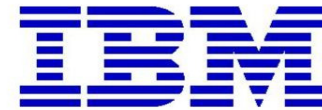
- ✓ Produced 400 reports in the same time as 1 report in the old environment
 - ✓ 400 reports ran in 45 minutes as opposed to 1 report in 46 minutes
 - ✓ Easily supported 130 concurrent users, as opposed to 8 on the source environment
- ✓ No reports timed out, not one user was rejected. Even when the 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





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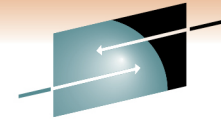


IBM Cognos BI Total Cost of Ownership Study
*Explores the TCO of choosing an x86 based infrastructure vs.
System z for a Cognos 8 BI deployment using proven IBM TCO
measurement methodology*

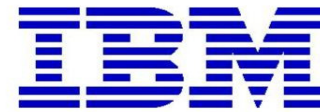


- ✓ Average savings over 5 years of with a System z deployment: 36%
- ✓ Reduction in high availability costs with System z: 50%
- ✓ System administration savings alone pay for System z investment.





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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.***

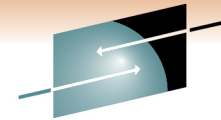
”

-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)

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Industry Analysts Agree



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*“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.**”*

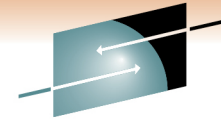
Source: Aberdeen Group, The Fable of Mainframe Complexity, Max Gladstone,
May 5, 2010

*“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



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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/



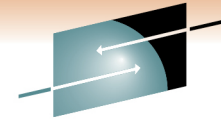
System z can lower your total cost of ownership, requiring **as little as 30%** of the power of a distributed server farm running equivalent workloads

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



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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

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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**
- **Define user access down to the cell level**



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