Information on Demand – Information Management Strategy and Products on System z

The future runs on System z

Dan Wardman

The Information Challenge…

52% of users **don't have confidence** in their information

42% of managers **use wrong information** at least once a week

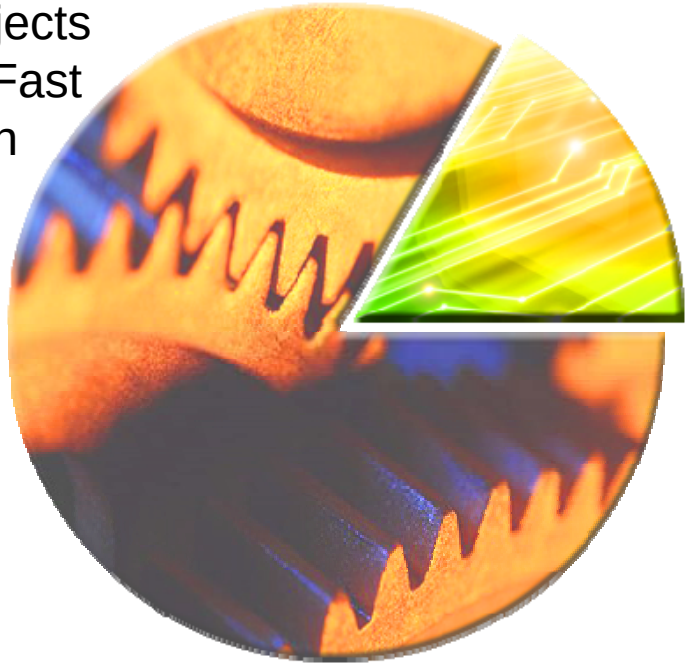
Leveraging Information for Smarter Business Outcomes

Organizations are Increasingly Focused on Leveraging Information for Smarter Business Outcomes

2X

Client Investment in Business Optimization Projects is Growing over Twice as Fast as Business Automation

Business Optimization
and Analytics
$105B
8% CGR



Business Automation
$566B
3% CGR

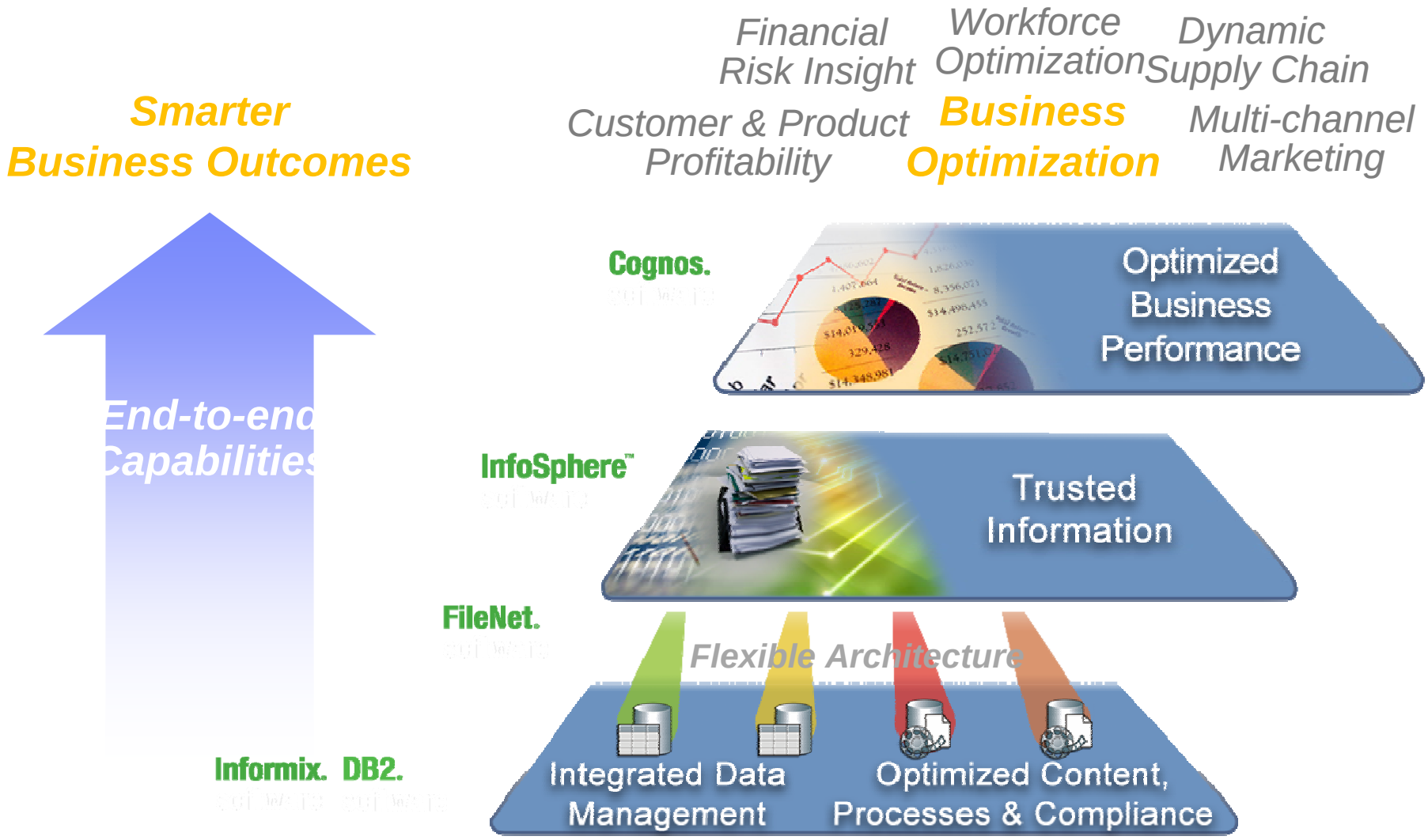
IT Spending Estimates, 2009*

* Includes Hardware, Software and Services. Does not include Networking, Printer, or Standalone Printer or PC Markets. CGRs 2009– 2012.
Opportunity estimates based on analysis done by the IBM Market Intelligence Department. IBM Market Intelligence data is provided for illustrative purposes and is not intended to be a guarantee of market opportunity.

Information Must Be Trusted, Pervasive and Increasingly Predictive & Immediate to Lead Business Transformation

Retail	Banking	Government	Healthcare	Industrial	Communications
"… Are our price points below or above those of key competitors, and by how much?" "…If below, is this sustainable given our cost profile, or is cost a future threat?" "…What premium will customers pay for value-added propositions?" "...what offer can I make to this customer right now to best increase profitability?"	"…What is my risk this morning and how have the credit limit changes been impacted my closing rates?" "…Do we suspect any SEC violations?" "...can I safely approve this transaction right now with low risk?"	"…Which programs should continue to get our stimulus funding, what is their status and how effective the funds being used?" "...Which funds are being used outside the bounds of the original proposal?	"…What emerging treatment may relate to this patient?" "…Which treatments are ineffective and should be eliminated to help lower costs?" "...Do any of my patients need attention right now to avoid a potential problem?"	"…What can we do to minimize warranty claims?" "…Do we have product issues or are there fraudulent claims coming in from our northeast service centers? "…Do we have any regulatory exposures and what safety risks might be related?"	"…How and when should I adjust my global offering prices to reduce churn in my existing market and expand share in an emerging market?" "Is my network at risk of failure that can be avoided if I take protective action right now?"

Information On Demand



© 2009 IBM Corporation

Leveraging System z for Information On Demand

More new capabilities delivered in the past 3 years than at any point in the mainframe's history

and much more coming . . .

IMS 11

Open Access

InfoSphere Warehouse for System z

2009

InfoSphere Global Name Recognition for System z

DW Tools

FileNet Content Manager for System z

Cognos 8 BI for System z

Business Intelligence

Data Studio pureQuery for System z

Info Agenda Launch

InfoSphere MDM Server for System z

Optim Data Governance for System z

2008

App Dev Tools

Information Server for System z

Content Manager for System z

Data Archiving
Test Data Mgmt

DB2 9 IMS 10 8.4

for z/OS

2007

Data Warehousing

IOD Launch 2006

ETL & Data Quality

SOA

pureXML

DB2. software

InfoSphere™ software

Cognos. software

FileNet. software

IMS

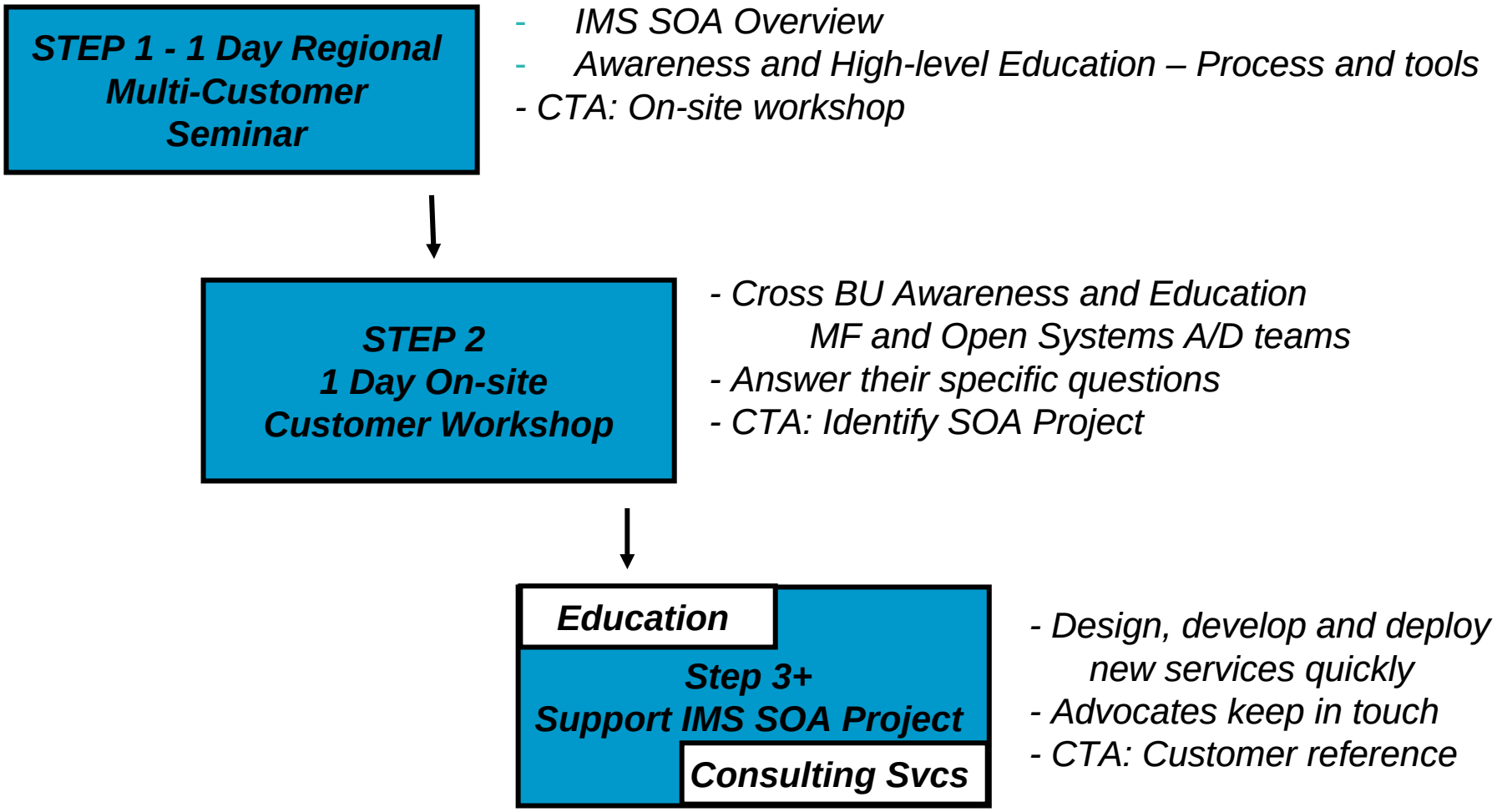
- **IMS 10 encourages business growth while still keeping costs in check.**
  Many companies are searching for ways to increase the flexibility and reuse of their existing IT assets.
- **IMS 11 is designed to drive efficiency and lower costs while simplifying administration and enabling greater business flexibility**
  - IMS Open Database support allows any application on any platform to access IMS data directly and transparently
  - Enhanced application development tooling allows easier application development and modernization
  - Autonomic computing capabilities relieve skill constraints
  - Raising the performance bar again - extreme performance with greater than 22,000 transactions/second

Analysts Agree!

IDC
Analyze the Future

"As IMS continues to evolve, it should be able to maintain a strong claim on the highly complex data management and high throughput workloads that it has historically served so well." *Carl Olofson, IDC*

IMS SOA Program – 3 Steps

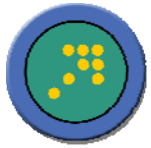


Interesting Facts about DB2 for z/OS

- *Used by…*
  - The top 59 banks in the world
  - 23 of the top 25 US retailers
  - 9 of the top 10 global life/health insurance providers
- *Performance, Performance, Performance*
  - Delivered the largest banking benchmark ever at the Bank of China, a record 9,445 transactions per second
  - 15,000 Transactions per second, almost 300,000 SQL/sec for large Asian bank benchmark.
  - Supports the world's largest known peak database workload - 1.1 Billion SQL statements per hour at UPS
  - The world's largest known transaction processing database – 23.1 TB at UK Land Registry
- Availability, security, advanced virtualization

Addressing Corporate Data Goals

SOA Enablement	• pureXML • Optimistic locking for WebSphere • LOB performance, usability
Dynamic Warehousing	• Many SQL improvements • Dynamic index ANDing • Histogram statistics • New built-in OLAP expressions • Optimization Service Center
Simplification, Reduced TCO	• Index compression • Partition By Growth tables • Cloned tables • Volume based backup / recovery
Workload Consolidation	• More online schema changes • Online REBUILD INDEX • Trusted context and ROLEs • Parallel Sysplex clustering improvements



DB2 X for z/OS At a Glance

Application Enablement	• Versioned data biTemporal • pureXML enhancements • Last Committed reads • SQL improvements that simplify porting
RAS, Performance, Scalability, Security	• Wide range of performance improvements • Hash access to data • More online schema changes • Catalog restructure for improved concurrency • Row and column access control • Administrator privileges with finer granularity
Simplification, Reduced TCO	• 5 – 10 times more threads per DB2 image • Auto statistics • Data compression on the fly • Query stability enhancements • Reduced need for REORG • Utilities enhancements
Dynamic Warehousing	• Moving sum, moving average • Many query optimization improvements • Query parallelism improvements • Advanced query acceleration

ECM Market Drivers/State of the Industry: 2009

2008	2009
1. Cost savings: 44%	1. Cost savings: 50%
2. Compliance: 39%	2. Compliance: 34%

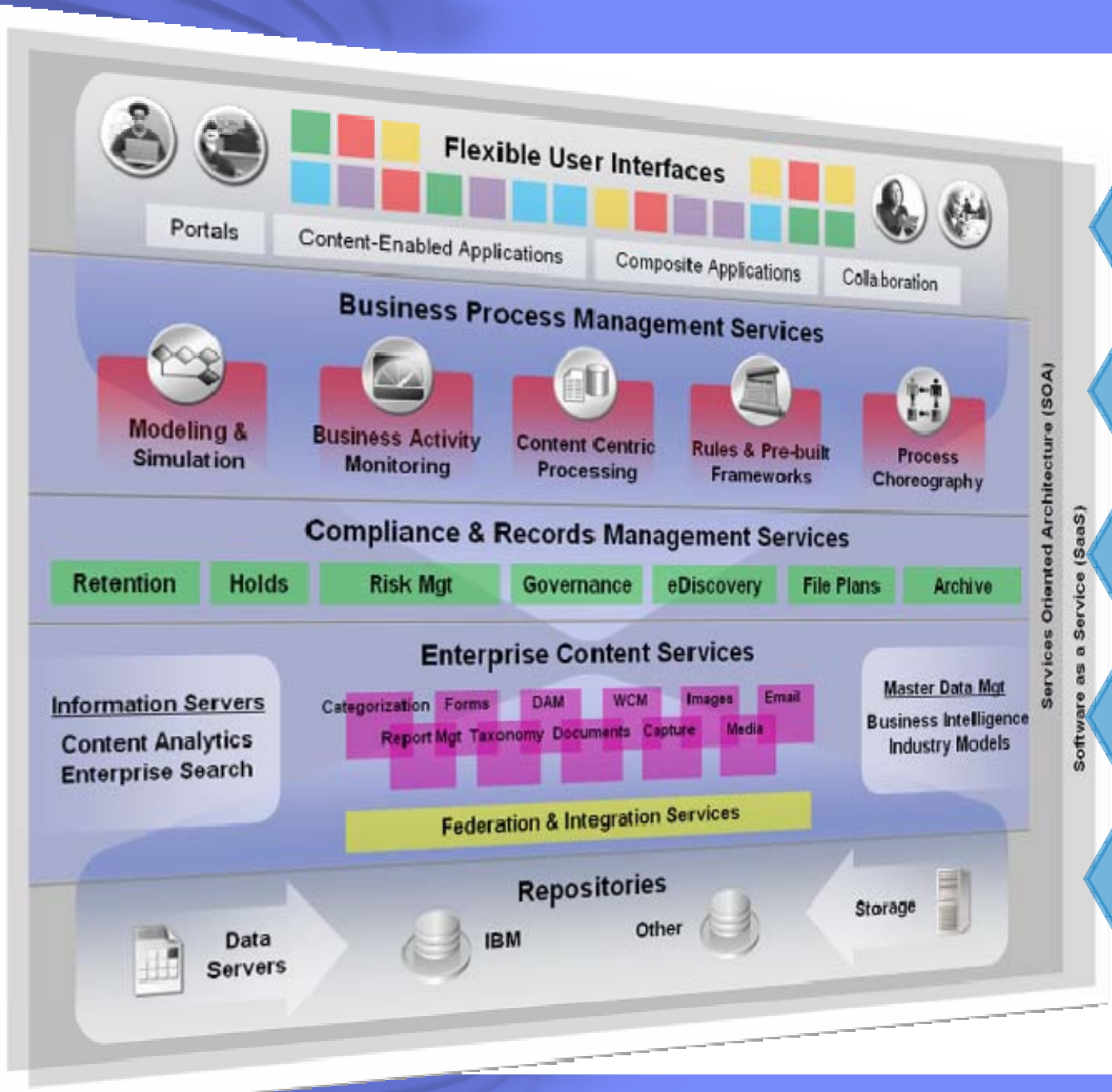
"Cost saving has taken a clear lead over compliance as the main business driver for investments in document and records management." — AIIM

Other survey results

- 56% of organizations still have little or no confidence that important emails are recorded, complete and recoverable (62% in 2008). 27% consider email attachments "very unmanaged"
- 28% of organizations would take more than a month to produce documents for a legal discovery process
- 34% planned to migrate to a single ECM system

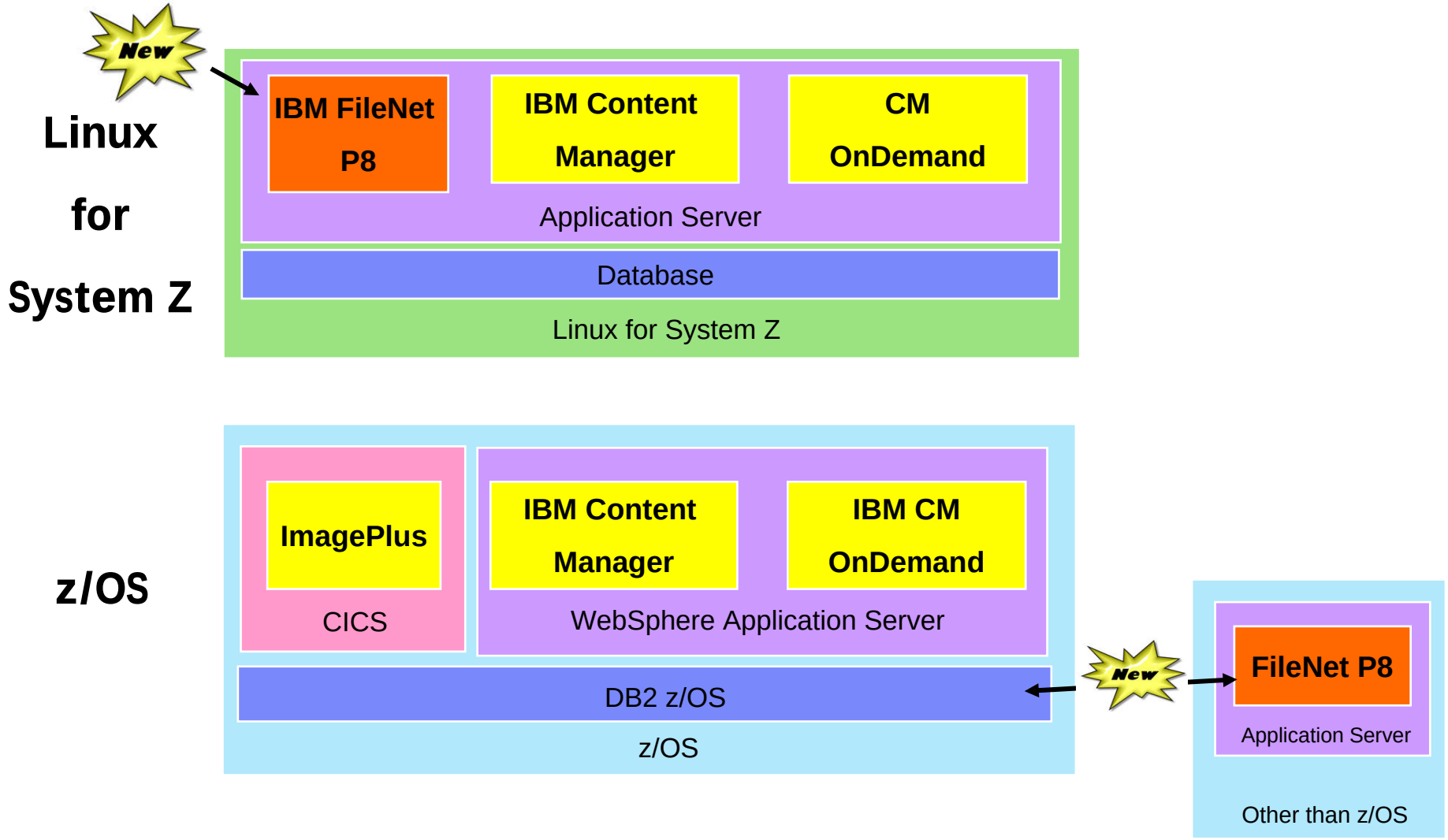
AIIM State of the Industry Survey, March 2009

IBM ECM Product Vision



- Pervasive Persuasive
- Business Agility
- Enterprise Compliance
- Active Content
- Content Anywhere

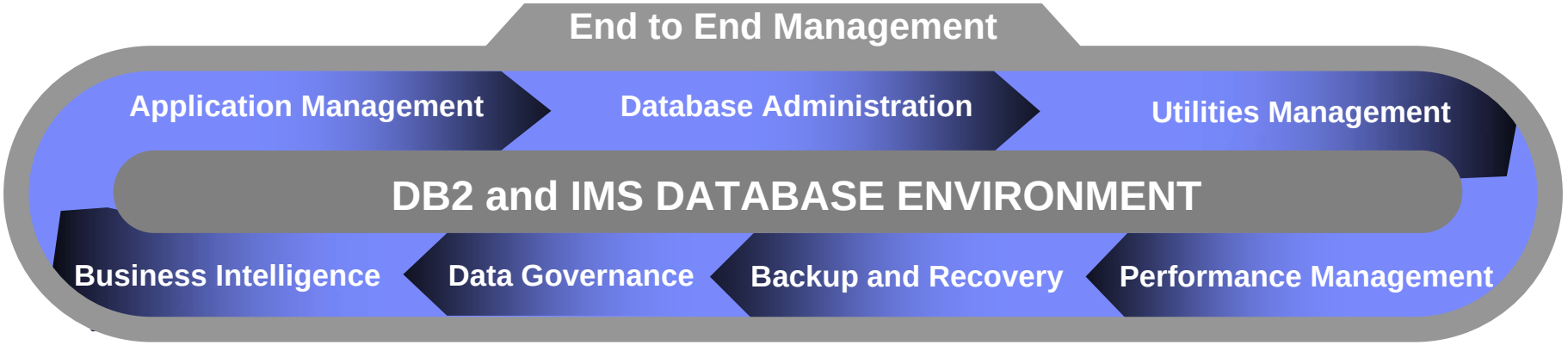
ECM Products on System z



The Value of ECM on System z

- Excels at “mission critical” applications
- Delivers new business capability faster
- Offers higher security and control
- Drives economies of scale and reduces TCO of solution
- **Ball State University -** deployed on System z to harness the reliability, scalability, versatility, and power of the System z platform while reducing their energy consumption in an overall “greening” effort
- **Primerica Financial** - deployed on System z because they believe it is the best platform to achieve the availability and scalability they need, that it facilitates disaster/recovery and information security administration, and that it provides the best overall total cost of ownership.
- **Health Care Service Corporation** – deployed ECM on System z to extend their existing infrastructure, skills and disaster recovery solution to their ECM applications and is deploying next applications on Content Manager (z/OS) using Web services

Managing your business environment



Business Challenges

- Optimizing costs associated with maintaining existing applications
- Quickly responding to new business requirements and opportunities
- Ensuring that business and regulatory needs can be properly met
- Maximizing IT staff productivity to streamline business operations

DB2 Tools Portfolio

Application Management
- DB2 Administration Tool
- DB2 Path Checker
- DB2 Bind Manager
- DB2 Query Monitor
- DB2 SQL Performance Analyzer
- DB2 High Performance Unload
- DB2 Table Editor
- InfoSphere Data Architect
- Optim Data Growth
- Optim Test Data Management
- Optim Development Studio
- Optim Query Tuner
- Data Studio

Utilities Management
- DB2 Utilities Suite
- DB2 Automation Tool
- DB2 Utilities Enhancement Tool
- DB2 High Performance Unload

Database Administration
- DB2 Administration Tool
- DB2 Object Comparison Tool
- DB2 Storage Management Utility
- Optim Database Administrator

Performance Management
- OMEGAMON XE DB2 Performance Expert
- OMEGAMON XE DB2 Performance Monitor
- DB2 SQL Performance Analyzer
- DB2 Buffer Pool Analyzer
- DB2 Query Monitor
- Optim Query Tuner / Query Workload Tuner
- Optim Dev Studio/pureQuery Runtime
- Optim Performance Mgr/Extended Insight

Information Integration
- InfoSphere Information Server
- InfoSphere CDC for System z
- InfoSphere Replication Server
- InfoSphere Data Event Publisher
- InfoSphere Classic Federation Server
- InfoSphere Classic Data Event Publisher
- InfoSphere Classic Replication Server

Backup and Recovery
- Application Recovery Tool for IMS and DB2 Databases
- DB2 Archive Log Accelerator
- DB2 Change Accumulation Tool
- DB2 Cloning Tool
- DB2 Log Analysis Tool
- DB2 Object Restore Tool
- DB2 Recovery Expert

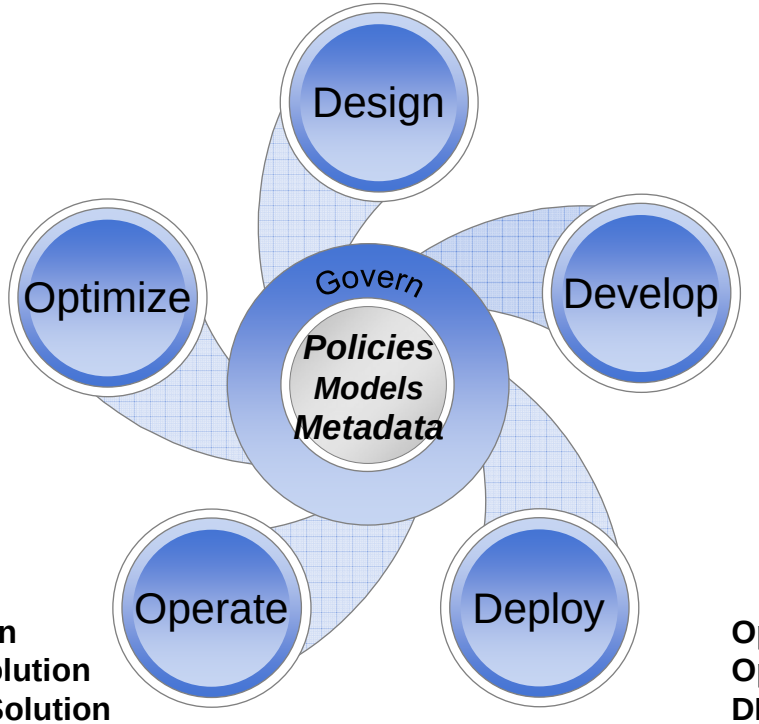
Data Governance
- Optim Data Growth
- Optim Data Privacy
- Optim Test Data Management
- Optim pureQuery Runtime
- InfoSphere Data Architect
- IBM Database Encryption Expert
- DB2 Audit Management Expert
- Data Encryption for DB2 and IMS

Business Intelligence
- Cognos for z/Linux
- DataQuant
- QMF
- DB2 Web Query Tool

* Available only on System z
* Available on System z and LUW
* Available only on LUW

DB2 and IMS Solutions that manage the value of your data throughout its lifetime

InfoSphere Data Architect



Optim Data Growth Solution
DB2 Performance Mgt Solution
IMS Performance Mgt Solution

Optim Development Studio
Optim Test Data Management
Optim Data Privacy Solution

DB2/IMS Administration Solution
DB2/IMS Backup & Recovery Solution
DB2/IMS Utilities Management Solution
IMS Transaction Management Solution

Optim Development Studio
Optim pureQuery Runtime
DB2/IMS Application Mgt Solution

DB2/IMS Data Governance Solution

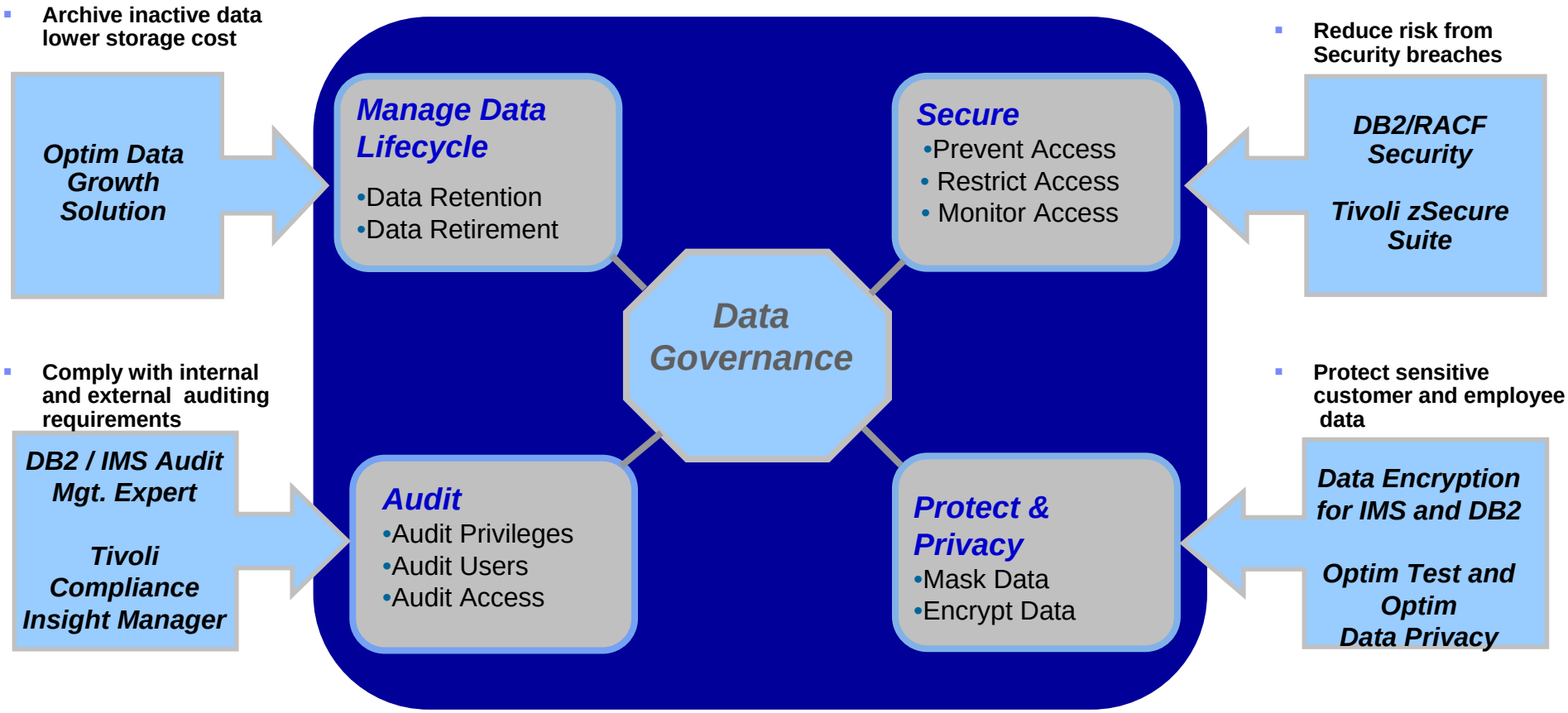
Enterprise Data Governance

- **Data breaches, corporate mistakes, use of bad data continue to make headline news**
- **Every organization is concerned with regulatory compliance, security, privacy, data quality. Bad data is bad for business.**
- **IBM created three entry points that enable customers to address their more pressing needs while embracing other aspects of data governance as and when required :**
  - *Information Quality – understand, analyze, cleanse, transform, deliver*
  - *Lifecycle Management – collect, store, process, optimize, manage, report, retain*
  - *Information Protection – security, privacy, audit, logging, reporting*

***Accenture survey** 75 percent of CEOs want to better manage and use their information ,78 percent believe they can achieve better competitive advantage, only 15 percent are comprehensively managing their data.*

Data Governance is fundamental to successful BI and DW projects.

Enterprise Data Governance for System z



IBM is the only solution provider with an end to end comprehensive solution

The Resurgence of Data Warehousing and Business Intelligence on System z

- **IBM has invested hundreds of millions of dollars to bring new state of the art capabilities and solutions to System z in support of customers' warehouse and BI requirements**

- A 2007 study by IDUG found that nearly 50% of IDUG respondents are already using DB2 for z/OS for data warehousing. 78% indicated a desire for more capabilities in warehousing, query and reporting.

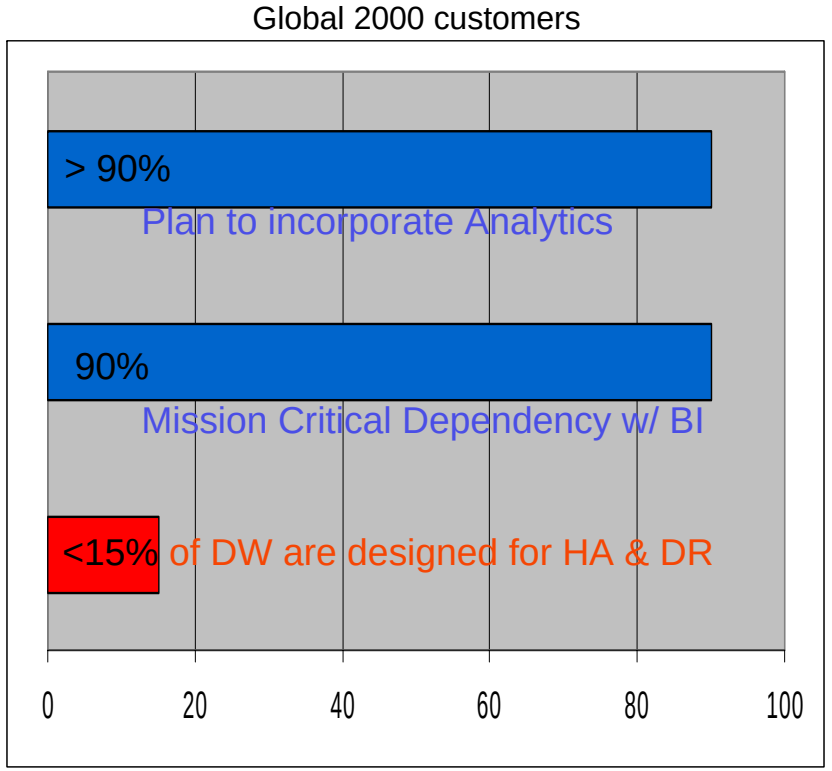
- *Analysts Agree!* IBM's Data Warehousing & BI breadth on System z is a game changer in the market.

  Donald Feinberg, Gartner

Gartner

Mission Critical Workloads Require Highest QoS

- **More than 90%** of Global 2000 companies plan to incorporate analytics into multiple operational applications that access the data warehouse by 2010, but fewer than 15% of data warehouses have been designed to provide high availability, failover, disaster recovery and the remaining components of mission-critical systems.
- By the end of 2009, **90% of Global 2000** companies will have implemented some type of mission-critical dependency between the warehouse and at least one revenue supporting or cost-controlling operational application — up from less than 25% in 2007.
- **Fewer than 15% of data warehouses** in 2007 have been designed to provide high availability, failover, disaster recovery and the remaining components of mission-critical systems.



- **Sounds like a good match for System z value proposition**
  - Proven reliability and continuous availability capabilities
  - Exploiting synergistic effects of proximity to the operational data

1 Operational Analytics and the Emerging Mission-Critical Data Warehouse, 14 May 2007

Why are customers moving to the strengths of System z for Data Warehousing and Business Intelligence?

Many System z customers already use System z for warehouse and BI

IBM is responding to customer demand with new DB2 features, new software offerings and improved hardware performance and efficiency.

Customers want to leverage their existing System z infrastructure

Costs can be reduced through the utilization of existing processors, people, Practices.

Cost savings may also be achieved through a consolidation approach.

New BI trends map well to the strengths of DB2 for z/OS and System z

Distinction is blurring between warehouse and OLTP databases due to new trends like Dynamic Warehouse and Operational BI, driving the need for:

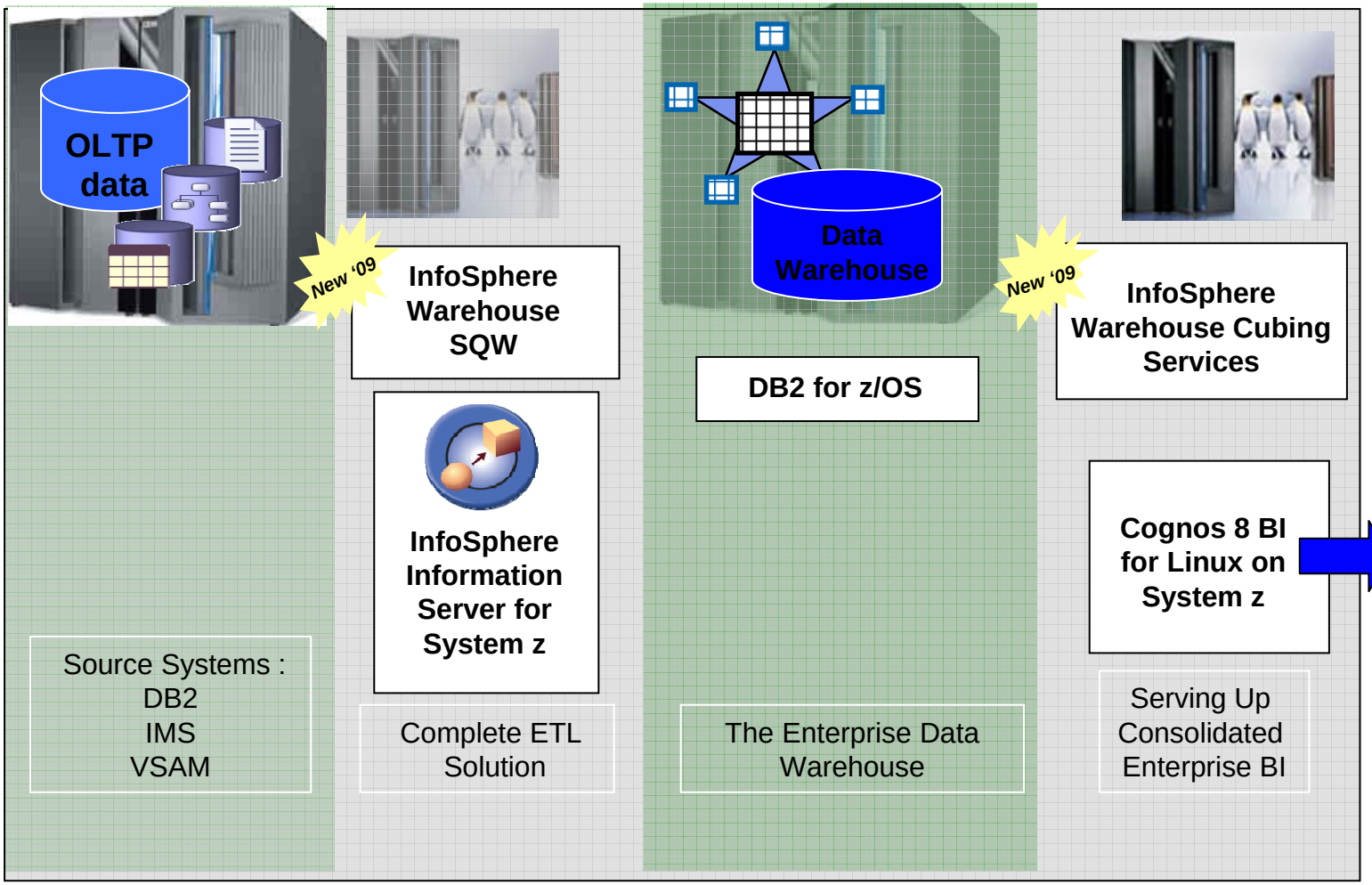
- Increased reliability, availability, security, and compliance in a DWH
- Very current warehouse data and/or collocation of warehouse and operational data

Specialty processors and the new z10 provide additional ways to optimize TCO

zIIPs and IFLs are driving down hardware and software costs; DWH/BI can make excellent use of these processors, ultimately driving TCO advantages.

The new processors are delivering excellent speeds and feeds, making CPU horsepower less of an Issue.

The Data Warehouse and BI Solution on System z

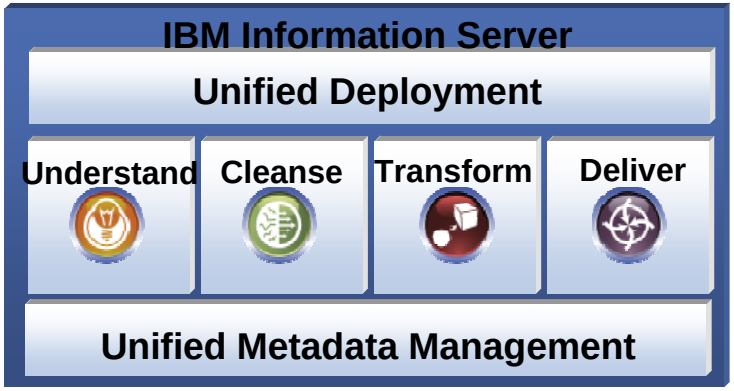


Combining the Reliability and Availability of DB2 for z/OS with Cost Effective Applications running on Linux for System z

InfoSphere Information Server for System z

Accelerating the delivery of trusted information

Profile, cleanse, and transform information
from heterogeneous data sources
to drive greater business insight

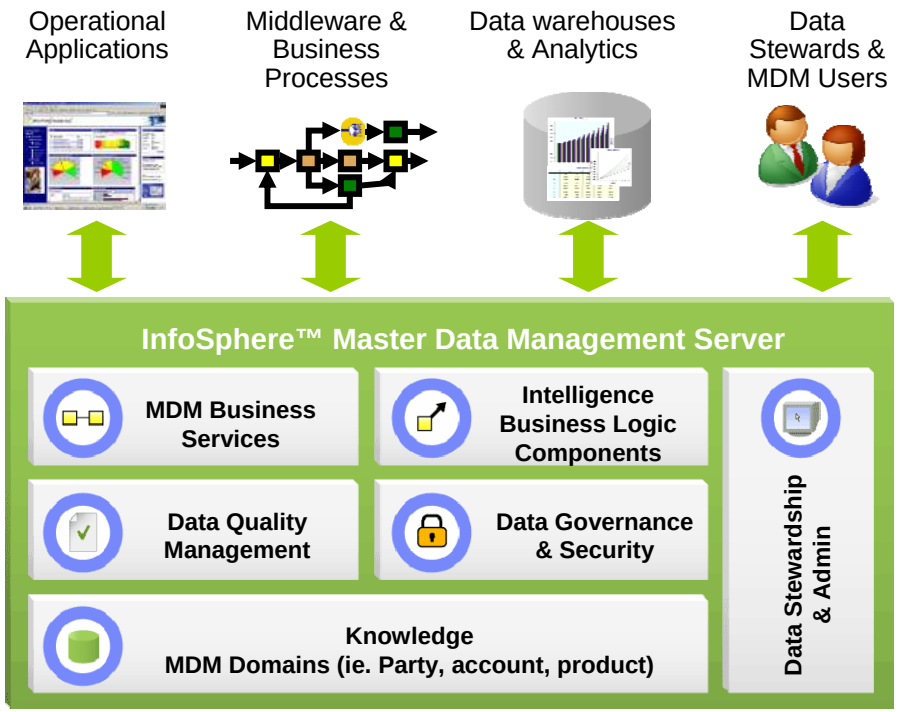


- Significant cost savings on System z
- Scalable to any volume and processing requirements
- Fully integrated, auditable data quality
- Metadata-driven integration for increased productivity

InfoSphere MDM Server for System z

The first multi-domain, multi-function MDM product in the market

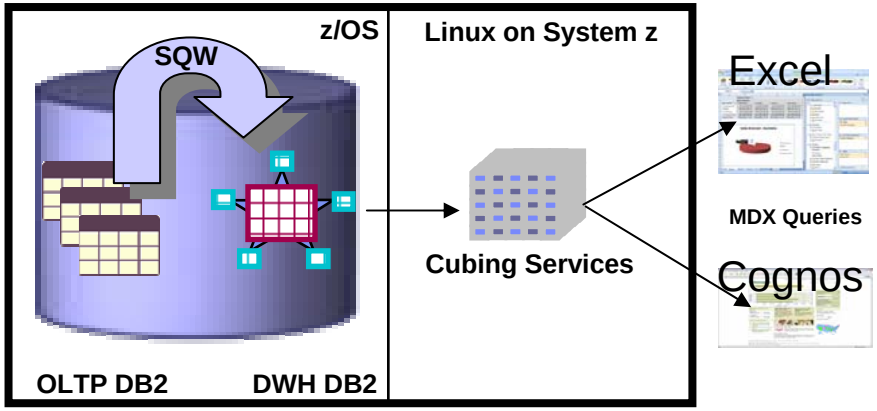
- **Packaged to address all types of MDM implementations**
  - From small “registry” projects to strategic “transaction-hub” deployments
  - Allows clients to grow as required by implementing existing functionality
  - Significantly lowers client risk and time/cost to implement
- **Enables a SOA Library**
  - 800 pre-packaged business services
  - Significant out of the box functionality
  - Reduces total cost of ownership
- **Provides leading performance & scalability**



New! InfoSphere Warehouse on System z

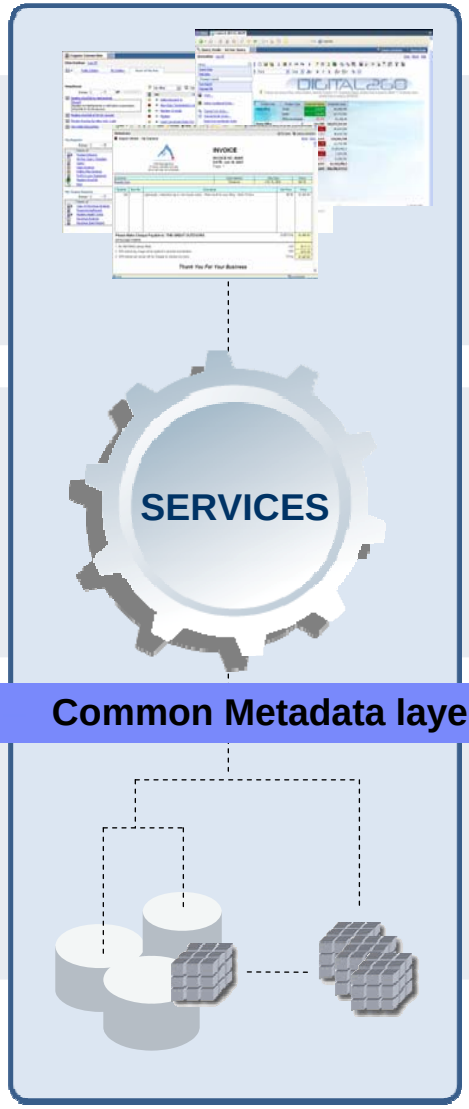
Adds core data warehouse and analytics capability to DB2 for z/OS

- Advanced physical database modeling and design
- In-database data movement and manipulation capabilities of SQL Warehouse Tool (SQW)
- Optimize multidimensional reporting and analysis of data with Cubing Services



System z Environment Enhanced with InfoSphere Warehouse

The IBM Cognos 8 platform



PRESENTATION TIER

Broad Range of Capabilities

APPLICATION TIER

Common Set of Services

DATA TIER

Open Data Access
(Transactional, Warehouses or Modern data sources)

Why Cognos 8 BI for Linux on System z?

- **New workload is moving to System z**
  - Leveraging the platform strengths to improve performance, scalability, reliability, availability, bullet-proof security and energy-saving capabilities of the mainframe

- **Customers are requesting the complete IM portfolio on System z**
  - They want their middleware software running as close to their transactional data as possible
  - To take advantage of a single point of control
  - For close access to data hosted and accessed on System z

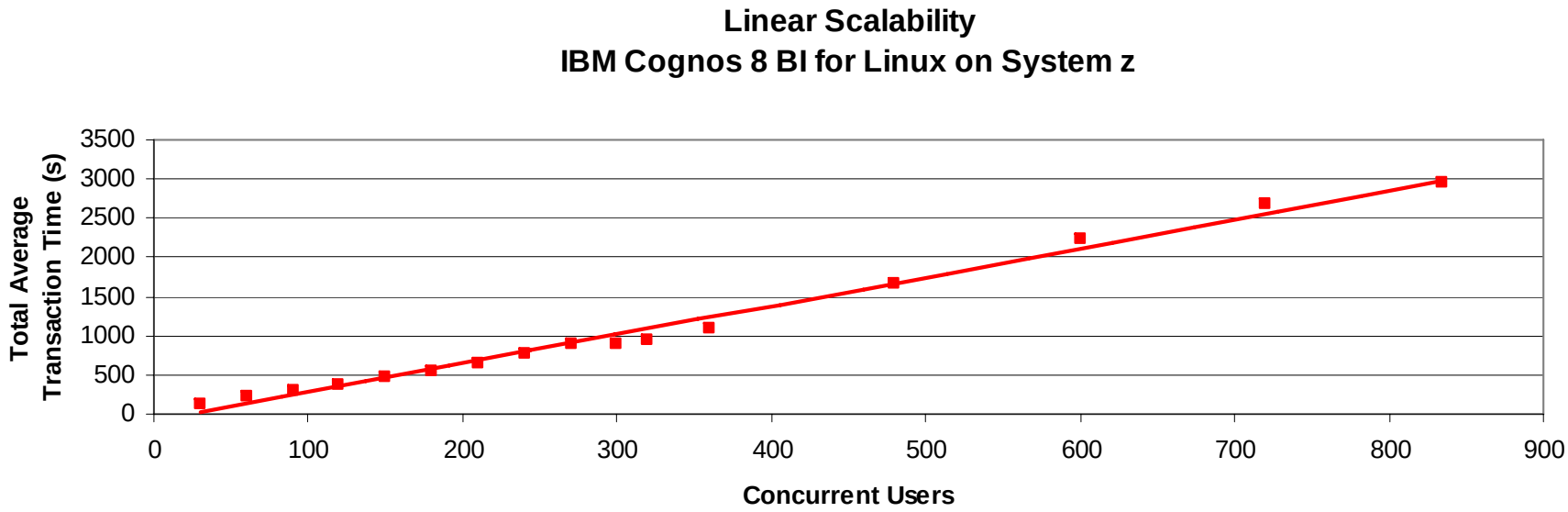
- **Benefits of running IBM Cognos 8 BI for Linux on System z**
  - With a BI solution on the same platform as the operational data, customers can reduce the time to access critical operational data which is the foundation of their businesses.

  - IBM Cognos 8 BI for Linux on System z is built on the open Cognos 8 platform so customers can now combine the enterprise-class Cognos 8 platform with the z platform

Proven that Cognos 8 BI for Linux for System z can: Scale Across the Enterprise


IBM System z

Testing demonstrated IBM Cognos 8 BI for Linux on System z** scales linearly **to large user groups.



"**Cognos, …makes it easy for companies to deploy BI and PM** to a broader user population, while **minimizing the resulting workload for IT** departments."

- Nucleus Research, Cognos Takes on the Rest of the Enterprise, November, 2007

- Testing was conducted on up to **90,000 named users**

IBM Smart Analytics Optimizer

Technology Preview for System z

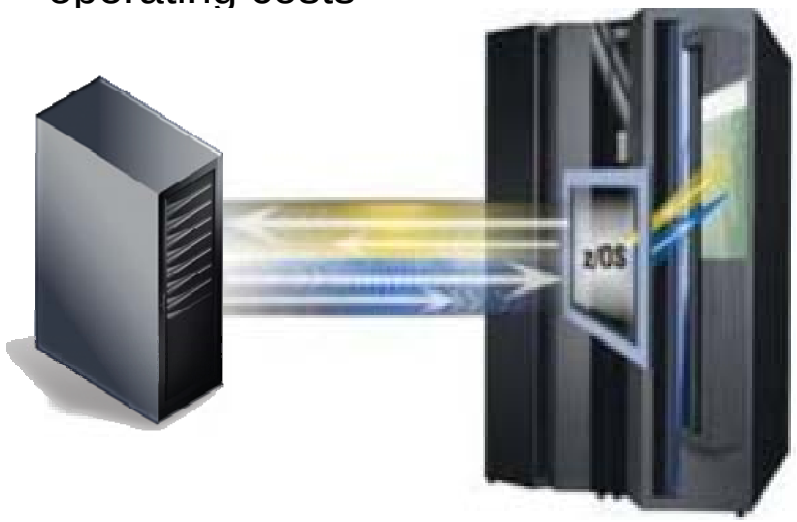
Client Need:	***The IBM Smart Analytics Optimizer:***
Fast and predictable query response time on unpredictable workloads	Capitalize on data in existing systems by improving performance of typical analytic queries by an order of magnitude
Lower cost	Dramatically reduce administration efforts by reducing the need for database tuning
Better price / performance	Significantly improve price/performance with workload optimized software and hardware

IBM Smart Analytics Optimizer

Technology Preview for System z

What is it?

- ✓ A high performance extension that easily integrates with IBM data systems, delivering predictable, order-of-magnitude faster, analytic query response times, while lowering operating costs

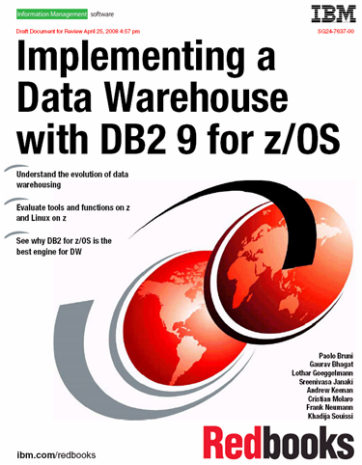


How is it different

- ✓ Deep integration with IBM data management systems
- ✓ High performance query software, based on advanced data in-memory technologies
- ✓ Leveraging existing data system investment and values without any changes to applications
- ✓ For System z, extends gold-standard manageability, security, and availability to high-performance analytic applications

DataWarehousing on system z – IBM at your service

- Whitepaper **: Why Data Warehousing on System z available in the WEB http://www-306.ibm.com/software/data/db2bi/systemz.html**
- **DW on system z –** Demo **available in the Technical Marketing Competence Center, Böblingen, Germany, TMCC@de.ibm.com**
- **DW on system z –** Customer Briefings **in the Executive Briefing Center at SVL or the Technical Marketing Competence Center, Böblingen,Germany**
- **DW on system z – 'Redbook' available**



A Multitude of Information Projects

Each successful in its own right; but limited speed and flexibility…

Large Global Bank

- *5 data warehouse projects in 5 years*
- *Large customer call center deployment*
- *Reengineered CIF System*
- *Millions invested*

"I still can't sleep at night;
I don't have a real time and accurate view into my risk posture" - Chief Risk Officer

Multi-channel Apparel Retailer

- *3 brick & mortar and 1 web channel*
- *Multiple customer loyalty systems*
- *Multiple call centers*
- *1 credit card*

34

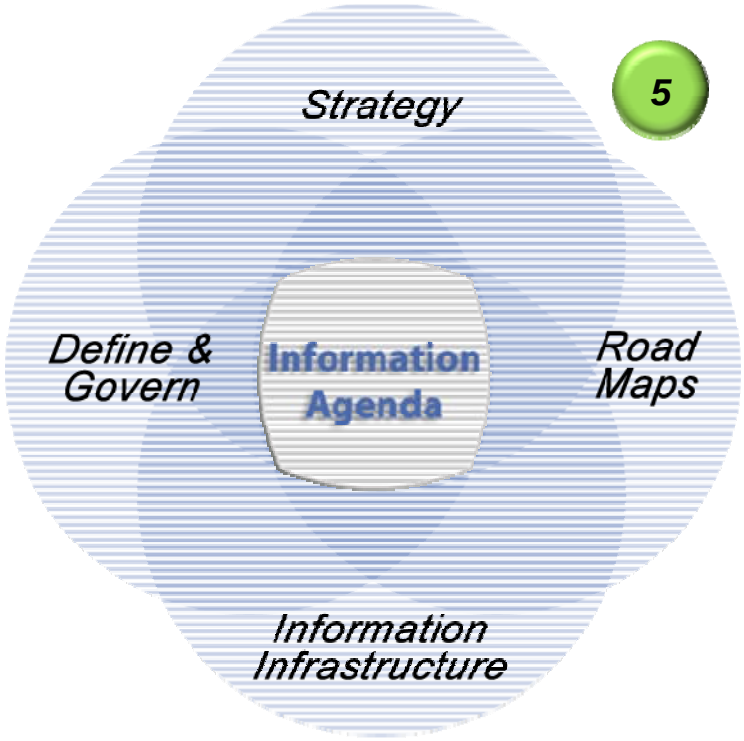
Becoming an Information Based Enterprise…

Information Agenda: The 5th entry point of Information On Demand

Creating an information agenda helps transform information into a trusted strategic asset that can be rapidly leveraged across applications, processes and decisions for sustained competitive advantage.

Current State
Information Intensive Projects

Highly justified projects

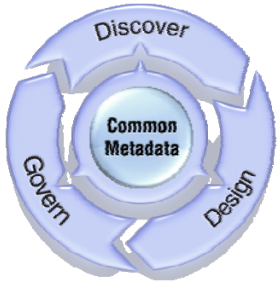


Desired State
Flexibility & Speed

Sustained competitive advantage

Accelerating Your Information Agenda

Recent Announcements result from $1B+ investment & experience from thousands of client projects



New

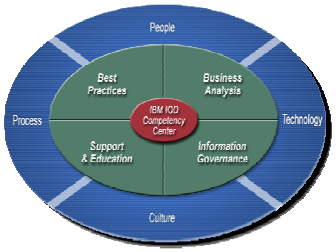
Foundational Tools

Software to help you convert your information into a trusted strategic asset

New

Information On Demand Competency Centers

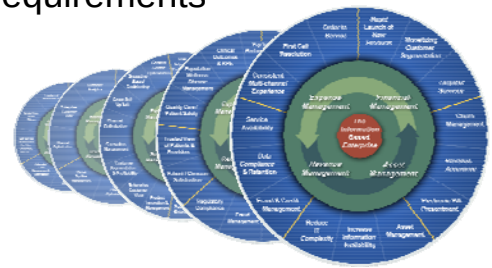
Services to help you build information centers of excellence



New

Information Agenda Guides & Workshops

Industry tailored sessions to guide future state design, identification of key information requirements and gap analysis



New

Information Accelerators

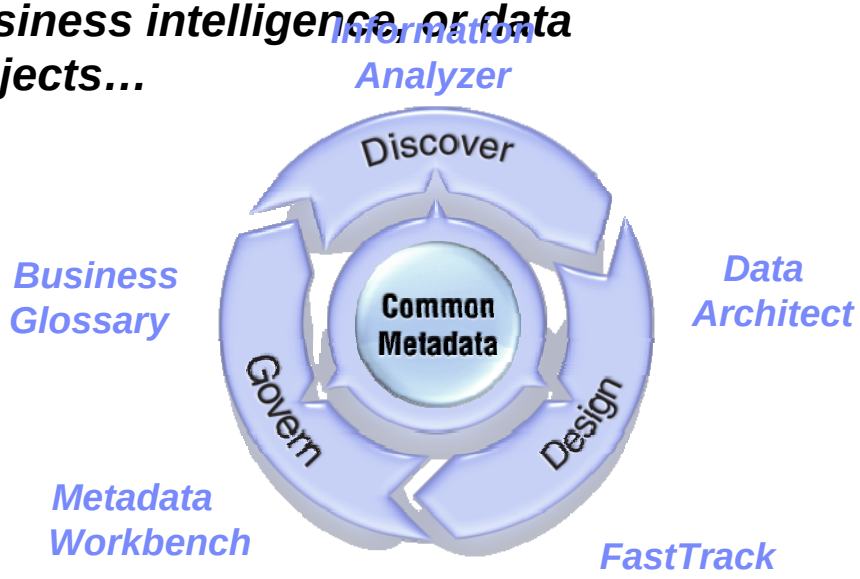
Industry specific assets to speed deployment

InfoSphere Foundation Tools

Software to help convert your information into a trusted strategic asset

Open tools that provide value to any data integration, business intelligence, or data warehouse projects…

Only IBM has invested to provide the breadth of capabilities to define and govern your information…



- ***Discover, understand and relate the data you have to your business***
- ***Design your trusted information structure***
- ***Govern your information over time***

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

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