Enterprise Business Analytics – Leveraging your Data Assets to Improve Business Results and Control Risks

Dave Jeffries

Business Unit Executive

Business Analytics on System z

Agenda

- **Smarter Analytics Landscape**
  - Growth of Analytics Requirements
  - Capabilities Required to support the Business
  - Using Analytics to improve Business performance
- **Customer Challenges to leveraging Business Analytics**
- **Business Intelligence and Predictive Analytics Portfolio**
  - What are the capabilities and solutions
- **Customer Examples and Success Stories**
  - Who is doing this today, what were the key advantages
- **Summary**

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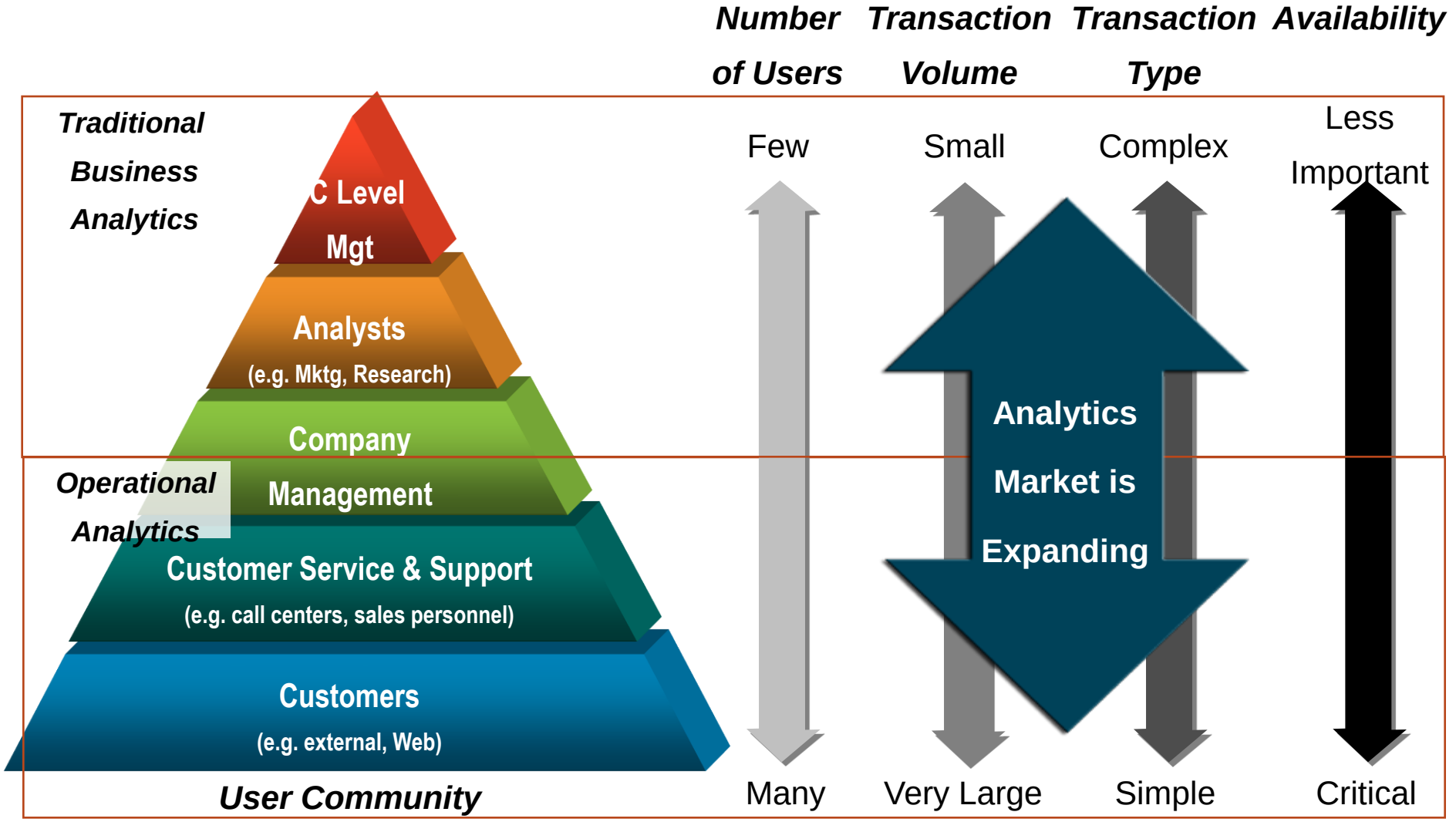
Current Analytics Market is expanding

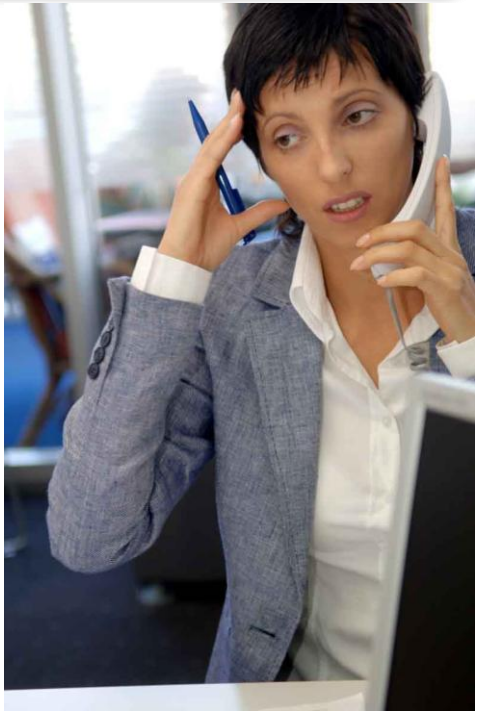


Getting analytics out to frontline workers is more critical than ever …

More informed customer interaction = higher customer satisfaction

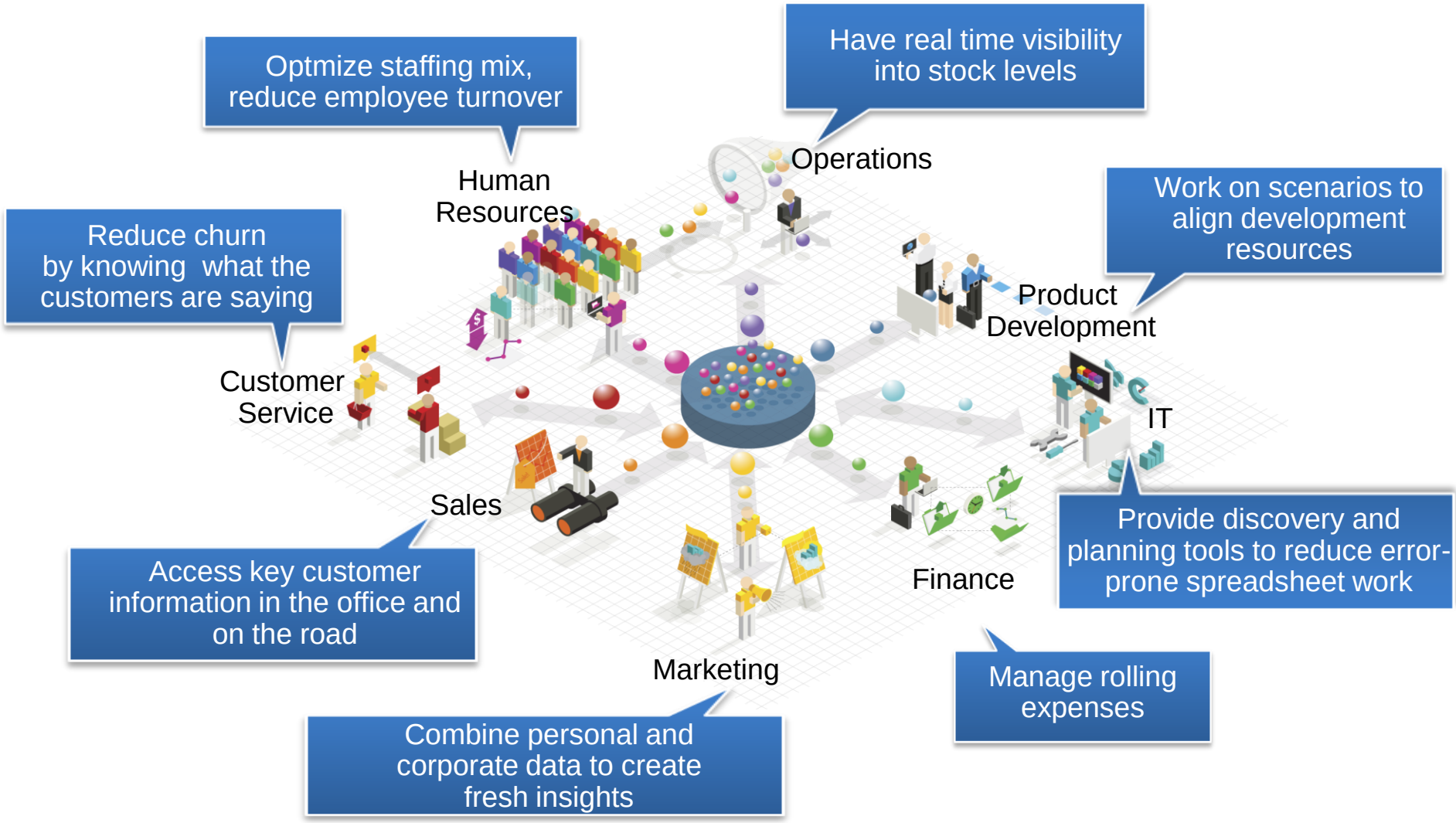
Higher customer satisfaction = improved business performance

- A dissatisfied consumer will tell between 9 and 15 people about their experience. About 13% of dissatisfied customers tell more than 20 people.[1]
- 86% of consumers quit doing business with a company because of a bad customer experience, up from 59% 4 years ago.[2]
- For every customer complaint, there are 26 other customers who have remained silent.[3]
- Happy customers who get their issue resolved tell about 4 to 6 people about their experience.[4]
- Attracting a new customer costs 5 times as much as keeping an existing one.[5]



[1] Source: White House Office of Consumer Affairs, Washington, DC
[2] Source: Harris Interactive, Customer Experience Impact Report
[3] Source: Lee Resource Inc
[4] Source: White House Office of Consumer Affairs, Washington, DC
[5] Source: Lee Resource Inc.

…and is now critical to business success



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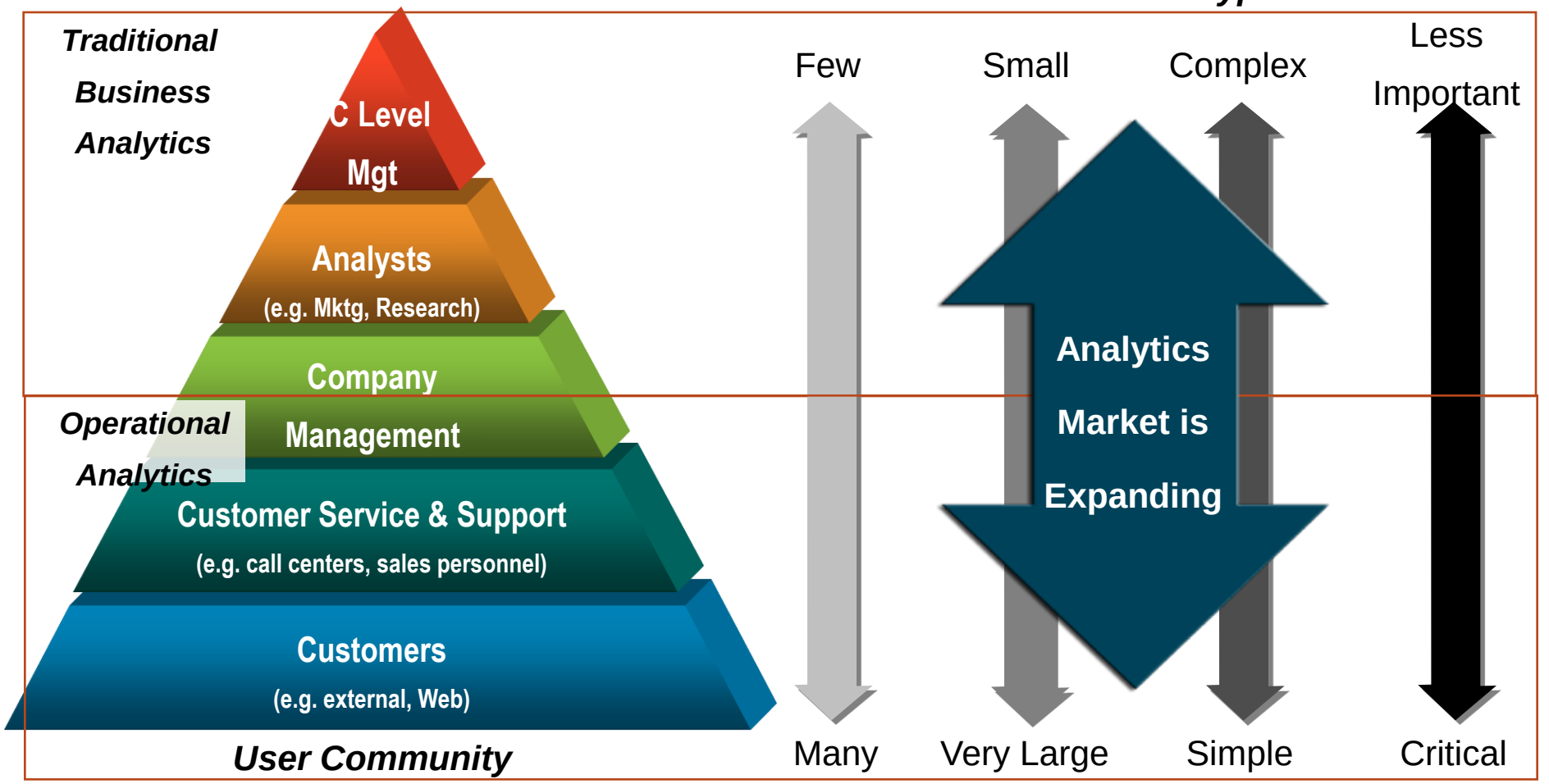


Proven Business Value Driving Change

	1997	2012	Adapting Infrastructure Strategy to Ensure Success
eMail 	▪ Telephone primary communication tool ▪ Outages expected ▪ Staff centrally located ▪ No governance	▪ Mission critical ▪ High Volume ▪ Near real-time ▪ Corporate regulatory compliance ▪ Global	▪ Archiving ▪ High Availability ▪ Reporting ▪ Mass storage
Instant Messaging 	▪ Desktop application ▪ No governance ▪ Text based	▪ Server based ▪ Video sharing ▪ Telephony integration	▪ Enterprise model ▪ Availability ▪ Governance ▪ Bandwidth
Business Analytics & Data Warehousing 	▪ Departmentally defined ▪ Ad hoc Query ▪ Capability based products ▪ Desktop application ▪ IT not involved	▪ More volume, real-time ▪ More types of users, and mobile devices ▪ Corporate regulatory compliance ▪ Environmental concerns	▪ Enterprise BA: Standardization / Consolidation ▪ Modernization ▪ Data Governance ▪ Cloud Computing ▪ Big Data

In this emerging information-centric, insight-driven world a new approach to Analytics is essential

Leaders will be distinguished by their ability to leverage:

All Information	All People	All Decisions	All Perspectives
			
▪ Transactions ▪ Warehouses ▪ Documents ▪ Social Media ▪ Sensors ▪ Video ▪ Geospatial ▪ ….etc.	▪ All Departments ▪ Experts and non-Experts ▪ Executives and Employees ▪ Partners and Customers	▪ Major and minor ▪ Strategic and tactical ▪ Routine and exceptions	▪ Past *Historical, aggregated* ▪ Present *Real-time* ▪ Future *Predictive*

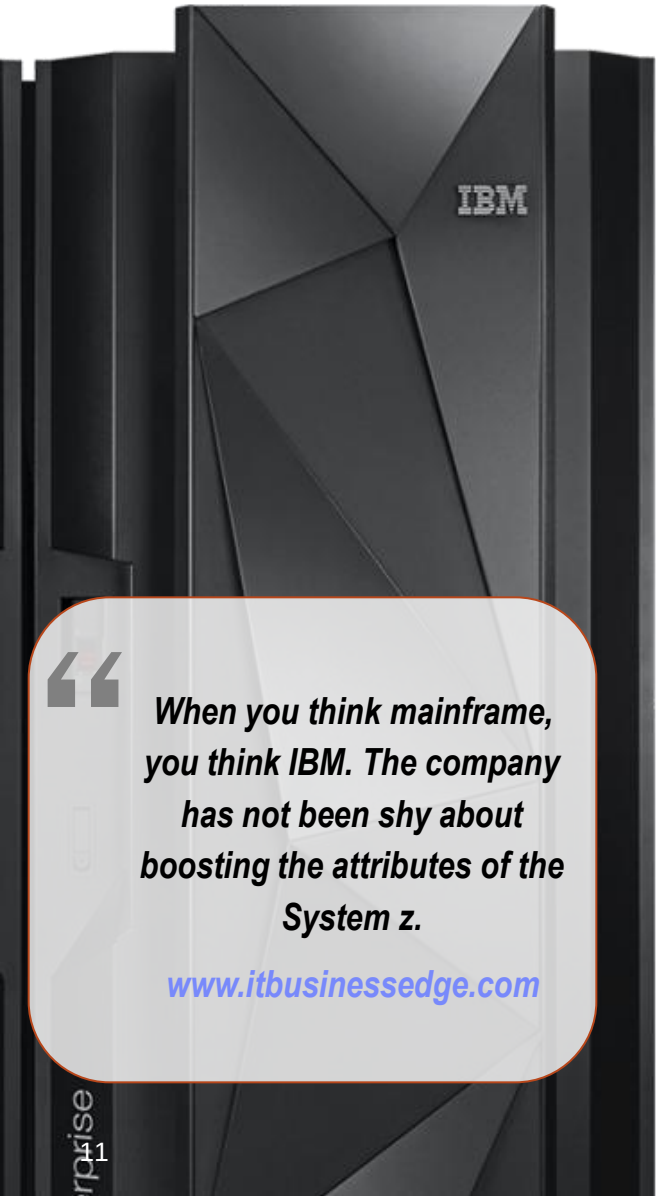
… at the Point of Impact

Forrester said: *“delivering successful BI capabilities goes far beyond just the tools and enabling technologies”*

“BI is a set of methodologies, processes, architectures, and technologies”

Forrester : Enterprise BI Survey Q&A: BI Professionals Recognize The Need To Focus Beyond Tools, March 17, 2009

Much of the data that is accessed for analytics runs on z



> *When you think mainframe, you think IBM. The company has not been shy about boosting the attributes of the System z.*
>
> *www.itbusinessedge.com*

- 2/3 of business transactions for U.S. retail banks run directly on mainframes
- 80% of world's corporate data resides or originates on mainframes
- Businesses that run on System z
  - 25 of the top 25 worldwide banks
  - 23 of the top 25 U.S. retailers
  - 9 of the top 10 global life/health insurance providers
  - 64% of Fortune 500
  - 45% of Fortune 1000
  - 71% of Fortune Global 500
- The System z mainframe can run over a thousand virtual Linux images on a single frame the size of a refrigerator
- 1,300+ ISVs run System z today, with more than 275 of these selling over 800 applications on Linux
- The downtime of an application running on System z equates to approximately 5 minutes per year

Enterprise Information Hub on a Single Integrated Platform

An industry exclusive

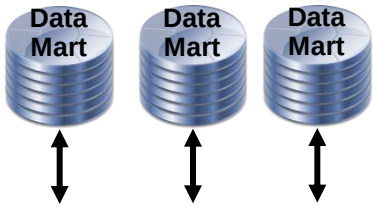
Transaction Processing Systems (OLTP)

Business Analytics

COGNOS

Predictive Analytics

SPSS



Data Mart Consolidation

System z

Recognized leader in workload management with proven security, availability

and recoverability

Analytics Accelerator Powered by Netezza

Recognized leader in cost-effective high speed deep analytics

Together

Bringing transactional & decision support workloads together on a single platform

Best in OLTP & Transactional Solutions
Industry recognized leader for mission critical transactional systems
Best in Analytics
Industry recognized leader in Business Analytics and Data Warehousing solutions
Best in Consolidation
Unprecedented mixed workload flexibility and virtualization providing the most options for cost effective consolidation

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Ask yourselves …

Can you leverage BI across your entire organization ?

Does BI provide you a competitive advantage in business ?

Can you exploit new capabilities quickly – onDemand ?

Are you able to add new users with minimal impact to existing services ?

How reactive are you to changes in the business ?

How reactive is your competitor ?

Does your Infrastructure help or hinder you ?

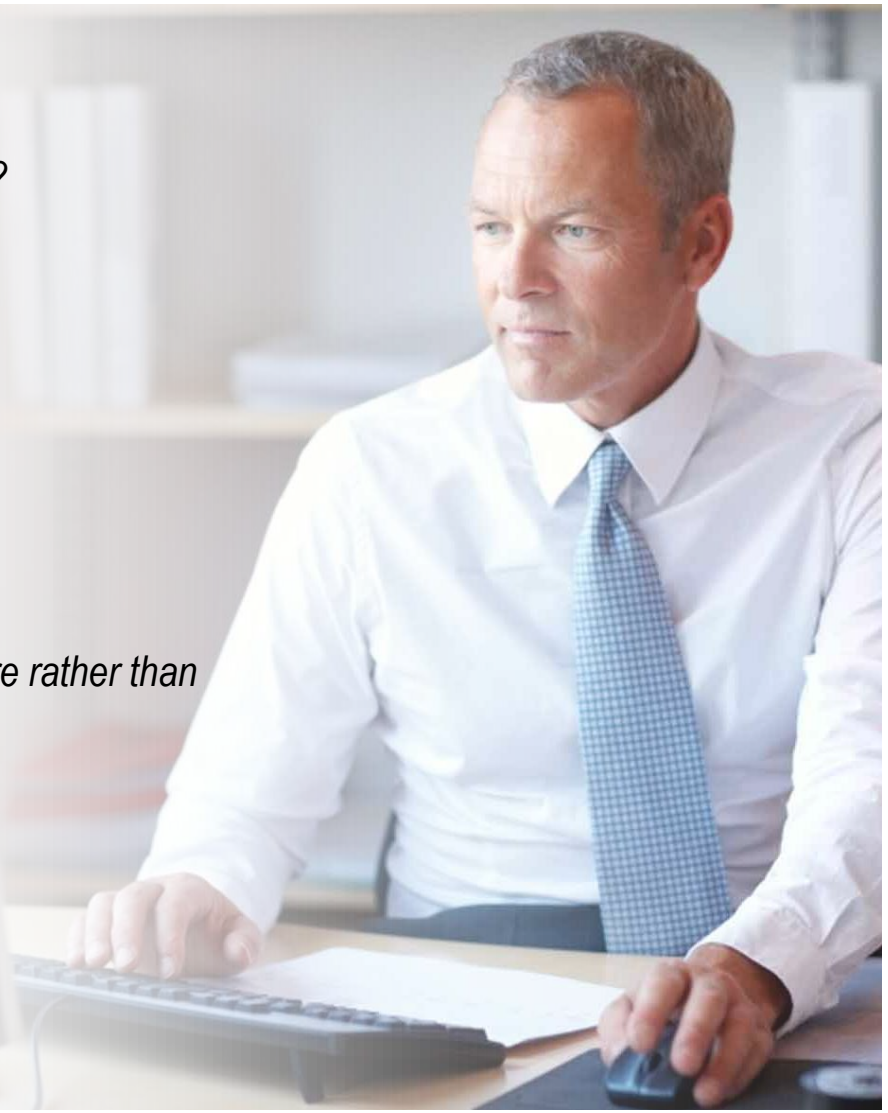
Are your lines of business spending money on infrastructure rather than focusing on business effectiveness ?

Do you know who accesses your information ?

Do you spend too much time maintaining systems ?

Can you provide regulatory information when needed ?

Do you embrace Business Analytics or fear it ?



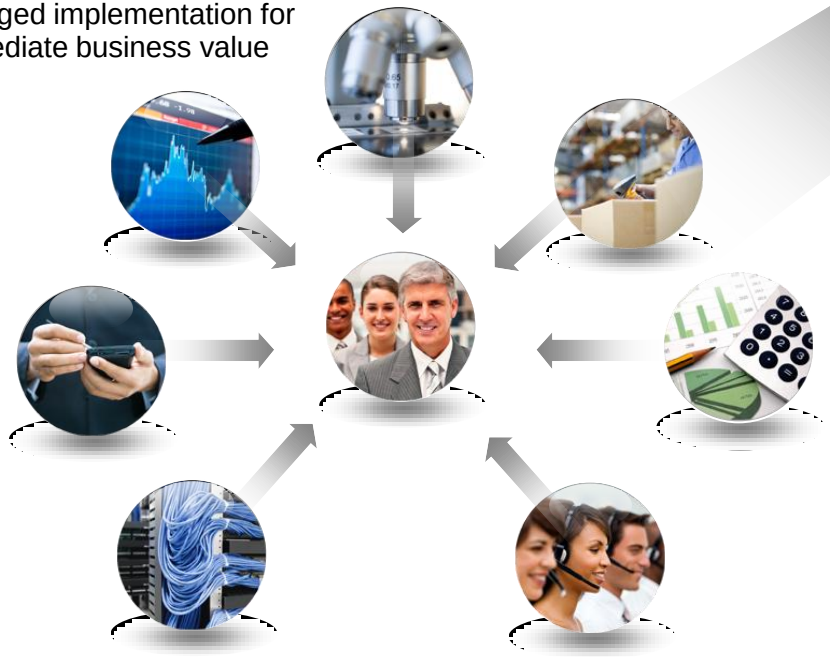
Execute on an *Enterprise Business Analytics Strategy - Deliver on the Promise of BA*

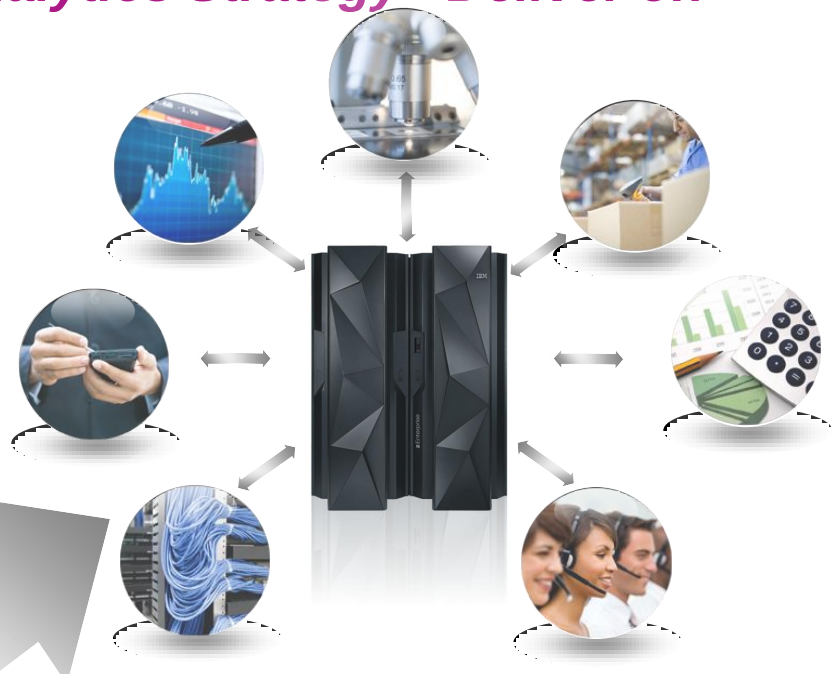
Business Objective

The business recognizes the strategic value of BA and wants to move to an enterprise strategy to ensure they receive the maximum value for the investment.

They are in the process of:

- Building BACC
- Establishing corporate standards
- Exploring the strategy to provide support for a broader user community
  - More users
  - Broader functionality
- While trying to control Costs
- Make better use of corporate data
- A staged implementation for immediate business value





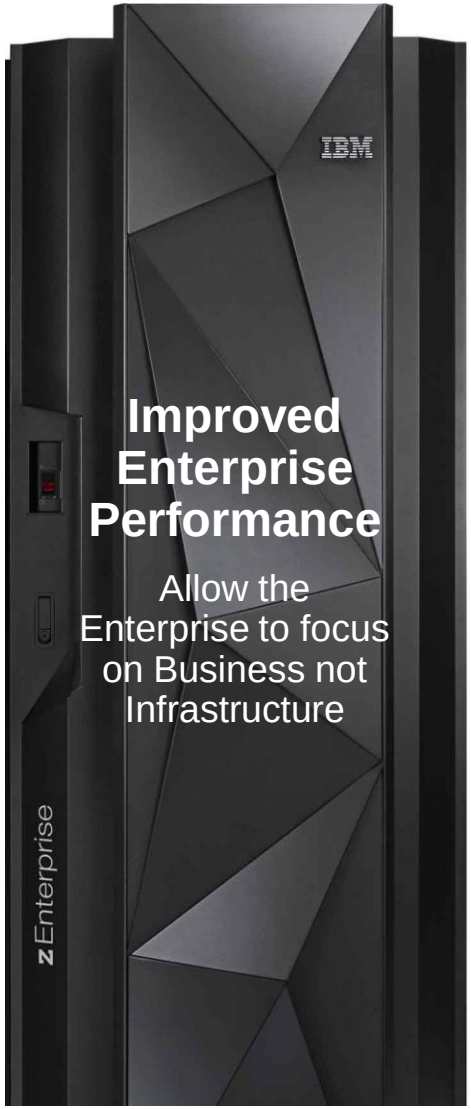
Pain Points

Issue: Current strategy is departmental which is making it difficult for organizations to deliver on the value of BA

- For the amount invested we are not receiving the proportional amount of value one would expect
- The corporate governance and management of data is difficult if not impossible to control
- Users are dissatisfied with performance and availability
- Can't scale to accommodate business demand
- Data quality is questionable
- Users need faster access to transactional data as it is

Analytics Requirements

Requirement	Impact
Linear Scalability Support more users with less infrastructure Have you infrastructure work FOR you	**High Performance** Fast, consistent, predictable
Common Compliance and Process Greater control over system access and ultimate auditability	**Lower Cost Per User** Centralized Utility service being re-used across the Enterprise
Better Security Integration into Common Security Environment Control Access to sensitive data	**Rapid Deployment** Deploy New Services at the Speed of Business
Self Service Model Expand Insight across the Enterprise reach	**Simple Maintenance** Less Provisioning, simpler migration/exploitation of new capability
Service Chargeback Understand who uses BA and charge accordingly	**Reduced Support Costs** Fewer moving pieces
Support Multi-tenancy Allow customers to segregate workload for security or performance	



Improved Enterprise Performance

Allow the Enterprise to focus on Business not Infrastructure

Ask yourselves …

Am I getting current, accurate data ?

Can I take that customer call with confidence knowing I have the right information on hand ?

Can I use my data to effectively position products for my customers when I next contact that customer ?

How effective are my marketing campaigns ?

Will customer x be likely to purchase product y ?

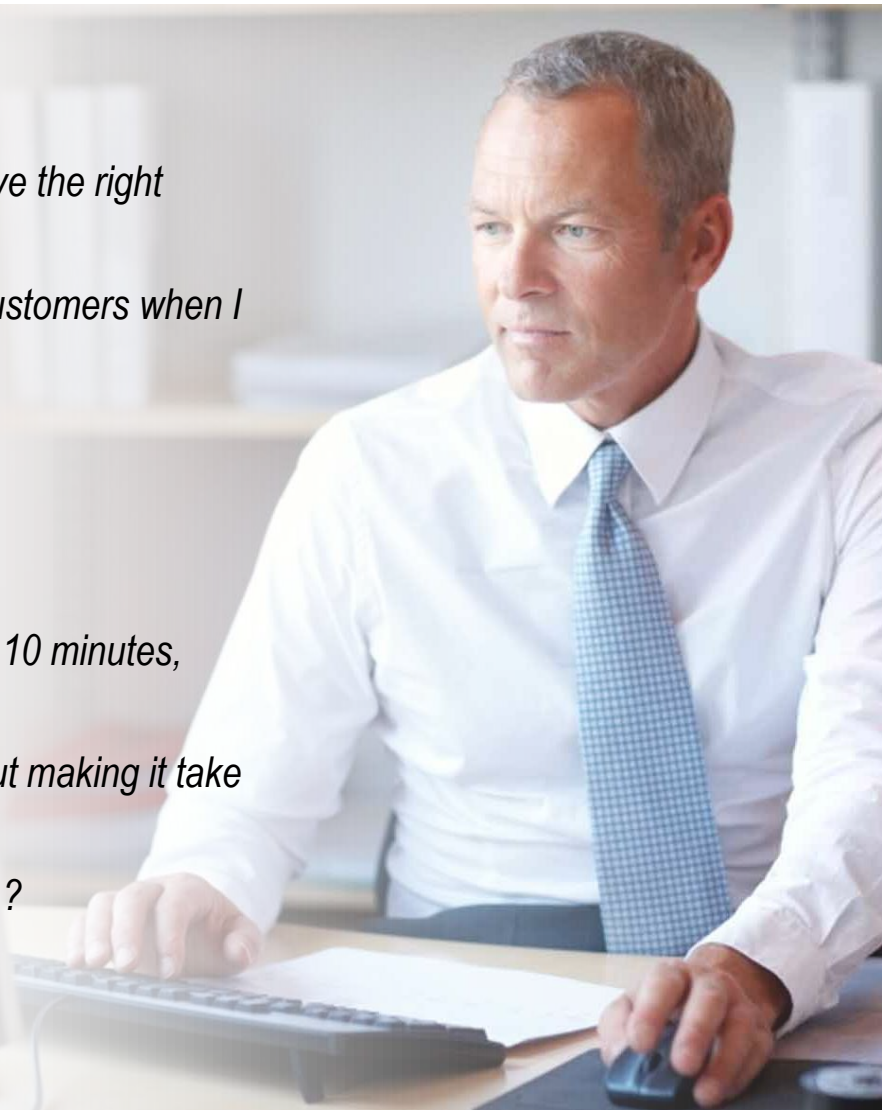
How do I know if that transaction is fraudulent ?

If I see two transactions from this customer in the space of 10 minutes, should I be concerned about fraud ?

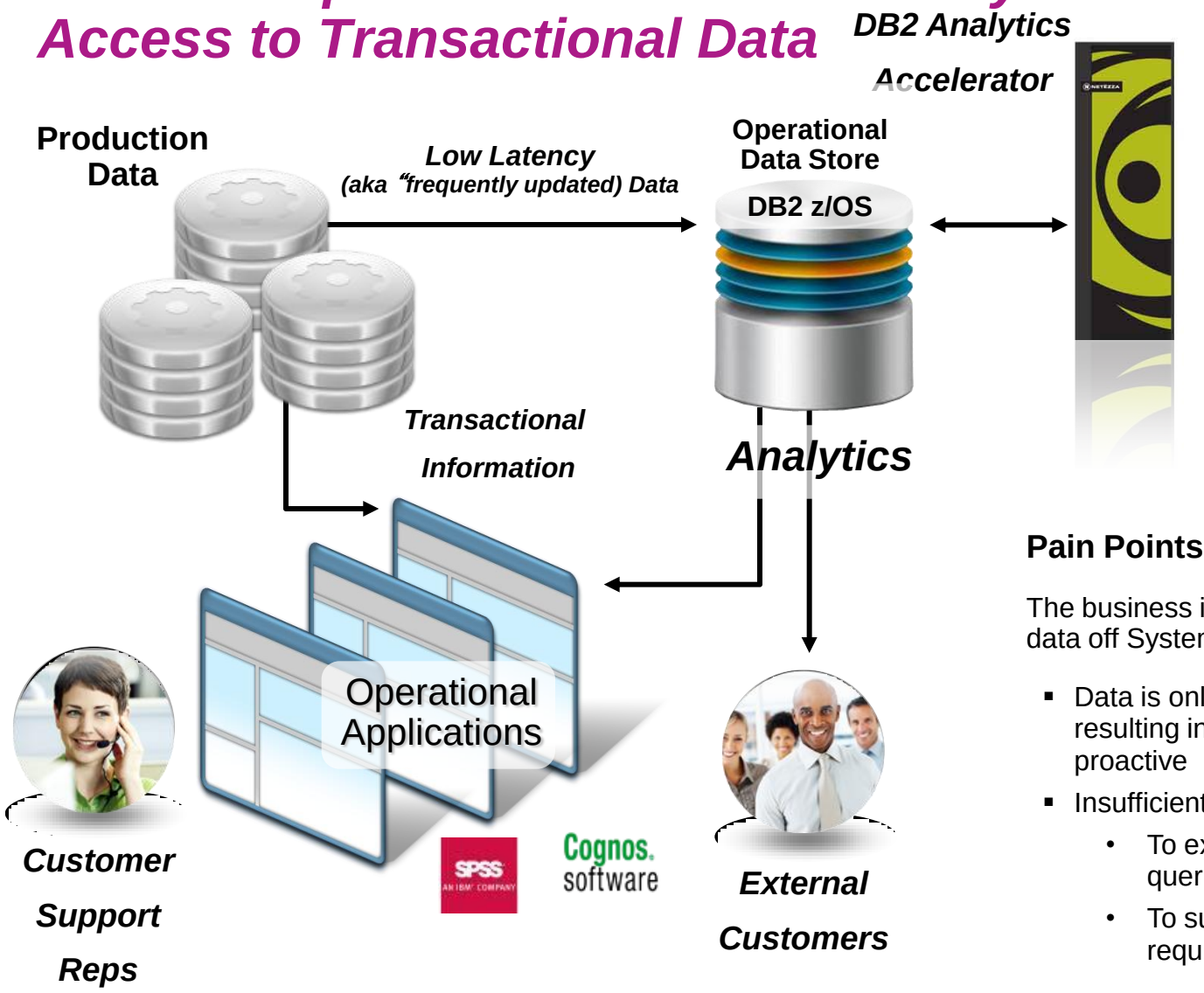
How can I make by analytics request more insightful without making it take longer ?

Can I use my new insight in existing business transactions ?

How can I reduce the latency of my data ?



Invest in *Operational Business Analytics - Faster Access to Transactional Data*



Business Objective

The business needs real-time dynamic, business analytics that delivers visibility and insight into business operations

The business needs:

- Faster data access as it is created
- Guaranteed performance
- High scale with increased user concurrency ratio

Pain Points

The business is currently moving its transactional data off System z to a departmental DW

- Data is only transferred at off peak times, resulting in reactive decision making vs. proactive
- Insufficient processing power
  - To execute complex and/or large queries in a timely manner
  - To support the volume of users required

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Business Intelligence on System z

Cognos Business Intelligence for Linux on System z

- Version
  - Cognos BI v10.2 NEW
- Capabilities
  - Reporting
  - Analysis
  - Dashboarding
  - Real-time Monitoring
  - Business Workspaces
  - Insight
  - Mobile
- Database Support
  - Support for a majority of all corporate data sources

Cognos Business Intelligence for z/OS

- Version
  - Cognos BI v10.2 NEW
- Capabilities
  - Reporting
  - Analysis
  - Dashboarding
  - Business Workspaces
  - Insight
- Database support
  - Support for a majority of all corporate data sources

Moving from Reactions to Predictions

SMART IS

Turning a Call Center in a Profit Center.

A large Dutch financial services company implemented predictive cross selling programs in its call centers. The implementation took 2 months and generated **$30 Million in incremental sales**. Essentially, 1M calls generated 180,000 suggestions, reps made 60,000 offers turning into 30,000 leading to 22,000 sales.

SMART IS

Preventing crime before it happens.

A large city in the US turned to predictive analytics to predict occurrences of crimes in four blocks radius in tranche of 4 hours. Insights led to optimized deployment of police resources **reducing homicides by 35%** year over year, and robberies by 20%.

SMART IS

Turning clients into advocates.

A large Swiss telco provider adopted a client retention approach based on satisfaction. Based on the use of the "Wisdom of Crowds" principle, gathering feedback. The company **reduced churn from 14% to 2%.**

SMART IS

Dramatically lowering the cost of claims.

A large US insurer has embedded predictive analytics in claims handling while maximizing and accelerating the collection of subrogation payment. The company achieved an **ROI of 403% with payback in 3 months**.

Predictive Analytics for Linux on System z

SPSS Statistics for Linux on System z

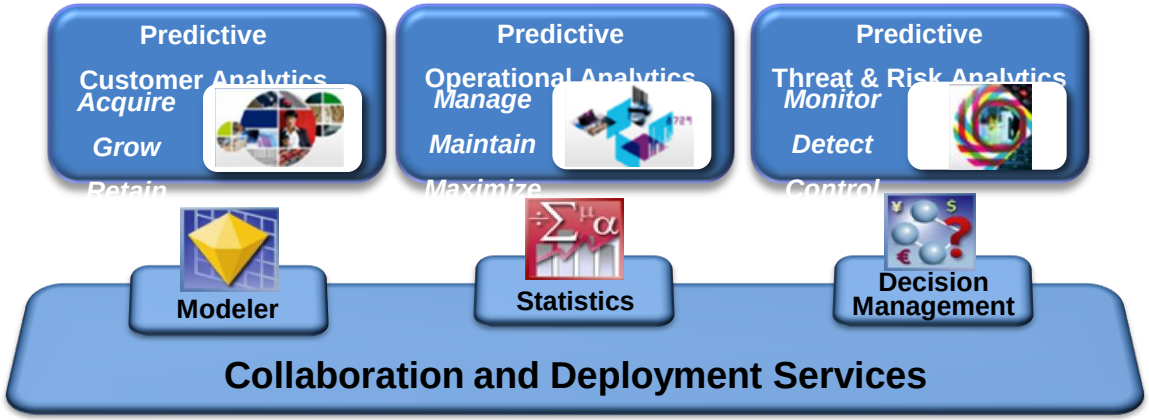
- Version
  - Statistics v20
- Apply math to decision making and research for commercial, government, and academic users

SPSS Modeler for Linux on System z

NEW

- Version
  - Modeler v15
- Data mining tool used for generating hypotheses and scoring
- Text analysis for unstructured data to model consumer behavior
- In-Transaction Scoring with DB2 z/OS

NEW



IBM Delivers New Analytics Technology on System

Scoring DB2 for z/OS data in real time with reduced cost and complexity

NEW

What has IBM delivered?

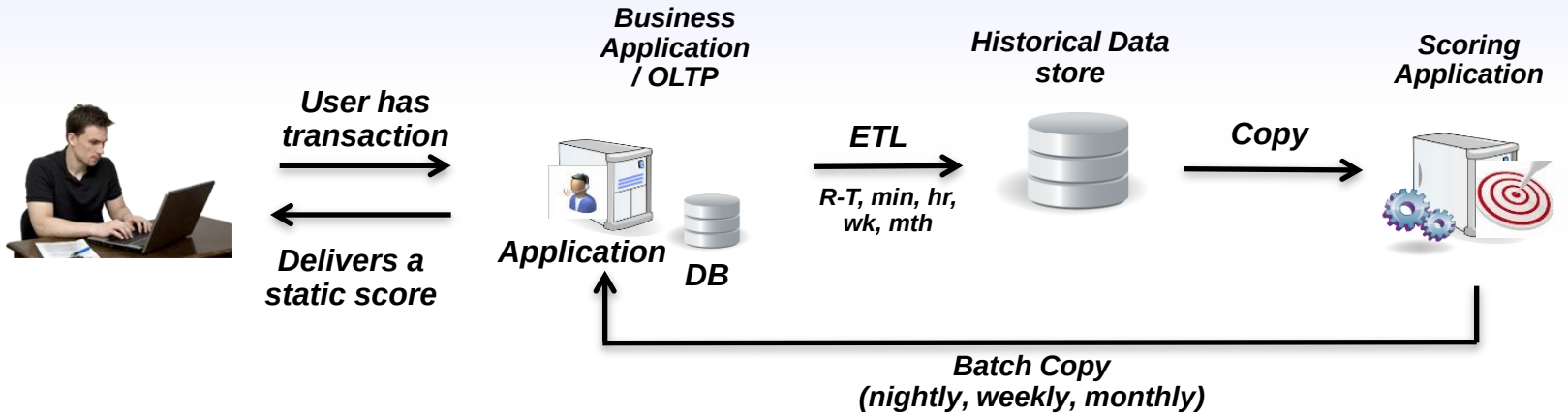
- **Improved speed and accuracy of scoring** in order to drive **better, more profitable decisions and business results**
  - The combination of SPSS Modeler 15 & DB2 for z/OS now enable **in-database scoring** including the **real time scoring of transactional data on System z**
- Service level agreements on par with the OLTP systems
  *general availability June 15th 2012

Why Modeler 15 and System z?

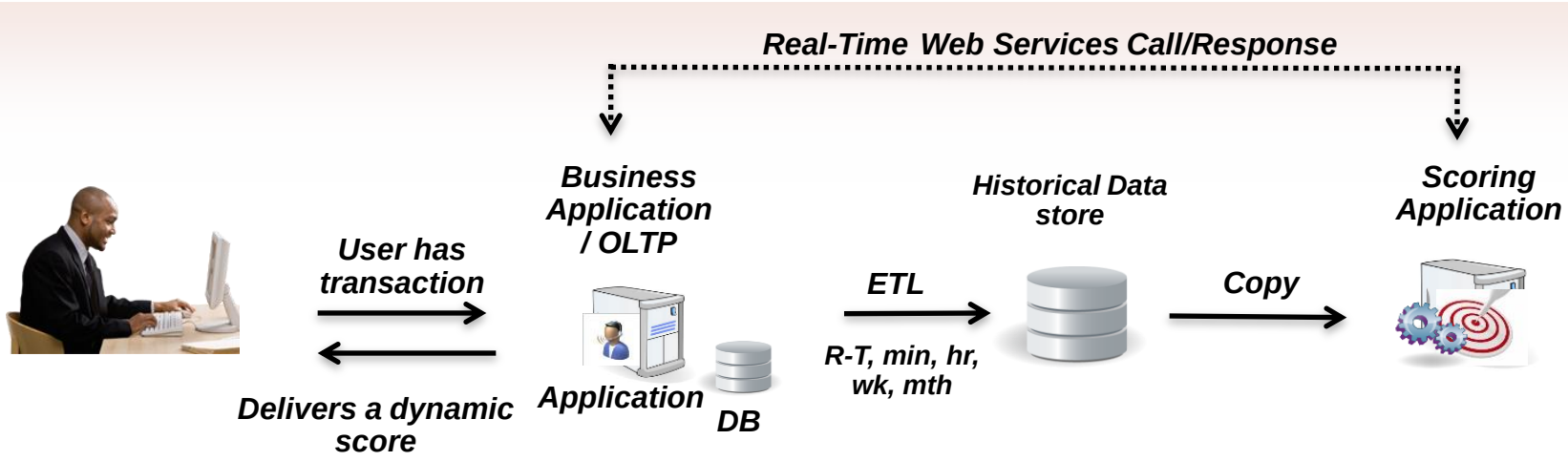
- **Scores the most current data** directly within your OLTP or Data Warehousing applications on System z
  - Provides sub-second response time
  - Reduces data latency
  - Minimizes data movement
  - Scales to large data volumes to improve accuracy of scores
  - Single infrastructure for reduced complexity and redundancy of HW, SW and administration resources
- Applies the same high qualities of service as the OLTP/Business systems
  - Availability, scalability, reliability and performance
- Can automate, continuous real-time updates to the model to improve the quality of the decision
  - Define new patterns faster & more frequently

Scoring Associated with an OLTP Application

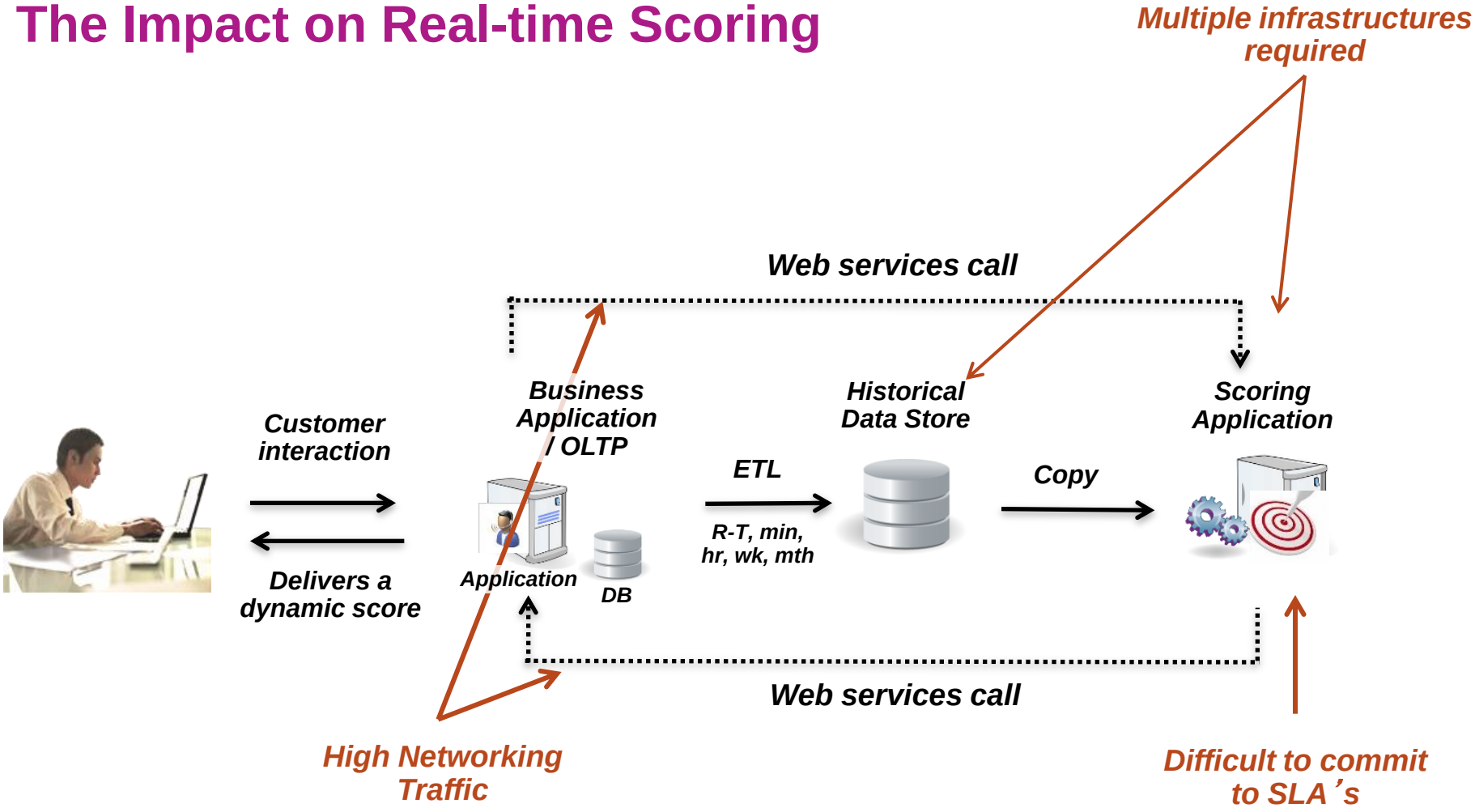
Historical Scoring



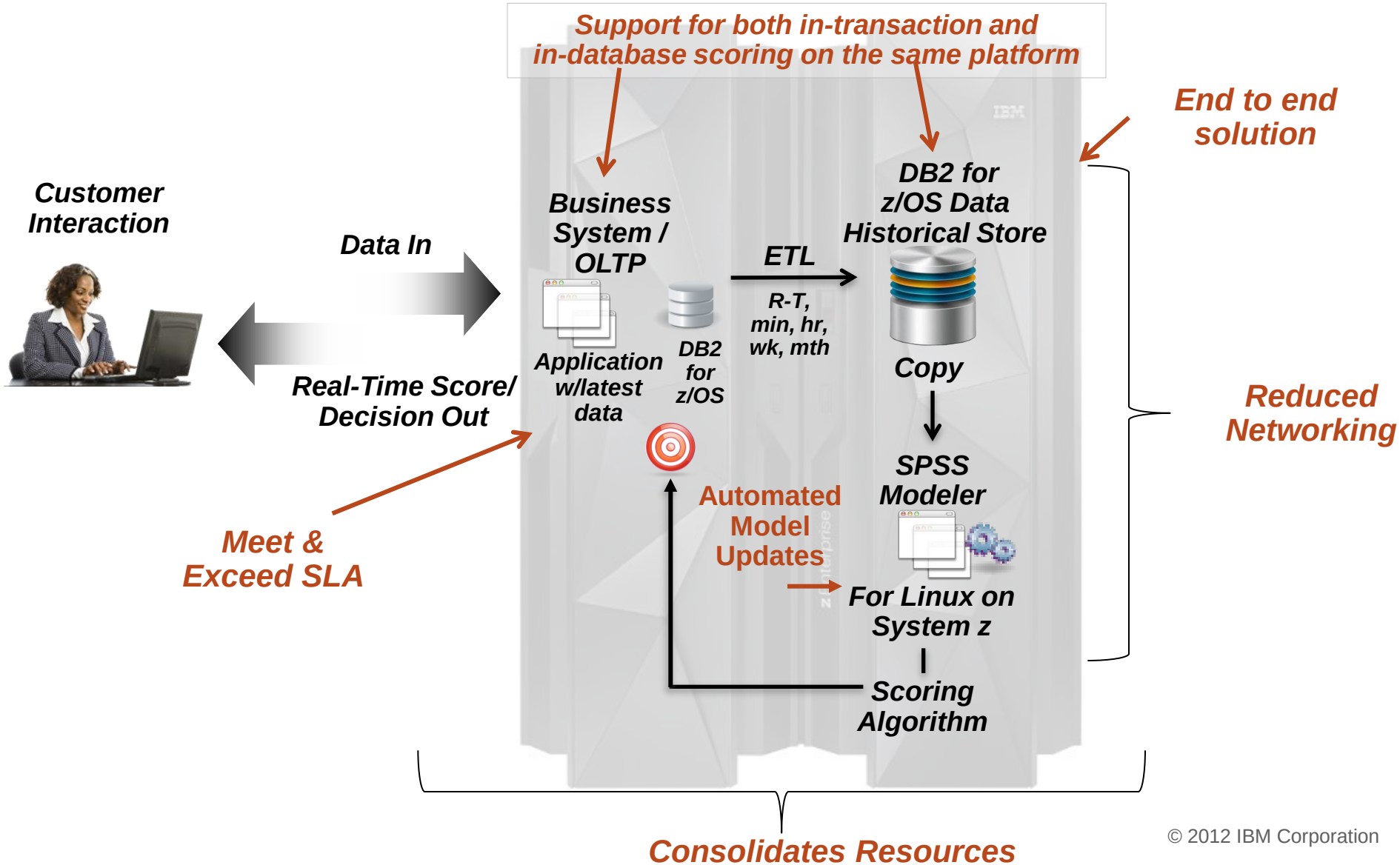
Real-time Scoring



The Impact on Real-time Scoring



Modeler 15 Real-time Scoring with DB2 for z/OS



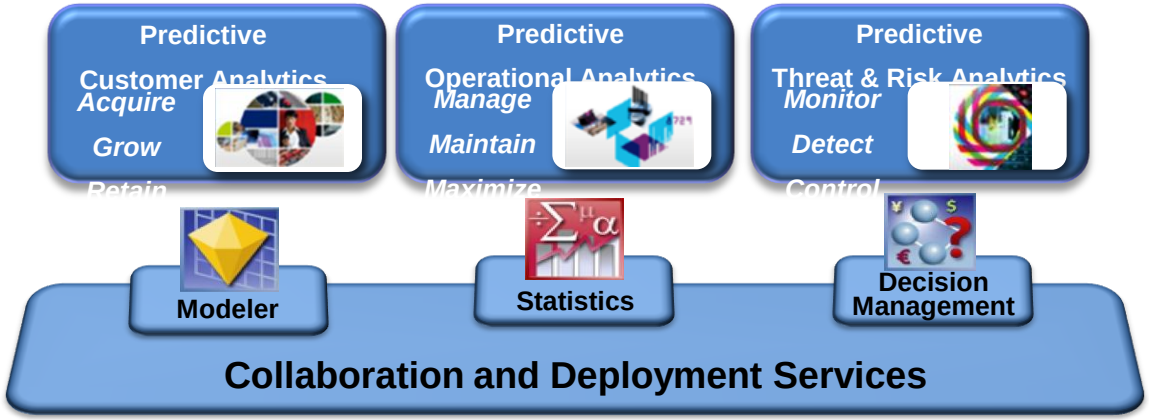
Predictive Analytics for Linux on System z

SPSS Decision Management for Linux on System z

- Version
  - Decision Management v6
- Employs both predictive models and business rules to automatically generate recommended actions

SPSS Collaboration and Deployment Services for Linux on System z

- Version
  - Collaboration and Deployment Server v4.2
- Provides role-based models and security for in scoring, job scheduling, repository services, and integration



DB2 Analytics Accelerator

Accelerating decisions to the speed of business

NEW

Blending System z and Netezza technologies to deliver unparalleled, mixed workload performance for complex analytic business needs.

Get more insight from your data

- Fast, predictable response times for “right-time” analysis
- Accelerate analytic query response times
- Improve price/performance for analytic workloads
- Minimize the need to create data marts for performance
- Highly secure environment for sensitive data analysis
- Transparent to the application

Best Of Breed Components

The Integrated Stack for System z

Global Name Recognition

Cognos BI

QMF

SPSS

Guardium

InfoSphere Industry Models

InfoSphere MDM Server

Master Data

InfoSphere Warehouse

Warehouse

Cubing

Mashup

Optim

Information Services Director

Operational Applications

InfoSphere Information Server

Data Quality

ETL

Common Meta Data

Data Synchronization

Operational Source Systems

Structured/ Unstructured Data

Federation

Change Data Capture

Replication Server

Classic Federation

Classic Event Publisher

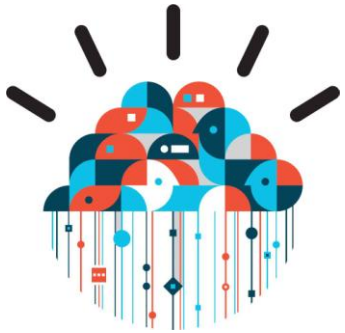
Flexible Deployment Options with System z

zEnterprise Analytics System 9700

- *Integrated solution of HW, SW and services based on the new IBM zEnterprise EC12 platform*
- *Enables customers to rapidly deploy cost effective game changing analytics across their business.*

zEnterprise Analytics System 9710

- *Integrated solution of HW, SW and services based upon the zEnterprise 114 platform*
- *Delivers the quality of service of System z at an entry level cost*



IBM Smart Analytics Cloud

- *IBM Smart Business - services with industry leading hardware & software*
- *A private cloud computing solution for business intelligence (BI) & analytics*

IBM Smarter Analytics Signature Solutions

IBM Smarter Analytics Signature Solution for Healthcare

- Uses sophisticated analytics to help healthcare payers quickly and easily uncover new fraudulent schemes, recognize patterns of non-compliant behavior and identify providers or consumers that are likely to commit fraud.
- Integrated Solution built on an IZAS 97xx base
- Built with Cognos, DB2 z/OS and SPSS Modeler.
- https://w3-03.sso.ibm.com/sales/support/ShowDoc.wss?docid=ZSS03070USEN&appname=w3skm

IBM Smarter Analytics Signature Solution for anti-fraud, waste and abuse

- Helps detect suspicious transactions prior to payment, reduce loss from overpayments, and recommend method of intervention
- Integrated Solution built on an IZAS 97xx
- Built with Cognos, DB2 z/OS and SPSS Modeler.
- https://w3-03.sso.ibm.com/sales/support/ShowDoc.wss?docid=GBS03128USEN&appname=w3skm

IBM Smarter Analytics Signature Solution for next best action

- Helps organizations gain a comprehensive view of a customer, derived from traditional enterprise data and customer sentiment gleaned from social networks, logged customer service interactions and web click stream data
- Integrated Solution built on an IZAS 97xx base
- Built with Cognos, DB2 z/OS and SPSS Modeler.
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Customer Implementations

CHARTIS	Chartis have implemented Cognos BI to support their financial reporting environment. They installed on IFLs and were up and running rapidly. Cognos BI on zLInux is now underpinning a greater AIG service standardization rollout.
MIAMI-DADE COUNTY	Miami Dade use Cognos on Linux for System z to consolidate all their BI services for the county. The rapidly implemented Cognos from a distributed platform and rolled out new services and capabilities to over 3000 users. This adoption won the county a North America Technology Innovation award.
Daimler Trucks North America	Freightliner are running Cognos BI on Linux for System z in production and have just upgraded from v8 to v10. They use Cognos to provide BI services to their external business partners.
Marriott HOTELS · RESORTS · SUITES	Marriott had a significant investment and in-house expertise in Cognos. The move to IBM Cognos 10 is to support three key applications: SRW Mobile Reporting, eCommerce and Consolidated Inventory. IBM Cognos 10 provides interfaces to Netezza, SPSS Modeler and IBM Connections, all used by Marriott. They will benefit by saving on redundant administrative and license costs by using a single enterprise reporting platform, including Linux on System z.
sdworx Result driven HR	SD Worx (Belgium) are implementing Cognos on Linux for System z to scale and existing Cognos/Wintel/SQL Server app. They saw an order of magnitude reduction in the processing time for complex SQL Server powercubes.
中国银行 BANK OF CHINA	Bank of China are implementing Cognos on z/OS to front end WBI-FN applications. Also adopting a Capacity Management solution with Cognos on z/OS rather than SAS/MXG.

Customer Implementations (continued)

…A large Data Processing company on the US East Coast have rationalized their BI environment, consolidating servers onto the biggest IFL installation worldwide. They currently have Cognos 10.1.1 with iPad support rolled out to 30,000+ employees using data on z/OS and distributed platforms.

… private bank in Switzerland generates business-intelligence reports in less than a day and delivers business insight across its enterprise more quickly than before when it implements an enterprise data warehouse environment based on an IBM Information Management data server, IBM Cognos software and IBM Integrated Facility for Linux processors.

… another leading player in energy production, electricity and the oil industry in Europe are implementing Cognos. They are a conglomerate of companies with production operations in crude oil, refining, and the distribution of the refined product to more than 4,100 service stations throughout Italy. Part of this Cognos z/Linux project consists in migrating from Business Objects on distributed systems to overall consolidation effort of their BA/BI to Cognos for Linux on System z.

A construction company in the US currently has 3 IFLs deploying HATS and in the ELA they wanted the flexibility with the Linux on z part numbers to run software on the IFLs in the future. They are currently deploying Cognos on open systems yet have a strategic direction to deploy more applications on the IFLs. Their North America ERP application is running on z/OS and the close proximately to that data through Cognos on the IFLs would enhance response time and reduce the amount of CPU overhead from moving data on and off of the mainframe today.

IBM Blue Insight

Selects System z platform to deploy an internal Private Analytics Cloud

Project Scope

- 230K named users world-wide
- 390 distinct Cognos BI reporting projects
- 250 data sources - DB2, PowerCube, XML, pSeries, zLinux, z/OS
- 1.7 million reports delivered in Q3 2011
- The team – Operations team of 9 BACC support and 10 infrastructure
- Single instance of Cognos on 1 z box for production, using multiple zLinux guests

Value to the Business

- **Hard cost savings**
  $25 Million over 5 yrs
  - People: 30% - more efficient use of resources, less duplication
- **Infrastructure**
  50% - hardware, software, facilities
  - Common Process: 20% - common boarding, communication and practice

- **Soft cost savings**
  10´s of $M already
  - Cost avoidance
  - Each new project solution requiring analytics is saving
  - Reduced technical and business team solution churn
  - Improved resource flexibility

- **Value Generation**
  10´s of $M already
  - Better business decisions
  - Channel segmentation of sales opportunities
  - WW Cash management
  - Commodity purchase optimization

> *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*

Miami-Dade County

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

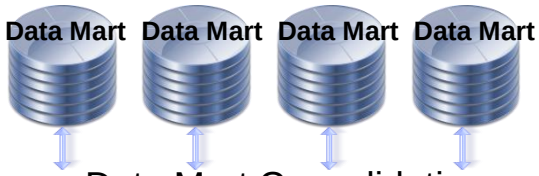
- Deployed rapidly from a distributed model to a System z environment in just over a week
- Reduced complexity and cost of Business Intelligence deployments by consolidating onto a single platform
- Consolidated multiple disparate data sources onto a single platform to enhance ROI
- Significantly improved availability and disaster recovery capabilities

> *"We are now able to expand the usage of our Business Intelligence reporting. We 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*

Agenda

- **Smarter Analytics Landscape**
  - Growth of Analytics Requirements
  - Capabilities Required to support the Business
  - Using Analytics to improve Business performance
- **Customer Challenges to leveraging Business Analytics**
- **Business Intelligence and Predictive Analytics Portfolio**
  - What are the capabilities and solutions
- **Customer Examples and Success Stories**
  - Who is doing this today, what were the key advantages
- **Summary**

The Ultimate Consolidation Platform



Data Mart Consolidation

Transaction Systems (OLTP)

Data Warehousing
Business Intelligence
Predictive Analytics

System z PR/SM

Recognized leader in mixed virtualization and workload isolation

z/OS:

Recognized leader in mixed workloads with security, availability

and recoverability

DB2 Analytics Accelerator/Netezza *: Recognized leader in cost-effective high speed deep analytics*

Together:

Destroying the myth that transactional and decision support workloads have to be on separate platforms

Bringing it all together

- *Better Business Response*
- *Reduced Costs*
- *More Available*
- *More Secure*
- *Reduced Data Movement*
- *Better Governance*
- *Reduced Data Latency*
- *Reduced Complexity*
- *Reduced Resources*

IBM 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

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

Analyst Reports

- Independent Assessment: "IBM System z case study: Florida Hospital"
  - ftp://submit.boulder.ibm.com/sales/ssi/ecm/en/zsc03116usen/ZSC03116USEN.PDF
- Clabby Analytics - Choosing IBM zEnterprise for Next Gen Business Analytics Applications
  - ftp://submit.boulder.ibm.com/sales/ssi/ecm/en/zsl03159usen/ZSL03159USEN.PDF
- Predictive Analysis on zEnterprise
  - http://dancingdinosaur.wordpress.com/2012/01/09/predictive-analysis-on-zenterprise

Redbooks

- Co-locating Transactional and Data Warehouse Workloads on System z
  - http://www.redbooks.ibm.com/abstracts/sg247726.html?Open
- IBM Smart Analytics Cloud
  - http://publib-b.boulder.ibm.com/abstracts/sg247873.html?Open
- IBM SPSS predictive analytics: Optimizing decisions at the point of impact
  - http://w3.itso.ibm.com/abstracts/redp4710.html?Open

Other

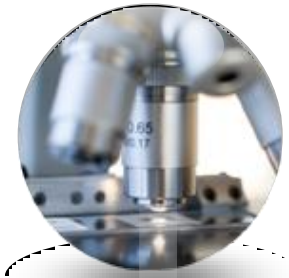
- Total Cost of Ownership Study
  - http://public.dhe.ibm.com/software/data/sw-library/cognos/pdfs/whitepapers/wp_the_new_alternative_for_leveraging_the_power_of_business_intelligence.pdf

Thank You

Current State of Affairs:
Execution by Department

What's hindering success?

Growth = **re-engineering**



Each depart. needs to finance & acquire the HW, SW admin, facilities, training & support to meet demand

Insufficient processing power to support large or complex queries

Duplicate environments needed for development, test, production, high availability are multiplied over applications and lines of business

Servers are run at **sub-capacity**

Complexity of **multiple infrastructures** is impacting effectiveness of DR, admin., audit ability, compliance, etc.,

Data transfer is limited to off peak times

Multiple copies of the data are being created

Inconsistency of **security controls** across duplicated data

How can System z help?

Co-locations of data warehousing, business analytics, transactional data

Reduced **data movement**

Lower latency and **near real time** data

Rapid acceleration of complex queries

High **security** (EAL5)

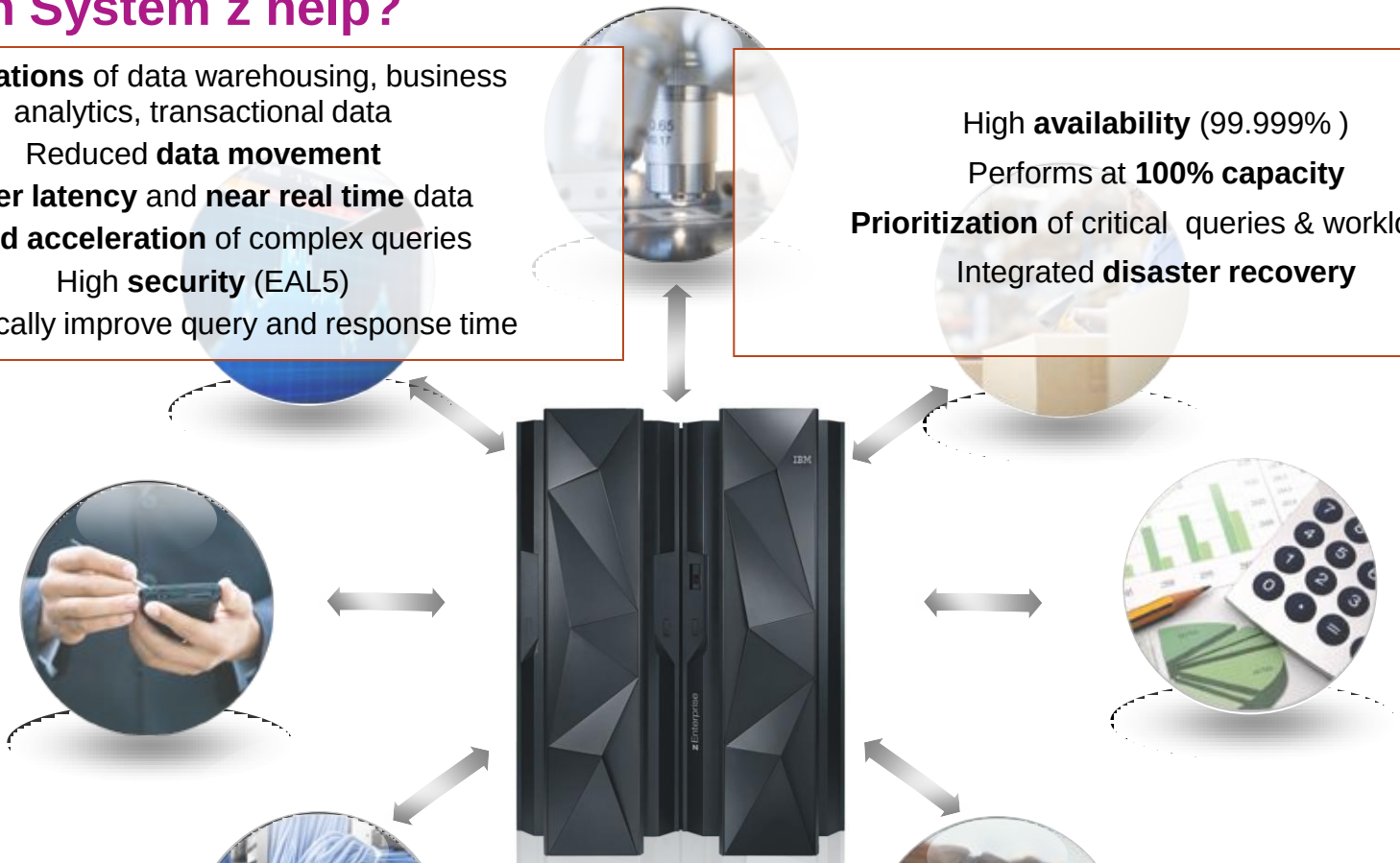
Dramatically improve query and response time

High **availability** (99.999%)

Performs at **100% capacity**

Prioritization of critical queries & workloads

Integrated **disaster recovery**



Processors, disk, memory added dynamically without outage

Pre-install then activate as needed

Flexible deployment options

Centralized, scalable infrastructure

Virtualization

Start with your **final architecture**

IBM zEnterprise Analytics System 9700

Mixed Workloads for Next Generation Business Analytics

An integrated solution designed and tested to

support rapid deployment of business analytics across the enterprise

Analytics Infrastructure

in-a-box

Preselected

Pretested

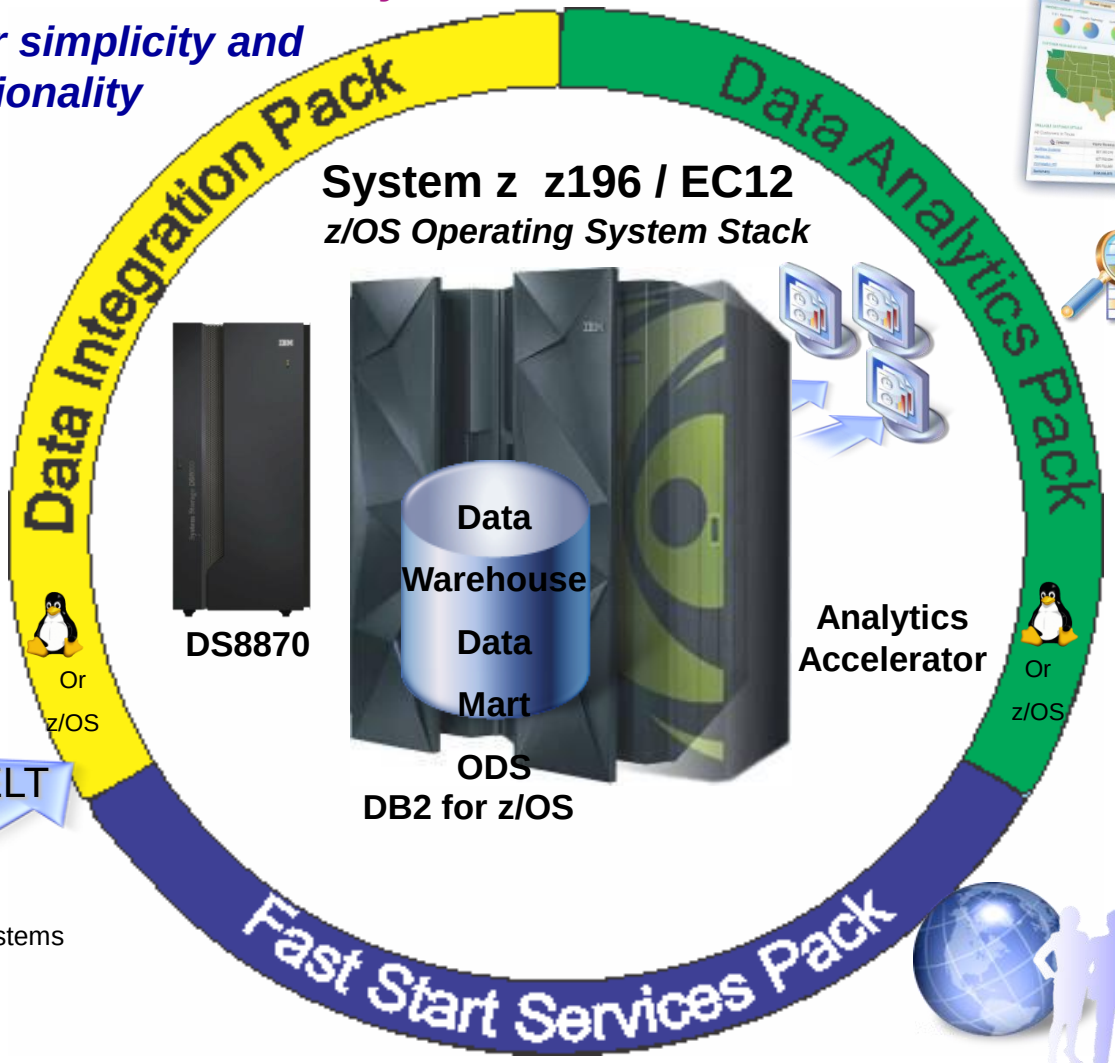
Solution Priced

- ***Integrated offering of hardware, software, and optional services***
- ***Secure, Available Business Analytics***
- ***Simplified administration***
- ***Optimized software stack***
  - ***OS, DB2, Utilities, InfoWarehouse, Cognos, SPSS***
- ***Plus optional IBM implementation and optimization services***
- ***Single phone number for support***

IBM zEnterprise Analytics System 9700

Flexibility in Critical Data Decision Systems

Organized for simplicity and functionality



IBM zEnterprise Analytics System 9710

Cost Effective Critical Data Decision Systems

Organized for simplicity and functionality