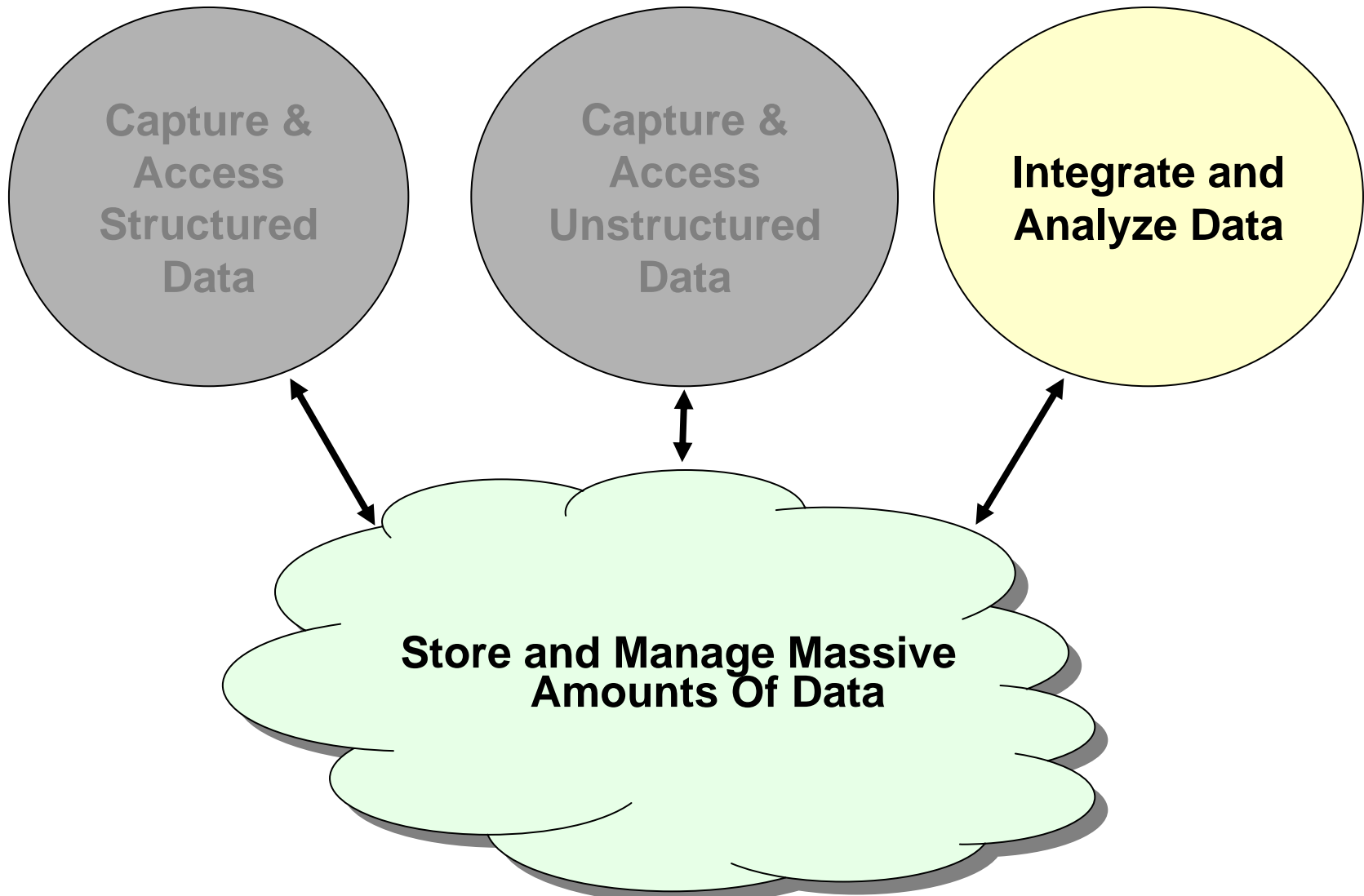# System z Enables Solutions For A Smarter Planet

Utilizing IBM Information Management Software And System z To Make Smarter Business Decisions

New Intelligence Can Deliver Even More Business Value

Capture & Access Structured Data

Capture & Access Unstructured Data

Integrate and Analyze Data

Store and Manage Massive Amounts Of Data

Using New Intelligence Creates New Business Opportunities

We have an opportunity to identify risky assets and remove them from our books

We already know the mortgages that have defaulted.

We need to predict which ones will default in the future

Service Oriented Finance CEO

Mortgage Line of Business VP

Service Oriented Finance Needs To Leverage Customer Data Across All Lines Of Business

We could identify risky mortgages by looking at negative events in other areas

- ▶ **Bounced Checks**
- ▶ **Missed Credit Card Payments**
- ▶ **Missed loan payments**

We have the data but it is in different databases in different locations
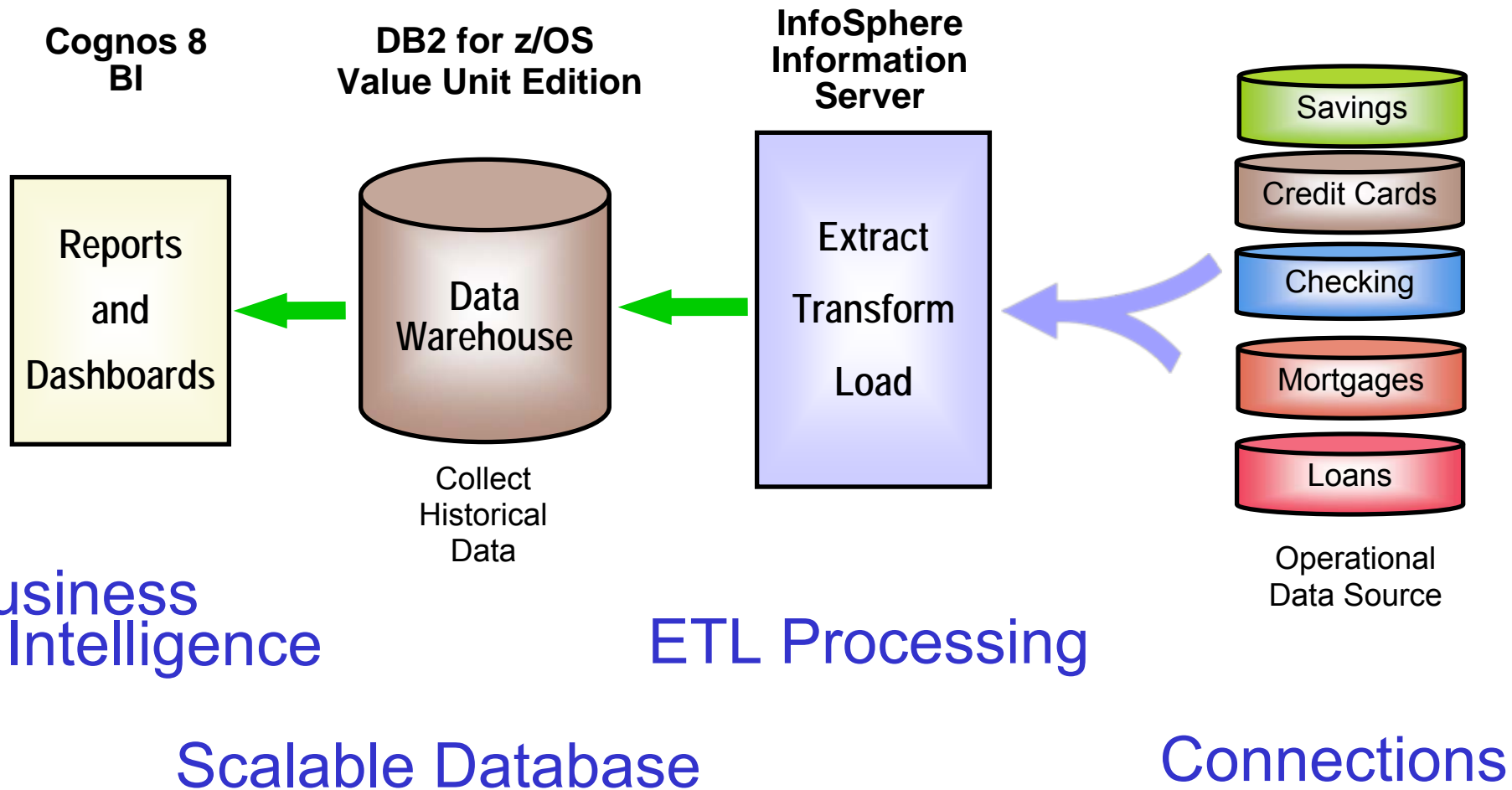
Mortgage Line of Business VP

Service Oriented Finance CIO

Service Oriented Finance Needed A Complete View Of Their Customers

- **Problem**: Segmented Lines of Business looked at their customers from an isolated perspective

  - ▶ Savings, Checking, Mortgage, Consumer Loans

- **Problem**: Needed to identify customer trends that spanned Lines of Business

- <u>**Solution**</u>: Created new intelligence by building a corporate data warehouse, where data could be analyzed in an aggregate fashion

Create New Intelligence With IBM Information Management Software

Cognos 8 BI

DB2 for z/OS Value Unit Edition

InfoSphere Information Server

Reports and Dashboards

Data Warehouse

Collect Historical Data

Extract Transform Load

Savings

Credit Cards

Checking

Mortgages

Loans

Operational Data Source

Business Intelligence

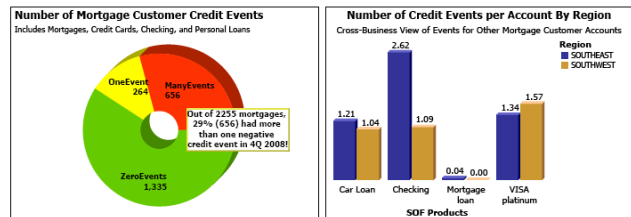ETL Processing

Scalable Database

Connections

Demo: Identify Risky Mortgage Accounts Using Cognos 8 BI

1. Show report generated in Cognos Report Studio in PDF format
2. Report identifies high-risk mortgages by looking at negative credit events in customers other SOF accounts (CC, Checking, etc…)
3. Report uses both structured and unstructured data (link to mortgage data stored in FileNet)

- At risk customers are identified and contacted to refinance

- Risky Mortgages can be sold

Industry Data Models Help You Get Started

That report is just what we need!

Where do we start?

IBM industry data models can help you get started quickly.

Mortgage
Line of Business
VP

Service Oriented Finance
CIO

IBM

IBM Industry Data Models Accelerate Your Data Warehouse Solution

- **Industry Data Models are:**
  - ▶ Best practices from over 400 IBM clients
  - ▶ Built on InfoSphere Information Server and InfoSphere Data Architect

- **Industry Data Models include:**
  - ▶ Enterprise Data Warehouse (EDW) Model
  - ▶ Business Terminology Data Model
  - ▶ Business Solution Templates (BST)

- **Industry Data Model Business Benefits**
  - ▶ 83% report their Data Warehouse is better aligned with business needs
  - ▶ Over 50% report that businesses are now getting the information they want

- **Industry Data Model Development Benefits**
  - ▶ 15-20% cost savings to build the warehouse
  - ▶ 20-25% decrease in the time spent in design phase
  - ▶ 30-40% decrease in time spent in the modeling phase

- Source Hurwitz

IBM Industry Data Models for Many Enterprises

Banking
(Banking Data Warehouse)

- Profitability
- Relationship Marketing
- Risk Management
- Asset and Liability Mgmt
- Compliance

Financial Markets
(Financial Markets Data Warehouse)

- Risk Management
- Asset and Liability Mgmt
- Compliance

Health Plan
(Health Plan Data Warehouse)

- Claims
- Medical Management
- Provider and Network
- Sales, Marketing and Membership
- Financials

Insurance
(Insurance Information Warehouse)

- Customer centricity
- Claims
- Intermediary Performance
- Compliance
- Risk Management

Retail
(Retail Data Warehouse)

- Customer centricity
- Merchandising Management
- Store Operations & Product Mgmt
- Supply Chain Management
- Compliance

Telco
(Telecommunications Data Warehouse)

- Churn Management
- Relationship Mgmt & Segmentation
- Sales and Marketing
- Service Quality & Product Lifecycle
- Usage Profile

DB2 For z/OS Is An Excellent Foundation For Your Data Warehouse

- **Superior scalability due to System z sysplex exploitation**

- **Parallel queries, Materialized Query Table, Star Join Enhancements optimize performance**

- **Near continuous on-line availability**

- **System z I/O bandwidth benefits warehouse performance**

- **Data compression beats Oracle**

- **Proven security**

- **zIIP exploitation achieves lowest cost**

- **Benefit from built-in storage virtualization**

Rapid Data Integration With InfoSphere Information Server

Data Integration has many complexities, connectivity, performance, time constraints how can we approach data integration holistically?

IBM has a consolidated platform that overcomes the difficulties of data integration, let me tell you about InfoSphere Information Server

Service Oriented Finance CIO

IBM

A Consolidated Platform To Integrate Data
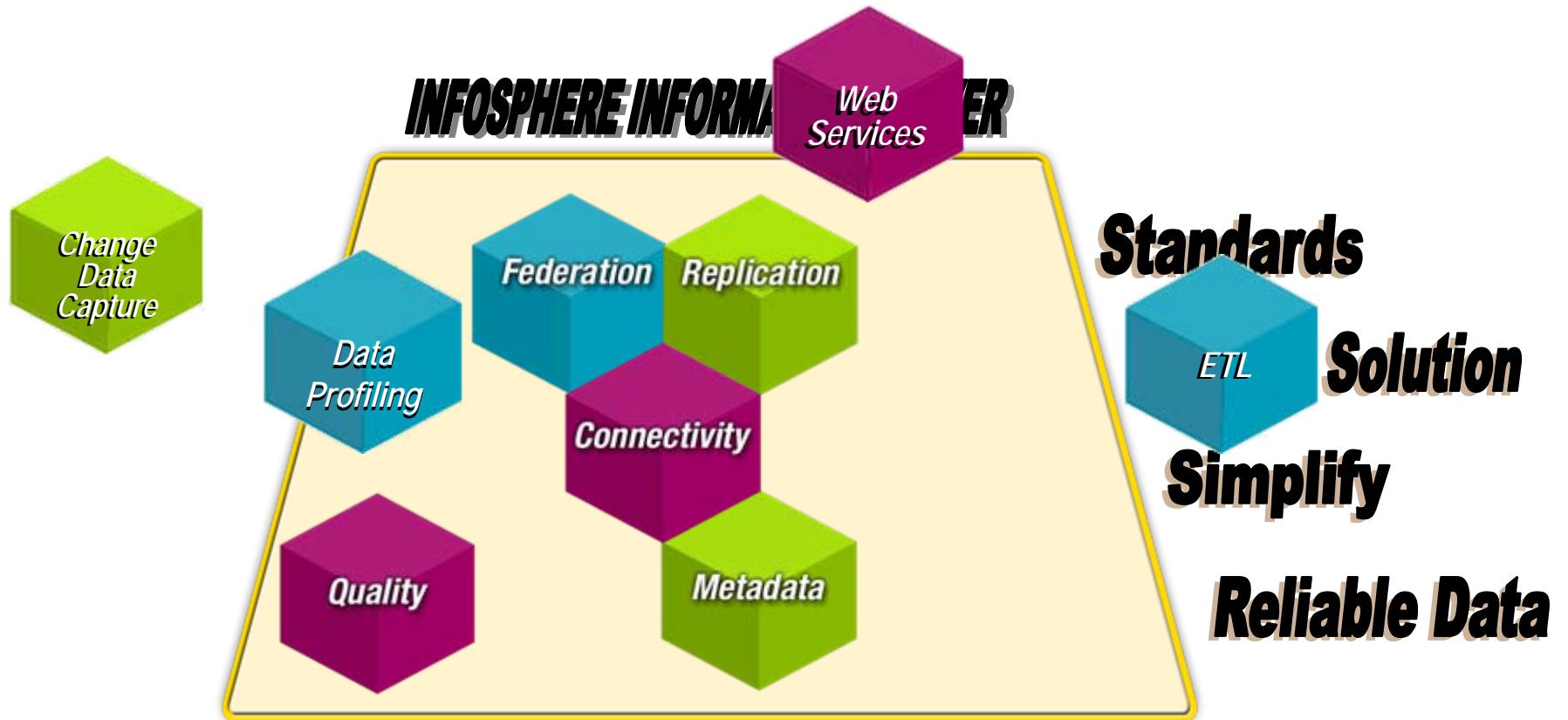
IBM InfoSphere Information Server

A consolidated platform that delivers services to integrate data

IBM InfoSphere Information Server for System z

Understand	Cleanse	Transform	Deliver
Discover, model, and govern information structure and content	Standardize, merge, and correct information	Combine and restructure information for new uses	Replicate, virtualize and move information for in-line delivery

Platform Services

Parallel Processing Services	Connectivity Services	Metadata Services	Administration Services	Deployment Services

Extract Transform and Load Your Data Warehouse With FastTrack And DataStage

DB2 for z/OS Value Unit Edition

InfoSphere Information Server

Data Warehouse

Extract

Transform

Load

Savings

Credit Cards

Checking

DB2 9.1 for z/OS VUE

Mortgages

Oracle 10g

Loans

SQL Server 2008

Collect Historical Data

Operational Data Source
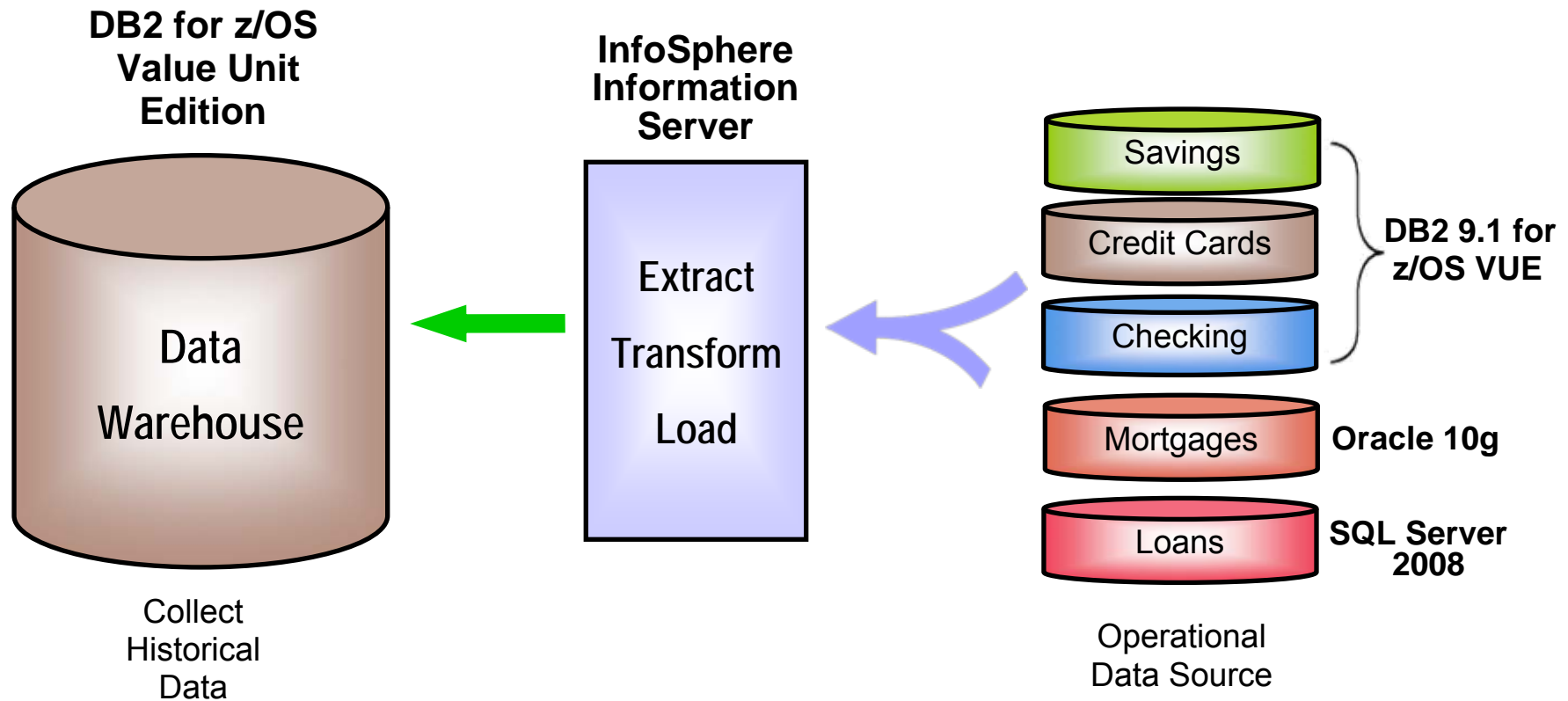
FastTrack Captures Business Knowledge Required For Source To Target Mapping

- **Challenges with traditional ETL job development**
  - ▶ Requirements are typically managed in spreadsheets
  - ▶ Many manual steps that increase time to implementation
  - ▶ Complex ETL jobs that are poorly documented

- **FastTrack makes it easier**
  - ▶ Easily pass data analyst domain knowledge to ETL development team
  - ▶ Utilize Metadata from all Information Server Tools to create trusted Data
  - ▶ Auto-generate DataStage jobs with annotated to-do tasks for developer
  - ▶ Generates Reports and documentation for tracking

Understand
Tag
Data

FastTrack

Business level mapping

DataStage Designer

Implement programming details

DataStage Director

Runs job
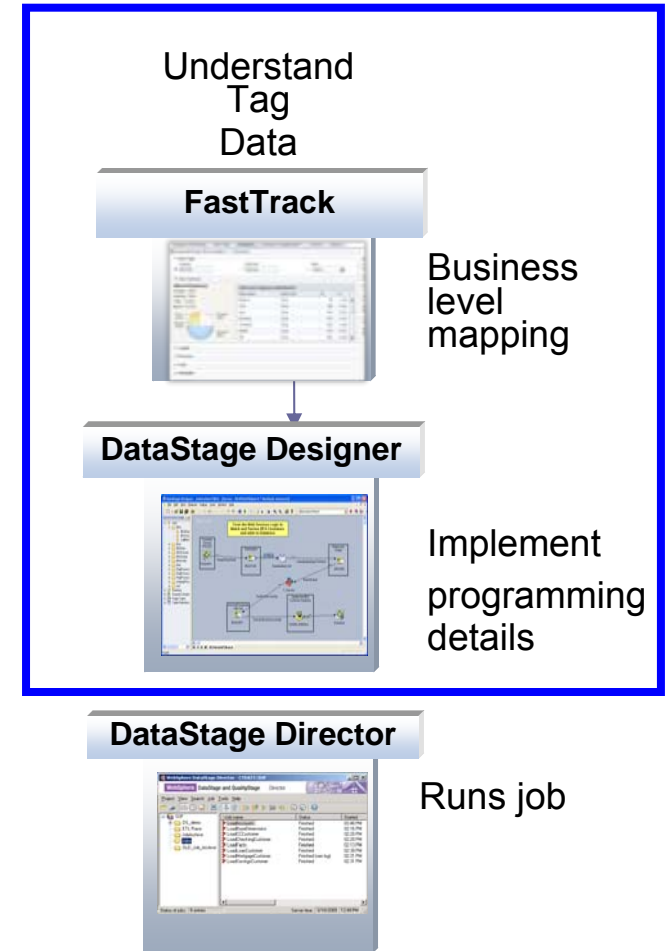
InfoSphere DataStage Creates Executable Extract, Transform And Load (ETL) Jobs

- **Quickly Complete Your ETL Jobs**

  ▶ **Drag and Drop** design tool defines ETL jobs

  ▶ ETL Execution code is automatically generated

  ▶ Test, debug, and deploy job designs

  ▶ Execute, monitor and manage jobs

  ▶ Produce job history reports
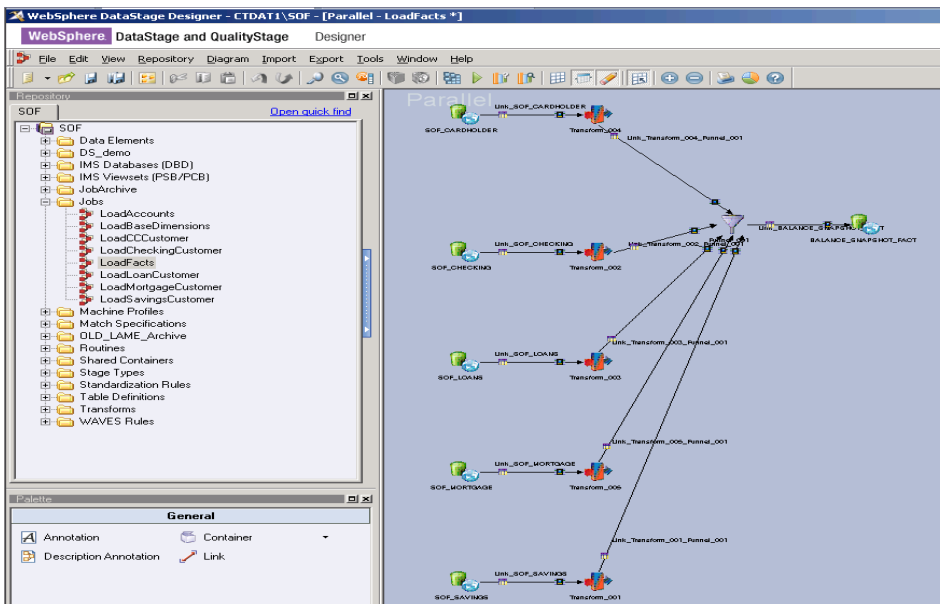
Understand
Tag
Data

FastTrack

Business
level
mapping

DataStage Designer
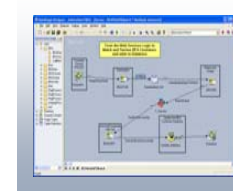
Implement
programming
details

DataStage Director
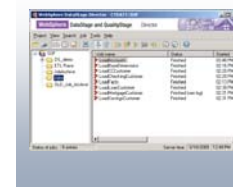
Runs job

InfoSphere DataStage Transforms Data On The Fly

Different field names

Different field order

Add source Identifier

Different field formats

PROD ID	CUST ID	SOURCE ID	QTY	BAL	SALEDATE
000 101	100	01	01	$10,000.00	2009-02-28
000 121	100	01	03	$500.50	2009-02-28
000 102	101	01	01	$ 20,000.00	2009-03-01

Warehouse

000 101   100   01   01 $20,600.50   2009-02-28

Transform

PRODUCT	QTY	CUSTNO	BALANCE	DATE
101	01	100	10000	02/28/09
121	03	100	500.50	02/28/09
102	01	100	20000	03/01/09

Source Data

IBM InfoSphere Information Server Connects To Almost All Sources Of Data

RDBMS
DB2 (on z, I, P or X series)
Oracle
Informix (IDS and XPS)
Ingres
MySQL
Netezza
Progress
RDB
RedBrick
SQL/DS
SQL Server
Sybase (ASE and IQ)
Teradata
Universe
UniData
NonStopSQL
And more…..
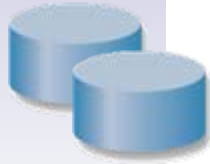
Offering more connectivity than Microsoft or Oracle

General Access
Sequential File
Complex Flat File
File / Data Sets
Named Pipe
FTP
Compressed / Encoded Data
External Command Call
Parallel/wrapped 3rd party apps
EMC InfoMover
Web logs
Unstructured: e-mail, docs, etc.
Content Management Systems
Life Sciences

Enterprise Applications
JDE/PeopleSoft EnterpriseOne
Oracle Applications
PeopleSoft Enterprise
SAS
SAP R/3 and BI
SAP XI
Siebel
JDA
Ariba
Manugistics
I2
And more…

Standards and Real Time
WebSphere MQ
Java Messaging Services (JMS)
Java
XML and XSL-T
EBXML
Web Services (SOAP)
Enterprise Java Beans (EJB)
EDI
FIX
SWIFT
HIPAA

CDC / Replication
DB2 (on z, I, P, X series)
Oracle
SQL Server
Sybase
Informix
IMS
VSAM
ADABAS
IDMS
NonStopSQL
Enscribe

Legacy
Allbase/SQL
C-ISAM
D-ISAM
Datacom/DB
DS Mumps
Enscribe
Essbase
FOCUS
IDMS/SQL
ImageSQL
Infoman
KSAM
M204
MS Analysis
Nomad
Nucleus
RMS S2000
Supra
TOTAL
TurboImage
Unify
And many more….

DEMO: Use FastTrack And DataStage To Load The Data Warehouse

1. **Quickly create source-to-target mappings in FastTrack**
2. **Use terms from Business Glossary to suggest possible mappings**
3. **Automatically generate DataStage ETL job from mappings**
4. **Run DataStage Job to populate data warehouse fact table**
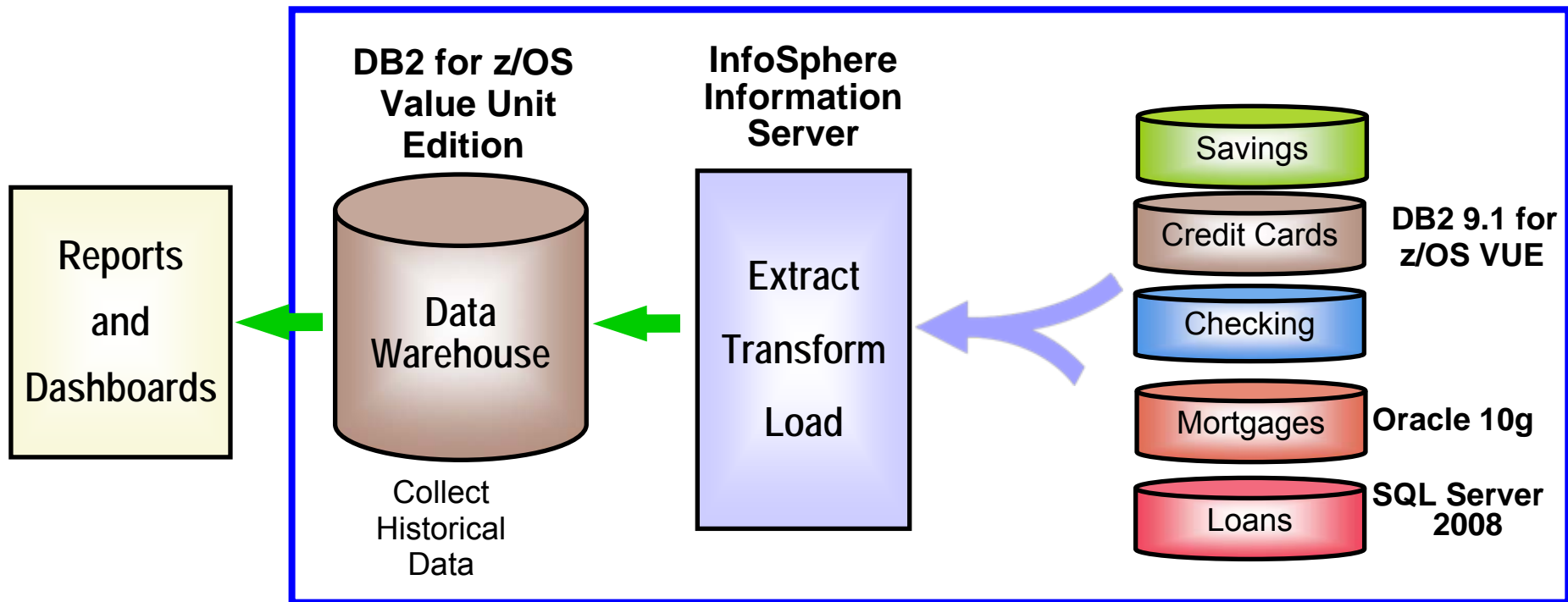
IBM Leads In Data Integration

- Only InfoSphere Information Server delivers Unified Metadata across all tools for Collaboration and Reuse
  - ▶ Oracle has no integration of metadata across products. Manual import/export required

- Model-Driven Design, with FastTrack and DataStage, speeds development
  - ▶ Neither MS nor Oracle have any tool to help manage source to target mappings

- Integration (Open standards) Works in Heterogeneous Data Environments
  - ▶ InfoSphere gathers, processes and cleanses more data from more sources than Oracle and Microsoft

Service Oriented Finance Needs New Insight Into Their Business

We need an easy way to create reports, analyze data, and closely monitor our mortgage business.

We don't have a large team of report developers and we can't afford to hire more staff.

Cognos 8 BI provides easy to learn tools so that users can create the reports they need for themselves using only a web browser.

Mortgage Line of Business VP

IBM

New Intelligence Created Smarter Business Decisions with IBM Cognos

- **Any Primitive In Any Deliverable**
  - ▶ Enabled by common view and common report specification
  - ▶ Unicode for delivery in multiple languages

- **Deliverables accessed via web browser or via many other formats and methods**
  - ▶ HTML, PDF, XML, Excel, CSV
  - ▶ Portal integration
  - ▶ Mobile, MS Office
  - ▶ Embed using SDK

- **Common view can incorporate many different data sources**
  - ▶ Relational, OLAP
  - ▶ Message based (MQ, JMS, etc)
  - ▶ Federated (Web Services, RSS)

Deliverables →

Browser
Dashboards
(Flash, HTML)

Browser
Published Reports
(HTML, PDF, more)

Report Specifications

Primitives →

Browser Based Tools →

Report Studio | Query Studio | Analysis Studio

Metadata Model →

Common View

Open Data Strategy →

Relational Sources | OLAP
Messaging Sources | Federated Sources
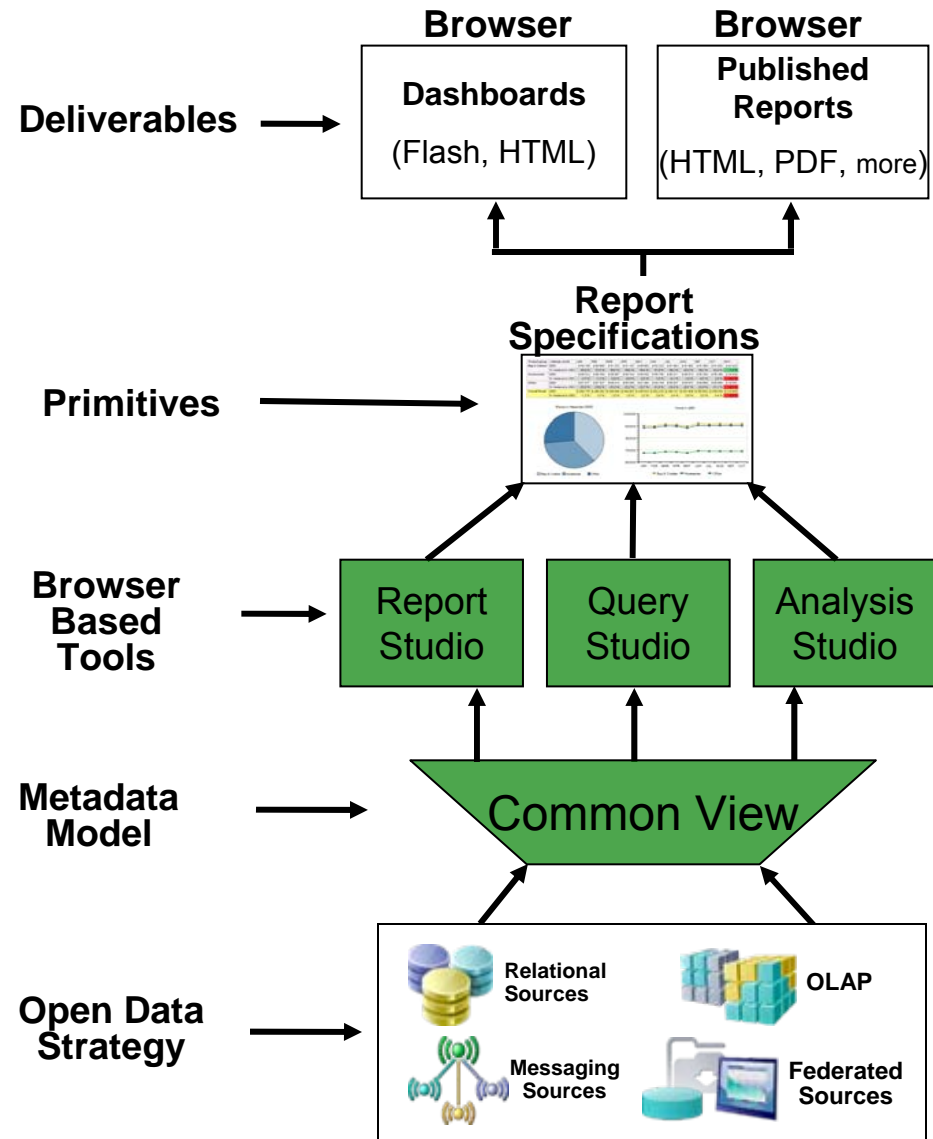
Use IBM Cognos BI Dashboards To Easily Monitor The Business

- **Dashboards give quick access to information**
  - ▶ Present at-a-glance, high impact views of relevant information
  - ▶ Use visual indicators such as gauges and dials
    - – Drill-down into details
  - ▶ Helps focus on issues that need attention or action
  - ▶ Combines information across disparate sources

- **Cognos 8 Go! Dashboards provide flexibility**
  - ▶ Allows end users to quickly create and personalize their own dashboards from existing Cognos report assets
  - ▶ Provides dynamic and visually appealing capabilities by using Adobe Flash to render visually appealing dashboards
  - ▶ Everything runs in a browser using drag and drop
    - – HTML with Flash objects
    - – Requires Adobe Flash browser plug-in
    - – Client-side caching provides responsiveness and improves performance

Use IBM Cognos 8 BI To Create And Report New Intelligence

- **Creates new insights to improve business operations**
  - ▶ **Cognos Query Studio** provides simplified ad hoc analysis for novice users
  - ▶ **Cognos Report Studio** enhances production ready reports for distribution
    - − Creates reports from both relational and OLAP data
    - − Formats including HTML, PDF, Excel, CSV, XML

- **Use Online Analytical Processing (OLAP) analysis to gain insight**
  - ▶ **Cognos Analysis Studio** provides simple and accessible multidimensional analysis
  - ▶ Works with many OLAP and "dimensional relational" data sources

- **Cognos 8 BI Tooling utilizes a shared meta data model**
  - ▶ Easily distribute and augment reports between BI Tools
    - − i.e., Query Studio -> Report Studio

Cognos Has Simple Web Based Access For All Business Intelligence

- **Cognos Web Based Access allows users to Author once, consume anywhere**
  - ▶ Eliminates redundant development, ensures consistent results, reaches all user
- **Consistent user interface across tooling** Greater user satisfaction and increased business agility with lower IT costs
- **Easiest for IT to deploy and manage**
  - ▶ Simplified administration for cost-effective IT scale

IBM Cognos

100% browser-based web access

User

Cognos Server | Query | Report | OLAP

Shared Meta Data Model

Data
(Multiple sources)

■ IBM Cognos
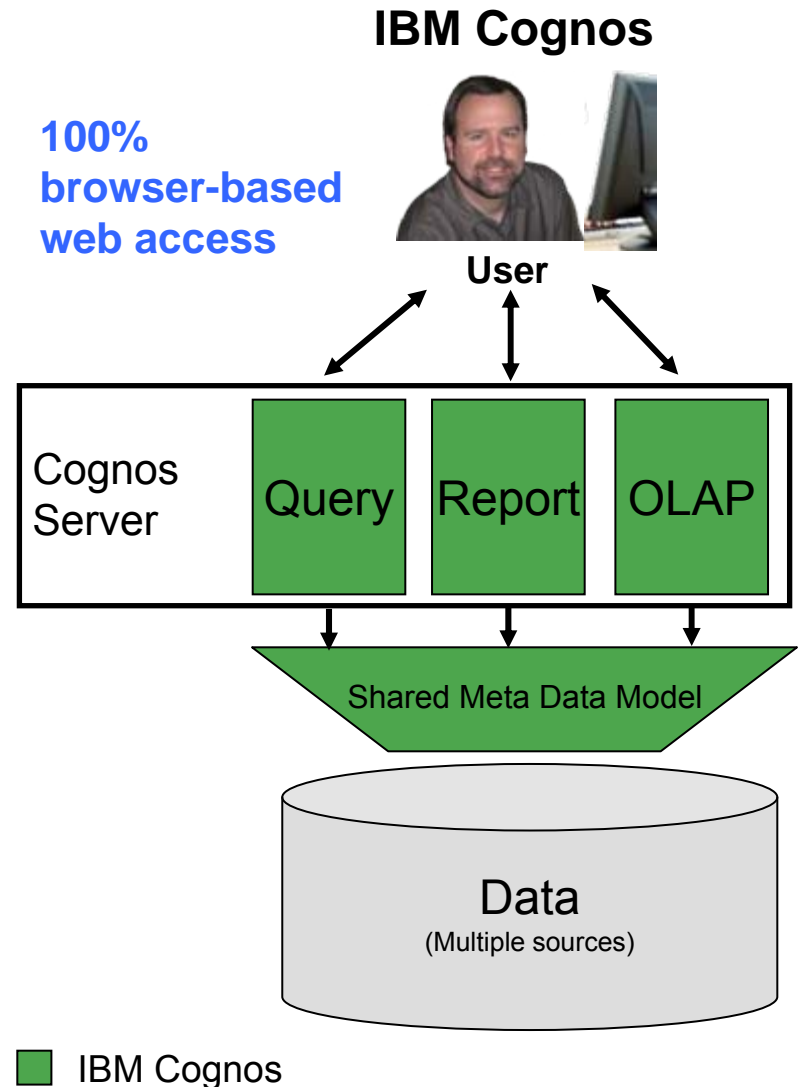
Microsoft Has Separate Un-Integrated Products And Desktop Applications

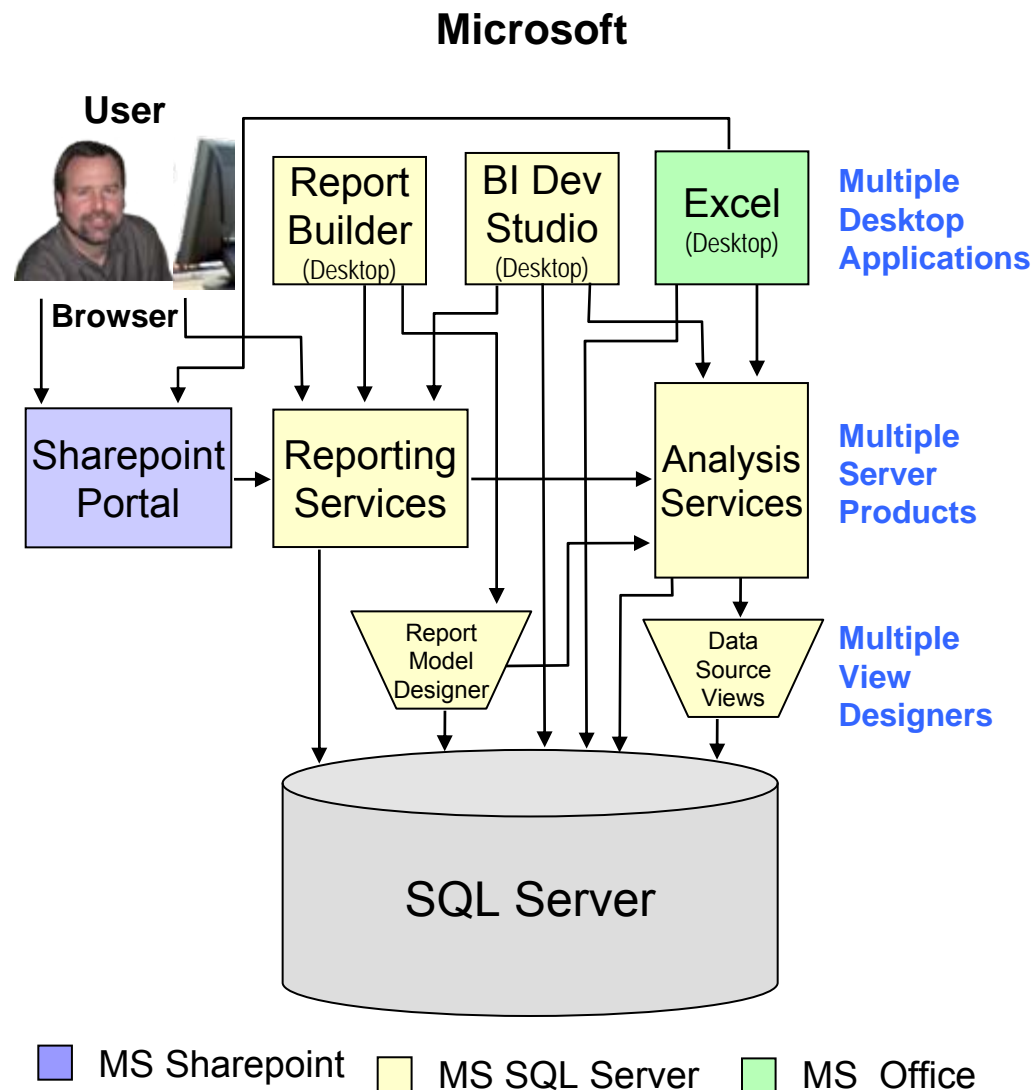- **Multiple Thick Client Tools for Different Jobs**

  ▶ Report Builder (Ad-Hoc)

  ▶ BI Development Studio for Reporting and Analysis

    – Reports not Usable across tools (incompatibility)

- **Multiple Tools**

  ▶ Creates more work because of different report models

- **Creates IT Burden**

  ▶ Install, Patch, User Support all happen at the client

Microsoft

User

Browser

Report Builder (Desktop)

BI Dev Studio (Desktop)

Excel (Desktop)

Multiple Desktop Applications

Sharepoint Portal

Reporting Services

Analysis Services

Multiple Server Products

Report Model Designer

Data Source Views

Multiple View Designers

SQL Server

◼ MS Sharepoint ◻ MS SQL Server ◻ MS Office

Oracle OBIEE Is Complex And Is Not Integrated

- **Too Many Products!**

- **Multiple Thick Client Tools**
  - Creates more work because of different report models

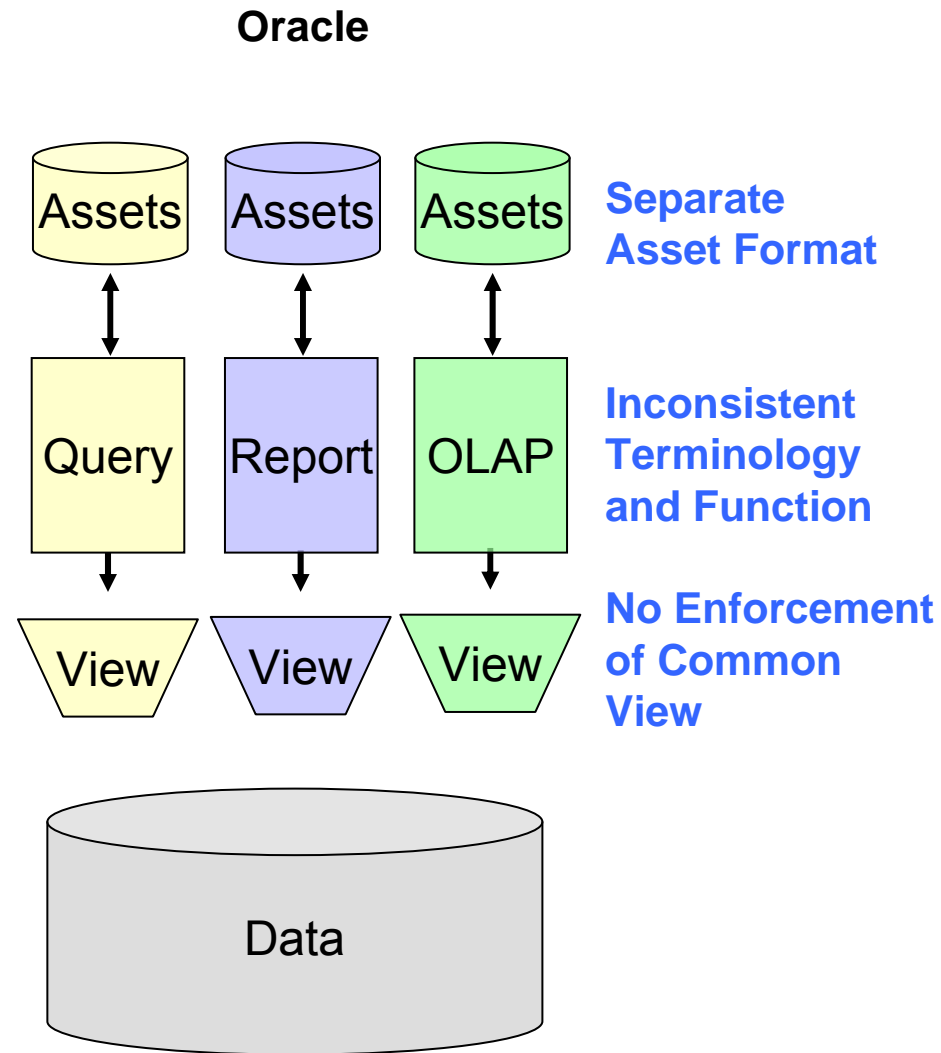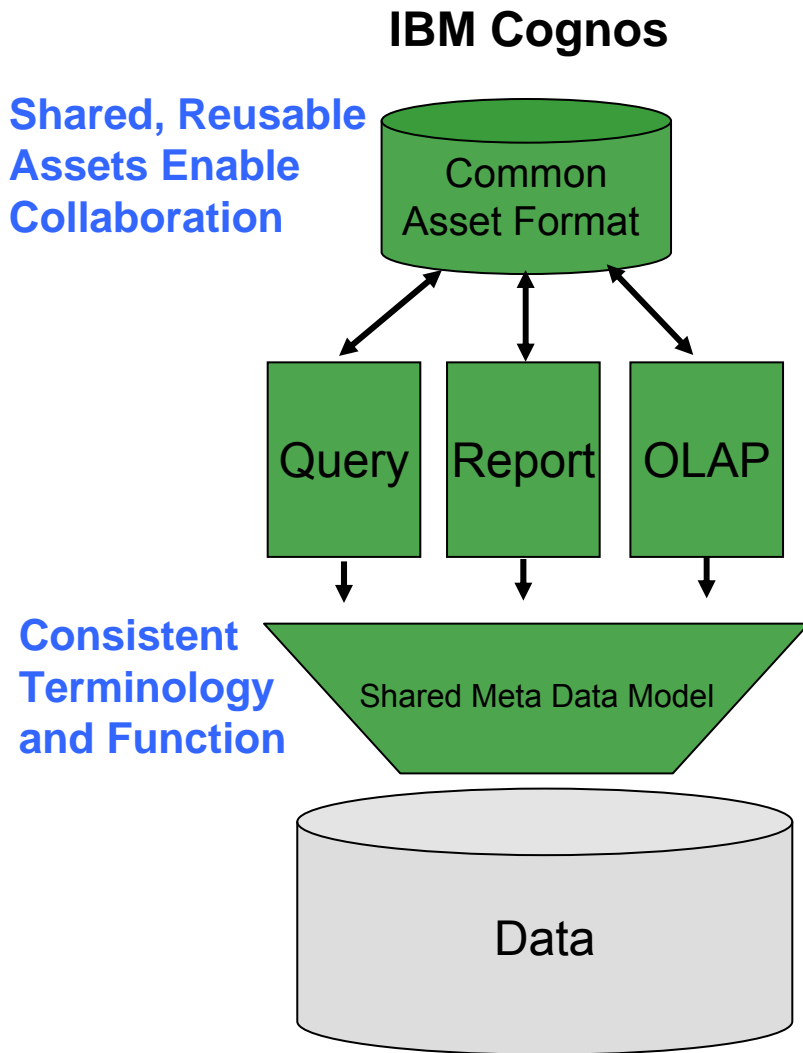- **Creates IT Burden**
  - Install, Patch, User Support all happen at the client

Oracle BI Enterprise

Browser

Browser

Browser

MS Word | MS Excel | Adobe Acrobat

BI Publisher (Web) | BI Publisher RTF Template (Desktop) | BI Publisher PDF Template (Desktop) | Answers (Web) | Disconn-ected Analytics (Desktop) | Web Analysis (Java Applet) | Interactive Reporting (Desktop) | Interactive Reporting Web Client (Plugin) | SQR Production Reporting (Desktop)

BI Publisher Server | OBIEE Server | Essbase Server | Foundation Server

Presentation Catalogs (Siebel)

Essbase Models

Database

Oracle | Siebel | Hyperion | Brio

Users Benefit From Cognos Common Metadata Model

IBM Cognos

Oracle

Shared, Reusable Assets Enable Collaboration

Common Asset Format

Query   Report   OLAP

Consistent Terminology and Function

Shared Meta Data Model

Data

Assets   Assets   Assets

Separate Asset Format

Query   Report   OLAP

**Inconsistent Terminology and Function**

View   View   View
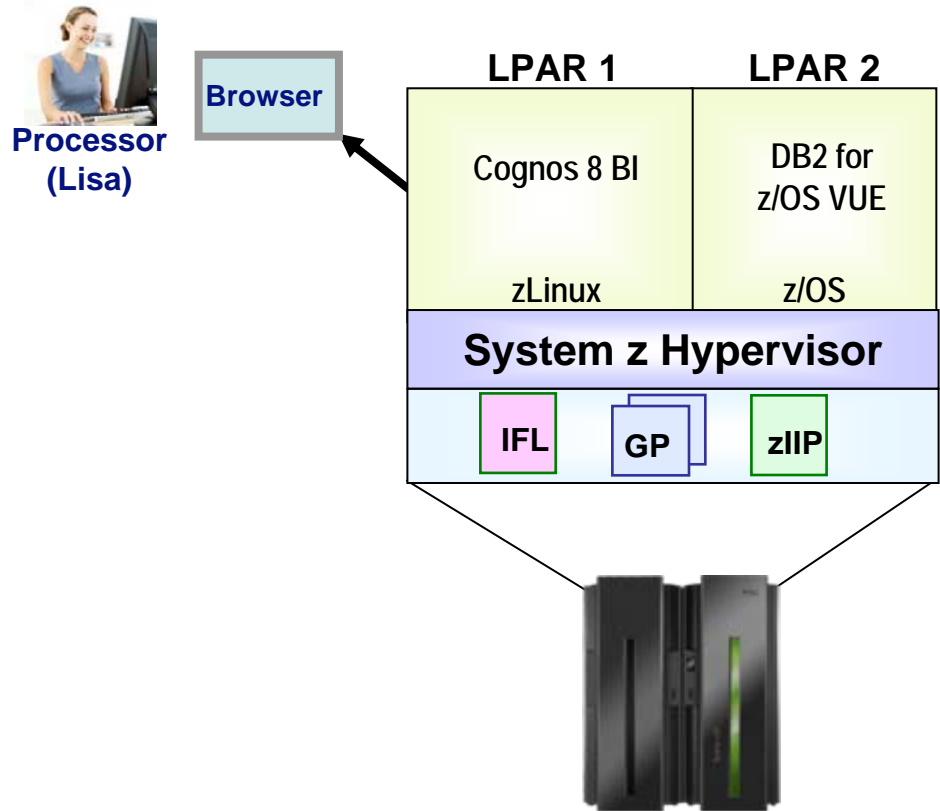
No Enforcement of Common View

Data

DEMO: SOF Extends Reports Through The Cognos Common Meta Data Model

1. Review SOF reports within the Cognos Connection Portal

2. Use Cognos 8.4 Query Studio to modify an existing report

3. Open that same report in Cognos 8.4 Report Studio

4. Open the larger final "Risky Mortgages" report in Cognos 8.4 Report Studio
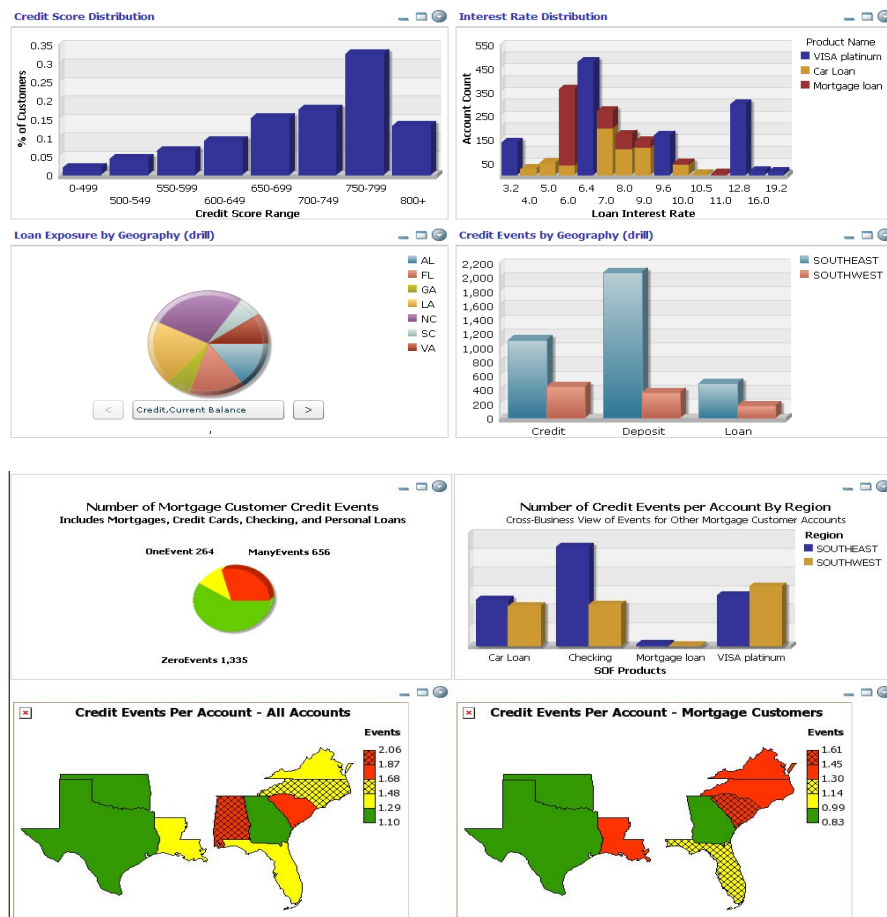
IBM Proof Of Concept To Demonstrate Data Warehouse Scalability

- Enterprise Data Warehouse
  - ▶ 50 TB Raw Data
  - ▶ 300 BILLION row table
- Hardware assisted compression for data and indexes
  - ▶ Up to 63% savings on data
  - ▶ Up to 61% savings on indexes
- System z TCO exploits
  - ▶ zIIPs
  - ▶ IFLs
  - ▶ ICFs
- Best of Breed virtualization
- Best of Breed QoS

Processor (Lisa)

Browser

LPAR 1 | **LPAR 2**

Cognos 8 BI | DB2 for z/OS VUE

zLinux | z/OS

System z Hypervisor

IFL | GP | zIIP

Case Study: Deploy New 10TB Data Warehouse On z/OS With Disaster Recovery (Cognos Base Function)
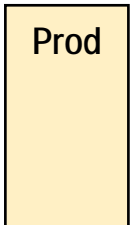
Existing Mainframe

Existing z10:
2 GP 1,720 MIPS
DB2 and utilities
With 20Tb storage

Existing Disaster Recovery Site

Existing:
1 GP processor for hot disaster switch-over
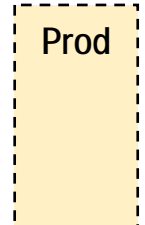1 "dark" DR processor
With 20Tb storage

Add 1 LPAR for New Data Warehouse w 3.8 TB Storage

Prod

2,184 MIPS additional workload on z/OS and 1840 MIPS on zLinux

Incremental:
2 GP   1,310 MIPS (60%) DB2 & Utilities
1 zIIP   874 MIPS (40%) DB2
1 IFL   920 MIPS DataStage
1 IFL   920 MIPS Cognos
Add 10 GB memory

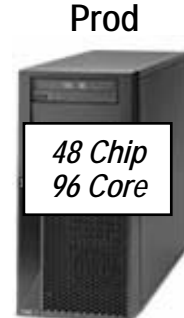### And add Disaster Recovery w 3.8 TB Storage

Prod

Capacity Backup:
2 GP
1 zIIP
2 IFLs

3 year cost of acquisition $5.71M

Or add HP Integrity Superdome sx2k 9150N Server w 7.3 TB storage

Prod

48 Chip 96 Core

350,299
Performance Units*

And add Disaster Recovery W 7.3 TB storage
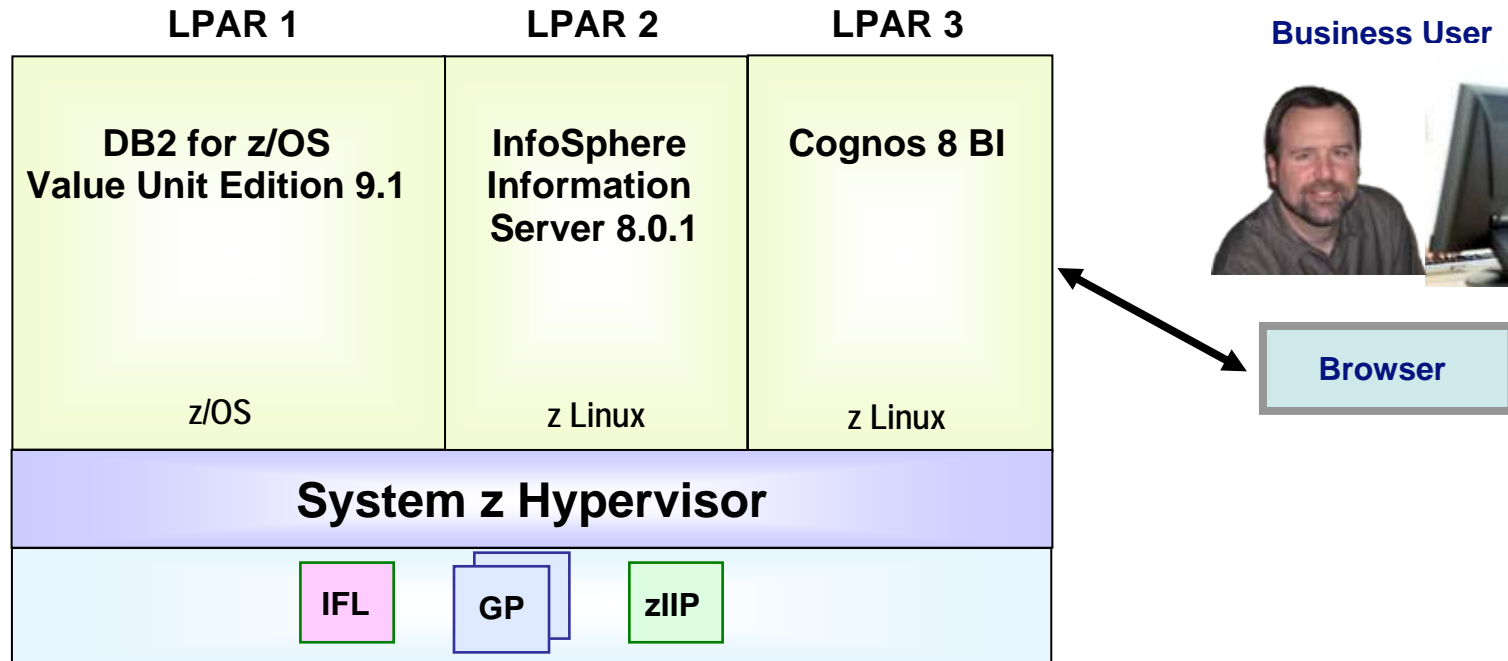
Prod

48 Chip 96 Core

350,299
Performance Units*

3 year cost of acquisition $24.98M

*Production Performance Units required = (2,184+1840) MIPS x 87 = 350,088

System z Provides A Comprehensive BI Solution

System z Offerings for Enterprise Data Warehouse and BI:

- DB2 for z/OS, including the new DB2 for z/OS Value Unit Edition
- InfoSphere Information Server for System z
- IBM Cognos 8 BI for System z
- Only IBM can provide an end to end Platform DW and BI Solution

IBM vs. Oracle And Microsoft Business Optimization

	IBM	Microsoft	Oracle
Extensive Enterprise Connectivity	**InfoSphere Information Server**	Requires 3rd party	Oracle-focused
Enterprise Scalability	**InfoSphere Information Server**	Windows only	Waiting for Fusion
Integrated, Comprehensive Performance Management Platform	**IBM Cognos**	**NO** Multiple products with different metadata models	**NO** Multiple products (Oracle, Hyperion, Siebel) with different metadata models
100% web-based zero footprint BI	**IBM Cognos**	**NO** Requires MS Office, BI Dev Studio, Report Builder (plug-in)	**NO** BI Publisher uses MS Word, Many BI functions require desktop apps and plug-ins