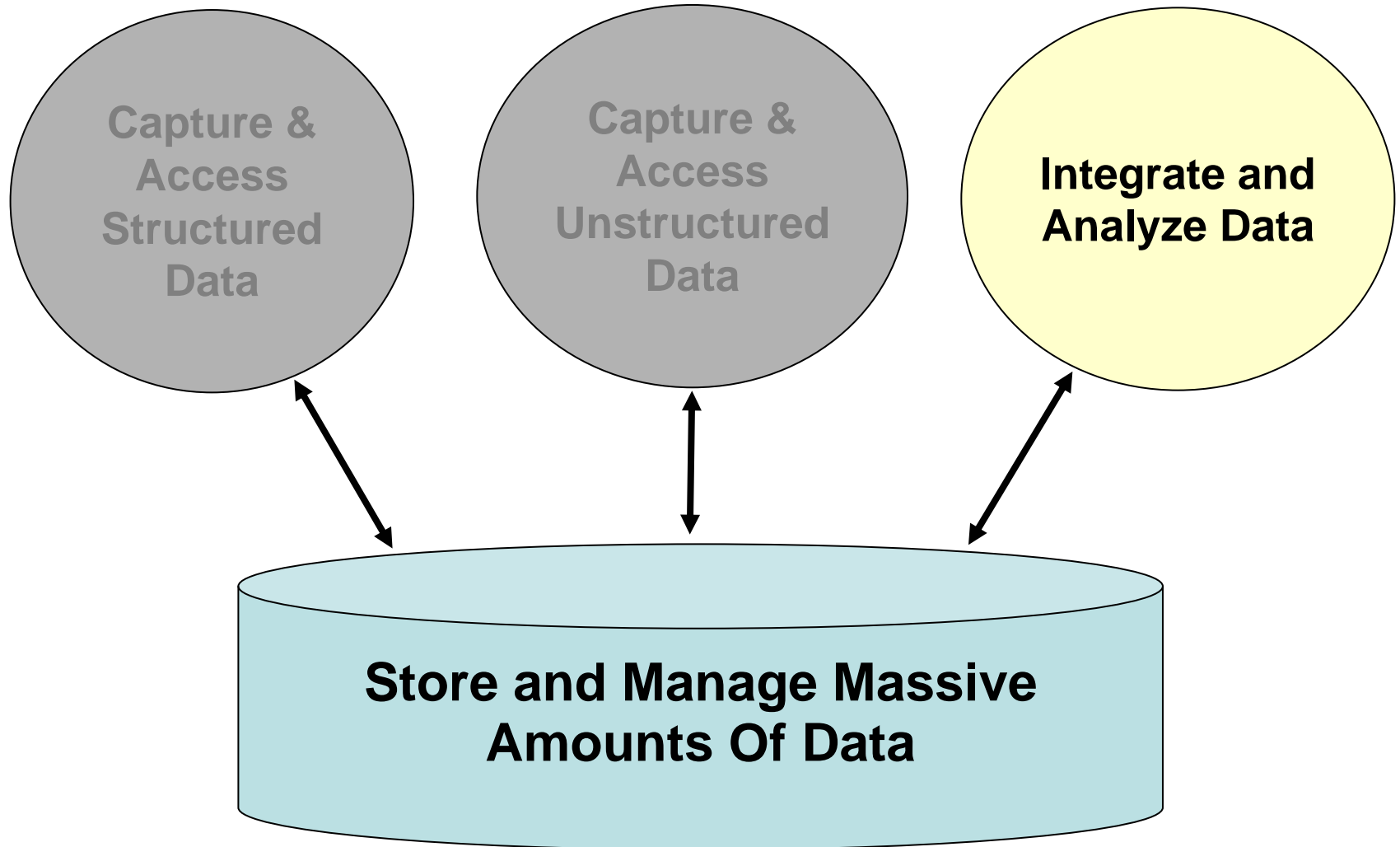




System z Enables Solutions For A Smarter Planet

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

New Intelligence Can Deliver Even More Business Value



Using New Intelligence Creates New Business Opportunities

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



**Service Oriented Finance
CEO**

**We already know the mortgages that have defaulted.
We need to predict which ones will default in the future**



**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



**Mortgage Line of Business
VP**

We have the data but it is in different databases in different locations

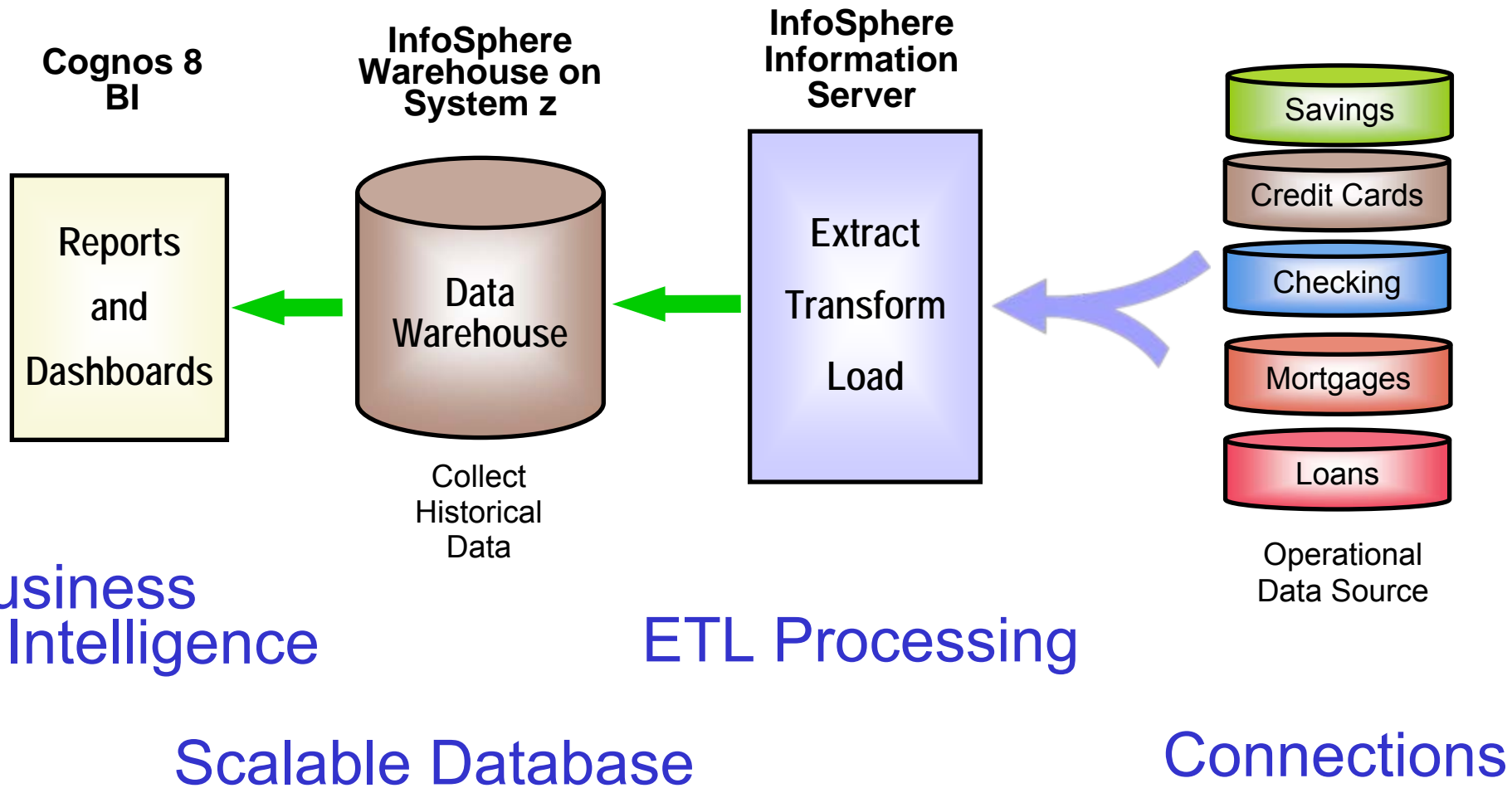


**Service Oriented Finance
CIO**

Service Oriented Finance Needed A Complete View Of Their Customers

- **Problem:** Segmented Lines of Business look at their customers from an isolated perspective
 - ▶ Savings, Checking, Mortgage, Consumer Loans
- **Problem:** Needed to identify customer trends that spans Lines of Business
- **Solution:** Create new intelligence by building a corporate data warehouse, where data can be analyzed in an holistic fashion

Create New Intelligence With IBM Information Management Software

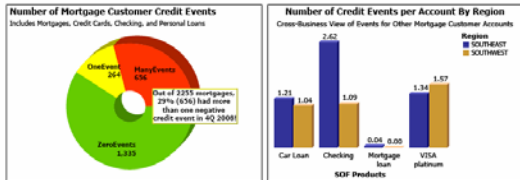


Demo: Identify Risky Mortgage Accounts Using Cognos 8 BI

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)



Identifying At-Risk Mortgages Using Credit Event Data from Across the SOF Business
 Many SOF mortgage account holders also hold SOF credit cards, checking accounts, and personal loans. This is a report of negative credit events in non-mortgage accounts belonging to current SOF mortgage holders. A credit event is any non-payment of a balance due. Checking account credit events are Insufficient Fund (ISF) events ("bounced checks").



4Q 2008 Mortgage Customer Detail by Region and State

Colors: Credit events numbers are color coded. Accounts with greater than 8 events are shown in **link red**.
 Links: Customer ID link opens customer's mortgage document folder using FileNet Workplace XT. Authentication required.

Region: **SOUTHEAST**

State: FL

			Checking		VISA platinum		Car Loan		Mortgage loan		Summary	
			Negative Credit Events	Current Balance	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance	Negative Credit Events	Current Balance
TOPPA	2662	Herman Miller	11	\$1,453.86	2	\$885.48	1	\$24,465.55	0	\$232,285.42	17	\$289,050.71
	7928	7928	13	\$1,413.84	3	\$885.48	3	\$24,465.55	0	\$232,285.42	12	\$289,050.71
	2862	Julia P Lammiman	4	\$1,261.57	2	\$891.89	2	\$52,120.40	0	\$722,748.89	8	\$777,613.71
	7940	7940	4	\$1,251.57	2	\$891.89	2	\$52,120.40	0	\$722,748.89	8	\$777,613.71
	3066	Kelly O Mendenhall	4	\$1,127.24	2	\$844.82	2	\$74,670.88	0	\$323,366.59	8	\$400,068.65
	8044	8044	4	\$1,127.24	2	\$844.82	2	\$74,670.88	0	\$323,366.59	8	\$400,068.65
	3066	Shed I Davis	4	\$780.11	2	\$530.11	2	\$43,230.00	0	\$919,073.43	8	\$943,813.65

That report is just what we need!



Mortgage Line of Business VP

- At risk customers are identified and contacted to refinance
- Risky mortgages can be sold

Industry Data Models Help You Get Started

Where do we start?



**Service Oriented Finance
CIO**

IBM industry data models can help you get started quickly.



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

InfoSphere Warehouse on System z Is An Excellent Base For Your Data Warehouse

- Based on DB2 for z/OS
- 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
- Benefits 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?



**Service Oriented Finance
CIO**

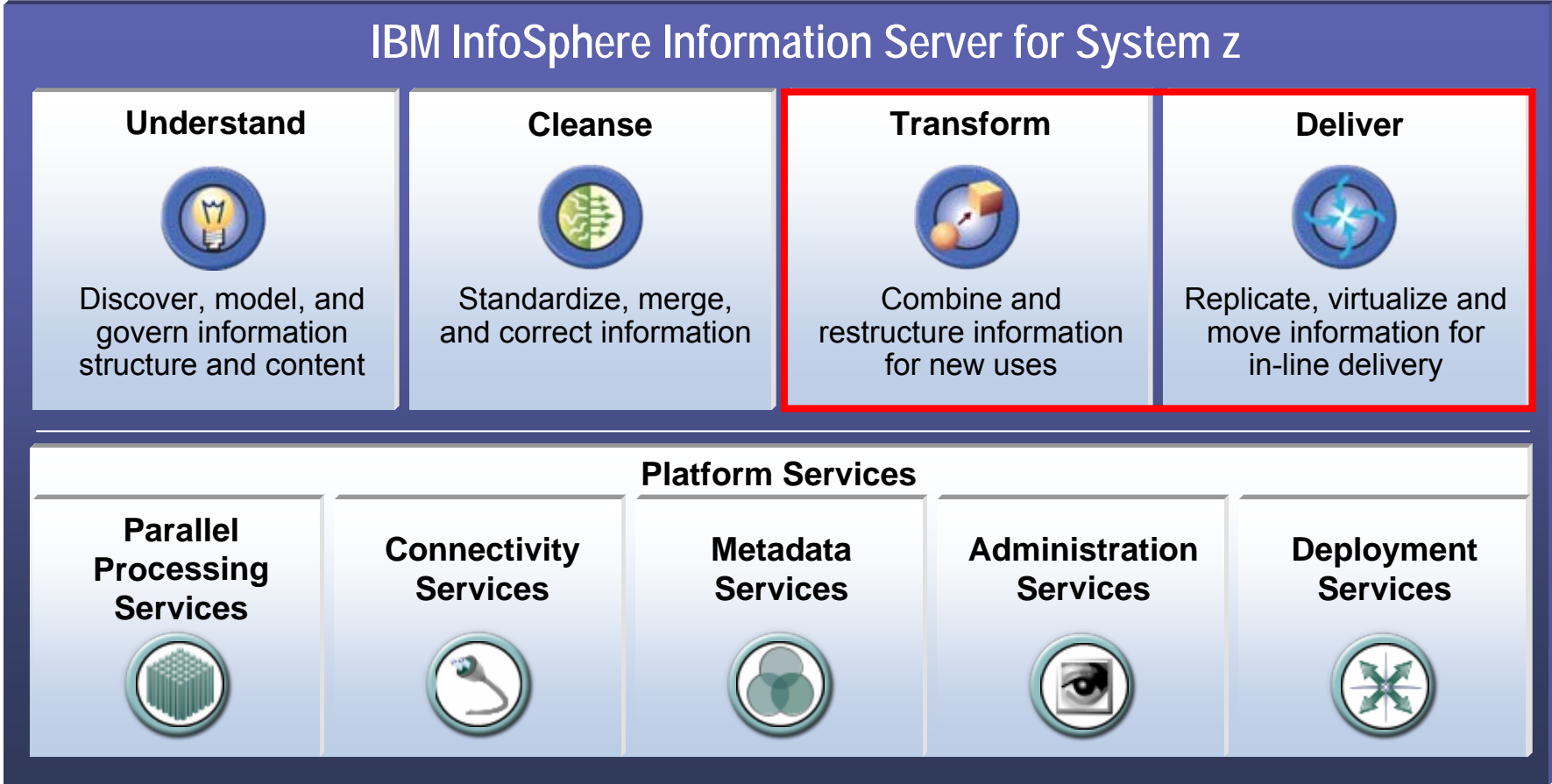
IBM has a consolidated platform that overcomes the difficulties of data integration, let me tell you about InfoSphere Information Server



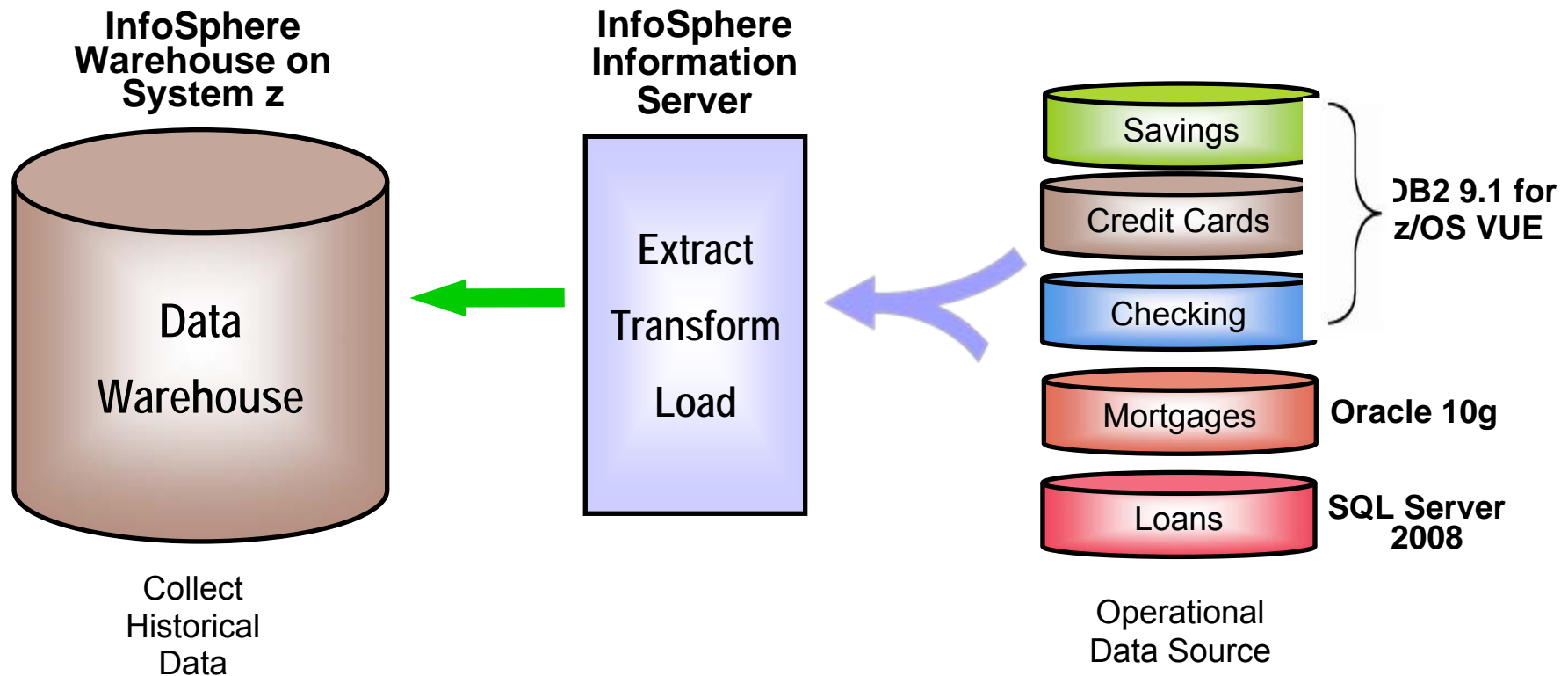
IBM

IBM InfoSphere Information Server

A consolidated platform that delivers services to integrate data

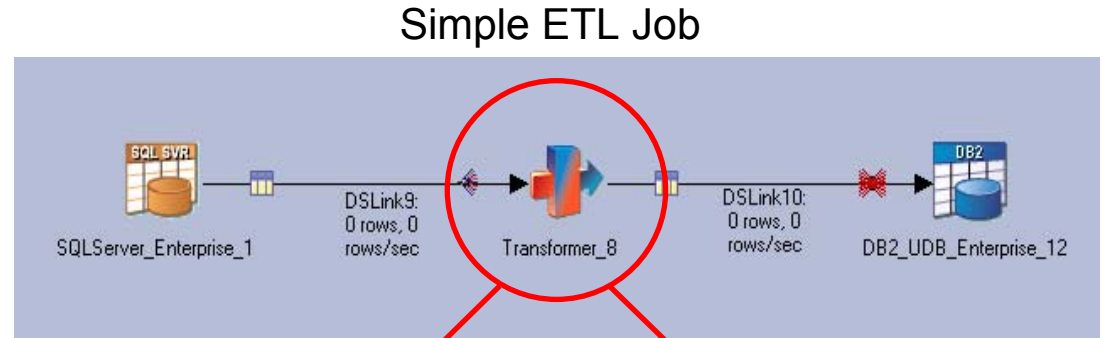


Extract Transform And Load Your Data Warehouse With DataStage And FastTrack



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

- Visually define extract, transform, and load jobs to load the data warehouse
- Jobs may be created from scratch or imported from FastTrack tool
 - ▶ Data Maps



Data Map
In Transform Node

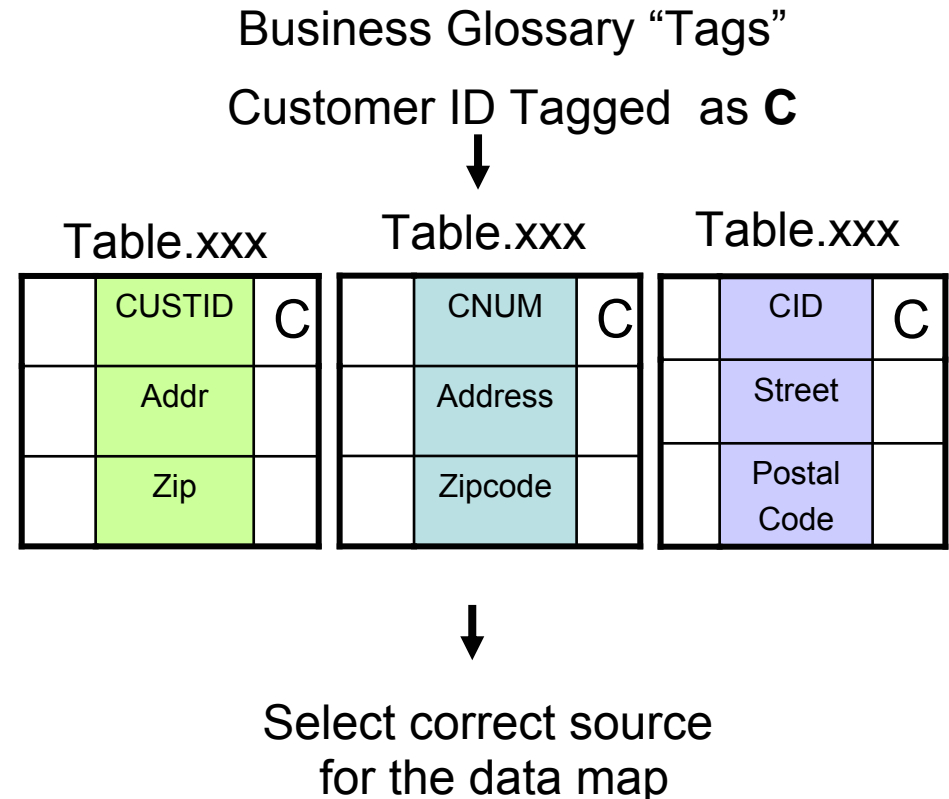
Transformer_8 - Transformer Stage

DSTLink9	
STATE	
ZIP	
ACCOUNT_ID	
JOINT_ACCOUNT_HOLDER	
ACCOUNT_BRANCH	
BALANCE	
PAST_DUE_COUNT	
SOURCE	
LOAN_DATE	

DSTLink10	
Constraint:	
Derivation	Column Name
DSTLink9.STATE	STATE
DSTLink9.ZIP	ZIP
DSTLink9.ACCOUNT_ID	ACCOUNT_ID
DSTLink9.JOINT_ACCOUNT_HOLDER	JOINT_ACCOUNT_HO
DSTLink9.ACCOUNT_BRANCH	ACCOUNT_BRANCH
DSTLink9.BALANCE	BALANCE
DSTLink9.PAST_DUE_COUNT	PAST_DUE_COUNT
DSTLink9.SOURCE	SOURCE
(TimestampToDate[DSTLink9.LOAN_DATE])	LOAN_DATE

FastTrack Tool Creates Data Maps For Transform Nodes

- Solves a key problem of associating business terms with field names
 - ▶ Improve understanding
 - ▶ Reduce mistakes
 - ▶ Search for relevant fields using business glossary terms
 - ▶ “Tagging” for data fields
- Visual tool to create the data maps
- Publish data maps to DataStage Designer
- Oracle and Microsoft don't do address these ETL development steps



InfoSphere DataStage Transforms Data On The Fly

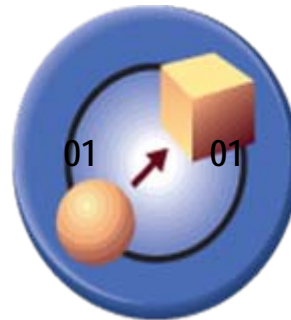
- Different field names
- Different field order
- Add source Identifier
- Different field formats



PROD ID	CUST ID	SOURCE ID	QTY	BAL	SALEDATE
000 101	100	01	01	\$10,000.00	2007-02-28
000 121	100	01	03	\$500.50	2007-02-28
000 102	101	01	01	\$ 20,000.00	2007-03-01

Warehouse

000 101 100



Transform

01 01 \$20,500.00 2007-02-28

PRODUCT	QTY	CUSTNO	BALANCE	DATE
101	01	100	10000	2007-02-28
121	03	100	500.50	2007-02-28
102	01	100	20000	2007-03-01

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
Nettezza
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

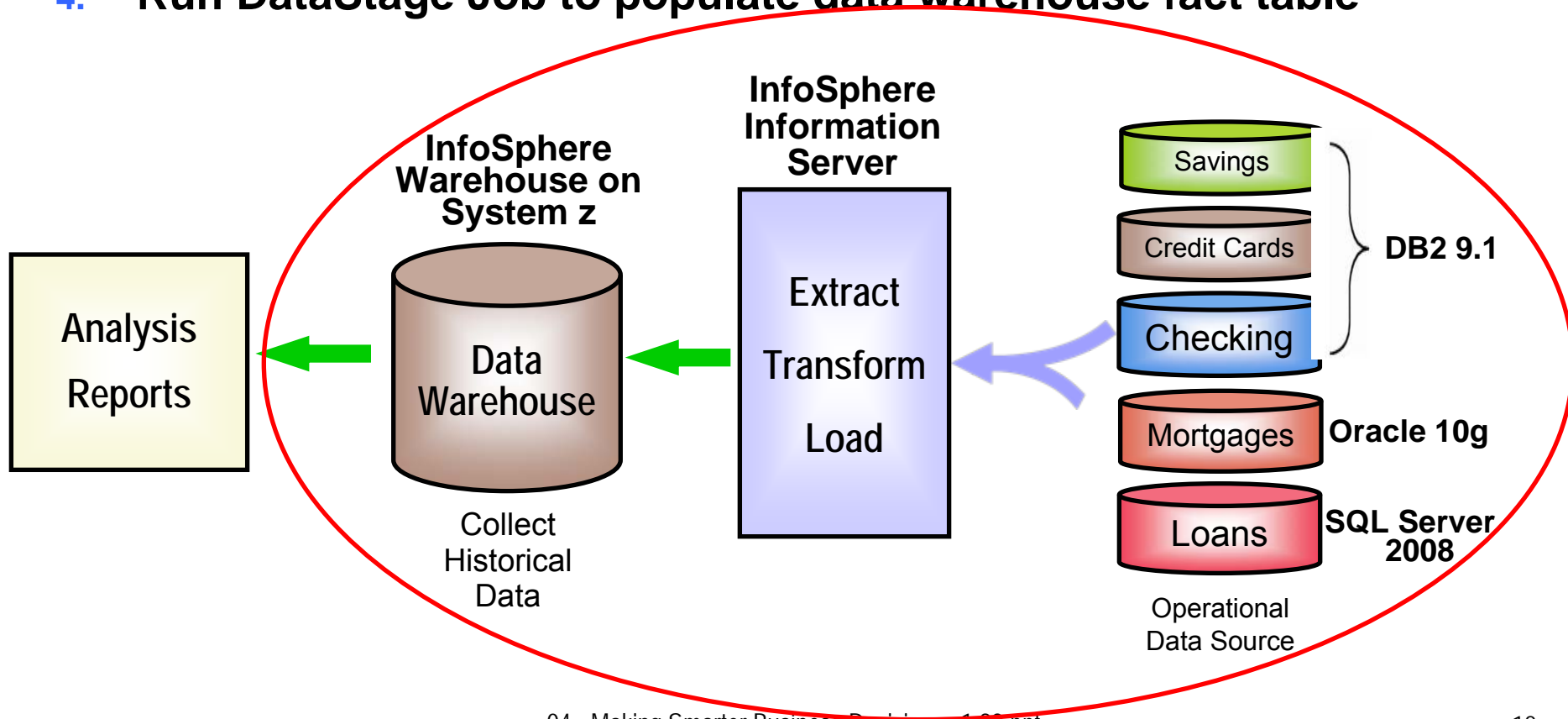
Legacy

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 to identify the at risk loans



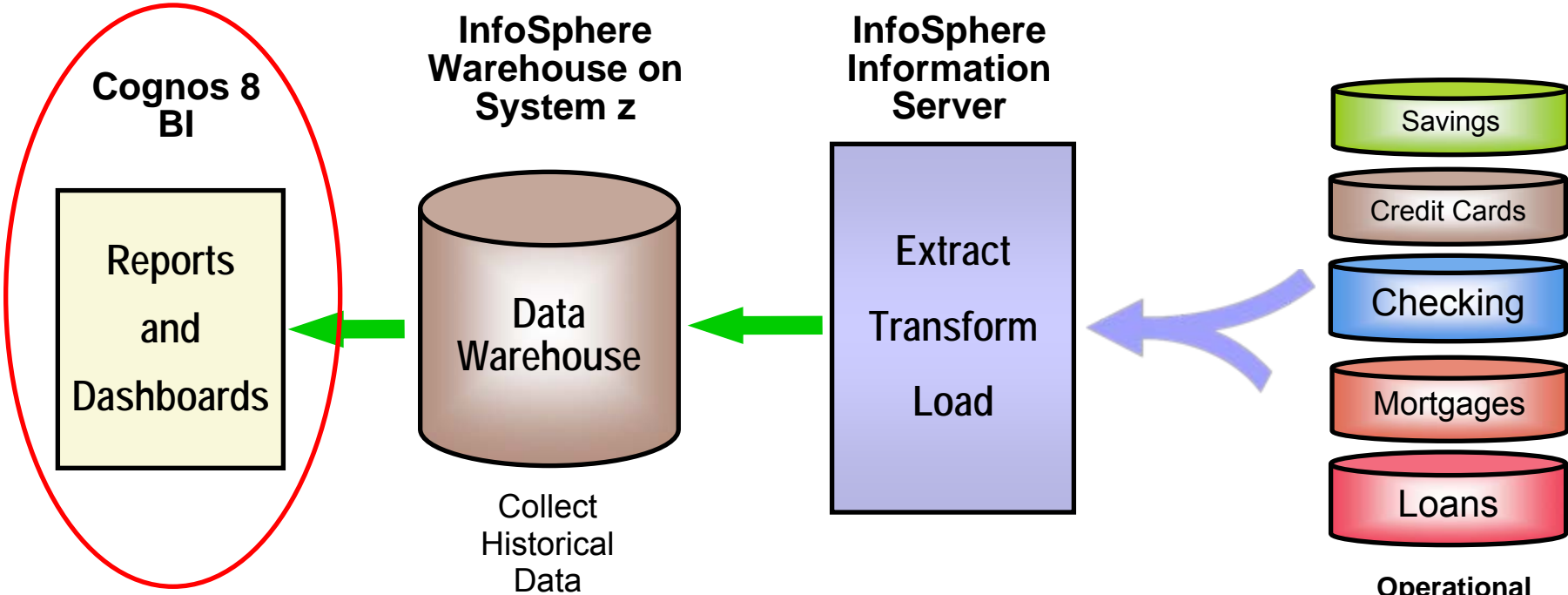
**Mortgage Line of Business
VP**

You can create new intelligence for business insight with Cognos 8 BI



IBM

Use IBM Cognos 8 BI To Optimize Business Decisions



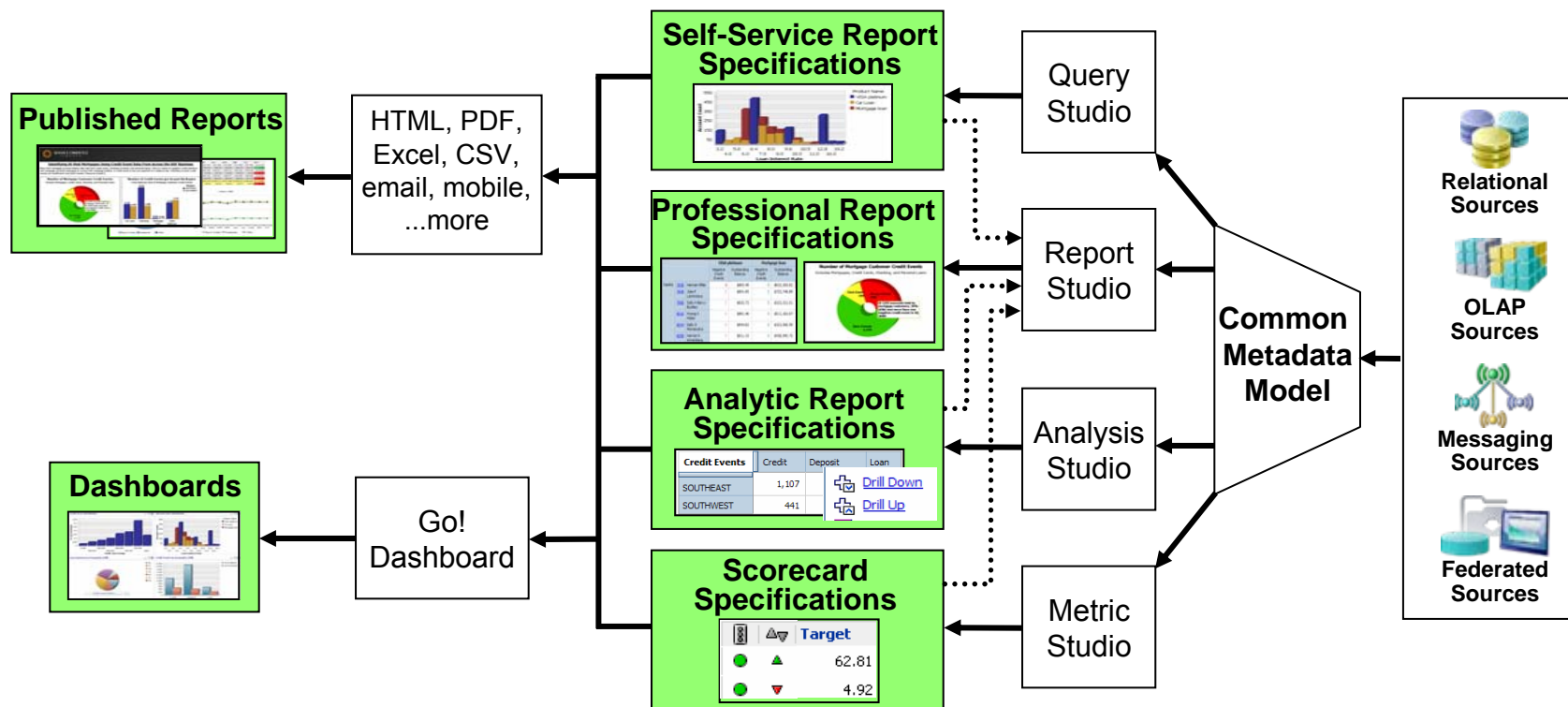
Business Intelligence

ETL Processing

Scalable Database

Connections

New Intelligence Assets Created By Cognos

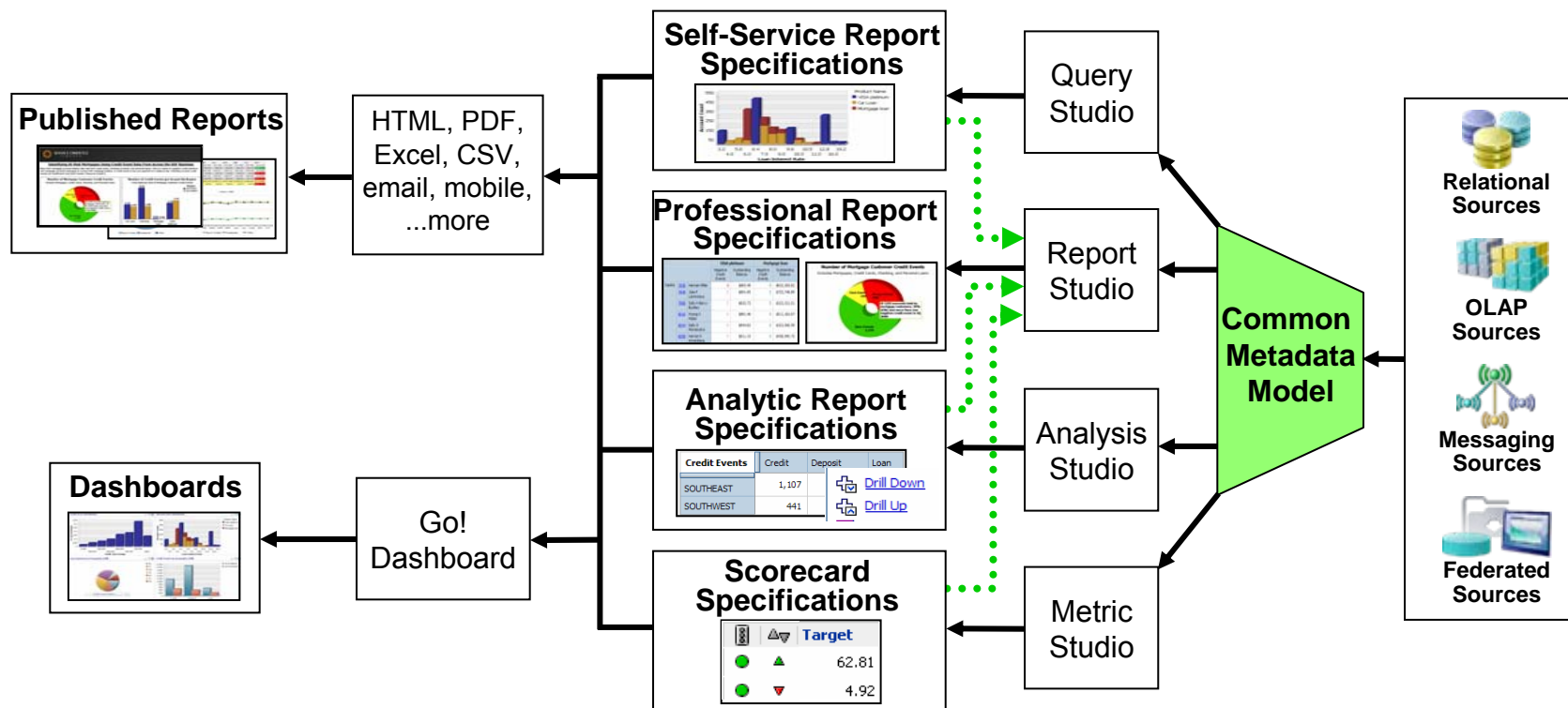


- Published reports
- Dashboards
- Self-Service Report Specifications

- Professional Report Specifications
- Analytic Report Specifications
- Scorecard Specifications

- All assets can be configured as watch items, with alerts, and watch rules to automatically receive updated reports via email or browser

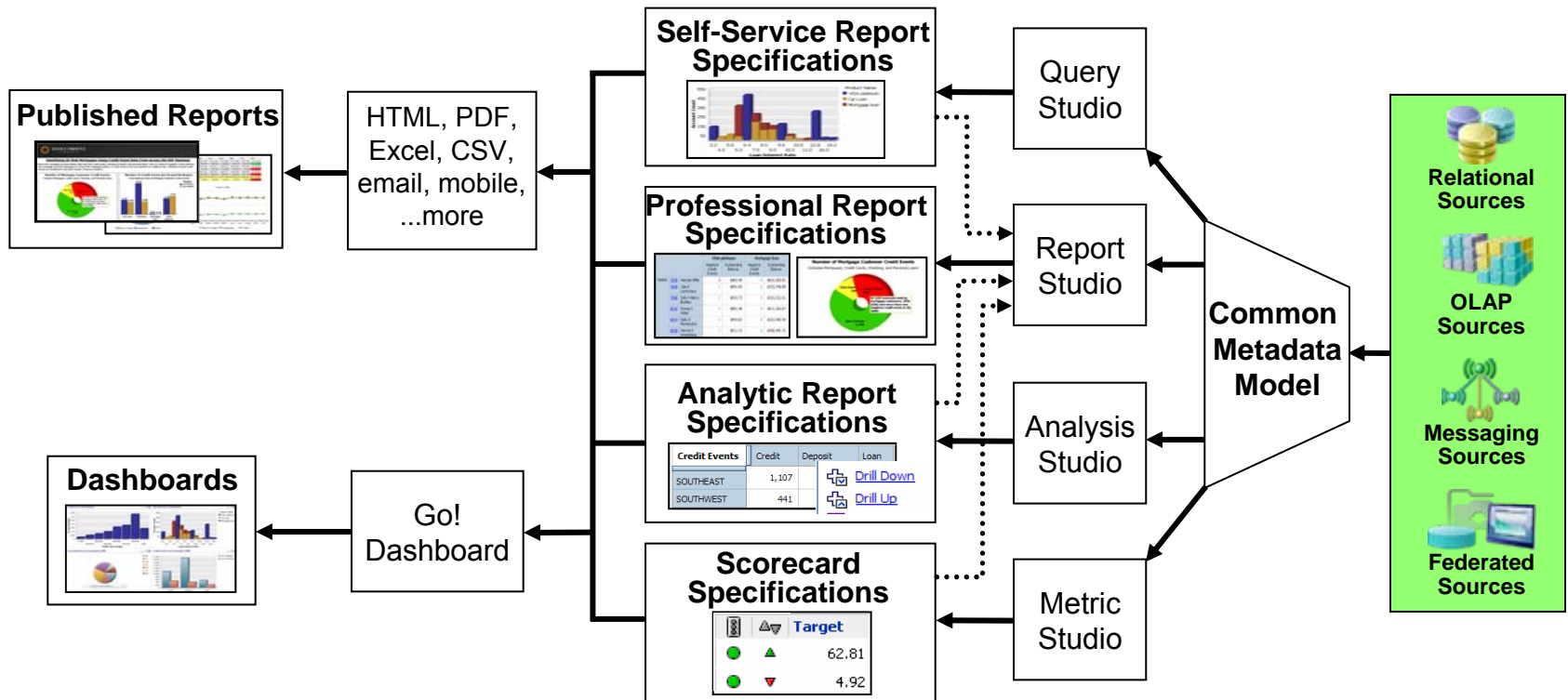
Common Metadata Model Enables Reuse Of New Intelligence Assets



- All new intelligence assets share a common metadata model and common report specification
- Author Once – Consume Anywhere
- Enables reuse between tools

- Competition has multiple metadata models depending on source type
- Competition has multiple different report formats
- Competition often cannot reuse assets between tools

Aim The Cognos Platform At Any Data Source



- Open data strategy enables a common view across a variety of data sources
- Support for application data sources such as SAP ERP
- Combine relational, OLAP, federated, and other data sources in any tool

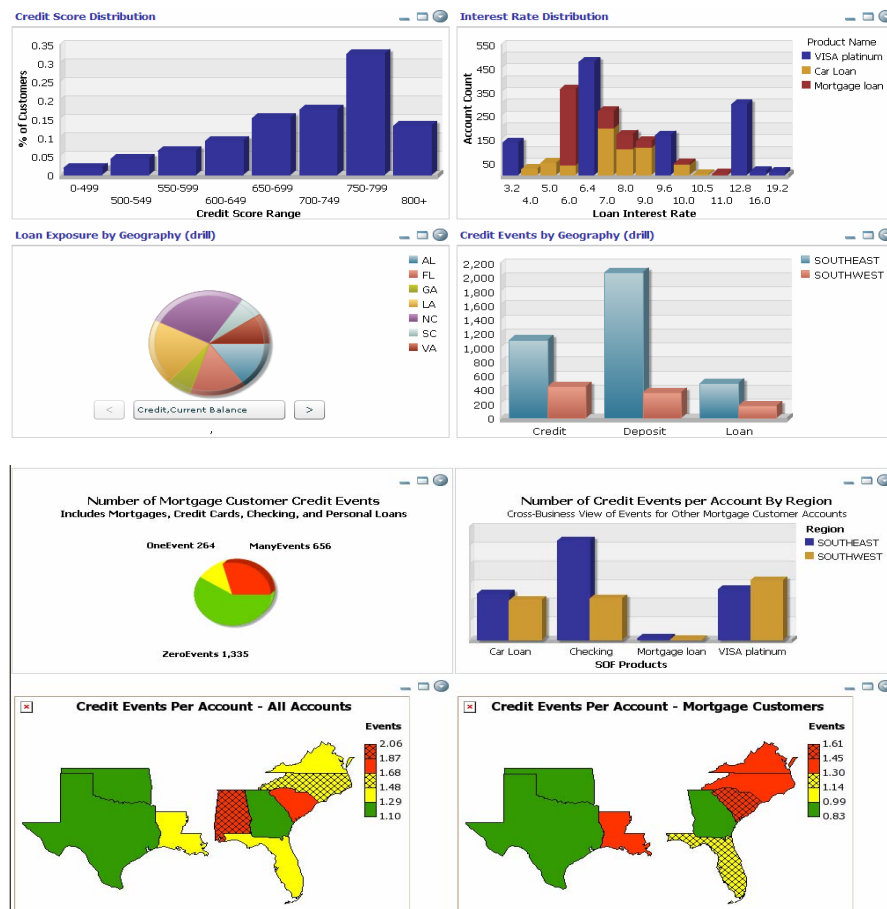
- All capabilities access a trusted set of information defined in the common metadata model
- As sources change, metadata model can control and identify impacts to report specifications

Users Can Create The Reports They Need Using Cognos 8 BI

- Query Studio is an easy to learn self-service reporting tool requiring minimal reporting knowledge
 - ▶ Helps alleviate report authoring backlog
 - ▶ Use existing self-service reports to create a new reports
 - ▶ Modify the style and layout of self-service reports
- Report Studio is a professional reporting tool to create any style of report
 - ▶ Invoices, financial statements, inventory, payroll, etc
 - ▶ Provides “pixel-perfect” formatting with absolute control over visual layout
 - ▶ Library of lists, crosstabs, charts, maps, operators, constants, functions, filters, more
- Cognos Analysis Studio provides multidimensional analysis
 - ▶ Use drill up or drill down and to “slice and dice” the context and view of data
 - ▶ Identify trends, compare actual results to plans, or highlight best or worst performers
 - ▶ Create calculations using many built-in operators such as growth, rank, average, percentile

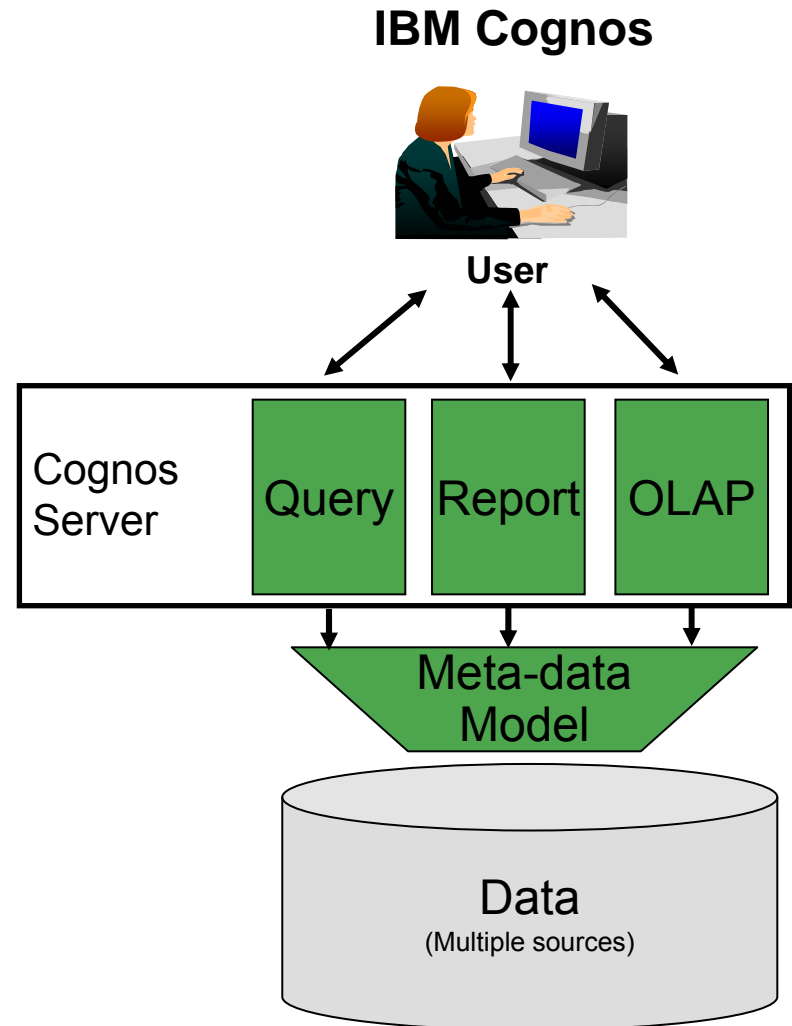
Cognos Go! Dashboard Enables You To Monitor Business Operations

- Cognos report specifications can be incorporated into dashboards using Cognos 8 Go! Dashboards
- What goes into a dashboard?
 - ▶ Self service reports
 - ▶ Professional reports
 - ▶ Analytical reports
 - ▶ Scorecards
 - ▶ RSS feeds, HTML, search, more
- Users can create their own dashboards from existing Cognos report assets
- Everything you need to monitor a particular aspect of the business
- Information from several different subjects areas presented at the same time
- Provides dynamic and visually appealing capabilities by using Adobe Flash
 - ▶ Everything runs in a browser – only Adobe Flash is required
 - ▶ Easily change chart types and color palettes



IBM Cognos Is An Integrated Platform Built On SOA

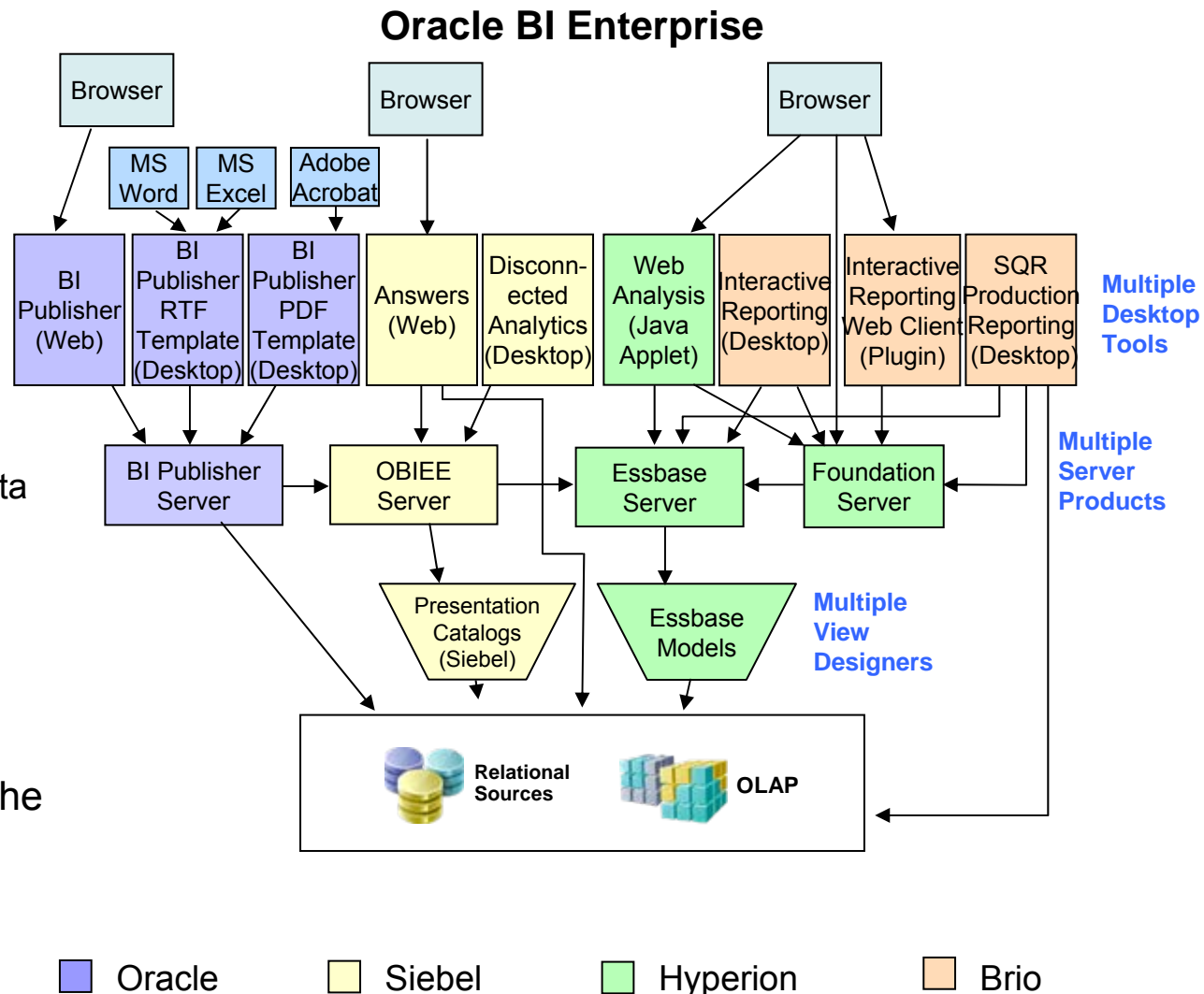
- Implemented in Java, runs on WebSphere
- 100% browser based access
 - ▶ Server side business intelligence
 - ▶ Users can access new intelligence from anywhere
- Easiest for IT to deploy and manage
 - ▶ Scales up and out across heterogeneous hardware and operating systems
 - ▶ Unified security
 - ▶ Unified administration
- Consistent user interface across tooling Greater user satisfaction and increased business agility with lower IT costs
- Common meta data model
 - ▶ Author new intelligence assets once, consume anywhere
 - ▶ Common view enables open data strategy
 - ▶ Supports Unicode and multilingual features allowing support for multiple languages without recreating reports



■ IBM Cognos

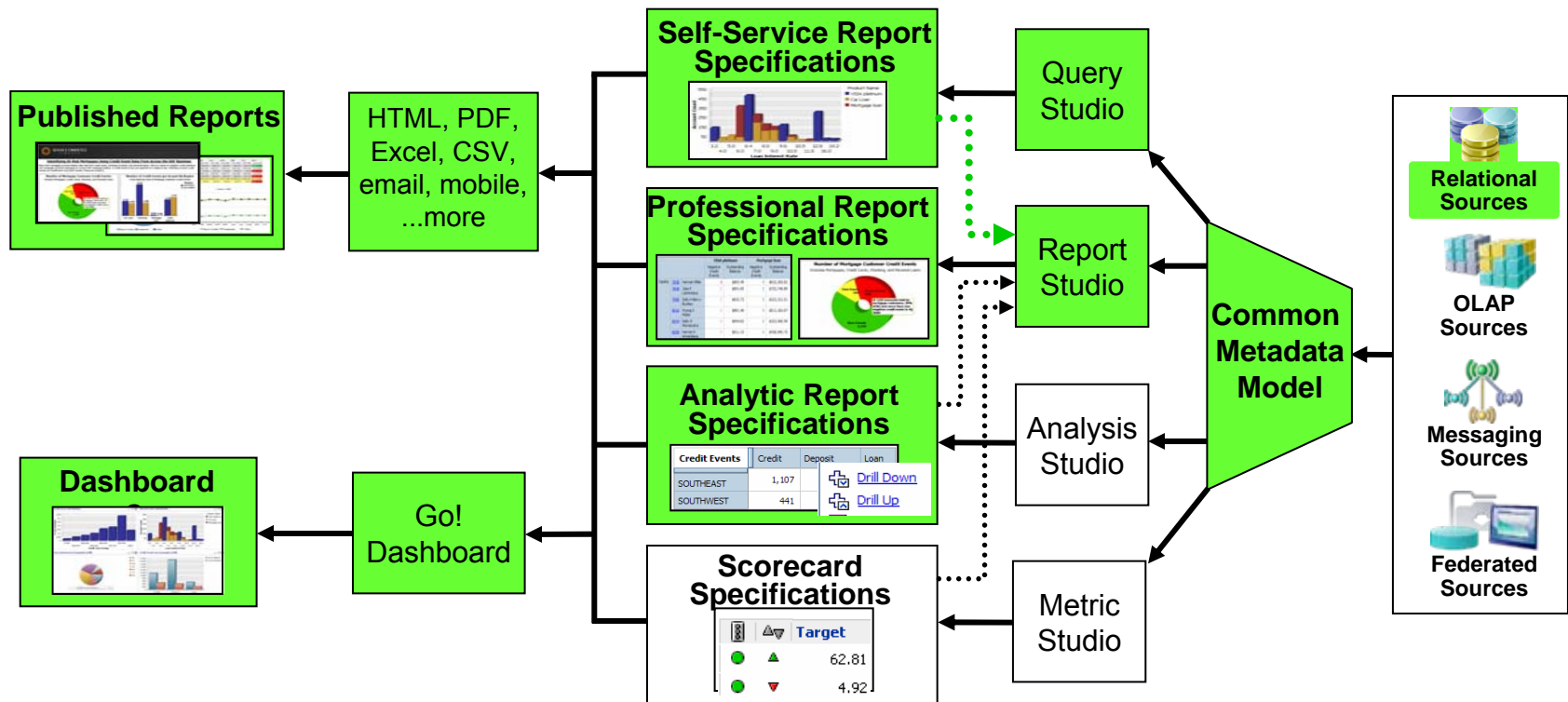
Oracle Business Intelligence Enterprise Edition Is A Complicated Bundle

- **Too Many Products!**
- **Multiple Desktop Client Tools**
 - ▶ Multiple report formats
 - ▶ Multiple metadata models
 - ▶ Creates More work
 - ▶ Report specifications cannot be shared or reused easily
 - No common meta data model
- **Too Many Products!**
- **Creates IT Burden**
 - ▶ Install, Patch, User Support all happen at the desktop



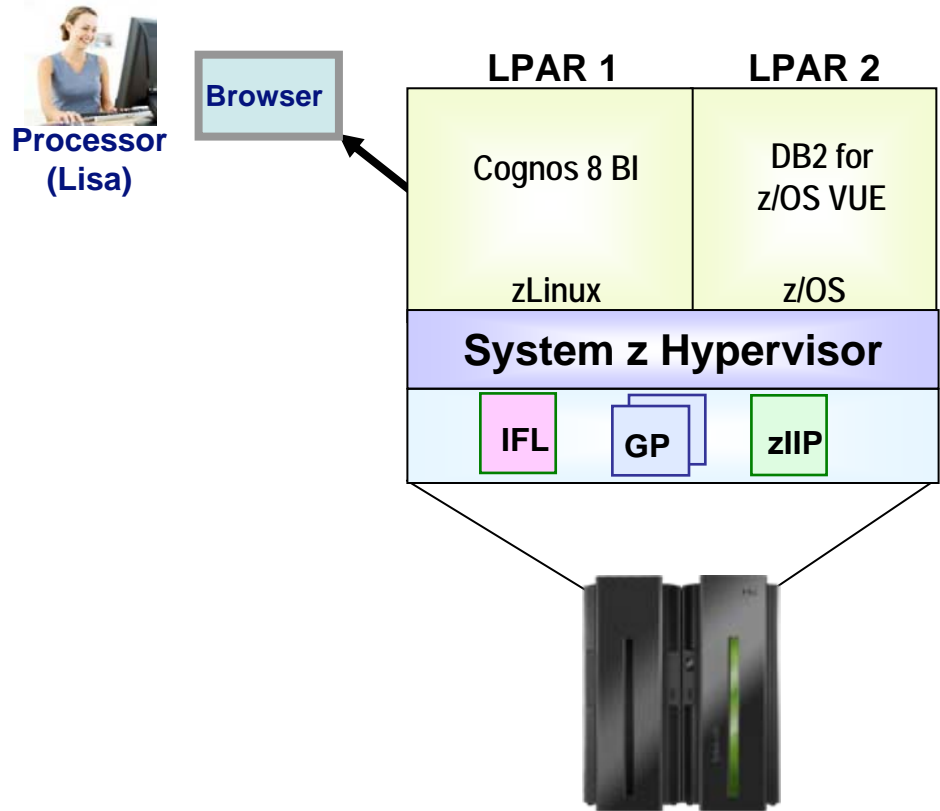
DEMO: Gain Business Insight Through IBM Cognos 8 BI

- Use Go! Dashboard to quickly monitor the business operations
- Use Cognos Query Studio to customize an existing report
- Open Cognos Report Studio and add a chart to the report



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



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

Existing Mainframe



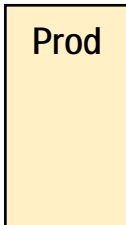
Existing z10:
2 GP 1,720 MIPS
DB2 and utilities
With 20Tb storage

Existing Disaster Recovery Site



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

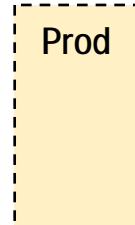
Add 1 LPAR for New Data Warehouse w 3.8 TB Storage



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



3 year
cost of
acquisition
\$5.71M

Capacity Backup:
2 GP
1 zIIP
2 IFLs

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



350,299*
Performance Units

And add Disaster Recovery W 7.3 TB storage

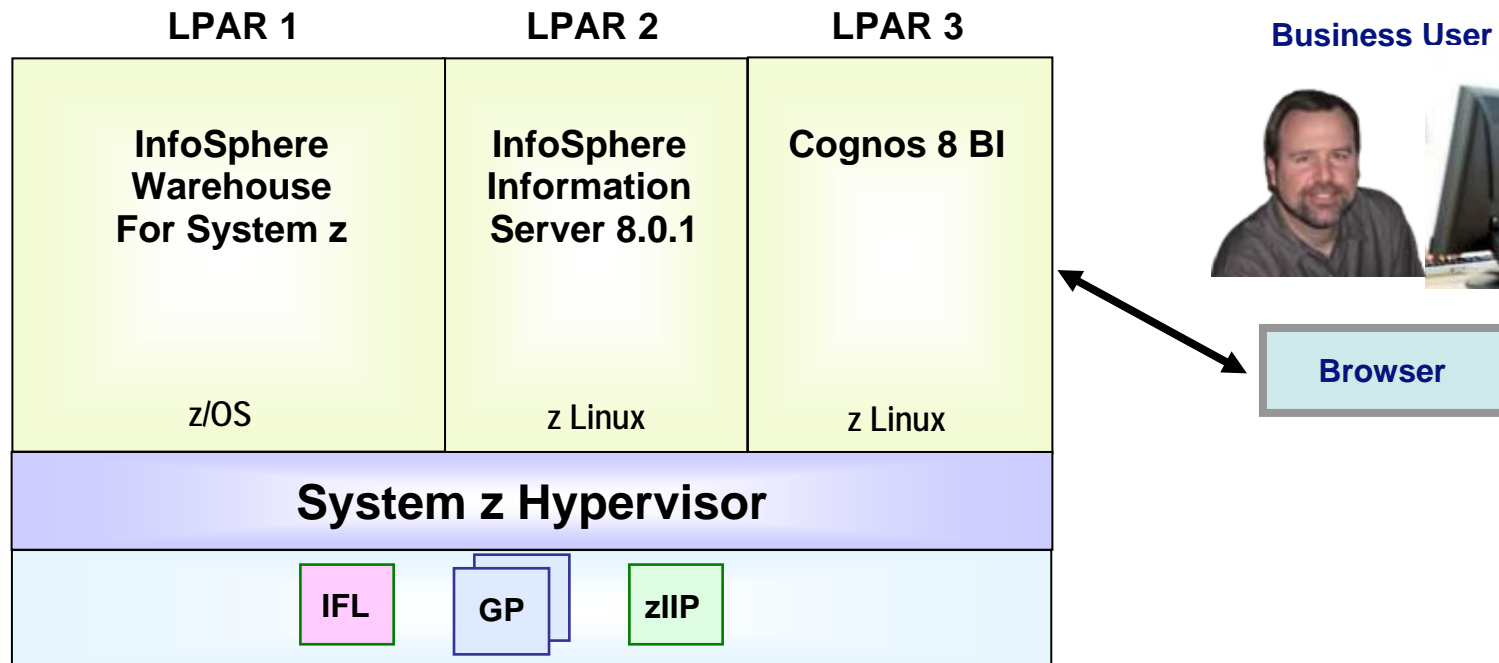


350,299*
Performance Units

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:

- InfoSphere Warehouse for System z
- 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. Microsoft And Oracle Business Optimization

	IBM	Oracle
Extensive Enterprise Connectivity	InfoSphere Information Server	Oracle-focused
Enterprise Scalability	InfoSphere Information Server	Waiting for Fusion
Integrated, Comprehensive Performance Management Platform	IBM Cognos	NO Multiple products (Oracle, Hyperion, Siebel) with different metadata models
Common metadata model	IBM Cognos	NO Multiple separate metadata strategies
100% web-based zero footprint BI	IBM Cognos	NO BI Publisher uses MS Word, Many BI functions require desktop apps and plug-ins

