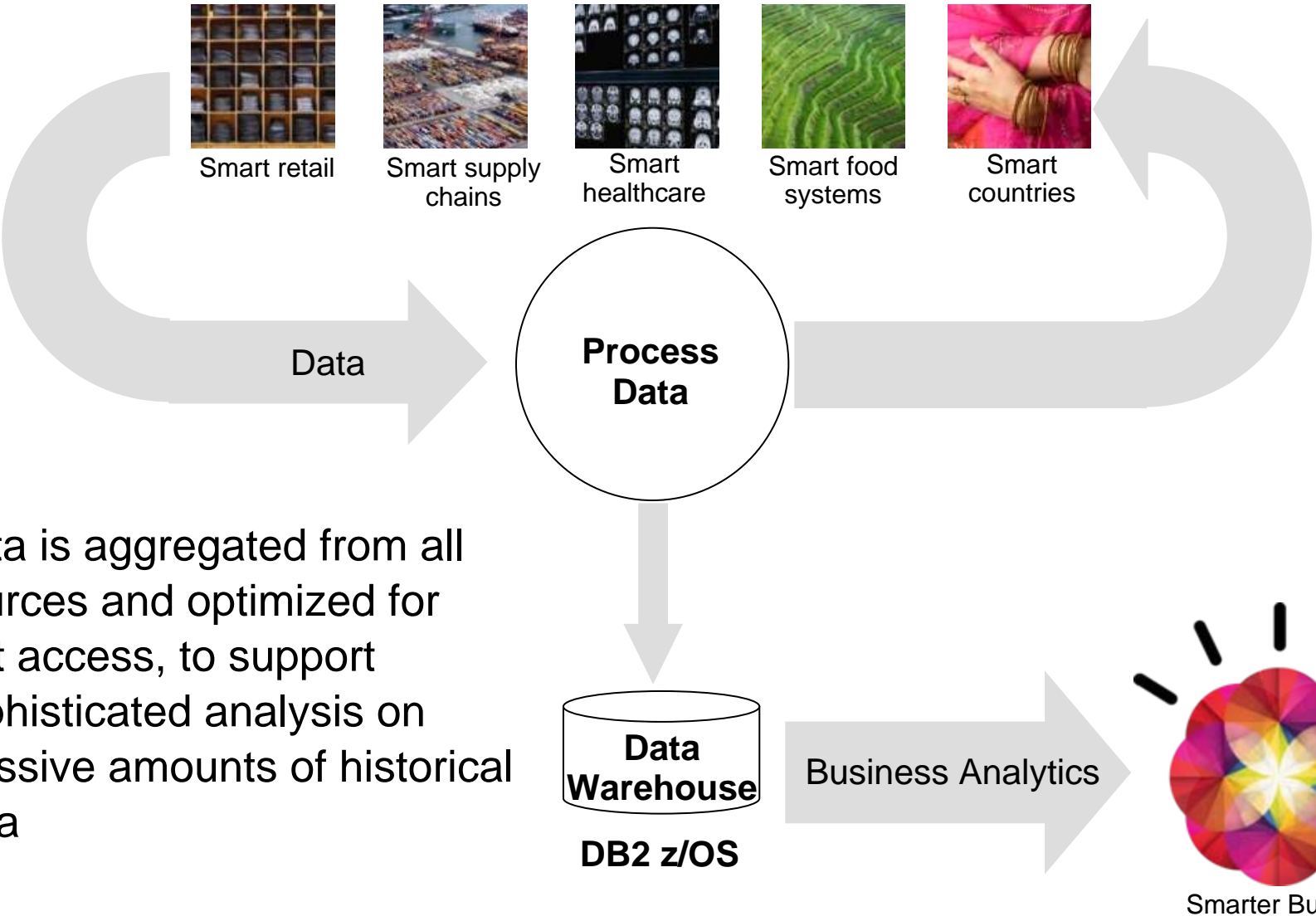# zEnterprise – The Ideal Platform For Smarter Computing
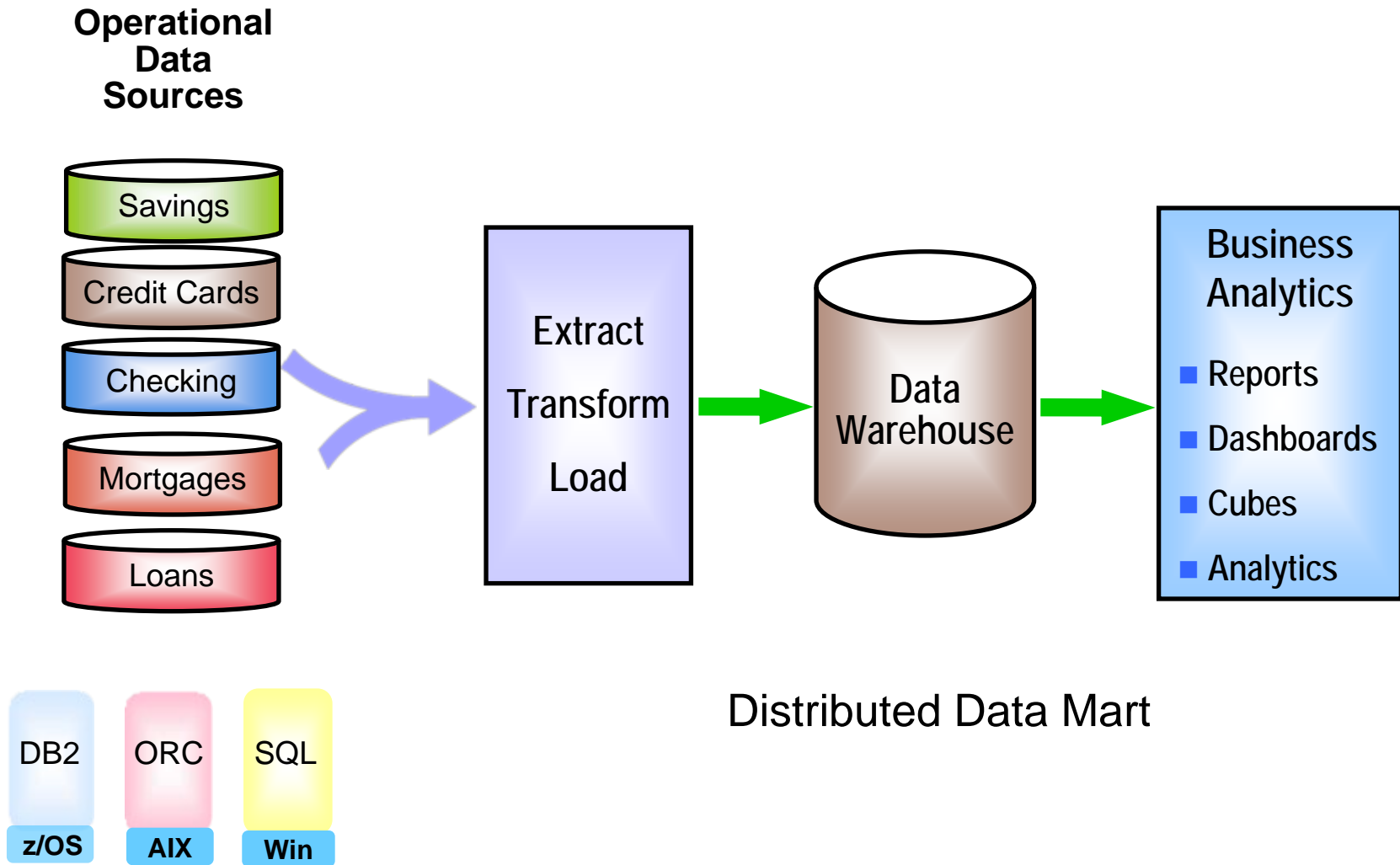
Leveraging Data To Optimize Business

Business Analytics Are A Source Of New Business Intelligence

Smart retail

Smart supply chains

Smart healthcare

Smart food systems

Smart countries

Data

Process Data

Data is aggregated from all sources and optimized for fast access, to support sophisticated analysis on massive amounts of historical data

Data Warehouse

DB2 z/OS

Business Analytics

Smarter Business

Typical Business Analytics Data Flow

Operational Data Sources

Savings

Credit Cards

Checking

Mortgages

Loans

Extract
Transform
Load

Data Warehouse

Business Analytics

■ Reports

■ Dashboards

■ Cubes

■ Analytics

Distributed Data Mart

DB2
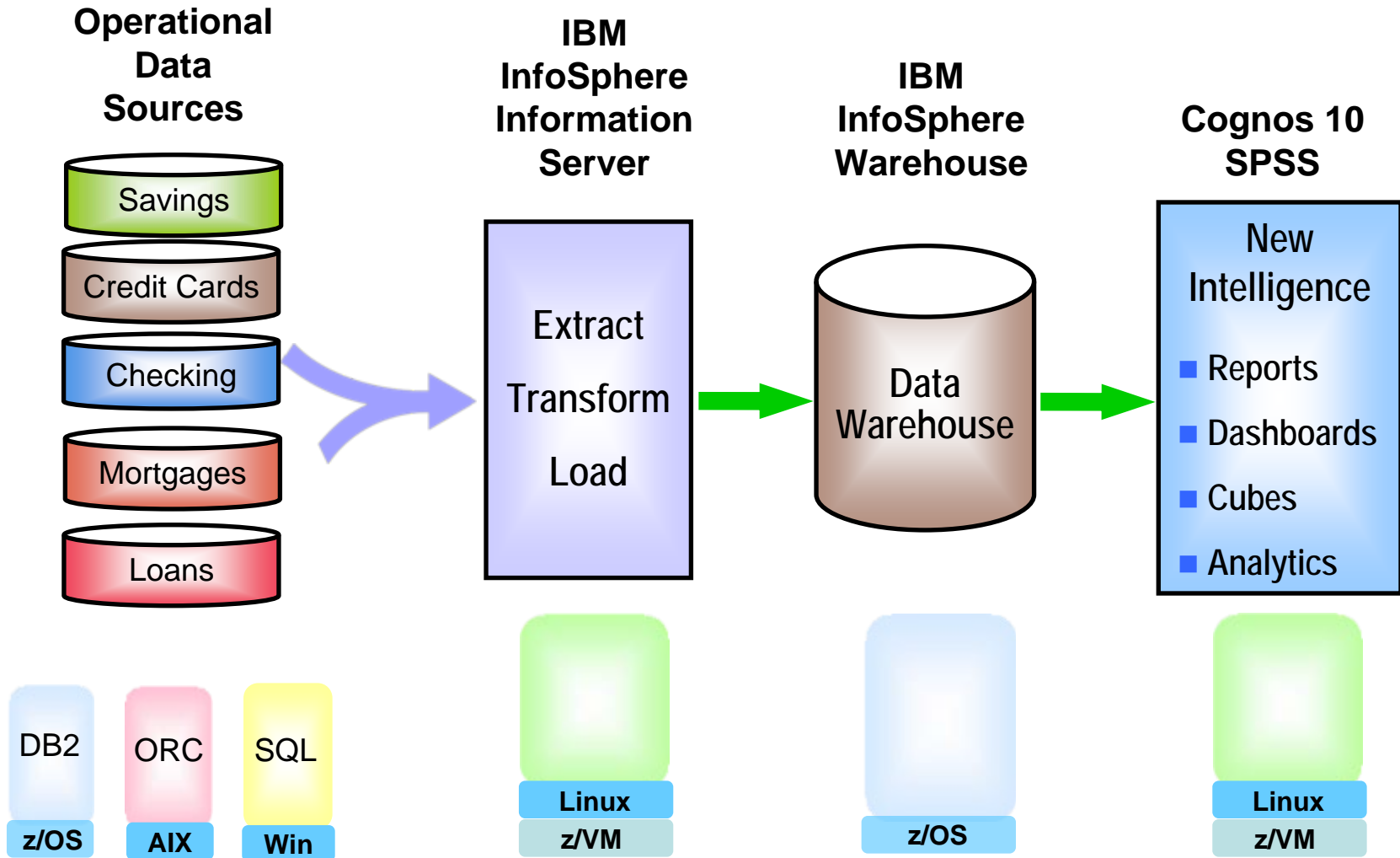**z/OS**

ORC
AIX

SQL
Win

System z Is The Foundation For Data

- 60-70% of corporate information resides on System z*

- Copying data from System z to another platform for data warehouses or data marts
  - ▶ Is costly
  - ▶ Can be inefficient
  - ▶ Takes longer to update
  - ▶ May create data disparities
  - ▶ Introduces security concerns

- System z offers a fully integrated, holistic solution from operational data to business analytics
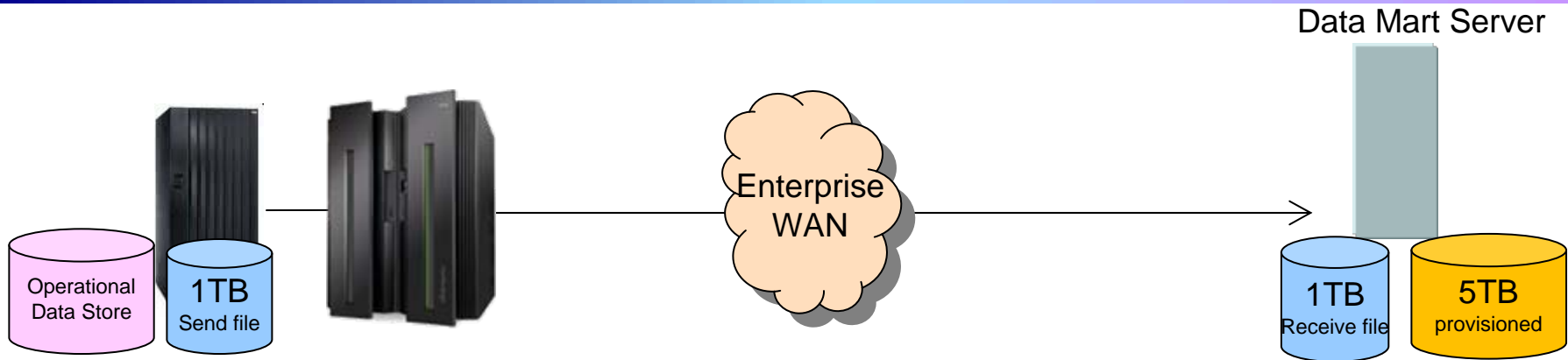
* Source http://www.ibmsystemsmag.com/mainframe/trends/whatsnew/The-Mainframe-at-a-Crossroads/

zEnterprise Holistic Solution For Business Analytics

Operational Data Sources

- Savings
- Credit Cards
- Checking
- Mortgages
- Loans

DB2 — z/OS
ORC — AIX
SQL — Win

IBM InfoSphere Information Server

Extract
Transform
Load

Linux
z/VM

IBM InfoSphere Warehouse

Data Warehouse

z/OS

Cognos 10 SPSS

New Intelligence

- Reports
- Dashboards
- Cubes
- Analytics

Linux
z/VM

Duplicating Very Large Data off the Mainframe To A Data Mart Is Costly

Data Mart Server

Operational Data Store

1TB Send file

Enterprise WAN

1TB Receive file

5TB provisioned

Cost of storage - send file $12.33/GB x 1,024 GB	$13K

Storage acquisition cost $123K

Cost of storage - receive file $18/GB x 1,024 GB	$18K
Cost of storage - data mart $18/GB x 5,120 GB	$92K

System z Storage Admin $5.88/GB/yr x 1,024 GB	$6K

Annual storage admin cost $61K

Distributed Storage Admin $8.99/GB/yr x 6,144 GB	$55K

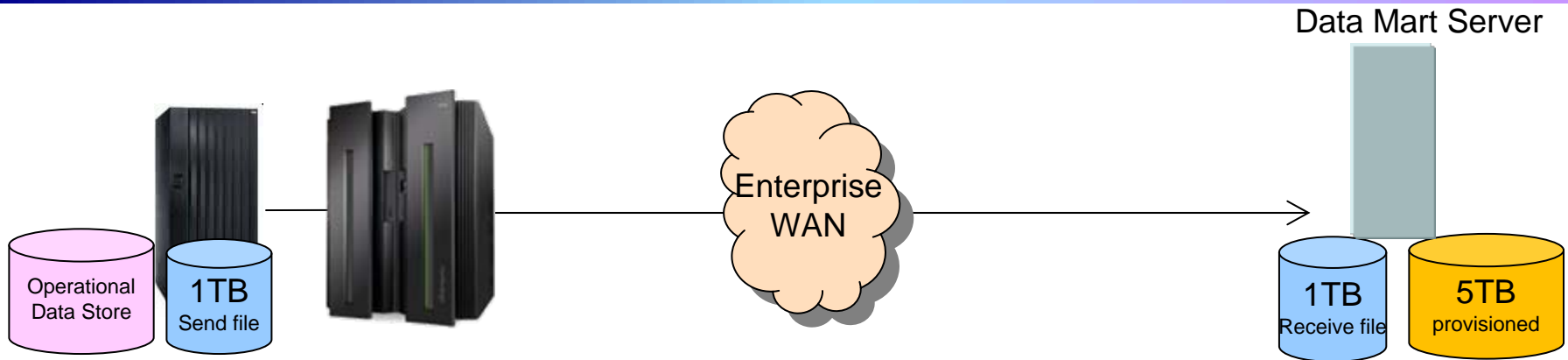| System z CPU extract $1.38/GB x 1,024 GB x 365	$515K
System z CPU cost FTP $0.58/GB x 1,024 GB x 365	$217K
System z extract labor $4.67/job x 365	$1.7K
System z FTP labor $2.94/job x 365	$1.1K

On Premises Network $0.0024/GB x 1,024 GB x 4 hops x 365	$3.6K
Off Premises Network $0.29/GB x 1,024 GB x 2 hops x 365	$217K

Annual Transfer Costs $1.1M

Distributed CPU cost load $0.39/GB x 1,024 GB x 365	$146K
Distributed CPU cost FTP $0.05/GB x 1,024 GB x 365	$17.5K
Distributed load labor $14.00/job x 365	$2.55K

Data Mart analysis costs not included
Based on IBM internal study

6

The Incremental Cost Of Duplicating 1TB To A Data Mart

Data Mart Server

Operational Data Store

1TB
Send file

Enterprise WAN

1TB
Receive file

5TB
provisioned

Cost of storage - send file $12.33/GB x 1,024 GB	$13K

Storage acquisition cost
$13K

System z CPU extract $1.38/GB x 1,024 GB x 365	$515K
System z CPU cost FTP $0.58/GB x 1,024 GB x 365	$217K

On Premises Network $0.0024/GB x 1,024 GB x 4 hops x 365	$3.6K
Off Premises Network $0.29/GB x 1,024 GB x 2 hops x 365	$217K

Annual Transfer Costs
$953K

Cost of data transfer (receive file, CPU cycles) already included in the cost of the data mart system

IBM Cognos Is An Integrated Platform For Smart Analytics

- **People-centric**
  - ▶ Server based business analytics accessed via browser
  - ▶ Consistent user interface for different analytic activities
  - ▶ Reuse new intelligence assets
  - ▶ Built-in collaboration and social networking
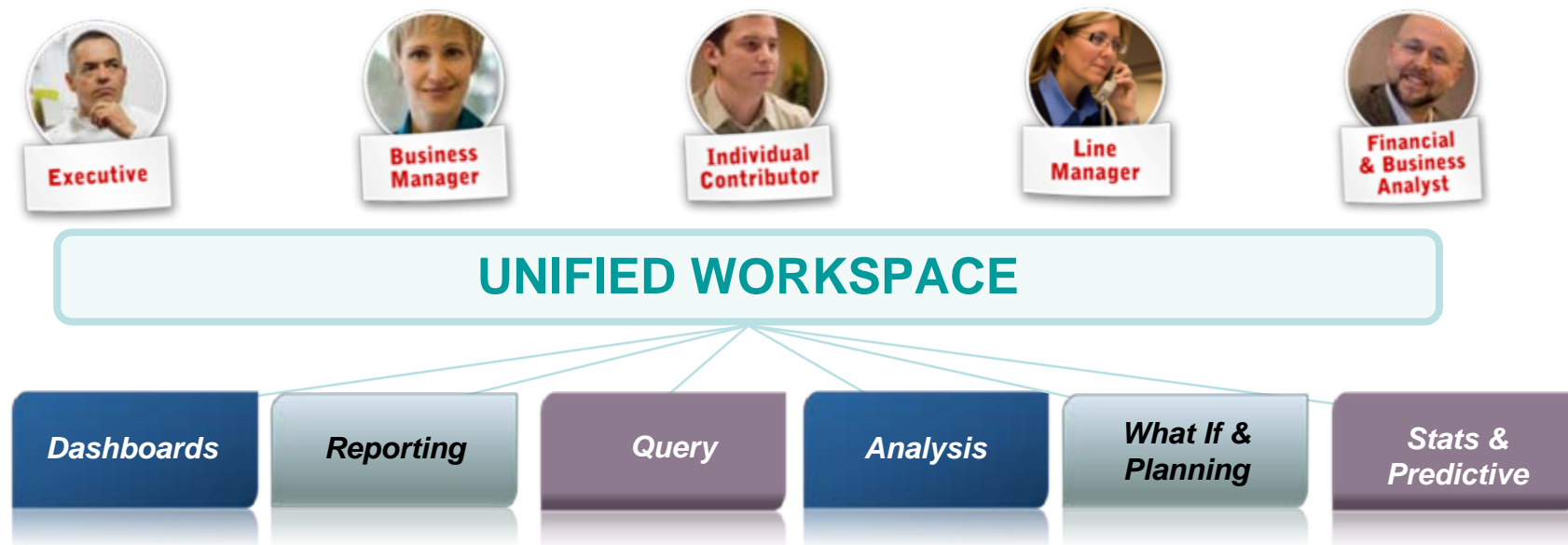 - ▶ Threaded discussions, activities, and notifications

- **Easy to deploy and manage**
  - ▶ Implemented in Java, runs on WebSphere
  - ▶ Scales up and out across heterogeneous hardware and operating systems
  - ▶ Runs on Linux on System z

User Browser

IBM Cognos server

Query Report OLAP

Metadata Model

Data Warehouse
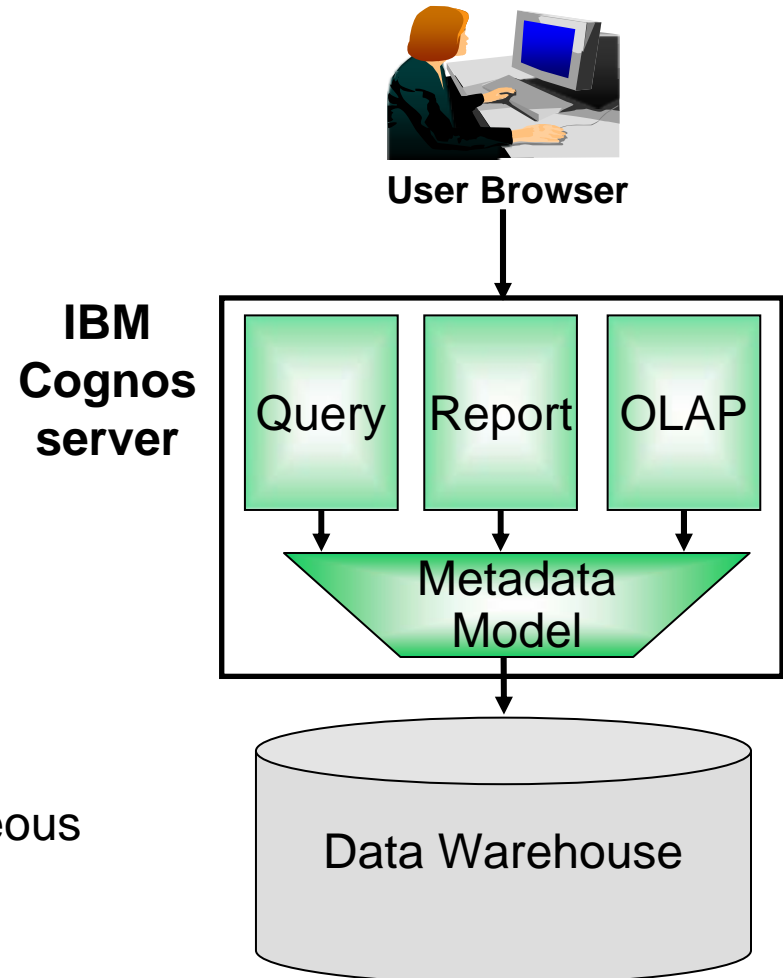
IBM Cognos Provides A Unified Workspace

- All activities from one place, without jumping to different interfaces
  - ▶ Dashboards for summary overview
  - ▶ Reports for tracking progress
  - ▶ Ad hoc queries and drill down for analysis and what if scenarios
  - ▶ Statistics and predictive analysis
- Progressive interaction – Interact and analyze information based on role
- Form decision networks for collaborative business analytics

Executive **Business Manager** **Individual Contributor** **Line Manager** **Financial & Business Analyst**

UNIFIED WORKSPACE

| *Dashboards* | *Reporting* | *Query* | *Analysis* | *What If & Planning* | *Stats & Predictive* |

Reuse Prior Assets In New Deliverables
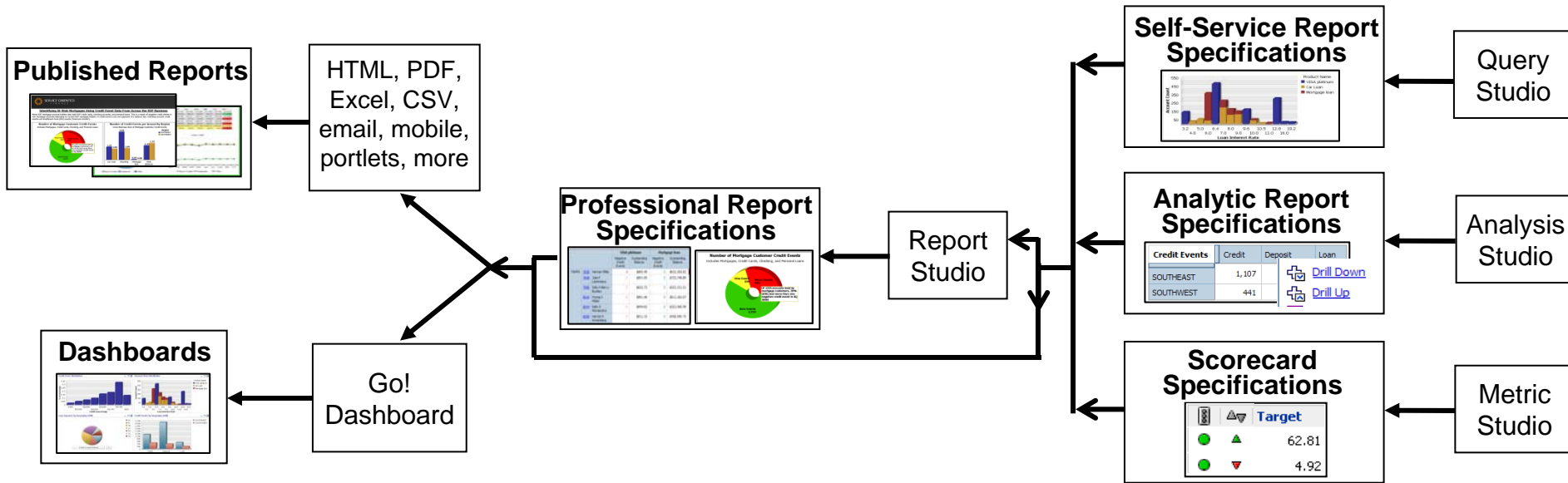
- Author once, consume anywhere

- All analytic assets share a common metadata model and a common multilingual report specification

- Ensures consistent information and enables reuse across platform functions

DEMO: Use Cognos To Identify New Business Insights From The Data Warehouse

1. Show report generated in Cognos Report Studio in PDF format

2. Report identifies high-risk mortgages by looking at negative credit events in other customer accounts (CC, Checking, etc…)

3. Report uses both structured and unstructured data (link to mortgage data stored in FileNet)

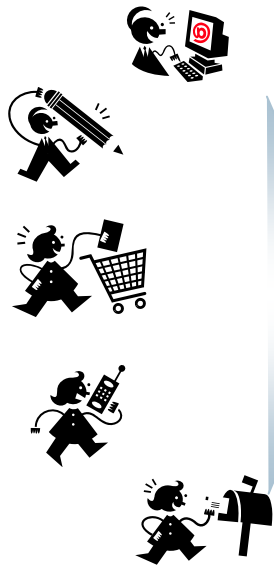4. Use Go! Dashboard to monitor the business operations

At risk customers are identified

SPSS Enables Customers To Predict Future Events And Drive Better Business Outcomes

Capture

Data Collection delivers an accurate view of customer attitudes and opinions
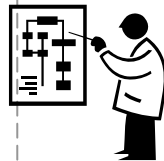
IBM SPSS Data Collection

Predict

Predictive capabilities bring repeatability to ongoing decision making, and drive confidence in your results and decisions

IBM SPSS Statistics*/Modeler*/Text Analytics

Act

Unique deployment technologies and methodologies maximize the impact of analytics in your operation

IBM SPSS Decision Management Collaboration & Deployment *

Text Analytics

Data Mining

Statistics

Platform

Pre-built Content

Attract

Up-sell

Retain

* Runs on Linux on System z

DEMO: Discover Rules For Identifying Risky Customers Using SPSS Statistics

1. Load data from Data Warehouse on DB2 for z/OS into SPSS Statistics

2. Pre-process the data to create new attributes for quantifying negative credit events across different product lines and create a risk flag for mortgage

3. Run Comparison of Means and Decision Tree to discover rules for characterizing risky customers
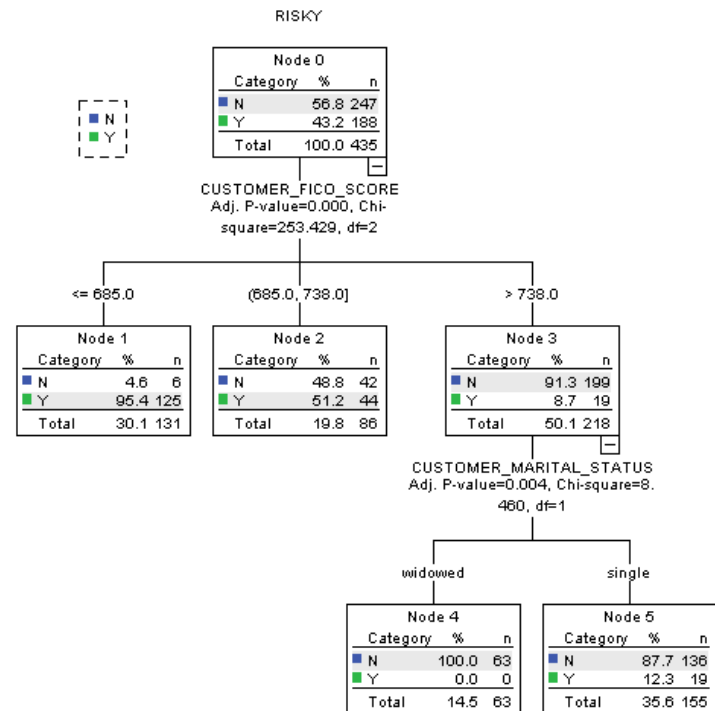
- Credit Limits identified for characterizing risky customers
- Use these credit limits for automated loan approval process

Next Generation IBM DB2 Analytics Accelerator Capitalizes On Netezza Technology

What is the IDAA?

A workload-optimized, blade-based appliance add-on

Deeply integrated with DB2 for z/OS and transparent to applications

Significantly speeds up the response time for a wide variety of complex queries

Drives down the costs of data warehousing and business analytics

What's new with V2.1?

- System x blade customized with Netezza Technology
- Incorporates streaming architecture based on Netezza's patented data filtering using Field Programmable Gate Arrays (FPGAs)
- Tuned for delivering fast query response times for a wide variety of decision workloads
- Uses efficient data filtering by early SQL projections
- Storage integrated into the hardware rack
- Supported on DB2 for z/OS v9 or DB2 for z/OS v10 running on a z/196

Breakthrough Technology Enabling New Opportunities

A Longer List Of Business Analytic Software Available On z196

Information Management

- DB2
- Informix
- FileNet Business Process Manager
- FileNet Content Manager
- FileNet Records Manager
- FileNet Rendition Engine
- InfoSphere – totally 30 products, incl:
  - InfoSphere DataStage
  - InfoSphere Federation Server
  - InfoSphere Information Analyzer
  - InfoSphere Information Server
  - InfoSphere Master Data Mgmt Server
  - InfoSphere Warehouse for DB2 for z/OS
  - InfoSphere FastTrack
- … many more

Business Analytics

- Cognos Business Intelligence
- SPSS Collaboration and Deployment Services
- SPSS Modeler
- SPSS Statistics

zEnterprise Is An Excellent Base For Your Data Warehouse And Business Analytics

- Operational and warehouse data co-located on z196 for optimal performance

- Exploits System z Parallel Sysplex for availability and scale

- Cognos supports a common metadata model and report specification, and provides 100% browser-based access

- SPSS predictive analytics provides actionable insights versus hindsight

- Systematic disaster recovery and backup strategies

- Qualities of Service

- Competitive Price