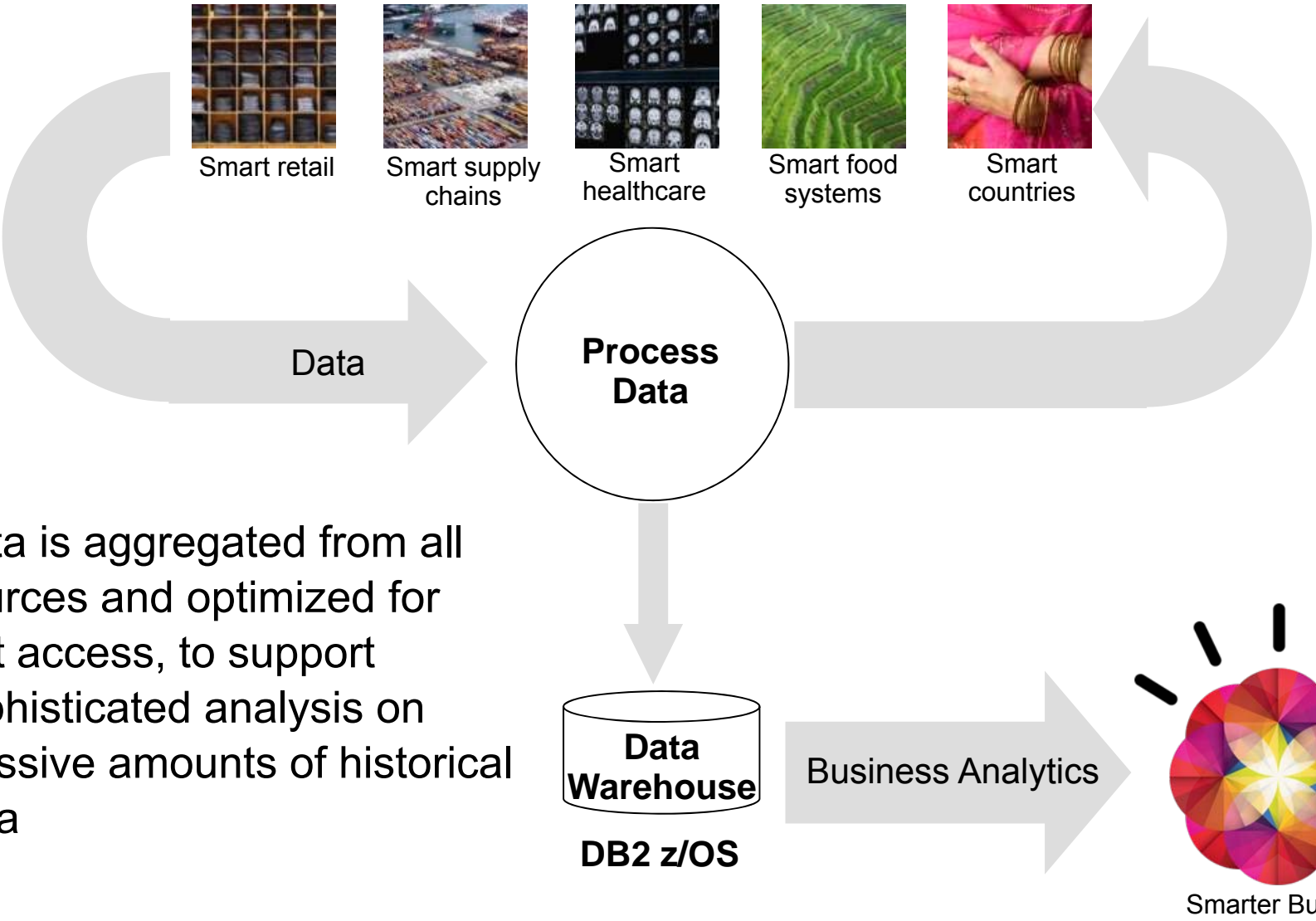




zEnterprise – The Ideal Platform For Smarter Computing

Leveraging Data To
Optimize Business

Business Analytics Are A Source Of New Business Intelligence



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

System z Is The Foundation For Data

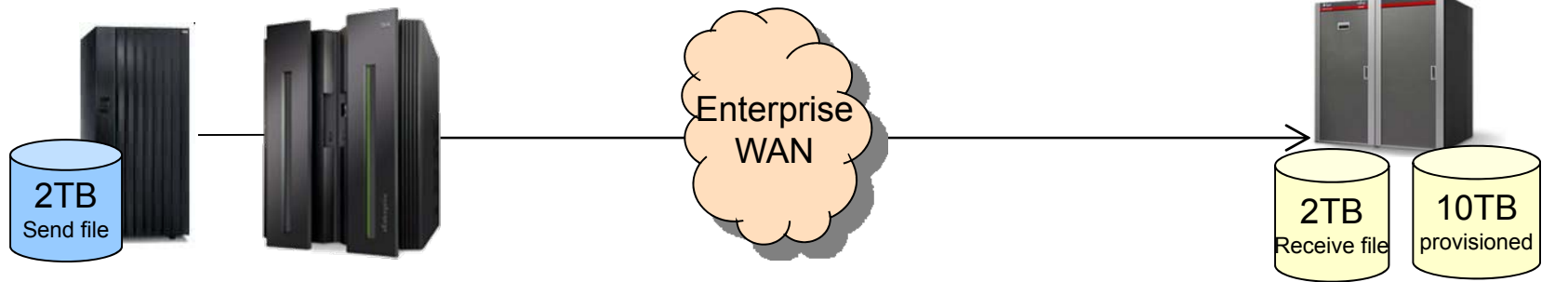
- 60-70% of corporate information resides on System z*
- Copying data from System z to another platform for data warehouse and business analytics processes
 - ▶ Is costly
 - ▶ Can be inefficient
 - ▶ Takes longer to update
 - ▶ May create data disparities
 - ▶ Introduces security concerns
- System z offers a fully integrated, holistic solution from data capture to delivery



* Source <http://www.ibmssystemsmag.com/mainframe/trends/whatsnew/The-Mainframe-at-a-Crossroads/>

Duplicating Data Off The Mainframe Is Costly

The Cost Of Duplicating A 2TB Data Mart



Cost of storage - send file \$12.33/GB x 2048 GB	\$25,252
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Storage acquisition cost
\$246,436

Cost of storage - receive file \$18/GB x 2048 GB	\$36,864
Cost of storage - data mart \$18/GB x 10,240 GB	\$184,320

System z Storage Admin \$5.88/GB/yr x 2048 GB	\$12,042
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Annual storage admin cost
\$122,511

Distributed Storage Admin \$8.99/GB/yr x 12,288 GB	\$110,469
---	-----------

System z CPU extract \$1.38/GB x 2048 GB	\$2,826
System z CPU cost FTP \$0.58/GB x 2048 GB	\$1,188
System z extract labor \$9.33/job	\$9
System z FTP labor \$5.88/job	\$6

On Premises Network \$0.0024/GB x 2048 GB x 4 hops	\$20
Off Premises Network \$0.29/GB x 2048 GB x 2 hops	\$1,188

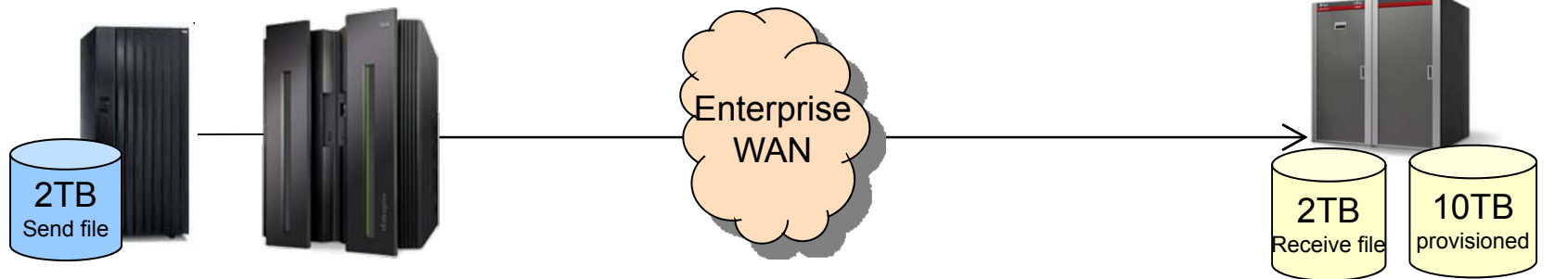
Cost per Transfer
\$6,146

Distributed CPU cost load \$0.39/GB x 2048 GB	\$799
Distributed CPU cost FTP \$0.05/GB x 2048 GB	\$96
Distributed load labor \$14.00/job	\$14

Data Mart analysis costs not included
Based on IBM internal study

Transfer Costs Add Up Over One Year

The Cost Of Duplicating A 2TB Data Mart



Cost of storage - send file \$12.33/GB x 2048 GB	\$25,252
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Distributed Storage Admin \$8.99/GB/yr x 12,288 GB	\$110,469
---	-----------

System z CPU extract \$1.38/GB x 2048 GB x 365	\$1.03M
System z CPU cost FTP \$0.58/GB x 2048 GB x 365	\$434K
System z extract labor \$9.33/job x 365	\$3.3K
System z FTP labor \$5.88/job x 365	\$2.2K

On Premises Network \$0.0024/GB x 2048 GB x 4 hops x 365	\$7.1K
Off Premises Network \$0.29/GB x 2048 GB x 2 hops x 365	\$434K

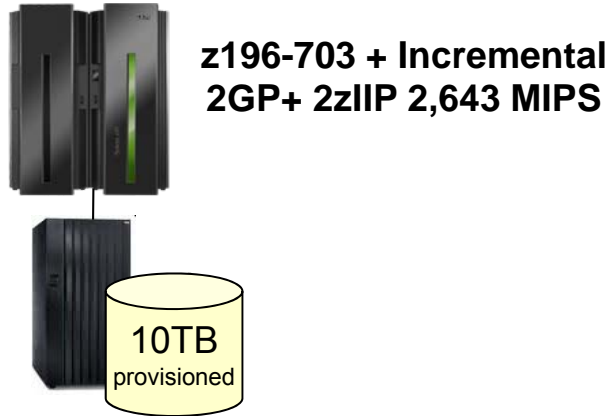
Annual Transfer Costs
\$2,243,290

Distributed CPU cost load \$0.39/GB x 2048 GB x 365	\$292K
Distributed CPU cost FTP \$0.05/GB x 2048 GB x 365	\$35K
Distributed load labor \$14.00/job x 365	\$5.1K

Data Mart analysis costs not included
Based on IBM internal study

Co-locating Data Mart On z196 Saves 83% Versus Oracle/Sun

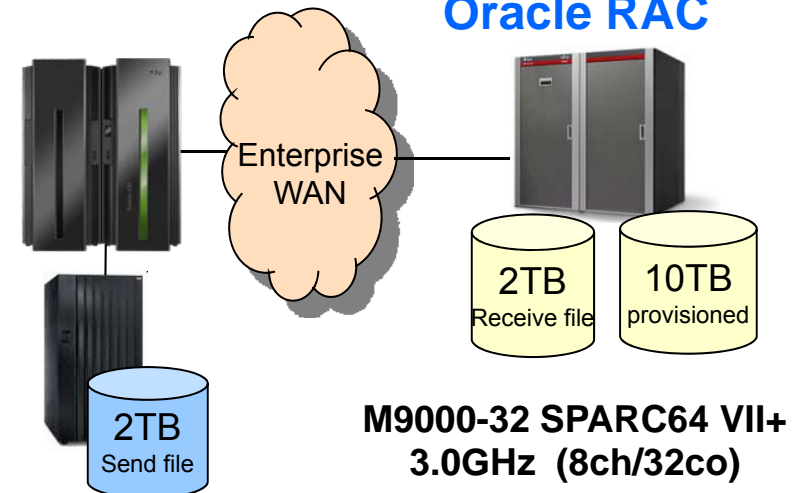
zEnterprise z196 DB2 on z/OS



Total (3yr TCA) **\$1.98M**

Hardware	\$352,405
Software	\$1,325,713
Storage	\$117,505
Storage Admin	\$180,630

Sun M9000 Oracle RAC



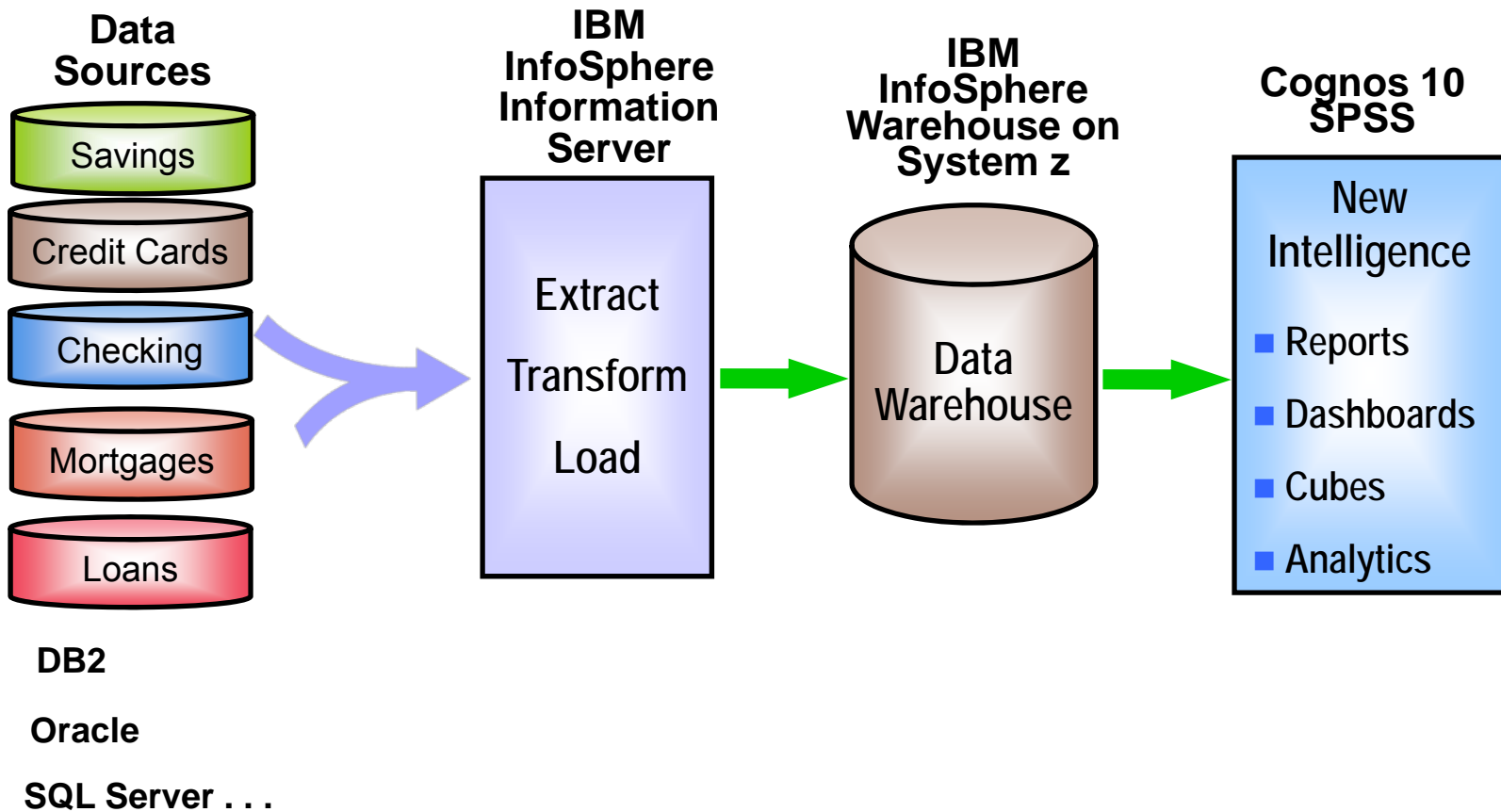
Total (3yr TCA) **\$11.65M**

Hardware	\$1,784,776
Software	\$2,522,720
Storage	\$184,320
FTP File Storage	\$62,116
Storage Admin	\$367,533
Transfer Cost	\$6,729,870

Equivalent Performance = 59,782 QpH

Source: IBM Internal Study. Results may vary based on customer workload profiles/characteristics.

Load Operational Data Into A Unified Data Warehouse To Enable Business Intelligence



IBM Information Management And Business Analytics Products On System z

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**

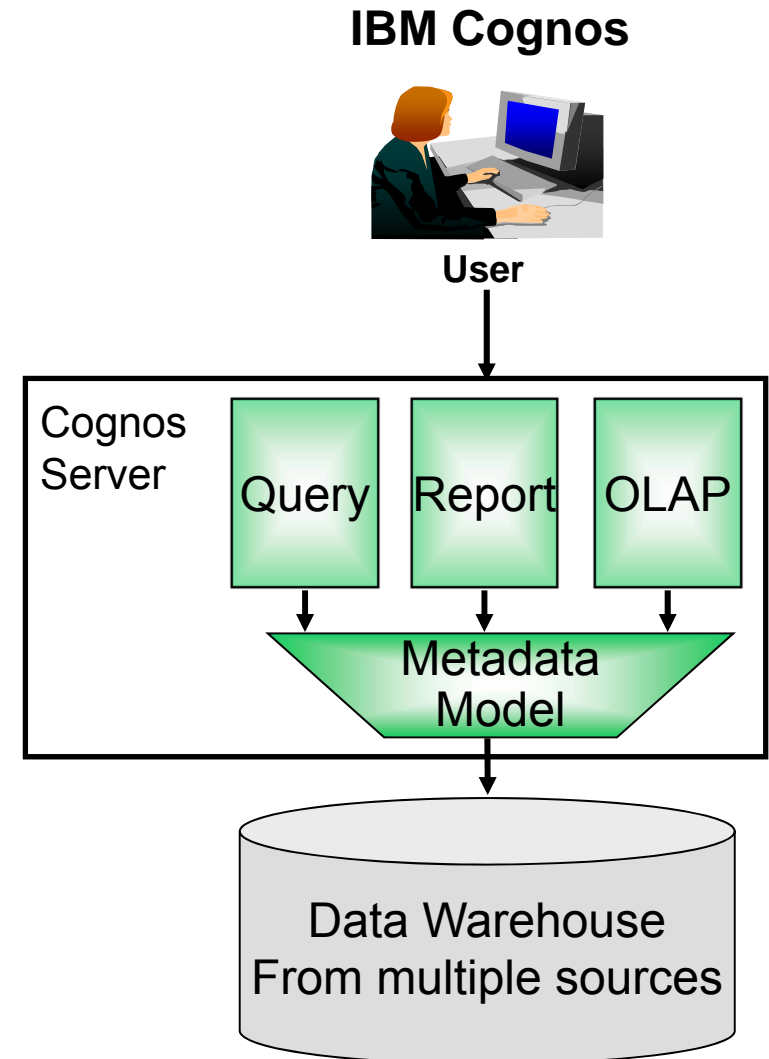
IBM Cognos Is An Integrated Platform For Smart Analytics

■ People-centric

- ▶ 100% browser-based access to server-side business intelligence lets users access new intelligence from anywhere
- ▶ Consistent user interface leads to greater user satisfaction and lower IT costs
- ▶ Built-in collaboration and social networking
- ▶ Threaded discussions, activities, and notifications
- ▶ Annotations down to the cell level

■ Easy to deploy and manage

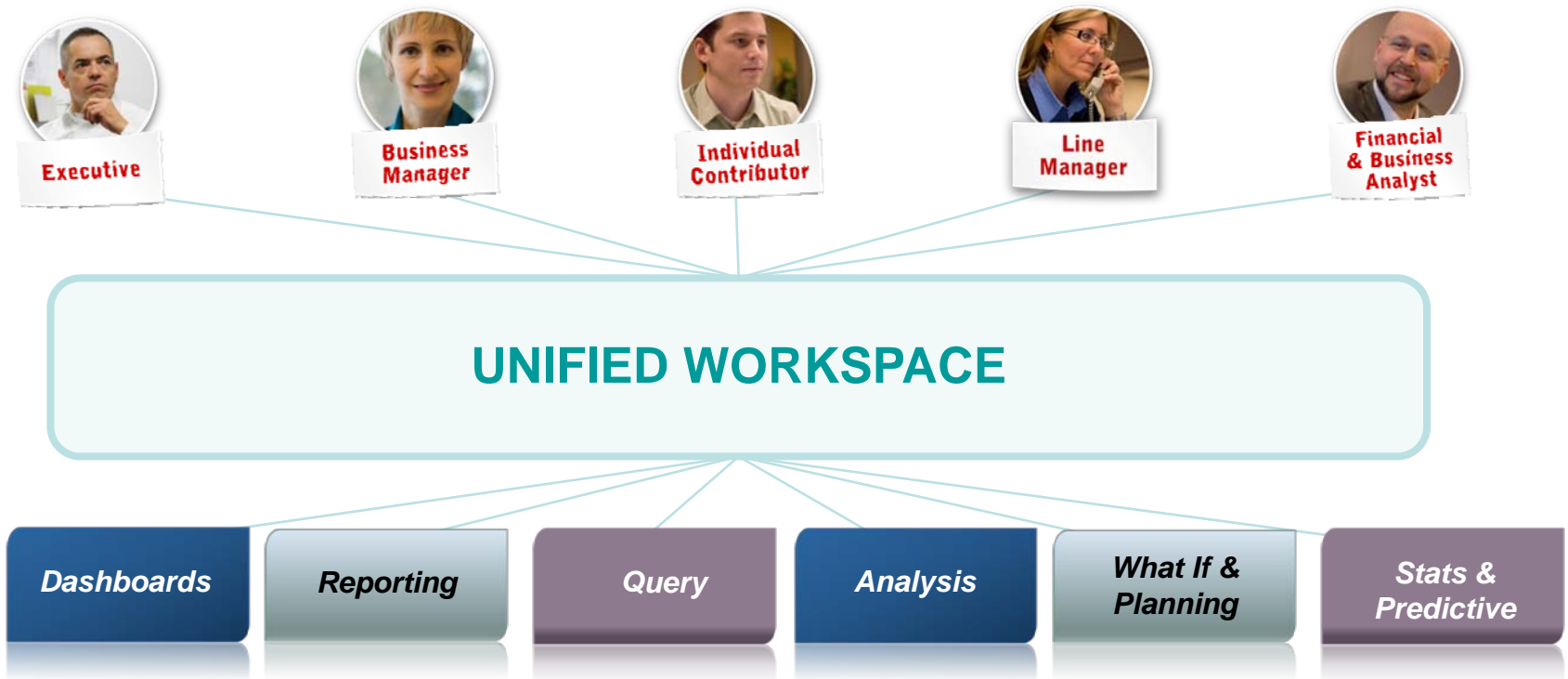
- ▶ Implemented in Java, runs on WebSphere
- ▶ Scales up and out across heterogeneous hardware and operating systems
- ▶ Unified administration and security
- ▶ Runs on Linux on System z



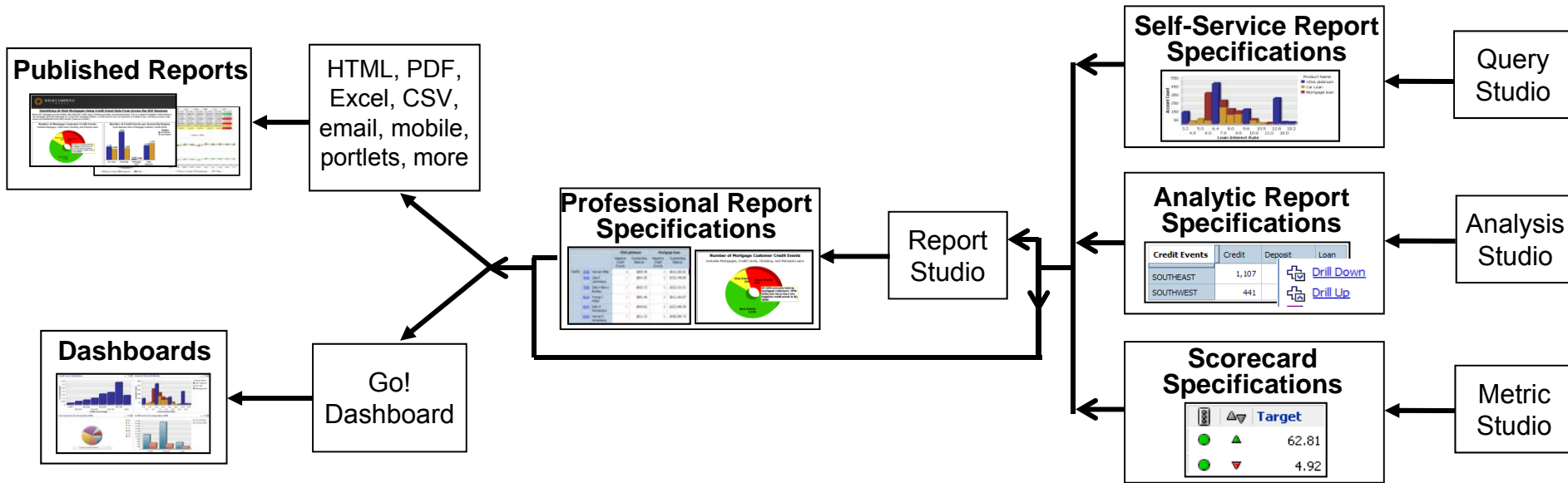
■ IBM Cognos

IBM Cognos Provides A Unified Workspace

- All capabilities from one place, without jumping to different interfaces
- Progressive interaction – Interact and analyze information based on role
- All Time Horizons – View, analyze, model, and predict future results from one place
- Collaborative BI – Form decision networks to establish accountability and alignment



Reuse Trusted New Intelligence Assets Across The Cognos Platform



- All new intelligence assets share a common metadata model and a common multilingual report specification
- Author once, consume anywhere
- Ensures consistent information and enables reuse across platform functions

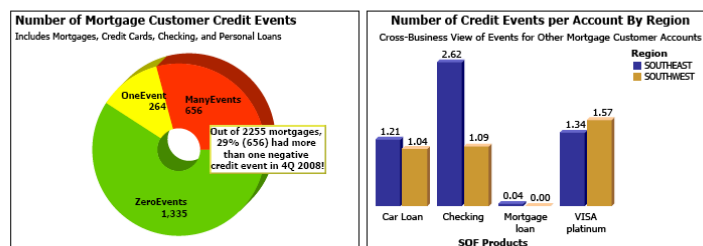
DEMO: Use Cognos To Identify New Business Insights From The Data Warehouse

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



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 **block 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
TAMPA	7328 Herman Miller	11	\$1,433.86	3	\$865.46	3	\$24,465.55	0	\$232,285.82	17	\$259,050.71
	7928	11	\$1,433.86	3	\$865.46	3	\$24,465.55	0	\$232,285.82	17	\$259,050.71
	7348 Julia P Lamoreaux	4	\$1,251.57	2	\$891.85	2	\$52,120.40	0	\$722,748.89	8	\$777,012.71
	7948	4	\$1,251.57	2	\$891.85	2	\$52,120.40	0	\$722,748.89	8	\$777,012.71
	8044 Kelly O Montecalvo	4	\$1,127.24	2	\$844.82	2	\$74,670.00	0	\$323,366.59	8	\$400,008.65
	8044	4	\$1,127.24	2	\$844.82	2	\$74,670.00	0	\$323,366.59	8	\$400,008.65
8008 Shad I Davis	4	\$780.11	2	\$830.11	2	\$43,230.00	0	\$919,073.43	8	\$963,913.65	

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

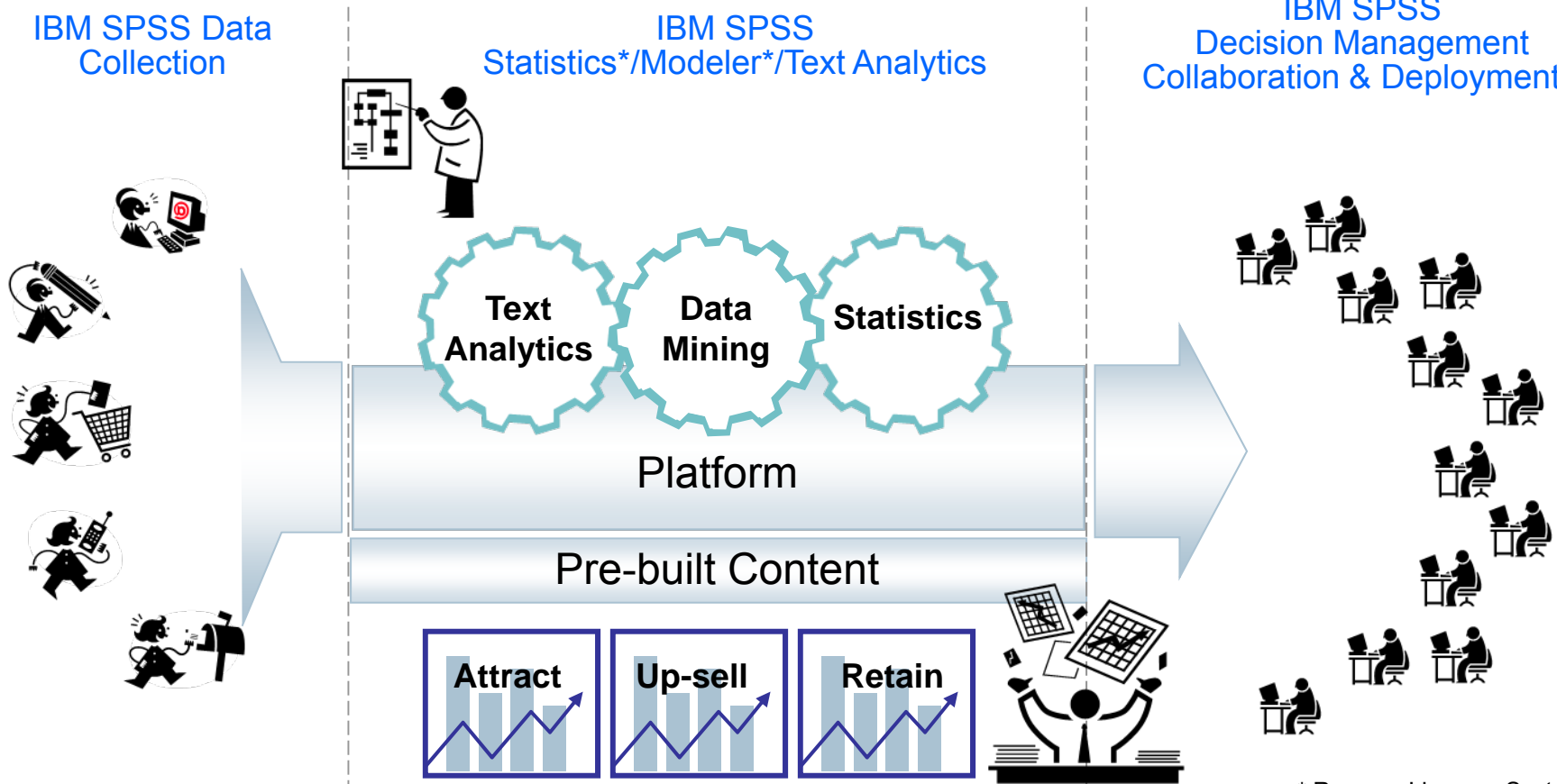
Predictive capabilities bring repeatability to ongoing decision making, and drive confidence in your results and decisions

IBM SPSS Statistics*/Modeler*/Text Analytics

Act

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

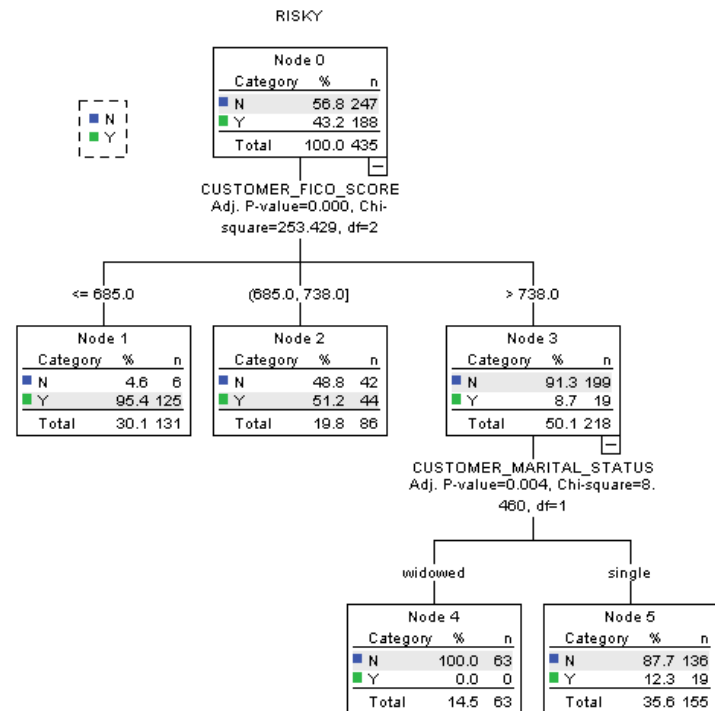
IBM SPSS Decision Management Collaboration & Deployment *



* 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

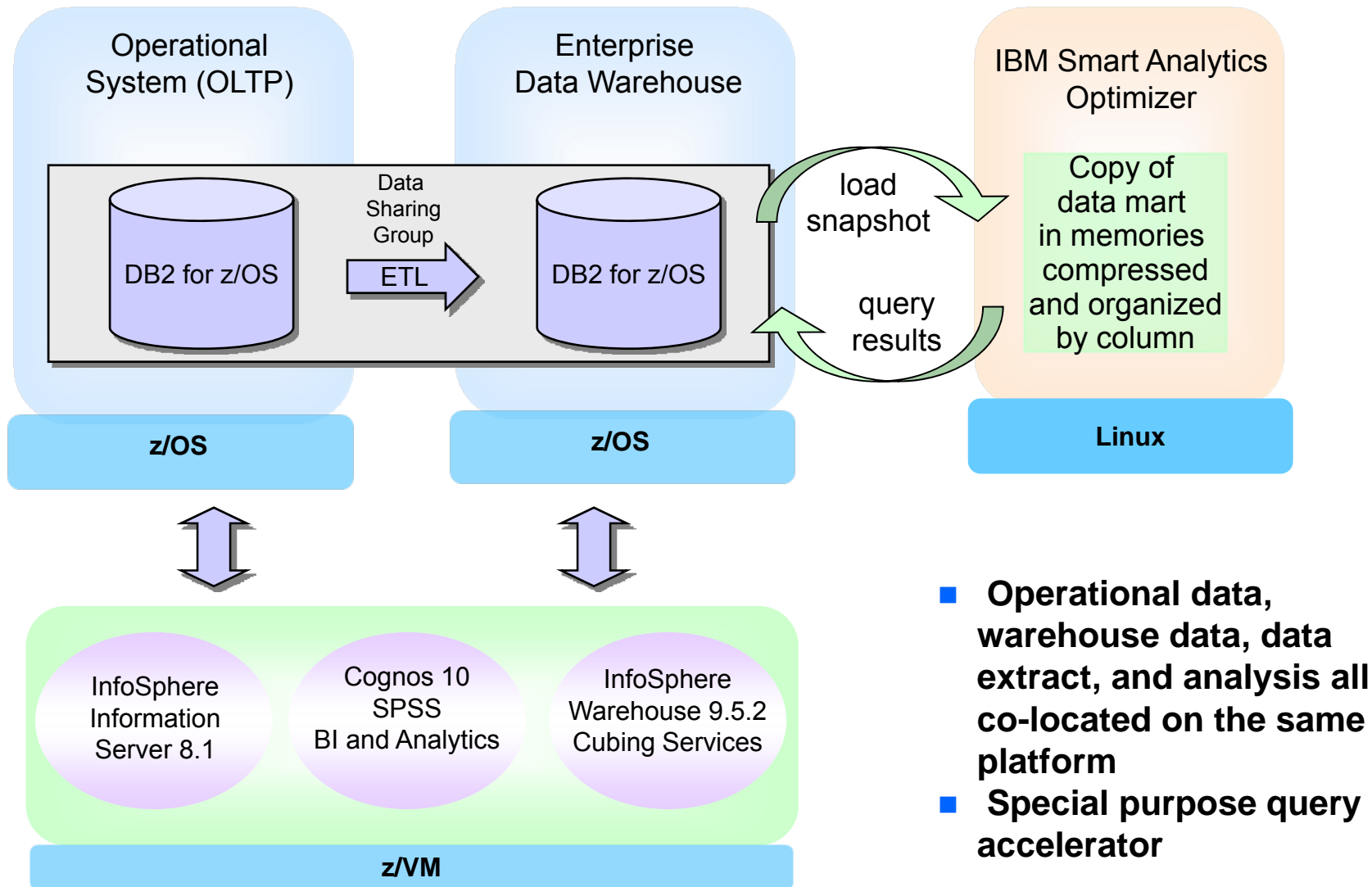
IBM Smart Analytics System 9600: Delivers Enterprise-wide Analytics On z196

- **Extend the qualities of service, inherent in the z/OS environment to ensure the availability and security of data.**
- **Hardware/OS**
 - ▶ z/OS 1.12
 - ▶ IBM zEnterprise technology
 - ▶ IBM System Storage DS8700 Intelligent Disk controller
 - Large controller cache and 3 Tier disk offering
- **Unique Software**
 - ▶ DB2 for z/OS
 - ▶ Cognos included in base offering (Linux on System z)
 - ▶ InfoSphere Warehouse (Linux on System z)
- **Optional Components**
 - ▶ Solid State drives, integrated within DS8700
 - Easy Tier to identify and migrate “hot data” to SSD
 - ▶ SPSS For Linux on z



Extremely competitive
price per TB

Consolidate Complete Business Intelligence Solution On zEnterprise



- **Operational data, warehouse data, data extract, and analysis all co-located on the same platform**
- **Special purpose query accelerator**

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