Business Architecture

Channels
Internet, Brick/Mortar, VRU, Mobile etc.

Originations
Product Platforms, etc.

Customer
ERP, CRM, Enterprise Customer

Operational Account
Transaction Engine

Servicing Systems
Product Platforms, etc.
Business / IT Alignment

**Retail IT**
- Sales / Marketing
- Products
- Customer
- Business Process
- Functional Process

**Corporate IT**
- Sales / Marketing
- Products
- Customer
- Business Process
- Functional Process

**Online IT**
- Marketing
- Products
- Customer
- Business Process
- Functional Process

**Operations IT**
- Services
- Customer
- Functional Process

**Enterprise**
- Enterprise Applications, Data Management, HR / Finance systems, Information Management, Customer

**Technical Services**
- Data Center Operations, Network Services, Mainframe Services, Open Systems Services

**Security & Risk**
- Information Security, Risk & Governance, Business Continuity

**Project Management Office**
- Project Management Methodology, Portfolio Management
• Growth across all sources of data is rampant in the financial services industry

• 87% of executives predict extremely high / high data growth in business transactions

• 88% of executives agreed that to remain competitive, their firms are dependent on leveraging increasing volumes of data
Imagine if companies had solutions that could......

- Predict and treat infections in patients before the symptoms surface and an office visit is scheduled?
- Adjust credit lines as transactions occur, taking into consideration updated risk attributes?
- Predict with a level of confidence who will buy if offered discounts at time of sale?
- Identify sentiment, loyalty and social behavior indicating the probability of customers to churn?

Health Care  Banking  Retail Sales  Operations

...optimize every transaction, process, and decision at the point of impact, based on the current situation, without requiring the customer-facing person to be the analytical expert
Organizations are using information to differentiate

4 in 5 business leaders see information as a source of competitive advantage

3 in 4 business leaders say more predictive information would drive better decisions

Prior Path to Success

- Sense and Respond
- Instinct and Intuition
- Skilled Analytics Experts
- Back Office Decision Support
- Automated Processes

Today’s Leaders

- Predict and Act
- Real-time, Fact-driven
- Everyone
- Point of Impact
- Optimized
Analytic requirements have expanded

<table>
<thead>
<tr>
<th>Traditional Business Analytics</th>
<th>Number of Users</th>
<th>Transaction Volume</th>
<th>Transaction Type</th>
<th>Qualities of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Few</td>
<td>Small</td>
<td>Complex</td>
<td>Less Important</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operational Analytics</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service &amp; Support</td>
<td>Many</td>
<td>Very Large</td>
<td>Simple</td>
<td>Critical</td>
</tr>
</tbody>
</table>

User Community
“85% of executives see the use of real-time data as a competitive differentiator, yet more than 60% agree that their data is difficult to integrate and is locked in silos that span several technology genres which hold duplicate and conflicting information”
“Real-time analytics improve decisions, but today's capabilities don't meet the needs of executives”

Growth = re-engineering

Insufficient processing power to support large or complex queries

Servers are run at sub-capacity

Data transfer is limited to off peak times

Multiple copies of the data are being created

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

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

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

Inconsistency of security controls across duplicated data
Typical IT solution....
Multiply that Across each Department

Development
Sales
Finance
Marketing
R&D
Analytics organizations are distinguished by their ability to leverage.....

**ALL INFORMATION**
- Social media, emails, chats
- Transactions
- Data warehouses
- Documents
- Sensors
- Video
- Location
- Others

**ALL PEOPLE**
- All departments
- Experts and non-experts
- Executives and employees
- Partners and customers

**ALL PERSPECTIVES**
- Past – historical, aggregated
- Present – real-time
- Future – predictive

**ALL DECISIONS**
- Major and minor
- Strategic and tactical
- Routine and exceptions
- Manual and automated
...and focus on high-value initiatives in core BUSINESS / FUNCTIONAL areas

**CUSTOMER**
- Advanced client segmentation
- Leveraging customer sentiment analysis
- Reducing customer churn

**OPERATIONS**
- Optimizing the supply chain
- Deploying predictive maintenance capabilities
- Optimizing claim processing

**FINANCE**
- Enabling rolling plan, forecasting and budgeting
- Automating the financial close process
- Delivering real-time dashboards

**RISK**
- Making risk-aware decisions
- Managing financial and operational risks
- Reducing the cost of compliance
Analytical Reporting

Batch Sources

Privacy Management

Data Integration

Operational

Billing

CRM

ERP

Batch

Analytics Engine

BPM

Business User

Data Analyst

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Increased Regulatory Constraints

Operational Billing CRM

Batch Sources Batch

Data Integration BPM Business User

Master Data Management Data Analyst

Analytics Engine Predictive Modeling

Privacy Management
IBM uniquely offers an end-to-end, integrated foundation for Enterprise Business Analytics.

IBM uniquely offers an end-to-end, integrated foundation for Enterprise Business Analytics.
IBM uniquely offers an end-to-end, integrated foundation for Enterprise Business Analytics.

Source Data

- ETL
  - Extract
  - Transform
  - Load

Data Warehouse

Cubing Services

OLTP Data
- DB2 z
- DB2 LUW
- Oracle

InfoSphere Information Server
- Linux on z

DB2
- z/OS

IDAA
- Netezza

Query Acceleration

InfoSphere Warehouse
- Linux on z

Business Analytics
- Business Intelligence
- Predictive Analytics

Cognos and SPSS
- Linux on z
DB2 for z/OS

- CPU/Performance Improvements (5-10%)
- Temporal Data
- Virtual Storage Enhancements
- Security Extensions (Multi-tenancy)
- Backup & Recovery Enhancements
- Enhanced SQL OLAP functions

“we have seen a 6 - 10% reduction in costs moving to DB2 10 for z/OS”

Information Server for zEnterprise

- A revolutionary software platform that profiles, cleanses and integrates information from heterogeneous sources to drive greater business insight faster, at lower cost.
IBM DB2 Analytics Accelerator
*Blends zEnterprise and Netezza technologies to deliver, mixed workload performance for complex analytic needs*

**Fast**
- Complex queries run up to 2000x faster while retaining single record lookup speed

**Cost Saving**
- Eliminate costly query tuning while offloading complex query processing

**Appliance**
- No applications to change, just plug it in, load the data, and gain the value

Reduces the Cost of High Speed Analytics

- Choice of historical data location – High Performance Storage Saver
- Real time analytics – Incremental Update
- Faster data refresh – Unload Lite
- New capacity – Full range of Netezza models supported
- New queries
An enterprise information hub on a single integrated platform

Transaction Processing Systems (OLTP)

Business Analytics

Predictive Analytics

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 Flexibility

Ability to start with your most critical business issues, quickly realize business value, and evolve without re-architecting

zEnterprise
Recognized leader in workload management with proven security, availability and recoverability

DB2 Analytics Accelerator for z/OS Powered by Netezza
Recognized leader in cost-effective high speed deep analytics

Unprecedented mixed workload flexibility and virtualization providing the most options for cost effective consolidation
IBM uniquely offers an end-to-end, integrated foundation for Enterprise Business Analytics.

Source Data

- ETL
  - Extract
  - Transform
  - Load

OLTP Data

- DB2 z
- DB2 LUW
- Oracle

Data Warehouse

Business Analytics

- Business Intelligence
- Predictive Analytics

Cubing Services

Query Acceleration

InfoSphere Information Server

- Linux on z

InfoSphere Warehouse

- Netezza
- Linux on z

DB2

- z/OS

IDAA

- Netezza

Cognos

and SPSS

- Linux on z

Technology Entry Point #1

Technology Entry Point #2

Technology Entry Point #3

Technology Entry Point #4

Technology Entry Point #5

Technology Entry Point #6
Cognos BI v10.2 on zEnterprise

Improved User Experience

Enable users to focus on what’s important

Improved Performance & Scale

Meeting the demands of growing data volumes

Broad and Powerful Analytics

Ad-hoc Query

Real-Time Monitoring *

Dashboards

Reports

Analysis

Unified Workspace

Collaborative BI

Mobile BI *

Proven Platform

* Not supported on z/OS
# 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
- **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**

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**Collaboration and Deployment Services**

- **Predictive Customer Analytics**
  - Acquire
  - Grow
  - Retain
- **Predictive Operational Analytics**
  - Manage
  - Maintain
  - Maximize
- **Predictive Threat & Risk Analytics**
  - Monitor
  - Detect
  - Control

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## Predictive Analytics for Linux on System z

<table>
<thead>
<tr>
<th>SPSS Decision Management for Linux on System z</th>
<th>SPSS Collaboration and Deployment Services for Linux on System z</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Version</td>
<td>▪ Version</td>
</tr>
<tr>
<td>▪ Decision Management v6</td>
<td>▪ Collaboration and Deployment Server v4.2</td>
</tr>
<tr>
<td>▪ Employs both predictive models and business</td>
<td>▪ Provides role-based models and security for in scoring, job</td>
</tr>
<tr>
<td>rules to automatically generate recommended</td>
<td>scheduling, repository services, and integration</td>
</tr>
<tr>
<td>actions</td>
<td></td>
</tr>
</tbody>
</table>

### Decision Modeler
- **Predictive Customer Analytics**
  - Acquire
  - Grow
  - Retain

### Decision Statistics
- **Predictive Operational Analytics**
  - Manage
  - Maintain
  - Maximize

### Decision Management
- **Predictive Threat & Risk Analytics**
  - Monitor
  - Detect
  - Control

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**Collaboration and Deployment Services**

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The “how” of Predictive Scoring

Identify predictive models/patterns found in historical data

Use those predictive models with variables to score transactions & identify the best possible future outcomes

Data:
- Demographics
- Account activity
- Transactions
- Channel usage
- Service queries
- Renewals
- ...

Align

Analyses
- Segments
- Profiles
- Scoring models
- ...

Anticipate

Scoring

Customer Service Center

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

Support for both in-transaction and in-database scoring on the same platform

End to end solution

Consolidates Resources

Meet & Exceed SLA

Reduced Networking

Customer Interaction

Data In

Business System / OLTP

Application w/latest data

DB2 for z/OS

ETL

R-T, min, hr, wk, mth

DB2 for z/OS Data Historical Store

Copy

SPSS Modeler

For Linux on System z

Scoring Algorithm

Consolidates Resources

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IBM uniquely offers an end-to-end, integrated foundation for Enterprise Business Analytics.
Why zEnterprise?

Source Data

ETL
• Extract
• Transform
• Load

Data Warehouse

Cubing Services

Business Analytics
• Business Intelligence
• Predictive Analytics

zEnterprise - EC12
Security – EAL 5+

Flash Express

Processor

Cache

Page Frame Size

zAware
Why System Z Analytics........

Core Business Processing
Mission Critical Functional Processing
Data
Analytics
Cognos / SPSS / Infosphere / DB2
zLinux / zOS
zEnterprise - EC12
Specialty Engines (zIIP, zAAP, IFL)
IDAA
Thank You!

Jerome Gilbert

System Z Client Architect
zSeries Architecture

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