From Systems of Record to Real Time Transactional Analytics

System z and HTAP:

Hybrid Transaction/Analytical Processing

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Analytics are mission critical and impact bottom line results

**Customer**
- **Banking**: Increase account profitability
- **Insurance**: Retain policy holders with better service & marketing
- **Retail**: Understand sales patterns
- **Telecommunications**: Reduce churn with custom retention offers

**Finance**
- **Government**: Effective budget management
- **Retail**: Develop dynamic merchandise plans

**Operations**
- **Industrial**: Plan and forecast sales & operations
- **Industrial**: Predict maintenance issues before they occur
- **Retail**: Improve store performance with P&L reports
- **Telecommunications**: Understand & manage network traffic
- **Banking**: Measure branch performance
- **Insurance**: Streamline claims process
- **Government**: Reduce fraud and waste

**Risk**
- **Banking**: Align risk strategy and financial planning
- **Insurance**: Improve compliance & regulatory response
Where is the data to be analyzed? … many analytics use cases tend to draw heavily on traditional data sources (Systems of Record) often on z

Please answer each statement as it best describes the growth of different types of data in your firm:

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>High Growth</th>
<th>Growth</th>
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</thead>
<tbody>
<tr>
<td>Business transaction related data</td>
<td>45%</td>
<td>42%</td>
</tr>
<tr>
<td>Digitized corporate knowledge (process, procedures, best practices, internal social media, etc.)</td>
<td>32%</td>
<td>51%</td>
</tr>
<tr>
<td>Social media, Mobile, and internet generated customer and prospect data</td>
<td>35%</td>
<td>48%</td>
</tr>
<tr>
<td>Electronic data exchange</td>
<td>38%</td>
<td>40%</td>
</tr>
</tbody>
</table>

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, October, 2012
Base: 207 Global enterprise data analytics professionals

Source: 2012 IBM Global Big Data Online Survey

Gartner Survey Analysis: Big Data Adoption in 2013 Shows Substance Behind the Hype
Published: 12 September 2013
Relevant insights come from enriching your primary enterprise data

- Systems of Record
  System z predominant technology for securely and reliably storing and processing mission-critical transactional and analytics data

- Systems of Engagement
  Hadoop gets a lot of attention for cost-efficiently managing “new age” data – log files, social data, unstructured files etc...

- Current big data solutions do not provide easy access to mainframe data
- Insurance, health care, government
- Siloes are barriers to insights from the combined transaction history and new data
- ETL is complex, expensive, adds lag
- Pain points
  - Expertise in COBOL is dwindling
  - MIPS costs for scaling existing solutions are prohibitive
  - Batch windows are shrinking

Business value comes from the timely fusion of multiple data sources...
Shifting to a “single view of the truth” can provide numerous advantages

Problems:
- Significant effort spent copying and moving data – resulting in veracity/security issues
- Business does not have access to the most current view
- Complicated, bifurcated infrastructure requiring multiple skill types
- No single point of management
- Business continuity concerns

Advantages:
- Less movement of data, resulting in higher quality and less risk of loss
- Integration with core systems delivers most accurate view to the business
- Integrated architecture leveraging existing environment
- Single view simplifies management
- Business continuity inherited from core systems
System z strategy: deliver a single workload-optimized system that integrates operations and business critical analytics into one streamlined, end-to-end data lifecycle

Better business response: Reduced data movement, reduced complexity, reduced configuration resources. More accurate, more secure, more available
System z: A Hybrid Transaction / Analytical Processing platform

A single workload-optimized system for accelerating decisions to the speed of business

**Everything is online: analytics in the right place!**

*More timely insights from data*
- High-speed analytics
- Historical views are quickly analyzed
- Decision makers can perform business analysis
- Secured environment for highly sensitive data
- Speeds batch reporting cycle

**Operational benefits**
- Configuration simplification
- Single point of entry
- Reduced data movement
- High fidelity data
- Dynamic routing
- Single environment for security, logging, back-up, and recovery
- Competitive price/performance

**Infographic**
- OLTP Transactions
- Operational analytics
- Real time data ingestion
- High concurrency
- Advanced analytics
- Standard reports
- OLAP
- Complex queries
- Historical queries
- DB2 Native Processing
- IBM PureData System for Hadoop
- IBM DB2 Analytics Accelerator
- IBM PureData System for Hadoop
The hybrid approach: **Hybrid Transaction/Analytical Processing Will Foster Opportunities for Dramatic Business Innovation**

HTAP empowers application leaders to innovate via greater situational awareness and improved business agility

- Opportunity to rethink business processes: **analytics as an integral part of the process itself**
  - Transform business processes
  - Enable business leaders to perform **real-time analysis** of their data

HTAP addresses the four major drawbacks of traditional IT approaches:

- **Architectural and technical complexity**
- **Analytic latency**
- **Synchronization**
- **Data duplication**
DB2 Analytics Accelerator: Derive business insight from z/OS transactional data

**Business Value**
- Derive additional business insight
- Near Real-time analytics
- Extremely fast ad-hoc reporting
- Cross selling and up selling
- Reduced fraud

**IT Value**
- Reduce time-to-market
- Improved price/performance
- Reduce costs

**Customer Examples**
- **NLB**: Banking – Better support for retail e-banking
- **Swiss Mobiliar**: Insurance – Provide timely insight to a growing user community while keeping compute costs flat

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#SmarterBiz
System z: improving the traditional transact/transform/report/analyze cycle while also delivering integration that targets advanced business problems

Best of breed Data Life Cycle Management for:
Fighting fraud, preventing financial crimes, generating customer insights
DB2 V11 Integration with Big Data Data Sources plus InfoSphere BigInsights on System z

Why BigInsights?
- DB2 – z/OS BigInsights Integration – important new feature in DB2 11
- Invoke JSON Queries (via JAQL from DB2 UDFs)
- Retrieve data from Hadoop via HDFS_READ function
Leveraging Hadoop with Mainframe data: What makes sense, when

**Case 1:** Hadoop on the Mainframe

- Data originates mostly on the mainframe (Log files, database extracts)
- Data security a primary concern
- Clients will not send data across external net
- Relatively small data – 100 GB to 10s of TBs
- Hadoop is valued mainly for richness of tools
- Z governance and security models needed

**Case 2:** Hadoop off the Mainframe

- Much data originates off the mainframe
- Security less of a concern since data is not trusted anyway
- Very large data sets – 100s of TB to PBs
- Hadoop is valued for ability to manage large datasets economically
- Desire to leverage cheap processing and potentially cloud elasticity
Real Time Transactional Analytics
End to end Analytics Solution
with HTAP, BigInsights and System z

*Move the analytics computation to the data!!*
Join us at IBM Insight 2014. Save $300 when they register before September 19th

### IBM Insight 2014 by the numbers

<table>
<thead>
<tr>
<th>13K+ attendees</th>
<th>100+ business- and industry-focused sessions featuring top experts from around the world</th>
<th>350+ exhibitors at the EXPO Including showcases from 250+ Business Partners</th>
<th>120+ hands-on labs</th>
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<tbody>
<tr>
<td>the largest big data in the world</td>
<td></td>
<td>in training, certification, hands-on labs, networking, executive one-on-one meetings, expert talks and food and entertainment</td>
<td></td>
</tr>
<tr>
<td>+700+ sessions and innovative Streams on Business Analytics, Enterprise Content Management And Information Management</td>
<td>1,500 technical sessions, hands-on labs and developer activities that include cloud, mobile, security, social, Watson and more</td>
<td>$7,000 Value</td>
<td></td>
</tr>
<tr>
<td>91% of attendees found networking opportunities invaluable</td>
<td>1,100+ attendees at the one-day Business Partner Summit</td>
<td>300+ client and Business Partner speakers from across all industries</td>
<td>85% of registrants express desire to attend again</td>
</tr>
</tbody>
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**Register for IBM Insight 2014**

Attend IBM Insight to learn how big data and analytics can help you outperform your peers. With IBM business and technical solutions for big data and analytics, you can turn cloud, mobile and social into competitive advantage.

"The reason we choose to be TRUE BLUE is that IBM made it easy to extend our depth and breadth in Business Analytics and Information Management technology...."

- Sherri Schaffroth, Director, DataClarity
Next Steps

1. Meet me in the Social Café to continue the conversation.

2. Download this whitepaper – Learn more

### Banking
- IBM Financial Transaction Manager on zEnterprise
- SAP Bank Analyzer on zEnterprise
- New! IBM zEnterprise Smarter Analytics for Banking

### Insurance
- IBM Signature Solution – anti-fraud, waste and abuse for Insurance
- IBM Genelco® Insurance Administration Solution

### Government / Smarter Cities
- City Operations - Intelligent Operations Center
- IBM Smarter Infrastructure for Social Services - Curam on zEnterprise
- IBM Enterprise Asset Management (Maximo) on zEnterprise
- New! IBM Signature Solution – anti-fraud, waste and abuse for Tax

### Healthcare / Life Sciences
- IBM Signature Solution – anti-fraud, waste and abuse for Healthcare
- IBM Health Plan Integration Hub
- New! Cúram Solution for Care Management on zEnterprise

### Retail
- IBM zEnterprise Smarter Analytics for Retail
System z Industry Solutions address key business requirements

Predict risks and discover opportunities
- Anti-Fraud, Waste and Abuse Solution for Healthcare and Insurance
- Anti-Fraud, Waste and Abuse Solution for Tax*
- Smarter Analytics™ for Retail

Improve citizen services
- Intelligent Operations Center for Smarter Cities®
- Enterprise Asset Management – Maximo®
- Smarter Infrastructure for Social Services - Cúram
- Cúram Solution for Care Management

Manage regulatory compliance
- Smarter Analytics for Banking*
- Health Plan Integration Hub
- SAP Bank Analyzer

Integrate & modernize for efficiency
- Financial Transaction Manager
- Genelco® Insurance Administration Solution
Predict Risks and Discover Opportunities

**10-15%**

of a tax agencies total revenues are lost to tax evasion and other types of noncompliance each year\(^1\)

**$305 billion**

Estimated loss in US each year due to healthcare and insurance claims fraud\(^2\)

**72%**

of CEOs are implementing extensive changes to enable faster, more relevant responses to markets and individuals\(^3\)

**IBM Signature Solution – anti-fraud, waste and abuse for Tax**

Predictive analytics to identify potential compliance problems at the time a return is filed helping to increase revenue and reduce investigation costs.

**IBM Signature Solution – anti-fraud, waste and abuse for Healthcare and Insurance**

An adaptive, predictive prepayment fraud detection solution, integrated with your claims systems, that learns from the latest data and includes identity validation to optimize operational efficiencies and reduce recovery expenses for fraudulent claims.

**IBM zEnterprise® Smarter Analytics for Retail**

A data warehouse and data mart design blueprint that accelerates the development of business intelligence (BI) solutions for the retail industry. Combines software, server, and storage resources to provide an enterprise platform for BI solutions.

Why System z®?

- Provides the unique capability to detect a higher percentage of suspicious transactions by using the most current data to score models at the time of transaction without negatively impacting payment processing efficiency.
- Provides performance required for real-time, predictive analytics via compute-intensive analytics processing capabilities.
- Maintains current performance and throughput targets by reducing movement and proliferation of data copies and eliminating the need for ETL (Extract, Transform and Load) processes.
- Provides a highly scalable, reliable platform that is optimized to handle the demands of mixed workload efficiently.
- Consolidation of operational data, data warehouses and data marts helps provide a common customer view that integrates and leverages information from all channels.

New York State Department of Taxation and Finance increases tax revenue by 7% year to year and prevents more than $1.6 billion in questionable refunds from being paid.

A US state health and human services agency identifies $200 million in potentially fraudulent Medicaid claims within first 12 months.

IBM and clients have measured as much as an 80x performance increase in specific queries, with typical increases of as much as 5-10x when compared to distributed.

"Aggregating our customer data and achieving the 360-degree view of the customer will put macys.com at a starting point for customer-centric innovation."

- Darren Stoll, Group vice president of marketing operations and analytics at macys.com.

Source: 1. Based on internal IBM test results that reflect actual client queries.
Manage Regulatory Compliance

**$2-3 trillion**

Amount of money that is laundered around the world each year\(^1\)

**~13,000 to ~68,000**

~3,000 to ~87,000

Exponential growth in diagnosis and procedure codes from ICD-9 to ICD-10 \(^2\)

**#1 concern**

Financial Services CEOs ranked regulatory concerns as the most important external force that will impact their organization over the next 3 to 5 years\(^3\)

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**IBM zEnterprise Smarter Analytics for Banking**

Predictive analytics to detect suspicious activities and transactions in real time to more proactively prevent fraud and money laundering. The solution includes sanctions screening, watch list filtering, Know Your Customer (KYC) and transaction monitoring features.

**IBM Health Plan Integration Hub**

Provides a code and policy transformation platform designed to accelerate your organization’s transformation to ICD-10 and future code transformations and validate cost neutrality.

**SAP Bank Analyzer**


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Detect more suspicious activity in real time by using the most current data to update and score predictive models.

Operational data and compliance information can be integrated, accessed and analyzed on the same platform.

Maintains current performance and throughput targets by reducing movement and proliferation of data copies.

24x7 global access and continuous availability of enterprise-critical systems.

Dynamic scaling, expansive capacity and performance to help meet the current and newly mandated regulatory challenges.

Management efficiencies via zEnterprise Unified Resource Manager which provides a single management interface across both mainframe and distributed technologies.

"If we want to compete in the current banking industry we simply cannot afford operational breakdowns, which ultimately lead to financial loss and reduced customer satisfaction and trust. From online transactions to cash withdrawals, from mobile services to customers' purchases via credit cards, the transaction service must be flawless and secure." - Diego Revello, ITC Manager, Banco Galicia

A Canadian bank prevents money laundering by using advanced name recognition technology that reduces false-positive and false-negative results by 70%.

In one year, a global payment services company realized a 40% increase in its ability to identify and interrupt potentially fraudulent transactions.

zEnterprise scales best for SAP for Banking - more than 57 million accounts posted and 37 million accounts reconciled per hour on a database of 150 million accounts.