

Building Your Information Strategy for Big Data & Analytics

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In November we discussed...

- **Data as the new oil, powering the modern economy**
- **The emergence of a software platform to harness all available information**
- **What IBM has learned about big data adoption:**
 - Organisations are focused on the customer
 - A strong information foundation is vital
 - Early efforts focus on existing and new data
 - Analytics is critical for success
 - Organisations are focused on establishing the business value as they explore new big data technologies

What's changed in the last 5 months?

.....key use cases identified

.....technology enhancements announced





Trinity Leeds will be the most important city-centre development of recent times. Due to open in Spring 2013 the 1 million sq ft scheme will bring together the best of the UK high street, aspiring brands and international retailers.

Fueled by Disruptive Technology Factors



Big Data is All Data and All Paradigms

Transactional & Application Data



- Volume
- Structured
- Throughput

Machine Data



- Velocity
- Semi-structured
- Ingestion

Social Data



- Variety
- Highly unstructured
- Veracity

Enterprise Content



- Variety
- Highly unstructured
- Volume



Every Industry can Leverage Big Data and Analytics



Banking

- Optimize Offers and Cross Sell
- Contact Center Efficiency and Problem Resolution
- Payment Fraud Detection & Investigation
- Counterparty Credit Risk Management



Insurance

- Claims Fraud
- Customer Retention
- Catastrophe Modeling



Telco

- Pro-active Call Center
- Network Analytics
- Location Based Services
- IT/Network Infrastructure Transformation
- Smarter Campaigns



Energy & Utilities

- Smart Meter Analytics
- Distribution Load Forecasting/Scheduling
- Condition Based Maintenance
- Create & Target Customer Offerings



Media & Entertainment

- Business process transformation
- Audience & Marketing Optimization
- Multi-Channel Enablement
- Digital commerce optimization



Retail

- Actionable Customer Insight
- Merchandise Optimization Playbook
- Dynamic Pricing



Travel & Transport

- Customer Analytics & Loyalty Marketing
- Capacity & Pricing Optimization
- Predictive Maintenance Analytics



Consumer Products

- Optimized Promotions Effectiveness
- Micro-Market Campaign Management
- Real Time Demand Forecast



Government

- Threat Prediction and Prevention
- Health and human services fraud, waste & abuse
- Tax compliance - fraud and abuse
- Crime prevention and prediction



Healthcare

- Measure & Act on Population Health
- Engage Consumers in their Healthcare



Automotive

- Data Warehouse Optimization
- Predictive Asset Optimization (PAO)
- Actionable Customer Intelligence
- Connected vehicle



Chemical & Petroleum

- EDW Smart Consolidation & Augmentation
- Operational Surveillance, Analysis & Optimization
- Engineering & Operational Data Exploration & Mining



Aerospace & Defense

- Uniform Information Access Platform
- Data Warehouse Optimization
- Predictive Asset Optimization (PAO)



Electronics / Industrial Products

- Channel Driven Customer Analytics (CDCA)
- Predictive Asset Optimization (PAO)



Life Sciences

- Increase visibility into drug safety and effectiveness

IBM Provides a Holistic and Integrated Approach to Big Data and Analytics



Enabling organizations to

- Assemble and combine relevant mix of information
- Discover and explore with smart visualizations
- Analyze, predict and automate for more accurate answers
- Take action and automate processes
- Optimize analytical performance and IT costs
- Reduced infrastructure complexity and cost
- Manage, govern and secure information



New technology enhancements to strengthen our approach



Speed of Thought Analytics

- **8-25x** faster reporting and analytics¹
- **10x** storage space savings seen during beta test²
- **No** indexes, aggregates, tuning, or SQL / schema changes



Platform advances in consumability and performance

- **Big SQL** standard ANSI SQL access to data in BigInsights
- **GPFS-FPO** with POSIX compliance and enhanced security
- **2-10x** faster Streams operations using bounded lists & maps³



Explore and analyze more data with appliance simplicity

- **8x** faster deployment than custom-built solutions⁴
- **First appliance** with built-in analytics accelerator⁵
- **Only Hadoop system** with built-in archiving tools⁶

¹ Based on internal IBM testing of sample analytic workloads comparing queries accessing row-based tables on DB2 10.1 vs. columnar tables on DB2 10.5. Performance improvement figures are cumulative of all queries in the workload. Individual results will vary depending on individual workloads, configurations and conditions.

² Client-reported testing results in DB2 10.5 early release program. Individual results will vary depending on individual workloads, configurations and conditions, including table size and content.

³ Runtime performance increase for operations using bounded lists & maps compared to InfoSphere Streams 3.0

⁴ Based on IBM internal testing and customer feedback. "Custom built clusters" refer to clusters that are not professionally pre-built, pre-tested and optimized. Individual results may vary.

⁵ Based only on current commercially available Big Data appliance product data sheets from large US vendors



The 5 Key Use Cases



Big Data Exploration

Find, visualize, understand all big data to improve decision making



Enhanced 360° View of the Customer

Extend existing customer views (MDM, CRM, etc) by incorporating additional internal and external information sources



Security/Intelligence Extension

Lower risk, detect fraud and monitor cyber security in real-time



Operations Analysis

Analyze a variety of machine data for improved business results



Data Warehouse Augmentation

Integrate big data and data warehouse capabilities to increase operational efficiency



1. Big Data Exploration: Needs



Explore and mine big data to find what is interesting and relevant to the business for better decision making

Requirements

Explore new data sources for potential value

Mine for what is relevant for a business imperative

Assess the business value of unstructured content

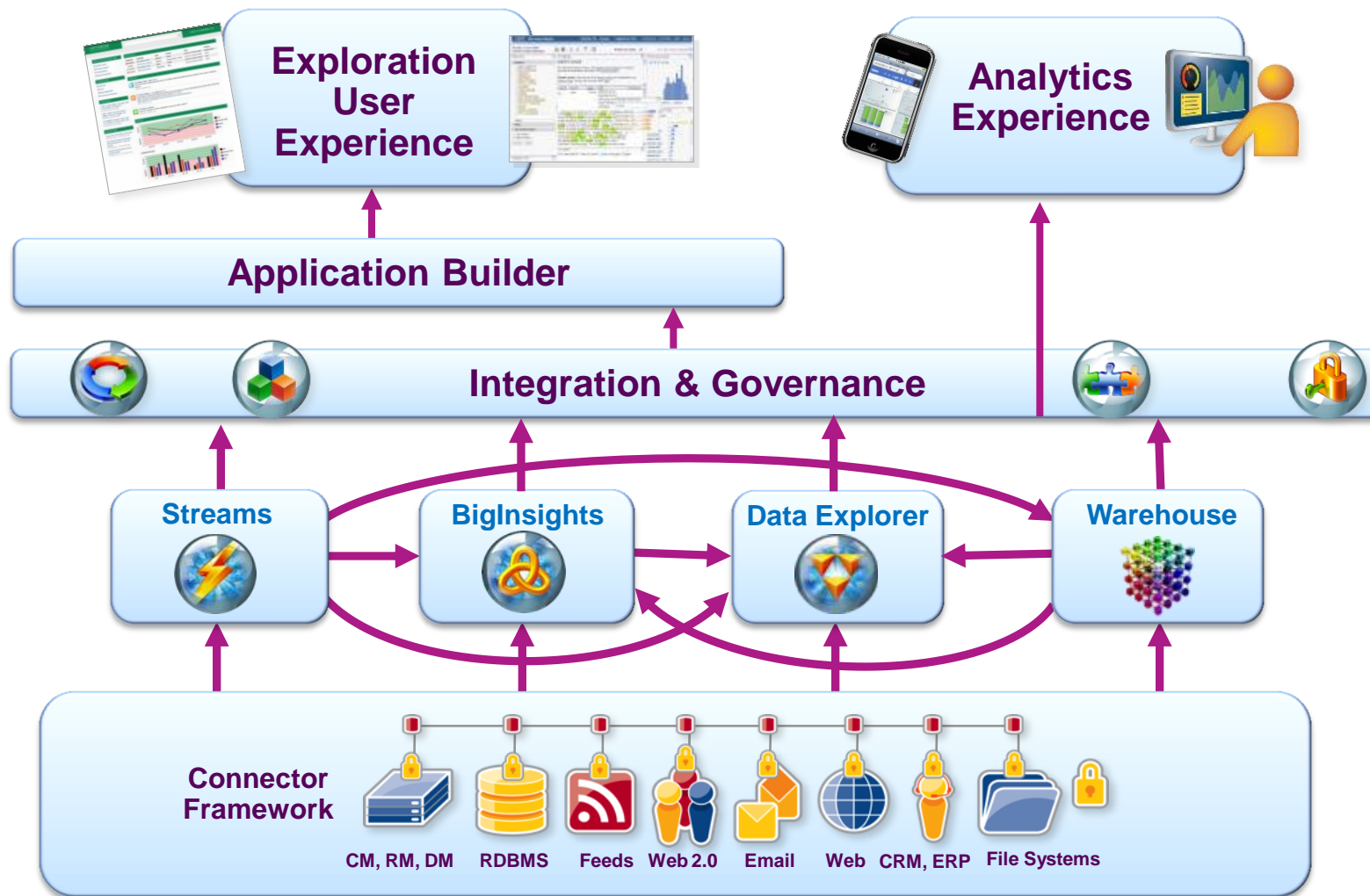
Uncover patterns with visualization and algorithms

Prevent exposure of sensitive information

Industry Examples

- Customer service knowledge portal
- Insurance catastrophe modeling
- Automotive features and pricing optimization
- Chemicals and Petroleum conditioned base maintenance
- Life Sciences drug effectiveness

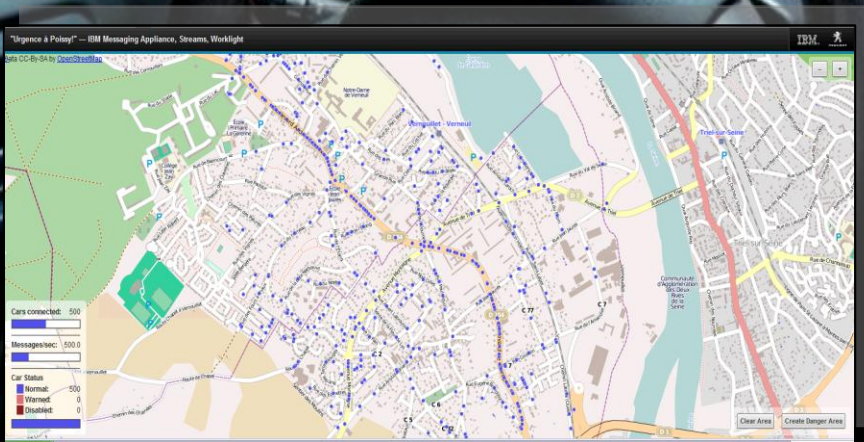
1. Big Data Exploration: Diagram



Global automotive manufacturer gains a timely, integrated view of vehicles

The IBM Big Data platform combines at-rest vehicle data with real time data-in-use from vehicles for single, integrated, near real-time view of the vehicle and its usage.

- Monetize telematics data
- Predict demand for replacement parts and service
- Provide drivers assistance



2. Enhanced 360° View of the Customer: Needs



Optimize every customer interaction by knowing everything about them

Requirements

Create a connected picture of the customer

Mine all existing and new sources of information

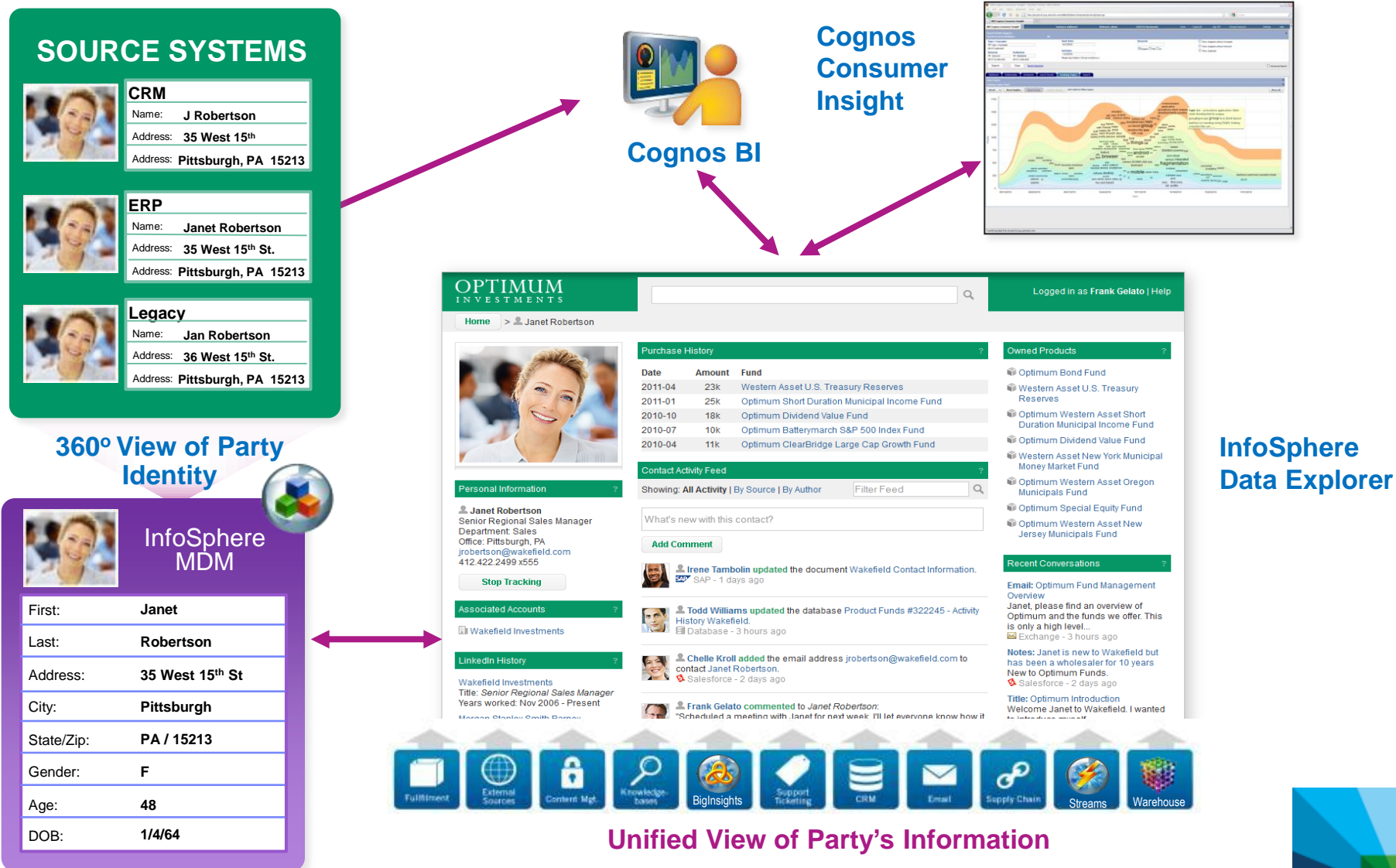
Analyze social media to uncover sentiment about products

Add value by optimizing every client interaction

Industry Examples

- Smart meter analysis
- Telco data location monetization
- Retail marketing optimization
- Travel and Transport customer analytics and loyalty marketing
- Financial Services Next Best Action and customer retention
- Automotive warranty claims

2. Enhanced 360° View of the Customer: Diagram



SOURCE SYSTEMS



CRM
Name: J Robertson
Address: 35 West 15th
Address: Pittsburgh, PA 15213



ERP
Name: Janet Robertson
Address: 35 West 15th St.
Address: Pittsburgh, PA 15213



Legacy
Name: Jan Robertson
Address: 36 West 15th St.
Address: Pittsburgh, PA 15213

360° View of Party Identity



InfoSphere MDM

First: Janet
Last: Robertson
Address: 35 West 15th St
City: Pittsburgh
State/Zip: PA / 15213
Gender: F
Age: 48
DOB: 1/1/64

OPTIMUM INVESTMENTS | Logged in as Frank Gelato | Help

Home > Janet Robertson

Purchase History

Date	Amount	Fund
2011-04	23k	Western Asset U.S. Treasury Reserves
2011-01	25k	Optimum Short Duration Municipal Income Fund
2010-10	18k	Optimum Dividend Value Fund
2010-07	10k	Optimum Batterymarch S&P 500 Index Fund
2010-04	11k	Optimum ClearBridge Large Cap Growth Fund

Contact Activity Feed

Showing: All Activity | By Source | By Author | Filter Feed

What's new with this contact?

Add Comment

- Irene Tambolin updated the document Wakefield Contact Information. SAP - 1 days ago
- Todd Williams updated the database Product Funds #322245 - Activity History Wakefield. Database - 3 hours ago
- Chelle Kroll added the email address jrobertson@wakefield.com to contact Janet Robertson. Salesforce - 2 days ago
- Frank Gelato commented to Janet Robertson: "Scheduled a meeting with Janet for next week. I'll let everyone know how it

Owned Products

- Optimum Bond Fund
- Western Asset U.S. Treasury Reserves
- Optimum Western Asset Short Duration Municipal Income Fund
- Optimum Dividend Value Fund
- Western Asset New York Municipal Money Market Fund
- Optimum Western Asset Oregon Municipals Fund
- Optimum Special Equity Fund
- Optimum Western Asset New Jersey Municipals Fund

Recent Conversations

Email: Optimum Fund Management Overview
Janet, please find an overview of Optimum and the funds we offer. This is only a high level... Exchange - 3 hours ago

Notes: Janet is new to Wakefield but has been a wholesaler for 10 years New to Optimum Funds. Salesforce - 2 days ago

Title: Optimum Introduction
Welcome Janet to Wakefield. I wanted to introduce myself

InfoSphere Data Explorer



Unified View of Party's Information

Enhanced 360° Customer View: Customer Example



Leading Medical Equipment Supplier Blinded for confidentiality

- Increase revenue and decrease cost in the call center
- Increase customer & employee satisfaction
- Ask “one more question”, targeted to individual client situation

Is the Enhanced 360° Customer View Right for You?

- ✓ How do you identify and deliver all data as it relates to a customer, product, competitor to those to need it?
- ✓ How do you gather insights about your customers from social data, surveys, support emails, etc.?
- ✓ How do you combine your structured and unstructured data to run analytics?
- ✓ How are you driving consistency across your information assets when representing your customer, clients, partners etc.?
- ✓ How do you deliver a complete view of the customer enhance to your line of business users to ensure better business outcomes?

Product Starting Point: InfoSphere Data Explorer, InfoSphere BigInsights

3. Security and Intelligence Extension: Needs



Enhance traditional security solutions to prevent crime by analyzing all types and sources of big data

Requirements

Enhanced Intelligence and Surveillance Insight

Analyze data-in-motion and at rest to:

- Find associations
- Uncover patterns and facts
- Maintain currency of information

Real-time Cyber Attack Prediction and Mitigation

Analyze network traffic to:

- Discover new threats sooner
- Detect known complex threats
- Take action in real-time

Crime Prediction and Protection

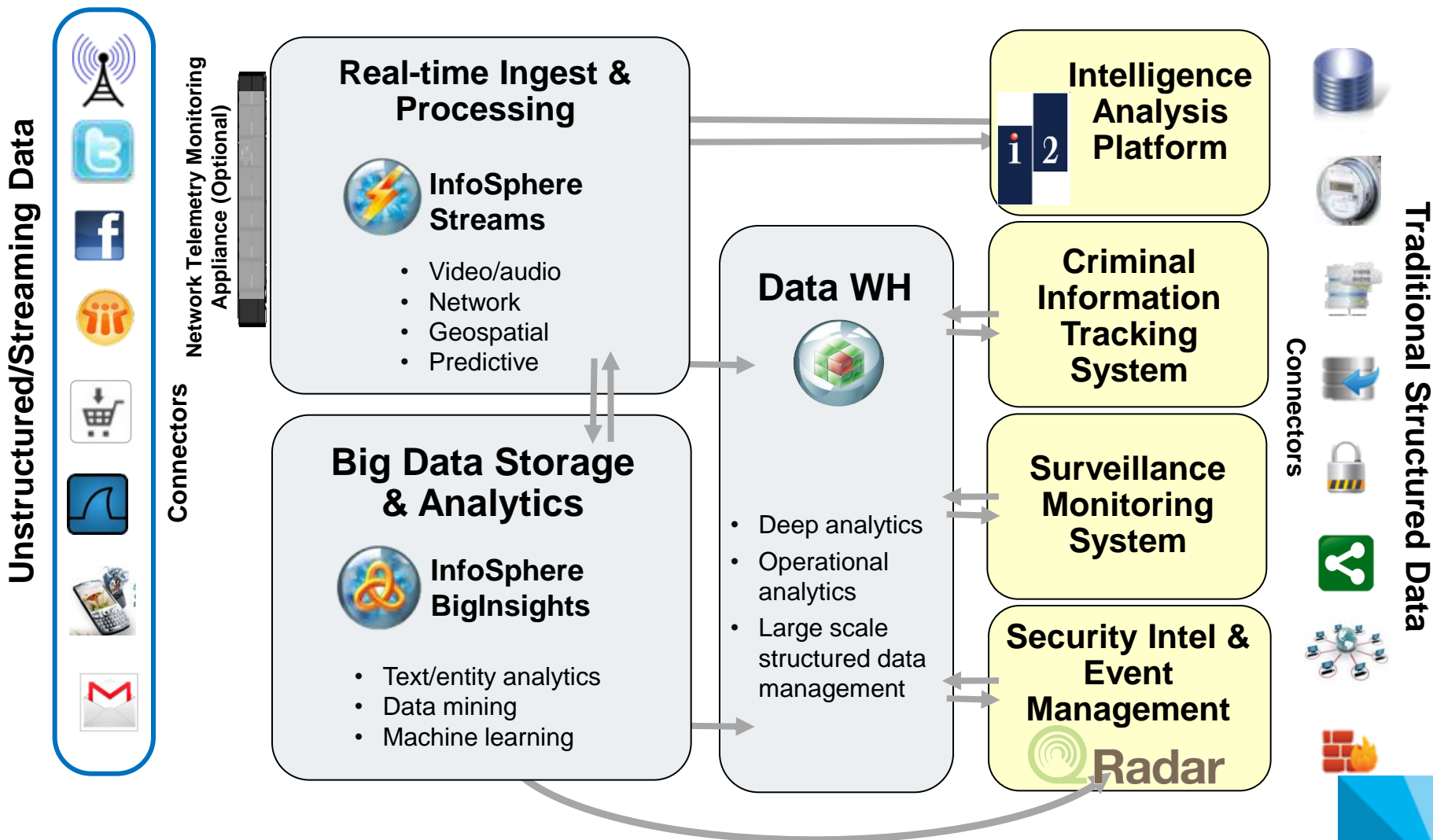
Analyze telco and social data to:

- Gather criminal evidence
- Prevent criminal activities
- Proactively apprehend criminals

Industry Examples

- Government threat and crime prediction and prevention
- Insurance claims fraud

3. Security/Intelligence Extension: Diagram





TerraEchos uses streaming data technology to support covert intelligence and surveillance sensor systems

Need

- Deployed security surveillance system to detect, classify, locate, and track potential threats at highly sensitive national laboratory

Benefits

- Reduced time to capture and analyze 275MB of acoustic data from hours to one-fourteenth of a second
- Enabled analysis of real-time data from different types of sensors and 1,024 individual channels to support extended perimeter security
- Enabled a faster and more intelligent response to any threat



4. Operations Analysis: Needs



Apply analytics to machine data for greater operational efficiency

Requirements

Analyze machine data to identify events of interest

Apply predictive models to identify potential anomalies

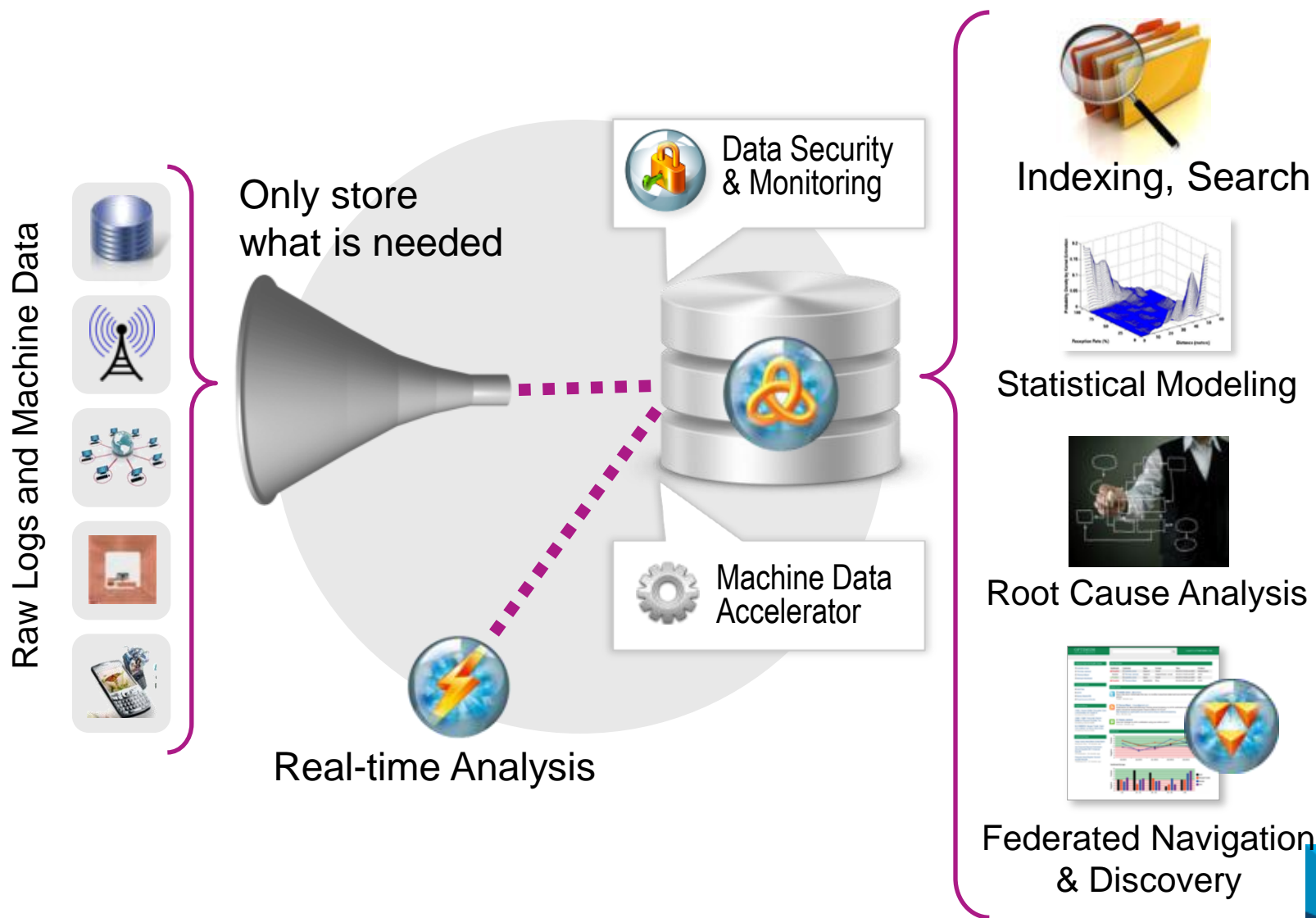
Combine information to understand service levels

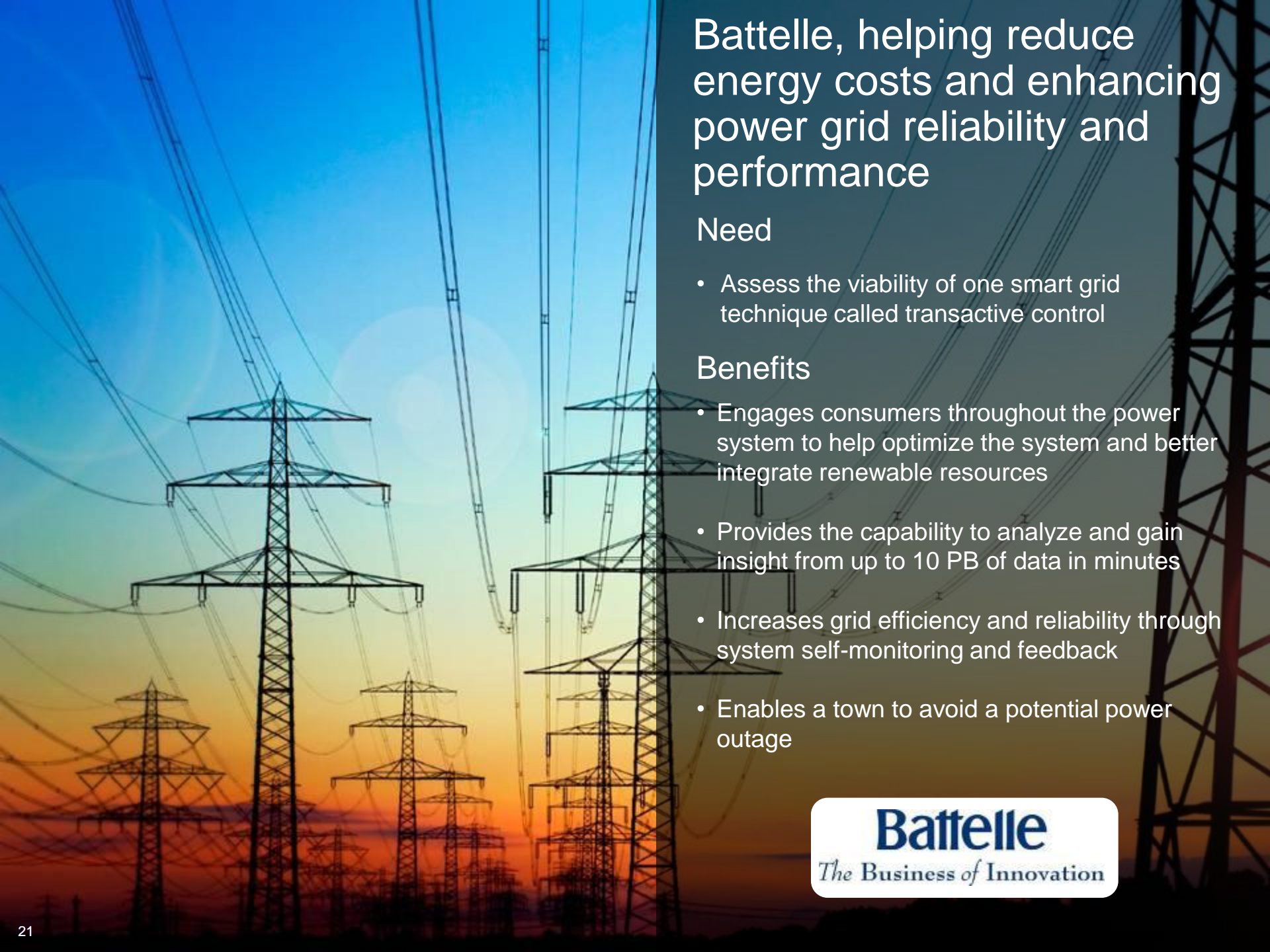
Monitor systems to avoid service degradation or outages

Industry Examples

- Automotive advanced condition monitoring
- Chemical and Petroleum condition-based Maintenance
- Energy and Utility condition-based maintenance
- Telco campaign management
- Travel and Transport real-time predictive maintenance

4. Operations Analysis: Diagram





Battelle, helping reduce energy costs and enhancing power grid reliability and performance

Need

- Assess the viability of one smart grid technique called transactive control

Benefits

- Engages consumers throughout the power system to help optimize the system and better integrate renewable resources
- Provides the capability to analyze and gain insight from up to 10 PB of data in minutes
- Increases grid efficiency and reliability through system self-monitoring and feedback
- Enables a town to avoid a potential power outage

Battelle
The Business of Innovation

5. Data Warehouse Augmentation: Needs



Exploit technology advances to deliver more value from an existing data warehouse investment while reducing cost

Requirements

Add new sources to existing data warehouse investments

Optimize storage and provide query-able archive

Rationalize for greater simplicity and lower cost

Enable complex analytical applications with faster queries

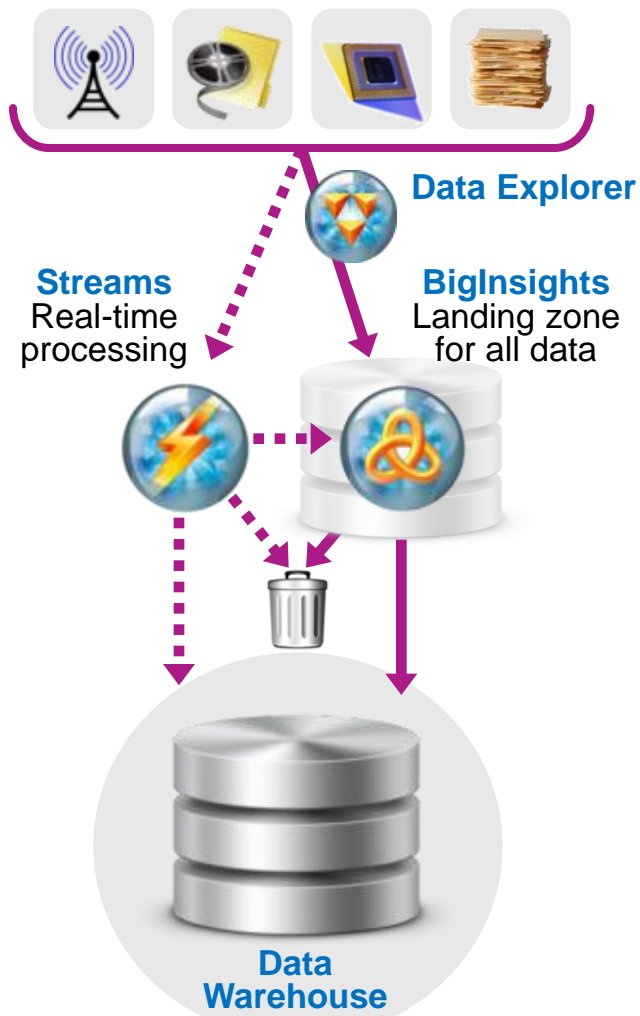
Scale predictive analytics and business intelligence

Examples

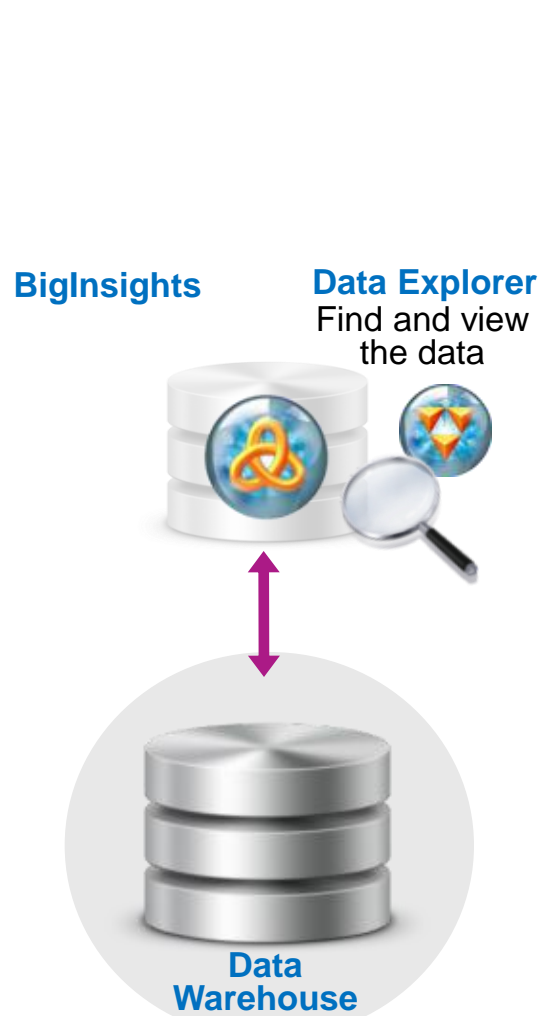
- Pre-Processing Hub
- Query-able Archive
- Exploratory Analysis
- Operational Reporting
- Real-time Scoring
- Segmentation and Modeling

5. Data Warehouse Augmentation: Diagram

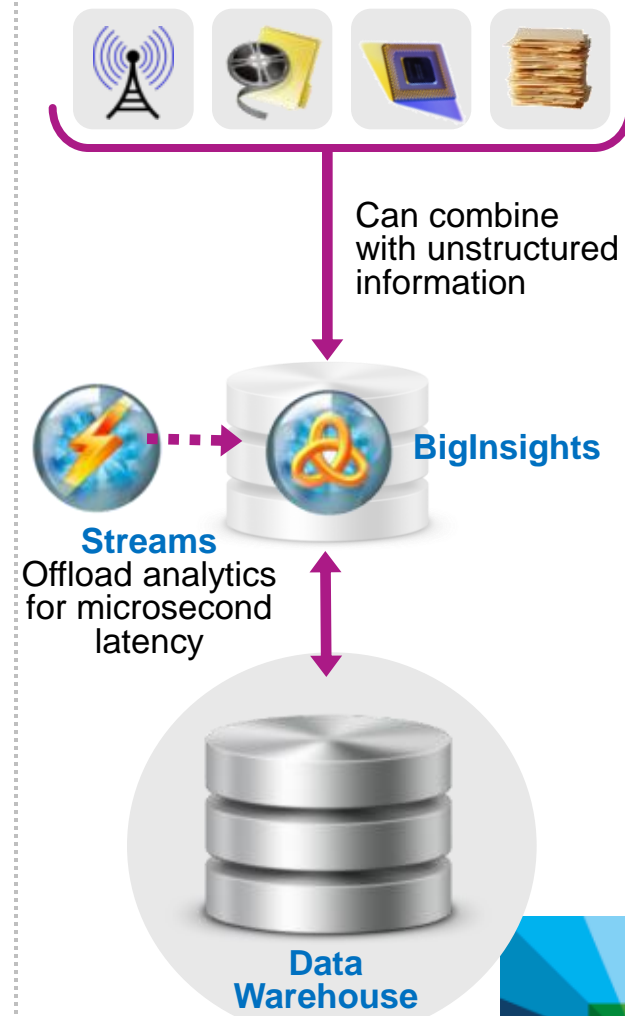
1 Pre-Processing Hub



2 Query-able Archive



3 Exploratory Analysis



Data Warehouse Augmentation: Customer Example



Improved analysis performance by over 40 times, reduced wait time from hours to seconds, and increased campaign effectiveness by 20+%.

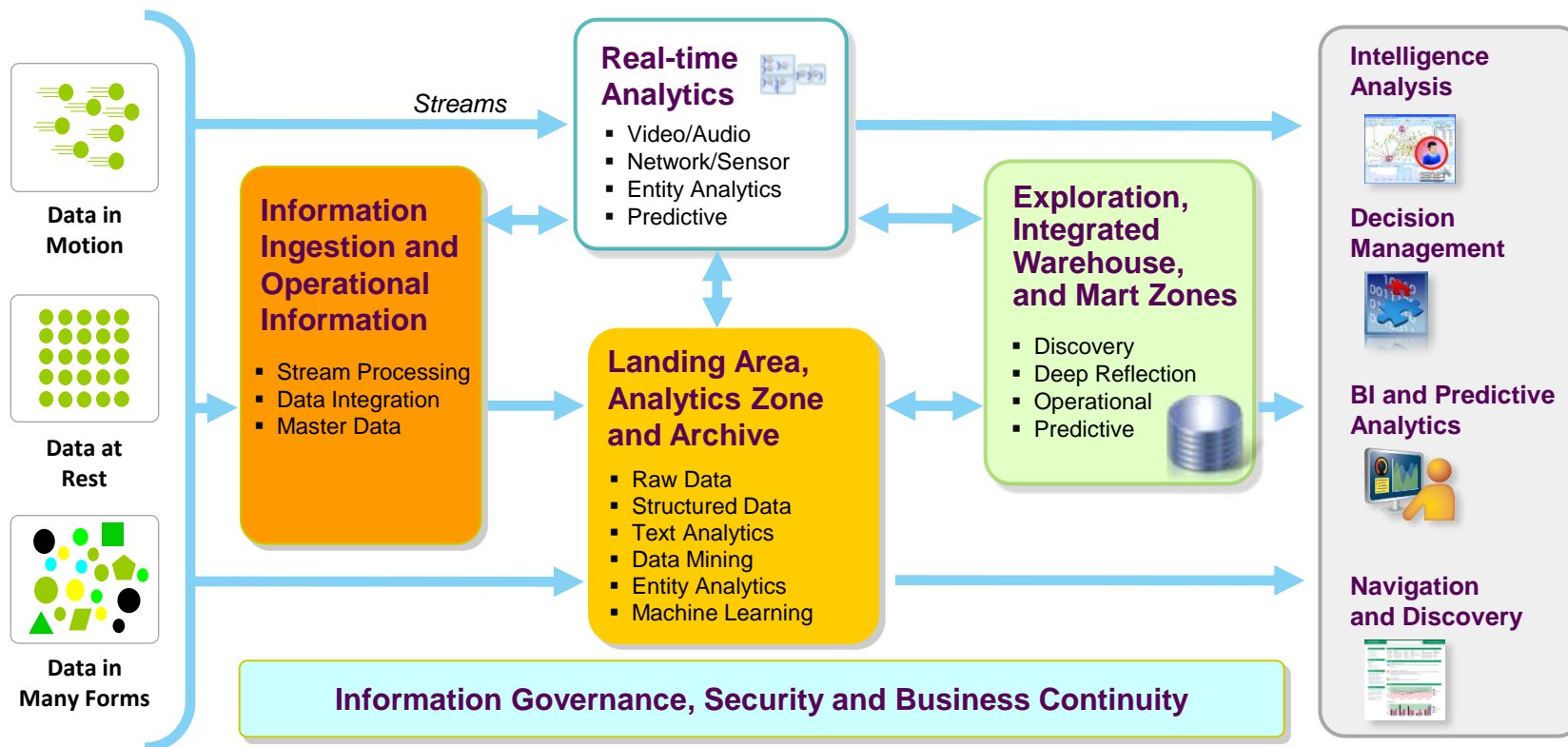
Could Data Warehouse Augmentation benefit you?

- ✓ Are you drowning in very large data sets (TBs to PBs) that are difficult and costly to store?
- ✓ Are you able to utilize and store new data types?
- ✓ Are you facing rising maintenance/licensing costs?
- ✓ Do you use your warehouse environment as a repository for all data?
- ✓ Do you have a lot of cold, or low-touch, data driving up costs or slowing performance?
- ✓ Do you want to perform analysis of data in-motion to determine what should be stored in the warehouse?
- ✓ Do you want to perform data exploration on all data?
- ✓ Are you using your data for new types of analytics?

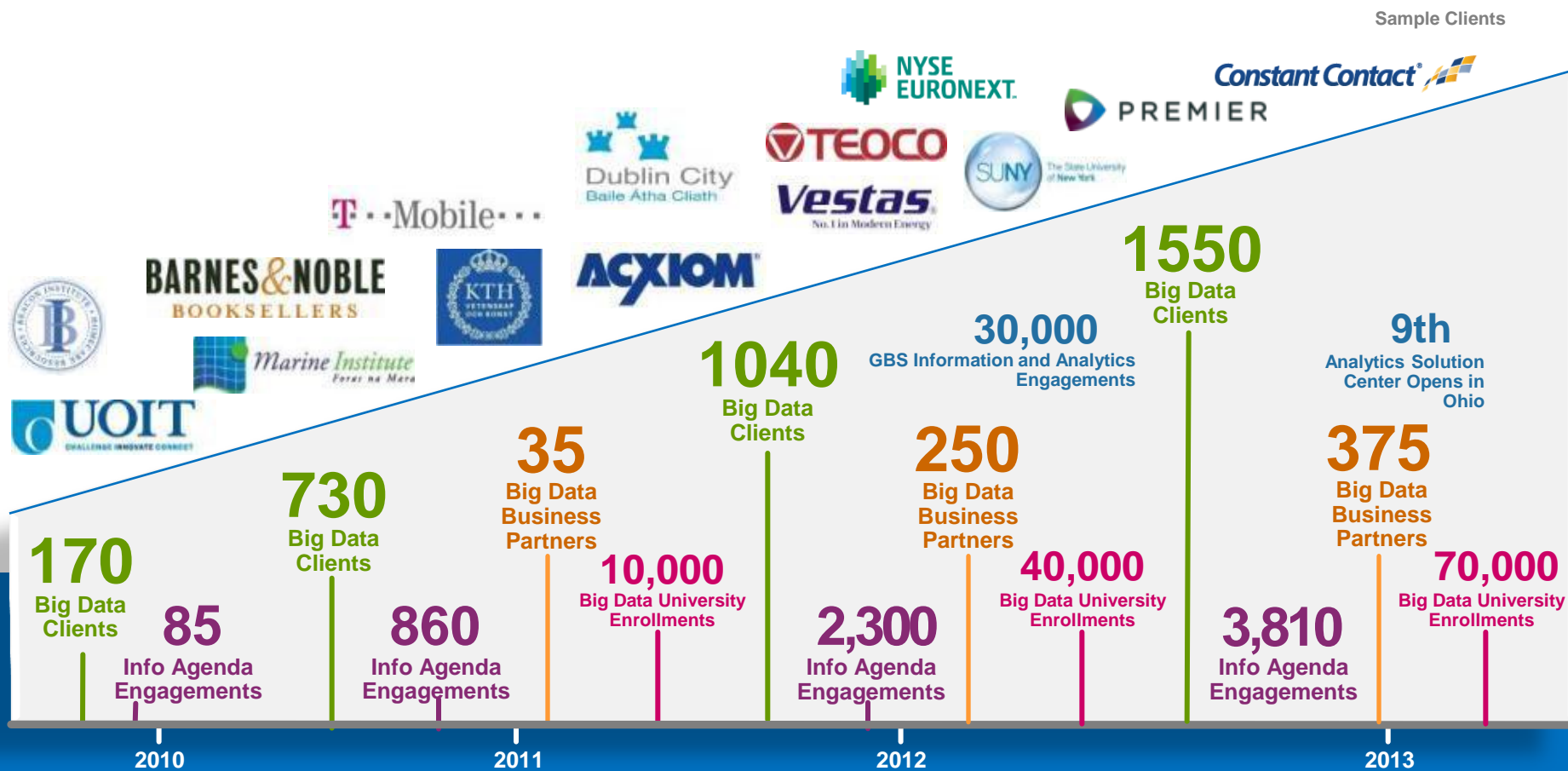
Product Starting Point: InfoSphere BigInsights, InfoSphere Streams



New Architecture to Leverage All Data and Analytics



IBM Big Data Momentum

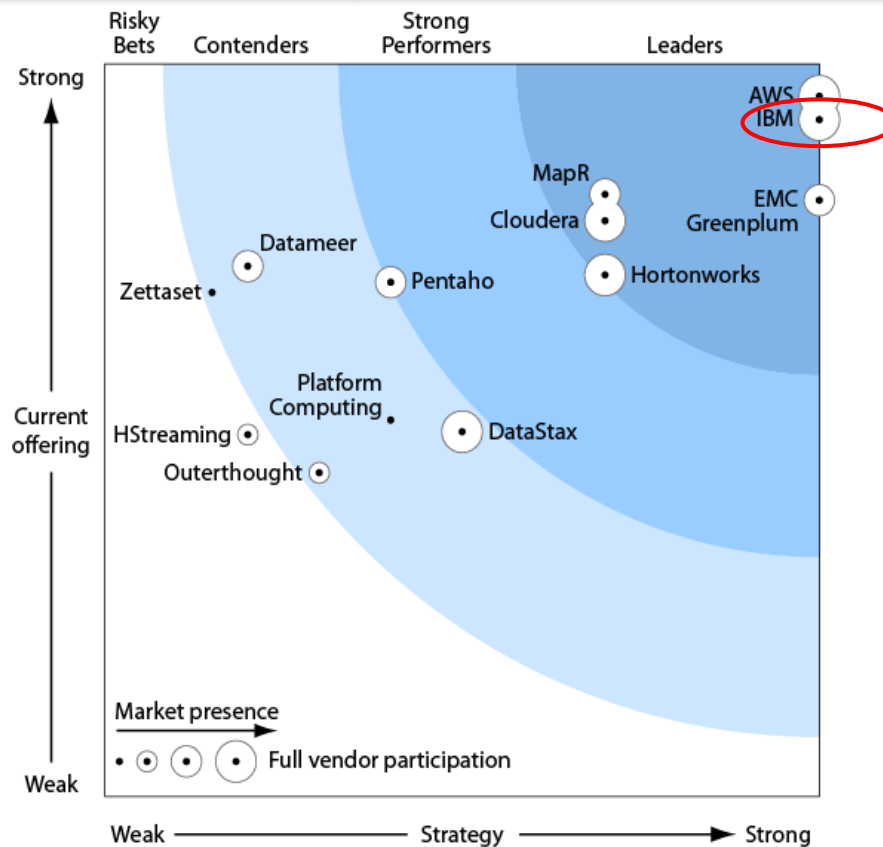


Source IBM. All numbers are cumulative.



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Student Testimonials
Balázs (USA)
The training material has short, easy to read transcripts allowing to execute the examples easy to reproduce. There is very good support for Windows users both on 32bit and 64bit. Everything works right out of the box as described in the course materials. Online support on the Course Forums is excellent, most questions were answered before even I encountered the issue. The curriculum associates the chapters from the "Getting Started with..."

Thank you

