

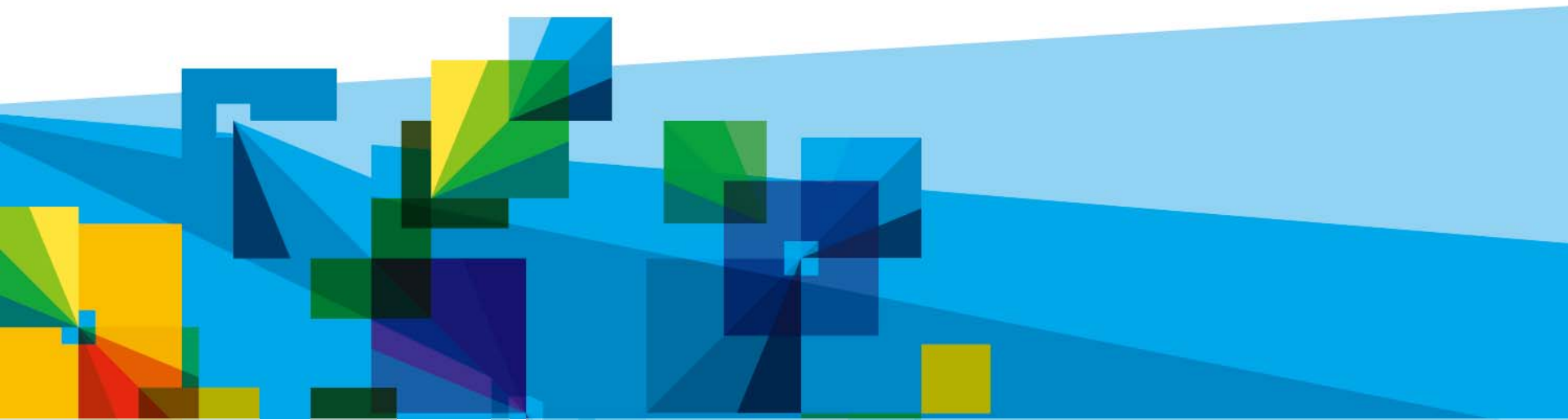


Big Data, Integration & Governance

Harnessing the Power of Big Data

Stewart Hanna – Worldwide Big Data

15 – 20 November | Canberra – Melbourne - Sydney



“Data is the new Oil”

In its raw form, oil has little value. Once processed and refined, it helps power the world.



Forbes
.com

“Big Data has arrived at Seton Health Care Family, fortunately accompanied by an analytics tool that will help deal with the complexity of more than two million patient contacts a year...”

THE WALL STREET JOURNAL

“Companies are being inundated with data—from information on customer-buying habits to supply-chain efficiency. But many managers struggle to make sense of the numbers.”



“Data is the new oil.”
Clive Humby

The New York Times

“At the World Economic Forum last month in Davos, Switzerland, Big Data was a marquee topic. A report by the forum, “Big Data, Big Impact,” declared data a new class of economic asset, like currency or gold.

Forbes
.com

“...now Watson is being put to work digesting millions of pages of research, incorporating the best clinical practices and monitoring the outcomes to assist physicians in treating cancer patients.”

FT FINANCIAL TIMES
World business newspaper

“Increasingly, businesses are applying analytics to social media such as Facebook and Twitter, as well as to product review websites, to try to “understand where customers are, what makes them tick and what they want”, says Deepak Advani, who heads IBM’s predictive analytics group.”

Los Angeles Times

The Oscar Senti-meter — a tool developed by the L.A. Times, IBM and the USC Annenberg Innovation Lab — analyzes opinions about the Academy Awards race shared in millions of public messages on Twitter.”

An Explosion of Data



By 2016, annual Internet traffic will reach **1.3 Zettabytes**



Facebook processes **500+ Terabytes** of data daily



150 Exabytes global size of "Big Data" in Healthcare, growing between 1.2 and 2.4 EX / year



Hadron Collider at CERN generates **40 Terabytes** of usable data / day



Google processes **> 24 Petabytes** of data in a single day



Twitter processes **12 Terabytes** of data daily



AT&T transfers about **30 Petabytes** of data through its network daily



For every session, NY Stock Exchange captures **1 Terabyte** of trade information

Applications for Big Data Analytics



Smarter Healthcare



Multi-channel sales



Finance



Log Analysis



Homeland Security



Traffic Control



Telecom



Search Quality



Manufacturing



Trading Analytics



Fraud and Risk



Retail: Churn, NBO

In Order to Realize New Opportunities, You Need to Think Beyond Traditional Sources of Data

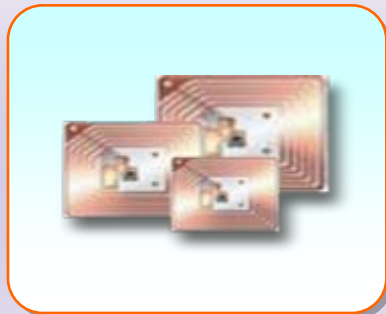


Transactional and Application Data



- Volume
- Structured
- Throughput

Machine Data



- Velocity
- Semi-structured
- Ingestion

Social Data



- Variety
- Highly unstructured
- Veracity

Enterprise Content

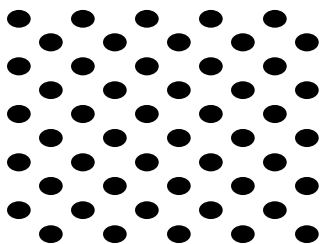


- Variety
- Highly unstructured
- Volume

Getting to the value requires exploiting the unique characteristics of big data



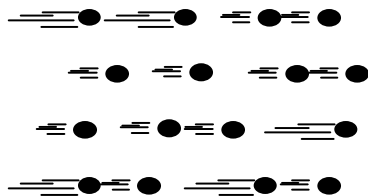
Volume



Data at Rest

Terabytes to exabytes of existing data to process

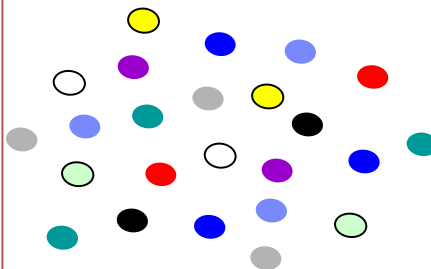
Velocity



Data in Motion

Streaming data, milliseconds to seconds to respond

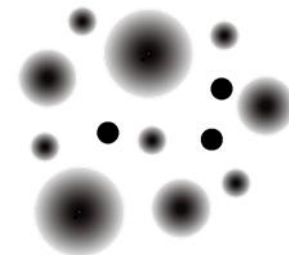
Variety



Data in Many Forms

Structured, unstructured, text, multimedia

Veracity*



Data in Doubt

Uncertainty due to data inconsistency & incompleteness, ambiguities, latency, deception, model approximations

* Truthfulness, accuracy or precision, correctness

Why Didn't We Use All of the Big Data Before?



Big Data represents a New Approach



Leverage analytics
as a game-changer

Embrace big data
to maximize your
business outcomes

Get **inspired** and
take action

IT Think **BIG**



Organizations drive transformation by starting with one of these four high-value initiatives



Know Everything About Your Customers

- Churn management
- Social media sentiment analysis
- Next best action



Increase Operational Efficiency

- Predictive maintenance
- Supply chain optimization
- Network and Grid management



Mitigate Risk and Fraud

- Multimodal surveillance
- Fraud modeling & detection
- Risk modeling and management



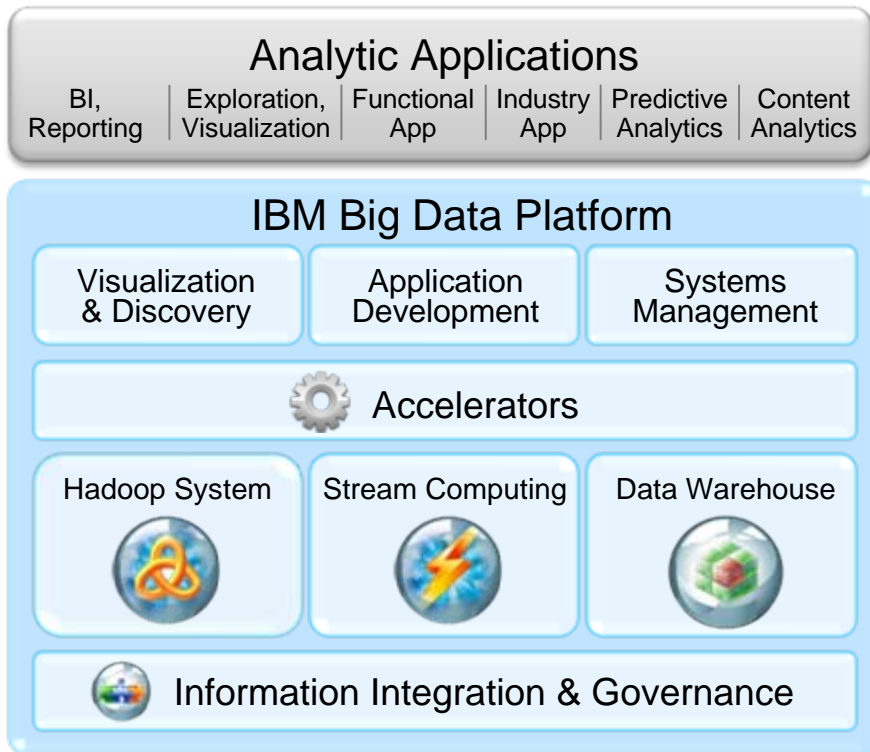
Create New Business Models

- Experimental research
- Adaptive marketing
- Location-based Advertising revenue

IBM Big Data Platform...



New analytic applications drive requirements for a big data platform



- Integrate and manage the full variety, velocity and volume of data
- Apply advanced analytics to information in its native form
- Visualize all available data for ad-hoc analysis
- Development environment for building new analytic applications
- Workload optimization and scheduling
- Security and Governance

Big Data Accelerators

Reduced Complexity, Faster Time to Value



**Customizable, pre-built business logic,
data processing, and visualization**

Social Data Analytics



- Sentiment analytics
- Intent to purchase
- Gain competitive intelligence

Machine Data Analytics



- Log processing
- Pattern analysis
- Real time visibility into operations

Telco Event Analytics



- CDR analytics
- Customer event analytics
- Real-time processing




University of Ontario Institute of Technology (UOIT) uses big data to improve quality of care for neonatal babies

Need

- Performing real-time analytics using physiological data from neonatal babies
- Continuously correlates data from medical monitors to detect subtle changes and alert hospital staff sooner
- Early warning gives caregivers the ability to proactively deal with complications

Benefits:

- Detecting life threatening conditions 24 hours sooner than symptoms exhibited
- Lower morbidity and improved patient care



Major U.S. Global Institutional Investment Firm to Improve Risk Management of Client Portfolios

- Repository of all holdings and benchmarks information in BigInsights Distribute File System for fault-tolerance on commodity hardware
- Identify client investment exposures based on traded security, issuer, country, currency, etc.
- Compare exposures to benchmarks for compliance and active bet exposure
- Improve current manual process



Marine Institute Ireland, monitors buoy sensor data to detect floods sooner

Need

- To make better use of the environmental data it collected
- Compiling this data to perform trend analyses or draw conclusions, however, was particularly complicated

Benefits

- Uses maritime data to increase the accuracy of flood predictions and support automated alarm systems, improving public safety
- Fosters new businesses and overall growth by providing seafood, shipping and monitoring operations with streaming maritime data



Major US Oil and Gas Exploration and Production Company

- Ice floe interrupts daily operations and inhibits year round operation
- Using IBM's Big Data Platform to track, forecast and provide early warning of ice floe in the Arctic Circle
- Analyzing in realtime Satellite imagery, Wind & Sonar data and MetOcean weather forecast and other sources yet to be engineered
- Achieving savings in the 100's of Millions and Billions

TerraEchos for Low Latency Surveillance Data Analysis

Capabilities Utilized:

Stream Computing

- Deployed security surveillance system to detect, classify, locate, and track potential threats at highly sensitive national lab
- Stream computing collects and analyzes acoustic data from fiber-optic sensor arrays
- Analyzed acoustic data fed into TerraEchos intelligence platform for threat detection, classification, prediction & communication

Significant benefits:

- Enables Terraechos solution to analyze and classify streaming acoustic data in real-time
- Provides lab & security staff with holistic view of potential threats & non-issues
- Enables a faster and more intelligent response to any threat





Major U.S. Wireless Telco Increases Revenue and Improves Customer Satisfaction

- Deployed real-time CDR analysis solution to handle exploding data volume growth and performance requirements
- Analyzes call, internet usage, and text records in real-time to identify and address poorly performing cells
- Significant Benefits:
 - Over 90% reduction in time to merge/load call record data
 - Over 90% reduction in storage
 - Increased network quality, improved customer satisfaction, reduced churn



Retail Point-of-Sales, Marketing, and Inventory Analysis

- Enable better understanding of shoppers by analyzing ***new data sources*** such as social media together with transaction histories, web logs, etc
 - Luxury good analysis – group of stores for stocking luxury brand
 - Internet vs Store purchase analysis
 - Gift card analysis
 - Sentiments on products and brands
 - Reconcile what business know about a customer's behavior
- Improve gross margin, inventory management, vendor negotiation, etc, by
 - Customer segmentation, cross-selling,
 - Market, product, price analysis
 - Targeted promotions, etc



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Thank You