Why Big Data? Why Now?

Information is at the Center of a New Wave of Opportunity…

… And Organizations Need Deeper Insights

44x

as much Data and Content Over Coming Decade

2020
35 zettabytes

Velocity

Variety

Volume

2009
800,000 petabytes

80%

Of world's data is unstructured

1 in 3 Business leaders frequently make decisions based on information they don't trust, or don't have

1 in 2 Business leaders say they don't have access to the information they need to do their jobs

83% of CIOs cited "Business intelligence and analytics" as part of their visionary plans to enhance competitiveness

60% of CEOs need to do a better job capturing and understanding information rapidly in order to make swift business decisions

The Challenge: Bring Together a Large Volume and Variety of Data to Find New Insights

Multi-channel customer sentiment and experience a analysis

Detect life-threatening conditions at hospitals in time to intervene

Predict weather patterns to plan optimal wind turbine usage, and optimize capital expenditure on asset placement

Make risk decisions based on real-time transactional data

Identify criminals and threats from disparate video, audio, and data feeds

The Big Data Opportunity

Extracting insight from an immense volume, variety and velocity of data, in context, beyond what was previously possible.
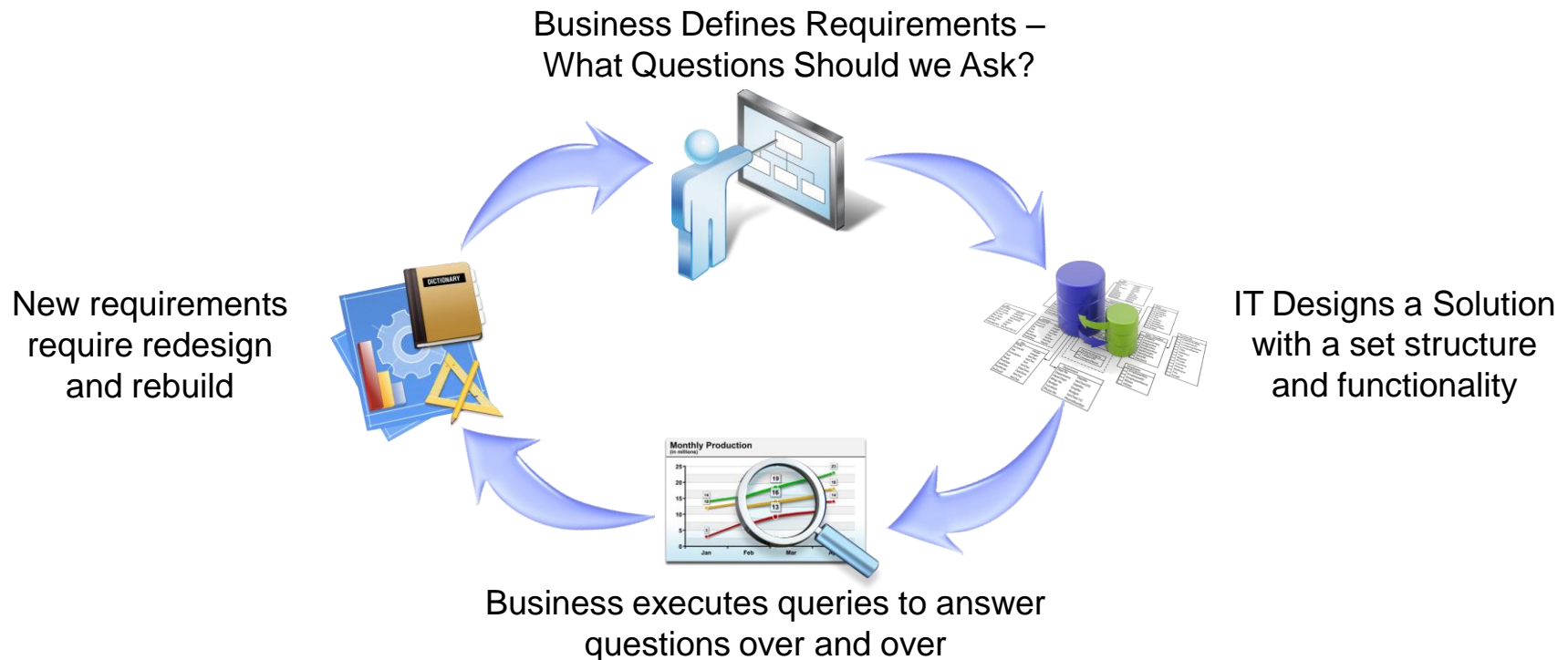

Variety: Manage the complexity of multiple relational and non-relational data types and schemas

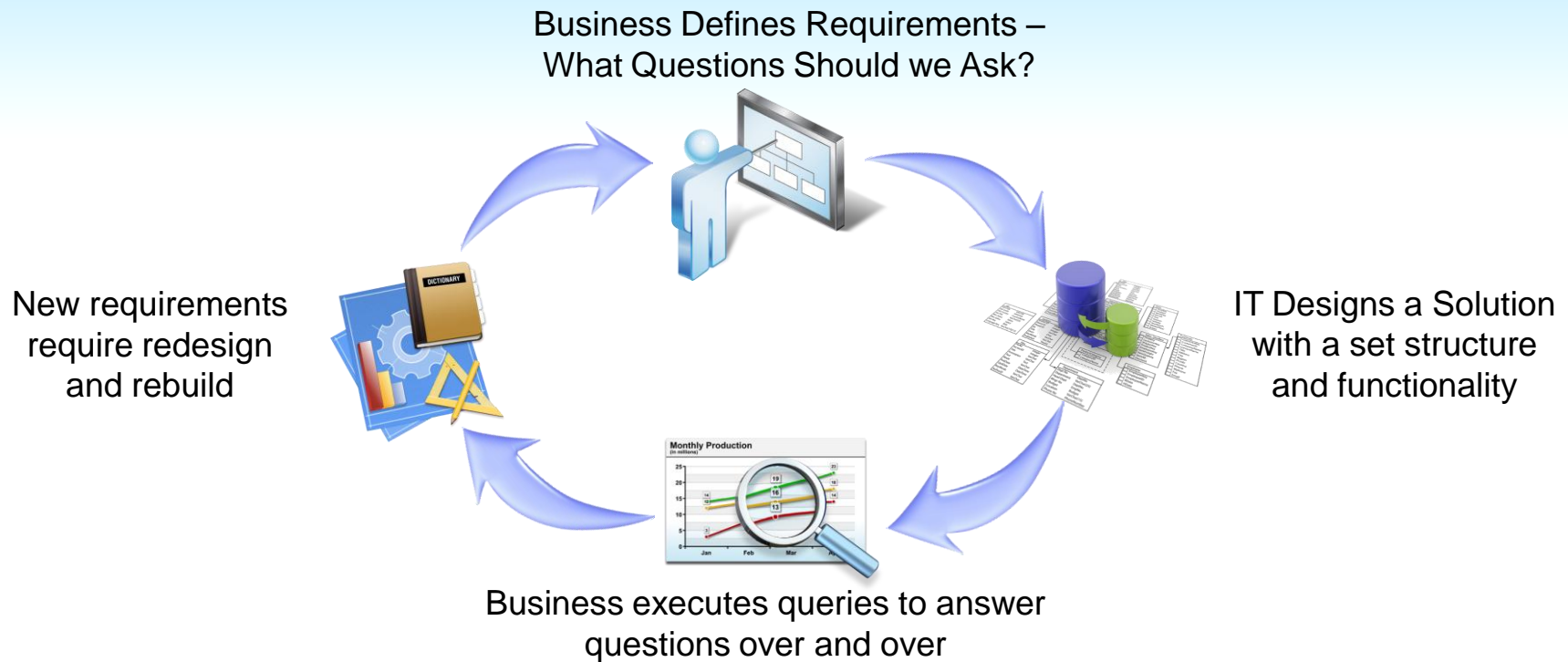**Velocity:** Streaming data and large volume data movement

Volume: Scale from terabytes to zettabytes

The Traditional Approach: *Business Requirements Drive Solution Design*

Business Defines Requirements –
What Questions Should we Ask?

IT Designs a Solution
with a set structure
and functionality

New requirements
require redesign
and rebuild

Business executes queries to answer
questions over and over

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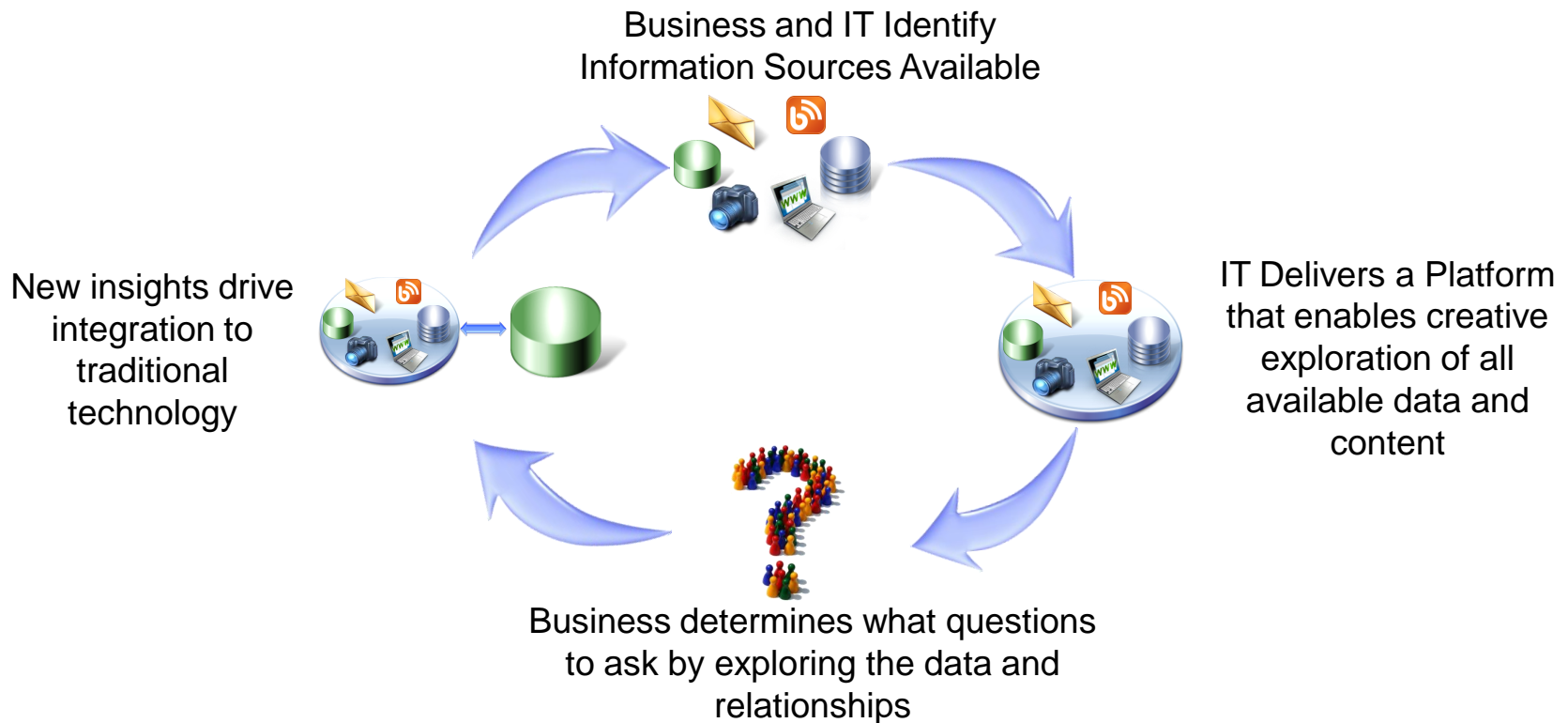Business executes queries to answer
questions over and over

Well-Suited To:

- High value, structured data
- Repeated operations and processes (e.g. transactions, reports, BI, etc.)
- Relatively stable sources
- Well-understood requirements

Stretched By:

- Highly variable data and content
- Iterative, exploratory analysis (e.g. scientific research, behavioral modeling, etc.)
- Volatile sources
- Ill-defined questions and changing requirements

The Big Data Approach: *Information Sources Drive Creative Discovery*

Business and IT Identify Information Sources Available

IT Delivers a Platform that enables creative exploration of all available data and content

Business determines what questions to ask by exploring the data and relationships

New insights drive integration to traditional technology

Big Data Shouldn't Be a Silo
Must be an integrated part of your enterprise information architecture

Data Warehouse

Big Data Platform

Enterprise Integration

Traditional Sources

New Sources
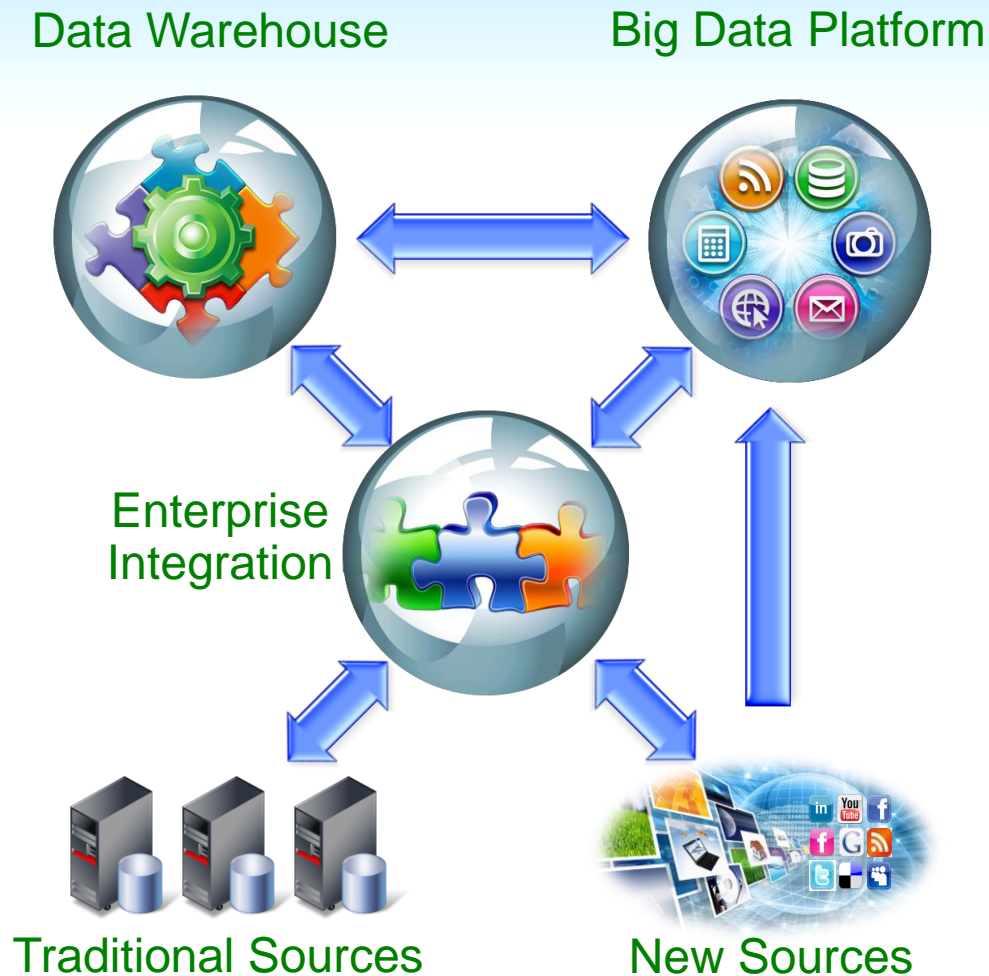
Merging the Traditional and Big Data Approaches

Traditional Approach
Structured & Repeatable Analysis

Big Data Approach
Iterative & Exploratory Analysis

Business Users

Determine what question to ask

IT

Delivers a platform to enable creative discovery

IT

Structures the data to answer that question
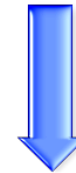
Business

Explores what questions could be asked

Monthly sales reports
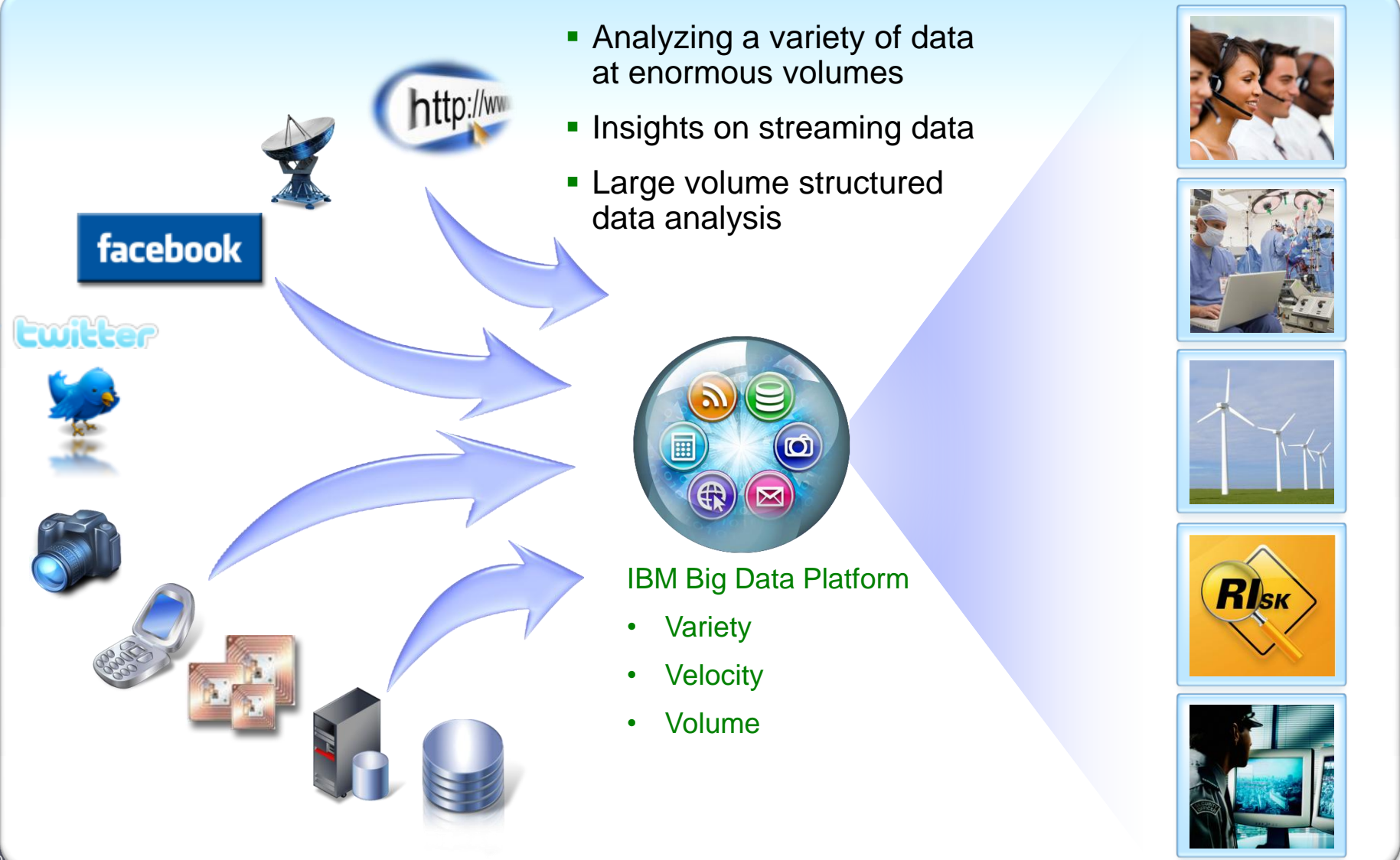Profitability analysis
Customer surveys

Brand sentiment
Product strategy
Maximum asset utilization

The Solution – IBM's Big Data Platform
Bring together any data source, at any velocity, to generate insight

- Analyzing a variety of data at enormous volumes
- Insights on streaming data
- Large volume structured data analysis

IBM Big Data Platform
- Variety
- Velocity
- Volume

IBM

Optimize capital investments based on **6 Petabytes** of information

- Model the weather to optimize placement of turbines, maximizing power generation and longevity

- Build models to cover forecasting and real-time operation of power generation units

- Incorporate 6 PB of structured and semi-structured information flows

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A Platform Approach Address Enterprise Client Needs

Enterprise Client Needs

Enable creativity and agility

Focus on outcomes

Reduce and manage complexity

Lower development and integration costs

Big Data Platform Delivers

➤ **Platform for V³**

➤ **Analytics for V³**

➤ **Ease of Use for Developers/Users**

➤ **Enterprise Class**

➤ **Extensive Integration**

IBM Watson

IBM Watson is a breakthrough in analytic innovation, but it is only successful because of the quality of the information from which it is working.
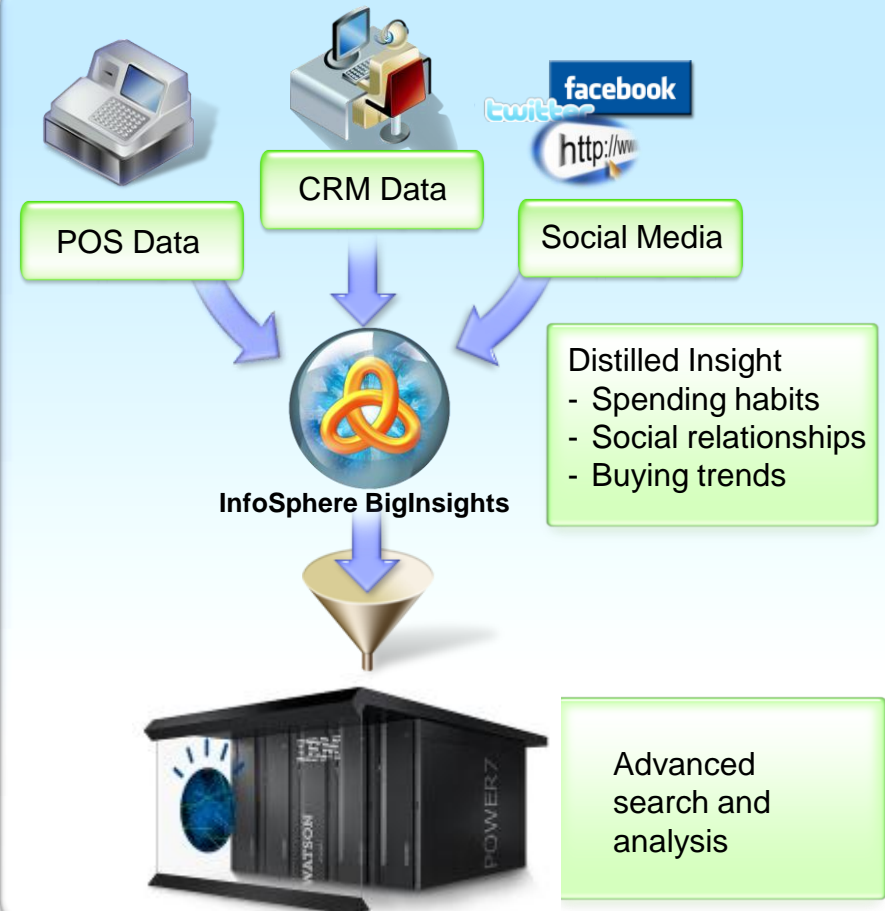
Big Data and Watson

Big Data technology is used to build Watson's knowledge base

Watson uses the Apache Hadoop open framework to distribute the workload for loading information into memory.

Approx. 200M pages of text
(To compete on *Jeopardy*!)

Watson's Memory

Watson can consume insights from Big Data for advanced analysis

CRM Data

POS Data

Social Media

facebook

twitter

http://

Distilled Insight
- Spending habits
- Social relationships
- Buying trends

InfoSphere BigInsights

Advanced search and analysis

Imagine the Possibilities
…in a World with No Limits

Information from Everywhere	Radical Flexibility	Extreme Scalability

- Data & content
- Apps, web & sensors
- At rest & in motion
- Integrated & federated

- Virtualization at every level
- Automated administration
- Easy-to-use analytics

- "Big data" analytics
- Real-time stream processing
- Efficient parallelism
- Workload-optimized