Technology Leadership in the Cognitive Era
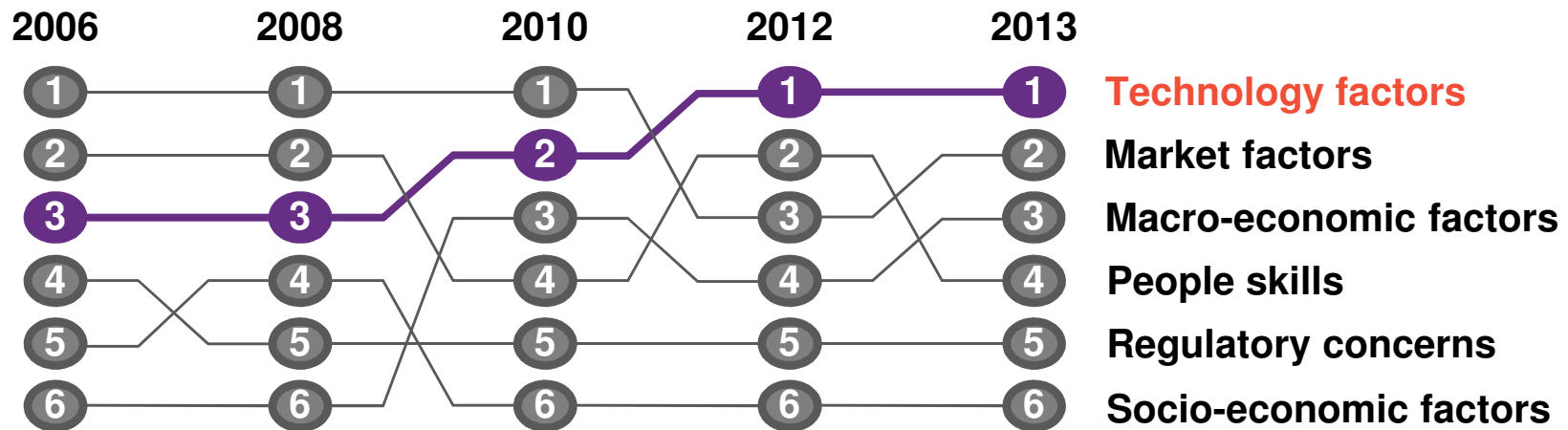
September 15th 2016

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Country Manager, IBM Systems

IBM Thailand Co.,Ltd.

Today's business leaders recognize the importance of technology in driving business success ….

2006	2008	2010	2012	2013	
1	1	1	1	1	**Technology factors**
2	2	2	2	2	**Market factors**
3	3	3	3	3	**Macro-economic factors**
4	4	4	4	4	**People skills**
5	5	5	5	5	**Regulatory concerns**
6	6	6	6	6	**Socio-economic factors**

Source: IBM Institute for Business Value, Global C-Suite Study, 2013

IBM Systems

IT leaders must drive innovation at unprecedented speed and scale ….

…while maintaining their core businesses

Driving innovation:

IoT will connect **30 billion** devices by 2020

48% of shoppers want on-demand personalized promotions

65% of transactions with healthcare organizations will be mobile by 2018

Maintaining business:

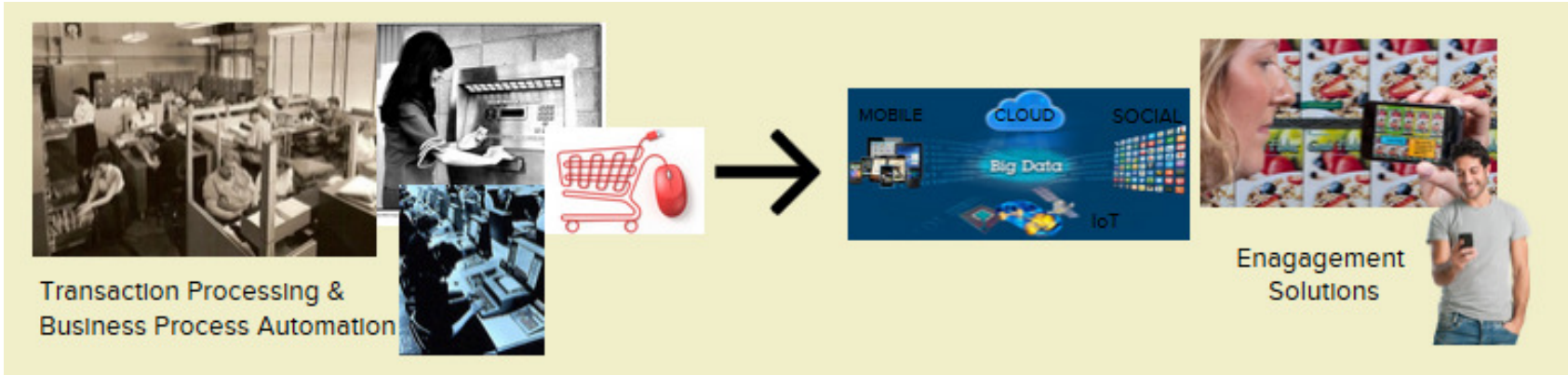**6.75 TBs** of data will be created per person per day by 2018

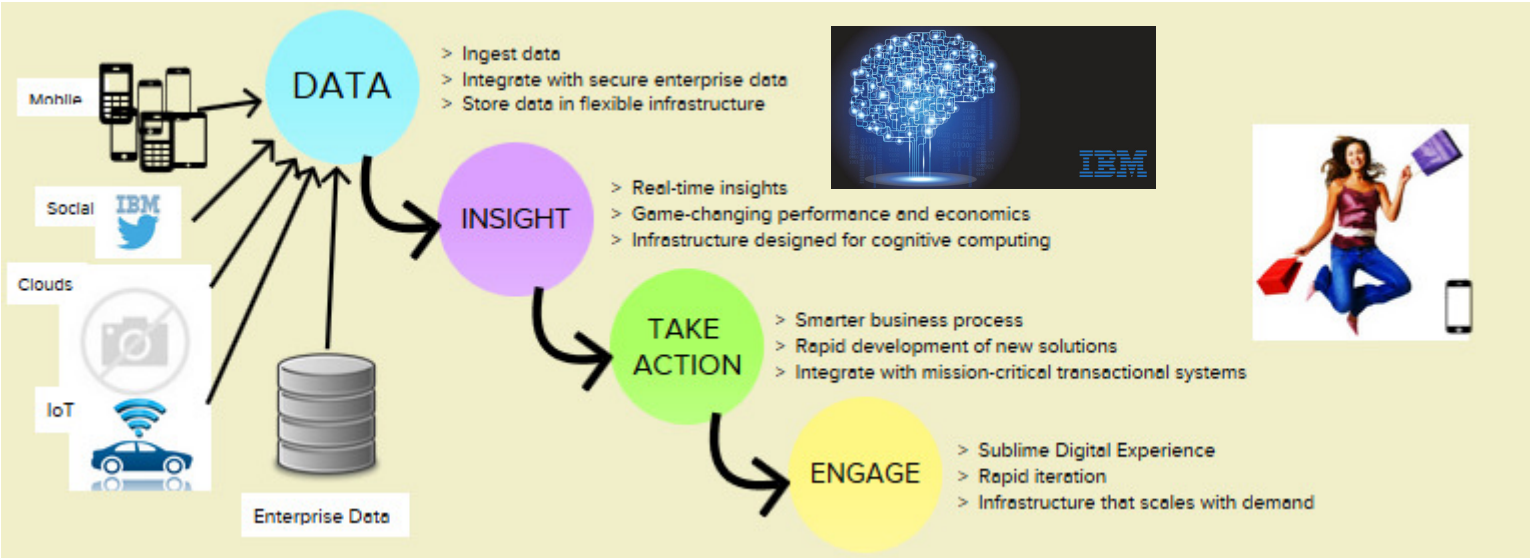Average cost of a data breach in 2020 will exceed **$150 million**

Average hourly cost of downtime is over **$1.6 million**

New Enterprise Value Coming from Use of IT to Engage Clients and Optimize Physical World

Transaction Processing &
Business Process Automation

Enagagement
Solutions

…these solutions leverage cognitive, analytics, social, mobile & cloud to deliver

Mobile

Social

Clouds

IoT

Enterprise Data

DATA
> Ingest data
> Integrate with secure enterprise data
> Store data in flexible infrastructure

INSIGHT
> Real-time insights
> Game-changing performance and economics
> Infrastructure designed for cognitive computing

TAKE ACTION
> Smarter business process
> Rapid development of new solutions
> Integrate with mission-critical transactional systems

ENGAGE
> Sublime Digital Experience
> Rapid iteration
> Infrastructure that scales with demand
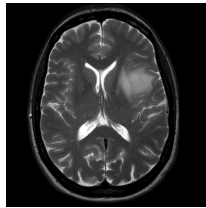
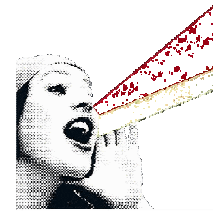# Desired Outcomes Require Cognitive Technology ….

… cognitive technologies unlock insights from massive amount of unstructured data
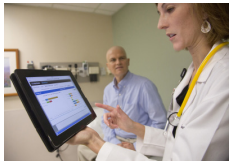
TEXT   **IMAGE**   **VOICE**

… the key attributes of cognitive technology are
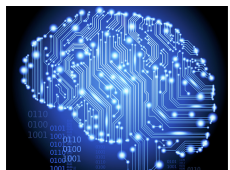
Understand the World
    as opposed to Automating the World

Advise and provide evidence
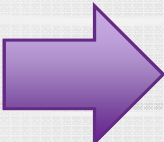   as opposed to giving Yes/No Answers

System Learns & Improves
    as opposed to Systems staying Static

Desired Outcomes Require IT Infrastructure that can Handle Demands of Cognitive Technology ….

… cost efficient, scalable, performant SW-defined storage to handle data requirements

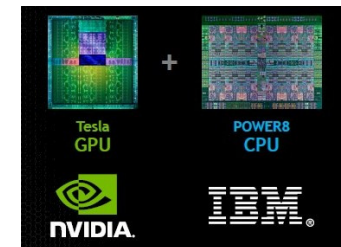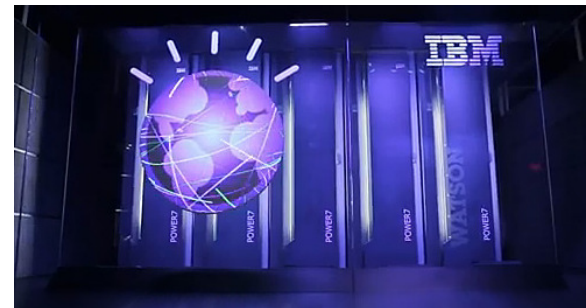**Terabytes** → **Exabytes & Beyond**

Data in single location → **Data From Multiple Sources in Multiple Protocols on Multiple Storage Media**

… systems optimized for data processing and designed for acceleration

I/O Bound → **Compute & Memory Bound**
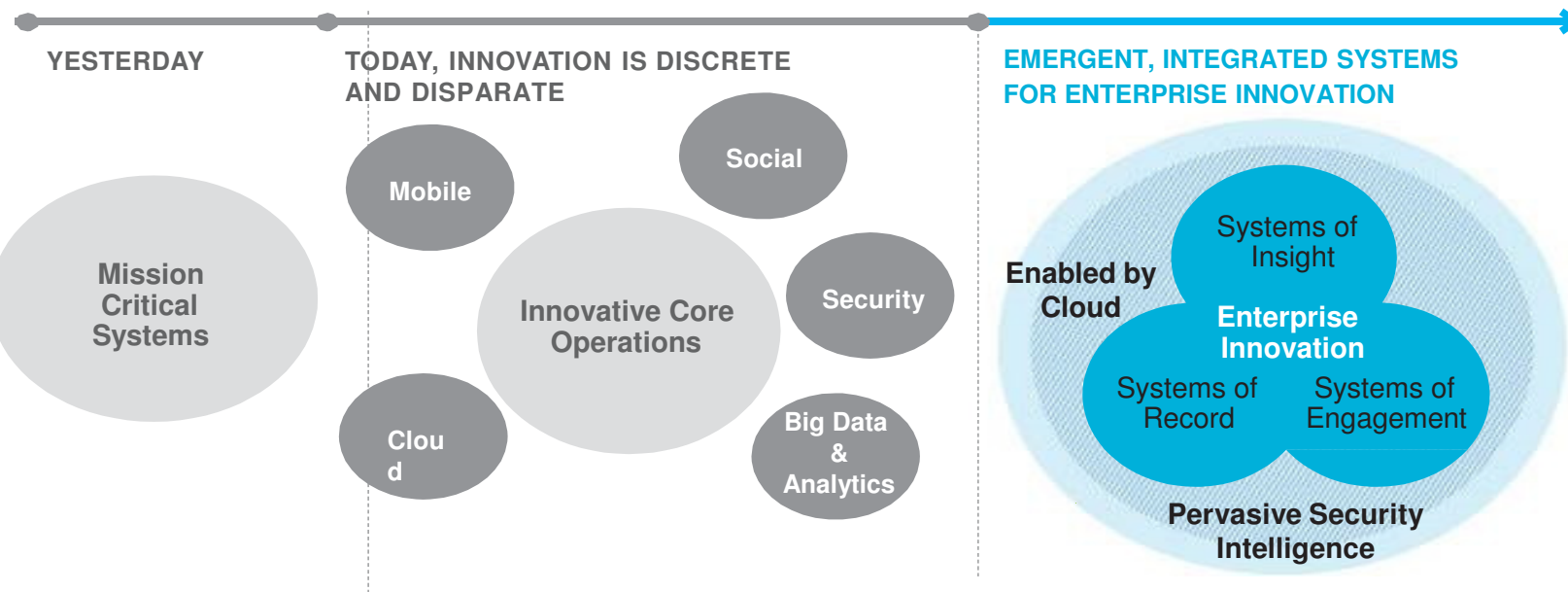
Spark

DEEP LEARNING

IBM

Tesla GPU + POWER8 CPU
NVIDIA IBM

CAPI Technology

Desired Outcomes Drive a Hybrid Cloud Infrastructure ….

- Building a new Engagement solution to drive new business opportunities
- Integrating more data/insights into existing processes to drive better business results
- Making your IT more efficient to reduce costs and increase speed of innovation

… outcomes realized through the integration of new era technologies with core systems

YESTERDAY

TODAY, INNOVATION IS DISCRETE AND DISPARATE

EMERGENT, INTEGRATED SYSTEMS FOR ENTERPRISE INNOVATION

Mission Critical Systems

Mobile

Social

Innovative Core Operations

Security

Cloud

Big Data & Analytics

Enabled by Cloud

Systems of Insight

Enterprise Innovation

Systems of Record

Systems of Engagement

Pervasive Security Intelligence

IBM Systems

We believe becoming a cognitive business means evolving IT infrastructure in three areas

Accelerate speed of innovation for new services

Build with Collaborative Innovation
Tap into your ecosystem and extend infrastructure investments to drive innovation

Deliver real-time business visibility and insights

Design for Cognitive Business
Integrate data from various sources and derive real-time insights from oceans of data

Ensure secure, compliant and predictable IT services

Deliver through Cloud Platform
Create an infrastructure that is both secure and open & both flexible and predictable

IBM Systems infrastructure plays a critical role in helping our clients capture business and IT value from emerging trends

Optimized infrastructure for Cognitive, Big Data & Analytics including cloud services

Software-Defined Storage to manage explosive data growth required for cognitive infrastructure and enable effective use of social, mobile & IoT data

IBM Spectrum Storage

cleversafe®

The Time is Now: IBM® FlashSystem

IBM Spectrum Scale

The enterprise security-rich system with in-transaction analytics for the mobile app economy and emerging blockchain solutions

Real-time Analytics

Mobile Solutions

System z

HYPERLEDGER PROJECT

In the next generation of systems leadership, IBM Systems build on open market innovation to deliver differentiated client value and giving clients greater flexibility in deployment
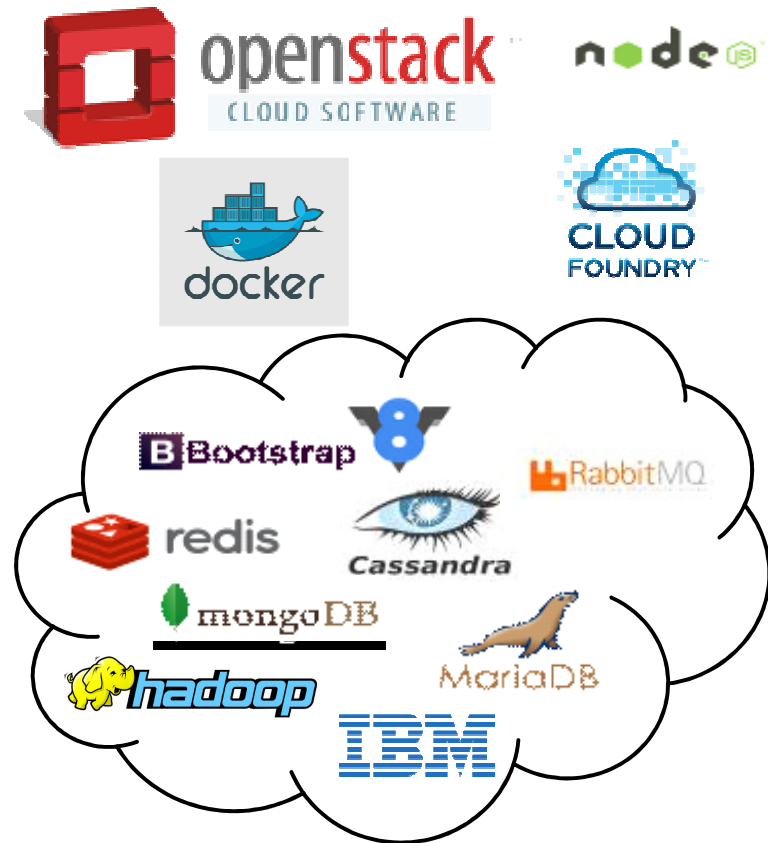

More than 125 members and growing

Goal: Open System Innovation for Cloud Data Centers

Original Officers:
  Chairman, Google, Gordon MacKean, Senior Engineering Director
  President, IBM, Brad McCredie, VP and IBM Fellow
  Vice President, Nvidia, Michael Diamond, Senior Director Marketing

• IBM provides open documentation and open license access to chip design IP
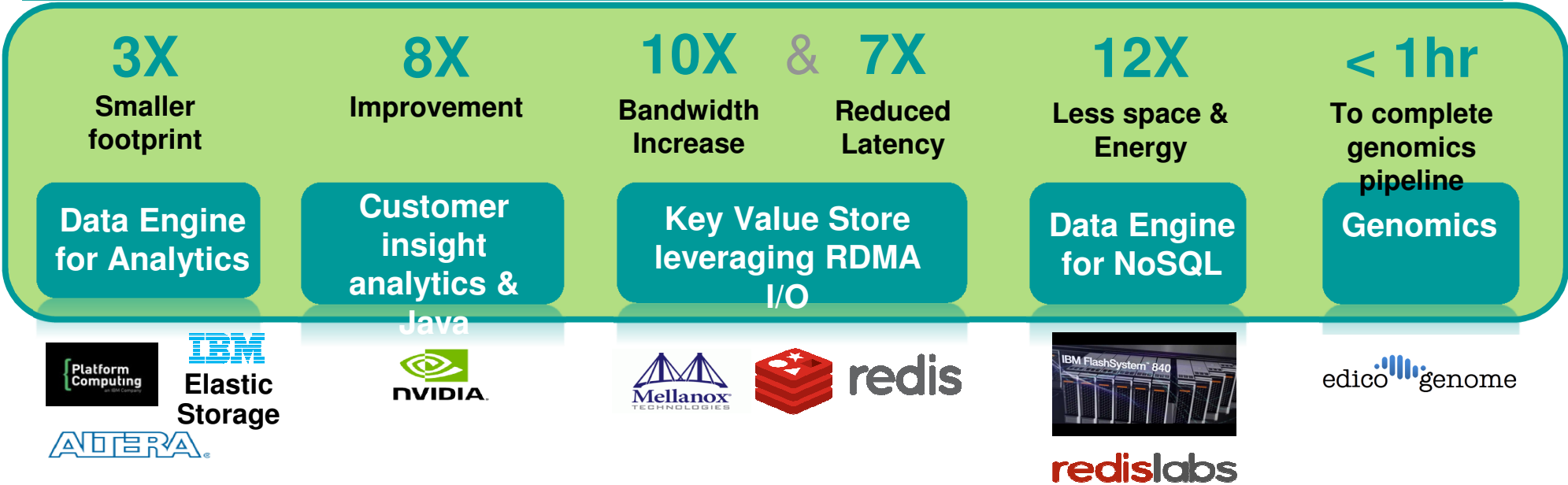
IBM Systems

Leveraging Open Innovation on Power8

CAPI enables accelerators to operate on memory in the same way that general purpose processors can operate on memory

CAPI Technology

Even greater results for big data & analytics

3X	8X	10X & 7X	12X	< 1hr
Smaller footprint	**Improvement**	**Bandwidth Increase** & **Reduced Latency**	**Less space & Energy**	**To complete genomics pipeline**
Data Engine for Analytics	**Customer insight analytics & Java**	**Key Value Store leveraging RDMA I/O**	**Data Engine for NoSQL**	**Genomics**

Software defined storage for new workloads

Lead the transformation with flash everywhere

Spectrum Scale Software

- **Software** that supports a broad set of hardware
- **True Elasticity**, Scale out and in, globally, virtually without limits
- **Automated Data Governance**, across Flash, Disk and Tape
- Enhanced **security** with encryption
- Open Access via POSIX, NFS, Hadoop & **Object Storage via OpenStack Swift**
- **True Hybrid Cloud Storage** with Transparent Cloud Tiering on: cleversafe SOFTLAYER® an IBM Company amazon web services™ | S3

Breakthrough storage technology that powered **IBM Watson**, available for commercial use

IBM FlashSystem

Accelerate business insight with extreme performance and advanced management features

- Experience real-time analytical insights with up to **50x better performance** than enterprise disk systems with **IBM FlashCore™** technology
- Future-proof infrastructure while scaling to over **2 petabytes** of effective all-flash capacity under a single integrated interface
- Deliver agile integration and superior data economics with **4x greater capacity** in less rack space than competitive all-flash products

Flash guarantee on **MicroLatency** performance, Comprestimator savings from **data reduction**, and flash media **endurance**

Thank you.

IBM.

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