

COMPUTERWORLD

THE POWER OF **BIG DATA** SYMPOSIUM

6.26.12 | NYC

Optimizing **Big Data** for
Real-Time Business Transformation

Opening Keynote: Innovating with Big Data

Mike Capone
Corporate Vice President and CIO
Automatic Data Processing, Inc.

ADP is the largest global SaaS provider of cloud-based Enterprise software

- >250,000 SaaS clients
- >13 Million users
- 81 countries & expanding
- Widest breadth of HCM solutions
- Best-of-breed depth of features
- BPO/Service offerings extend reach beyond traditional SaaS



Global Outsourcing Services Provider of the Year



2010



InformationWeek 500

2011 - Rank #7



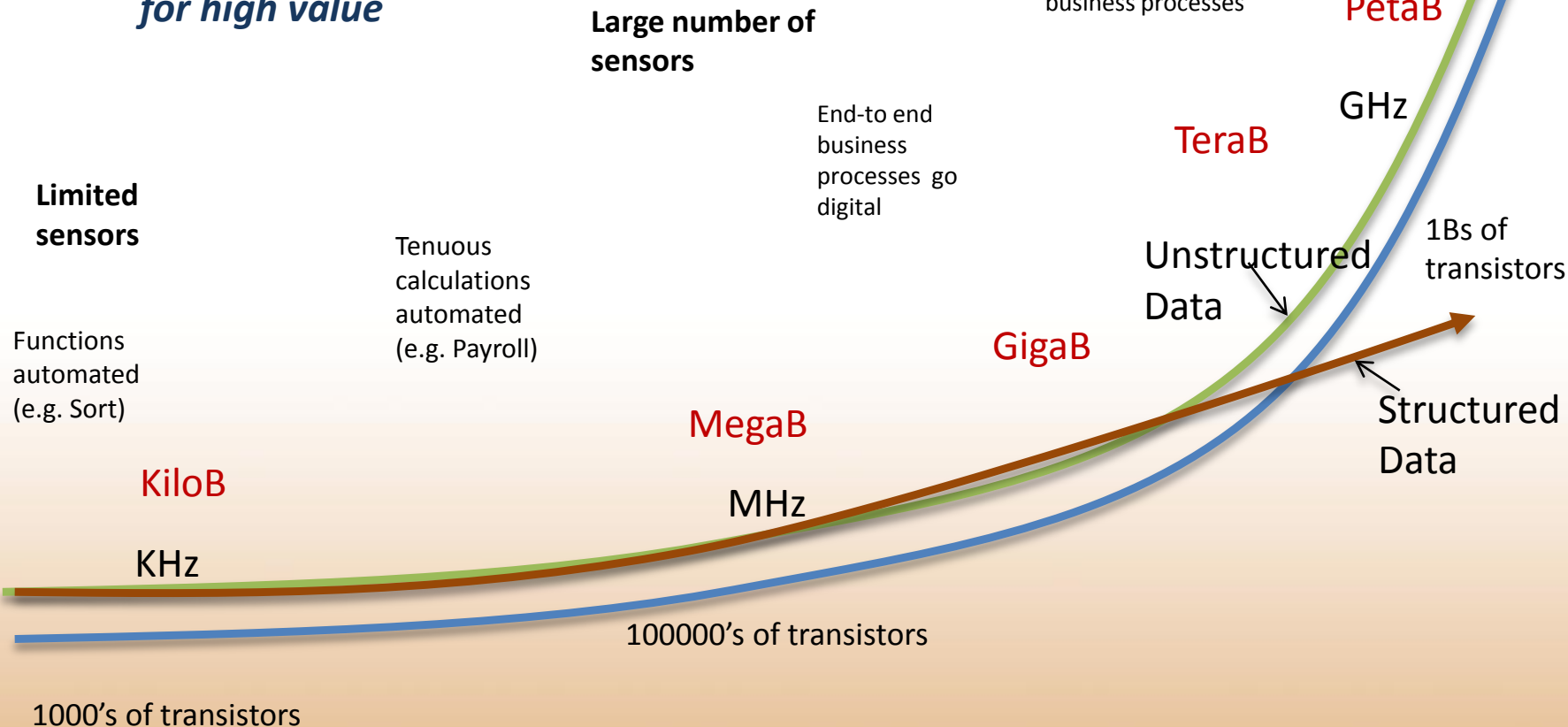
Financial
Data
Services
Rank #2

InfoWorld

InfoWorld 100
Top 10
2008, 2009

We all knew this was coming.....

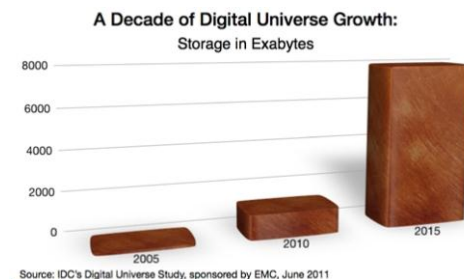
*Digitization gives us wealth
of data that can be
correlated and used/abused
for high value*



Big Data: Old problem-New opportunities

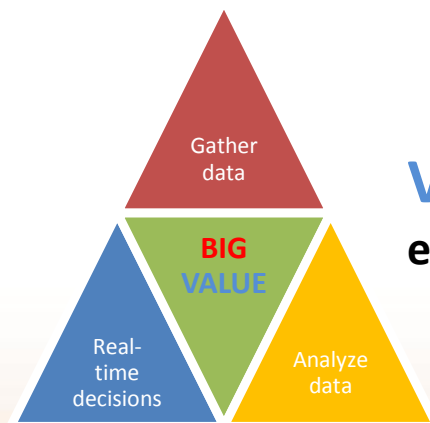
Variety: More different types of data to be integrated into analysis

- ❖ Many different formats /types (Text, audio, video, Structured/Unstructured/Streaming/Temporal)
- ❖ Many different sources (External/Internal)
- ❖ Many different security/compliance requirements
- ❖ Many different charge models for use of data



Velocity: More to capture and process in a shorter time

- ❖ Rate of generation is increasing
- ❖ Window in which to process is shrinking
- ❖ Collecting desired volumes of data is a challenge
- ❖ Data at rest is experiencing cumulative growth
- ❖ Real-Time analytics integral part of navigation



Volume: More data is available than ever before

- ❖ Twitter: 400 million tweets/day 92MB/sec of data created
- ❖ Facebook ~1B users generating over 15TB/day
- ❖ 107 trillion emails were sent in 2010 (~30k each)
- ❖ Annual ww IP traffic will reach 667 Exabytes by 2013 (CISCO)

*"Big data technologies describe a new generation of technologies and architectures, designed to **economically** extract value from very large volumes of a wide variety of data, by enabling high-velocity capture, discovery, and/or analysis." (IDC)*

Examples of big business benefits from Big Data



Financial Services

Reduce risk and prevent fraud (>**37B** in credit card, retail etc.)



Healthcare/Life Sciences

20% decrease in patient mortality by analyzing streaming patient data
Can generate **300B** value/per year for the sector



IT Infrastructure management

Process large volumes of logged data to isolate faulty component and take corrective action



Retail/Digital Media/Location based services

Can generate **100B** revenue for service provider and **700B** Value for end-users



Law Enforcement

Real-time multimodal surveillance and Cyber security detection



Utilities

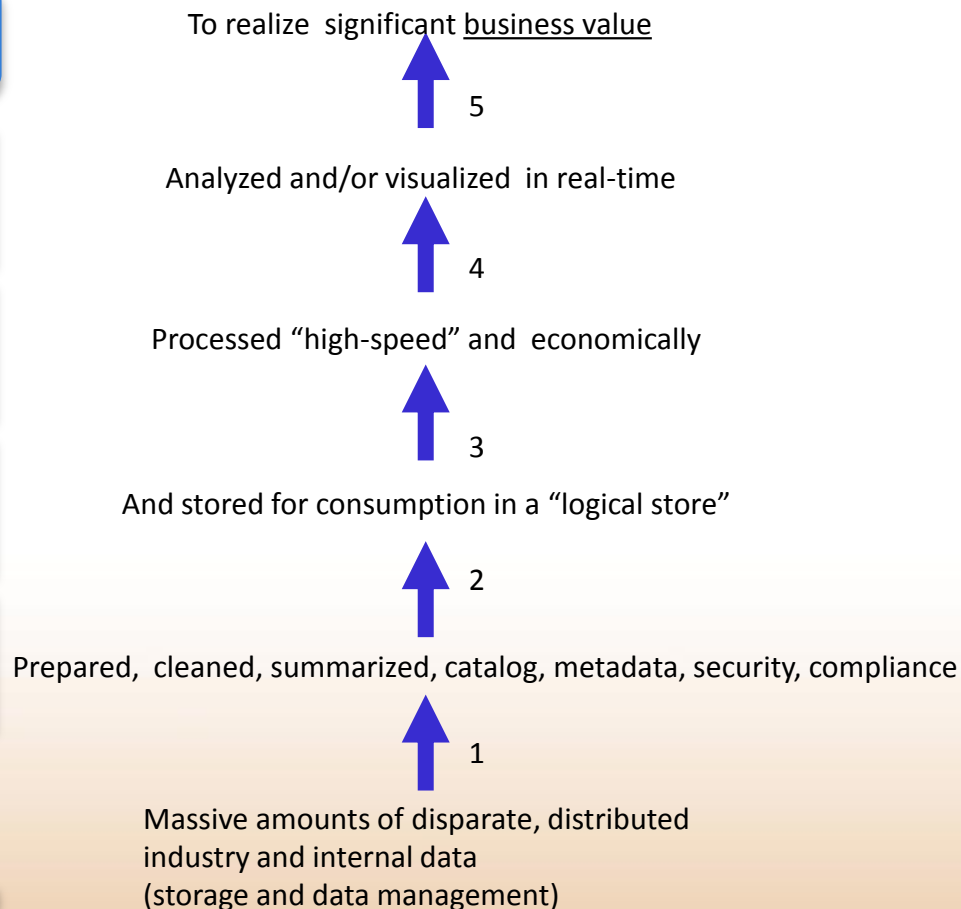
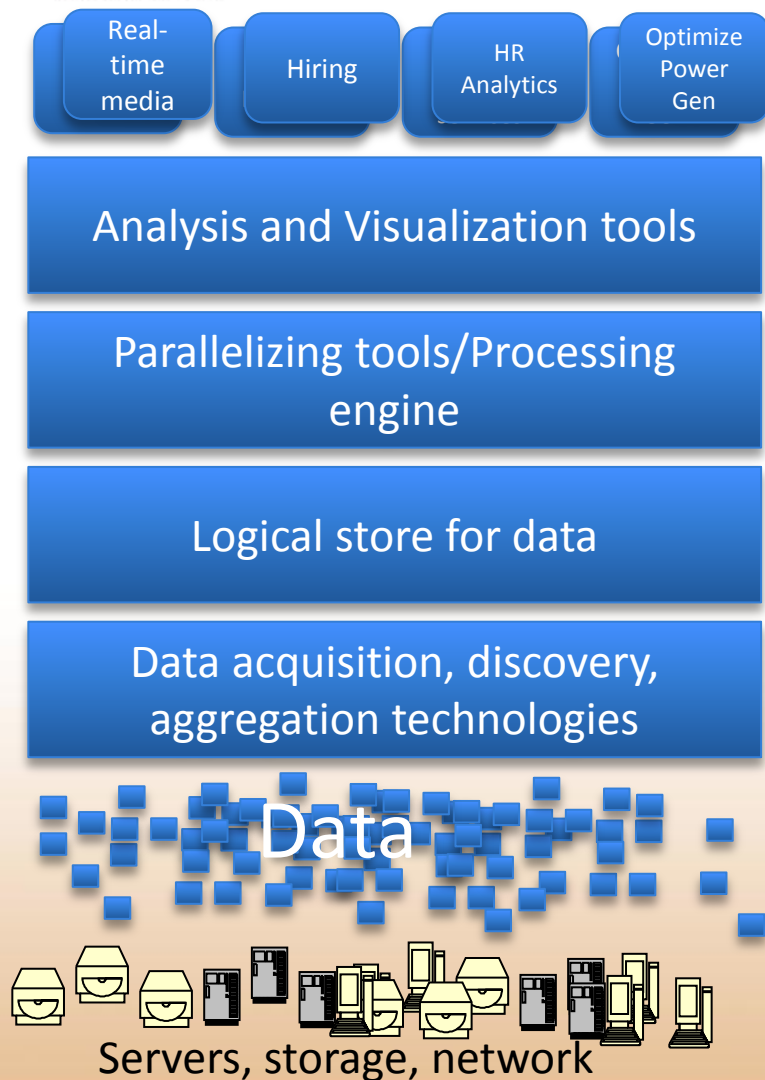
99% improved accuracy in placing power generation resources by analyzing 2.8 petabytes of untapped data



Transportation

Real-time traffic data analysis reduces traffic congestion

Technology requirements for Big Data



Open Source is playing a Big Role in Big Data... ...with BIG vendor play as well

Data acquisition/analysis tools/ programming utilities



Massively parallel processing tier

Apache Hadoop

Map Reduce facility with distributed filesystem

Pig,
 Mahout,
 Sqoop,
 Hive,



Avro, Zookeeper,
 Oozie, Ambari,
 Hcatalog, Chukwa,
 Flume



Logical "not-only relational" stores for data



Innovation Labs

ADP Innovation Labs

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Big Data
 from hype to value



Behavioral Intelligence

We can now capture every impression, every tap a user makes on our mobile apps – this is a lot of data coming at light speed.

We can then map those impressions and see the patterns arising – we see the behavioral pattern for each user – and we reduce it to a actionable task in this case we 'know' that Mary will use or app this morning to see payroll and 401k – and we roll the red carpet – all Mary needs will be in-memory ready at amazing speed That's transforming what's hype for most vendors into tangible value for our users...

Creativity is thinking up new things...
 Innovation is doing new things.



Follow Us...



Personal Cloud

As we provide our users with more and more convenience and channels to interact with ADP we want to make the experience seamless. Start a action on one device and pick it up on another. ADP becomes your personal cloud.



Social Platform

Social – a tough nut to crack – different industries have different requirements, uses for different social disciplines like communities, micro-blogging, social profiles, social recruiting...



Big Data & Analytics

Engines like Hadoop and MongoDB allow us to see patterns in data that were impossible just 2 years ago It's the foundation of our Search, Analytics and Behavioral Intelligence The benefits for our user are great...

ADP Tablet is coming...



[Learn More](#)

Innovation Loft

ADP Innovation loft provides access to the envisioning, investigation, prototyping, testing, risk & reward process of the Lab.

[Learn More](#)

Learn more about HTML5...



ADP Labs

***Thought leadership
 and innovation that
 drive market
 leadership***

The ADP National Employment Report leverages Big Data technology...



ADP Research InstituteSM

ADP National
Employment Report[®]

May 2012

↑ 133,000

Total Employment in U.S. nonfarm private
business sector from April to May

↑ 132,000

Private, service-producing
sector employment

↑ 1,000

Private, goods-producing
sector employment

↓ -2,000
Manufacturing
employment

↓ -1,000
Construction
employment

↑ 8,000
Financial Services

ADP Research Institute

Insights

Research and Trends

About the Institute

< BACK TO ALL

ADP National Employment Report Shows 133,000 New Jobs Created in May

Download the Full Report

ADP National Employment
Report

ADP Research Institute - Extending analytics beyond the NER



ADP Research Institute

Insights

Research and Trends

About the Institute

Insights

Insights you can use from one of the global leaders in human capital management. Topics include:

- Benefits Administration
- Compliance
- Global Human Capital Management
- Human Resource Management
- Inside the Economy
- Mobile / Technology
- Payroll
- Talent Management
- Time & Attendance

↑ 67,000

INSIDE THE ECONOMY

ADP Report Shows Small Business Added 67,000 Jobs in May; Service Providers Driving Growth

Employment in nonfarm private small business payrolls rose 67,000 in May on a seasonally adjusted basis, accounting for 50% of employment gains across all payroll size groups.

Plan design will no longer be a differentiator. With reform possibly limiting your options, how will you differentiate your benefits offerings?

BENEFITS ADMINISTRATION

Health Care Reform Presents Benefits Administration Challenges and Opportunities for Employers

As Health Care Reform adds new levels of complexity to benefits administration and HR compliance, you can use technology and process to integrate HR strategy, including benefits administration, with HR operations to drive strategic business goals for measurable results.

32% of employees are planning to leave their current jobs. What would losing top talent cost you?

TALENT MANAGEMENT

Pay for Talent: Integrated Talent Management Helps to Retain Key Employees and Drive Business Success

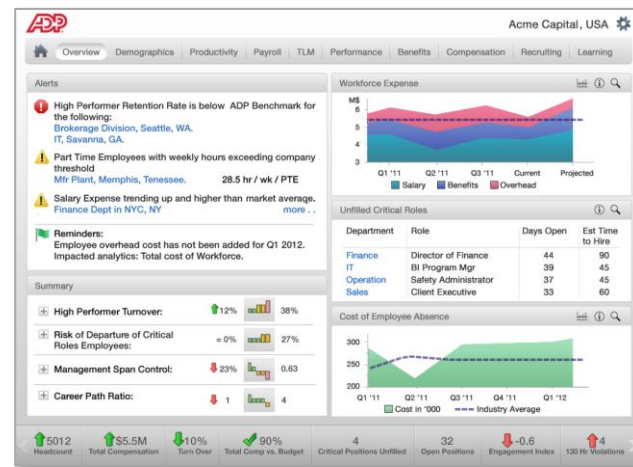
Find out how Pay for Talent enables your organization to use compensation as a key lever across all talent management processes, including talent assessment, performance management, succession planning, and employee development.

Big Data @ ADP

HCM Analytics

Embedded, contextualized and real-time

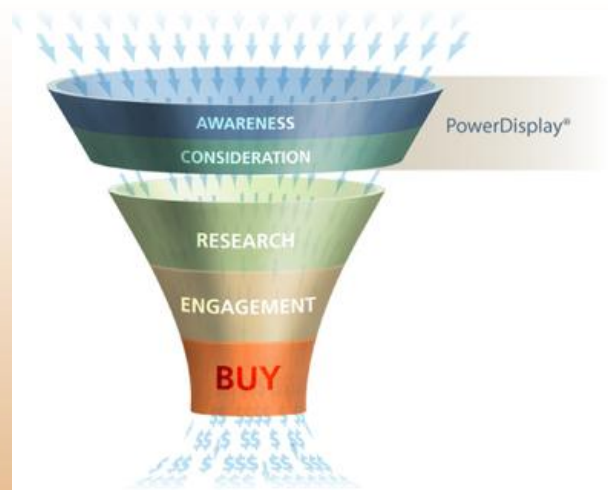
- Use map-reduce and aggregation frameworks to deliver real-time KPI metrics
- Benchmarks by industry/geography



Dealer Services – Digital Marketing

Ad-to-buy impressions analyses

- Track creative and advertising performance
- Geo location of impressions drive campaign strategies
- Closed loop to redirect ad investments



Big Data @ ADP

Driving Business Development

Predictive Analytics

- Determining trigger events that lead to outsourcing decisions
- Integrating into day to day selling tool (i.e. Salesforce.com)

Success! – increased likelihood of a sales appointment to 1 in 25 from previous 1 in 168 attempts...21% More Closed Business

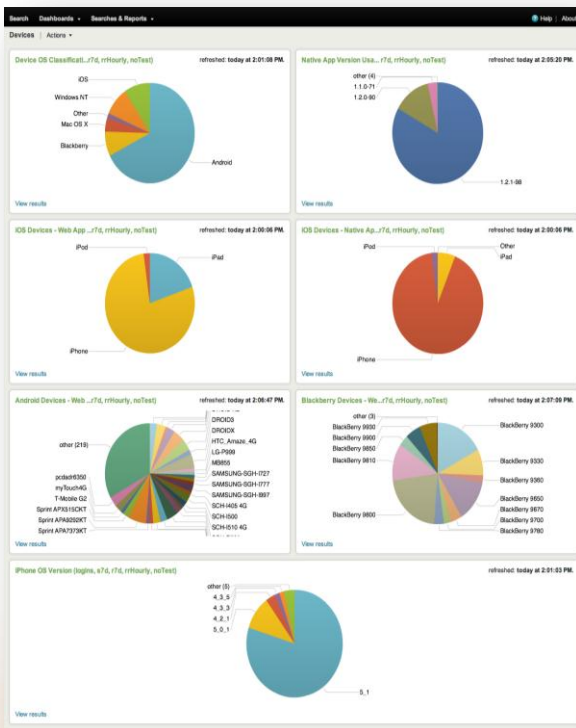


Security and Fraud Detection

- Vast amounts of data aggregated and analyzed for systems management and fraud detection

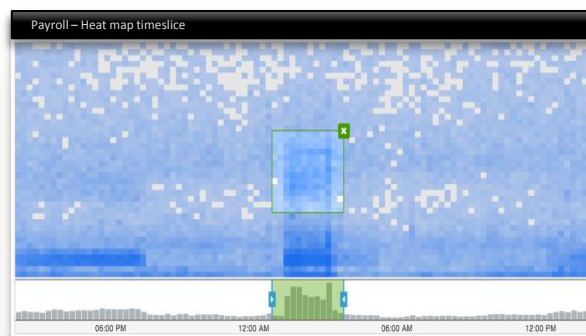


Big Data – Continuous learning



impressions

(map)



(reduce)

Behavioral Intelligence

Mary will probably check her Payroll and 401k today at 9:10AM

Pre-Cache (in-memory) payStatements and retirementPlan objects



Big Data

Innovation Investments

- **Using Big Data to create an unparalleled user experience**
- Driving performance using in-memory data
- 3Vs (Volume, Velocity and Variety)

Critical success factors

The Need	Challenges	Potential avenues for addressing
Aggregate and prepare data variety from diverse sources	Lack of consumable data and/or access to data; Data Quality	Data aggregated and prepared once--shared by many; Standards
Business knowledge	Lack of cross business domain expertise	Business and Industry specific knowledge on standby from service provider
Solutioning for the business problem with best of breed technologies	Inflexible tools that do not allow incorporation of best of breed or use of existing investments	Open architecture and standards
Understand complex plethora of tools and technologies	Lack of a combination of HW/SW/Domain Expertise and skills shortage	Deep HW/SW/Analytics skills on standby from service provider
Lower cost	Analytics on every click; Hard to find skills; Huge infrastructure cost	Open source; COTs; Technology advances; Shared data; Standards; Shared services across industry; Cloud

THANK YOU

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