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Mainframe

Big Data and Analytics Keynote

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Abstract

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Traditional data management is changing rapidly. Last year, CA reorganized several product families into the Data and Analytics Business Line to create synergies for CA IDMS and CA's other data management suites, and position CA to introduce Big Data Infrastructure Management solutions. Since the release of Hadoop 2.0, distributed (Hadoop) big data environments are emerging within many enterprises and they are realizing they need a more efficient way to view, monitor and manage their ever growing and disparate data environments that can include one or more Hadoop distributions and even the mainframe. Big Data is here; let's talk about what it can do for your business.

Agenda

- 1 MARKET CHANGES AFFECTING ENTERPRISE IT INVESTMENTS IN DATA MANAGEMENT
- 2 HOLISTIC DATABASE AND BIG DATA MANAGEMENT APPROACH
- 3 CA TECHNOLOGIES – STRATEGY / VISION /ROADMAP
- 4 WRAP-UP / Q&A

Unlock the Value of Big Data

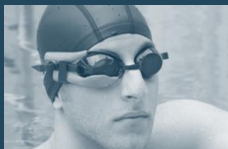
Wearable
Device Analysis



Security and
Law
Enforcement



Self-Driving
Cars



High
Frequency
Trading



Understanding
and Targeting
Customers



Optimize
Business
Processes



Delivery Route
Optimization



Supply
Chain
Optimization

Big Data – Growing Fast

Capturing and Managing lots of information

- Data volumes are doubling every year
- Organizations are storing three or more years of data

Working with many new types of data

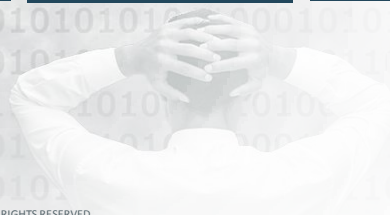
- 80 percent of data is unstructured (images, audio, tweets, etc.)
- New analytic applications based on a next generation big data platform are reaching the market

New Personas

- Hadoop Administrator
- Hadoop Developer/Architect
- Data Scientist, etc.

Commoditized Hardware and Software

- Low-cost hardware and software environments
 - Less costly capture and exploitation of big data



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Data Management - 5 Product Lines

An integrated Product Strategy for the Application Economy

Product Line	Customer needs in the application economy
z/OS Databases	<ul style="list-style-type: none"> • Customers with z/OS databases need to unleash the potential of the data held there for analytics, and need to make that data available to modern mobile apps • 24x7, High Availability operations with ability to maintain on the fly
Database Management	<ul style="list-style-type: none"> • Database Management needs to be updated and simplified so that z/OS databases can be managed more affordably and so that data across the enterprise, including that in the new NoSQL databases, can be viewed as a Logical Data Warehouse (LDW)¹
Analytics	<ul style="list-style-type: none"> • Customers with z/OS need to unleash the potential of their log data, and their files outside of formal databases by using it in modern analytic tools • Our customers lack the skills and tools needed to efficiently manage heterogeneous analytics environments across many platforms, mainframe to cloud • IT operations needs to be able to empower LoBs to use what ever diverse analytical technology will give them a business advantage
Data Compliance	<ul style="list-style-type: none"> • Our customers need to use their MF data off platform without compromising the security or compliance controls around access to that data and actually extending that same discipline to the explosion of unstructured data they are beginning to collect
Access Control	<ul style="list-style-type: none"> • To pass the audits of the future, Access Control needs to evolve to business logic that ensures that people and applications, identified by function and role, can access the data they need based on business policy



Vision

CA Data Management solutions, existing and new, should combine and interoperate to address the Data Management needs of the Application Economy

1. for more details on LDW see Gartner paper G00264326, 2015 Planning Guide for Data Management, published 3 October 2014

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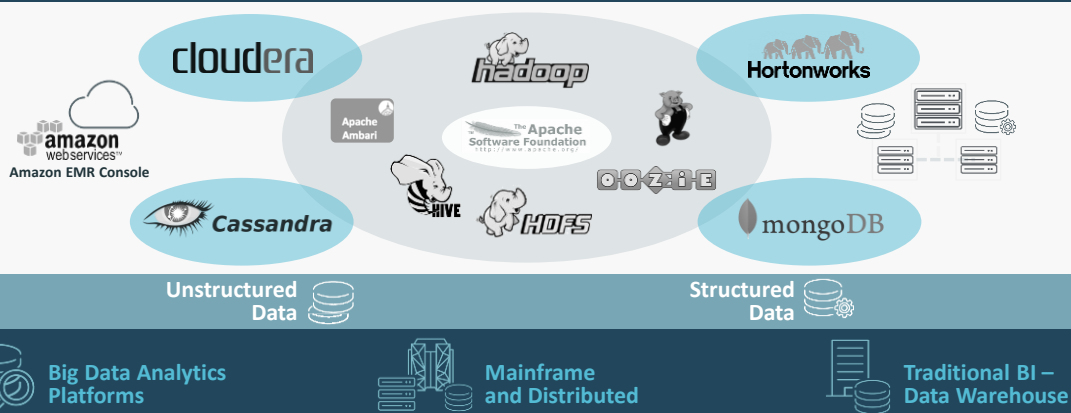
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Enable Complex Big Data Environments

We Empower Choice

Multiple → Domains – Implementations – Environments



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1 Market Changes Affecting Data Management

Big Data is Forcing Change



- A typical mobile user checks their phone 150 times a day for updates
- Every customer interaction is generating a growing trail of data (“data exhaust”)
- Every machine that services the customer is generating data

- Vast majority of users we have talked to **combine Hadoop with other databases** to perform Big Data analysis.
- Analyst firms now tracking non-relational technologies—including those based on Hadoop and NoSQL.



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1 Market Changes Affecting Data Management

Big Data Survey Shows Significant Momentum in Big Data Adoption

Survey Category:

Is your company currently implementing, planning or considering Big Data projects (i.e. developing strategies and projects to generate more value from existing data)?

■ <1,000 SMB ■ 1,000+ Enterprise

Survey Question	SMB %	Enterprise%
Have already implemented big data projects	9	16
Have started implementation of big data projects	12	20
Plans are in place to start projects over the next 12 months	10	10
Are considering to begin big data projects next year	9	12
No plans right now but likely to start projects in future	15	12
No plans as of now	44	30
Total % of Big Data projects implemented or planning phase→	55 %	70 %

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1 Market Changes Affecting Data Management

Growth On The Horizon: Key Market Drivers

- Big Data placing new demands on traditional relational DB mgmt tools
 - > 65M voiceprints on DB's today
 - Volume of data created by U.S. companies annually can fill ten thousand Libraries of Congress
 - The overall need to simplify the data environment
 - Cloud requiring new methods of deploying databases
- The NoSQL market
 - Technology progression in Data-in-DRAM-Memory and Data-in-Flash-Memory will improve the scalability of SQL databases.
 - Applications are easier to program and require lower maintenance if SQL is used; NoSQL has greater scalability and lower technology costs for very large big-data applications

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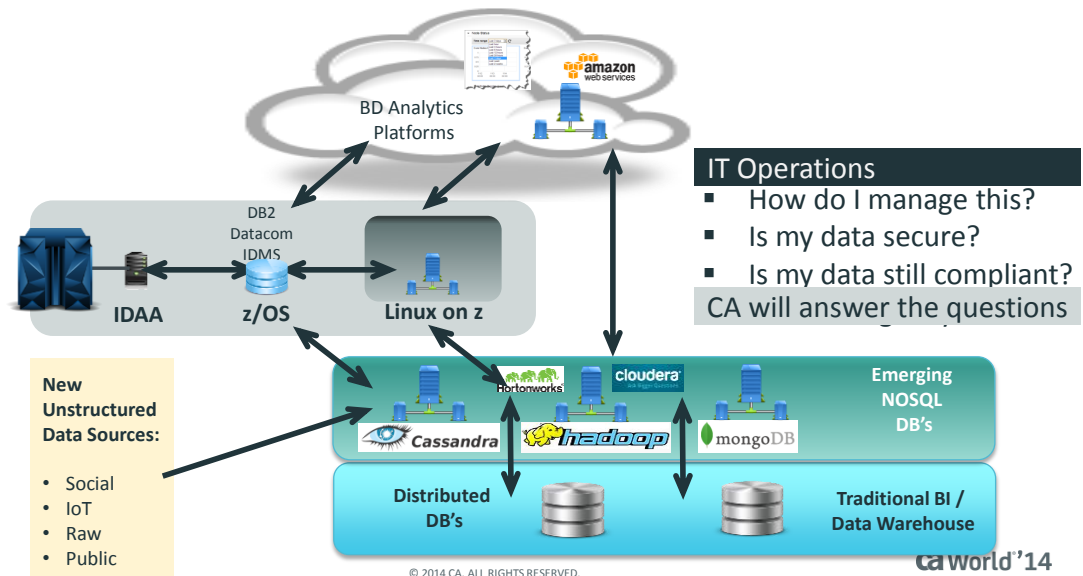
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Holistic Database & Big Data Management Approach

Unleashing corporate data for secure & compliant analytic transformations, from mainframe to cloud

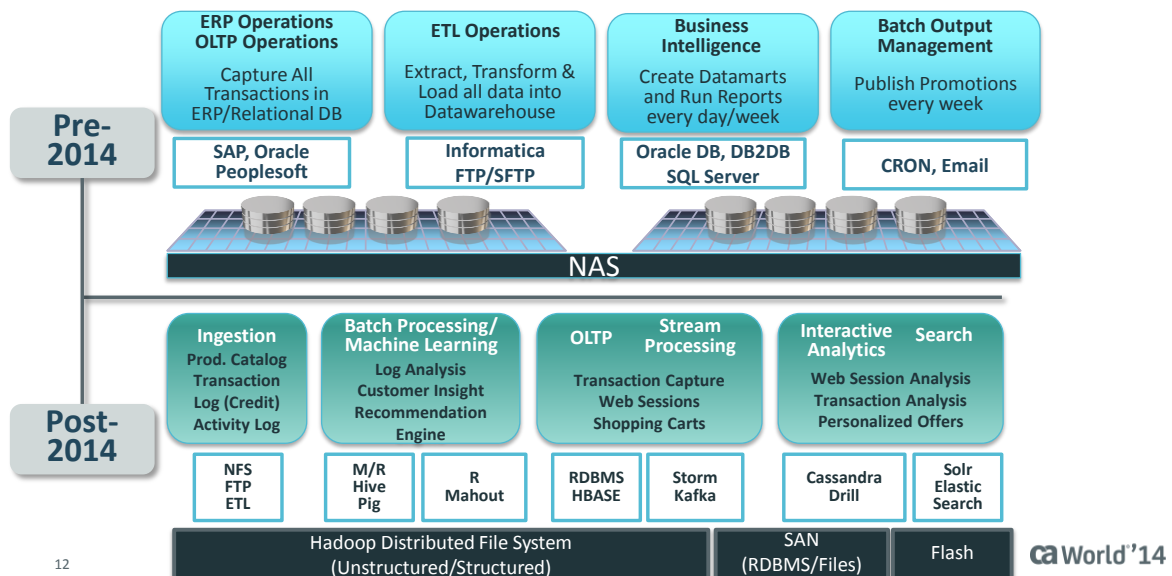


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Holistic Database & Big Data Management Approach

Example: Data Management Customer Needs (for Retail Store Analytics)

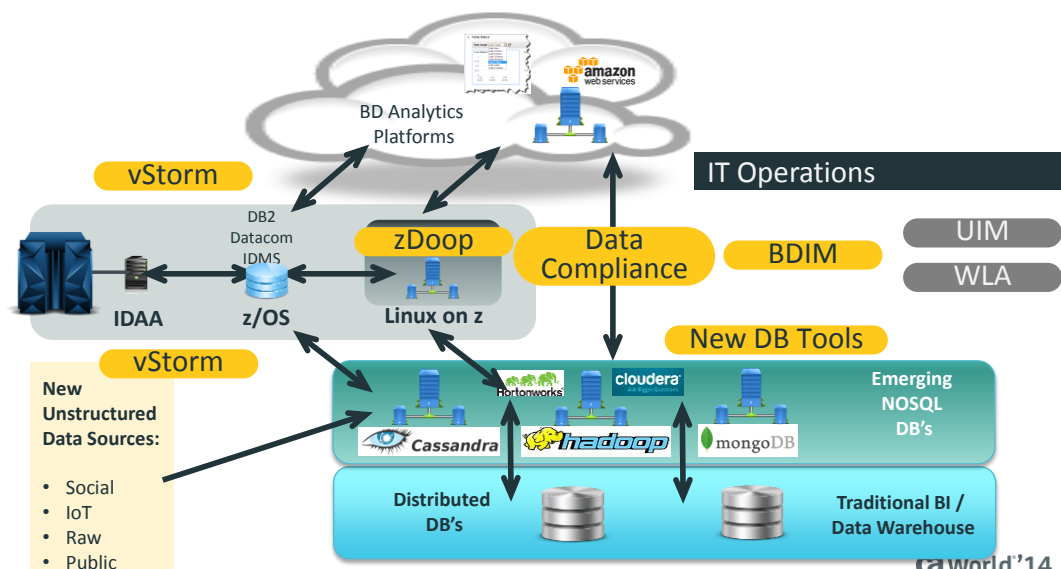


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Holistic Database & Big Data Management Approach

Unleashing corporate data for secure & compliant analytic transformations, from mainframe to cloud



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Holistic Database & Big Data Management Approach

As our strategy evolves, the personas evolve

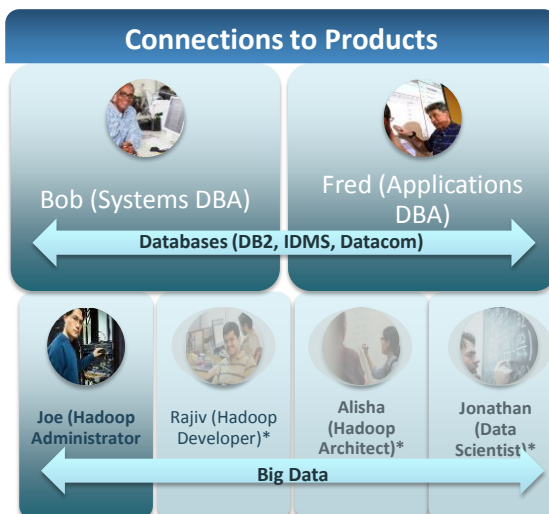
Personas We Build For

From:

- Bob, Systems DBA (experienced)
- Fred, Application DBA (experienced)

To:

- Joe, Hadoop Administrator
- Rajiv, Hadoop Developer
- Alisha, Hadoop Architect
- Jonathan, Data Scientist



* (Future BD personas)

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2 Holistic Database & Big Data Management Approach

As our strategy evolves, the personas evolve

Personas We Build For

From:

- Larry, Security Administrator (Experienced)
- Dean, Security Architect (Experienced)

To:

- Shelley, Internal Auditor
- Cathy, Chief Information Security Officer/Compliance Officer

Connections to Products



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3 Strategy / Roadmap: Big Data

A New Role in the Organization is Born

Role / Responsibilities:

- Perform day-to-day operations and support of Hadoop infrastructure
- Monitor/maintain existing clusters and provision new ones
- Integrate enterprise monitoring tools
- Analyze current workloads and perform capacity planning

Key Management Capabilities:

- Hadoop Multi-Vendor Management
- Hadoop Resource Management / Reporting
- Hadoop Process Management / Automation
- Hadoop Job Management & Monitoring
- Hadoop System Health Monitoring & Alerts

Big Data / Hadoop Administrator

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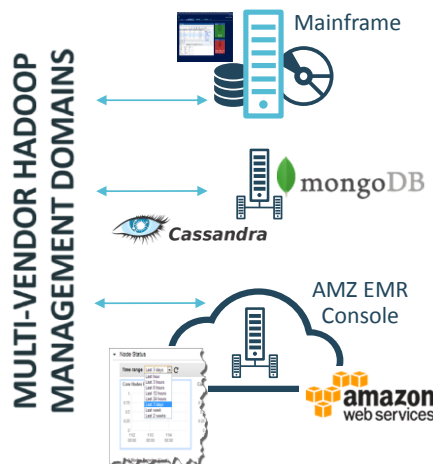
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3 Strategy / Roadmap: Big Data

The Need to Overcome Many Challenges

- Managing complex multi-vendor big data environments
- Finding Hadoop/Big Data experts
- Understanding capacity requirements for rapidly changing business needs
- As complexity increases, manual processes are often required
- System problems are hard to isolate, downtime increases
- Unique tools and shortcomings
- Driving forces... acquisitions, department consolidations demand greater operational efficiency



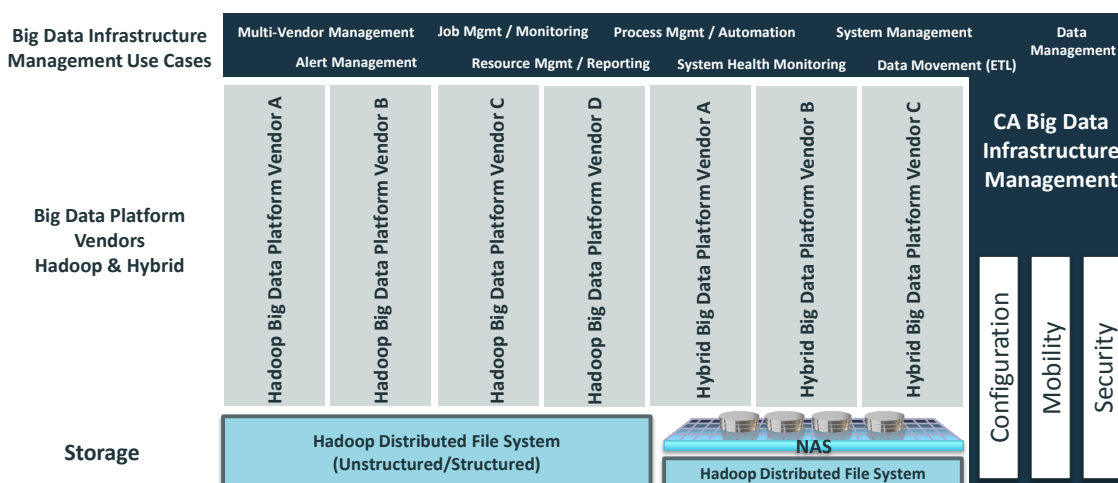
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3 Strategy / Roadmap: Big Data

360° Big Data Infrastructure Management Approach



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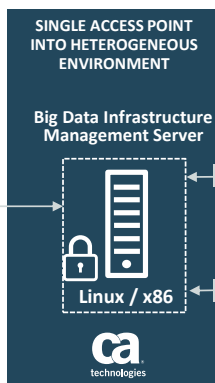
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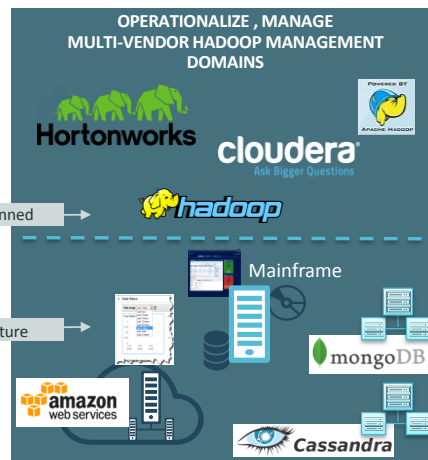
3 Strategy / Roadmap: Big Data

360° Big Data Infrastructure Management Approach

CA Big Data Infrastructure Management (In Development)



Big Data Infrastructure



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3 CA Big Data Infrastructure Management

Demonstration



Demo Scenario:

- A global financial institution has been using Big Data technologies to bring new investment products to the market.
- They are now expanding their Big Data environment to support 6 other business units and an ever growing number of business initiatives.
- They also discovered that some of the business units had already started their own Big Data projects using different big data platforms.

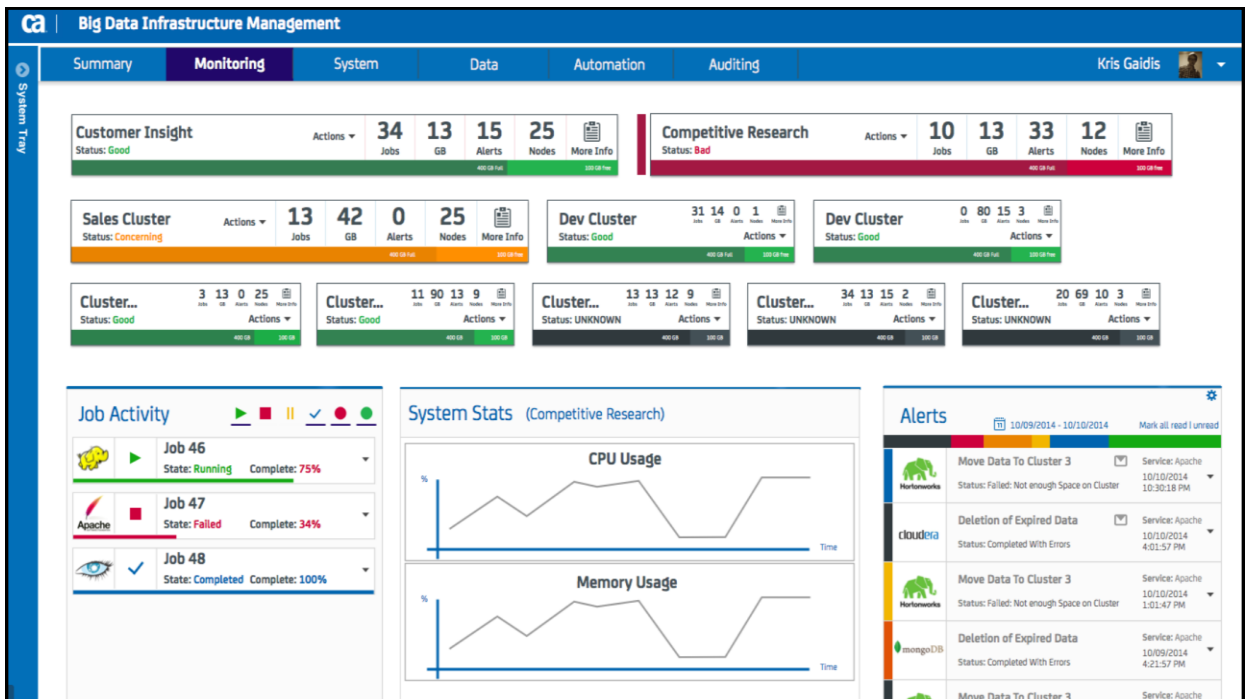
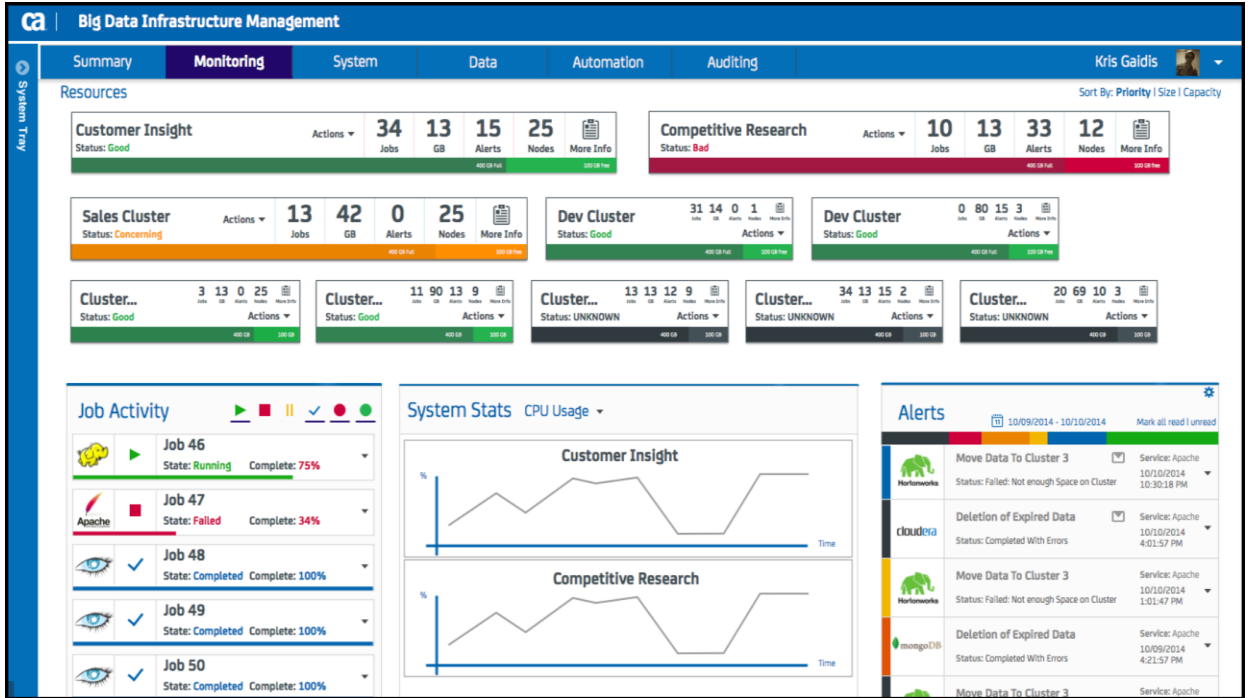
Challenges:

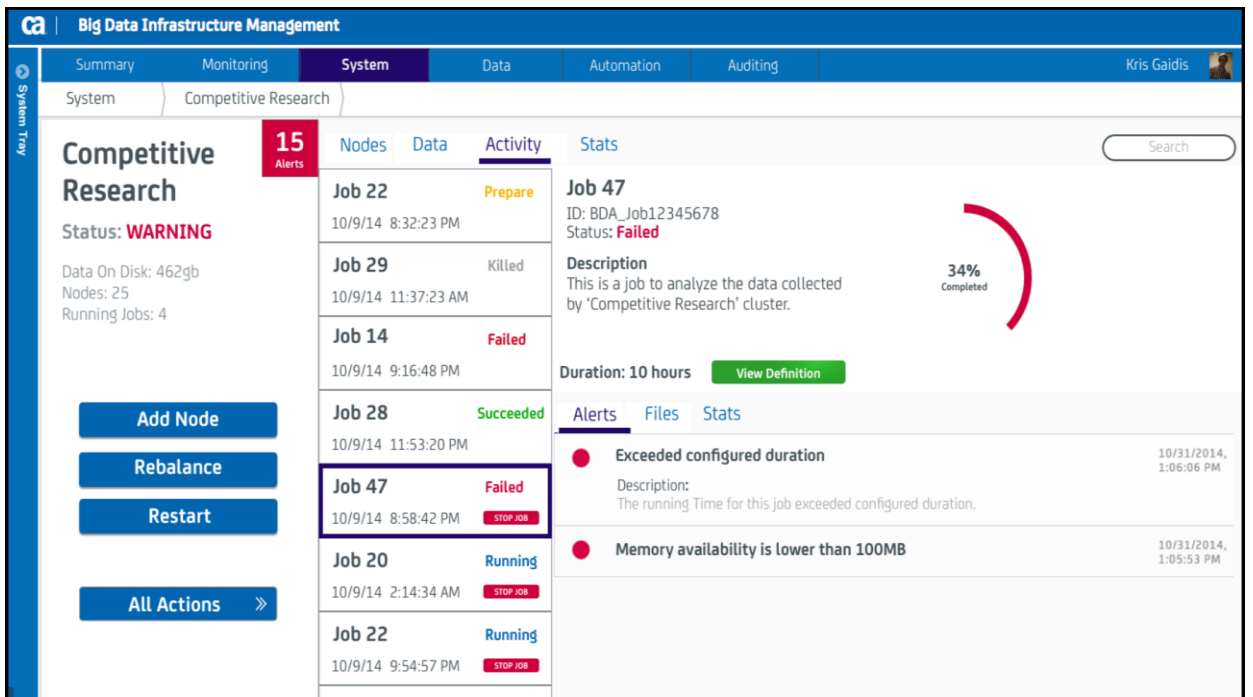
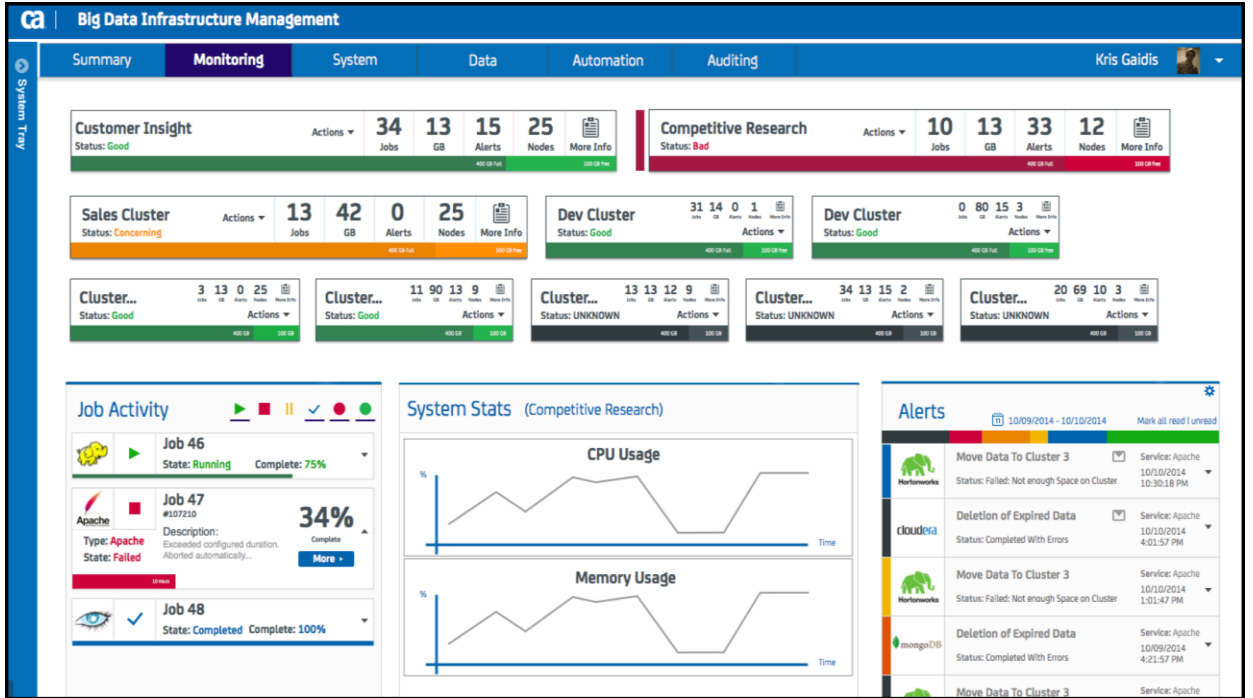
- Revised budget remains flat and requires a 30% to 50% increase in Big Data environment utilization.
- Significant complexity associated to hosting multiple Hadoop distributions and an increasing number of business-critical Hadoop clusters to support their business applications.

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Big Data Infrastructure Management

Summary Monitoring **System** Data Automation Auditing Kris Gaidis

System Competitive Research

Competitive Research

Status: **WARNING**

Data On Disk: 462gb
Nodes: 25
Running Jobs: 4

15 Alerts

Nodes Data Activity Stats

List Cards Search

Add Node
Rebalance
Restart
All Actions >>

Node ID	Status	Alerts	Service	50 GB total	More info
Node 1	WARNING	15	3	50 GB total	More info
Node 6	GOOD	0	3	50 GB total	More info
Node 19	GOOD	0	3	50 GB total	More info
Node 7	GOOD	0	3	50 GB total	More info
Node 16	WARNING	15	3	50 GB total	More info
Node 3	GOOD	0	3	50 GB total	More info
Node 4	WARNING	15	3	50 GB total	More info
Node 18	GOOD	0	3	50 GB total	More info
Node 25	GOOD	0	3	50 GB total	More info
Node 28	GOOD	0	3	50 GB total	More info
Node 4	WARNING	15	3	50 GB total	More info
Node 15	GOOD	0	3	50 GB total	More info
Node 6	WARNING	15	3	50 GB total	More info
Node 13	GOOD	0	3	50 GB total	More info
Node 3	GOOD	0	3	50 GB total	More info

Node 1 CPU Usage Service Usage Disk I/O

Big Data Infrastructure Management

Summary Monitoring **System** Data Automation Auditing Kris Gaidis

System Competitive Research

Social Media

Status: **WARNING**

Data On Disk: 462gb
Nodes: 25
Running Jobs: 4

15 Alerts

Nodes Data Activity Stats

List Cards Search

Add Node
Rebalance
Restart
All Actions >>

Create a New Node

Node Name:

Cluster:

Description:

Node Size:

Apply **Cancel**

Node 1 CPU Usage Service Usage Disk I/O

Big Data Infrastructure Management

Summary Monitoring **System** Data Automation Auditing Kris Gaidis

System Competitive Research

Competitive Research

Status: **WARNING**

Data On Disk: 462gb
Nodes: 25
Running Jobs: 4

15 Alerts

Nodes Data Activity Stats

List Cards Search

Add Node
Rebalance
Restart
All Actions >>

Node	Status	Alerts	Service	50 GB total	More Info
Node 5	GOOD	0	3		
Node 6	GOOD	0	3		
Node 7	GOOD	0	3		
Node 16	WARNING	15	3		
Node 18	GOOD	0	3		
Node 25	GOOD	0	3		
Node 28	GOOD	0	3		
Node 4	WARNING	15	3		
Node 13	GOOD	0	3		
Node 15	GOOD	0	3		
Node 19	GOOD	0	3		
Node 3	GOOD	0	3		
Node 6	WARNING	15	3		

Node 1 CPU Usage Service Usage Disk I/O

Big Data Infrastructure Management

Summary **Monitoring** System Data Automation Auditing Kris Gaidis

Resources

Sort By: Priority | Size | Capacity

Resource	Status	Jobs	GB	Alerts	Nodes	More Info
Customer Insight	Good	34	13	15	25	
Competitive Research	Good	10	13	33	13	
Sales Cluster	Concerning	13	42	0	25	
Dev Cluster	Good	31	14	0	1	
Dev Cluster	Good	0	80	15	3	
Cluster...	Good	3	13	0	25	
Cluster...	Good	11	90	13	9	
Cluster...	UNKNOWN	13	13	12	9	
Cluster...	UNKNOWN	34	13	15	2	
Cluster...	UNKNOWN	20	69	10	3	

Job Activity

Job	State	Complete
Job 46	Running	75%
Job 47	Failed	34%
Job 48	Completed	100%
Job 49	Completed	100%
Job 50	Completed	100%

System Stats CPU Usage

Customer Insight

Competitive Research

Alerts 10/09/2014 - 10/10/2014 Mark all read | unread

Alert	Service	Time
Move Data To Cluster 3	Apache	10/10/2014 10:30:18 PM
Deletion of Expired Data	Apache	10/10/2014 4:01:57 PM
Move Data To Cluster 3	Apache	10/10/2014 1:01:47 PM
Deletion of Expired Data	Apache	10/09/2014 4:21:57 PM
Move Data To Cluster 3	Apache	

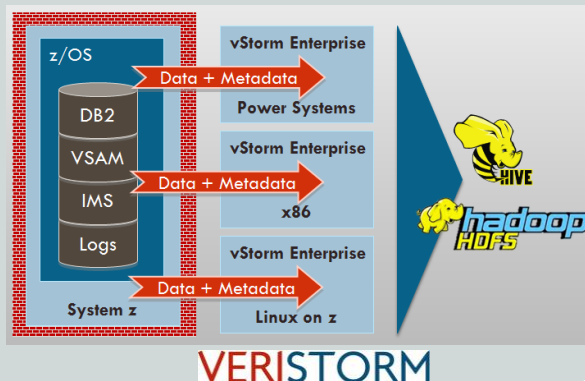
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Wrap Up

CA Technologies Makes it Easier for Mainframe Customers to Participate in Big Data Projects *Increases the Ability to Move Mainframe Data into Hadoop/Hive*

LAS VEGAS, November 10, 2014 — CA WORLD '14 — CA Technologies (NASDAQ:CA) today announced a new global distribution agreement with Veristorm, a software company focused on Big Data management. The agreement strengthens CA's ability to help customers leverage key business data on the mainframe for Big Data and analytics projects.

"It's extremely difficult for data scientists, Chief Marketing Officers (CMOs) and other stakeholders to get access to their raw System z data in tandem with machine logs and other types of transactional information," said Mike Madden, general manager, Mainframe, CA Technologies. "Customers around the world are looking for greater insight to gain competitive advantage and much of the world's most important transactional data resides on System z. Veristorm provides next-generation data movement technology that makes it easier to move System z data into Hadoop, lowering overall total cost of ownership."



VERISTORM

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Wrap Up

A Few Words to Remember

Key Thoughts...

- ✓ Big Data places new demands on traditional relational database management tools
- ✓ Data Management is evolving and provides new options for data security and compliance
- ✓ Don't wait! It's time to develop a holistic approach with your database & Big Data plans

Next Steps

- ✓ Understand the evolution and determine how that may affect your data management roadmap
- ✓ Determine where you may have (or will soon have) data security and compliance exposures
- ✓ Engage with CA Technologies now to develop a flexible roadmap to support your business needs.

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