

**NEXT**  
2017



**LEAD WHAT'S NEXT**

# Map to the Future: Hitachi Technology Roadmap and Vision

Enterprise IT Track

September 2017



**We exist to create digital business agility.**

We do this by solving critical challenges in managing  
and deriving value from

**DATA**



# DATA

Connect

Predict

Analyze

Correlate

Cloud

Store

IoT

Structured

Learning

Manage

Blend

Govern

Migrate

Insight

Secure

Human

Stream

Machines

Mobilize

Protect

Data Center

Search

Aggregate

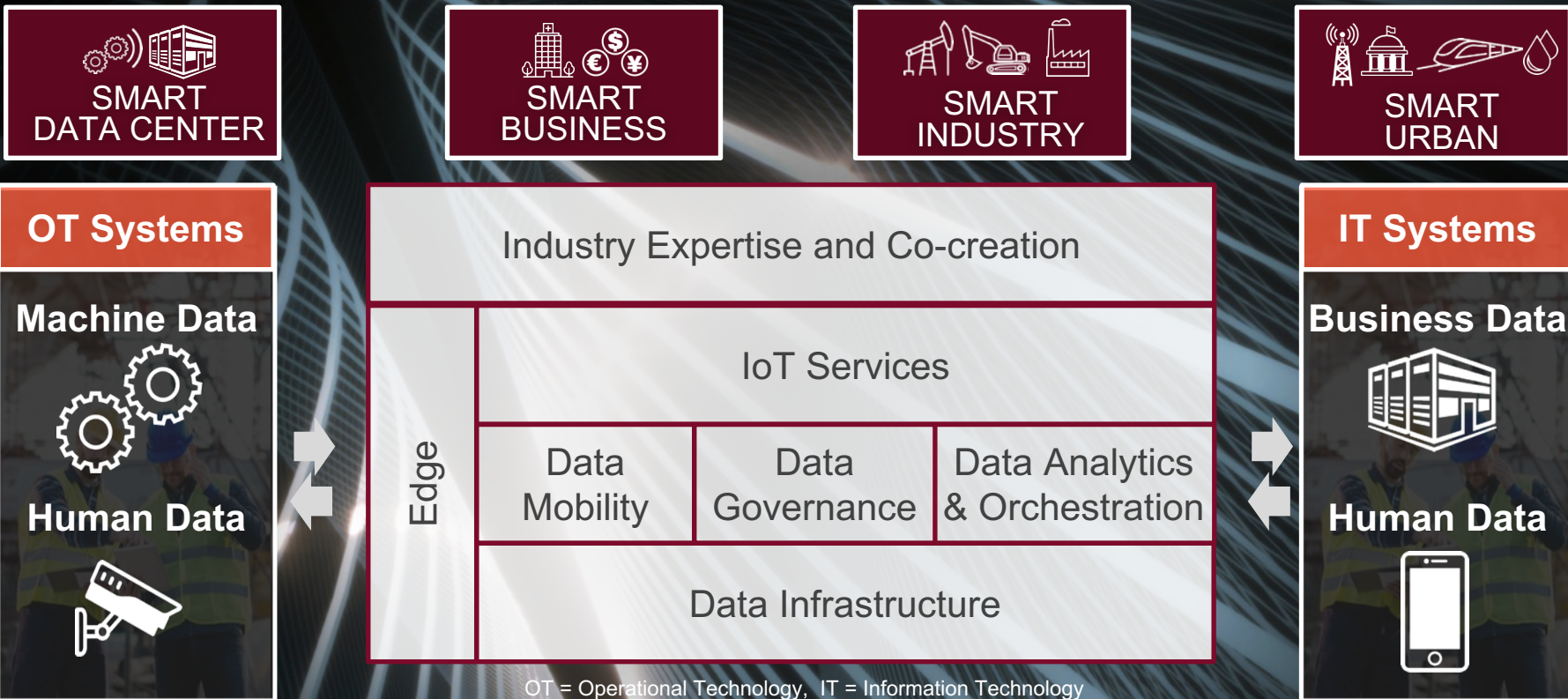
Visualize

Cognitive

Edge

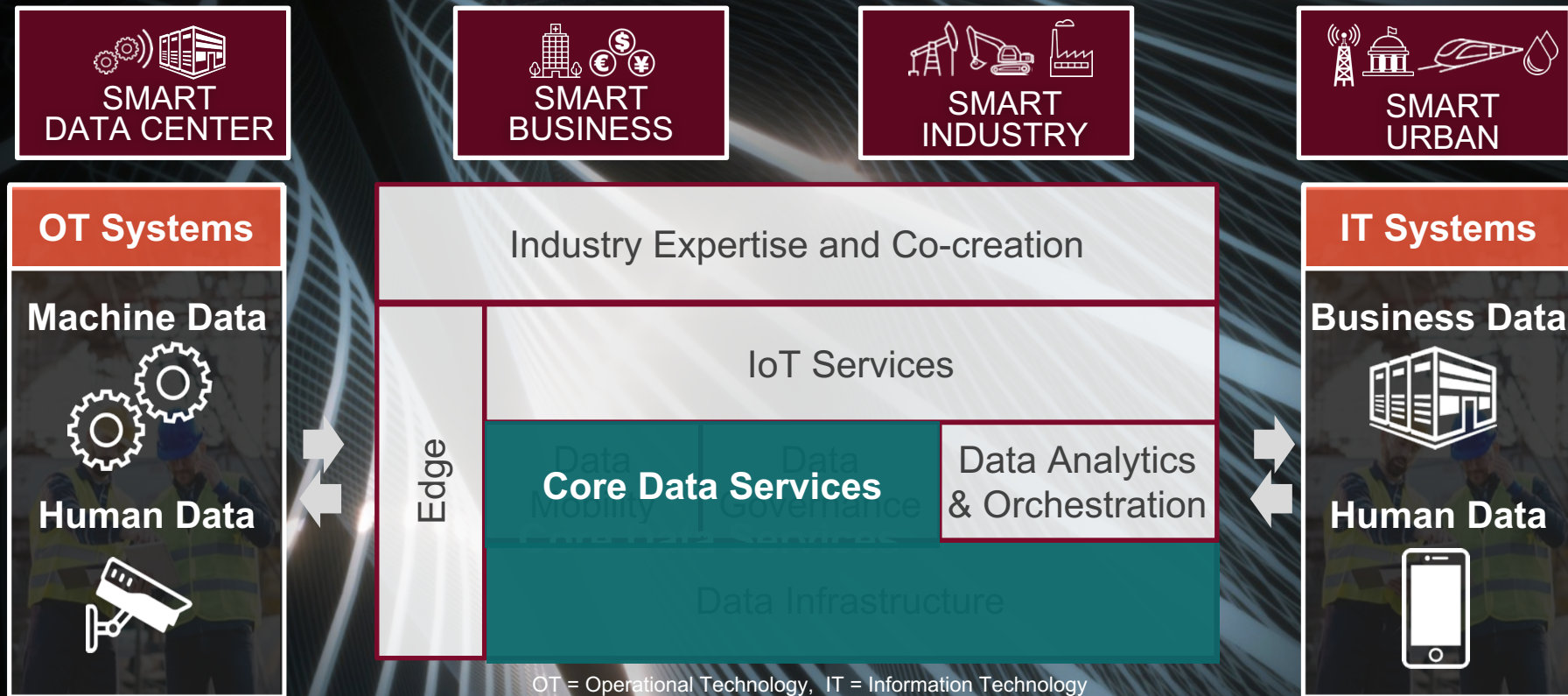
# Our Vision: Driving Data-Driven Outcomes

**NEXT**  
2017



# Our Vision: Driving Data-Driven Outcomes

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2017



OT = Operational Technology, IT = Information Technology

# Our Vision: Driving Data-Driven Outcomes

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OT = Operational Technology, IT = Information Technology

# Our Vision: Driving Data-Driven Outcomes

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# Our Vision: Driving Data-Driven Outcomes

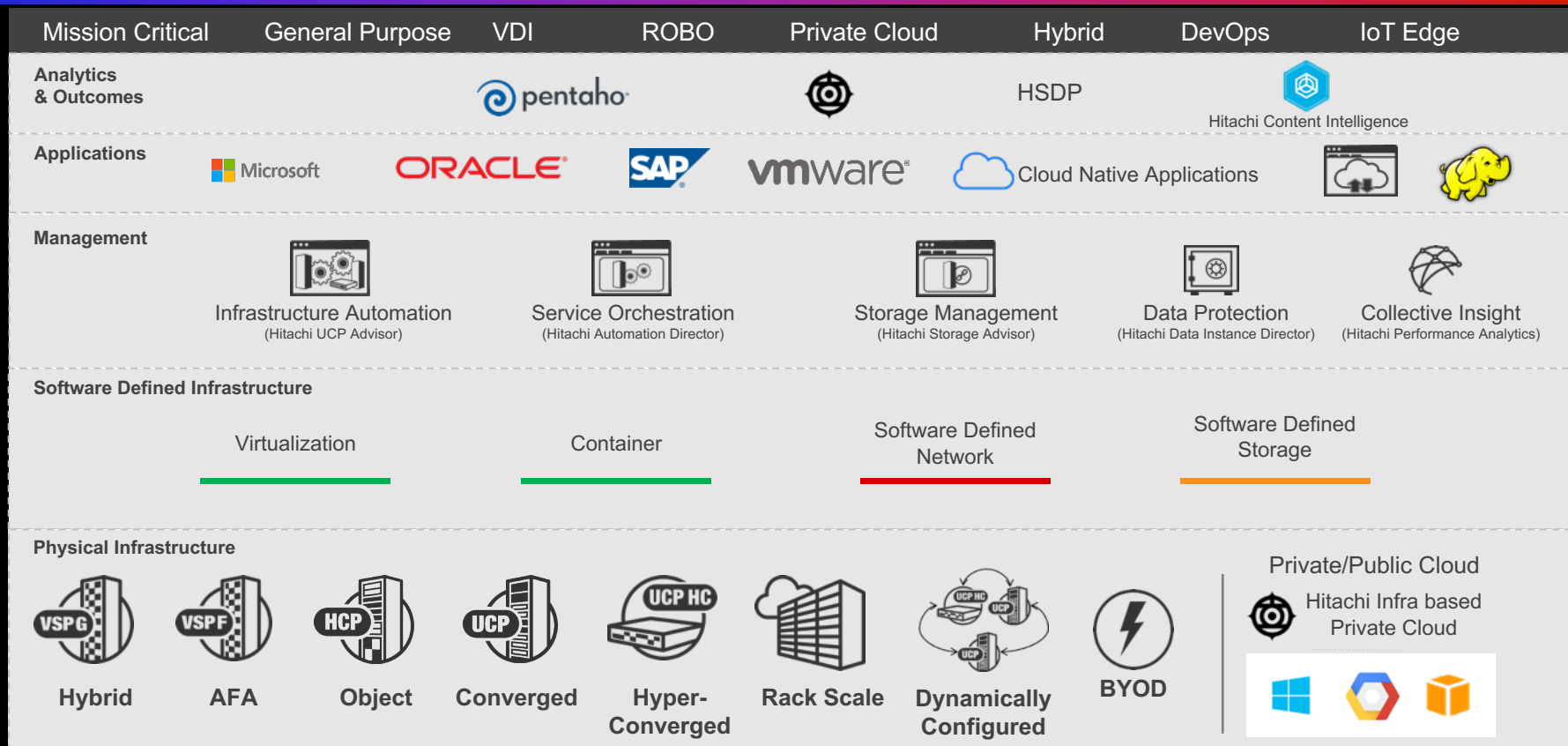
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# ....Requires a Complete Portfolio

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# Core Data Services Portfolio Updates

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Expanded & Improved AFA's

Hyperconverged and Rack Scale

Major Customer Adoption with  
Content Portfolio

Application-aware Data Center  
Analytics

**Converged Infrastructure  
Systems (UCP CI)**

**Converged Automation  
(UCP Advisor 2.0)**

Smart Data Center aaS

Analytics and Automation SaaS

Next-Generation  
Cloud Object Store

## Recent Introductions

Hitachi Enterprise Cloud  
w/ VMware

Policy-driven IT Automation

Hitachi Content Platform 8.0

Hitachi Content Intelligence

## TODAY

**IoT Appliance**

**Hitachi Enterprise Cloud  
for Containers**

**Smart Data Center  
Services**

## Coming Soon

New Scale-up Compute

Next-Generation VSP

Expanded NVMe Portfolio

Software Defined Infrastructure

# Data Strategy for Digital Transformation

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**DATA SOURCES**


101100101010010101010  
011010101001001100101

**Structured Data**

**Unstructured Data**

**IoT Data**

**DATA GOVERNANCE**



**DATA MOBILITY**


Any Cloud

Any App

Anywhere

Any Use

**DATA ANALYTICS**



**DATA INFRASTRUCTURE**

Flash Storage

Converged Infrastructure

Automated Management

Data Protection

Cloud Ready

# Accelerate Your Digital Transformation With the Right Data Foundation

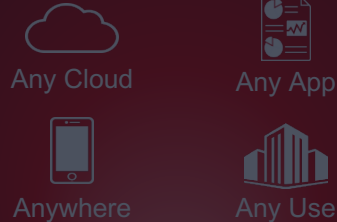
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## DATA GOVERNANCE



Data Control

## DATA MOBILITY



Data Access

## DATA ANALYTICS



Data Driven Insight

## DATA INFRASTRUCTURE



Flash  
Storage



Converged  
Infrastructure



Automated  
Management



Data  
Protection



Cloud  
Ready

Data Agility

## DATA INFRASTRUCTURE

**ACCELERATE**  
responsiveness



Flash  
Storage

**SIMPLIFY**  
IT deployments



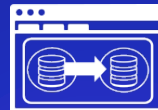
Converged  
Infrastructure

**LIBERATE**  
IT staff from  
recurring tasks



Automated  
Management

**SECURE**  
data and  
operations



Data  
Protection

**LEVERAGE**  
cloud today



Cloud  
Ready

## DATA INFRASTRUCTURE

**ACCELERATE**  
responsiveness



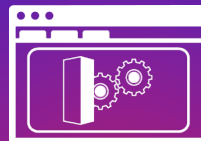
**Example Solutions**  
Hitachi  
Virtual Storage Platform

**SIMPLIFY**  
IT deployments



**Example Solutions**  
Hitachi Unified  
Compute Platform

**LIBERATE**  
IT staff from  
recurring tasks



**Example Solutions**  
Hitachi Automation  
Director

**SECURE**  
data and  
operations



**Example Solutions**  
Global-active Device,  
FIPS Compliance

**LEVERAGE**  
cloud today



**Example Solutions**  
Hitachi Enterprise  
Cloud

# A Foundation of Data Storage Leadership

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Compared with Dell, EMC, HPE, IBM® and NetApp,  
**Hitachi is...**

# #1

Vendor customers are “very likely” to  
**RECOMMEND**

Vendor customers are “very likely” to  
**PURCHASE FROM**

Vendor with which customers are  
**“VERY SATISFIED”**



Voice of the  
Enterprise

STORAGE: VENDOR EVALUATIONS  
2016

2016 General-Purpose  
Disk Arrays  
**LEADER**

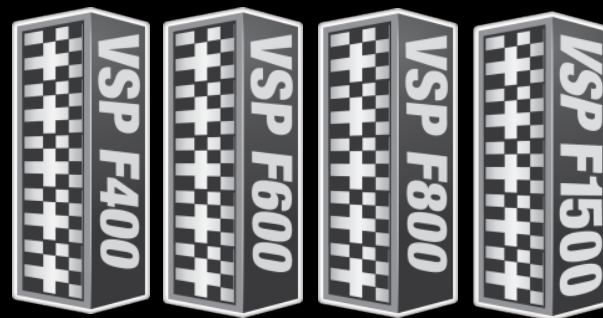
The Gartner logo, consisting of the word 'Gartner' in a blue, sans-serif font with a registered trademark symbol.

2017  
Solid State Array  
**LEADER**

# Hitachi Virtual Storage Platform

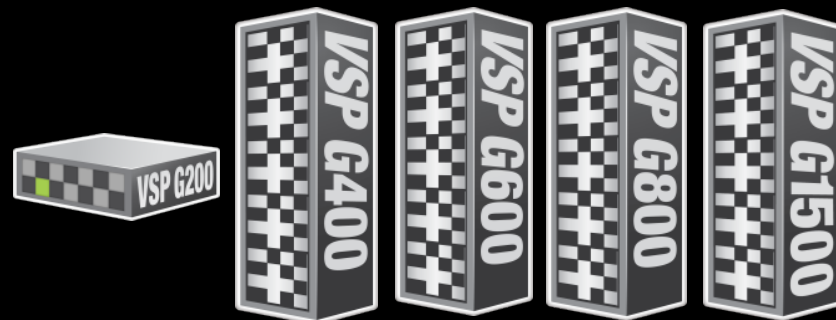
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- Advancements in 2017
  - VSP F Series flat service models and flexible configurations
  - Continued SVOS Adaptive Data Reduction enhancements
- Coming in 2018...
  - 7.6TB & 15TB SSDs
  - Encrypting FMDs
  - Storage management Improvements
  - New Models



Common Management

Common Operating System





## 2018 NEW MODELS



### PERFORMANCE

- 2x MORE PERFORMANCE
- LOWER LATENCY
- REDUCTION IN DEPLOYMENT TIME
- HIGHER CAPACITY & DENSITY

### OPTIMIZATION

- ENHANCED DATA REDUCTION FEATURES
- SIMPLIFIED DEPLOYMENT & CONFIGURATION
- SVP-LESS AND VM SVP OPTIONS

# What Comes NEXT...

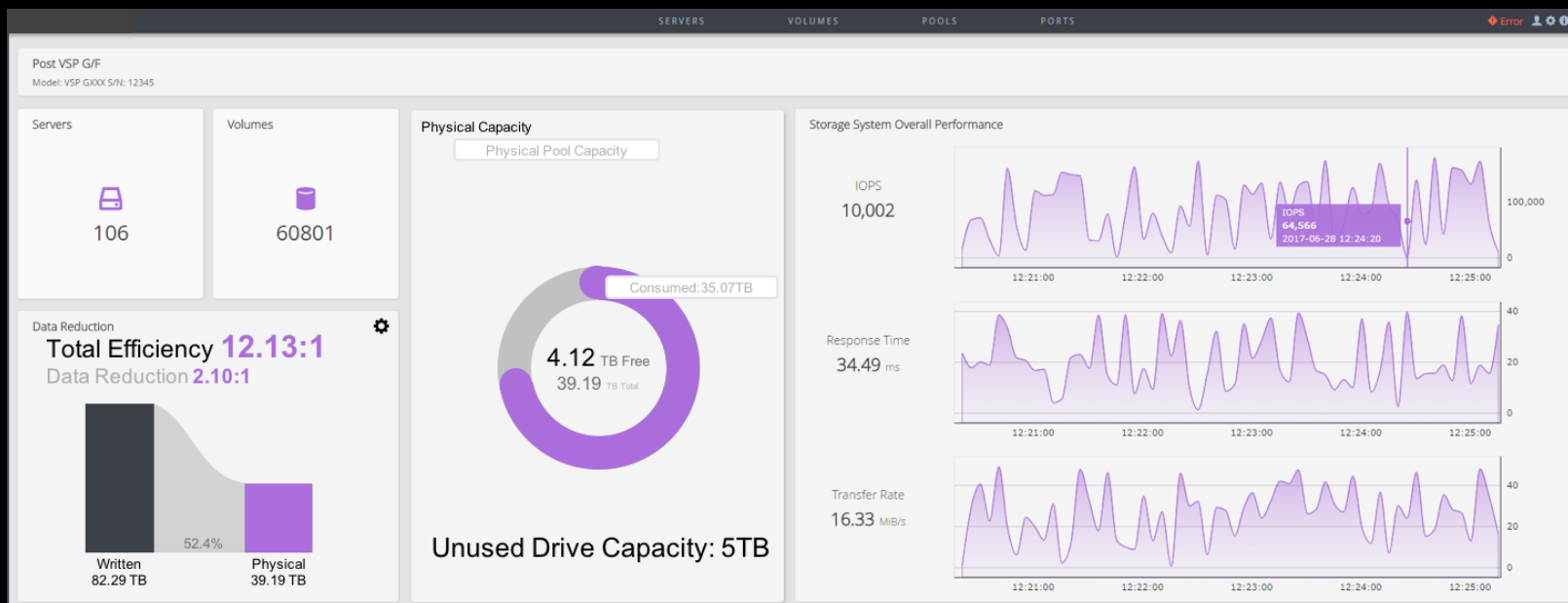
NEXT  
2017

Available Anywhere: HTML5

No external management server

40% Faster Set-up Time

Runs natively on the system

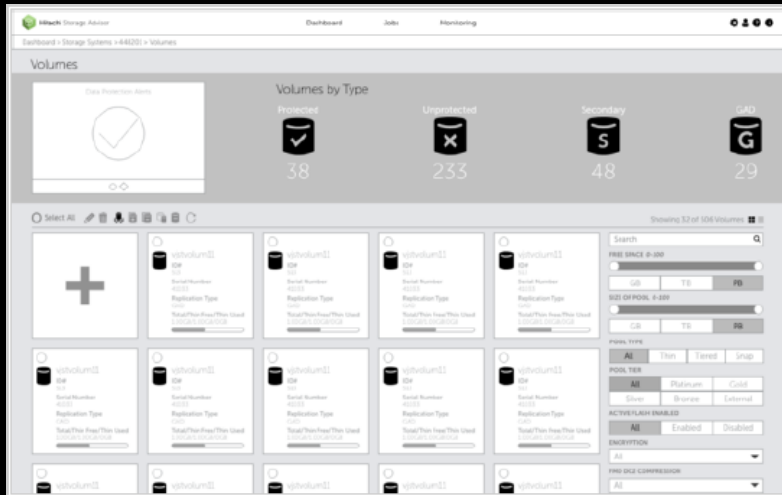


# Hitachi Storage Advisor: 2018 Enhancements

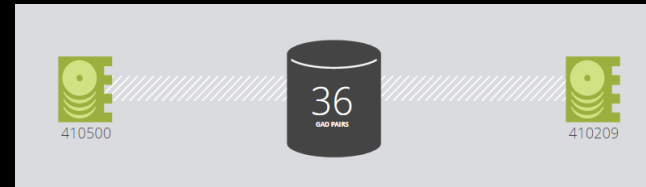
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2017

## SIMPLE, FEDERATED STORAGE ENVIRONMENT MANAGEMENT

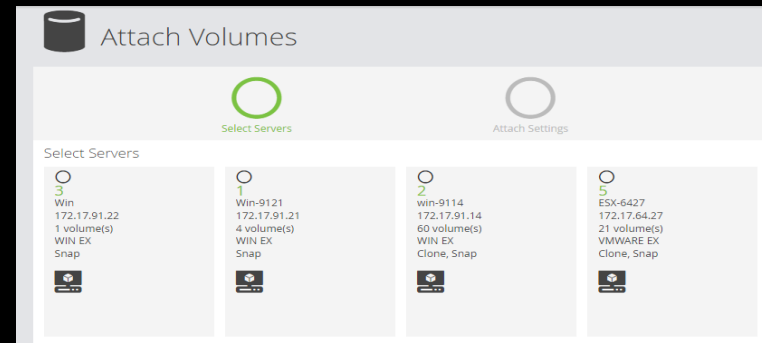
### Volume Migration



### GAD Provisioning



### iSCSI Support



## SOFTWARE-DEFINED STORAGE

**Block  
SDS**

**Commodity  
Hardware**

**SVOS  
Data  
Services**

**Hybrid  
Cloud  
Workloads**

## NVMe BUILDING BLOCKS

**NVMe in Hyperconverged:**  
Caching today, more tomorrow

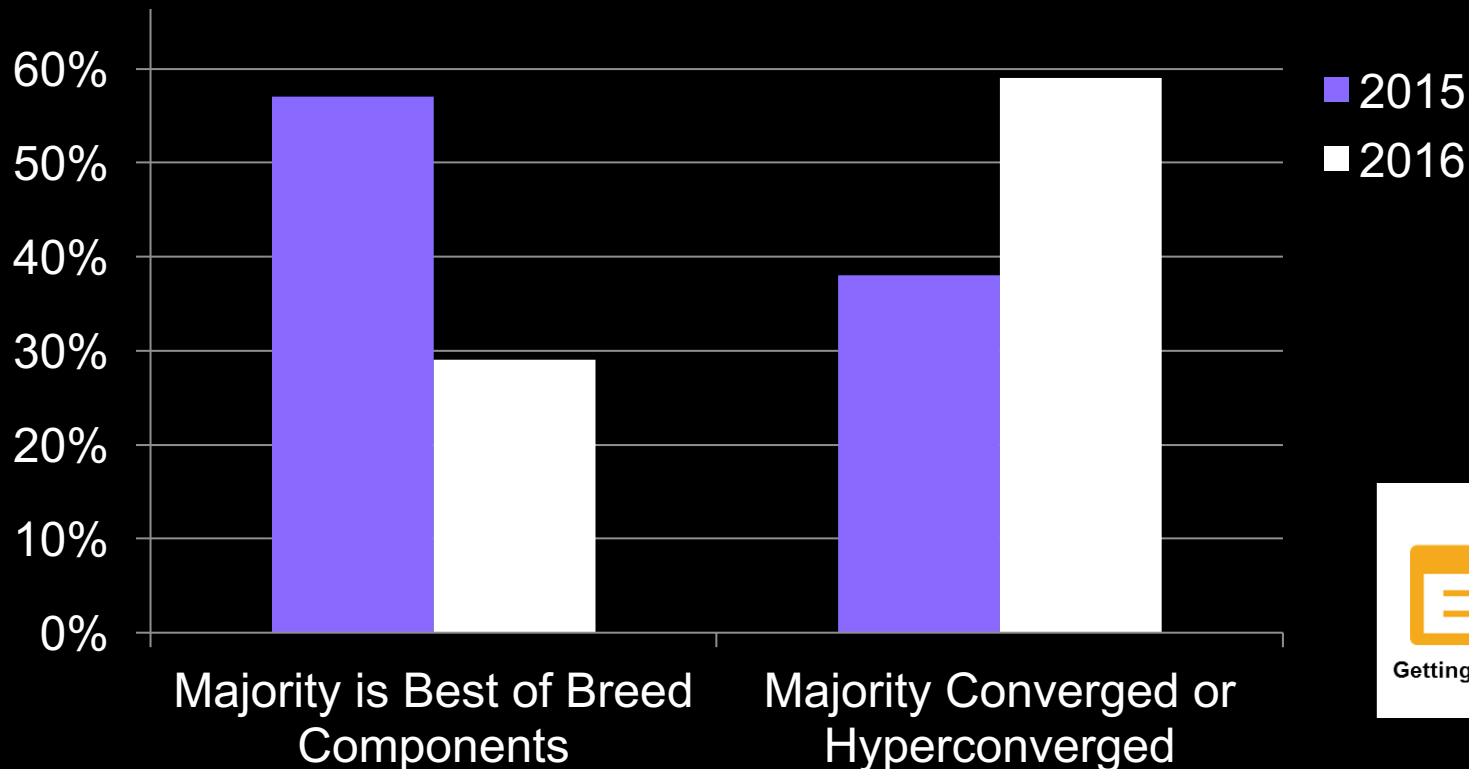
**NVMe back-end:**  
VSP Optimization, shelves for SDS

**NVMe over Fabric**  
Array, cache and HCIS connectivity

# The March Toward Convergence

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In five years, your on premise infrastructure will be...



## Hitachi Unified Compute Platform

*Flexible*



Hitachi Unified  
Compute  
Platform CI

*Simple*



Hitachi Unified  
Compute  
Platform HC

*Agile*

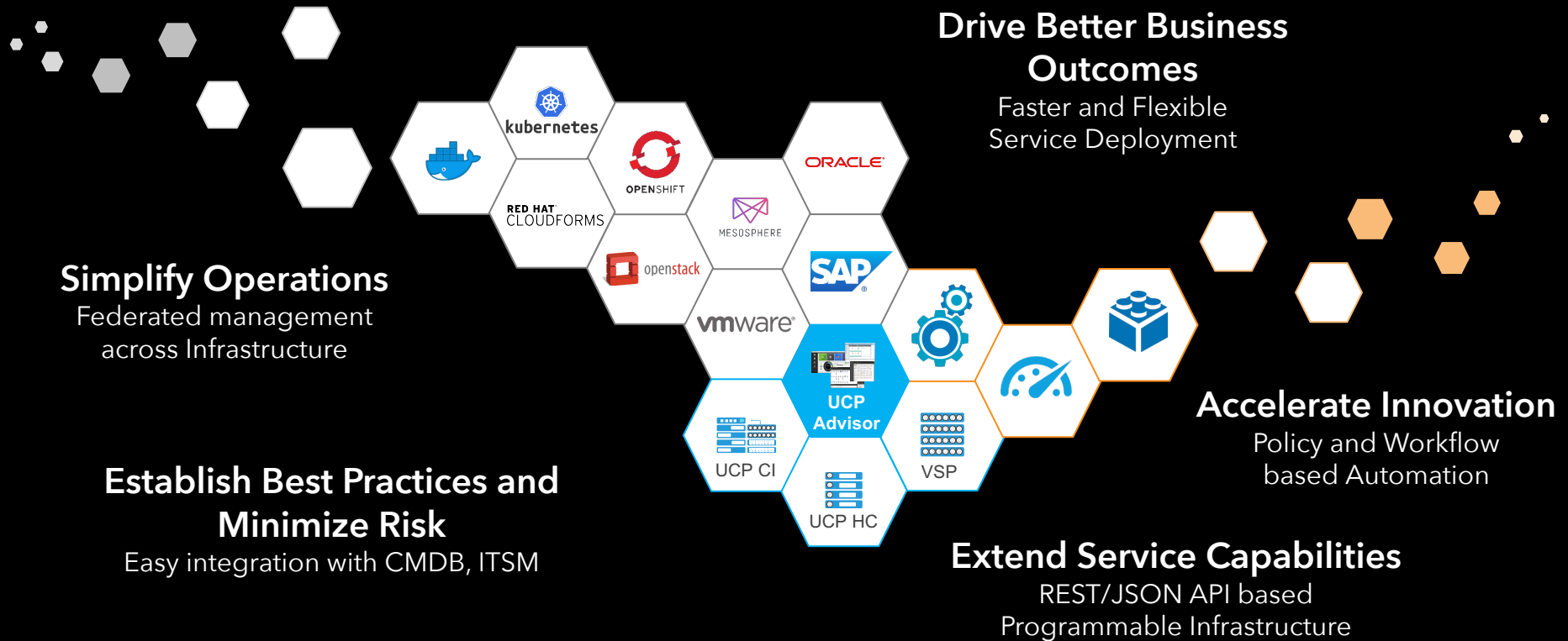


Hitachi Unified  
Compute  
Platform RS

**Automated:** Hitachi Unified Compute Platform Advisor 2.0

# Introducing The New UCP Advisor

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## Simplify Operations

Federated management  
across Infrastructure

## Establish Best Practices and Minimize Risk

Easy integration with CMDB, ITSM

## Drive Better Business Outcomes

Faster and Flexible  
Service Deployment

## Accelerate Innovation

Policy and Workflow  
based Automation

## Extend Service Capabilities

REST/JSON API based  
Programmable Infrastructure

# What Comes NEXT...

**NEXT**  
2017

New Scale-up  
Server  
Technology

Container  
Solution on  
Converged

OpenStack  
Enabled  
cloud

Content  
Portfolio  
Integration

Converged +  
Hyperconverged  
Intermix

Intel "Skylake"  
Everywhere

Next 12 Months....

Integrated  
Business Analytics  
Power by Pentaho

Built-In  
Multi-Datcenter  
Replication Support



# Hitachi Solutions and Converged Portfolio

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Business-relevant IT solutions with new analytics and IoT capabilities

Hyperconverged systems targeted at agile, scale-out workloads

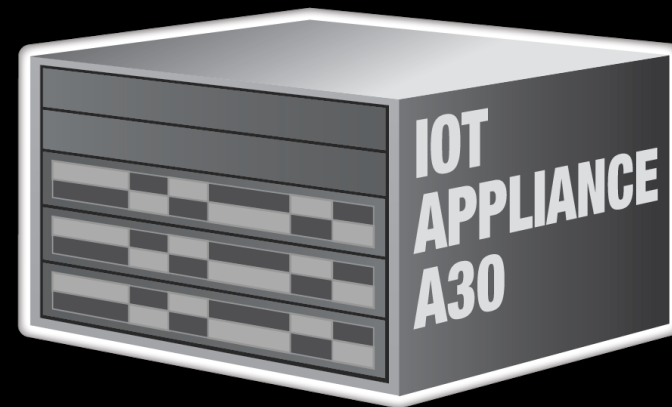
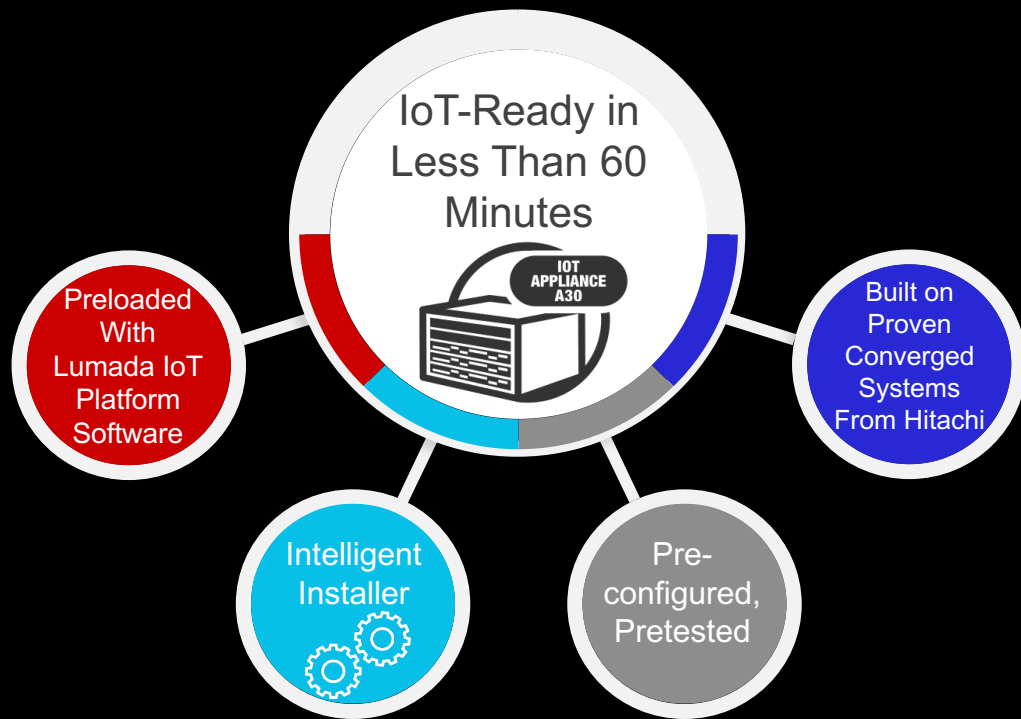


Development of portfolio-wide automation and APIs

Scale-up (>8 sockets) solutions targeting in-memory applications

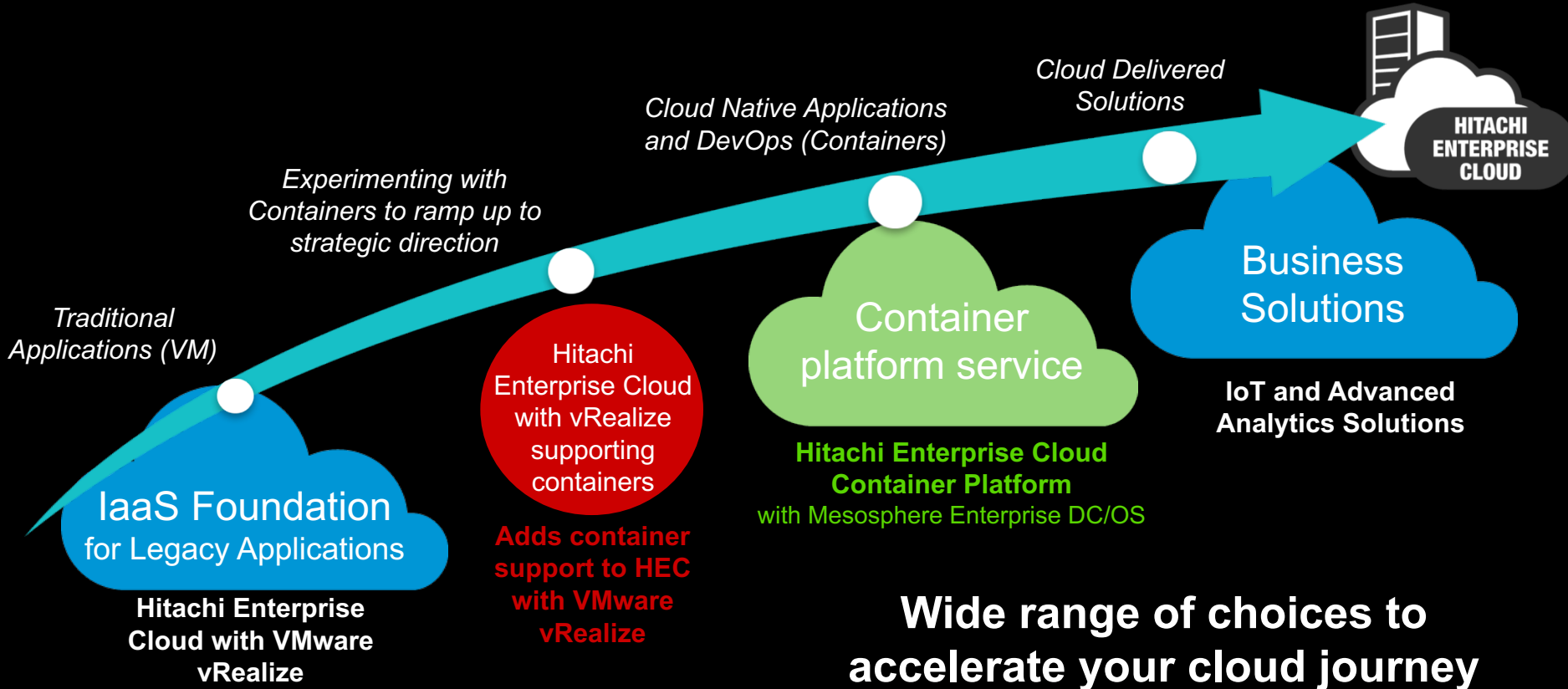
# Hitachi IoT Appliance, Powered By Lumada

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2017



# An Expanding Hitachi Cloud Portfolio

**NEXT**  
2017



# The Automation Imperative

NEXT  
2017



**In 2017, automation will not be optional.**

**Every data center will need to embrace automation in order to improve agility and deliver digital business value.**

Oct 2016, Doc ID: G00309661

**Gartner**®

# The Technology Behind Smart Data Center

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2017

## HOW To Automate

# HITACHI AUTOMATION DIRECTOR

The screenshot shows the Hitachi Automation Director web interface. The top navigation bar includes 'Dashboard', 'Services', 'Tasks', 'Service Templates', and 'Administration'. A search bar is located below the navigation. On the left, there is a 'Tag Search' sidebar with categories like 'Cloud Infrastructures', 'Hypervisors', 'OS Operations', 'Platforms', 'Storage Operations', and 'VM Operations'. The main content area displays a grid of 'Service Templates' under the 'Service Templates' tab. Each template card includes an icon, a title, a 'NEW' badge, and a 'Created' timestamp. Examples of templates include 'Add Virtual Disk to Virtual Machine', 'Add virtual server (Virtual disk)', 'Allocate Like Replicated Volumes on E...', 'Allocate Like Replicated Volumes on E...', 'Allocate Like Replicated Volumes on N...', 'Back up Volumes on VMware vSphere', 'Clone Virtual Machine', 'Create Snapshot of Virtual Machine', 'Create Snapshot of Virtual Machine', 'Delete Cloned Virtual Machine', 'Delete Database on VMware vSphere', 'Delete a virtual server (Virtual disk)', 'Delete a virtual server (Virtual disk)', 'Delete a virtual server (Virtual disk)', 'Deploy and Setup OS on Virtual Machine', 'Get List of Storage Systems from Server', 'Get List of Users from Server', and 'Get List of Users from Multiple Servers'.

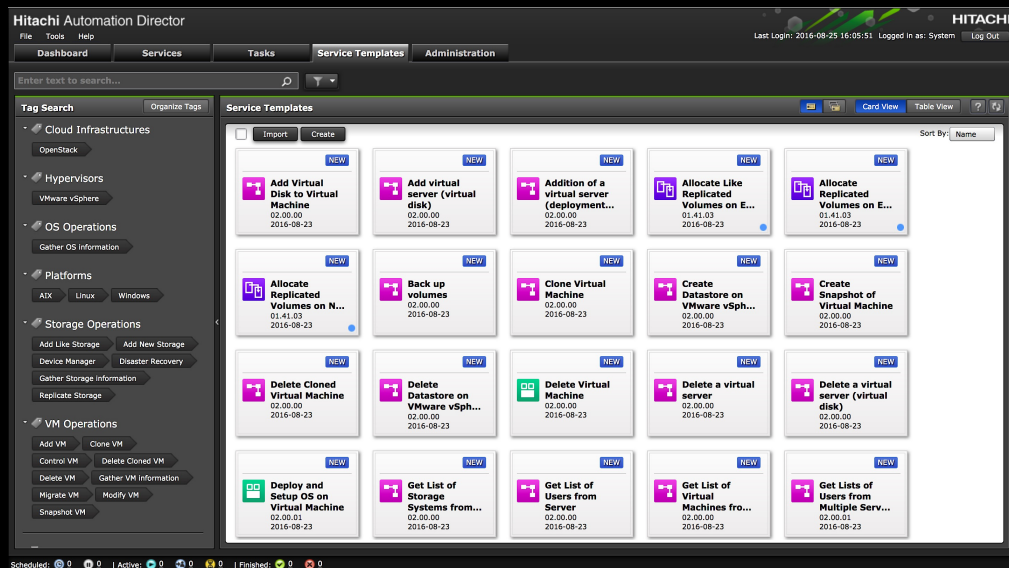
## Knowing WHAT to Automate

# HITACHI INFRASTRUCTURE ANALYTICS ADVISOR



# Hitachi Automation Director Accelerating Your Datacenter Automation

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Reduce Manual Processes by  
90%

Dramatically Reduce Human  
Errors

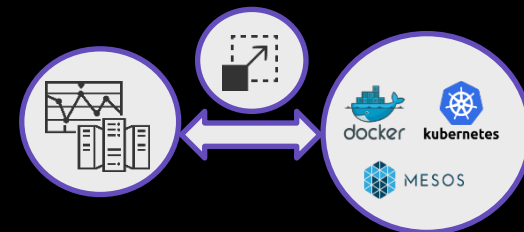
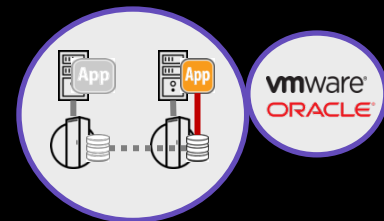
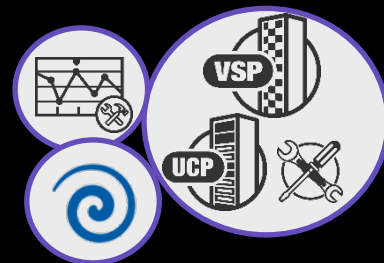
Redirect Resources for  
Strategic Projects



# What Comes NEXT...

NEXT  
2017

- Integration across Hitachi analytics, copy management, storage management, Pentaho
  - Policy based application-aware provisioning, protection, migration, preemptive failover
  - Bare metal provisioning, patch management, container deployment, ESX cluster deployment
- Data Center-wide 3<sup>rd</sup> Party support
- And more templates to simplify repetitive tasks



# Hitachi Infrastructure Analytics Advisor

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Optimize physical and virtual machine performance

Ensure adherence to service level agreements

Minimize downtime & future resource planning



Solution  
Layer

Hypervisor  
Layer

Network  
Layer

Storage  
Layer

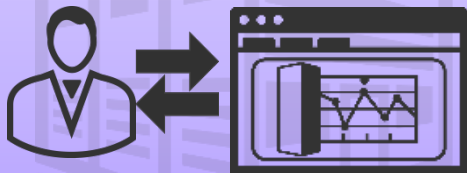


# IT Analytics How And Where You Want It

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Today

IN THE  
DATA CENTER



Available in 2017

IN THE CLOUD



AS A SERVICE

**HITACHI**  
Inspire the Next

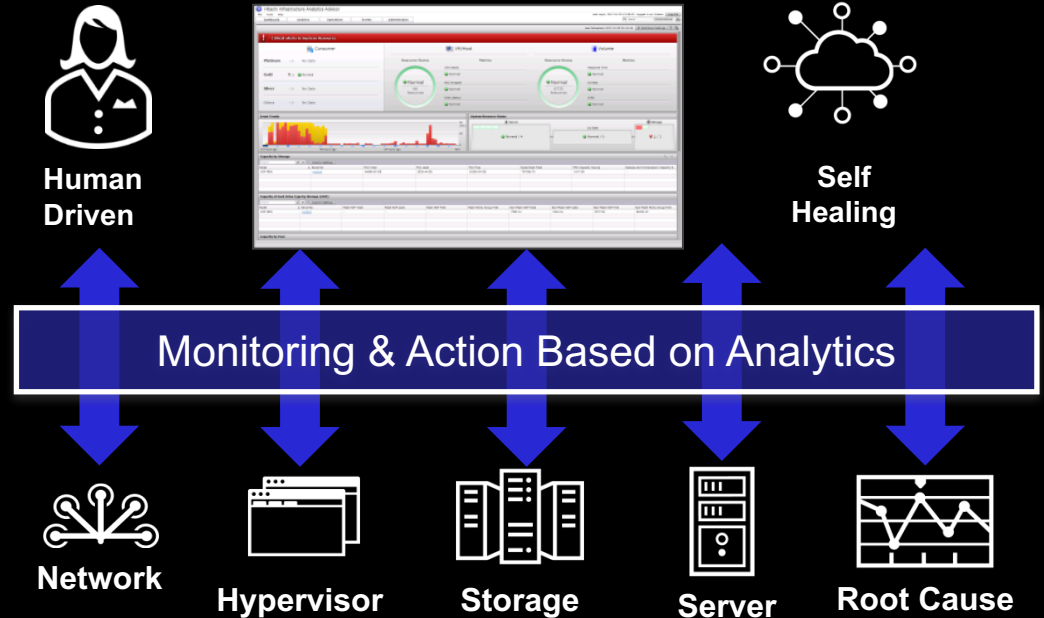


# Integrated IT Analytics and Automation

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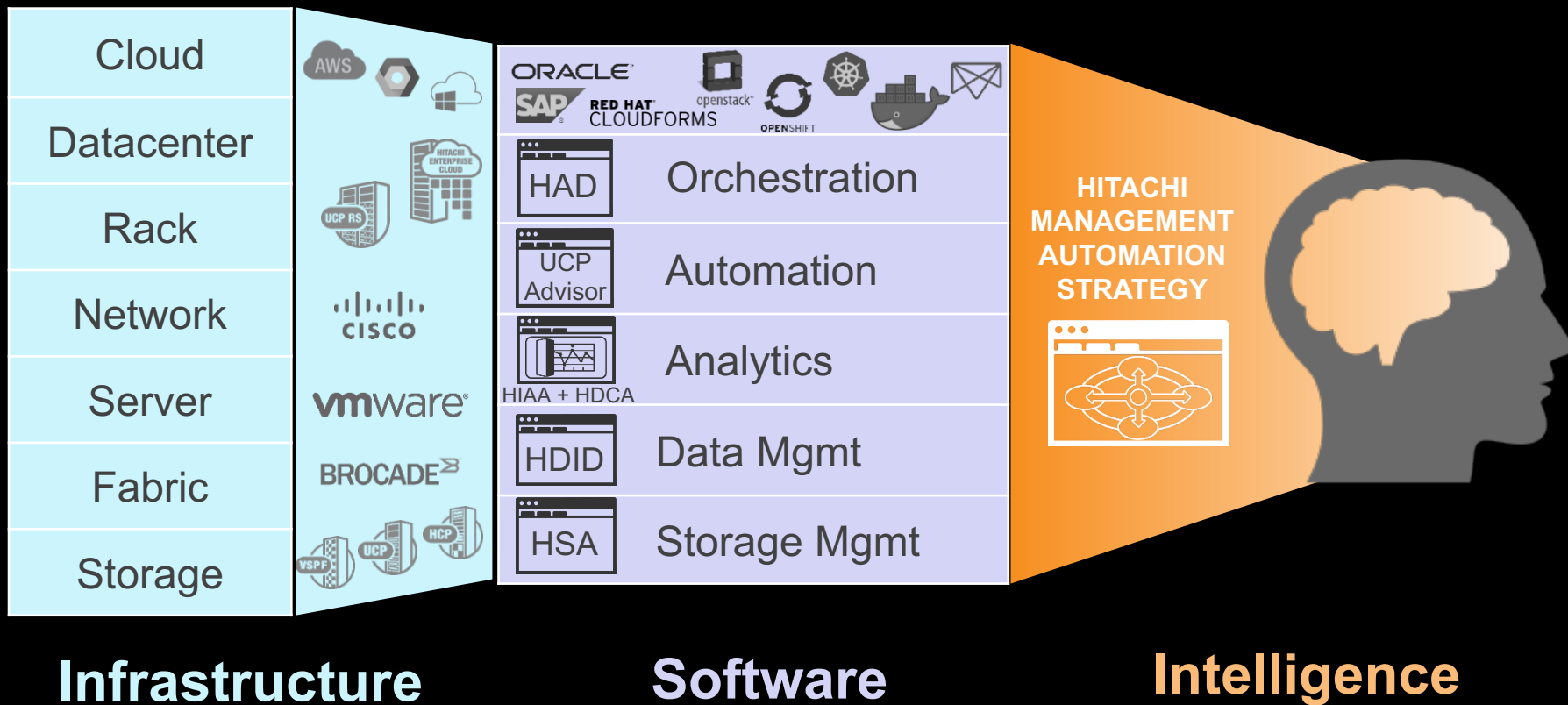
New operational intelligence and automation enables your IT environment to adjust to changes dynamically.

- Self-healing infrastructure
- Application-aware SLA management
- 90% faster resource delivery



# Enabling the NEXT Smart Data Center

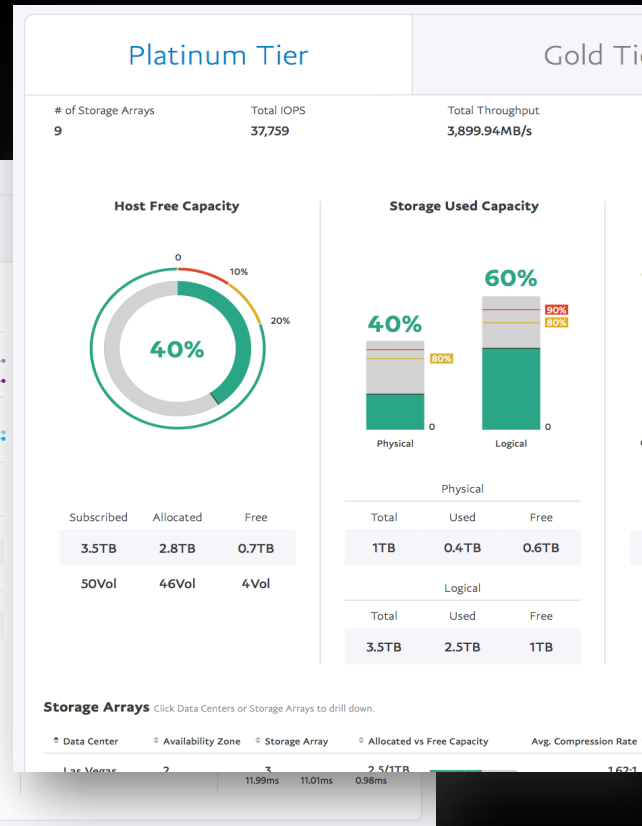
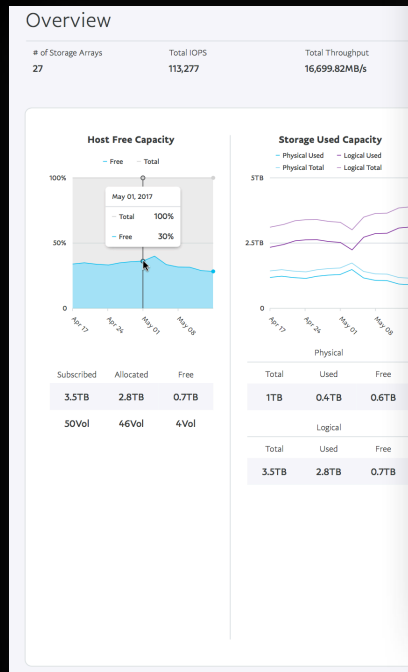
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2017



# Dashboards for Enterprise IT Automation

NEXT  
2017

Custom Dashboards  
from  
Fortune 500  
Technology Leader



# Accelerate Your Digital Transformation With the Right Data Foundation

**NEXT**  
2017

## DATA GOVERNANCE



Data Control

## DATA MOBILITY



Any Cloud



Any App



Anywhere



Any Use

Data Access

## DATA ANALYTICS



Data Driven Insight

## DATA INFRASTRUCTURE

Flash  
Storage



Converged  
Infrastructure



Automated  
Management



Data  
Protection



Cloud  
Ready



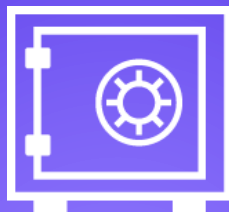
Data Agility

## ENSURE CONTROL OF ENTERPRISE DATA

COMPLIANCE



PROTECTION



SECURE HYBRID  
CLOUD



SECURITY



# Modern Data Protection

NEXT  
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## Recover . . . anytime, anywhere



Recovery SLA



On Prem



Cloud

## Drive . . . agility, intelligence



DevOps



Data Analytics



### Hitachi Data Instance Director

Copy Data Management

Replication and  
Snapshots

Application Orchestration

Content aware copy data



Applications



Hypervisor



Storage



Converged



Host



Content

## DIGITAL WORKPLACE

- Modernize management, user collaboration and automation

## Object Is the New Data Lake

## SECURITY AND GOVERNANCE

- Cloud age security and information safety for IoT era

Any Application

Anywhere

## CLOUD

- Portability of data and applications to and from cloud

## Metadata Is the New Data

## INTELLIGENCE

- At-scale and dynamic meta-data, search, index, real-time analytics from edge to core

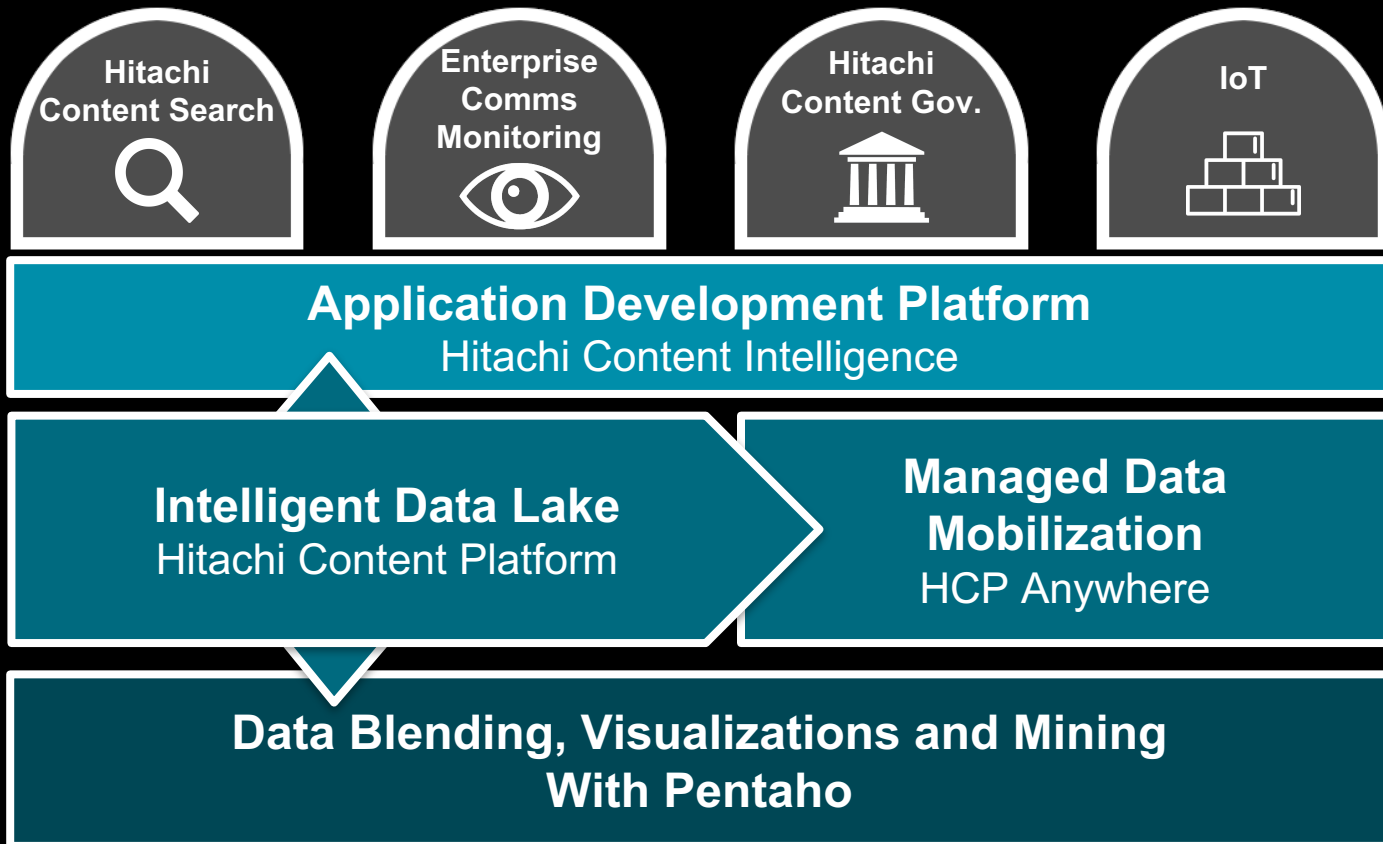
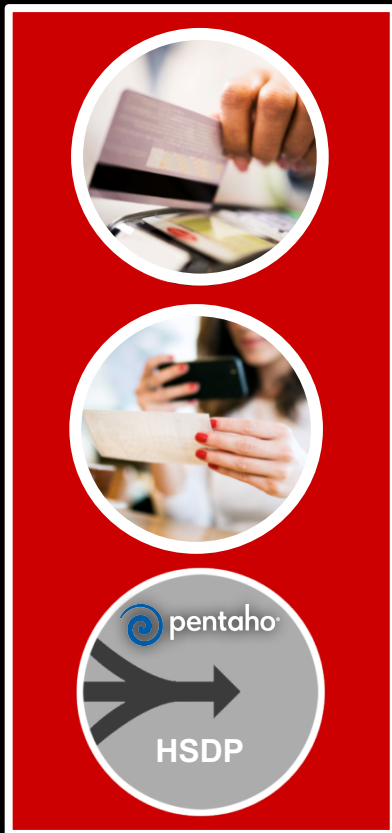
Any Cloud

Any Use



# Hitachi Content Platform Integrated Solution

**NEXT**  
2017



|                       | 2017   | 2018  |
|-----------------------|--|---|
| DIGITAL WORKPLACE     | <ul style="list-style-type: none"><li>• Modernize home directories and end-user data protection</li></ul>                                  | <ul style="list-style-type: none"><li>• Intelligent collaboration</li></ul>   |
| CLOUD                 | <ul style="list-style-type: none"><li>• 60% cheaper than public cloud</li><li>• Geo Distributed Erasure Code</li><li>• Multipart</li></ul> | <ul style="list-style-type: none"><li>• Bare-metal software defined</li><li>• Cloud-age security</li><li>• Trillions of objects</li></ul> |
| SECURITY & GOVERNANCE | <ul style="list-style-type: none"><li>• Data Governance Solution</li></ul>   | <ul style="list-style-type: none"><li>• Extending security to users</li></ul>   |
| INTELLIGENCE          | <ul style="list-style-type: none"><li>• More Apps: Enterprise Communications Monitoring</li></ul>  | <ul style="list-style-type: none"><li>• Metadata-driven data management policies</li></ul>  |

# New Solution : Communications Governance

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**Interactive Web Interface**  
Access Control, Easy to Use, Intuitive Output

**Hitachi Solution for Communications Governance  
(HCP, Hitachi Content Intelligence)**

*Email*

*Voice  
Recording*




*Instant  
Bloomberg*

*Messenger  
from  
Thomson  
Reuters*

*Social  
Media*

# What's Coming in Data Governance Solutions?

**NEXT**  
2017

| CATEGORY  | TOMORROW  |
|---|---|
|  <p><b>ELECTRONIC COMMUNICATIONS MANAGEMENT</b></p> | <ul style="list-style-type: none"><li>• Integrate Natural Language Processing based search, speech to text</li><li>• Incorporate machine learning</li></ul>                                     |
|  <p><b>BIG DATA</b></p>                             | <ul style="list-style-type: none"><li>• Performance characterization of leveraging HCP as Hadoop data source thru S3 client</li><li>• Integration with MapR, Cloudera and Hortonworks</li></ul> |
|  <p><b>BACKUP</b></p>                              | <ul style="list-style-type: none"><li>• Reference architecture and best practice</li></ul>  |

# Accelerate Your Digital Transformation With the Right Data Foundation

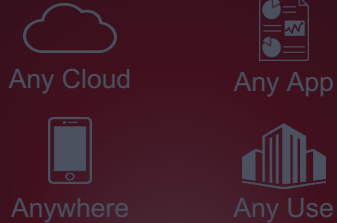
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## DATA GOVERNANCE



Data Control

## DATA MOBILITY



Data Access

## DATA ANALYTICS

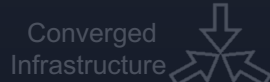


Data Driven Insight

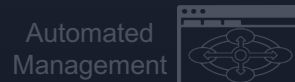
## DATA INFRASTRUCTURE



Flash Storage



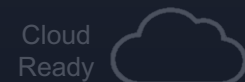
Converged Infrastructure



Automated Management



Data Protection



Cloud Ready

Data Agility

# Unlock the Business Value in YOUR Data

**NEXT**  
2017

**YOUR  
STRATEGY**

**NEED FOR BETTER INSIGHTS**



**TO ACHIEVE BETTER OUTCOMES**



**BRIDGING  
THE GAP**

**Big Data Analytics**

**Pentaho**

**Deep Data Exploration**

**Content Intelligence**

**YOUR  
DATA**

**Data silos today:** Difficult to correlate and analyze – hidden intelligence (“dark data”)



**Transactional  
Data**



**Email and  
Documents**



**Video, Image  
and Audio**



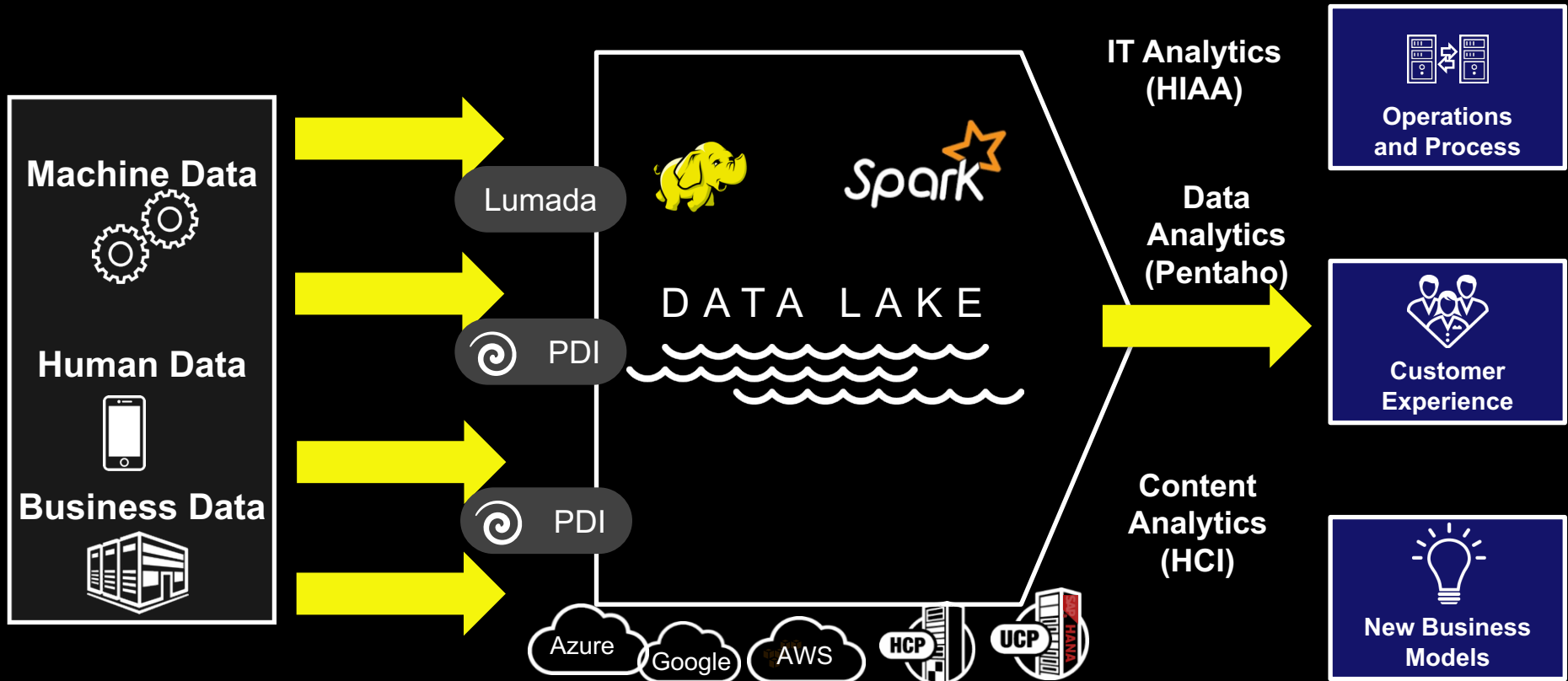
**Social Media**



**IT, Sensor and  
Machine Logs**

# Dynamic Data Lake for Valuable Insight

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# Building the Data Analytics and Orchestration Future

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## Intuitive Visual Experience

Data Exploration  
Visual Data Preparation  
Embedded Analytics



## Open, future-proof platform for big data orchestration and processing

Adaptive Execution  
Spark and Stream Processing with AEL  
Machine Learning Orchestration



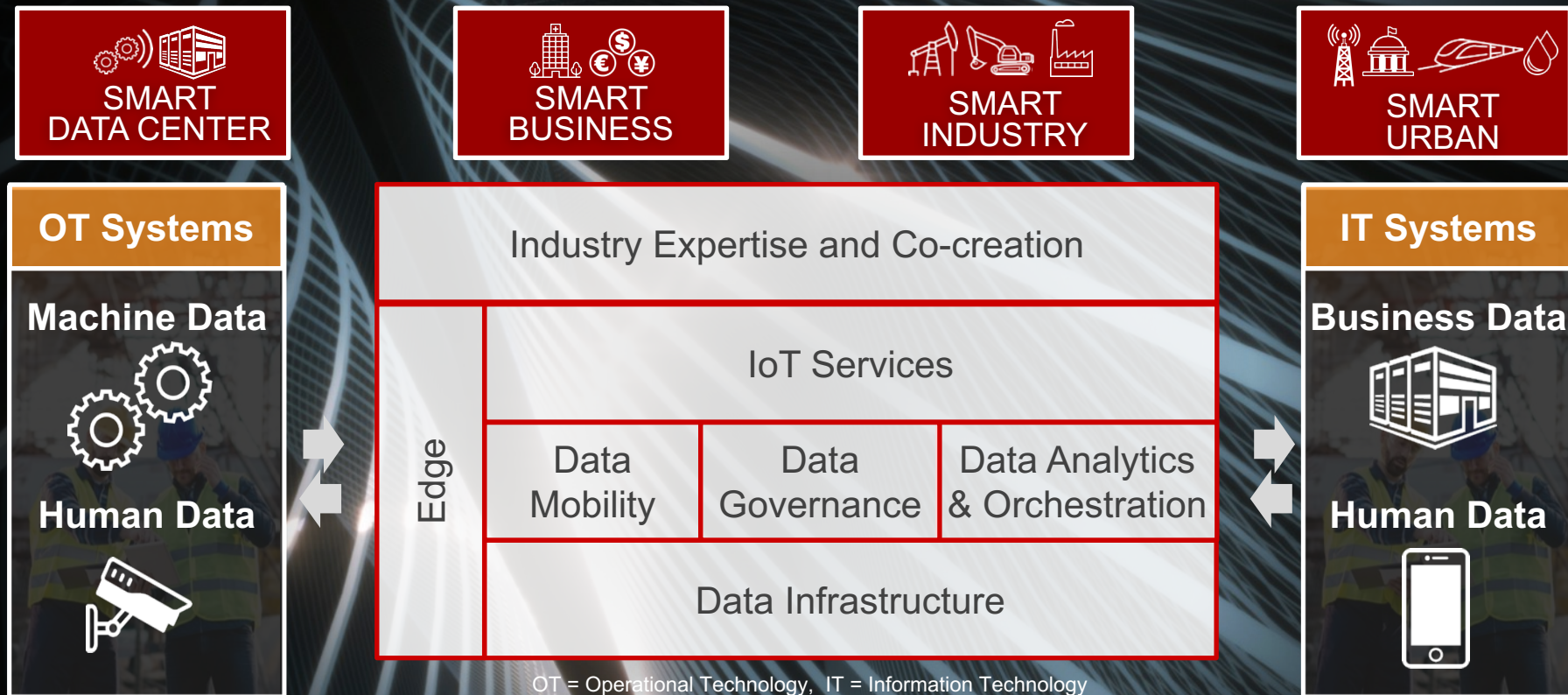
## Enterprise Platform

Scale-Out Infrastructure  
Cloud Ecosystem Support



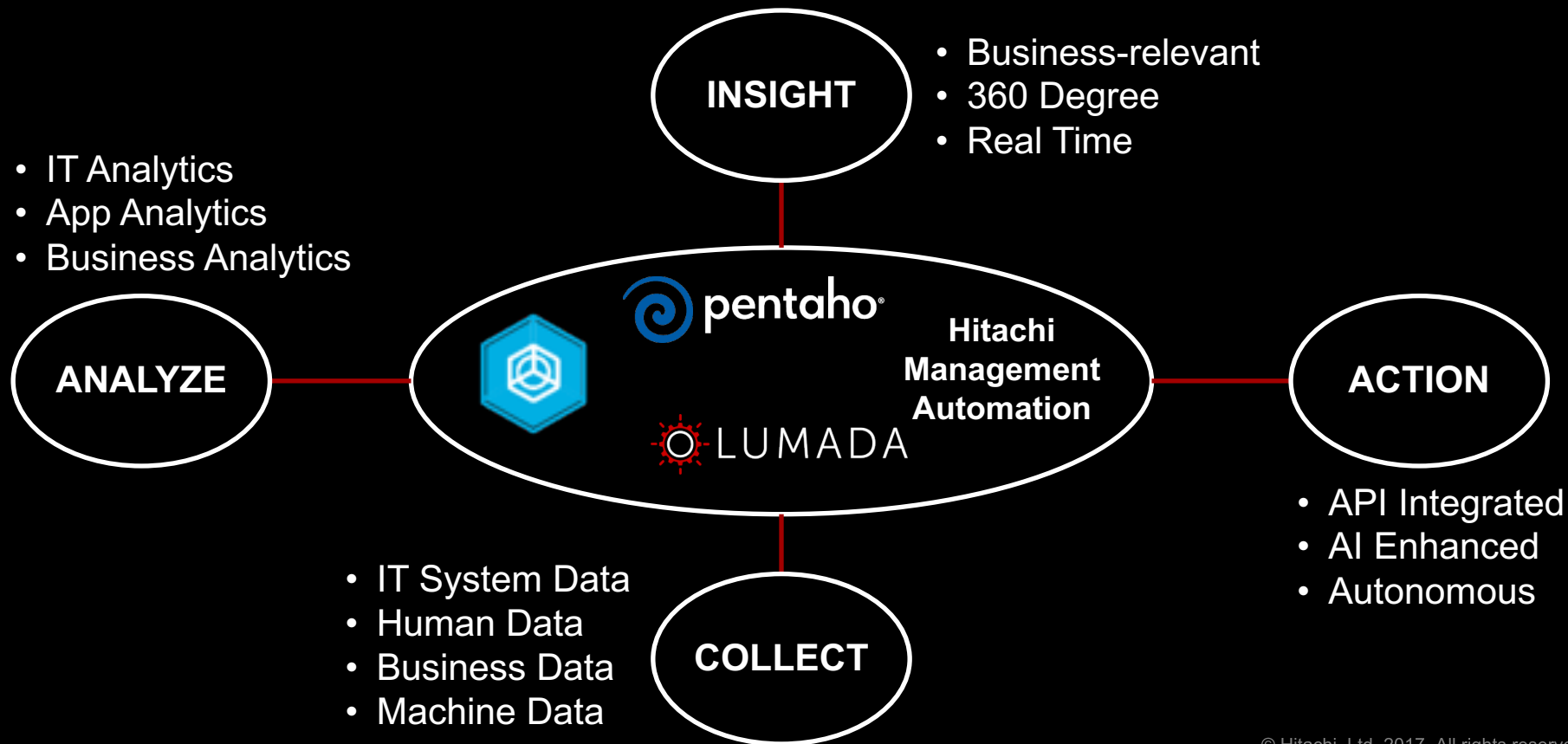
# Our Vision: Driving Data-Driven Outcomes

**NEXT**  
2017



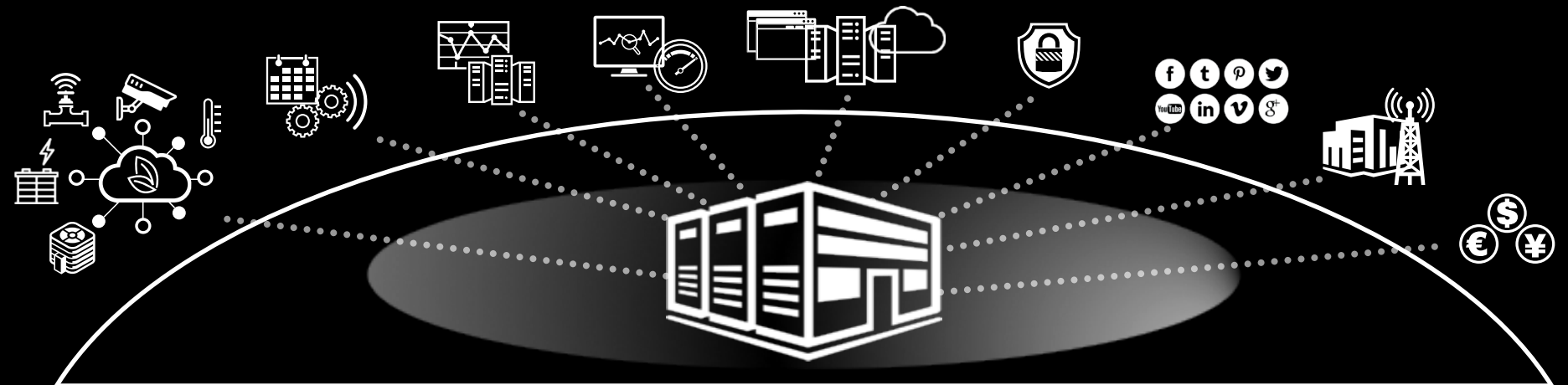
# The Software-Defined, Data Center of Things

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# Delivering The Smart Data Center

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2017



**Next-generation data center management providing the highest operational efficiency, lowest risk and most effective data management**

**NEXT**  
2017



**LEAD WHAT'S NEXT**

# Q & A

**HITACHI**  
Inspire the Next

**NEXT**  
2017



**LEAD WHAT'S NEXT**

**Thank You**

**NEXT**  
2017



**LEAD WHAT'S NEXT**