A comprehensive Enterprise-grade Hadoop solution from

Hewlett Packard Enterprise
Booth #551

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Challenges in Maximizing Value with Traditional Hadoop

Architecture limitations
Single workload Hadoop cluster infrastructure choices lead to cluster sprawl and management difficulties as newer varying workloads arrive.

Implementation difficulties
Lack of expertise in Big Data Infrastructure and Hadoop architecture leads to significant risks in the journey to Hadoop and impedes time to value.

Immaturity of Big Data ecosystem
Inability to operationalize data. Separate clusters for transactions and analytics. No global view across clusters.
Hadoop remains complex for most enterprises

Deliver business value

- Next-gen predictive analytics
- Composite analytic apps
- Next-gen data services

Hadoop data lake

EDW - Reporting

DB - Apps

Other data
HPE makes Hadoop Enterprise Grade

Reporting

EDW

Apps

DB

Hadoop

Spark

Add-on

HADOOP DATA LAKE

Enterprise Grade Infrastructure

Next gen predictive analytics

Composite analytic apps

Next gen data services

Deliver business value
Enterprise-grade Hadoop
Industry-leading Hadoop solution

Flexible high performance infrastructure optimized for Hadoop and Spark

Enterprise grade software sold through HPE

Paired with HPE and partner services to advise, design and implement

Robust Hadoop add-on solutions

HPE differentiation

- Infrastructure optimized for all Hadoop, Spark and ecosystem tools
- Higher density solutions and reduced footprint vs. traditional Hadoop offerings
- Workload optimized solutions with independently scalable storage and compute for better performance and lower TCO
Enterprise-grade Hadoop editions aligned to customer needs

Customer need
- Standard implementation with ability to scale
- Growth trajectory shows consistent compute and storage ratio
- Combination of data integration, batch and real-time analytics on a single cluster
- Diverse compute and storage growth trajectory

Two editions
- Enterprise-grade Hadoop Standard Edition
- Enterprise-grade Hadoop Elastic Edition
Enterprise Grade Hadoop Standard Edition
Conventional approach to deploy Hadoop with collocated compute and storage

Collocated compute and storage

- BDO nodes for standard density-optimized big data workloads

Hadoop software

- Cloudera
- Hortonworks
- MAPR

Services

- HPE installation services for Hadoop
- Hadoop licenses via HPE (optional)
Enterprise Grade Hadoop Elastic Edition
For customers that need to independently scale compute and storage across varying workloads & storage

Separate compute and storage
WDO nodes for specific big data workloads like Yarn, Spark, MapReduce and more

Hadoop software

Services
- Roadmap service for Hadoop
- Enterprise design service for Hadoop
- Installation service for Hadoop

Low Cost Nodes
GPU Nodes
FPGA Nodes
Big Memory Nodes

SSD Nodes
Disk Nodes
Archive Nodes

Density-optimized storage for HDFS, NoSQL, object stores and more
Apache Spark
Hadoop is designed for volume; Spark is designed for speed

What is it?
– Apache® Spark™ is a open source in-memory data processing engine.

Why is it special?
– 100x faster than Hadoop for large scale data processing
– Leverages advanced in memory computing.

When should you use it?
– Most customers have adopted Hadoop, but still see value gaps.
– Spark promises insight at speed and scale

What does HPE add to Spark?
– HPE has a workload optimized solution to run Spark.
Add-on solutions expands the value of Hadoop

<table>
<thead>
<tr>
<th>Object storage</th>
<th>SAP integration</th>
<th>Data encryption</th>
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<tbody>
<tr>
<td>SCALITY</td>
<td>SAP HANA Vora</td>
<td>SecureData</td>
</tr>
<tr>
<td>ceph</td>
<td></td>
<td>Secure Encryption</td>
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HPE partnership with Scality and SUSE offer solutions to let you manage billions of objects with the proven benefits of object storages.

Data federation across your SAP HANA and Hadoop environments.

Bridge real-time and batch analytics.

End-to-end encryption and key management solution for your data in Hadoop and ecosystem components to enable secure multitenant big data environment.

Multi-tenancy

HPE Big Data EPA along with BlueData enables you to easily deploy multitenant Hadoop as a service within your organization.

SQL-on-Hadoop

High performance SQL 99 analytics engine natively integrated into YARN with support for native Hadoop data formats.
Portfolio of Hadoop Services

HPE Big Data Transformation Workshop

**Features**
- Explores the Big Data landscape and its processes, and draws out customer needs.
- Presented in a 1-day workshop format.
- Facilitates interaction and exchange of ideas.

**Problems it solves**
- Lack of clear definition and Big Data explicated for business value.
- Formulates enterprise use cases that benefit the customer.
- Unifies disparate learning around a common foundation.

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HPE Roadmap Service for Hadoop

**Features**
- Strategy, roadmap, custom deployment services.
- HPE reference architectures simplify and speed deployment.
- Optimal configuration and services for your Big Data needs.

**Problems it solves**
- Lack of skills & knowledge about Hadoop infrastructure.
- Involving best practice on deployment & design.
- Ensuring a scalable design to accommodate future growth.

**Customer benefits**
- Provides comprehensive Hadoop infrastructure design.
- Customized to a customer's specific requirements.
- Integration details for network, security & operations.
- Detailed Bill of Materials & network design.

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HPE Basic Installation Service for Hadoop – SKU based

**Features**
- Use HPE Reference Architectures for Hadoop as a baseline.
- HP-Vertica UI for convenience on HPE DL380G9 servers.
- HPE best practice for configuration and deployment.
- Fixed scope to deliver a basic, robust foundation platform.

**Problems it solves**
- Fast-track service to implement HPE Reference Architectures.
- Services can be highly specific to customer needs.
- Enables customer ease and skills gaps.

**Customer benefits**
- Builds on HPE experience with Hadoop.
- Focuses customer staff on focusing on business.

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HPE Implementation Service for Hadoop

**Features**
- Implementation covering both HPE and 3rd party software/hardware.
- Covers either: Hortonworks, Cloudera or MapR.
- Optional co-location via HPS3rd party integration facilities.

**Problems it solves**
- Lack of skills & knowledge about Hadoop deployment.
- Optimization to handle deployment at scale.
- Co-ordinates HPE & 3rd party support/responses during build.

**Customer benefits**
- Working Hadoop clusters integrated according to design.
- Dedicated project management of HPE & other resources.
- Deployed by Hadoop infrastructure specialists.
- Builds on HPE's Hadoop and infrastructure expertise.

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HPE Enterprise Design for Hadoop

**Smoothens the path to success with a good plan**

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Hadoop Implementation and Deployment at scale

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Enterprise grade software
HPE software solutions for Hadoop

HPE Insight CMU

- Cluster lifecycle management utility optimized for Linux and 10+ years in deployment on large scale clusters
- Helps provision, control and monitor your big data cluster

Hadoop Software

- Deep partnerships with major Hadoop distributions with integrated support and licensing to prevents vendor lock-in
- Allows Incredible flexibility of adoption coupled when coupled with HPE EPA.
Monitoring Hadoop with HP Insight Cluster Management Utility

Hadoop worker-nodes Timed View

Hadoop cluster behavior real time analysis
Efficient and intuitive remote control of target nodes

- Power commands
- Broadcast commands
- Provisioning commands

Selected nodes
HPE approach to Hadoop

Assess
Assess your intended and planned Hadoop environment, value, workloads, etc.

Start
Start your journey to a modern data architecture with early projects

Complement
Add SQL analytics capabilities to your existing clusters

Unify
Consolidate and transition to the workload optimized architecture

Maximize value of the data lake and scale without compromise
Secure Enterprise-grade Hadoop with Cloudera

- Protecting from outside
- Tracking and reporting data usage and origin
- Securing from unauthorized access
- Ensuring data for intended usage
Hortonworks 2.6/HPE Hadoop Solution featuring Hive LLAP

Hive LLAP
High Performance SQL Data Mart

MPP Performance at Hadoop Scale
• Dynamic Runtime filtering for speed and for scale
• Zero-ETL Analytics on CSV and JSON Data
• Combine RAM and SSD into a giant pool of memory with LLAP SSD Cache
• Full Decimal Vectorization
• More SIMD Optimization for faster inner loop
• Average query response time improvements from 3-4x (SE) to 9x (EE) for LLAP vs non-LLAP configurations

Standard Edition
Scalable infrastructure for predictable compute/storage ratio

ProLiant DL380 + Hortonworks + Installation Services

Elastic Edition
Scalable infrastructure for independent compute/storage scaling

Moonshot Apollo 2000 + Hortonworks + Roadmap, Design, & Installation Services

Apollo 4200 + HPE iCMU

Full-Fidelity Data
Hybrid Data Management with MapR Converged Data Platform

HPE Enterprise-Grade Hadoop
- Compute/storage infrastructure options aligned to use needs and growth trajectory

MapR Converged Data Platform
- It delivers the world’s most scalable global data fabric in MapR-FS
- It delivers the world’s most powerful globally distributed NoSQL database in MapR-DB
- It delivers the world’s most reliable global event streaming engine in MapR Streams.

Services
- HPE Pointnext, MapR, and partner led options
What’s next?

Find out more

Visit Booth #551

Schedule a meeting to discuss your options
Find out how HPE can help you with your big data challenges.

Get an assessment
Better understand where you are today, and where you can go tomorrow
Thank you

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