

BIG DATA APPLIANCE

ORACLE BIG DATA APPLIANCE

BIG DATA FOR THE ENTERPRISE

KEY FEATURES

- Massively scalable infrastructure to store and manage big data
- Big Data Connectors delivers unprecedented load rates between Big Data Appliance and Oracle Exadata
- Cloudera's Distribution including Apache Hadoop delivers managed and proven Hadoop to the enterprise
- Cloudera Manager simplifies management of Hadoop
- Advanced analytics with Oracle R on Hadoop data
- Oracle NoSQL Database Community Edition pre-installed and configured
- 648 TB of raw storage
- InfiniBand Connectivity between nodes and across racks

KEY BENEFITS

- Optimized and Complete Big Data Solution
- Integrated with Oracle Exadata to analyze all your data
- Risk free installation and quick time to value
- Single vendor support for your entire big data solution

Oracle Big Data Appliance brings Big Data solutions to mainstream enterprises. Built using industry-standard hardware from Sun and Cloudera's Distribution including Apache Hadoop, the Big Data Appliance is designed and optimized for big data workloads. By integrating the key components of a big data platform into a single product, Oracle Big Data Appliance delivers an affordable, scalable and fully supported big data infrastructure without the risks of a custom built solution. The Big Data Appliance integrates tightly with Oracle Exadata and Oracle Database using Oracle Big Data Connectors, and seamlessly enables analysis of all data in the enterprise – structured and unstructured.

Bringing Big Data to the Enterprise

Oracle Big Data Appliance is pre-installed and pre-configured for large-scale big data management. Using Cloudera's Distribution including Apache Hadoop (CDH) and Oracle NoSQL Database as data management capabilities, the Big Data Appliance runs on Oracle Linux and Oracle HotSpot JVM. It includes Cloudera Manager for cluster-wide administration and monitoring of CDH. For deep analysis of big data, it also includes an open-source distribution of the statistical environment R. As compared to building a big data system from scratch, the Big Data Appliance eliminates the time-consuming efforts of choosing and configuring hardware, determining the proper open-source components and versions, and integrating and tuning the overall configuration. The entire solution is installed and configured out of the box for high performance and high availability.

Big Data Appliance
Integrated Software
Oracle Enterprise Linux 5.6
Oracle Hotspot Java Virtual Machine
Cloudera's Distribution including Apache Hadoop
Cloudera Manager
Open Source Distribution of R
Oracle NoSQL Database Community Edition

The Oracle Big Data Appliance is designed for enterprise production environments. Oracle provides enterprise support for the entire solution, both hardware and software. For high availability, the Big Data Appliance has complete redundancy built in. The Big Data Appliance has redundant InfiniBand connectivity and redundant Power Distribution Units (PDU), and the servers all have hot-swappable power supplies for high availability. In addition, data is automatically mirrored across servers with multiple replicas to protect against data loss and ensure data accessibility.

Designed and Optimized for Big Data

The Big Data Appliance has been designed and optimized for Big Data from the ground up. With 648 TB of raw storage and 216 CPU processing cores in a single rack, the Big Data Appliance delivers large-scale data processing. The Big Data Appliance scales by adding additional racks; up to 8 racks can be connected by connecting Infiniband cables, and larger

RELATED PRODUCTS AND SERVICES

Oracle Big Data Appliance brings a low risk, highly scalable big data platform to the enterprise.

RELATED PRODUCTS

The following are related products available from Oracle:

- Oracle Exadata
- Oracle Exalytics
- Oracle Exalogic

RELATED SERVICES

The following services are available from Oracle Support Services:

- Advanced Customer Services
- Product Support Services
- Consulting Services
- Oracle University Courses

configurations are supported with additional external Infiniband switches.

The Big Data Appliance has been specifically optimized for CDH to ensure scalable performance. The Big Data Appliance is configured with pre-tuned operating system parameters, file system settings and Java VM configuration properties to allow optimized performance. Moreover, the Big Data Appliance's use of Infiniband is well-suited for MapReduce processing, since data redistribution during the "map" processing phase can be columnsmuch faster.

The Big Data Appliance has also been optimized and pre-configured with Oracle NoSQL Database. Oracle NoSQL Database provides fast low-latency access to massive amounts of data, supporting both data retrieval and data updates using a flexible key-value pair programming paradigm. Enterprises may choose the Big Data Appliance as a system to run only CDH or to run both NoSQL Database and CDH simultaneously on the same cluster (for example, to capture data using NoSQL Database, and then integrate and process the data for historical analysis using CDH).

Big Data: The Big Picture

The true benefits of big data are realized when new insights from big data are combined with insights from an enterprise's existing information. A big data solution is not simply a system that executes MapReduce programs against a new set of data; instead, a big data solution requires an architecture that manages both structured and unstructured data, provides deep analytical capabilities against that data, and delivers information directly to business users to help drive business decisions. The Oracle Big Data Appliance was designed to be part of an enterprise's overall big data solution. When combined with Oracle Exadata Database Machine for managing structured data, executing deeper analytics, and supporting large numbers of users, and Oracle Exalytics In-Memory Machine for providing speed-of-thought analytical environment to business users, the Oracle Big Data Appliance is a core component of a complete analytic infrastructure.

The Big Data Appliance, built with Infiniband, allows scalable interconnectivity with all of Oracle's other engineered systems: not only Oracle Exadata and Oracle Exalytics, but also Oracle Exalogic and Supercluster. At 40Gb/sec, Infiniband provides more bandwidth as well as lower latency than ethernet-connected systems.

Oracle Big Data Connectors, a separately licensed product, provides a high-performance Hadoop to Oracle Database integration solution. Oracle Loader for Hadoop, a component of Big Data Connectors, allows data to be loaded from CDH on the Big Data Appliance into an Oracle Database on an Oracle Exadata Database Machine. Such high-performance data movement is necessary infrastructure for enterprises who want to realize the full value of big data.

Big Data Appliance	
Hardware Specification and Details	
18 Compute and Storage nodes	<p>Per Node:</p> <ul style="list-style-type: none"> • 2 x Six-Core Intel® Xeon® 5675 Processors (3.06 GHz) • 48 GB Memory (expandable to maximum 144GB) • Disk Controller HBA with 512MB Battery backed write cache • 12 x 3TB 7,200 RPM High Capacity SAS Disks • 2 x QDR (40Gb/s) Ports • 4 x 1 Gb Ethernet Ports • 1 x ILOM Ethernet Port
2 x 32 Port QDR InfiniBand Switch	<ul style="list-style-type: none"> • 32 x InfiniBand ports • 8 x 10GigE ports
1 x 36 Port QDR InfiniBand Switch	<ul style="list-style-type: none"> • 36 InfiniBand Ports
Additional Hardware included:	<ul style="list-style-type: none"> • Ethernet switch for administration of the Appliance • Keyboard, Video or Visual Display Unit, Mouse (KVM) hardware for local administration • 2 x Redundant Power Distributions Units (PDUs) • 42U rack packaging
Spares Kit Included:	<ul style="list-style-type: none"> • 2 x 3 TB High Capacity SAS disk • InfiniBand cables

Big Data Appliance – Environmental Specifications	
Physical Dimensions	
Height	42U, 78.66" - 1998 mm
Width	23.62" - 600mm
Depth	47.24" - 1200 mm
Weight	
Installed	2005Lbs
Power	
Maximum	12.25 kVA 12.0 KW
Typical	8.6 kVA 8.4 KW
Cooling	
Maximum	40,971 BTU/hour 41,807 KJ/Hour
Typical	28,680 BTU/hour 29,265 KJ/Hour
Airflow Maximum	1,886 CFM
Airflow Typical	1,340 CFM
Further Environmental Specifications	
Operating temperature/humidity: 5 °C to 32 °C (41 °F to 89.6 °F), 10% to 90% relative humidity, non-condensing	
Altitude Operating: Up to 3,048 m, max. ambient temperature is de-rated by 1° C per 300 m above 900 m	
Regulations ¹	
Safety: UL 60950-1 2nd Ed, EN60950-1:2006 2nd Ed, CB Scheme with all country differences RFI/EMI: FCC CFR 47 Part 15 Subpart B Class A, EN 55022:2006+A1:2007 Class A, EN 61000-3-11:2000, EN 61000-3-12:2005, ETSI EN 300 386 V1.4.1 (2008) Immunity: EN 55024:1998+A1:2001:+A2:2003	
Certifications ¹	
Safety: UL/cUL, CE, BSMI, GOST R, S-Mark, CSA C22.2 No. 60950-1-07 2nd Ed, CCC EMC: CE, FCC, VCCI, ICES, KCC, GOST R, BSMI Class A, AS/NZ 3548, CCC Other: Complies with WEEE Directive (2002/96/EC) and RoHS Directive (2002/95/EC)	

¹ In some cases, as applicable, regulatory and certification compliance were obtained at the component level.

Big Data Appliance Support Services

- Hardware Warranty: 1 year with a 4 hour web/phone response during normal business hours (Mon-Fri 8AM-5PM), with 2 business day on-site response/Parts Exchange
- Oracle Premier Support for Systems: Oracle Linux and integrated software support and 24x7 with 2 hour on-site hardware service response (subject to proximity to service center)
- Oracle Premier Support for Operating Systems
- Oracle Customer Data and Device Retention
- System Installation Services
- Software Configuration Services
- Oracle Auto Service Request (ASR)

Big Data Appliance Upgrade Services

Multi-Rack Connection

Connect any combination of Big Data Appliance or Exadata Database Machine Full Rack or Half Rack via included InfiniBand fabric

Other configuration considerations:

- Up to 8 racks can be connected without requiring additional InfiniBand switches
- InfiniBand cables to connect 3 racks are included in the rack Spares Kit
- Additional optical InfiniBand cables required when connecting 4 or more racks

Memory Upgrades

- Upgrade any number of servers within Big Data Appliance from 48GB to 96GB or 144GB
- Upgrade Support Services: Hardware Installation of memory upgrade kit

Contact Us

For more information about Oracle Big Data Appliance, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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Hardware and Software, Engineered to Work Together