

Teradata Extreme Performance Appliance 4600

Data Warehousing > Platform Family

Harness Blazing Speed for Hyper-Analytics



The speed of your business never stops accelerating. And neither does the demand for data warehousing engines and business intelligence (BI) solutions that can keep pace.

For most companies today, real-time analytics aren't just a luxury – they're a necessity. Cross-channel marketers must capture customer Web clicks that hold true insights. Network security demands real-time Web traffic analysis. And financial firms must rely on market ticker-driven analytics. In every case, these companies

need the agility to quickly act on data while they're still fresh.

But with current technology, those same organizations find that their high-speed analytic solutions are simply too costly to provide these hyper-analytics on enterprise scale data. Or the query response times in their current data warehouse systems just can't meet these speed driven business demands even with over-configured systems. And those high-performance systems stretched to attempt hyper-analytics typically take up far too much energy and floor space.

Work at the Speed of Thought

That's why Teradata Corporation, the global leader in analytic data solutions, offers the Teradata Extreme Performance Appliance, the first-ever purely solid state drive (SSD)-based data warehouse appliance.

This new appliance, which uses the Intel® Xeon® processor, is targeted toward very high-performance workloads on high value business data. Its scan speed and fast loads combined with low query latency makes it an ideal platform solution for real-time business environments where response to events must occur in seconds or even milliseconds.

Built on Teradata Blurr™ technology, it sets a new standard for speed in data warehousing analytics to meet the rising demand for hyper-fast queries – speed that provides you and your business with breakthrough performance and insight at the speed of thought. The result? You can get immediate answers to run your business more efficiently – and profitably – than ever.

With this new technology, Teradata Extreme Performance Appliance provides a data warehouse solution that lets you load and analyze data and open up new application spaces that current warehouse products simply can't reach.

Built-in Business Value

The game-changing Blurr technology drives business value by offering you significant capabilities, including:

- > Fast data loads and quicker, more consistent tactical and complex

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query response times for operational intelligence.

- > A new standard in the speed of data warehouse-based strategic intelligence work to enable hyper-analytics.
- > Dramatic energy and floor space savings compared to other solutions for either equal performance or data capacity.

And successfully harnessing its blazing speed and vast data analysis potential means new ways of strengthening your business through:

- > Rapid response to business-critical events, timeliness that will attract and retain customers.
- > Optimized business operations and reduced operating expenses.
- > New product and service offers that enhance revenue.
- > Improved customer service.

Purpose Built for Performance

Teradata Extreme Performance Appliance also brings you the time-tested advantages of the Teradata Purpose-Built Platform Family including the Teradata Database, the most robust, analytical engine in the industry.

Each platform in the family is integrated according to your configuration. And it has been pre-tested as a system, so it's ready to run right after delivery. The Teradata platform provides unmatched performance, eliminates the unexpected,

SSD Technology – Who Needs It?

Any business, from Web-based retailers to financial services companies, that depends on *hot* data applications – ones that require continuous high-speed sense-and-respond processing capabilities – is a candidate for the unprecedented analytic performance and truly operational business intelligence (BI) that the Blurr technology offers. Here's what it means to manufacturers and retailers alike:

In a world of Web-based commerce, manufacturing and retail companies need to optimize their allocation and pricing on the fly based on instantaneous demand data. Companies in all industries have long been searching for a way to continuously analyze large amounts of current business data and reduce their decision-making turnaround time from hours to minutes or seconds.

Blurr technology enables manufacturers and retailers, for example, to meet those goals through:

- > High-currency dashboards that facilitate real-time decisions on allocation, purchasing, and demand chain.
- > Vastly increased analytics speeds that permit precise product distribution and optimized pricing for thousands of retail sites based on up-to-the-second demand data.

Teradata Magazine

Case Study – Fight Back Against Cyber Attacks

Cyber attacks against network security have become all too frequent in corporate and government organizations. These attacks have dramatic financial and national security implications, not to mention the threat of lost customer confidence. So real-time inspection of the network traffic is needed to not only protect an organization from attack today, but prepare it for future threats.

The Teradata Extreme Performance Appliance will allow network security algorithms to perform the analysis on current information and sample and monitor data to identify suspicious abnormalities in traffic content and patterns.

The result:

- > Proactive/predictive defensive measures.
- > Added protection from unlawful access attempts.

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reduces risk, and allows you to focus on driving the highest return on your data warehousing investments – today and in the future. That's because its performance and scalability enable you to save significant energy and floor space.

Technical Superiority

The Blurr technology that enables the Extreme Performance Appliance includes:

- > SSD technology that eliminates the mechanical delays associated with hard disk drives.
- > Teradata Database random access File System that utilizes SSD to its fullest potential.
- > Teradata Database Fallback data protection feature that enables fast, RAID-less connection of SSD to nodes.

Meanwhile, the SSD technology delivers its own unique advantages. For starters, it operates 22 times faster than hard disk drives. It also allows you to concentrate the full performance capability of your Teradata system on an optimized span of hot data to provide fast queries for even your most complex analytics. And that can allow your quantitative analysts to assess up to 18 times more scenarios and alternatives.

In addition, Teradata leverages the industry-leading Intel® CPU technology to achieve high-performance processing nodes. It features the Multi-Core Intel Xeon®-Processor with Intel 64-bit architecture and Hyper-Threading for optimum processor utilization.

Flexible Platform Options

The Teradata Extreme Performance Appliance supports a variety of processing elements integrated into the cabinet for the flexibility to meet your specific needs. These include:

Teradata Node – the basic processing element for the Teradata Database.

Managed Server – applies enterprise-level Teradata system management capabilities to a commodity server for the applications that support the Teradata Database. Both a configurable base model and a variety of pre-configured models are available for specific applications.

Channel Node – a dedicated Teradata node that supports Teradata Database's unique capability for mainframe connectivity with ESCON and FICON.

A Distinct Difference

Teradata Extreme Performance Appliance also delivers distinct differences in scalability, availability, and ease of use.

Scalability

Featuring massively parallel processing (MPP) architecture, the Teradata Extreme Performance Appliance expands, in increments of three nodes, from three to 24 nodes. It also accommodates user data space from 2.3 terabytes to more than 18 terabytes of uncompressed data. The Teradata BYNET® interconnect capability utilizing high-speed 10Gb Ethernet network infrastructure provides for high-speed, fault-tolerant warehouse-optimized messaging between nodes.

Availability

The appliance platform achieves high availability through Teradata's unique clique architecture that connects three nodes to each other's storage. This allows Teradata Database to failover workloads between the nodes of the clique if a node fails. In addition, the appliance contains redundant hardware components to eliminate the impact of component or module failures on system operation.

Ease of Use

The platform features simplified platform administration, control, and monitoring through the single operational view while an industry-leading, integrated systems management infrastructure monitors and controls the system.

More Advantages. More Value.

Among the technical benefits Teradata Extreme Performance Appliance delivers are:

Hot data performance – The high transfer rate and low latency of the SSD drives makes them a perfect medium for storing data that are used by active workloads with stringent response time limits or fast table scan needs. The SSD drives are directly accessed by the Teradata node thereby eliminating the added delays of a disk array that other solutions require.

Data scalability to more than 18TB

to support the data needs of the hyper-analytics applications, which typically are focused on that smaller hot portion of the overall enterprise data that has the highest value when analyzed the quickest.

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Fast and consistent query response times that enable very stringent SLAs to be met as required in truly operational workload environments. Average decision support query rates are up to 18 times faster with average query times up to 4X faster with 3X tighter response time variation compared to the Active EDW 6650 on same data space.

Up to an 87% reduction in power consumption provided with the Extreme Performance Appliance compared to a Teradata Active EDW 6650 system of the same performance capability. The savings are enabled by the dramatic reduction in storage cabinets provided by the Blurr™ Technology to achieve full Teradata node performance.

Up to 94% reduction in data center floor space provided with the Extreme Performance Appliance compared to a Teradata Active EDW 6650 system of the same performance capability.

Improved system reliability with both the reduced number of storage devices and the significant improvement in device failure rate. The potential for failure is much lower with SSD drives since the performance needs of the data warehouse can be met with far fewer drives than would be required if using HDD.

Why Teradata?

Why choose Teradata to help you harness the blazing speed of today's hyper-analytics? Because Teradata, the world's leader in data warehousing, big data analytics, and business applications, provides powerful analytic data solutions for the best decisions possible.

For More Information

To find out more about how Teradata Extreme Performance Appliance can help you meet the demand for fast and cost-effective BI solutions, contact your local Teradata representative, or visit

Teradata.com.

Extreme Performance Appliance Clique

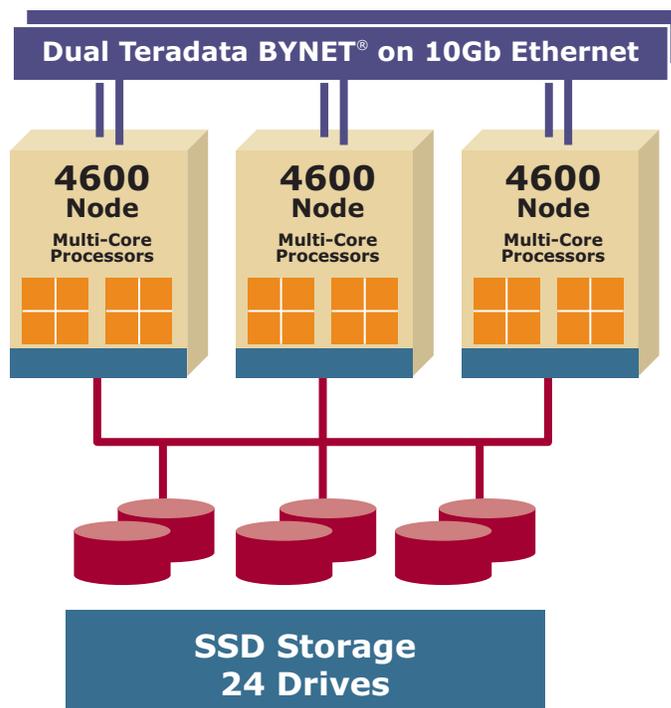


Figure 1. The clique, which is the basic building block of the MPP system, contains three Teradata nodes and SSD storage for each.

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Extreme Performance Appliance 4600 Specifications

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| <p>Teradata Nodes</p> <p>Processors</p> <ul style="list-style-type: none">Up to two Six Core Intel® Xeon® 5600 Series 2.93GHz processors12MB Level 2 Cache per processorIntel Hyper-Threading Technology with up to two threads per coreQuick Path Technology at 6.4 Giga-transactions per second for I/O <p>Memory</p> <ul style="list-style-type: none">Up to 96GB using DDR3 fully-buffered DIMM with ECCMemory controller built into each processor <p>Internal Storage Devices</p> <ul style="list-style-type: none">Six media bays per node<ul style="list-style-type: none">Up to four hot-swappable 450GB SAS hard drives (three standard) with integrated RAID controllerOne CD/DVD-ROM drive <p>Connectivity per Node</p> <ul style="list-style-type: none">Five PCI slots:<ul style="list-style-type: none">Three full profile PCIe Gen 2Two half profile (LP) PCIe Gen 2SSD Storage Connectivity<ul style="list-style-type: none">Quad Port 6Gb SAS PCIe adapterCustomer Network Connectivity<ul style="list-style-type: none">Six on-board 1Gbit Ethernet connections (two for Server Management)1Gb Copper – Quad Port Adapter1Gb Fiber (Optical) – Dual Port Adapter10Gb Copper and Fiber – Dual Port AdaptersMainframe Connectivity (requires Channel Node or Extended Channel Server)<ul style="list-style-type: none">IBM ESCONIBM FICON <p>Operating System</p> <ul style="list-style-type: none">Novell SUSE Linux 64-bit <p>Platform Features</p> <p>Teradata BYNET® MPP Interconnect</p> <ul style="list-style-type: none">BYNET protocol on 10Gbit Ethernet via dedicated dual port adapter in nodeTwo 24-port 10Gbit BYNET Ethernet Switches provided in cabinetEnables linear scalability up to 24 nodesFault tolerant via dual networks <p>Teradata Database</p> <ul style="list-style-type: none">Integrated and certified with Teradata Database 13 and 13.10 and 14Teradata Active System Management is available for full workload management | <p>Data Storage</p> <ul style="list-style-type: none">Enterprise Solid State Drives (SSD) – 300GB capacityEight SSD connected to each node<ul style="list-style-type: none">1TB user data per node assuming 30% compression.763TB user data per node with 0% compressionSSD mounted in 12 drive tray Storage Enclosures – two per clique of three nodes <p>Cabinet</p> <ul style="list-style-type: none">Nodes are available only in three-node cliques (basic failover redundancy group)Ten total node/server slots available in the cabinet that can be used in any combination for the following:<ul style="list-style-type: none">One, two, or three cliques of nodes (three slots each)Teradata Managed Servers (One slot each) – Four maximum per cabinetChannel Nodes (One slot each) – Three maximum per cabinet, not available in three-clique cabinetPatented enhanced airflow <p>Server Management</p> <ul style="list-style-type: none">Third-Generation Server Management chassis provides administrative functions through SM Web portalServices Workstation hosts Customer Services support tools and is housed in separate server with its own modem <p>High Availability Hardware Features</p> <ul style="list-style-type: none">Dual AC inputs enable power sourcing from two grids for maximum uptime.Hot pluggable components include power supplies, UPS batteries, and disks.Fault resilient fan modules, redundant power supplies, redundant BYNET 10Gb Ethernet Interconnect. <p>System Backup and Recovery</p> <ul style="list-style-type: none">Backup and recovery products and solutions fully integrated by Teradata for maximum performance and availability:<ul style="list-style-type: none">Oracle/Sun tape librariesEMC Data Domain DiskStorage management with Symantec NetBackup (BakBone NetVault or IBM Tivoli are alternatives) <p>Operating Specifications</p> <ul style="list-style-type: none">Height: 77 in. (195.6 cm)Width: 24 in. (61.4 cm)Depth: 48 in. (121.9 cm) with doorsWeight: 1,620 lbs. (735 kg) fully loaded | <ul style="list-style-type: none">Operating Temperature: 50°F to 104°F (10°C to 40°C)Voltage Range: 200-240VACFrequency: 50-60HzCurrent: 30Amp NEMA, 32 Amp IEC with 4 receptacles per cabinetPower: 6000 watts maxDual AC: ConfigurableCompliant with U.S. and International Safety and Emissions StandardsRoHS and WEEE compliant <p>Support Services</p> <p>Global Support</p> <ul style="list-style-type: none">Experienced data warehousing service personnel24-hour x 365 days availability <p>Warranty Support</p> <ul style="list-style-type: none">One-year remote and on-site hardware support, operating system problem resolution24-hour incident reporting <p>Premier Warehouse Support</p> <ul style="list-style-type: none">Industry-leading hardware and software maintenanceWorld-class software support servicesPriority service option for faster responseIntegrated tools, such as Teradata Vital Infrastructure and Teradata Service-Connect, for comprehensive support Delivery <p>Teradata Vital Infrastructure</p> <ul style="list-style-type: none">Built-in support software available on each Teradata Active EDW platformRegularly collects system asset dataFault event data are recorded; automatic incident reports are createdAlert notifications are sent and tracked (Call Home capability) <p>Implementation Services</p> <ul style="list-style-type: none">System installationSoftware implementation <p>Operational Services</p> <ul style="list-style-type: none">Critical system management services |
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