Teradata Active Enterprise Data Warehouse

Active Data Warehousing Platform for Teradata Solutions

In today's fast-paced, ever-changing competitive environment, your data warehouse must support higher performance, availability, and scalability to support your business's increased real-time workloads. Teradata offers a broad family of platforms that spans the business and analytical data warehouse needs throughout a company. Only the Teradata® Active Enterprise Data Warehouse (EDW) 5550 meets the operational intelligence needs as the most dependable, highest performing, massively parallel processing (MPP) platform ever released in a Teradata solution.

The Teradata Active EDW 5550 and the Teradata Database offer a totally integrated solution optimized to provide the foundation for an enterprise data warehouse and its operational expansion as an active data warehouse in the real-time enterprise.

The Teradata Active EDW 5550 platform is purpose built to run the Teradata Database with high efficiency to support your data warehousing initiatives. You can focus on your business – not on managing technology, enabling you to make smarter decisions faster and maximize ROI.

The Teradata Active EDW platform can deliver real-time intelligence by enabling active data warehousing. This key capability places vital data into the hands of front-line decision makers, while extending traditional data warehouse functionality into the realm of tactical decision making. With the Teradata Active EDW, you can combine both strategic and operational workloads in a single data warehouse. The five key attributes of the Teradata Active EDW platform are:

High-performance Technology

With modular design and architecture (See Figure 1.), the Teradata Active EDW platform provides specific system functions that can be independently evolved without impact to the rest of your system. In addition, Teradata leverages the industry-leading Intel® CPU technology to achieve high-performance processing nodes. It features Quad Core Intel Xeon® Processors with Intel 64-bit architecture. This technology enables the Teradata Active EDW to run 64-bit operating systems that support the expanded memory that best leverages the processor performance.

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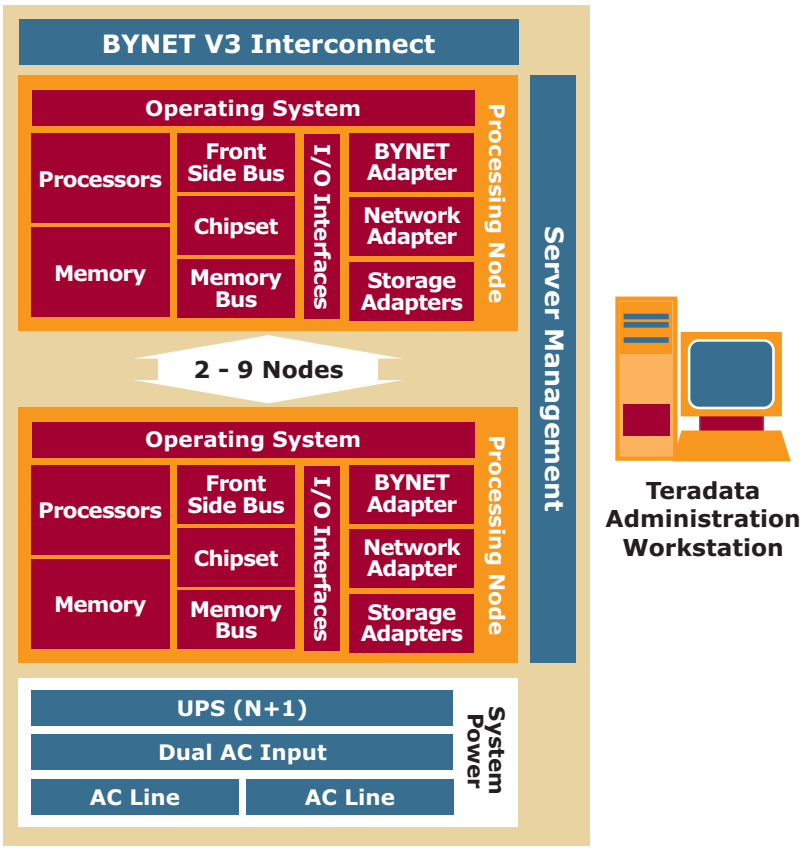

Figure 1. Teradata Active EDW 5550 Platform Components.

Scalability

Unmatched in its scalability, a Teradata system based on the Teradata Active EDW 5550 platform accommodates future business growth by expanding incrementally from one to 1,024 nodes – the basic Teradata processing element. It also accommodates user data space from less than one terabyte to more than ten petabytes. Featuring MPP architecture, the platform supports scalable growth in all dimensions. The Teradata BYNET® system interconnect for high-speed, fault tolerant warehouse-optimized messaging between nodes is another key scalability ingredient.

Availability

Minimizing the impact of component or module failures, the platform contains redundant hardware components, so if a failure occurs, it won't affect Teradata Database operation or the end-user experience. Many of the hardware components are hot-swappable, allowing service repair without affecting system availability. The Teradata Active EDW platform also achieves availability through Teradata's unique clique architecture in which two to four nodes are connected to common storage. This clique approach allows Teradata Database to failover workloads between the nodes of the clique if a node fails.

Manageability and Ease of Use

The platform features simplified platform administration, control, and monitoring through the single operational view on the Teradata Administration Workstation. This industry-leading, integrated systems management infrastructure monitors and controls the system, performs routine events, such as orderly start up and shut down, and protects the system from disruptive failure, such as a power loss or extreme heat. Combined with Teradata Database's powerful workload management capabilities, the platform enables users to quickly achieve business results.

Growth with Investment Protection

The Teradata Active EDW platform and the Teradata Database have the capability called coexistence to support multiple platform generations within a single system. By enabling expansion through coexistence, you can expand your system to include the latest platform, while reaping a return on your initial technology investment and leveraging the price/performance curve as it evolves.

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Flexible Platform Options

The Teradata Active EDW supports a variety of processing elements integrated into the cabinet for the flexibility to meet customer needs. These include:

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

Hot Standby Node – a redundant Teradata node added to a clique to provide full performance continuity during node failure.

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

Managed Server – applies enterprise level Teradata system management capabilities to a commodity server for applications that support Teradata Database such as Teradata Viewpoint.

Platform Sustainability

The Teradata Active EDW platform's performance and scalability enable you to save significant energy and floor space while achieving the same data warehouse work as done by previous systems. Also, the Teradata platform's unique coexistence capability lengthens the useful life of Teradata systems resulting in less carbon and electronic waste.

Purpose-Built Platform Excellence

The Teradata Active EDW platform can adapt and grow along with your business. Backed by award-winning professional services, support, and Teradata Corporation's demonstrated data warehousing expertise, the Teradata Active EDW is the solid foundation you need to protect your data and your investment.

Each platform is integrated according to your configuration and pre-tested, so it's ready to run right after delivery. You can begin loading data and running queries shortly after initial delivery – and quickly begin getting business value.

The Teradata platform provides unmatched performance, eliminates the unexpected, reduces risk, and allows you to focus on driving the highest return on your data warehousing investments – today and in the future.

The Teradata Active EDW Platform

Three models of the Teradata Active EDW are available. To meet your needs, you can choose the level of processing power in each node, as determined by the number of Intel Xeon Cores and the scalability of system size.

> 5550H is the primary model that provides the highest performance and scalability. This model leverages the full breakthrough in processing power that a two-way, Quad Core Intel Xeon Processor can deliver to meet the performance, growth, and demands of enterprise and active data warehousing.

> 5500C delivers the processing power that achieves coexistence with six previous Teradata platform generations and offers a fully scalable entry-level solution.

> 5500E provides a starting point for cost-effective, entry-level solutions through lower processing power and capacity.

Model	5550H	5500C	5500E	
Application	High Performance	Coexistence	Entry Level	
Cores	8	2	2	4
System Interconnect	BYNET V3	BYNET V3	Point-to-Point BYNET	
Scalability	1 to 1024 Nodes	1 to 1024 Nodes	1 to 2 Nodes	
User Data Space/Node	Up to 4TB	Up to 2TB	Up to 2TB (2 Cores)	Up to 4TB (4 Cores)

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Teradata Active Enterprise Data Warehouse

Teradata Active Enterprise Data Warehouse 5550 Description

Teradata Nodes

Processors

- Up to two Quad Core Intel Xeon 5300 Series 2.33GHz processors with 8MB Advanced Transfer L2 Cache
- Intel 64 architecture
- 1333MHz Front Side Bus (FSB)
- SpeedStep® technology to lower power consumption

Memory

- Up to 4GB using DDR2 667MHz fully-buffered DIMM with ECC for Teradata Database on UNIX SVR4 MP-RAS™
- Up to 32GB using DDR2 667MHz fully-buffered DIMM with ECC for Teradata Database running on Novell® SUSE® Linux 64-bit or Microsoft Windows Server 2003 64-bit
- 21GB/sec maximum memory bandwidth

Internal Storage Devices

- Integrated RAID controller with SAS backplane
- Six media bays per node
  - Up to four hot-swappable 73GB or 146GB SAS hard drives (two standard)
  - One CD/DVD-ROM drive
  - One 4mm 36/72GB tape drive per cabinet (standard)

Connectivity per Node

- Five PCI slots:
  - Three high-profile 133MHz PCI-X
  - Two low-profile PCIe
- Storage Connectivity
  - 4GB Dual Fibre Channel and Quad Fibre Channel
  - 2GB Quad Fibre Channel
- Customer Network Connectivity
  - Four on-board 1Gbit Ethernet connections (two for Server Management)
  - 10/100/1000 Copper – Dual and Quad Ports
  - 1GB Fiber (Optical) – Single and Dual Ports
- Mainframe Connectivity (requires Channel Node)
  - IBM ESCON
  - IBM FICON

Operating System

- 64-bit Novell SUSE Linux
- UNIX SVR4 MP-RAS
- Microsoft Windows Server 2003 64-bit

MPP Interconnect BYNET V3 (5550H and 5500C Models)

- Enabling linear scalability up to 1,024 nodes
- Fault tolerant interconnect via dual networks
- Self configuring, fully fault diagnosable
- 376MB per second per node bandwidth on dual redundant networks
- BYNET adapters on 64-bit PCIe for optimal interconnect MPP performance

Point-to-Point BYNET (5500E Model)

- BYNET functionality for one or two nodes
- Fault tolerant, redundant Gbit Ethernet interconnect
- Self configuring, full fault diagnosis

Data Storage

- Teradata Enterprise Storage 6843
- EMC DMX Storage

Teradata Database

- Integrated and certified with Teradata Database
  - Version 12.0
  - Versions V2R6.1 and V2R6.2

Cabinet

- One to nine Teradata nodes or Managed Servers
- Teradata BYNET switches (base models)
- Server management server and network
- UPS, dual AC distribution, cooling fans
- Patented enhanced airflow

High Availability Hardware Features

- Cabinet mounted UPS ensures safe shutdown of Teradata applications during power failures.
- 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, fault tolerant BYNET Interconnect.

External Backup and Recovery

- Teradata integrated backup and recovery products and solutions
  - Sun/Storagetek Tape storage
  - Teradata Disk Backup and EMC Virtual Tape Library
  - Symantec NetBackup, BakBone NetVault, and IBM TMS Storage Management

Operating Specifications

- Height: 77 in. (195.6 cm)
- Width: 24 in. (62.6 cm)
- Depth: 45 in. (114.3 cm)
- Weight: 1,575 lbs. (714.4 kg) fully loaded
- Operating Temperature: 50°F to 104°F (10°C to 40°C)
- Voltage Range: 208/220/230/240VAC
- Frequency: 50-60Hz
- Current: 50 Amp (32 Amp 3-phase available when required)
- Power: 6000 Watts
- Dual AC: Configurable
- Compliant with U.S. and International Safety and Emissions Standards
- RoHS and WEEE compliant

Support Services

Global Support

- Most experienced data warehousing service personnel
- 24-hour x 365 days availability

Warranty Support

- One-year remote and on-site hardware support, operating system problem resolution
- 24-hour incident reporting

Availability Management Services

- Proactive, holistic approach for protecting a system from risk events that can reduce or degrade availability.

Enterprise System Support

- Delivers quality, one-source support and single point of delivery with each service level.
- Two flexible support solution levels designed to grow, including Base, Enhanced, and Business Critical.
- Integrated, proactive tools, such as Teradata Vital Infrastructure and VPN secure remote connectivity.

Teradata Vital Infrastructure

- Built-in support software available on each Teradata Active Enterprise Data Warehouse platform.
- Regularly collects system asset data.
- Fault event data are recorded, automatic incident reports are created.
- Alert notifications are sent and tracked.

Implementation Services

- Staging Services
- Installation Services