TERADATA. LABS

Ordering and Configuration Information

Teradata Data Warehouse Appliance 2800

Information Support

Primary Support Contact	Global Sales Support
Location	San Diego, California, USA
Web Based Request Interface	**Questions about the 2000 Series Appliances** should be submitted to the GSS Helpdesk for the fastest, most informed response: **http://trd.td.teradata.com/gss/**
Configuration Management	**OCI's are "living documents" and are subject to change on a regular basis. To ensure you are using the latest version of this document, access it via:** • **InfoHub <http://bit.ly/1ILHz5H>** • **TKO / Asset Repository <http://bit.ly/1zeisIY>**

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Summary of Changes				
Change Date	**Description**	**Pages**	**Version**	**Author**
6-August-2014	Draft	N/A	draft	Roxanne Hendricks
1-Dec-2014	• Remove reference to System VMS limit to 64 arrays • Add 2nd 2800 System content • Update Infield Clique Expansion PIDs • Update SW pricing • Remove Test / Dev SW prices (N/A) • Intel processor spec update (URL, cache) • Remove reference to unneeded space reservation PIDs. • Update NCS content • Update power consumption examples	Various	1	Roxanne Hendricks
2-Dec-2014	• Direct teams to NCS if motherboard cannot support conx requirements • Incorporate various feedback from GSS, PM, etc. • Additional R6 content	Various	1.1	Roxanne Hendricks
14-Jan-2015	• Update document links for training and InfoHub • Update co-residence and compression • New ABU PID (never reported) • Price Update • 680 updates	Various 86 Various Various 16	1.2	Roxanne Hendricks
02-Feb-2015	• Remove database PIDs and content; the Database OCI / Orange Books shall be the 'single source of the truth.' • Add clarity on encryption offering • NCS update	Various 53 37	1.3	Roxanne Hendricks
2-March-2015	• Data Domain cable reference • Updates from S. Rowson • Update RAID6 release date	19 Various Various	1.4	Roxanne Hendricks
4-March-2015	• Update memory description in table to DDR4 • Update: 1.2TB drives and RAID6 released	Various	1.5	Roxanne Hendricks
7-April-2015	• Services PID: 9687-2000-0085 "2800 Node Memory Upgrade (per node)" add price • Archie and compression guidance • Channel nodes and multi-system requirements • Add Compatibility Matrix link to co-residence section • Add notes on TD DBS 14.10 as earliest version of TD supporting IPPZlib • 128GB GSS only • Update PID for FICON-L adapter	98 8 Various 84 Various Various Various	1.6	Roxanne Hendricks
2-June-2015	India import restrictions	various	1.7	Roxanne Hendricks
11-June-2015	• Update 1.2TB drive availability for RAID1 • RAID6: No 14.10 Support • Russian manual • Mixed product configs	Various	1.8	Roxanne Hendricks
15-July-2015	Russian manual PID update Additional Multi-clique Offerings	Various 33	1.9	Roxanne Hendricks
6-Aug-2015	Database and RRS	various	1.10	Roxanne Hendricks

Summary of Changes				
Change Date	**Description**	**Pages**	**Version**	**Author**
26-Aug-2015	• Co-residence update • KMM	95 Various	1.11	Roxanne Hendricks
7-Oct-2015	2nd 2800 System: Field-install in Aster 5, Hadoop 5, and UDA Appliance	various	1.12	Roxanne Hendricks
14-Oct-2014	Dump server required for systems over 12 nodes	71	1.13	Roxanne Hendricks
February 2016	Multi-System Support Added	various	1.14	Linette Draper
March 2016	Add information about the Dump Server	Section 8.0	1.15	Linette Draper
April 1, 2016	Add Support for SLES 11 SP3	various	1.16	Linette Draper
August 30, 2016	Add support for Enterprise Bundle (w/o TASM) for 2800 with TD 15.10		1.17	Linette Draper
September 1, 2016	Updated Enterprise bundle section	123	1.18	Linette Draper

ALL QUESTIONS ON THIS PRODUCT SHOULD BE SUBMITTED TO GSS VIA A GSS HELP DESK TICKET. GSS WILL ROUTE THE REQUEST ACCORDINGLY. To submit a Help Desk Request, click here.

Hardware Platform Product Management

Name	Position	Date
Linette Draper	R&D Hardware Platform Sr. Product Manager	September 1, 2016
Richard Linton	GM, Hardware Platforms	September 1, 2016

For Database questions, please contact the GSS Help Desk via a Help Desk Ticket. Database contacts:

Database Software Product Management

Name	Position	Date
Steve Mazingo Ranjan Priyadarshi	R&D Database Sr. Product Managers	September 1, 2016

All product questions should be directed to the GSS Help Desk, clearly stating if the question is **hardware or software related question**. To submit a Help Desk Request, click here.

Table of Contents

1.0 Overview

ALL QUESTIONS ON THIS PRODUCT (HARDWARE, DATABASE SOFTWARE, OS, TMS, ETC.) SHOULD BE SUBMITTED TO GSS VIA A GSS HELP DESK TICKET. GSS WILL ROUTE THE REQUEST ACCORDINGLY. To submit a Help Desk Request, click here.

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The Teradata Data Warehouse Appliance 2800 is an optimized fully integrated data warehouse solution for decision support workloads, typically requiring fast data scans and heavy analytics. The 2800 includes the Teradata Database, a suite of Teradata Tools and Utilities (TTU 15.0 is the default since the latest TTU version release is recommended), running SuSE Linux SLES 11 (note: as with the 2750, **SLES 11 only**).

The 2800 model design is based on 4-node cliques (4 TPA nodes and 4 storage drive trays), although 2-node cliques are also available (2 nodes with 2 Drive trays). This design creates a more I/O-rich environment, with different RAID options depending upon the needs of the customer and system use case. RAID1 systems are configured with 40 disks per node. New to the 2000 Series is the RAID6 option; these systems are configured with 45 disks per node. Both options offer 2 Global Hot Spare drives (GHS) in each array.

Note that the RAID6 2800 requires Teradata Database version 15.0 or greater.

The 2800 includes Teradata Nodes and Storage, all within a single 42U cabinet. A System can be built with up to 36 nodes using the standard BYNET V5 switch pair. For co-residence with 1Gb BYNET 2700 and/or 2750 systems, the 2800 offers Expansion cabinets built with 1Gb BYNET. The 2800 does not offer Base / System cabinets with 1Gb BYNET. These design elements of the Teradata Data Warehouse Appliance 2800 position it to meet entry-level data warehousing and analytical decision support requirements, and allows easier integrated in UDA solutions, while maintaining the ability to co-reside with previous generations using the 1Gb BYNET.

Note:
At time of initial release, the minimum required Teradata database versions for the 2800 is TD14.10, due to the IPPZLib software compression library / algorithm, which is used for data compression. The 2800 uses 1U nodes, which have motherboards that do not accommodate the Compression Engine Adapters used in 2750, 2700, and 2690, so automatic software compression is used instead of hardware compression.

Additional Considerations regarding the IPPZLib feature of the Teradata Database:

- IPPZLIB operates only on Intel CPUs.
- IPPZLIB is available only on SLES11 platforms (not available on SLES10 SP3 and earlier SLES versions).

Later versions of the Teradata DBS are also offered, including 15.0 and 15.10. Over the product lifecycle, please refer to the following Knowledge article which contains the Platform Compatibility Matrix for the latest minimum database and OS requirements and all certified database and OS versions for the product.

The 2800 is configured and purchased via a simplified WOT interface and ordering process that provides limited configurability via the WOT wizard. **All 2800 configurations require GSS validation.** The 2800 cannot be customize beyond the items that are configurable in WOT. For customers requiring modifications not offered via the 2800 WOT model (including special staging instructions), **please submit a GSS Help Desk Request to determine if the modification is possible.** To submit a Help Desk Request, click here.

All 2800 systems are subject to the normal **build lead times of approximately 16 business** days depending on the size of the system (systems with more than 5 cabinets may require additional lead time).

The 2800 Appliance offer storage arrays with the following drive size options for RAID**1** systems:

- 300GB disk drives (2.5" drives, 10K)
- 600GB (2.5" drives, 10K) and
- 900GB* (2.5" drives, 10K)
  - *Note: 900GB drives require Pricing approval; please contact PM and The Bid Desk for assistance. PIDs will only be enabled for deals / customers where the use of these large drives has been approved (see 900GB Drives: Product Positioning Section for details).
- The 1.2TB drives in a RAID1 system require Pricing approval. The 1.2TB drives are also offered with RAID6 system (no approval required). RAID6 requires Teradata Database 15.0 or greater.
  - **It is important to note that RAID6, while offering more customer data space and better data protection, comes with a performance penalty due to the overhead associated with parity calculations during write operations. Use Archie to determine if the performance penalty on write-intensive operations is acceptable for your customer.**

The 2800 Appliance offer storage arrays with the following drive size options for **RAID6 systems only**:

- 1.2TB disk drives (2.5" drives, 10K)
  - Using 1.2TB drives in RAID1 systems requires Pricing approval
  - The 300GB, 600GB, and 900GB drives (offered with the RAID1 2800) **cannot** be ordered with RAID6 systems
  - RAID6 requires Teradata Database 15.0 or greater

The Web Ordering Tool (WOT) has been programmed to create standard configurations with limited options as part of the order process. The options offered in the WOT wizard include:

- Power Type
- Electronic Software Distribution (ESD)
- Number of nodes
- Disk drive size
- Additional disk drives in TPA Node
- Encryption
- Customer data space
- IO Modules / Adapters
- Factory Integration Panels (Indicating to Factory the other products to include in the base cabinet):
  - Teradata Systems:
    - 680 system
    - 2nd 2800 system

        - Channel Solution (Channel Nodes and ECS)
        - Network Connectivity Server
    - TMS Nodes (R730 model, Fixed and Configurable)
- Value Add Software (Columnar, Temporal, Row-Level Security, TPUMP / Stream)
- VMS Viewpoint software
    - PM recommends **you always order the VMS with Viewpoint software**, regardless of whether or not the customer intends to use it, as this cannot be upgraded in the field

No items beyond those cited above can be added to configurations via the Sales Team version of the WOT wizard; similarly, no items may be deleted. Note: **floor sweeps of an EDW with the 2000 Series Appliance must be approved by the Configuration Review Board prior to shipment and GSS assistance is required.**

1.1 Large Drives: Product Positioning

The 2800 offers high capacity drives (either 900GB or 1.2TB) for storage for the 2800 RAID1 option, providing customers with the high capacity if required. Use of these drive options requires Pricing approval, and these large drive sizes in RAID1 can only be configured with Pricing approval (900GB, 1.2TB in RAID1). It is important to remember the differences between versions of the product using smaller drives as opposed to the high capacity drives, to ensure customer expectations are set appropriately. Key differences include:

1.) The 2800 is not a high performance EDW platforms; it will not perform like one
2.) There are limits to the technology which will show up in IO intensive operations
3.) Downtime may be **several days to a week during system expansion reconfigurations**
4.) **Drive rebuild times for large drives can be lengthy**; the system will be performing in degraded mode during the rebuild
    a. The downtime and performance degradation can become a more substantial issue in larger systems, where a drive may be down more frequently
5.) **Data loading times can be lengthy** based on drives and system size
6.) To view estimated reconstruct timing for drives, see section 2.14 Disk Array Storage.

These differences make the RAID1 2800 with 900GB or 1.2TB drives applicable solutions for customers requiring high capacity, but where there is a limited set of users and system availability is not mission critical. Depending upon customer need, RAID6 with 1.2TB drives may meet the needs of your customer; use Archie to determine the most appropriate solution. RAID6 requires Teradata Database 15.0 or greater.

1.2 Key Changes between 2800 and 2750

The 2800 has the following changes over the 2750 platform:

- New Teradata Node
  - Processor: The 2800 uses a 1U new node which includes a faster processor. The new processor for the 2800 is an Intel Xeon Haswell 2.6 GHZ (Series E5-2697v3), which has 14 cores with hyperthreading enabled and 35MB of L3 cache. It replaces the Intel Xeon 2.7 GHZ Ivy Bridge (Series E5-2697 v2), 12 core with hyperthreading enabled with 30MB L3 cache used in the 2750.
  - There are two processors in each node, providing 336 physical cores in a full rack with 12 servers (3 cliques).
    - Intel spec page: http://ark.intel.com/products/81059/Intel-Xeon-Processor-E5-2697-v3-35M-Cache-2_60-GHz?wapkw=e5-2697+v2
    - The 1U Intel® Server Chassis R1208WT2 has the Intel® Server Board **S2600WT.**
      - Technical Specification: http://download.intel.com/support/motherboards/server/sb/intel_server_system_r1000wt_tps_r1_02.pdf
      - Overview: http://ark.intel.com/products/81825/Intel-Server-Chassis-R1208WTXXX
  - Rack Density: The new node is a 1U node, which means a single cabinet can accommodate up to 12 nodes (the 2750 had a maximum density of 8 nodes).
  - **No On-board Ports** for Customer Use – The 2800 motherboard only two on-board ports, which are used by server management. There are **no on-board ports for customer use**.
- Storage – The 2800 is the first 2000 Series product to use storage from Dot Hill, which was introduced with the 1700 Integrated Big Data Platform.
  - TheUltra48 AssuredSAN High-Density storage arrays with the Atlas storage enclosures, three (3) Hot Service Drawers, and dual Gallium LX controllers
    - Write Back Cache
    - 4GB Controller Cache
    - 6.4GB/s capable
  - Global Hot Spares – Two (2) Global Hot Spare drives per array
- SAS Adapters – The 2800 has a single SAS Adapter per node (6Gb/s). The 2750 had 3 SAS adapters per node.
- Compression – The Compression Engine Adapters used in the 2690, 2700, and 2750 are **not** offered in the 2800 (1U Teradata node is slot constrained). Instead, software compression is used.
  - IPPzlib SW Compression (which is available in **Teradata 14.10 and greater**; earlier versions of Teradata are **not supported on the 2800**)
  - Enabled by PUT
    - Regarding Archie and compression, the Archie IO data is independent of compression. It is a measure of the capabilities of the array when doing IOs of the prescribed size and mix. Therefore, Archie displays the physical IO characteristics of the system not logical.
    - For detailed information, see the Teradata Database 15.0 Release Summary (B035-1098-015K) section titled “IPPZLIB Compression Library Support” (page 21)

  - Additional Considerations regarding the IPPZLib feature of the Teradata Database:
    - IPPZLIB operates only on Intel CPUs.
    - IPPZLIB is available only on SLES11 platforms (earlier versions of SLES are **not supported on the 2800**).

- RAID6 Option – The 2800 introduces a RAID6 option using 1.2TB drives for customers that need the additional data space and RAID protection, but who can also accommodate the performance degradation on writes.
  - RAID6 requires Teradata Database **15.0 or greater**
  - 1.2TB drives are the only drives available for RAID6
    - **It is important to note that RAID6, while offering more customer data space and better data protection, comes with a performance penalty due to the overhead associated with parity calculations during write operations. Use Archie to determine if the performance penalty on write-intensive operations is acceptable for your customer.**
- Memory – The Teradata nodes of the 2800 have options for 128GB*, 256GB, or 512GB of DDR4 memory; 512GB is the default in WOT. The DDR4 memory is faster with lower latency (2133 MHz). The 2750 was originally released with 128GB and 256GB memory options, with the later addition of 512GB, all with DDR3 DIMMs.
  - 16GB DIMMs for 128GB* of memory per node are RDIMM; 32GB DIMMs for 256GB and 512GB memory per node are LRDIMM
    - *Note: **The 128GB option is available to GSS only**. The recommended minimum for TIM (and the design center) is 256GB of memory per node. Upgrades to larger memory requires **ALL DIMMs to be replaced**.
  - Larger memory better supports options such as Teradata Intelligent Memory (TIM), Java SPs or SAS on the nodes where more memory is consumed
  - All memory appears as a line item on the quote (previous products included a base amount of memory).
- 2nd 2800 System – The Base / System cabinets can accommodate a 2nd separate system (either a 2-node system or a 4-node system) for production use, to use as a Test and/or development system.
  - **Factory or Field installation**
    - **If Field install, can be shipped in crates or transport cabinet**
  - Note: Due to country-specific laws and regulations, the 2800 2nd System option is not available for sale to India.
- 680 SMP - The Base / System cabinets can accommodate one (1) or two (2) 680 SMPs. The single node 680 **replaces the single node Test / Dev Unit offered previously with the 2700 and 2750.**
  - Note: Due to country-specific laws and regulations, the 680 SMP is not available for sale to India.
  - **Factory or Field installation**
    - **If Field install, can be shipped in crates or transport cabinet**
  - **This applies to the 680 only;** previous versions of the 6XX SMP cannot be installed in the 2800 cabinet.
  - There is **no** single-node option in the 2800 9190 product class; **use the 680 instead.**
  - The single node Test / Dev units offered previously with the 2700 and 2750 may **not** be installed in the 2800 cabinet.

- Interconnect – BYNET V5 only (1Gb in Expansion cabinets for **co-residence only**)

1.3 Options Requiring Approval / Review

There is only one option that requires Pricing and PM approval:

1. **900GB Drives**
    a. 900GB Drives require **PM and Pricing approval**
    b. PIDs are available to GSS only
    c. Ensure Account Team and Customer (project lead and end user) understand the limitations that occur when using large drives (see 900GB Drives: Product Positioning Section for details)
2. **1.2TB Drives (RAID1)**
    a. 1.2TB Drives used in RAID1 configurations require **PM and Pricing approval**
    b. PIDs are available to GSS only
    c. Ensure Account Team and Customer (project lead and end user) understand the limitations that occur when using large drives (see 900GB Drives: Product Positioning Section for details)

    Note: 1.2TB drive **RAID6** systems do **not** require this approval.

1.4 Documentation for Previous Versions

The OCIs for the previous version of a 2000 Series product still reside in the Teradata Knowledge Asses Repository, which may be searched via the following link:
http://teradatanet.teradata.com/group/10943/assetrepository

2750 OCI (Asset ID: KA68437): https://www.my.teradata.com/redir.html?assetID=KA68437
2700 OCI (Asset ID: KA66094): https://www.my.teradata.com/redir.html?assetID=KA66094
2690 OCI (Asset ID: KA63854): https://www.my.teradata.com/redir.html?assetID=KA63854
2650 OCI (Asset ID: KA61091): https://www.my.teradata.com/redir.html?assetID=KA61091
2580 OCI (Asset ID: KA71987): https://www.my.teradata.com/redir.html?assetID=KA71987

Hardware platform documents created by Information Engineering (current and previous platforms) are available via the IE website:
http://infocentral.daytonoh.teradata.com/tsd-library/iplatform.cfm

Discontinuation notices are posted here: https://connections.teradata.com/docs/DOC-25174

1.5 Multisystem Support

On February 8, 2016, Teradata introduced multisystem factory installation, which is the ability to have multiple systems installed into a cabinet in the factory. This new methodology will allow account teams to order multiple systems, for example 2800 with 680, and have them factory installed into a single cabinet with unique site ids. Previously, installation of multiple systems was Field install only and was performed by CS at the customer site or via engineering deviation to install in the factory.

For the 2800, this means you will be able to order a 2nd 2800 and have it factory installed into either: a 2800 System Cabinet, Aster 5 System Cabinet, Hadoop 5 System Cabinet or the UDA Appliance. WOT will be able to determine spacing and layout of the participating cabinets.

In order to achieve this important enhancement, a new methodology was implemented for ordering. This approach requires multiple runs through WOT for a single quote, first starting with the main product and cabinet. New Factory Integration product ids have been established to tell the factory that other products and R730 TMS's will be installed into a particular cabinet. Additionally new product PIDs were created that indicate that the product will be installed into a different product cabinet. (Such as a 680 system being installed into a 2800 System / Base cabinet). WOT has been updated to allow users to indicate a which products will be factory installed into a cabinet and to allow users to indicated if other systems will be Field or Factory installed.

The 2800 will benefit from this new approach as it gives the account team more options for building a Base / System cabinet in the factory and reducing the complexity / costs of shipping other products separately as field install. Remember this methodology only applies products certified to be installed into the 2800 System / Base cabinet: the 2nd 2800 Clique, the 680 SMP systems, non-TPA nodes, and the R730 TMS's; the methodology does not to the primary 2800 cliques built as bundles with the cabinet.

More details about this new approach outlined below:

The first part of the new schema is the implementation of "**Factory Integration**" product ids. These new product ids indicate to the factory to install a server / system into a different product cabinet (such as the 2800 Base / System cabinet). Every server has a series of factory integration PIDs for the cabinet classes in which they are certified to be installed into. For example, the 680 is permitted to be installed into several different cabinets such as the 9212 (9212-F843) and 2800 (9190-F843). When configuring a cabinet, you would include the factory integration PIDs for the 680 you wish to have installed into that cabinet along with the primary system. This is done in WOT using the new "Factory Integration –Teradata Systems" panel, in the Teradata 2800 Appliance WOT model in the case of installing the 680 into the 2800 base cabinet.

The next part of this schema is the creation of a new set of product ids for the products that will be installed into another product cabinet. These new product ids use "N", "S", and "T" indicators in their product id structure to indicate how the factory treats them, the "E" indicator will continue for orders requiring the use of a transport cabinet and field install. These indicators are defined as follows:

- "S-PIDs" indicate **factory install with a unique site id**, meaning that the product will be installed into a cabinet with a unique site id assigned. The 2nd 2800 or 680 requires a unique site id for services requirements.
- "T-PIDs" indicate **field installation** into a cabinet at the customer site. This tells the factory to prepare the server **for shipment in a crate/box**. The 2nd 2800 and 680 will utilize this indicator.

- "E-PIDs" indicate **field install in Transport Cabinet**. This is the method used when the 2nd 2800 was originally release and will continue to be available. Note, that when using this choice, the user still must configure and order the Transport cabinet as outlined later in this OCI.
- "N-PIDs" indicate that the product will be **factory installed** into a cabinet and no separate site id is required. These PIDs are used for servers such as non-TPA nodes (such as Channel nodes) and R730 TMS servers.

The user will perform another run through WOT to generate these PIDs for the additional products to be factory installed into the 2800 Base / System cabinet. For example for a 680 system, use that 680 WOT model and on the "Main System" panel, for the "Shipment Type" drop down, select the "Factory Integration" option to generate the appropriate "S" PID for the 680 system, indicating that it will be factory installed into the 2800 cabinet.

The third change pertains to how the R730 Teradata Multipurpose Servers (formerly Teradata Managed Servers) are added to the cabinet. The TMSs are also updated to utilize the new multisystem structure to reduce the product id complexity of this product. All R730 TMSs will now be configured under the 9288 class (using another run through WOT) and factory integration PIDs will be used to configure these TMSs into a cabinet. See the 9228 Multipurpose Server/9212 PFC OCI (Asset ID: KA74493) for more information about the TMS's.

2.0 Node and Cabinets

The 2800 hardware is built by bundled cliques, meaning that the bundled clique includes all of the hardware and software components for that clique. Full 4-node full clique are standard; 2-node cliques are available for systems that are only 2 nodes, or where 2 additional nodes are needed to meet the required number of recommended nodes.

The new 1U 2800 node uses the Intel Grantley server platform, which has two (2) Haswell 2.6 GHz 14-core processors. This provides a ~1.25x performance improvement over prior generation technology. There are 2 adapter slots (used by the BYNET and SAS adapters) capable of running at full x16 speeds. While the processor board has 24 memory DIMM slots, only 16 slots are populated to allow memory to run at full memory speeds. Nodes may be configured with 128GB* of memory using 16GB DIMMs. The options for 256GB of memory or 512GB of memory use 32GB DIMMs. The new processor integrates the I/O functions of the I/O module found on prior generation processor boards.

*Note: **The 128GB option is available to GSS only**. The recommended minimum for TIM (and the design center) is 256GB of memory per node. Upgrades to larger memory requires **ALL DIMMs to be replaced.**

2.1 42U Cabinet

The 2800 utilizes the 42U rack design. With the increased space, the Base/System cabinet has been certified to house a number of components in addition to the standard cliques, including:

- A variety of TMS
- Channel nodes
- ECS
- NCS
- BAR options
- 2nd Production System (2-node or 4-node)

Because of the availability of the 9212 cabinet, and to limit complexity, these items are only allowed in the first cabinet of the 2800 (Base / System cabinet) in the WOT model, and not the Expansion cabinets. The various TMS and Channel Solution nodes may also reside in the 9212 Platform Framework Cabinet (PFC).

The 2800 cabinet supports 2800 cliques, comprised of nodes and storage, for the 2800 (9190) product class. Teradata nodes from other product classes, including previous 2000 Series Appliance nodes (2500, 2550, 2555, 2580, 2650, 2690, 2700, or 2750) cannot be placed in the 2800 (9190) product class cabinet. Similarly, the 2800 cliques:

- **cannot** be placed in the cabinet of a different Teradata product class (EDW, Aster, 1000 Series Appliance, etc.)
- **cannot** be placed in a customer-owned cabinet

*Note: Due to country-specific laws and regulations, the 2800 2n System option and the 680 are **not available for sale to India.***

2.1.1 Teradata Branded Cabinets / Cabinet "Skins"

This program is led through Teradata Product Marketing. Information on Teradata-branded cabinets is available on InfoHub for the Platform Family in the "Demand Creation" section: https://connections.teradata.com/docs/DOC-24917

See the section titled "Branded Cabinet Side Panels for Teradata Platforms" has information on the process, instructions, and the.jpg files that are suitable for printing at any print shop capable of printing wide-bed vinyl. This allows customers to customize Teradata cabinets in the family colors: orange for the Active EDW, teal for the Data Warehouse Appliance. Side panels should be printed at a size of 45" x 78".

2.2 2800 Clique Configuration

The 2800 can scale from a 2-node half clique comprised of two (2) nodes and two (2) drive trays, to the following:

- Nine (9) full cliques (36 nodes)

The external switch cabinets of the 9107 Class may be used to support systems that exceed the capacity of the in-rack switch pairs:

- Twenty-seven (27) full cliques using BYNET V5 108-port switch (108 nodes)
- Eighty-one (81) full cliques using BYNET V5 324-port switch (324 nodes)
- One-hundred and sixty-two (162) full cliques using BYNET V5 648-port switch (648 nodes)

Note: Channel nodes and/or other nodes on BYNET or requiring integration with the BYNET V5 switch pair will decrement the total TPA nodes.

A 2-node half clique consists of two (2) Teradata nodes that are connected to two (2) disk drive trays (one array). The first drive tray of each enclosure features the Gallium-LX dual controller and the second drive tray is integrated via the ESM. Each drive tray has forty (40) 2.5" SAS active disks; each array has 2 global hot spare drives.

A full clique consists of four (4) Teradata nodes that are connected to four (4) disk drive trays (two arrays). The first drive tray of each enclosure features the Gallium-LX dual controller and the second drive tray is integrated via the ESM. Disk protection is via RAID1 or RAID6 mirroring based on drive size selected; drive sizes offered are:

- 300GB 10K (RAID1 only)
- 600GB 10K (RAID1 only)
- 900GB 10K (RAID1 only; requires Pricing / PM approval)
- 1.2TB 10K (RAID1 or RAID**6**)
    a. RAID**6** requires Teradata Database 15.0 or greater
    b. RAID1 requires Pricing / PM approval

2.2.1 2800 RAID 1 Drive Configuration

For the full RAID1 4-node clique, each drive tray is fully populated with forty (40) 2.5" SAS disks and 2 global hot spares per array (1 per drive tray).

A full Base / System RAID1 cabinet provides a total of 480 Drives (active) and 12 Global Hot Spare drives.

2.2.2 2800 RAID 6 Drive Configuration

For the full RAID6 4-node clique, each drive tray is fully populated with forty-five (45) 2.5" SAS disks and 2 global hot spares per array. The only drive size available for RAID6 is the 1.2TB drive. RAID6 requires Teradata Database 15.0 or greater.

A full Base / System RAID6 cabinet provides a total of 540 Drives (active) and 12 Global Hot Spare drives.

It is important to note that RAID6, while offering more customer data space and better data protection, comes with a performance penalty due to the overhead associated with parity calculations during write operations. Use Archie to determine if the performance penalty on write-intensive operations is acceptable for your customer.

2.3 2800 Database and OS

All 2800 systems are pre-configured with SuSE Linux and the Teradata database. The minimum Teradata Database option for the 2800 is TD DBS 14.10 (WOT will always default to the latest certified and released version of the Teradata Database and TTU). The **only** option available for the 2800 is SuSE Linux OS is SLES 11. Earlier operating systems and database versions **are not supported**.

From a feature-set perspective, the Teradata Database version used on the 2000 Series Appliance is the Teradata Base Edition (specific Appliance PIDs are created by Database Product Management).

NOTE: At time of initial release, the minimum required Teradata database versions for the 2800 is TD14.10, largely due to the IPPZLib software compression library / algorithms, which is used for data compression. The 2800 uses 1U nodes, which have motherboards that do not accommodate the Compression Engine Adapters used in 2750, 2700, and 2690.

Later versions of the Teradata DBS are also offered, including 15.0 and 15.10. Over the product lifecycle, please refer to the following Knowledge article which contains the Platform Compatibility Matrix for the latest minimum database and OS requirements and all certified database and OS versions for the product.

2.4 Node Interconnect (BYNET)

The 2800 utilizes Teradata's leading-class BYNET interconnect software to provide parallelism and scalability. BYNET V5 (InfiniBand) is the node interconnect on the 2800. The 1Gb BYNET over Ethernet offered in the 2000 Series previously is not available for the 2800. Expansion cabinets (which do not include switch pairs) can be configured with 1Gb BYNET for the purpose of **co-residence only.**

The focus on BYNET V5 simplifies the configuration, acknowledges the continued use of the 2000 Series Appliance as an IDW, and facilitates the expanding requirements of the Teradata UDA.

The BYNET V5 interconnect (BYNET over InfiniBand) provides a linear scalable bandwidth of 16,600MB/s/Node, full duplex, two ports. This is nearly a 10x increase over BYNET V4, the performance interconnect offered with the 2690. This also offers an improvement over the 2750, which has a linear scalable bandwidth of 10,000MB/s/Node. The fabric also provides a 2.8X reduction in small message out of band latency. BYNET V5 supports a 36-port dual 1U switch in the Base / System cabinet; systems larger than 36 nodes may use the appropriate switch option in

the 9107 Class (available in 18-port connector blade increments). The increased fabric bandwidth provides customers with **future** options for servers running directly connected to the fabric rather than direct attached through Ethernet to nodes. Several BAR servers are certified for InfiniBand as well as some Load servers; future offerings are planned. Check the **TMS OCI for status** and details or contact the **respective TMS PMs.**

Product ID	Description
2800 Appliance (Switch - BYNET V5)	
9190-F502	Network Switch BYNET V5, 36-port, IB (2 Switches)

Because BYNET V5 systems with greater than 36 nodes have dedicated BYNET switch cabinets, the dedicated BYNET switch pair used in BYNET configurations is **removed** from BYNET V5 quotes. The 36-port BYNET V5 switch provides redundant hot-swap power and cooling.

Note: Use the 9107 OCI and PIDs to create dedicated BYNET V5 switch cabinets.

2.5 2800 Configurations

The Cabinet configuration of the 2800 is determined primarily by the type of power required by the customer (and that can be supported by the data center where the system will be installed). Power options include one low power option and three high power options; all options offer bottom and top egress. The power options available include:

- 30A Single or Phase-Phase (Low) Type A
- 30A 3-Phase DELTA (High) Type B
- 60A 3-Phase DELTA (High) Type C
- 30A/32A 3-Phase WYE 230V L-N (High) Type D

With the low power option, there are some configurations where the new 42U Cabinet cannot be completely filled due to EMI / Safety constraints. As a result, **the WOT model restricts filling the cabinet completely**. If this option is required, please be advised that in many cases, you will not be able to fill the entire cabinet; customer expectations should be set to ensure they are aware that empty U space will **always** be required in the cabinet. Similarly, any future in-field product installations must also consider the power selected, as expansion may not be possible. For details on the Power and Cooling requirement changes based on the new, larger cabinet, the new door, and the corresponding power options, see section 2.20 Power and Cooling Considerations.

Additional items that determine the Cabinet design include:

- Base / System Cabinet or Expansion Cabinet
- TMS / Channel Solutions
- Factory Integration for Factory Install or Space Reservation for Planned Field Installations of:
  - 2nd 2800 System
  - 680 SMP
    - 1 or 2 SMPs
  - BAR Options (with vendor Space Reservation PIDs)
    - i80 Tape Library options with / without Key Management
    - DD4200 Disk Library options
- System size requirements (either as purchased initially or the planned growth)

The 2800 Base / System cabinet supports factory or field-installable options including.

- 2nd 2800 System*
  - 2-node or 4-node 2nd 2800 system
- 680 SMP*
  - 1 or 2 SMPs
- BAR Options (with vendor Space Reservation PIDs)
  - i80 Tape Library options with / without Key Management **–OR-**
  - DD4200 Disk Library options

Note: Due to country-specific laws and regulations, the 2800 2nd System option and the 680 are **not available for sale to India.*

The BAR options are mutually exclusive, where a 2800 Base / System cabinet can be configured with either an i80 configuration **or** a Data Domain 4200 option. The Teradata products – the 2nd 2800 and the 680 – can be sold in conjunction with one another or as individual field-installable components sold with the 2800 Base / System cabinet. Limitations are based on power type and space available. See the Teradata Multi-Systems section 2.6 Cabinet Configurations.

The Expansion cabinet, which is offered with the same power and clique options, does not include the BYNET switches or the KMM.

2.5.1 2800 Systems

The following PIDs are for Base and Expansion cabinets using **BYNET V5**, as well as the Bundle PID for the BYNET V5 Infrastructure. The BYNET V5 Bundle PID is only applied when the system is configured with the 36-port BYNET V5 switch pair; this fee is waived when the large BYNET switches are used.

Product ID	Description – 2800
BYNET V5	
9190-2000-8090	2800 Base Cabinet, BYNET V5
9190-2010-8090	2800 Expansion Cabinet, BYNET V5
BYNET V5 Infrastructure	
9190-F926	Teradata Data Warehouse 2800 BYNET V5 Bundle, per 2 nodes

The following PID is for Expansion cabinets using **1Gb BYNET** over Ethernet (used in **co-residence solutions only** with 27xx 1Gb BYNET systems):

Product ID	Description – 2800
1Gb BYNET Over Ethernet (Expansion Cabinet for Co-residence ONLY)	
9190-1010-8090	Teradata DW Appliance 2800 AC, Expansion, 0 TB's enabled

Base cabinets using **BYNET V5** use the following BYNET switch pair (InfiniBand):

Product ID	Description	Notes
Switches (InfiniBand)		
9190-F502	Network Switch-BYNET V5 (pair) 36-port	If system has more than 36 nodes, BYNET V5 switch cabinets and large switch options from the 9107 Class will be mapped.

Additional components include the following, dependent upon Base or Expansion and the system size.

Product ID	Description	Notes
Additional Components		
9190-F073 OR* 9190-F083	KMM, Console, 18.5" LCD w/Rails	- Automatically mapped by WOT for Base / System Cabinet - *Note: During the 2800 product lifecycle, a new version (functionally identical) was released for a cost reduction (9190-F083). Release scheduled for Q3FY'15.
9190-F302	System VMS (Intel R1000 – 1U)	Automatically mapped by WOT
9190-F300	Cabinet VMS (Intel R1000 – 1U)	- Automatically mapped by WOT for Expansion cabinets. - For large systems, WOT will add fewer Cabinet VMS, as one per cabinet is not required.

These components, as well as the Hardware / Software Bundle, Storage Drives, GHS Drives, and storage arrays are automatically added by WOT based on selections, with WOT calculating appropriate quantities depending upon the number of Teradata nodes (and Channel Solutions) selected. Drive size selection determines RAID configured (RAID1 or RAID6).

Product ID	Description – 2800 ACTIVE Drives	Quantity (per 2-node
9190-F410	300GB 2.5" SAS HDD	80
9190-F412	600GB 2.5" SAS HDD	80
9190-F413	900GB 2.5" SAS HDD	80
9190-F414	1.2TB 2.5" SAS HDD	**80** – RAID**1** **90** – RAID**6**
Product ID	**Description – 2800 Global Hot Spare Drives**	**Quantity**
9190-F415	300GB 2.5" SAS HDD	2 per node
9190-F417	600GB 2.5" SAS HDD	2 per node
9190-F418	900GB 2.5" SAS HDD	2 per node
9190-F419	1.2TB 2.5" SAS HDD *RAID1*	2 per node
9190-F419	1.2TB 2.5" SAS HDD *RAID6*	2 per node

Product ID	Description – 2800 Hardware / Software Bundle	Quantity
RAID 1		
9190-F920	Teradata Data Warehouse 2800 Half-To-Full Clique RAID1 HW/SW Bundle	1
9190-F921	Teradata Data Warehouse 2800 Half Clique RAID1 HW/SW Bundle	1
9190-F922	Teradata Data Warehouse 2800 Clique RAID1 HW/SW Bundle	1
RAID 6		
9190-F923	Teradata Data Warehouse 2800 Half-To-Full Clique RAID6 HW/SW Bundle	1
9190-F924	Teradata Data Warehouse 2800 Half Clique RAID6 HW/SW Bundle	1
9190-F925	Teradata Data Warehouse 2800 Clique RAID6 HW/SW Bundle	1

2.5.2 2800 2nd System

A 2nd 2800 system – either a 2-node or 4-node system may be factory or field-installed into a 2800 Production system cabinet, Aster 5 cabinet, Hadoop 5 cabinet, or UDA Appliance. The 2nd 2800 System has its own WOT catalog that can configure either a factory install or field install set of PIDs.

A 2nd 2800 System is priced with the same pricing structure as the standard 2800 2-node and 4-node cliques and is configured in a similar method.

It offers the same drive size options based on the RAID option selected:

- 300GB 10K (RAID1 only)
- 600GB 10K (RAID1 only)
- 900GB 10K (RAID1 only; requires Pricing approval)
- 1.2TB 10K (RAID1 or RAID6; RAID 1 requires Pricing approval)
    a. RAID6 requires Teradata Database 15.0 or greater
    b. RAID1 requires Pricing / PM approval

The Hardware / Software Bundle, Storage Drives, GHS Drives, and storage arrays are automatically added by WOT based on selections, with WOT calculating appropriate quantities depending upon the number of Teradata nodes (and Channel Solutions) selected. Drive size selection determines RAID configured (RAID1 or RAID6).

Product ID	Description – 2800 ACTIVE Drives	Quantity (per 2-node
9190-F410	300GB 2.5” SAS HDD	80
9190-F412	600GB 2.5” SAS HDD	80
9190-F413	900GB 2.5” SAS HDD	80
9190-F414	1.2TB 2.5” SAS HDD	**80 RAID1** **90 RAID6**
Product ID	**Description – 2800 Global Hot Spare Drives**	**Quantity**
9190-F415	300GB 2.5” SAS HDD	2 per node
9190-F417	600GB 2.5” SAS HDD	2 per node
9190-F418	900GB 2.5” SAS HDD	2 per node
9190-F419	1.2TB 2.5” SAS HDD	2 per node

Product ID	Description – 2800 Hardware / Software Bundle	Quantity
RAID 1 (300GB, 600GB) (900GB and 1.2TB: *approval required*)		
9190-F920	Teradata Data Warehouse 2800 Half-To-Full Clique RAID1 HW/SW Bundle	1
9190-F921	Teradata Data Warehouse 2800 Half Clique RAID1 HW/SW Bundle	1
9190-F922	Teradata Data Warehouse 2800 Clique RAID1 HW/SW Bundle	1
RAID 6 (1.2TB Drives)		
9190-F923	Teradata Data Warehouse 2800 Half-To-Full Clique RAID6 HW/SW Bundle	1
9190-F924	Teradata Data Warehouse 2800 Half Clique RAID6 HW/SW Bundle	1
9190-F925	Teradata Data Warehouse 2800 Clique RAID6 HW/SW Bundle	1

The IO Module choices are the same as those used in the 2800 production system; they are added based on end user selection in WOT.

Here are some important considerations:

1. The 2nd 2800 System requires a separate Site ID.
2. The 2nd 2800 may ***only*** be placed in the first cabinet (Base / System cabinet) – **not in Expansion cabinets.**
3. The 2nd 2800 may ***only*** be placed in the first (Base / System cabinet) of the Aster 5 Cabinet.
4. The 2nd 2800 may ***only*** be placed in the first (Base / System cabinet) of the Hadoop 5 Cabinet.
5. The inclusion of a 2nd 2800 system ***requires*** a Viewpoint server in the customer's environment (either in the 2800 cabinet or accessible in another cabinet); ensure the customer has this product. The Viewpoint VMS only supports 1 system.
6. *Due to country-specific laws and regulations, the 2800 2n System option and the 680 are **not available for sale to India.***
7. Channel nodes cannot be shared between two different systems, therefore, if Channel Nodes are needed for discrete systems in the 2800 Base / System cabinet (e.g. the 2nd 2800 System and the 1st production 2800 system in the Base / System Cabinet), individual channel nodes must be ordered.

2.5.2.1 Factory Install

The 2nd 2800 System may now be factory installed into the 2800, the Aster 5, the Hadoop 5 or the UDA Appliance – in all cases, this 2nd 2800 system is only allowed in the Base / System cabinet for those platforms. Space reservation in these cabinets is done through "Factory Integration Product IDs" which not only reserve the space but also indicate to the factory to install the 2nd 2800 System. Two passes through WOT is required, the first to configure the cabinet and reserve space, and a second to configure the 2nd 2800 System which will use "S-PIDs." The combination of the factory installation PID and the "S-PID" will allow the factory to perform a multisystem installation. The "S-PID" is automatically included when the user selects "Factory Install" for the "Shipment Type" drop down in the Main System panel for the 2nd 2800 WOT model.

The Product IDs for factory install and the related Factory Integration Product IDs are:

Product ID	Description – 2800 2nd Production System	Quantity
Factory Install		
9190-S841-8090	Teradata 2800 Second System 4+0, BYNET V5	1
9190-S842-8090	Teradata 2800 Second System 2+0, BYNET V5	1
Notes: Disk drive selections, IO modules, and other node and array options will be feature strung to these units.		
Factory Integration (generated by the respective WOT models: 2800, Aster, Hadoop)		
2800 System Cabinet		
9190-F841	Factory Integration, 6U 2800 2+0	1
9190-F842	Factory Integration, 12U 2800 4+0	1
Aster 5 Cabinet		
9232-F841	Factory Integration, 6U 2800 2+0	1
9232-F842	Factory Integration, 12U 2800 4+0	1
Hadoop 5 Cabinet		
9233-F841	Factory Integration, 6U 2800 2+0	1
9233-F842	Factory Integration, 12U 2800 4+0	1

The UDA Appliance is built by using an Aster 5 or Hadoop 5 cabinet. Additional information can be found in the following OCIs:

Aster 5: https://www.my.teradata.com/redir.html?assetID=KA73836

UDA Appliance: https://www.my.teradata.com/redir.html?assetID=KA73835

2.5.2.2 Field Install

The 2nd 2800 system may be field installed into the 2800 Production System Cabinet, Aster 5 Cabinet, Hadoop 5 Cabinet or UDA Appliance. There are two methods of shipping a 2nd 2800 to the customer site; via crates/boxes or the Transport Cabinet. In WOT the user selects the choice in the "Shipment Type" dropdown in the "Main System" panel. When doing a field install, it is the responsibility of the Sales Team to verify a 2nd 2800 system can be field installed into the designated cabinet by checking that the required U space is available.

Via Crates/Boxes

Shipment via Crates/Boxes is a new option that was released in February 2016. It allows an account team to order a 2nd 2800 System and have it shipped to the customer site without the use of the Transport Cabinet. The advantage of this method is lower cost of shipment and the elimination of the need to return a cabinet.

Product ID	Description – 2800 2nd Production System	Quantity	
		2 Node	4 Node
9190-T001-8090	Teradata, 2800 Database Node, Intel (R1) R1208WT, Grantley	2	4
9190-T010-8090	Teradata, RBOD (DBB Ultra), Disk Drive Enclosure, Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	1	2
9190-T011-8090	Teradata, EBOD (DBB Ultra), Disk Drive Enclosure, Expansion (48) 2-1/2 HDD	1	2

As noted, for this option there are three unit Product IDs that are generated. The reason for this is that we must package the node and each array separately in order to ensure safe delivery. Each package, or crate/box, requires a unit Product ID in order to create the proper export paperwork. As a result, we must align the features according to their use, i.e. node features under the node (9190-T001-8090) and array under (9190-T010-8090 and 9190-T011-8090).

The following tables outline the alignments:

Aligns to the Node (9190-T001-8090)	Memory Internal Drives Adapters I/O Modules Encryption (Servers) Hardware/Software Appliance Bundles Cable Assemblies Node Installation
Aligns to the Array Controller (9190-T010-8090)	Disk Drives Global Hot Spares Encryption (Arrays) Drive Enclosures Drive Installation
Aligns to the Array – Expansion (9190-T011-8090)	Disk Drives Global Hot Spares Drive Enclosures Drive Installation

Here is an example:

Customer orders 2+0 2800 second system and wants to have it installed at the field into an existing 2800 Cabinet. The output for the hardware would look like this:

9190-T001-8090	Teradata, 2800 Database Node, Intel (R1) R1208WT, Grantley	1
9190-F205	Module, Quad Port I/O Controller, 1GBE	1
9190-F282	Memory - 128GB, DDR4, (4 X 32GB LRDIMM)	4
9190-F599	Cable Assy, InfiniBand - QSFP+ Copper Cable Assembly, 2.0-meter	2
9190-F926	2800 Data Warehouse BYNET V5 HW/SW Bundle per 2 nodes	1
9190-F941	1 - Node Install Feature	1
9190-F943	Clique Expansion Install feature	1
9190-T001-8090	Teradata, 2800 Database Node, Intel (R1) R1208WT, Grantley	1
9190-F205	Module, Quad Port I/O Controller, 1GBE	1
9190-F282	Memory - 128GB, DDR4, (4 X 32GB LRDIMM)	4
9190-F599	Cable Assy, InfiniBand - QSFP+ Copper Cable Assembly, 2.0-meter	2
9190-F941	1 - Node Install Feature	1
9190-T010-8090	Teradata, RBOD (DBB Ultra), Disk Drive Enclosure, Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	1
9190-F412	HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	40
9190-F417	GHS-HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	1
9190-F490	Blank Filler, Black, 2.5" Hard Drive, Disk Drive Enclosure - Dot Hill	7
9190-F942	1 - Disk Drive Enclosure Install Feature w/SED HDD Capability	1
9190-T011-8090	Teradata, EBOD (DBB Ultra), Disk Drive Enclosure, Expansion (48) 2-1/2 HDD	1
9190-F412	HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	40
9190-F417	GHS-HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	1
9190-F490	Blank Filler, Black, 2.5" Hard Drive, Disk Drive Enclosure - Dot Hill	7
9190-F942	1 - Disk Drive Enclosure Install Feature w/SED HDD Capability	1
9190-K982	Kit, 2800 Data Space Activation, 1.0TB with 600GB Drives	15
9190-K983	Kit, 2800 Data Space Activation, 0.1TB with 600GB Drives	2
Software…….		

Notes:

1. The Data Warehouse BYNET V5 HW/SW bundle PID and the Clique Expansion Install Feature align to the first node.
2. The disks for the disk array are spread evenly between the two array T PIDs.

Via Transport Cabinets

Shipping field install via the Transport Cabinet will still continue to be an option. This option ships the 2nd 2800 in a Transport Cabinet to the customer site where it can reside temporarily. Once the 2nd 2800 is installed into its permanent host cabinet, the transport cabinet would be returned. The following Product IDs are used to build a 2nd 2800 System for field installation via Transport Cabinets:

Product ID	Description – 2800 2nd Production System	Quantity
Field Install – Ship via Transport Cabinet		
9190-E101-8090	Teradata 2800 Second System 4+0, BYNET V5	1
9190-E103-8090	Teradata 2800 Second System 2+0, BYNET V5	1

Features, kits and software would align to the chosen unit per normal ordering procedures. For information on the Transport Cabinet, see section Expansions and Loaner Cabinets.

2.5.3 Hosting a 680 SMP

The 680 SMP, either one or two, may be hosted in the 2800 Production Base/System cabinet. As with the 2nd 2800 System, the 680 may now be factory or field installed into a 2800 Production System cabinet.

Information on the 680 SMP is available in the 680 Data Mart Appliance OCI, Knowledge Asset KA71493. The 680 SMP has a dedicated Product Manager, for assistance, questions and support; please contact the GSS Help Desk.

Important Notes:

1. The 680 SMP requires a separate Site ID.
2. The 680 may ***only*** be placed in the first cabinet (Base / System cabinet) – **not in Expansion cabinets.**
3. The inclusion of a 680 SMP ***requires*** aViewpoint server in the customer's environment (either in the 2800 cabinet or accessible in another cabinet); ensure the customer has this product. The Viewpoint VMS only supports 1 system
4. *Due to country-specific laws and regulations, the 680 are* ***not available for sale to India.***
5. Channel nodes cannot be shared between two different systems, therefore, if Channel Nodes are needed for discrete systems in the 2800 Base / System cabinet (e.g. the 680 SMP and the 2800 system in the Base / System Cabinet), individual channel nodes must be ordered.
6. The 680 SMP has its own WOT catalog which is used to configure a 680.
7. If the 680 is to be factory installed into the 2800 Base/System Cabinet, you must include Product ID 9190-F843 Factory Integration, 3U SMP, quantity one per 680, with the 2800 Base/System Cabinet. This Product ID is generate by selecting the 680 SMP in the "Factory Integration – Teradata Systems" panel in the 2800 Appliance WOT model.
8. Factory Installed 680s must be on the same WOT quote as the host 2800 Cabinet.
9. When planning a field install, it is the responsibility of the Sales Team to ensure the 680 system(s) can be field installed in the 2800 Base / System Cabinet; ensure the required U space is available.
10. If the 680 is to be field installed into the 2800 Base/System Cabinet at a future date, it is recommended that you reserve the space during WOT modeling by using the "Reserve Space for Multiple Site IDs" wizard.

2.5.4 i80 Tape Library

Notes on the i80 Tape Library

- The i80 has a product manager; questions should be directed to i80 Tape Library Product Management (and not to the 2000 Series Hardware Platform PM).
  - For the latest info on i80 Tape Library options, please refer to the OCI, which is Knowledge Asset KA66694
- **All questions should be submitted to GSS via a GSS Help Desk Ticket. To determine the appropriate PM, go to InfoHub** (https://connections.teradata.com/community/infohub) and navigate to the appropriate product InfoHub site.

There is a separate catalog to create i80 Tape Library configurations for field installation in the 2800. The i80 must be placed in the first cabinet (Base / System Cabinet). The "Reserve Space for Multiple Site IDs" allows the end user to reserve space for this item for WOT modeling.

Since the i80 is field-install only, it is shipped in the Transport / Loaner Cabinet, and follows the same process as the shipment of the In-field Clique Expansion in the Transport / Loaner Cabinet. The i80 will appear its own Product Grouping, and a Transport cabinet (billed to the account team) is also required. **The PIDs for the i80 must be placed in a separate product grouping on the same quote. The Transport Cabinet is placed on a separate quote, as it is billed to the Account Team and not the Customer.** For additional information on the Transport Cabinet process, see the section titled "2.14.3 Create Transport / Loaner Cabinet Quote."

Space reservation PIDs must be added to the quote for the **2800 System (not the quote for the i80)**; PIDs and quantity are determined by the number of i80 Tape Libraries being added (either 1 or 2) and/or the selection of the Scalar Key Management server. The Scalar Key Management server is a 1U server that is sold as a pair (2 servers / 2U reserved) and also includes an Ethernet switch. This ensures that if one server fails, the second is available for key management.

Product ID	Description	Notes
9190-F498	Reserved 6U - Quantum i80 Tape Library	One required per i80 module (9215-8100-8090)
9190-F499	Reserved 3U - OKM /SKM Key /Safe Net Secure Key Management Server	One required per SKM pair (9215-4100-8090)
Note: Space reservation PIDs are used for non-Teradata products. Space reservation PIDs are used with partner / vendor products only; they allow the partner to track the need for a field-installation.		

The i80 catalog offers the following options:

- One (1) i80
- Two(2) i80's
- One (1) i80 with Scalar Key Management
  - Includes Scalar Key Management servers (dual for redundancy)
  - Ethernet Switch

2.5.5 Data Domain 4200

Notes on the Data Domain 4200 Disk Library

- The Data Domain 4200 has a product manager; questions should be directed to the DD4200 Product Management (and not to the 2000 Series Hardware Platform PM).
  - For the latest info on Data Domain 4200 options, please refer to the OCI, which is Knowledge Asset KA69756
  - **All questions should be submitted to GSS via a GSS Help Desk Ticket. To determine the appropriate PM, go to InfoHub** (https://connections.teradata.com/community/infohub) and navigate to the appropriate product InfoHub site.

Since the DD4200 is field-install only, it is shipped in the Transport / Loaner Cabinet, and follows the same process as the shipment of the In-field Clique Expansion in the Transport / Loaner Cabinet. The DD4200 will appear its own Product Grouping, and a Transport cabinet (billed to the account team) is also required. **The PIDs for the** DD4200 **must be placed in a separate product grouping on the same quote. The Transport Cabinet is placed on a separate quote, as it is billed to the Account Team and not the Customer.** For additional information on the Transport Cabinet process, see the section titled "2.14.3 Create Transport / Loaner Cabinet Quote."

There is a separate catalog to create a Data Domain Disk Library configuration for field installation in the 2800 System. The Data Domain 4200 must be placed in the first cabinet (Base / System Cabinet). The "Reserve Space for Multiple Site IDs" allows the end user to reserve space for this item for WOT modeling.

Space reservation PIDs must be added to the quote for the **2800 System**; PIDs and quantity are determined by the number of 4200 Data Domain Disk Library and Expansion Libraries being added.

Product ID	Description	Notes
9190-F495	Reserved 3U – Data Domain ES30 Expansion Shelf	
9190-F496	Reserved 4U - Data Domain DD4200	
Note: Space reservation PIDs are used for non-Teradata products. Space reservation PIDs are used with partner / vendor products only; they allow the partner to track the need for a field-installation.		

DD4200, the single "head unit" (aka controller) is 4U, and each disk shelf (aka ES30) is 3U. Therefore, the DD4200 with

- 1 disk shelf requires 7U
- 2 shelves requires 10U
- 3 shelves requires 13U
- 4 shelves requires 16U

One DD4200 unit with up to 3 disk shelves may be installed into a single 2800 Appliance cabinet. Both cabinets also offer 2U or reserved space for a single Teradata Managed BAR Server (TMSB).

Space for capacity expansion of the DD4200 is restricted and may require re-racking into a separate cabinet for future capacity upgrades**.** Therefore, if the Data Domain **solution has planned growth of more than 3 shelves per DD4200 controller, installing the DD4200(s) into a separate EMC DD40U or Teradata PFC cabinet is recommended (future growth would require re-racking)**.

Some general configuration design considerations include:

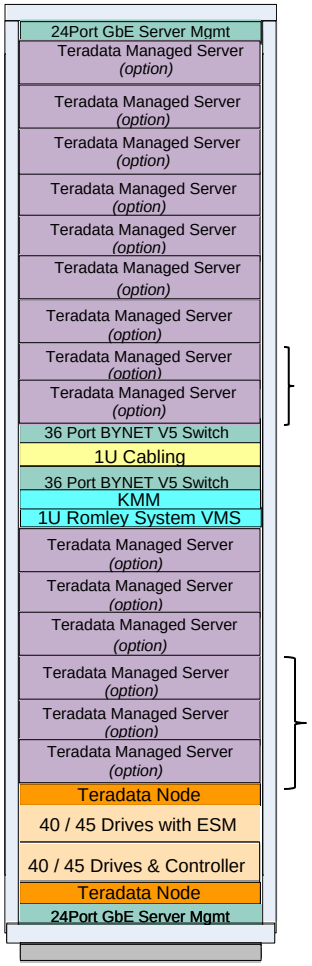
- **One DD4200 with up to 3 shelves may be installed into an Appliance cabinet**
  - Up to three disk shelves and one DD4200 Controller may be installed in a single 9218 rack
- **Data Domain DD4200 and Quantum i80 tape libraries may not be installed into the same Appliance cabinet**
- **Whenever more two or more DD4200 units are required, or more than three disk shelves are required, install into PFC or EMC DD40U rack**

When installing the DD4200 into an Appliance rack, different power cords are required for the controller and ES30 disk shelves – one cable is required for each controller and disk shelf. See the Data Domain OCI for details.

2.6 Cabinet Configurations

The following section is intended to provide some sample configurations of the 2800. It contains various cabinet configurations; note that not all combinations are represented here, yet they are available for configuration in WOT. The density allowed for a given configuration is dependent upon power selection. **The "30A Single or Phase-Phase (Low) Type A" power choice cannot support a fully burdened cabinet**; WOT will not allow servers to be installed that will exceed the limits set forth by Teradata Engineering.

2.6.1 One (1) 2-node Half Clique Configuration (System Cabinet)



The 2-node half clique configuration (2 nodes, 2 drive trays) offers the following:

Two 2800 Nodes each with the following every unit items:
- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

One (1) Disk Array per 2-node half clique with the following every unit items:
- One (1) drive tray with dual controllers including Write-Back Cache
- One (1) drive tray with dual ESMs
- **RAID-1:** Each drive tray is populated with 40 active drives and 1 GHS drive
  - 40 active DPN, 80 disks per half clique
  - 300GB, 600GB, 900GB, or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 90 disks per half clique
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:
- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

Virtualized Management Server (VMS) Management Chassis (1U)
- System VMS in first cabinet combines server management and single-system Viewpoint

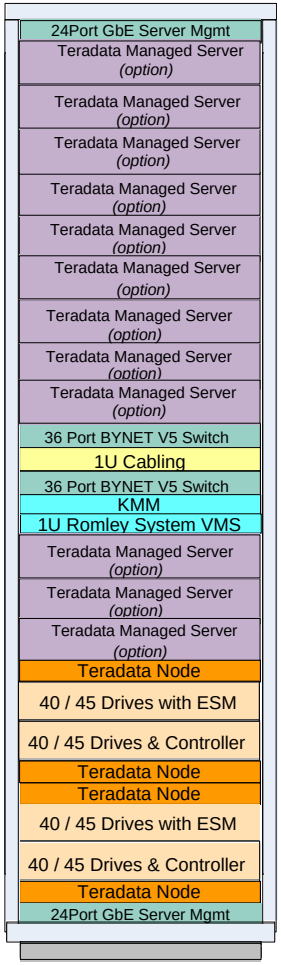
Power Components including the following:
- 0U PDUs for power
- Low power option requires U space noted with bracket } to be left blank

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options (dependent upon power selection):
- up to fifteen (15) optional Teradata Managed Servers / Channel Solution nodes OR
- one (1) 2800 2nd Production System (2 or 4 nodes, field install only) and up to nine (9) optional Teradata Managed Servers / Channel Solution nodes OR
- i80 Tape Library options and up to five (5) TMS / Channel Solution nodes OR
- DD4200 options and up to three (3) TMS / Channel Solution nodes
- USB Transport Drive

*Single-rack solution requiring a second VMS for redundancy may use the 9211 or 9212 cabinet.

2.6.2 One (1) 1-Clique Configuration (System Cabinet)



The 1-clique configuration (4 nodes, 4 drive trays) consists of the following components:

Four (4) 2800 Nodes each with the following every unit items:
- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique with the following every unit items:
- Two (2) drive trays with dual controllers including Write-Back Cache
- Two (2) drive trays with dual ESMs
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:
- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

Virtualized Management Server (VMS) Management Chassis (1U)
- System VMS in first cabinet combines server management and single-system Viewpoint

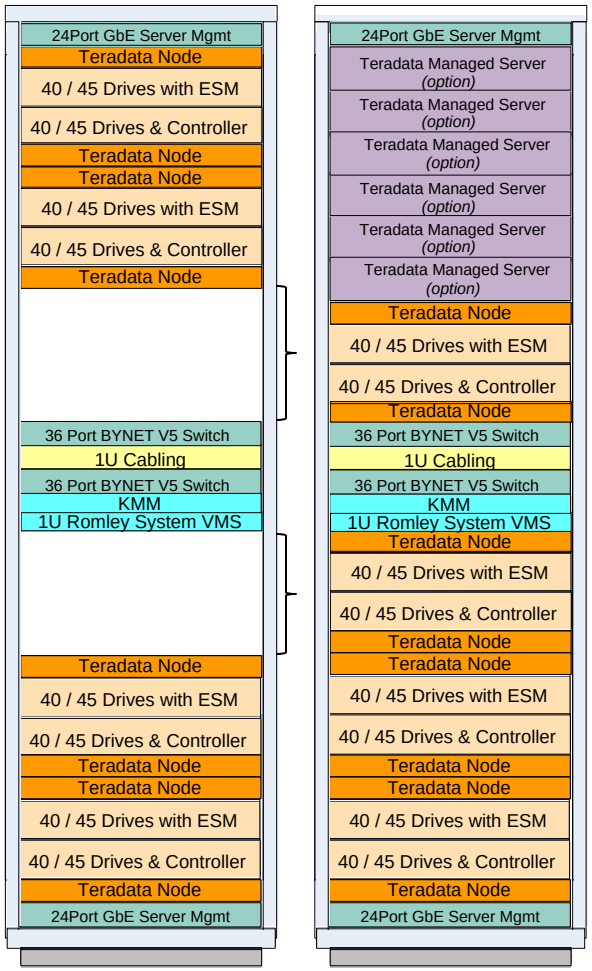
Power Components including the following:
- 0U PDUs for power
- Low power option requires U space noted with bracket } to be left blank

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options (dependent upon power selection):
- up to twelve (12) optional Teradata Managed Servers / Channel Solution nodes OR
- one (1) 2800 2nd Production System (2 or 4 nodes, field install only) and up to nine (9) optional TMS / Channel Solution nodes for 2-node 2nd System; up to six (6) optional TMS / Channel Solution nodes for 4-node 2nd System
- i80 Tape Library options and up to five (5) TMS / Channel Solution nodes
- DD4200 options and up to three (3) TMS / Channel Solution nodes
- USB Transport Drive

*Single-rack solution requiring a second VMS for redundancy may use the 9211 or 9212 cabinet.

2.6.3 Two (2) 4-node Cliques Configuration (System Cabinet)



The two (2) 4-node clique configuration (8 nodes with 8 drive trays) consists of the following components:

Eight (8) 2800 Nodes each with the following every unit items:

- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique with the following every unit items:

- Two (2) drive trays with dual controllers including Write-Back Cache (4 total)
- Two (2) drive trays with dual ESMs (4 total)
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique, **320 drives per cabinet**
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique, **360 drives per cabinet**
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:

- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

Virtualized Management Server (VMS) Management Chassis (1U)

- System VMS in first cabinet combines server management and single-system Viewpoint

Power Components including the following:

- 0U PDUs for power
- Low power option requires U space noted with bracket } to be left blank

Cabinet also includes:

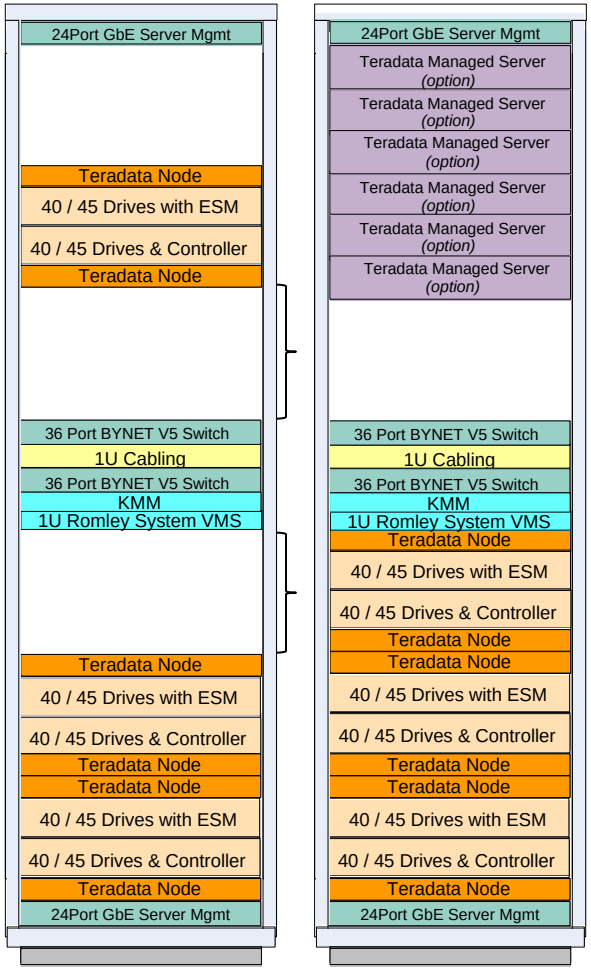
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options (dependent upon power selection):

- up to six (6) optional Teradata Managed Servers / Channel Solution nodes
- USB Transport Drive

*Single-rack solution requiring a second VMS for redundancy may use the 9211 or 9212 cabinet.

2.6.4 One (1) 4-node Clique and One (1) 2-node Clique Configuration (System Cabinet)



The one (1) 4-node clique configuration and one (1) 2-node clique configuration (6 nodes with 6 drive trays) consists of the following components:

Six (6) 2800 Nodes each with the following every unit items:

- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique and one (1) Disk Array per 2-node clique with the following every unit items:

- Two (2) drive trays with dual controllers including Write-Back Cache (4 total)
- Two (2) drive trays with dual ESMs (4 total)
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique, **320 drives per cabinet**
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique, **360 drives per cabinet**
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:

- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

Virtualized Management Server (VMS) Management Chassis (1U)

- System VMS in first cabinet combines server management and single-system Viewpoint

Power Components including the following:

- 0U PDUs for power
- Low power option requires U space noted with bracket } to be left blank

Cabinet also includes:

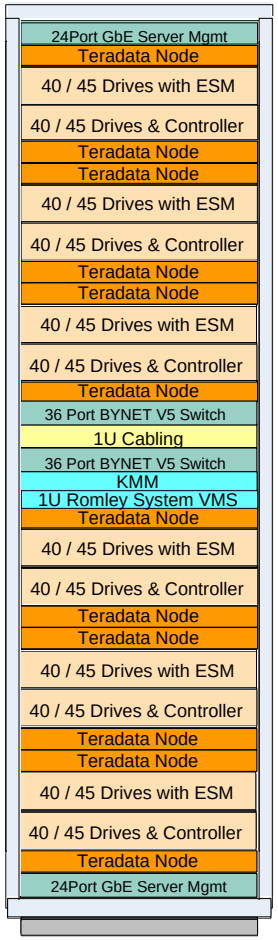
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options (dependent upon power selection):

- up to six (6) optional Teradata Managed Servers / Channel Solution nodes
- USB Transport Drive

*Single-rack solution requiring a second VMS for redundancy may use the 9211 or 9212 cabinet.

2.6.5 Three (3) 4-node Cliques (System Cabinet)



The three (3) 4-node clique configuration (12 nodes with 12 drive trays) consists of the following components:

Twelve (12) 2800 Nodes each with the following every unit items:
- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique with the following every unit items:
- Two (2) drive trays with dual controllers including Write-Back Cache (6 total)
- Two (2) drive trays with dual ESMs (6 total)
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique, **480 drives per cabinet**
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique, **540 drives per cabinet**
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:
- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

Virtualized Management Server (VMS) Management Chassis (1U)
- System VMS in first cabinet combines server management and single-system Viewpoint

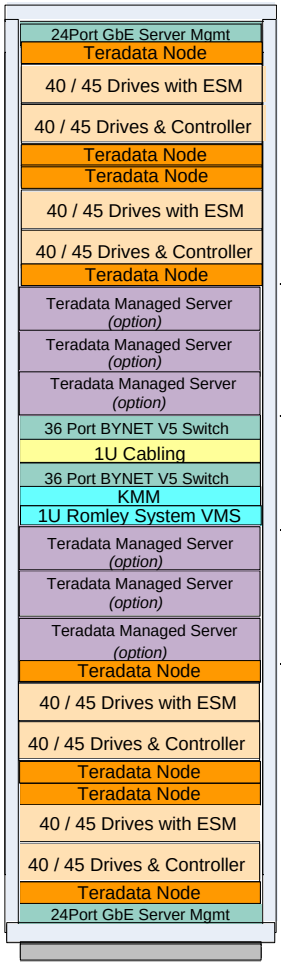
Power Components including the following:
- 0U PDUs for power
- No Type A low power option; **Type B, C, and D high power options only**

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options:
- USB Transport Drive

*Single-rack solution requiring a second VMS for redundancy may use the 9211 or 9212 cabinet.

2.6.6 One (1) 1-Clique Configuration (System Cabinet) with 2nd 2800 System (2-node or 4-node Available)



The 1-clique configuration (4 nodes, 4 drive trays) consists of the following components, and can be configured with a 2nd 2800 System (2-node or 4-node) :

1st and 2nd 2800 Systems comprised of four (4) 2800 Nodes each with the following every unit items:

- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique with the following every unit items:

- Two (2) drive trays with dual controllers including Write-Back Cache
- Two (2) drive trays with dual ESMs
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:

- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

Virtualized Management Server (VMS) Management Chassis (1U)

- System VMS in first cabinet combines server management and single-system Viewpoint

Power Components including the following:

- 0U PDUs for power
- Low power option requires U space noted with bracket } to be left blank

Cabinet also includes:

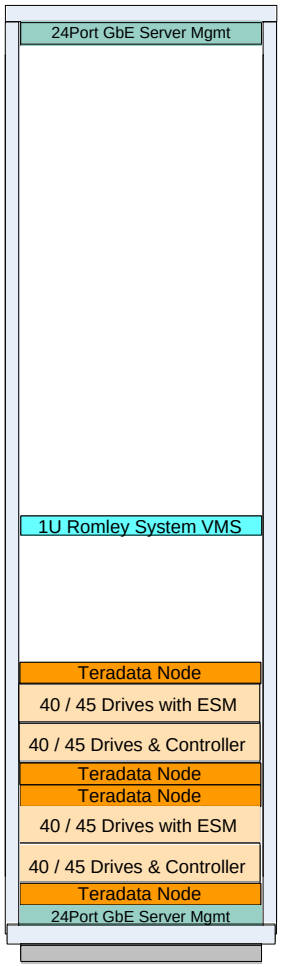
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options (dependent upon power selection):

- up to six (6) optional Teradata Managed Servers / Channel Solution nodes
- Shown: one (1) 2800 2nd Production System (2 or 4 nodes, field install only) and up to six (6) optional TMS / Channel Solution nodes for 2-node 2nd System; up to six (6) optional TMS / Channel Solution nodes for 4-node 2nd System
- USB Transport Drive

*Single-rack solution requiring a second VMS for redundancy may use the 9211 or 9212 cabinet.

2.6.7 One (1) 1-Clique Expansion Cabinet



The 2800 System grows beyond the first cabinet by adding cliques in Expansion cabinets (full, partial). The 4-node Expansion configuration (4 nodes with 4 drive trays) consists of the following components:

Four (4) 2800 Nodes each with the following every unit items:
- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique with the following every unit items:
- Two (2) drive trays with dual controllers including Write-Back Cache (2 total)
- Two (2) drive trays with dual ESMs (2 total)
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique, **160 disks per cabinet**
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique, **180 disks per cabinet**
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:
- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

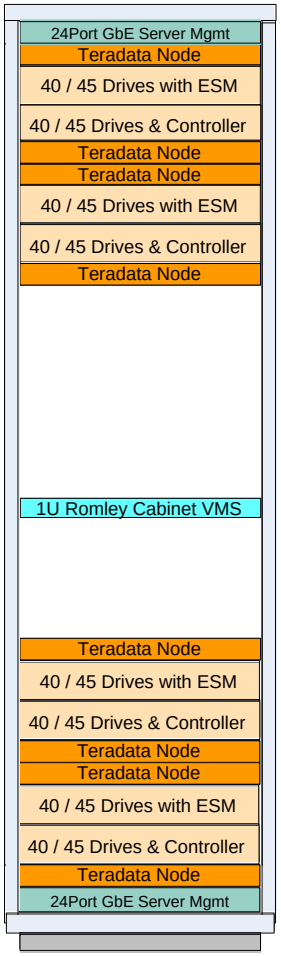
Virtualized Management Server (VMS) Management Chassis (1U)
- Cabinet VMS for CMIC functionality in Expansion cabinets

Power Components including the following:
- 0U PDUs for power

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options:
- USB Transport Drive

2.6.8 Two (2) 2-Clique Expansion Cabinet



The two (2) 4-node clique configuration (8 nodes with 8 drive trays) in an Expansion cabinet consists of the following components:

Eight (8) 2800 Nodes each with the following every unit items:
- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique with the following every unit items:
- Two (2) drive trays with dual controllers including Write-Back Cache (4 total)
- Two (2) drive trays with dual ESMs (4 total)
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique, **320 drives per cabinet**
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique, **360 drives per cabinet**
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:
- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

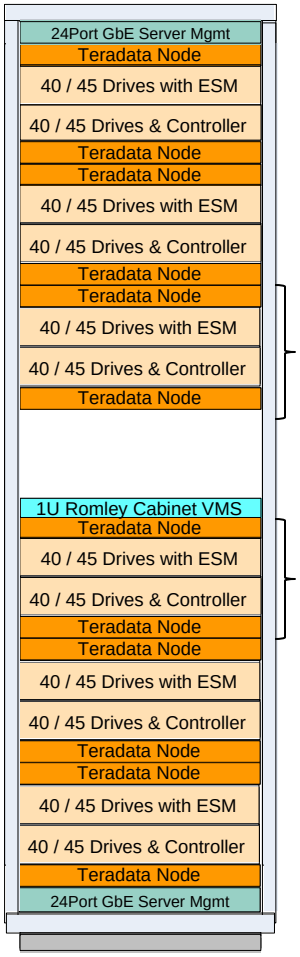
Virtualized Management Server (VMS) Management Chassis (1U)
- System VMS in first cabinet combines server management and single-system Viewpoint

Power Components including the following:
- 0U PDUs for power
- Can accommodate all power types; further expansion in rack is for **Type B, C, and D high power options only**

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options:
- USB Transport Drive

2.6.9 Three (3) 3-Clique Expansion Cabinet



The three (3) 4-node clique configuration (12 nodes with 12 drive trays) in an Expansion cabinet consists of the following components:

Twelve (12) 2800 Nodes each with the following every unit items:
- Two (2) Intel 2.6GHz 14-Core, Hybrid, Haswell Processors
- Memory options of 128, 256, or 512 GB of memory
- Two (2) 900GB SAS HDDs for OS and one (1) 600GB for dump
- One (1) DVD-ROM drive
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- **No onboard ports for customer use**

Two (2) Disk Arrays per 4-node full clique with the following every unit items:
- Two (2) drive trays with dual controllers including Write-Back Cache (6 total)
- Two (2) drive trays with dual ESMs (6 total)
- **RAID-1:** Each drive tray is populated with 80 active drives and 2 GHS drives
  - 40 active DPN, 160 disks per clique, **480 drives per cabinet**
  - 300GB, 600GB, 900GB or 1.2TB 2.5" SAS (10K RPM)
- **RAID-6:** Each drive tray is populated with 45 active drives and 1 GHS drive
  - 45 active DPN, 180 disks per clique, **540 drives per cabinet**
  - 1.2TB 2.5" SAS (10K RPM)

Switch pairs supporting:
- BYNET V5: Two 36-port BYNET InfiniBand Switches in first Cabinet (IB cables added by WOT)
- Server Management: Two 24-port Ethernet Switches (cabinet cable harness)

Virtualized Management Server (VMS) Management Chassis (1U)
- System VMS in first cabinet combines server management and single-system Viewpoint

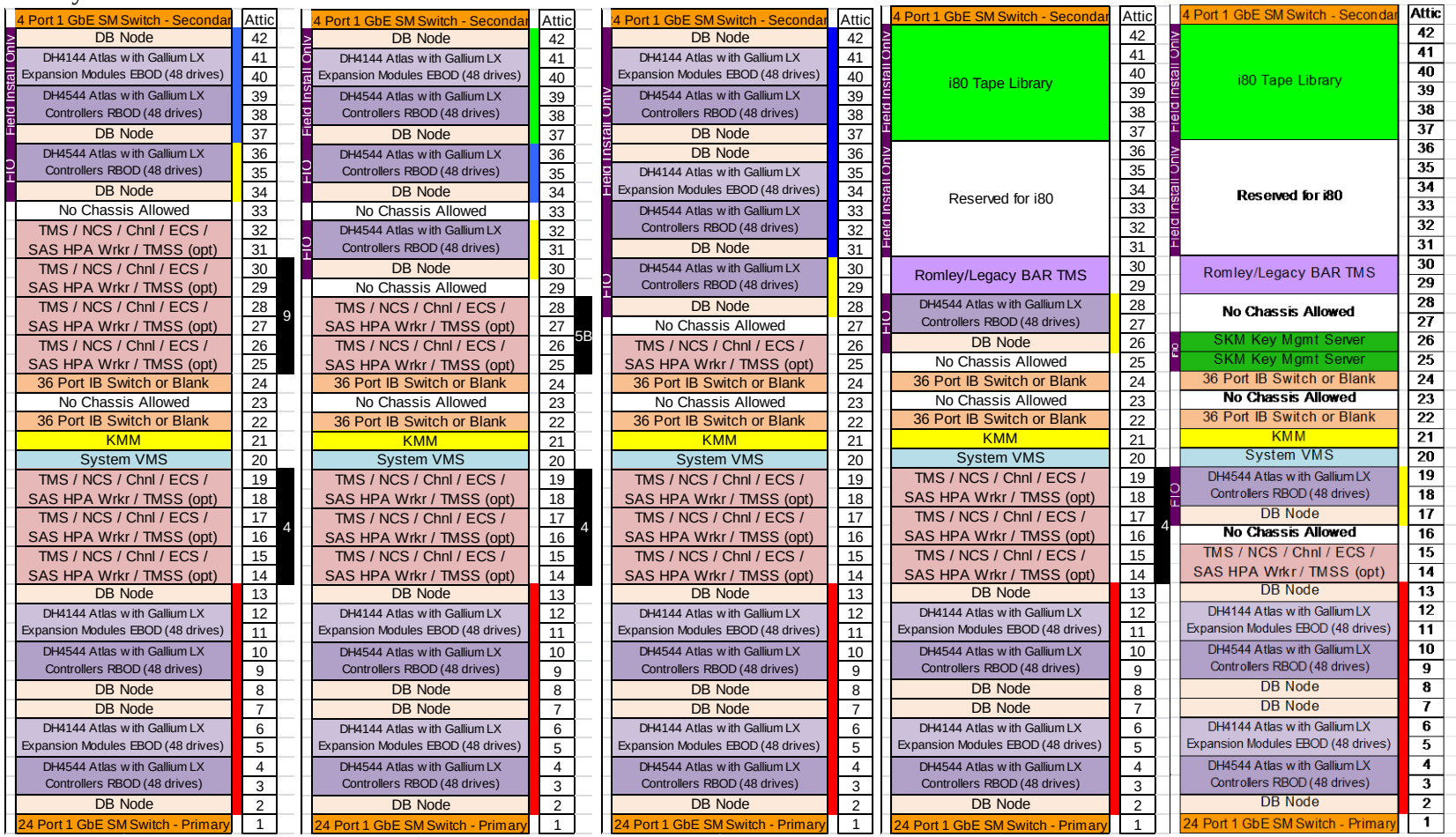
Power Components including the following:
- 0U PDUs for power
- No Type A low power option; **Type B, C, and D high power options only**

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

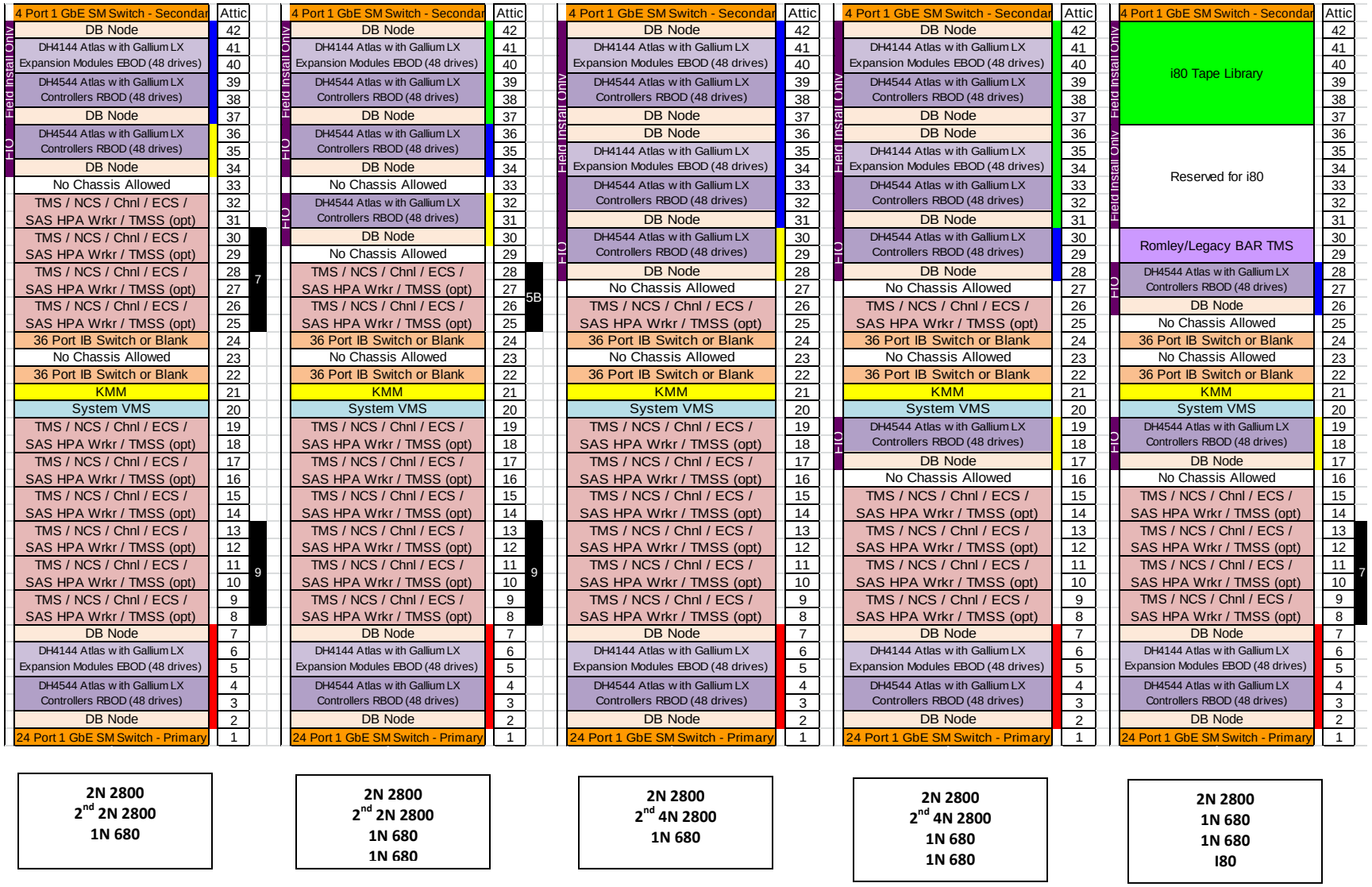
Options:
- USB Transport Drive

2.6.10 Mixed-Product Configurations (2800, 2nd 2800, 680, and i80)

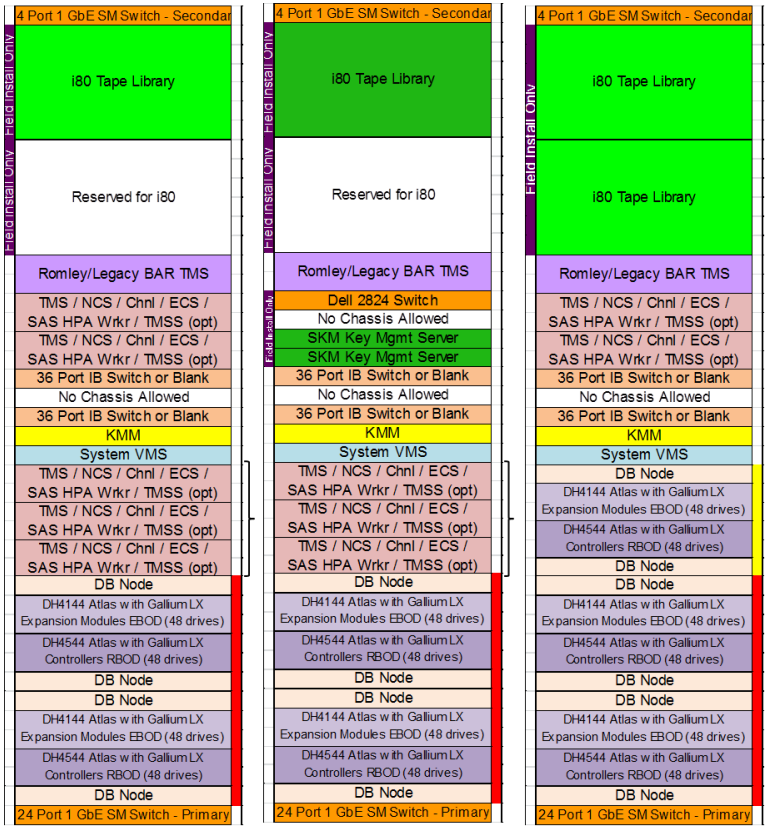
Depending upon the power type and number of nodes, the 2800 Base / System cabinet can be configured to accommodate a 2800 Production System, a 2nd 2800, 680 SMP, and i80. The 2nd 2800 system and the 680 must be installed in the field, shipped in a Transport cabinet. Some examples with 4-node systems are below.



Some examples with 2-node systems are below.



2.6.11 2800: i80 (Field Installable Options)

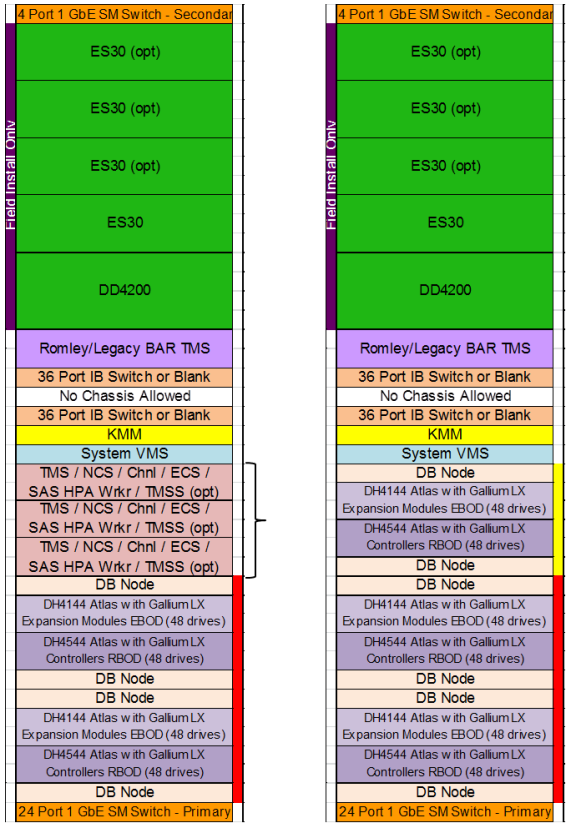


All i80 questions should be submitted via a GSS Help Desk (link below) ticket so that they may be addressed by BAR Pre-Sales. http://trd.td.teradata.com/bus_apps/GSS_Helpdesk/

As with the 2700 and 2750, the 2800 offers the option to field install i80 options into the 2800 Base / System cabinets. Note that the i80 WOT catalog is not included within the 2800; only the ability to reserve space in the base / System cabinet is offered there. The i80 configurations are created in their own separate catalog (contact BAR Product Management for additional information).

The 2800 ranging from 2-nodes to 6-nodes can support various i80 options in the Base / System cabinet. In the 2800 WOT Model, space is reserved based on the i80 option selected. Note that the i80 options do not ship in the 2000 Series cabinet; they are field installed and shipped in a Transport cabinet. For additional information on the i80 options or questions on the i80, please see the i80 OCI or contact BAR Product Management: http://teradatanet.teradata.com/downloadattachment?attachmentId=16926

2.6.12 2800: DD4200 Options in Base / System Cabinet



All DD4200 questions should be submitted via a GSS Help Desk (link below) ticket so that they may be addressed by BAR Pre-Sales.
http://trd.td.teradata.com/bus_apps/GSS_Helpdesk/

The 2800 ranging from 2-nodes to 6-nodes can support various DD4200 options in the Base / System cabinet. Other Data Domain products are not certified or supported. The DD4200 options do not ship in the 2000 Series cabinet; they are field installed and shipped in a Transport cabinet. Note that the DD4200 WOT catalog is not included within the 2800; only the ability to reserve space in the base / System cabinet is offered there. The Data Domain configurations are created in their own separate catalog (contact **BAR Product Management** for additional information).

For additional information on the DD4200 options or questions on the DD4200, please see the Data Domain **OCI or contact BAR Product Management**:
http://teradatanet.teradata.com/redir.html?assetId=KA69756

Low power option requires U space noted with bracket } to be left blank.

Since the DD4200 is rack mounted at the customer site, all DD4200 configurations within the 2800 node cabinet require a reserved space feature for each DD4200 module and each optional Expansion Shelf added in the configuration.
Options:

- DD4200 with ES30 Expansion Shelf (requires 7U)
- ES30 Expansion Shelves (each requires 3U)
- Optional BAR Teradata Managed Server

2.7 2800 Node Components

This section provides details on individual components within the 2800 Node (Intel chassis). For details on the S2600WP architecture, see:
http://www.intel.com/support/motherboards/server/sb/CS-033323.htm?wapkw=s2600wp+tps

2.7.1 Memory Configuration

The 2800 features a 2133MHz DIMM memory board (16GB or 32GB DIMMs offered) that matches the speed of the fourteen-core processor. The Teradata node has no memory bundled; all memory is "feature-strung" via WOT based on end user selections in WOT. Memory options per node are:

- 128GB* (16GB DIMMs)
- 256GB (32GB DIMMs)
- 512GB (32GB DIMMs)
    - *Note: **The 128GB option is available to GSS only**. The recommended minimum for TIM (and the design center) is 256GB of memory per node. Upgrades to larger memory requires ALL DIMMs to be replaced.

Product ID	Description	Quantity / Notes
9190-F281	Memory, 64GB, DDR4-2133MHz (4 x 16GB DIMM)	2 for 128GB / node
9190-F282	Memory, 128GB, DDR4-2133MHz (4 x 32GB DIMM)	2 for 256GB / node
9190-F282	Memory, 128GB, DDR4-2133MHz (4 x 32GB DIMM)	4 for 512GB / node

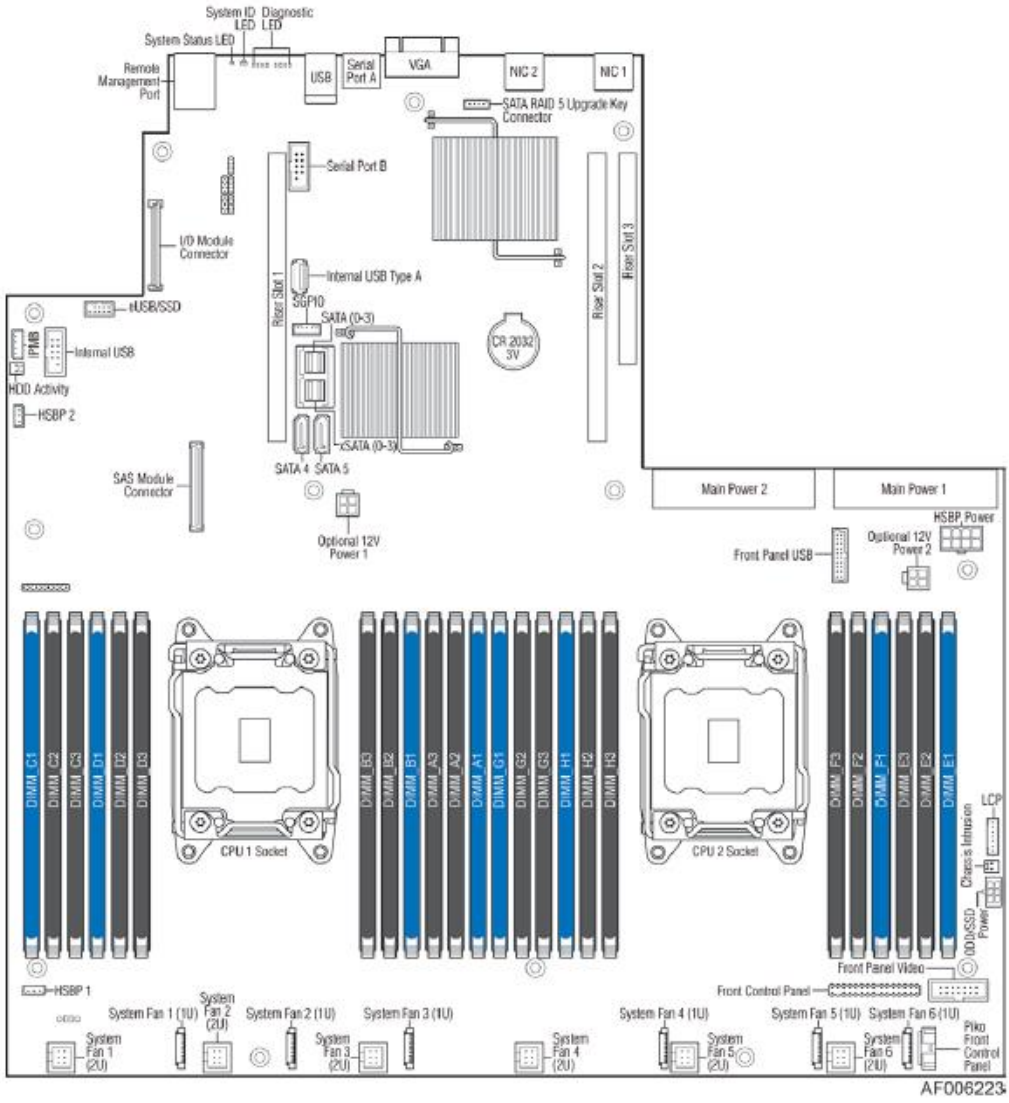


Figure 1: Memory Layout of 2800 Node (*Blue tabs indicate first slot of each channel*)

2.7.1.1 Memory Slots and Population

There are 24 memory sockets (DDR4, 2133 MHz maximum), with 4 memory channels per processor. Intel and Teradata only performs platform validation on systems that are configured with identical DIMMs installed, therefore all DIMM sizes must be the same.

- Each installed processor provides four channels of memory. On the Intel® Server Board S2600WT each memory channel supports three memory slots, for a total possible 24 DIMMs installed.
    - Load Reduced DDR4 (LRDIMM)
- System memory is organized into physical slots on DDR4 memory channels that belong to processor sockets.
- The memory channels from processor socket 1 are identified as Channel A, B, C and D. The memory channels from processor socket 2 are identified as Channel E, F, G, and H.

- Each memory slot on the server board is identified by channel and slot number within that channel. For example, DIMM_A1 is the first slot on Channel A on processor 1; DIMM_E1 is the first DIMM socket on Channel E on processor 2.
- The memory slots associated with a given processor are unavailable if the corresponding processor socket is not populated.
- Processor sockets are self-contained and autonomous. However, all memory subsystem support (such as Memory RAS, Error Management,) in the BIOS setup is applied commonly across processor sockets.
- The BLUE memory slots on the server board identify the first memory slot for a given memory channel.

SuSE Linux 128GB Memory Map – Note: Only GSS

Memory Size	Processor	Socket	Memory Channel							
			0	1	2	3	0	1	2	3
128GB	Processor 1	Blue 1	16GB	16GB	16GB	16GB				
		White 2								
		White 3								
	Processor 2	Blue 1					16GB	16GB	16GB	16GB
		White 2								
		White 3								

SuSE Linux 256GB Memory Map

Memory Size	Processor	Socket	Memory Channel							
			0	1	2	3	0	1	2	3
256GB	Processor 1	Blue 1	32GB	32GB						
		White 2	32GB	32GB						
		White 3								
	Processor 2	Blue 1					32GB	32GB		
		White 2					32GB	32GB		
		White 3								

SuSE Linux 512GB Memory Map

Memory Size	Processor	Socket	Memory Channel							
			0	1	2	3	0	1	2	3
512GB	Processor 1	Blue 1	32GB	32GB	32GB	32GB				
		White 2	32GB	32GB	32GB	32GB				
		White 3								
	Processor 2	Blue 1					32GB	32GB	32GB	32GB
		White 2					32GB	32GB	32GB	32GB
		White 3								

2.7.2 PCI Slots and Adapters

This section outlines the PCI Slots and available adapters to fill those slots.

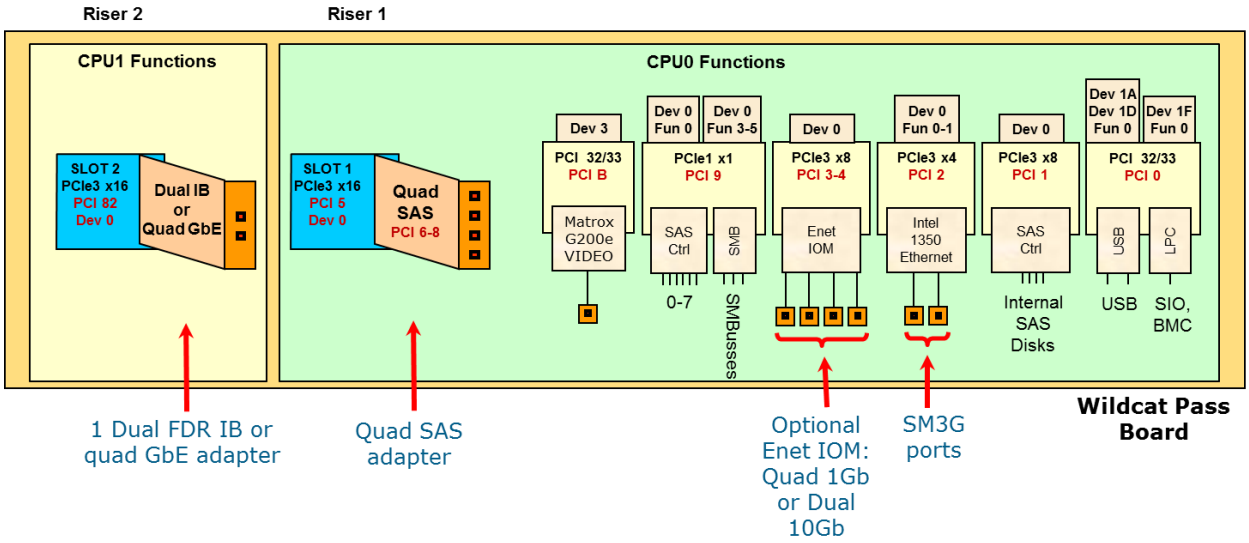


Figure 2: PCI Slots and On-board Devices (TPA Node)

2.7.2.1 PCI Slot Assignments

Slot	Assignment
On-board Copper Ethernet Ports	There are two (2) on-board copper Ethernet ports on the Server board. These two ports are **used for server management**. There are n**o onboard ports for customer use.**
PCIe (Dedicated)	One slot is dedicated to storage. One slot is dedicated to BYNET (either BYNET V5 or for 1Gb BYNET co-residence, 1Gb BYNET adapter). Teradata Node Slot 1: Storage Adapter (Quad 6Gb SAS, LSI 9206-16e) Slot 2: Dual BYNET Interface Card (InfiniBand) -OR- Slot 2: Quad 1Gb Ethernet Copper (used in 1Gb BYNET co-residence systems **only**)
PCIe (Available)	There are **no available PCIe slots for customer use; they two onboard ports are used by server management. H**owever, the IO Module may be used for customer connectivity. If additional connectivity is required, the **2U NCS (Network Connectivity Server)** may be used.

The 2800 has no PCI Express Ethernet adapter choices for customer use. Customer LAN connectivity may be achieved via the IO Module.

The 1Gb copper adapters support twisted-pair cable up to 100 meters in length. The 10Gb copper adapters support Direct Attach copper cables up to 7 meters in length. If the required cable exceeds 7 meters, then an **optical adapter must be used**. For additional information on the SFP optical module, <click here>.

2.7.2.1 IO Module Options

To broaden the standard on-board feature set, the server board provides support for one of several available IO Module options. . If BYNET V5 is required, the IO Module may be used to provide customer LAN connectivity due to the BYNET V5 Adapter using the one available adapter slot.

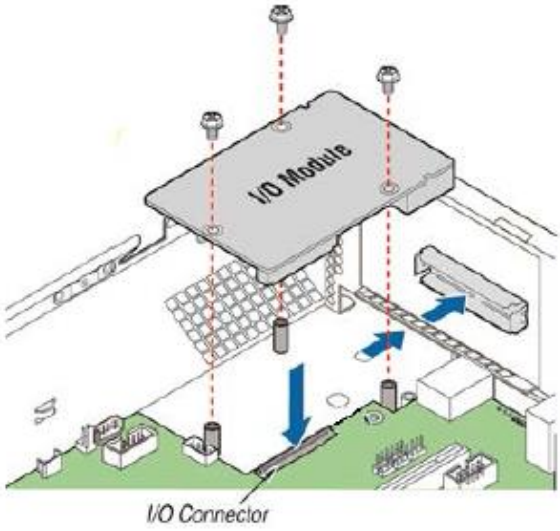


Figure 3: Server Board Layout - I/O Module Connector

IO Module	Assignment
On-board IOM	There is one IO Module available for customer use. The I/O module attaches to a high density 80-pin connector on the server board and is supported by x8 PCIe Gen3 signals from the IIO module of the CPU 1 processor. Options for the IO Module are as follows: • Module, Quad Port I/O Controller, 1Gb Ethernet, Copper • Module, Dual Port I/O Controller, 10Gb Ethernet, Copper

IO Modules

Product ID	Description	Use	Notes
I/O Module – 1Gb			
9190-F205 9190-K205	Module, Quad Port I/O Controller, 1Gb Ethernet, Copper	BAR, Managed Server applications, Customer connections	Each port is capable of supporting up to 125 MB/s *throughput per port.
I/O Module – 10Gb			

9190-F206 9190-K206	Module, Dual Port I/O Controller, 10Gb Ethernet, Copper SFP+ interface	BAR, Managed Server applications, Customer needed applications	Each port is capable of supporting up to 1250 MB/s *throughput per port. Can support optical connections using optical transceiver 2021-K265
I/O Module – 10BASE-T			
9190-F207 9190-K207	Module, Dual RJ-45 Port 10GBASE-T I/O, Copper RJ-45 interface	Managed Server applications, Customer needed applications. Used for connecting to 10G networks using CAT6 and CAT6a cables.	Each port is capable of supporting up to 1250 MB/s *throughput per port.
* Please note that throughput cited is **not for sustained throughput** and is an **estimate (theoretical)**. Actual throughput **depends on many factors that will impact results** (protocols being used, how many ports are active, how large of frames are being sent, where the data is coming from/going to, what else the node is doing at the time, what PCIe slot the adapter is installed in, etc.). You can actually double these numbers for bi-directional transfer, but again this depends on the application. Teradata Engineering has measured performance up to these limits.			

All of these are IO Modules that go into the special IO Module "slot" in the node. Only one IO Module is supported per node. F205 and F206 are the same modules that we offered in the 2750. The Dual RJ-45 Port 10GBASE-T I/O (9190-F207) is a new module released for the 2800 platform. This is the dual-port 10Gb 10GBase-T module that will support copper twisted-pair cables up to 100M in length. 10GBase-T is used for connecting to 10G networks using CAT6 and CAT6a cables. This is becoming more popular because the cables are much cheaper and commonly used throughout offices and data centers.

2.7.2.1 10Gb I/O Module: SFP and GBIC and Connectivity

The 2800 offers a 10Gb I/O Module (Copper) customer LAN connectivity and BAR. Due to the slot-constrained environment, it may be necessary to convert a 10Gb copper port to an optical port. The following option is available for these requirements:

1.) 10Gb Copper Options
- 10Gb Copper ports can be converted to optical.
  - An Optical SFP Transceiver kit converts a copper port into an optical port.
  - Dual-rate transceiver auto-negotiates to 10Gb or 1Gb.
  - **Kit 2021-K265** contains one optical SFP transceiver.
- The Direct Attach copper cables are restricted to operate at 10G only. Supporting 1Gb copper (twisted pair) requires a GBIC module.
  - A GBIC module converts one of the 10Gb ports to a 1Gb copper RJ45 port.
  - The **Mini-GBIC kit is 2021-K260**

Teradata supports MMF (multi-mode fiber), which support lengths up to 300 m. Single mode SFPs, used for long distance (10 km) communications, are **not** offered by Teradata.

Our adapters support both SFP options, however only the SR (short range) version has been released by Teradata. We have not tested with long range parts; they are not supported by CS. Should the customer support their own network infrastructure for the customer LAN connectivity, and they require LR, the following product brief may be reviewed. The product codes are listed in case the customer should choose to purchase them.

http://www.intel.com/content/dam/doc/product-brief/ethernet-sfp-optics-brief.pdf

2.7.2.2 BYNET Adapters

If a 2800 is configured using the BYNET V5 (InfiniBand) interconnect, a BYNET V5 InfiniBand Adapter is placed in Slot 2.

Product ID	Description	Use	Notes
BYNET V5 InfiniBand			
9190-F254	Adapter, PCIe BYNET V5, LP	BYNET V5 interconnect	This adapter supports BYNET V5, providing 2800 configurations with a high performance interconnect and reducing the possibility of the BYNET becoming saturated.

2.8 Network Connectivity Server (NCS)

The 1U TPA node of the 2800 has a slot-constrained server board. If additional connectivity is required, the 2U Network Connectivity Server, or NCS, may be used. The 2U NCS provides customers the additional network connectivity required.

Please note that providing more CPU in a CPU rich environment that does not use TASM will not provide significant performance improvement.

Product ID	Description	Quantity / Notes
9190-F327	Node, NCS 2U, Romley (Intel R2000)	Quantity and rules for TMS are applied to NCS
Note: The **NCS is not certified** to be connected to the TMS for BAR media server.		

2.8.1 NCS: Hardware and Software

The NCS is based on the 2U Intel server. The following diagram outlines the PCI slots and onboard devices:

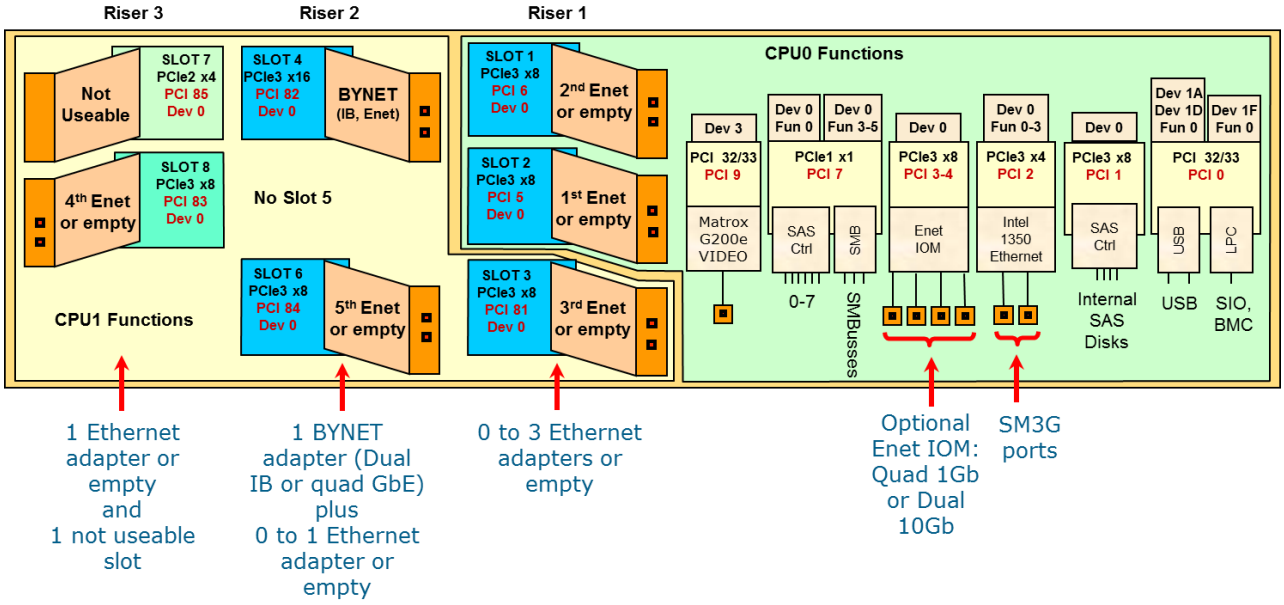


Figure 4: PCI Slot Assignments and Devices (NCS)

2.8.1.1 PCI Slot Assignments

Slot	Assignment
On-board Copper Ethernet Ports	There are two (2) on-board copper Ethernet ports on the Server board. These two ports are used for server management.
PCIe (Dedicated)	One slot is dedicated to the BYNET V5 InfiniBand BYNET V5.
PCIe (Available)	Riser 1 Slots 1 – 3: 1Gb and 10Gb options (copper and fiber). Riser 2 Slot 5: 1Gb and 10Gb options (copper and fiber). Riser 3 Slot 8: 1Gb and 10Gb options (copper and fiber). • Quad 1Gb Ethernet Copper PRO/1000 PT Intel • Dual 1Gb Ethernet Fiber (optical) PRO/1000 PF Intel • Dual 10Gb Ethernet Copper X520-DA2 Intel • Dual 10Gb Ethernet Fiber (optical) X520-SR2 Intel • Dual 10Gb Base-T Ethernet Copper X540-T2 Intel (long lead times)
On-board IOM	There is one IO Module available for customer use. The I/O module attaches to a high density 80-pin connector on the server board and is supported by x8 PCIe Gen3 signals from the IIO module of the CPU 1 processor. Options for the IO Module are as follows: • Module, Quad Port I/O Controller, 1Gb Ethernet, Copper • Module, Dual Port I/O Controller, 10Gb Ethernet, Copper

Details on the IO Module are available in the section titled IO Module Options, or click here: IO Module.

The NCS has four PCI Express Ethernet adapter choices. The customer LAN adapters have two options for copper (electrical) interface and two options for fiber (optical) interface; there is also a 10BASE-T option. Please note that due to the 10BASE-T being a low volume item, we typically do not drive material for this adapter, and as a result, **long lead times (7 – 10 days) may apply**. If this adapter is required, please contact GSS to confirm current lead times.

Adapters

Product ID	Description	Use	Notes
Adapter - 1Gb Ethernet			
9190-F263 9190-K263	Adapter, PCIe 1Gb Ethernet, 4 Channel, Copper	NCS; Customer needed connections	Each port is capable of supporting up to 125 MB/s *throughput per port.
9190-F264 9190-K264	Adapter, PCIe 1Gb Ethernet, 2 Channel, Fiber	NCS; Customer needed connections	Each port is capable of supporting up to 125 MB/s *throughput per port.
Adapter - 10Gb Ethernet			
9190-F251 9190-K251	Adapter, PCIe 10Gb Ethernet, 2 Channel, Copper	NCS; Customer needed connections	Each port is capable of supporting up to 1250 MB/s *throughput per port.
9190-F250 9190-K250	Adapter, PCIe 10Gb Ethernet, 2 Channel, Fiber	NCS; Customer needed connections	Each port is capable of supporting up to 1250 MB/s *throughput per port.
Adapter - 10Gb Base-T			
9190-F262 9190-K262	Adapter, PCIe 10Gb Base-T Ethernet, 2 Channel, Copper	NCS; Customer needed connections	Each port is capable of supporting up to 1250 MB/s *throughput per port.
* Please note that throughput cited is **not for sustained throughput** and is an **estimate**. Actual throughput **depends on many factors that will impact results** (protocols being used, how many ports are active, how large of frames are being sent, where the data is coming from/going to, what else the node is doing at the time, what PCIe slot the adapter is installed in, etc.). You can actually double these numbers for bi-directional transfer, but again this depends on the application. Teradata Engineering has measured performance up to these limits.			

Software

- Linux OS (SLES 11)
- TD Instance

2.9 Cable Requirements

The Teradata Data Warehouse Appliance 2800 nodes require the following cables:

- BYNET Ethernet cables to connect from the node to the two BYNET Switches.
- VMS or 3GSM Ethernet cables to connect from the node to the VMS or 3GSM chassis within the cabinet.
- Server Management Ethernet cables, depending on the cabinet type either from Node to BYNET Switch or from Node to Server Management Ethernet Switch

- AC Power cables to connect from the nodes, disk arrays, and other components to the AC Distribution Boxes.
- SAS cables to connect from the node to the disk arrays within each cabinet.

Cables may be installed by Flextronics or by Teradata CS at the customer site. The following table provides a guide.

Cabinet	Cables installed by Flextronics	Cables installed by CS
System	BYNET, VMS or 3GSM, Power and SAS	
Expansion	VMS or 3GSM, Power, SAS	BYNET for Expansions

Teradata does not support copper 10Gb Ethernet cable lengths greater than 7m. This applies to all Teradata solutions which include copper 10Gb Ethernet adapters (Nodes, Managed Server etc.). For distances greater than 7 meters, use 10Gb optical cables.

2.9.1 Maximum Cabinet Distances

Cabinet Distances		
Technology	Copper	Optical
1GbE	100m	100m
10GbE	7m	100m
BYNET v4	N/A*	100m
BYNET v5 (IB)	N/A*	100m

*N/A: We do not support copper inter-rack connectivity for BYNET V4 and V5.

2.9.2 BYNET V5 Cables

The BYNET V5 adapters connects to BYNET V5 Switches through Fiber cabling across Node Cabinets and via copper cabling within Node system cabinets.

2.9.3 BYNET V5 (InfiniBand) Cables

The Base / System cabinet in the 2800 includes cable features. **These cables are automatically added to the order by WOT when a new Base / System cabinet is created**. There are two (2) for every node in the system cabinet.

Product ID	Description	Quantity
BYNET V5 – InfiniBand		
9190-F599	Cable, InfiniBand, Copper, 2M	2 per node (System / Base Cabinet)

The Expansion cabinets in the 2800 include cable kits. **These cables are automatically added to the order by WOT when an Expansion cabinet is created**. The default length of 15 meters is added to the quote by WOT; this may be changed manually if needed. There are two (2) BYNET cables required for every node in the Expansion cabinet.

These same kits may be used for In-field Clique Expansions (2 per node). For In-field Clique Expansions, these cables must be manually added to the order.

For Expansion cabinets and In-field Clique Expansions being placed in Expansion cabinets, the BYNET cable kits are added to the order by WOT. The default length is 15 meter; this cable may be manually updated as needed.

Product ID	Description	Quantity / Notes
BYNET V5 – InfiniBand		
1413-C163-0050	Cable Assy, Optical QFSP+, 5 meter	2 per node Expansion Cabinet
1413-C163-0150	Cable Assy, Optical QFSP+, 15 meter	2 per node Expansion Cabinet - **Default**
1413-C163-0300	Cable Assy, Optical QFSP+, 30 meter	2 per node Expansion Cabinet
1413-C163-0500	Cable Assy, Optical QFSP+, 50 meter	2 per node Expansion Cabinet
1413-C163-1000	Cable Assy, Optical QFSP+, 100 meter	2 per node Expansion Cabinet

2.9.4 Ethernet Cables for 2800 (1Gb BYNET over Ethernet Co-residence)

The 1Gb BYNET over Ethernet option, which is available for co-residence Expansion cabinets only, uses Ethernet cables for BYNET and Server Management connectivity. **This option is only available for 2800 systems which will co-reside with a 2700 or 2750 with 1Gb BYNET.** Ethernet Cables required for server management connections are bundled with the cabinet as a cable harness.

There are two (2) BYNET cables required for every node in the Expansion cabinet (added by WOT).

Product ID	Description	Quantity
1Gb BYNET over Ethernet – Copper		
1413-C175-0020	Cable, Ethernet, CAT5, 2 meters (6 feet)	2 per node Expansion Cabinet
1413-C175-0050	Cable, Ethernet, CAT5, 5 meters (16 feet)	2 per node Expansion Cabinet
1413-C175-0100	Cable, Ethernet, CAT5, 10 meters (32 feet)	2 per node Expansion Cabinet - **Default**
1413-C175-0200	Cable, Ethernet, CAT5, 20 meters (65 feet)	2 per node Expansion Cabinet

Note that for BYNET-over-Ethernet the limit is 100 meters.

2.9.1 SAS Cables

The following PIDs are for the SAS cables, which connect the node to the disk arrays within each cabinet. These PIDs are added to the quote based on the 2-node and 4-node cliques in the configuration. The following PIDs **are automatically calculated by WOT and added to each order:**

Product ID	Description	Qty Full Clique	Qty Half-to-Full Clique	Qty Half clique
SAS Cabling				
9190-F480	Cable Assembly SAS, 2M (1 cable)	4 per clique	4 per clique	NA
9190-F481	Cable Assembly SAS, 1M (1 cable)	12 per clique	8 per clique	4 per clique
9190-F485	Cable Assembly, MiniSAS, 1M (one cable)	4 per clique	2 per clique	2 per clique

2.10 Node Storage Components

The nodes include two storage types: internal Hard Disk Drives and an optical DVD/CD-ROM Drive.

2.10.1 Internal Disk Drives

The 2800 can host up to eight internal disk drives. All node hard drives are SED-capable. Each TPA node is configured with two (2) 900GB 2.5" SAS drives for OS and one (1) 900GB 10K 2.5" SAS drive for dump:

- Two (2) are used for hosting the operating system as well as provide space for system and application software, multiple node software images, and system error logs.
- One (1) is used to facilitate enhanced performance of System Failure Recovery, Dump Storage processing and analysis. This drive is used only for this purpose.

Two drive sizes for internal node disk drives are available for customer use:

- 600GB 10K RPM SAS
- 900GB 10K RPM SAS

The optional internal disk drives must be line items on the order. WOT has been programmed to add the drive quantities entered into the WOT wizard to the order.

Product ID	Description
Features	
9190-F210	HD Disk, 600GB 10K RPM, SAS Hot Plug
Kits (Field Upgrade or Replacement)	
9190-K210	HD Disk, 600GB 10K RPM, SAS Hot Plug

If the customer prefers to add 900GB drives to the TPA nodes, this must be done manually.

Product ID	Description
Features	
9190-F211	HD Disk, 900GB 10K RPM, SAS Hot Plug
Kits (Field Upgrade or Replacement)	
9190-K211	HD Disk, 900GB 10K RPM, SAS Hot Plug

2.10.1 DVD/CD-ROM Drive

Every node includes a DVD/CD-ROM drive which is bundled and does not need to be called out onto the order. This drive supports both CD and DVD media.

2.10.2 USB Transport Drive

The USB Transport Drive is only required if the customer either:

1.) has no remote access or
2.) does not allow files to be sent via the net to the GSC (dump files).

According to the GSC, very few customers are in this category. Similarly, we do not wish to encourage customers to continue to send physical media unless it is absolutely necessary due to restrictions. However, this option is available to support these customers if required.

The USB Transport Drive Kit includes all the needed parts, including both USB cables.

- USB External Drive
- USB short (.5 meter) cable
- USB long (2 meter) cable

This product is provided to facilitate transport of Teradata Database Dumps from a customer site to the Teradata Global Support Center. It is not intended for use as a backup device.

Product ID	Description	Notes
2021-K943	USB Transport Drive	Options for no drive, one drive per cabinet or 1 drive per system

2.11 Operating System - SuSE Linux SLES 11

The 2800 is offered with SuSE Linux Enterprise Server (SLES) Operating System. Linux is the advocated operating system for Teradata Systems. SuSE Linux SLES is a 64-bit operating system that leverages the Extended Memory 64 Technology of the Intel processors. 64-bit addressing of Linux allows for much larger memory sizes to be supported.

Teradata Nodes, Channel Solutions, and Managed Servers

Linux is ordered via two product IDs, one for the media kit and a second for the license**. Licenses are version neutral while media kits are version specific.** The Web Ordering Tool has been programmed to include the appropriate number of each. The 2800 Teradata node uses SuSE Linux Enterprise Server 11.

We now support both SLES 11 SP1 and SP3 Operating System versions on the 2800 node and Channel node. Note that all of these nodes must be running the exact same version of SLES. Additionally, please refer to the Teradata Database OCI for the compatibility between Teradata database versions and the OS version.

Note: SLES 11 is being certified on the various TMS options; **please see the TMS OCI to determine availability.**

Product ID	Description
Linux SLES 10 SP3	
F601-8247-0000	SuSE Linux SLES License, 1 year
F601-8280-0000	SuSE Linux SLES 10 SP3, Media Kit
Rules: 1. One F601-8247-0000 is required for each VMS or TMS with SLES 10 2. One F601-8280-0000 is required for every system.	
Linux SLES 11 SP1	
F601-8248-0000	SUSE Linux Enterprise Server for Teradata CMIC, 1 Year Subscription, Fulfillment
F601-8290-0000	SUSE Linux Enterprise Server for Teradata VMS/CMIC, SLES 11 SP1, Media Kit
F601-8295-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP1, Media Kit
Linux SLES 11 SP3	
F601-8290-0000	SUSE Linux Enterprise Server for Teradata VMS/CMIC, SLES 11 SP1, Media Kit
F601-8300-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP3, Media Kit
Rules: 1. One F601-8248-0000 is required for each Cabinet and System VMS. 2. One F601-8295-0000 (SP1) or F601-8300-0000 (SP3) is required for each Node, Channel Solution node. **All** must use same OS version when working together. 3. One F601-8290-0000 is required for every system.	

Note: The CMIC is now a virtualized instance on the System Virtualized Managed Server. The VMS server requires Linux 10 SP1 to run the virtualization software. The CMIC, running on the VMS, still requires Linux 11 SP1 for the Java Environment to operate.

Product ID	Description
Java License	
F601-9500-0000	Sun Java Windows (Embedded)
Rules: One F601-9500-0000 per VMS	

2.12 BYNET V5 (Hardware Components)

The Teradata Data Warehouse Appliance 2800 can be configured with a BYNET V5 Switch Pair (BYNET protocol over InfiniBand). BYNET V5 includes the following features:

- Improved Performance
- Redundant Hot-plug power and fan assemblies
- Hot-plug node cables and SFP modules
- Remote serviceability access
- Health Check Monitoring providing proactive failure reporting.
- Support for both copper and optical connectivity to all nodes.

2.12.1 BYNET V5 Switch (pair)

BYNET V5 is configured based on the size of the system, as well as planned growth. For BYNET V5 systems up to 36 nodes, the BYNET V5 5030 IB switch pair may be used. This switch pair replaces the 1Gb BYNET switches used in the 1Gb offer. For larger BYNET V5 systems, external InfiniBand switch cabinets are required.

Product ID	Description
2800 Appliance (BYNET V5)	
9190-F502	Network Switch BYNET V5, 36-port, IB (2 Switches)

This PID includes a 1U Filler Panel to cover the front of the switch.

2.12.2 BYNET V5 Node Adapter Card (MCX354A ConnectX-3)

The BYNET V5 Adapter Card runs at InfiniBand speeds **(56 Gb/s).** The BYNET V5 Node Adapter is a low profile PCIe Generation 3 adapter that has two ports, one for each BYNET fabric (typically numbered 0 and 1). When the BYNET V5 option is selected, a BYNET V5 Node Adapter is included with every Teradata and Channel Solution Node in the configuration. The BYNET V5 Node Adapter is compatible with all BYNET V5 switches. When BYNET V5 is selected, the BYNET Adapter is automatically added to the order by WOT (quantity is one per node).

Product ID	Description
2800 Appliance (BYNET V5 Adapter)	
9190-F254	Adapter-PCIe, BYNET V5, IB, 2CH, LP - FCAT

2.12.3 BYNET V5 Switch Cabinet

The BYNET V5 Cabinet has received a significant design update over previous generations and is now referred to as the BYNET V5 System Cabinet. The new cabinet enables the modular design of BYNET V5 by supporting the following BYNET V5 switch options:

- 108-port Switch
- 324-port Switch
- 648-port Switch

Important Note
Refer to the 6000 Series OCI for more information on configuring BYNET V5 external switch cabinets, including cabling requirements.

2.13 Disk Array Storage

The Teradata Data Warehouse Appliance 2800 uses enterprise-class Dot Hill Storage Systems storage drive trays featuring dual redundant controllers in one drive tray, Dual ESMs in a second drive tray, and SAS drives for data storage.

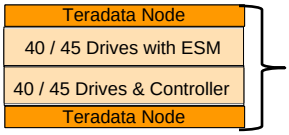


Figure 5: 2-node Half Clique

Storage for the 2800 2-node half clique includes the following items:

- One (1) 2800 Storage Drive Tray with Disk Array Controller pair
- One (1) 2800 Storage Drive Tray with ESM
- All drive trays are populated:
  - 40 DPN (RAID1)
  - 45 DPN (RAID6)
- Drive sizes:
  - 2.5" 300GB (10K) SAS (RAID1)
  - 2.5" 600GB (10K) SAS (RAID1)
  - 2.5" **900GB** (10K) SAS (RAID1)
  - 2.5” 1.2TB (10K) SAS (RAID1 or RAID6)
- SAS cabling for direct node to controller connections

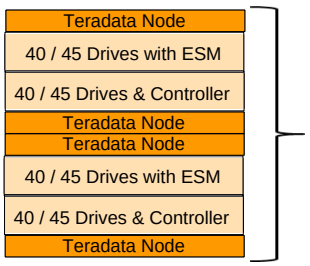


Figure 6: 4-node Full Clique

Storage for the 2800 4-node clique includes the following items:

- Two (2) 2800 Storage Drive Trays with Disk Array Controller pair
- Two (2) 2800 Storage Drive Trays with ESM
- All drive trays are populated:
  - 40 DPN (RAID1)
  - 45 DPN (RAID6)
- Drive sizes:
  - 2.5" 300GB (10K) SAS (RAID1)
  - 2.5" 600GB (10K) SAS (RAID1)
  - 2.5" **900GB** (10K) SAS (RAID1)
  - 2.5" 1.2TB (10K) SAS (RAID1 or RAID6)
- SAS cabling for direct node to controller connections

The 2800 Gallium-LX controllers have 4GB of cache, for a total of 8GB per disk array. This helps support the Write Back Cache feature.

The following tables shows estimated drive rebuild times for the four drive sizes for RAID1 offerings, and the one drive size available for RAID6.

Disk / RAID	No Load	Med	Heavy	Extreme
	Q=0/drv	Q=2/drv	Q=4/drv	Q=8/drv
300 / R1	0.8	2.1	2.8	4.6
600 / R1	1.5	4.3	5.7	9.1
900 / R1	2.2	5.7	8.5	13.6
1.2TB* / R1	3.2	8.4	12.5	19.9
1.2TB / R6	2.8	5.8	7.5	12.4

Figure 7: Estimated Drive Rebuild Times (Hours)

***Note: Considerations for the 1.2TB drives used in RAID1 configurations:**
The performance difference between the 1.2TB and the 900GB could be as much as -10%, when an equivalent percentage of the available CDS is full. For example, if there are two 4-node 2800 customers, one with 900GB drives, and one with 1200GB drives, and both of them fill their respective systems to 80% of their available capacity, you should expect to see -10% less IO performance on the system with 1200GB drives relative to the system with 900GB drives.

If you take those same two systems, and the 900GB system is filled to 60% capacity, and the 1200GB system is filled to 45% capacity (i.e. an equivalent data-set size on both systems), then we would expect the 1200GB drive system to have a performance delta of less than 10% from the 900GB customer (probably within 5%).

The above mitigation only applies when comparing systems with an equivalent spindle count and an equivalent (raw) data set size. If the customer opts to "size the system by capacity required" and elects to use a 1.2TB drive system with 25% fewer nodes (and thus spindles) than a 900GB drive system with an equivalent CDS capability, the same percentage of available spindle capacity will get consumed in BOTH cases for the same data set size. The customer, in this case, would therefore incur a per-spindle performance hit of -10%.

2.14 In-field Clique Expansions

Note: Due to country-specific laws and regulations, the 2800 In-field Clique Expansions **are not available for sale to India.**

The 2800 offers In-field Clique Expansions, which are integrated into the existing 2800 system, allowing it to expand. The PIDs are represented by "E" PIDs, which through this single PID, bundle nodes, storage and many common parts via a single "E" PID, including:

- 2800 Nodes
- SAS Adapters
- BYNET V5 (InfiniBand) Adapters
- Disk Drive Enclosures - Gallium LX/w ESM
- Disk Drive Enclosures - Gallium LX/Controller & 4GB WBC, 6Gb/s HIC
- Cable Assemblies, SAS, 2M
- Cable Assemblies, SAS, 1M

This "E" feature allows a customer to add a clique (three options are available), with nodes, BYNET, and storage drive trays. Configurable items that are added by the WOT model based on end user selection include drive size and memory. The drive sizes offered include the following four (4) drive options:

- 300GB (RAID1)
- 600GB (RAID1)
- 900GB (RAID1)
- 1.2TB (RAID 1 or RAID6)

Memory offered includes the following options:

- 128GB*
- 256GB
- 512GB

*Note: **The 128GB option is available to GSS only**. The recommended minimum for TIM (and the design center) is 256GB of memory per node. Upgrades to larger memory requires ALL DIMMs to be replaced.

Customers may choose from the following in-field clique expansion options:

1.) **New full clique** (4 nodes, 4 Drive trays)
2.) **New half clique** (2 nodes, 2 drive trays)
3.) **Half clique to full clique** (2 nodes, 2 drive trays, additional SAS cables)

Be sure to carefully select the proper choice when ordering as each option above contains different components, including quantities of cables.

The In-field Clique Expansion is subject to standard lead and ship times**.** These orders are supported in two parts:

1.) The In-field Clique Expansion for the customer
2.) A Transport Cabinet billed to the Account Team, which may be returned to Flextronics **within 90 days**.

You must confirm the amount of space in the cabinet(s) to ensure the clique(s) purchased will fit in the available space.

1.) New full clique (**12U**)
2.) New half clique (**6U**)

3.) Half clique to full clique (**6U**)

The 12-digit In-field Clique Expansion PIDs are bundled in nature, in that the PIDs include all items required to place the In-field Clique Expansion in a Loaner Cabinet (for staging) and in the customer system cabinet.

2.14.1 In-field Clique Expansions

Customers may choose from the following in-field clique expansion options:

1.) New full clique (4 nodes, 4 Drive trays)
2.) New half clique (2 nodes, 2 drive trays)
3.) Half to full clique Expansion (2 nodes, 2 drive trays, additional SAS cables)

2800 New Full Clique

Product ID	Description - Full Clique	Qty	Open U Required
Clique Upgrade: BYNET V5			
9190-E001-8090	Teradata 2800 Full Clique Expansion, 4-nodes (BYNET V5)	1	12U
Clique Upgrade: 1Gb BYNET – Co-residence Systems ONLY			
9190-E00?-8090*	Teradata 2800 Full Clique Expansion, 4-nodes (1Gb BYNET)	1	12U

2800 New Half Clique Expansion **

Product ID	Description – Half Clique	Qty	Open U Required
Clique Upgrade: BYNET V5			
9190-E003-8090	Teradata 2800 Half Clique Expansion (BYNET V5)	1	6U
Clique Upgrade: 1Gb BYNET			
9190-E00?-8090*	Teradata 2800 Half Clique Expansion (1Gb BYNET)	1	6U

2800 New Half to Full clique **

Product ID	Description - Half to Full Clique Expansion	Qty	Open U Required
Clique Upgrade: BYNET V5			
9190-E002-8090	Teradata 2800 Half-to-Full Clique Expansion, 2-nodes (BYNET V5)	1	6U
Clique Upgrade: 1Gb BYNET – Co-residence Systems ONLY			
9190-E002-8090*	Teradata 2800 Half clique Expansion, 2-nodes (1Gb BYNET)	1	6U

*PIDs for 1Gb BYNET In-field Clique Expansions, which would be used in co-residence situations only, are currently in development. If needed prior to release, use the Expansion cabinet.

** Please select your choice carefully when adding 2 nodes as different components are bundled and shipped, including cables. If you are expanding a 2 node clique into a 4 node clique, use the "Half to Full Clique Expansion" PID.

2.14.2 In-field Clique Expansions: Additional PIDs

The following PIDs **are added by WOT** with the 12-digit In-field Clique Expansion PIDs based on the option selected in WOT:

Product ID	Description	Qty New Full Clique	Qty New Half clique	Qty Half Clique Upgrade
Storage Array Disk Drives				
9190-F410	300GB 2.5" SAS HDD	160	80	80
9190-F412	600GB 2.5" SAS HDD	160	80	80
9190-F413	900GB 2.5" SAS HDD	160	80	80
9190-F414	1.2TB 2.5" SAS HDD *RAID1*	160	80	80
9190-F414	1.2TB 2.5" SAS HDD *RAID6*	180	90	90

Product ID	Description	Quantity
Global Hot Spare Disk Drives		
9190-F415	300GB 2.5" SAS HDD	2 per node
9190-F417	600GB 2.5" SAS HDD	2 per node
9190-F418	900GB 2.5" SAS HDD	2 per node
9190-F419	1.2TB 2.5" SAS HDD *RAID1*	2 per node
9190-F419	1.2TB 2.5" SAS HDD *RAID6*	2 per node

Product ID	Description	Quantity / Notes
Memory		
9190-F281	Memory, 64GB, DDR4-2133MHz (4 x 16GB DIMM)	128GB / node: 2 per node
9190-F282	Memory, 128GB, DDR4-2133MHz (4 x 32GB DIMM)	256GB / node: 2 per node 512GB / node: 4 per node

The following PIDs **are bundled** with the 12-digit In-field Clique Expansion PIDs based on WOT selections. Note that each Expansion Product includes a different number of bundled cables, so select carefully. **You will not see these items on the quote as line items; they do not need to be added for In-field Clique Expansions**:

Product ID	Description	Qty Full Clique (E101)	Qty Half-to-Full Clique (E102)	Qty Half clique (E103)
SAS Cabling				
9190-F480	Cable Assembly SAS, 2M (1 cable)	4 per clique	4 per clique	4 per clique
9190-F481	Cable Assembly SAS, 1M (1 cable)	12 per clique	8 per clique	NA
9190-F485	Cable Assembly, MiniSAS, 1M (one cable)	4 per clique	2 per clique	2 per clique
Adapters (SAS)				
9190-F229	Adapter, PCIe2, 6Gb SAS, 4 Channel, LSI	4	2	2

The following PIDs **are added** with the order by WOT:

Product ID	Description	Qty
Installation (Factory)		
9190-F943	Clique Expansion Install Feature	1 per clique
Installation (CS)		
9687-2000-0020	TSD Per Clique Installation	1 per clique

All three In-field Clique Expansion variants use the same Installation and TSD per Clique Installation PID (and have the same prices).

For In-field Clique Expansions, the BYNET cable kits are added to the order. The default length is 15 meter; this cable may be manually updated as needed.

Product ID	Description	Quantity / Notes
BYNET V5 – InfiniBand		
1413-C163-0050	Cable Assy, Optical QFSP+, 5 meter	2 per node Expansion Cabinet
1413-C163-0150	Cable Assy, Optical QFSP+, 15 meter	2 per node Expansion Cabinet - **Default**
1413-C163-0300	Cable Assy, Optical QFSP+, 30 meter	2 per node Expansion Cabinet
1413-C163-0500	Cable Assy, Optical QFSP+, 50 meter	2 per node Expansion Cabinet
1413-C163-1000	Cable Assy, Optical QFSP+, 100 meter	2 per node Expansion Cabinet

Refer to section PCI Slots and Adapters to select the appropriate adapter for the Teradata nodes in the clique.
Refer to section Disk Space Capacity on Demand to select the appropriate Customer Data Space based on the drive size configured and customer requirements.
Refer to section 4.2 Teradata Database for 2800: Overview to select the appropriate software for the In-field Clique Expansion.

Note: The 2800 In-field Clique Expansion **cannot** be placed in the rack of a different appliance, such as the 2500, 2550, 2555, 2580, 2650, 2690, 2700, or 2750. Similarly, the 2800 In-field Clique Expansion:

- **cannot** be placed in the cabinet of a different Teradata product class (EDW, Aster, 1000 Series Appliance, etc.)
- **cannot** be placed in a customer-owned cabinet

2.14.3 Create Transport / Loaner Cabinet Quote

Note: Due to country-specific laws and regulations, the following options **are not available for sale to India**:

- 2800 In-field Clique Expansions
- 2800 2nd System
- 680 SMP

The Transport / Loaner Cabinets must be on a separate order from the In-Field Clique Expansion Order. Please note that the logistics required to return equipment varies by country, and in some cases, return to Flextronics is not possible. **In those cases, the Transport Cabinet cannot be returned.** See Section 8.0 Expansions and Loaner Cabinets to learn more about the Loaner Cabinet process.

There are some items that will vary from customer to customer and site to site, and **they must be configured ("feature strung")**. These include:

- Power option
- BYNET Switch
- Top egress (if required

The loaner cabinet (9190-8000-8090) PID **includes** the following items **bundled** with the PID:

- System VMS (9190-F300)
- KMM (9190-F073 – OR - 9190-F083)

  - *Note: During the 2800 product lifecycle, a new version (functionally identical) was released for a cost reduction (9190-F083). Release scheduled for Q3FY'15.
- Side panels (9190-F013 X 1)

These items **should not be ordered** as add on features with this loaner cabinet PID; they are bundled as part of the 12-digit PID. They do not need to be called out on the order.

Since the Loaner Transport Cabinet is uncommon, the order must be created manually by adding individual PIDs. A BYNET switch pair should be included with the Loaner Transport Cabinet (either 1Gb BYNET over Ethernet or BYNET V5 for InfiniBand). The 12-digit Transport Cabinet PID **includes** the System VMS (CMIC, SWS and Single System Viewpoint combined in a 1U server) and KMM. To create your quote, enter the appropriate Loaner Cabinet PID:

Product ID	Description	Quantity
9190-8000-8090	Teradata DW 2800 Staging / Loaner Cabinet	1

Select the power option by adding the appropriate power PID to the quote:

Product ID	Description	Quantity
9190-F050	30A single phase or phase-phase (Type A)	1
9190-F051	30A three-phase delta (Type B)	1
9190-F052	60A three-phase delta (Type C)	1
9190-F053	30A/32A Three-Phase WYE 230V L-N (Type D)	1

If top egress is required, select the field in WOT. This will add the following PID to the order:

Product ID	Description	Quantity
9190-F060	Top Egress	1 per cabinet

All **BYNET V5** (InfiniBand) implementations require the addition of the BYNET V5 switch pair in the Loaner Transport Cabinet.

Product ID	Description	Quantity
9190-F502	Network Switch BYNET V5 36-port (pair)	1

2.15 2nd 2800 System: Overview

Note: Due to country-specific laws and regulations, the following options **are not available for sale to India**:

- 2800 In-field Clique Expansions
- 2800 2nd System
- 680 SMP

The 2800 offers the ability to have a 2nd 2800 system, either 2-node or 4-node, placed in the Base / System cabinet. Unlike the In-field Clique Expansions, this system is NOT integrated into the existing 2800 system; it is a separate system. The 2-node system can be expanded to a 4-node system; however, it may not expand beyond the 4 nodes. **It is certified for use in the 2800 Base / System cabinet only.**

The PIDs are represented by "E" PIDs, which through this single PID, bundle nodes, storage and many common parts via a single "E" PID, including:

- 2800 Nodes
- SAS Adapters
- BYNET V5 (InfiniBand) Adapters
- Disk Drive Enclosures - Gallium LX/w ESM
- Disk Drive Enclosures - Gallium LX/Controller & 4GB WBC, 6Gb/s HIC
- Cable Assemblies, SAS, 2M
- Cable Assemblies, SAS, 1M

This "E" feature allows a customer to add either a 2-node or 4-node 2nd 2800 system, with nodes, BYNET, and storage drive trays. Configurable hardware items that are added by the WOT model based on end user selection include number of nodes, drive size, and memory. The drive sizes offered include the following four (4) drive options:

- 300GB (RAID1)
- 600GB (RAID1)
- 900GB (RAID1)
- 1.2TB (RAID 1 or RAID6)

Memory offered includes the following options:

- 128GB*
- 256GB
- 512GB

*Note: **The 128GB option is available to GSS only**. The recommended minimum for TIM (and the design center) is 256GB of memory per node. Upgrades to larger memory requires ALL DIMMs to be replaced.

Customers may choose from the following 2nd System options:

1.) New full clique (4 nodes, 4 drive trays)
2.) New half clique (2 nodes, 2 drive trays)

The 2nd System is subject to standard lead and ship times**.** These orders are supported in two parts:

1.) The 2nd System order for the customer
2.) A Transport Cabinet billed to the Account Team, which may be returned to Flextronics **within 90 days**. Flextronics places the system in this cabinet for full staging; the system is shipped in the Transport cabinet, and the system is staged at the customer site in the Transport cabinet.

You must confirm the amount of space in the cabinet(s) to ensure the clique(s) purchased will fit in the available space.

1.) New 2nd system - full clique (**12U**)
2.) New 2nd system - half clique (**6U**)

The 12-digit In-field Clique Expansion PIDs are bundled in nature, in that the PIDs include all items required to place the In-field Clique Expansion in a Loaner Cabinet (for staging) and in the customer system cabinet.

2.15.1 2nd 2800 System: Clique PIDs

Customers may choose from the following 2nd system options:

1.) New full clique (4 nodes, 4 Drive trays)
2.) New half clique (2 nodes, 2 drive trays)

2800 2nd System

Product ID	Description - Full Clique	Qty	Open U Required
Clique Upgrade: BYNET V5			
9190-E101-8090	Teradata 2800 Second System 4+0	1	12U
9190-E103-8090	Teradata 2800 Second System 2+0	1	6U

2.15.2 2nd 2800 System: Additional PIDs

The following PIDs **are added by WOT** with the 12-digit In-field Clique Expansion PIDs based on the option selected in WOT:

Product ID	Description	Qty New Full Clique	Qty New Half clique	Qty Half Clique Upgrade
Storage Array Disk Drives				
9190-F410	300GB 2.5” SAS HDD	160	80	80
9190-F412	600GB 2.5” SAS HDD	160	80	80
9190-F413	900GB 2.5” SAS HDD	160	80	80
9190-F414	1.2TB 2.5” SAS HDD *RAID1*	160	80	80
9190-F414	1.2TB 2.5” SAS HDD *RAID6*	180	90	90

Product ID	Description	Quantity
Global Hot Spare Disk Drives		
9190-F415	300GB 2.5” SAS HDD	2 per node
9190-F417	600GB 2.5” SAS HDD	2 per node
9190-F418	900GB 2.5” SAS HDD	2 per node
9190-F419	1.2TB 2.5” SAS HDD *RAID1*	2 per node
9190-F419	1.2TB 2.5” SAS HDD *RAID6*	2 per node

Product ID	Description	Quantity / Notes
Memory		
9190-F281	Memory, 64GB, DDR4-2133MHz (4 x 16GB DIMM)	128GB / node: 2 per node
9190-F282	Memory, 128GB, DDR4-2133MHz (4 x 32GB DIMM)	256GB / node: 2 per node 512GB / node: 4 per node

The following PIDs **are bundled** with the 12-digit In-field Clique Expansion PIDs based on WOT selections. **You will not see these items on the quote as line items; they do not need to be added for In-field Clique Expansions**:

Product ID	Description	Qty Full Clique (E101)	Qty Half-to-Full Clique (E102)	Qty Half clique (E103)
SAS Cabling				
9190-F480	Cable Assembly SAS, 2M (1 cable)	4 per clique	4 per clique	4 per clique
9190-F481	Cable Assembly SAS, 1M (1 cable)	12 per clique	8 per clique	NA
9190-F485	Cable Assembly, MiniSAS, 1M (one cable)	4 per clique	2 per clique	2 per clique
Adapters (SAS)				
9190-F229	Adapter, PCIe2, 6Gb SAS, 4 Channel, LSI	4	2	2

The following PIDs **are added** with the order by WOT:

Product ID	Description	Qty
Installation (Factory)		
9190-F943	Clique Expansion Install Feature	1 per clique
Installation (CS)		
9687-2000-0020	TSD Per Clique Installation	1 per clique

All two 2nd System options use the same Installation and TSD per Clique Installation PID (and have the same prices).

Refer to section PCI Slots and Adapters to select the appropriate adapter for the Teradata nodes in the clique.
Refer to section Disk Space Capacity on Demand to select the appropriate Customer Data Space based on the drive size configured and customer requirements.

Note: The 2800 2nd System **cannot** be placed in the rack of a different appliance, such as the 2500, 2550, 2555, 2580, 2650, 2690, 2700, or 2750. Similarly, the 2800 2nd System:

- **cannot** be placed in the cabinet of a different Teradata product class (EDW, Aster, 1000 Series Appliance, etc.)
- **cannot** be placed in a customer-owned cabinet

See section 2.13.3 Create Transport / Loaner Cabinet Quote to create a separate quote for the Loaner / Transport Cabinet.

2.16 Memory Upgrades

The customer also has the option to upgrade the memory in the nodes of the 2800 after purchase. These are manual orders; there is no WOT Model.

- Memory
  - 128GB to 256GB
  - 256GB to 512GB
  - 128GB to 512GB

CS has defined Change Control processes to support the memory upgrade process in the field. The 2750 and 2800 Hardware Service Guides with the upgrade procedures have been posted and are available here:

http://infocentral.daytonoh.teradata.com/tsd-library/iplatform.cfm

See the "Cabinet Hardware Expansion and Upgrade Procedures" chapter containing these topics.

A single Services PID supports these implementations; final pricing is provided by the Bid Desk based on the scope of work.

2800 CS Field Services

Product ID	Description	Notes
2800 CS		
9687-2000-0085	2800 Node Memory Upgrade (per node)	• Quantity is 1 per node

Memory: 2800

Product ID	Description	Notes
In-field Memory Upgrade Using 32GB DIMMs		
9190-K282	Memory 128GB, DDR4-2133MHz, (4 X 32GB DIMM)	Use to upgrade 2800 node memory • If 2800 has 128GB / node (uses 16GB DIMMs): ○ add quantity 2 for 256GB / node (original DIMMs must be replaced) ○ add quantity 4 for 512GB / node (original DIMMs must be replaced) • If 2800 has 256GB / node (uses 32GB DIMMs): ○ add quantity 2 for 512GB / node

2.16.1 Encryption

The 2800 offers an Encryption upgrade, which provides data at rest encryption for the drives in the storage array, as well as the hard drives in the various nodes (servers including TPA, TMS, VMS, Channel Solution, ECS, NCS, and Dump Server). The WOT default selection is no encryption. The encryption feature cannot be applied to just servers or just storage; it is always applied to all drives where customer data resides. In consulting with Teradata subject-matter experts and industry experts, the guidance received was that regulations driving encryption (HIPPA, SOX) would not be met by merely having the drives of the storage arrays encrypted, or the drives in servers; thus it is applied to both.

To learn details of the FDE features and functionality, review the KTS:
http://cks.teradata.com/8525621800464274/0/79C9CEF9EBB7B74285257DC8005A822A

The physical implementation is a field-based CS engagement, as input from the customer (password) is required. Contact CS for details on the process and procedure for implementation, as well as any customer impact. The upgrade of a system in the field to enable the FDE encryption on the disk arrays is transparent to the user; no SYSINIT is required.

Teradata implements Full Disk Encryption (FDE) with Self-Encrypting Drives (SED) that support AES-256 level of encryption. This allows data to be encrypted by the controller as it is written to disk. The charge to customers will be done per node.

There are two PIDs charged to the customer, assessed at the "per node" level and are represented by the PIDs below, which is automatically calculated by WOT and added to the order when Encryption is selected.

Product ID	Description	Qty
Encryption: Storage and Servers		
9190-F497	Teradata Data Warehouse Encryption (Storage)	1 per node
9190-F200	Teradata Data Warehouse Encryption (Server)	1 per TPA, TMS, VMS, Channel Solution, ECS, NCS, and Dump Server

2.16.1.1 In-field Upgrade for Data at Rest Encryption for Storage

In some cases, a 2800 customer may wish to implement the Data at Rest Encryption for storage in the field, after the system was originally purchased. The following PID must be used. It is not in the WOT catalog "wizard" and requires creating the order manually.

Product ID	Description	Qty
Encryption		
9190-K497	Teradata Data Warehouse Encryption, Kit (Storage)	1 per node
9190-K200	Teradata Data Warehouse Encryption, Kit (Server)	1 per TPA, TMS, VMS, Channel Solution, ECS, NCS, and Dump Server

2.17 Disk Space Capacity on Demand

The capacity of the clique is licensed in a new capacity on demand (COD) method, allowing the customer to purchase and use only that storage capacity needed, based on drive size.

The order summary for a system notes the Disk Space COD. Teradata CS will configure this by installing the appropriate DSCOD packages at system installation time. This is a step noted in the system installation template.

Some key contacts in Services noted some feedback from the Field where the new system is replacing an existing system, so the customer is migrating their data. Even though the migration process states to ensure there is enough space on the target system to hold the data, some migrations have encountered negative space issues for DBC as a result of the disk space COD settings. So, before a migration, some sites disable disk space COD temporarily, then re-enabling it after the migration. There is a separate template for installing/upgrading the Disk Space COD packages if done outside of the system installation.

Prior models in this product line used an "honor policy" for disk space capacity. In some cases, account teams have engaged PS to set up a "dummy" database to block off data space. As part of CS on-site visits, CS determined how much data space would be used and how much the customer was entitled to; if they exceeded the customer was charged (additional TBs are sold) or the customer removed data.

The Archie tool and other CDS planning tools will use 20% spool in the 2800 appliance. The CDS used for pricing and minimum required CDS for 2800 is based on CDS calculation with no compression. Since compression can vary greatly, and since we need a constant number, pricing is based on the data capacity without compression.

The new option will allow the allocation of Disk Space Capacity on Demand so that storage can be held in reserve for future purchase. The minimum capacity allowed to be put on demand will be 50% down to 0% in 5% increments. Configuration options for Disk Space COD are as follows:

- Disk Space Capacity on Demand (No Disk Space CoD; Disk Space CoD)
- Percent of HDD Disk Space on CoD (0% to 50% in 5% increments)

The tables below are based on the "Physical CDS Enabled" field in Archie.

Product ID	Description	Req	Max
When Disk Space CoD is selected			
F444-7200-0000	HDD Enabled Capacity – Enabled Disk Space in 5% Increments of full capacity	6	20
F444-7210-0000	HDD Disk Space COD - Available Disk Space on Demand in 5% of full capacity	0	14
Rules: Disk Space Capacity on Demand will default to No Disk Space CoD This feature is restricted to TD 14.00.01 or later releases **Notes:** *Why 5% increments?* There's a physical reason for the 5%. TVS divides the storage between the allocators in units of 120 cylinders (called chunks). Cylinders can't cross a chunk boundary and large cylinders must be aligned on a large cylinder boundary (0 mod 6). Space COD hides space from the DBS by taking cylinders from each chunk. This spreads the COD over the performance range of the disk. We need to COD on a large cylinder boundary, or we risk wasting space because there is very little use for small cylinders. A large cylinder is 6 small cylinders. 6/120 = 5%.			

This same set of options will also be offered in upgrades/expansions so that the remaining capacity can be purchased in the future.

- Customer support will install packages on the system to control the amount of storage and changes to the storage capacity.
- Changing a disk COD percentage requires a restart.

This new disk-COD method is only available on the 2800 (in the 2000 Series Appliance space) at this time; it will not be released on previous models.

2.17.1 300GB Disk Space COD / CDS

A 2800 half clique (2 nodes and 2 drive trays with 40 active drives per tray and 2 GHS drives) with 300GB drives has a total of 7.68TB of customer data space (CDS) with 0% compression. A 2800 full clique with 300GB drives has a total of 15.2TB of customer data space (CDS) with 0% compression. The capacity of the clique is licensed in a capacity on demand (COD) method that allows the user to use only that capacity needed. The minimum license capacity is 4TB CDS beginning with the 2-node half clique and 8TB CDS for the 4-node full clique. Licenses may be incrementally added up to reach the maximum licensed CDS available for the number of nodes entered into WOT for a given drive size.

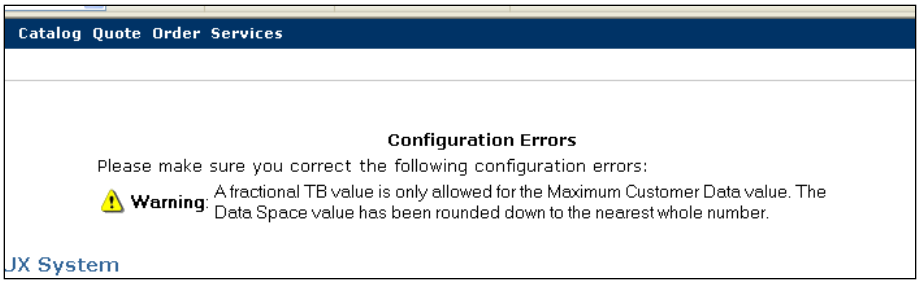
The following table shows the 300GB drive CDS ranges using **20% spool and 0% compression**:

300GB Drives: Teradata Database 14.10 (20% Spool)			
Cliques	**Total Number of Nodes**	**Minimum Licensed CDS (TB)**	**Maximum Licensed CDS (TB)**
1/2	2	4	7.6
1	4	8	15.2
1 1/2	6	12	22.8
2	8	16	30.4
2 1/2	10	20	38
3	**12**	**24**	**45.6**
3 1/2	14	28	53.2
4	16	32	60.8
4 1/2	18	36	68.5
5	20	40	76.1
5 1/2	22	44	83.7
6	24	48	91.3
6 ½	26	52	98.9
7	28	56	106.5
7 ½	30	60	114.1
8	32	64	121.7
8 ½	34	68	129.3
9	36	72	137

All orders must contain Capacity on Demand licensing. Licensing is ordered through multiples of the following Product IDs:

Product ID	Description
9190-K980	Activation of 1.0 Terabytes Customer Data Space 300GB drives
9190-K981	Activation of 0.1 Terabytes Customer Data Space 300GB drives

The fractional TB values for Capacity on Demand licensing are only allowed when configuring the system to support the maximum customer data space value. The system will automatically round down to the nearest whole number if fractional vales are entered in any other scenario. The configuration error message below will be displayed when attempting to configure the fractional customer data space incorrectly:



Here are some examples of ordering capacity on demand and the rules for fractional values when configuring a 2800 using 300GB drives:

1. 1 Clique system using minimum CDS of 4TB on 300GB drives.
   - Order 9190-K980 quantity of 4.
2. ½ Clique system using CDS of 7.6TB on 300GB drives.
   - Order 9190-K980 quantity of 7 and 9190-K981 quantity 6.
3. 1 Clique system using CDS of 1TB on 300GB drives.
   - Invalid. The 300GB drives have a minimum CDS of 4TB.

Note that minimum and fractional values will change with the size of the drives, as noted in the tables below.

2.17.2 600GB Disk Space COD / CDS

A 2800 half clique (2 nodes and 2 drive trays with 40 active drives per tray and 2 GHS drives) with 600GB drives has a total of 15.2TB of customer data space (CDS) with 0% compression. A 2800 full clique (**4** nodes and 4 drive trays with 40 active drives and 4 GHS drives) with 600GB drives has a total of 30.4TB of customer data space (CDS) with 0% compression. The capacity of the clique is licensed in a capacity on demand (COD) method that allows the user to use only that capacity needed. The minimum license capacity is 7TB CDS beginning with the 2-node half clique and 14TB CDS for the 4-node full clique.

The following table shows the 600GB drive CDS ranges using **20% spool and 0% compression:**

600GB Drives: Teradata Database 14.10 (20% Spool)			
Cliques	**Total Number of Nodes**	**Minimum Licensed CDS (TB)**	**Maximum Licensed CDS (TB)**
1/2	2	7	15.2
1	4	14	30.4
1 1/2	6	21	45.7
2	8	28	60.9
2 1/2	10	35	76.1
3	**12**	**42**	**91.4**
3 1/2	14	49	106.6
4	16	56	121.9
4 1/2	18	63	137.1

5	20	70	152.3
5 1/2	22	77	167.6
6	24	84	182.8
6 ½	26	91	198.1
7	28	98	213.3
7 ½	30	105	228.5
8	32	112	243.8
8 ½	34	119	259
9	36	126	274.3

The same rules for ordering fractional values with 300GB drives apply to 600GB drives; only the maximum values change as reflected in the table.

Product ID	Description
9190-K982	Activation of 1.0 Terabytes Customer Data Space 600GB drives
9190-K983	Activation of 0.1 Terabytes Customer Data Space 600GB drives

2.17.3 900GB Disk Space COD / CDS (Requires Pricing Approval)

A 2800 clique (2 nodes and 2 drive trays with 40 active drives per tray and 2 GHS drives) with 900GB drives has a total of 22.8TB of customer data space (CDS) with 0% compression and 20% spool. A 2800 full clique (**4** nodes and 4 drive trays with 40 active drives per tray and 4 GHS drives) with 900GB drives has a total of 45.7TB of customer data space (CDS) with 0% compression. The capacity of the clique is licensed in a capacity on demand (COD) method that allows the user to use only that capacity needed. The minimum license capacity is 11TB CDS beginning with the 2-node half clique and 22TB CDS for the 4-node full clique.

The following table shows the 900GB drive CDS ranges with **20% spool and 0% compression**:

900GB Drives: Teradata Database 14.10 (20% Spool)			
Cliques	**Total Number of Nodes**	**Minimum Licensed CDS (TB)**	**Maximum Licensed CDS (TB)**
1/2	2	11	22.8
1	4	22	45.7
1 1/2	6	33	68.5
2	8	44	91.4
2 1/2	10	55	114.3
3	**12**	**66**	**137.1**
3 1/2	14	77	160
4	16	88	182.9
4 1/2	18	99	205.7
5	20	110	228.6
5 1/2	22	121	251.5
6	24	132	274.3
6 ½	26	143	297.2
7	28	154	320.1

7 ½	30	165	342.9
8	32	176	365.8
8 ½	34	187	388.7
9	36	198	411.5

2.17.4 1.2TB – RAID6 Disk Space COD / CDS

A 2800 clique (2 nodes and 2 drive trays with 45 active drives per tray and 2 GHS drives) with 1.2TB drives has a total of 53.3TB of customer data space (CDS) with 0% compression and 20% spool. A 2800 full clique (**4** nodes and 4 drive trays with 40 active drives per tray and 4 GHS) with 1.2TB drives has a total of 106.6TB of customer data space (CDS) with 0% compression. The capacity of the clique is licensed in a capacity on demand (COD) method that allows the user to use only that capacity needed. The minimum license capacity is 26TB CDS beginning with the 2-node half clique and 52TB CDS for the 4-node full clique.

The following table shows the 1.2TB drive CDS ranges with **20% spool and 0% compression**:

1.2TB Drives with RAID6: Teradata Database 14.10 (20% Spool)			
Cliques	**Total Number of Nodes**	**Minimum Licensed CDS (TB)**	**Maximum Licensed CDS (TB)**
1/2	2	26	53.3
1	4	52	106.6
1 1/2	6	78	160
2	8	104	213.3
2 1/2	10	130	266.6
3	**12**	**156**	**320**
3 1/2	14	182	373.3
4	16	208	426.7
4 1/2	18	234	480
5	20	260	533.3
5 1/2	22	286	586.7
6	24	312	640
6 ½	26	338	693.4
7	28	364	746.7
7 ½	30	390	800
8	32	416	853.4
8 ½	34	442	906.7
9	36	468	960

The same rules for ordering fractional values with 300GB drives apply to 1.2TB drives; only the maximum values change as reflected in the table.

Product ID	Description
9190-K986	Activation of 1.0 Terabytes Customer Data Space 1.2TB drives, RAID6
9190-K987	Activation of 0.1 Terabytes Customer Data Space 1.2TB drives, RAID6

2.17.5 1.2TB – RAID1 Disk Space COD / CDS (Requires Pricing Approval)

Note: The following feature was release after the 2800 was GCA'd.

A 2800 clique (2 nodes and 2 drive trays with 40 active drives per tray and 2 GHS drives) with 1.2TB drives has a total of 30.4TB of customer data space (CDS) with 0% compression and 20% spool. A 2800 full clique (**4** nodes and 4 drive trays with 40 active drives per tray and 4 GHS drives) with 1.2TB drives has a total of 60.9TB of customer data space (CDS) with 0% compression. The capacity of the clique is licensed in a capacity on demand (COD) method that allows the user to use only that capacity needed. The minimum license capacity is 15TB CDS beginning with the 2-node half clique and 30TB CDS for the 4-node full clique.

The following table shows the **RAID1** 1.2TB drive CDS ranges with **20% spool and 0% compression**:

1.2TB Drives with RAID 1: Teradata Database 14.10 (20% Spool)			
Cliques	**Total Number of Nodes**	**Minimum Licensed CDS (TB)**	**Maximum Licensed CDS (TB)**
1/2	2	15	30.4
1	4	30	60.9
1 1/2	6	45	91.4
2	8	60	121.9
2 1/2	10	75	152.3
3	12	90	182.8
3 1/2	14	105	213.3
4	16	120	243.8
4 1/2	18	135	274.3
5	20	150	304.7
5 1/2	22	165	335.2
6	24	180	365.7
6 ½	26	195	369.2
7	28	210	426.7
7 ½	30	225	457.1
8	32	240	487.6
8 ½	34	255	518.1
9	36	270	548.6

The same rules for ordering fractional values with 300GB drives apply to 1.2TB drives; only the maximum values change as reflected in the table.

Product ID	Description
9190-K988	Activation of 1.0 Terabytes Customer Data Space 1.2TB drives, RAID1
9190-K989	Activation of 0.1 Terabytes Customer Data Space 1.2TB drives, RAID1

2.18 Teradata Managed Servers (TMS)

Notes on the TMS and Associated Software

- The Teradata Managed Servers and, where applicable, the respective associated software products for the Teradata Managed Servers, have dedicated product managers. Questions **should not be directed to Hardware Platform PM**, and instead should be directed to the appropriate hardware and/or software PM.
- For the latest info on TMS options, please refer to the Platform Framework Cabinet Model 12 (9212) OCI, which is Knowledge Asset KA66117.
    - If your customer has a TMS from an earlier release or different product line, and they would like to use it in a new / different TD Hardware Platform, please review cabinet compatibility matrix in the OCI (section 24).
- **All questions should be submitted to GSS via a GSS Help Desk Ticket. To determine the appropriate PM, go to InfoHub** (https://connections.teradata.com/community/infohub) and navigate to the appropriate product InfoHub site.
- **As noted earlier in this document, the R730 TMS ordering process involves first selecting the appropriate Factory Integration choice in the 2800 WOT model in the "Factory Integration – Multipurpose Servers" panel. The second step, as a second run through WOT is to order the actual TMS in the Teradata Multipurpose Server WOT model (which generates 9228 PIDs)**

To simplify the configurations supported, TMS are only allowed in the Base / System cabinet. The number of TMS / Channel Solution nodes allowed in the Base / System cabinet is determined by the power type; the Low Power option cannot support a fully burdened cabinet. To ensure the Low Power option is not overburdened, and to plan for potential in-cabinet expansion, U spaces will be blocked in the lower and upper halves of the cabinet, depending upon the configuration.

- Base cabinet, which includes KMM and BYNET switch pair (BYNET V5 supports up to 36 nodes)
    - ½ clique, Low Power: up to 10 TMS / Channel Solution nodes (F050)
    - ½ clique: up to 15 TMS / Channel Solution nodes for All other power types
    - 1 Clique, Low Power: up to 7 TMS / Channel Solution nodes (F050)
    - 1 Clique: up to 12 TMS / Channel Solution nodes for all other power types
    - 1 ½ Cliques, Low Power: up to 3 TMS / Channel Solution nodes (F050)
    - 1 ½ Cliques: up to 9 TMS / Channel Solution nodes for all other power types
    - 2 Cliques, Low Power: No TMS allowed (F050)
    - 2 Cliques: up to 6 TMS / Channel Solution nodes for all other power types
    - 2 ½ Cliques, Low Power: No TMS allowed (F050)
    - 2 ½ Cliques: up to 3 TMS / Channel Solution nodes for all other power types
    - 3 Cliques, Low Power: No TMS allowed (F050)
    - 3 Cliques: No TMS allowed
- Expansion cabinet
    - No TMS / Channel Solution nodes
    - The 9212 Platform Framework Cabinet should be used for any TMS / Channel nodes that cannot be accommodated in the first (Base / System) cabinet.

WOT rules will determine the best arrangement for TMS / Channel Solution nodes. When appropriate, WOT will direct the end user to configure a 9212 Platform Framework Cabinet.

The new factory-installed TMS available in this product include the following:

Server	Model	Use
Customer Servers		

Teradata Managed Server, Generic	609L 809L 800-10HD 800-26HD	• Available with SLES11 OS, for customer applications • Only TMS Generic 609L or 809L are eligible for factory-added HDDs (features)
Application Server		
Teradata Viewpoint Server	819	Linux based server for Viewpoint solution
Teradata Managed Server, SAS (with 26 HDD)	820	Linux based server SAS solution with 26 HDDs
Teradata Managed Server, Unity Ecosystem Manager	839	Linux based server for Ecosystem Manager
Teradata Managed Server, Data Mover	849	Linux based server for Data Mover solution
Teradata Managed Server, BAR	655A, 655D, 855AD	655:Linux based server for Teradata BAR. Two servers types one for Administration and one for Data. 855: Linux based server for Teradata BAR Data Stream Architecture. One server type for Administration and Data. Only one is required for DSA (In DSA environment, remaining BAR servers may be 655D's)
Teradata Managed Server, Load Server	869	Linux based server for Teradata Load utilities
Teradata Managed Server, Load Server High Capacity	860	Linux based high capacity load server for Teradata Load utilities
Teradata Managed Server, Unity Director (with 10 HDDs or 26 HDDs)	880	Linux based server for Unity Director solution
Teradata Managed Server , Dump Server	8A0	Linux based server for Teradata Dump Server • Note: The Dump Server is **required** for systems over 12 nodes. • WOT will display an **error message** if this is not included on the quote for a new system with more than 12 nodes. • WOT will display a **warning message** if this that this should be included for expansions to systems with more than 12 nodes (in case the customer already has one).
Teradata Managed Server, QueryGrid	679	• Linux based server for Teradata QueryGrid solutions (formerly Unity Source Link) • OCI: https://www.my.teradata.com/redir.html?assetID=KA70156
Services Workstation		
Teradata Services Workstation (SWS)	67	Linux based Server used with Teradata Systems for Teradata Customer Support management

A limited number of TMS / Channel Nodes are available via the 2800 WOT model. If you require a variant of the models shown in the 2800 WOT model, please review the available systems from the sections below to determine availability in the 9190 product class. If not available, please use the WOT "Teradata Managed Servers" model to view all options and add it as an item in a 9212 Platform Framework Cabinet or select the Kit.

If more TMS / Channel nodes are required than what can be accommodated in a 2800 configuration, the 9212 Platform Framework Cabinet may be used.

All TMS use the same Staging and Integration PID.

Product ID	Description	Notes
Managed Server - Generic		
9190-F905	TMS, Staging & Integration, (Reference Feature)	

2.18.1 TMS BAR

The 2800 offers several BAR server configuration options. WOT supports 1 x TMS BAR in the base cabinet, as the TMS BAR was developed to support single cabinet configurations (typically 2-4 nodes). For situations where a customer wants to utilize the 2800 base cabinet for more than 1 TMS BAR, additional BAR servers must be configured with field install TMS BAR server PIDs.

Field install items **do not** verify if there is **adequate space** in the cabinet. Please be sure to take into consideration cabinet space availability when field installing the additional BAR server(s). See TMS BAR 655/855 OCI for product id info on field install TMS BAR**.**

If additional BAR servers are required, a dedicated BAR cabinet should be configured. When factory installing the 655D and 855AD TMS BAR, I/O option features must be divisible evenly across all 655A and 855AD servers. TMS BAR 655A may only configure additional I/O options with the field install kits.

Note that the adapters used for TMS BAR have their own, specific PID numbers, allowing the factory to easily identify which servers get the BAR adapters. It helps to keep TMS BAR and TPA nodes clearly delineated in the factory build process.

All TMS use the same Staging and Integration PID.

Product ID	Description	Notes
Managed Server - Generic		
9190-F905	TMS, Staging & Integration, (Reference Feature)	

The new BAR server requires cables to be added via the WOT BAR Panel or in the list under TMS BAR (655/855) within the 2800 catalog. Your BAR presales consultant will identify the appropriate cable connections and type between the nodes and the TMS BAR server.

2800 systems are ***slot-limited*** for BAR connections as only the IO Module may be used for BAR. If needed, a Network Connectivity Server may be added to the configuration for BAR / Customer LAN connectivity.

2.19 Channel Solutions

The 2800 offers two servers for mainframe connectivity:

- Channel Node
- ECS

The Channel Solutions OCI can be found on the Asset Repository by searching for Asset Number KA68414 or <click here>.

The 2800 offers the ability to have two (2) separate 2800 systems in the same Base / System cabinet. Similarly, the 2800 offers the ability to have a 2800 system and a 680 in the same Base / System cabinet. Please note that Channel nodes cannot be shared between two different systems,

therefore, if Channel Nodes are needed for discrete systems in the 2800 Base / System cabinet, individual channel nodes must be ordered.

2.19.1 Channel Nodes

A Channel Node is a dedicated Teradata node that supports the Teradata Database's capability for mainframe connectivity. The number of TMS / Channel Solution nodes allowed in a cabinet is determined by the type of cabinet:

- Base cabinet, which includes KMM and BYNET switch pair
  - ½ clique, Low Power: up to 10 TMS / Channel Solution nodes (F050)
  - ½ clique: up to 15 TMS / Channel Solution nodes for All other power types
  - 1 Clique, Low Power: up to 7 TMS / Channel Solution nodes (F050)
  - 1 Clique: up to 12 TMS / Channel Solution nodes for all other power types
  - 1 ½ Cliques, Low Power: up to 3 TMS / Channel Solution nodes (F050)
  - 1 ½ Cliques: up to 9 TMS / Channel Solution nodes for all other power types
  - 2 Cliques, Low Power: No TMS allowed (F050)
  - 2 Cliques: up to 6 TMS / Channel Solution nodes for all other power types
  - 2 ½ Cliques, Low Power: No TMS allowed (F050)
  - 2 ½ Cliques: up to 3 TMS / Channel Solution nodes for all other power types
  - 3 Cliques, Low Power: No TMS allowed (F050)
  - 3 Cliques: No TMS allowed

- Expansion cabinet
  - No Channel / TMS are allowed in the 2800 Expansion cabinets. Use the Platform Framework Cabinet (9212)

The Channel Node offered with the 2800 Data Warehouse Appliance 2U Intel Romley node with two (2) Sandy Bridge 2620 2.0 GHz six-core processors. The 2U server is used instead of the 1U server to ensure multiple Channel connectivity adapters may be supported. Over the life of the 2800 product, a new version of the Channel Node, based on Grantley, is expected. The table below will be updated to reflect the new option when available.

They following FICON Channel Node is available:

Product ID	Description
9190-F311	Node, Channel FICON-L, (Intel R2)
9190-F31? (TBD)	Node, Channel FICON-L (Intel R2), Grantley

These Channel Nodes come with a single card bundled, as noted above. WOT offers the ability to select versions with 2 adapters. If an additional FICON adapter is required, then it must be added manually to the order.

The Channel Node includes a BYNET V5 Adapter (automatically added to the quote by WOT):

Product ID	Description
BYNET V5 Adapter (InfiniBand)	
9190-F254	Adapter-PCIe, BYNET V5, IB, 2CH, LP - FCAT

2.19.1.1 FICON Connectivity

Channel Solution nodes with one adapter card installed, including both Channel Nodes and the ECS, can have an additional adapter added in the field. These adapters may also be installed in the factory when the order for the ECS or Channel Node is placed.

Product ID	Description
9190-K261 9190-F261	Adapter, PCIe FICON-L
Notes: > A Channel Node can have a maximum of 3 ESCON or FICON adapters. Adapters can be a mix of ESCON or FICON, although Teradata **does not sell** ESCON adapters. > Teradata does not provide ESCON or FICON cables, cable connectors or cable adapters. These must be obtained from the customer's mainframe vendor. > When adding Adapters to existing Channel Nodes, Channel Connect software must be included. Order F785-2967-0000 for each adapter added.	

2.19.1.1 ESCON Connectivity

Important Update – July 2014: The market for ESCON is rapidity changing. IBM has begun a program to convert existing mainframes from ESCON to FICON. As a result we have seen a dramatic decline in the number of ESCON Channel Nodes/Adapters being ordered. Due to these developments, Teradata has changed its strategy with ESCON and has discontinued the sale of ESCON Channel Node and Adapters. On July 15, 2014 the Final Discontinuation Notice was issued and ESCON Channel Nodes and Adapters are no longer available. Please see asset number KA65874 on the Asset Repository for more details. For questions or support, please open a GSS HelpDesk ticket at http://trd.td.teradata.com/gss/.

2.19.1.2 Channel Software

There are two types of software needed for the Channel Solutions; Teradata Channel Node Software and Channel Connect Software. The Channel Connect Software is now bundled with the Channel Node/Extended Channel Solution Server, and the license is included with the adapter. The Teradata Channel Node Software is a separately charged item and is required to be on all Channel Solution orders.

Product ID	Description
F785-2967-0000	Teradata Channel Software – Linux
Notes: • Requires either SuSE Linux SLES 10 SP3 or SuSE Linux SLES 11. • Order one copy per Channel Node/Extended Channel Solution Node.	

In addition to the Channel Software, there are a series of Teradata Tools and Utilities that are available. These software packages are included in the Teradata database bundles. For more information see the TTU Mainframe Tools, Teradata Utility Pak and Teradata Database, OCIs for details. OCIs are available on Teradata Asset Repository.

2.19.1.3 Operating System

The Channel Solutions are offered with the SuSE Linux Enterprise Server (SLES) operating system. SuSE Linux SLES is a 64-bit operating system that leverages the extended memory 64-bit technology of the Intel processors. 64-bit addressing of Linux allows for much larger memory sizes to be supported.

Linux is ordered via two product IDs, one for the media kit and a second for the license. Licenses are version neutral while media kits are version specific. The Web Ordering Tool has been programmed to include the appropriate number of each.

Important Note: A Channel Node must use the same Operating System as the Teradata System. When ordering as a Field Install, you must ensure that the Channel Node is ordered with the same OS as the Teradata System it will be installed into. WOT has a dropdown that will allow you to select the Operating System.

Product ID	Description
Linux SLES 11	
F601-8247-0000	SUSE Linux Enterprise Server for Teradata, 1 Year Subscription, Fulfillment
F601-8295-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP1, Media Kit
F601-8300-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP3, Media Kit
Rules: • One F601-8247-0000 is required for each Node, Hot Standby Node, NCS, and Channel node • One F601-8295-0000 or F601-8300-0000 is required for every system. The OS on each of these nodes must be the same to work together.	

2.19.2 Field-Installable Channel Solutions (Kits)

Field-installable Channel Node kits are available via the 9214 product class and Bill of Materials. The Teradata node of the 2800 is an Intel-based node; use the Intel-based Channel node for field installation. If an additional card is required, the kit may be used. The ECS is Dell-based, and field installable versions of the ECS are on the 9213 FBOM.

The ECS is managed through the Channel Solutions program. The Channel Solutions OCI can be found on the Asset Repository by searching for Asset Number KA68414 or <click here>. If required information is not in the OCI, please submit a GSS Help Desk ticket.

2.19.3 Cabling for Mainframe Connectivity

Teradata does not provide ESCON or FICON cables, cable connectors or cable adapters. These items must be obtained from the customer's mainframe vendor.

FICON Cables

The PEFA adapter uses an optical single-mode 9/125um cable with an LC connector that supports cable lengths of up to 10 kilometers (6.2 miles).

2.20 Power and Cooling Considerations

Note: The new Site Survey process is designed to address questions regarding the power and cooling needs of customers. **As part of the survey completion process, Regional Experts (trained by Teradata Engineering) can address customer-specific questions** (GSS and/or Hardware Platform PM are not required). Additional information on contacts, as well as process

and procedures, are provided in a CS Knowledge Article (KAP1132B3E) and/or Service Bulletin (SB502).

AC Distribution Boxes provide the connection from the AC power receptacle to the AC power input on the 2800 cabinets. A cabinet has two AC Distribution Boxes and must be set up in a "dual feed" mode, meaning each box should be connected to separate electrical circuits for redundancy. The cabinet can continue to operate should power be lost on one input.

The 2800 has no internal battery backup protection. Should the customer-provided AC input source fail, the system will experience an immediate power loss and shut down unless the site is protected by a building UPS system. If high system availability is critical, the customer should be strongly advised to procure a stand-alone UPS unit if no building UPS is installed. This is particularly encouraged if clean external infrastructure AC power cannot be guaranteed.

2.20.1 Power Distribution Unit (PDU)

The PDUs operate at 50Hz or 60Hz. The 9190 Class product will use PDU Feeder boxes that mount inside the cabinet on the sidewalls of the rack at the rear. These feeder boxes allow approximately 9 feet of cable egress out the top or bottom of the cabinet. In order to assure that the product is shipped with the cabinet already configured according to the customer's desired power cord egress (top or bottom); there are specific power features for top egress and bottom power cord egress.

Should the System require BYNET V5 and exceed more than 36 nodes (or if planned growth will exceed 36 nodes), 9107 Class cabinets will be required. The 9107 Class product will have U space power distribution boxes mounted at the bottom of the cabinet that will allow the cord to egress approximately 14 feet out the bottom of the rack or approximately 8 feet out the top of the rack. This product does not utilize a feature to determine if the cord goes out the top or the bottom.

Important Note:
The 2800 utilizes Power Distribution Units (PDUs) instead of an Uninterruptible Power Supply (UPS). Customer must be made aware that they are responsible for ensuring a clean and consistent power supply for the system.

2.20.2 Power Consumption

When compared to previous generations of 2000 Series Appliance (25xx and 26xx), power consumption per cabinet for 2800 configurations can be higher. For example, power consumption of a fully loaded 3-clique 2800 cabinet (Base / System cabinet), which has **12 (twelve) 1U nodes is 14.4 kW**. Other common power profile estimates are as follows:

- 4n2800 / Power = 5.27kW
- 2n2800 / Power = 2.96kW
- 2n2800 + 1n680 / Power = 4.65kW

2.20.3 Cooling Considerations

Cooling must be provided to remove heat generated by IT equipment. Comparing to previous generations of the 2000 Series Appliance, the cooling requirements of the 2800 are much higher because:

1.) Power consumption levels are generally higher for 2800 than for previous generations; and higher power consumption levels require more cooling.
2.) The cabinet door has changed from the original plenum door design used in previous generations of the 2000 Series Appliance (25xx and 26xx).
    a. The plenum door design neutralizes the cooling environment to some extent, making a 6kW cabinet with the plenum door similar, from cooling requirement perspective, to a 4kW cabinet with a conventional, all perforated door.
    b. The new door of the 42U cabinet will have a perforated front door, similar to those used with other equipment vendors.

These cooling requirements mean advanced Site Planning is required prior to placing a system through a WOT approval. Cooling requirements can have a direct impact on cabinet layout (row density) over prior generation Teradata platforms which can result in fewer cabinets being ganged together. This order may require more side panels to meet the cabinet layout. **Complete site plans early to ensure sufficient side-panels are included with your order, including the CS Site Survey.**

2.20.4 Power Solution and Environment Considerations

International power environment remains the same while North America power environment is evolving. While most countries adopting North America power (120Vac L-N and 208Vac L-L) stay with this power environment, a growing number of customers in North America power regions have started to adopt International-style power (230Vac L-N and 400Vac L-L) in an attempt to improve data center power delivery efficiency. We are also receiving more requests for power cords to egress at the top of the cabinet.

42U-rack products have AC solutions that are designed to meet specific power environment:

- International power solutions with various phase configurations and/or amperage ratings with bottom or top egress
- North America power solutions with various phase configurations and/or amperage ratings with bottom or top egress
- North America with International style power solutions with various phase configurations and/or amperage ratings with bottom or top egress

2.20.5 Site Supportability Survey

To ensure configuration accuracy before a final quote is provided, the Site Supportability Survey should be completed prior to submitting a final proposal / final quote to the customer. All of the above mentioned issues must be considered before the hardware is ordered.

Account teams **MUST** obtain and fill out a Supportability Survey Form in order to ensure that all 42U-rack products including 2800 systems are properly configured and manufactured that will meet the specific requirements of a data center where system will be installed.

Teradata CS Regional Installation Expert contacts have been cross-trained by Teradata Engineering SME's. In APJ, the Region Change Control Team in CS has been identified as the initial contact. **As part of the survey completion process, Experts can address customer-specific questions (not GSS or Hardware Platform PM)**. Additional information on contacts,

as well as process and procedures, are provided in a CS Knowledge Article (KAP1132B3E) and/or Service Bulletin (SB502).

For a list of all Knowledge Articles and support material, <click here>.

2.20.6 Serviceability Related to Server Height inside Cabinets

Prior to 42U-rack products, all servers (TPA nodes, TMS's, VMS's, etc.) are mounted below 32U inside Teradata cabinets to enable 1-CSR service model where a single TD CS person can perform the following w/o relying on any height assistant tools:

- Standing on the data center floor, the CSR by herself/himself can open the lid of a server to access and service parts inside the server.
- Standing on the data center floor, the CSR by herself/himself can remove a server from and/or install a server into a cabinet

The current 42U-rack products may have servers optionally mounted above the 32U height limit, and in some cases mounted all the way to 42U. The ability to mount one or more servers above and beyond 32U height limited depends on the availability of height assistant tools such as lifts, work platforms, or work bench. In the case of work benches, if the surface area is insufficient for a person to safely perform activities other than parts replacement, a second CSR is required when installation or removal of server is required.

2.20.7 Other Support Related Issues

Cabinet Bottom Clearance – The clearance space from floor to bottom of cabinet (lowest part of the outside of the cabinet to the ground) is ~2.62 inches.

Weight – Due to packaging density increase, this product can potentially weigh more. Data center access floor panels or floor tiles all have limited load capacity. Assuring floor tiles can support cabinet weight is necessary to ensure safe installation.

Cabling – Some data centers adopt structured cabling with use of passive patch panels. Providing the right type of cables and cable lengths is essential to proper installations.

2.20.8 Remote Access

All new TD systems require "ServiceConnect" be installed to ensure remote support can be performed. The customer, specifically the customer security team must agree to have "ServiceConnect" enabled. It is vital that this requirement be discussed and **approved by the appropriate customer team members well in advance of the planned system install date** in order to allow sufficient review time by the security team. Declining this requirement will result in Non Standard Support Processes and Policies (i.e. **no business critical support**).

2.21 Power Selection

Some countries support multiple power options; be sure you have confirmed the appropriate selection via the Site Survey process. Similarly, when creating an order for resellers, you must ensure the power for the end user is mapped correctly. Countries of particular concern are in Central/South America and Asia (**Brazil, Peru, and Philippines are key examples**). Note that not all power options are available in all countries.

Account teams **MUST** obtain and fill out a Supportability Survey Form in order to ensure that all 42U-rack products including 2800 systems are properly configured and manufactured that will meet the specific requirements of a data center that the system will be installed.

If top egress is required, select the field in WOT. This will add the following PID to the order:

Product ID	Description	Quantity
9190-F060	Top Egress	1 per cabinet

2.21.1 Cabinet Power Features

Feature/Model	Input Cords	Power Type	Notes	County/ Region
Type A				
9190-F050 See 2.21.3 for stack up restrictions when using this power feature.	4 Cords Standard: Bottom Egress Optional: Add F060 for Top Egress	Single phase, or phase-phase, depending on power source. Plug is rated at 32A for Europe and 30A for North America	This plug will have three pins. Europe: (Phase to Neutral) Used with 230V Line to neutral power, typically found in Europe, the power plug will connect to Line, Neutral and Safety ground. Americas: (Phase to Phase) Used with 3-phase WYE with Line to Neutral voltage typically 120V or 127V and a line to line voltage of 200V to 240V, the power plug will power plug will connect to two Lines and Safety ground. The power plug will not connect to neutral. Japan: (Phase to Phase) Used with a 200V Delta power source, the power plug will connect to two Lines and Safety ground. The power plug will not connect to neutral.	Worldwide
Type B Watertight				
9190-F051 Type B – Watertight Plugs	4 Cords Standard: Bottom Egress Optional: Add F060 for Top Egress	30A 3-phase Delta	Utility Power Sources: – 3-Phase WYE with a Line to Neutral voltage typically 120V or 127V and a Line to Line voltage of 200V to 240V; this product does not connect to the neutral. (North America) – Alternative: power source is Delta power source 200V to 240V on each side (Japan) – With either of these two utility sources each of the four pin power plugs will connect to all three lines and also to safety ground. With this power solution the power plug will not have a neutral connection.	Americas, Japan, Taiwan
Type C				
9190-F052	2 Cords Standard: Bottom Egress Optional: Add F060 for Top Egress	60A 3-phase Delta	Utility Power Sources: – 3-phase Wye with a line to neutral voltage typically 120V or 127V and a line to line voltage of 200V to 240V; this product does not connect to the neutral (North America) – Alternative: power source is Delta power source 200V to 240V on each side (Japan) – With either of these two utility sources each of the four pin power plugs will connect to all three lines and also to safety ground. With this power solution the power plug will not have a	Americas, Japan, Taiwan

Feature/Model	Input Cords	Power Type	Notes	County/ Region
			neutral connection.	
Type D				
9190-F053	2 Cords Standard: Bottom Egress Optional: Add F060 for Top Egress	30/32A 3-phase WYE 240V L-N Plug is rated at 32A for Europe and 30A for North America	Utility Power Sources: – 3-phase WYE with a line to neutral voltage of 200V to 240V – With this utility source each of the five pin power plugs will connect to all three lines, neutral and safety ground. – Not suitable for 120V WYE type power that is traditional in North America	Standard for Europe, Australia, Asia To use this feature in North America, this requires a data center with specialized power - 230V Line to Neutral. This is not standard in North America.

Notes:

1. To order Top Egress, include one 9190-F060 Power – Top Egress Installation (Reference Feature) per cabinet on order.
2. Americas is defined as the following countries: Canada, Colombia, El Salvador, Mexico, Nicaragua, Panama, United States, and Venezuela.
3. Bahrain, Brazil, Lebanon, Philippines, Saudi Arabia and South Korea require discussions with the site team to determine the appropriate power feature for the specific site.

*Note: Top egress is designated by adding PID 9190-F060 to the quote.

2.21.2 Power Receptacles and Connectors

Power receptacles (wall or panel-mounted) or connectors (that attaché to cordage) are to be provided by the customer/site. The site receptacles or connectors must match the power type ordered for the plugs. Teradata offers connectors as an option - The customer can acquire the mating receptacle or connector from any source. The following table defines the connector or receptacle type required for each power type. The table also lists the PIDs for the Teradata connector kits. Note: Teradata sells connector kits, but does **not** sell receptacle kits.

Please see the Product and Site Preparation Guide for plug, connector and receptacle drawings and manufacturer names and part number of known mates.

Power Type ordered with Cabinet	Power Plug	Power Receptacles
2800 Cabinet		
9190-F050 (Type A)	IEC 60309 CEE17, pin and sleeve, 6 hour, 30/32A, blue (250V), 2P+E, IP44 Splash proof, 4 plugs per cabinet	IEC 60309 CEE17, pin and sleeve, 6 hour, 30/32A, blue(250V), 2P+E, IP44 splash proof, 4 receptacles per cabinet Connectors can be obtained by ordering 2021-K900. Two of these kits are required for one cabinet.
9190-F051 (Type B)	IEC 60309 CEE17, pin and sleeve, 9 hour, 30A, blue(3Ø250V), 3P+E, IP67 Watertight, 4 plugs per cabinet	IEC 60309 CEE17, pin and sleeve, 9 hour, 30A, blue(3Ø250V), 3P+E, IP67 Watertight, 4 receptacles per cabinet. Connectors can be obtained by ordering 2021-K904. Two of these kits are required for one cabinet.
9190-F052 (Type C)	IEC 60309 CEE17, pin and sleeve, 9 hour, 60A, blue(3Ø250V), 3P+E, IP67 watertight, 2 plugs per cabinet	IEC 60309 CEE17, pin and sleeve, 9 hour, 60A, blue(3Ø250V), 3P+E, IP67 Watertight, 2 receptacles per cabinet Connectors can be obtained by ordering 2021-K902. One kit is required per cabinet.
9190-F053 (Type D)	IEC 60309 CEE17, pin and sleeve, 6 hour, 30/32A, red(400V), 3P+N+E, IP44 splash proof, 2 plugs per cabinet	IEC 60309 CEE17, pin and sleeve, 6 hour, 30/32A, red(400V), 3P+N+E, IP44 Splash proof, 2 receptacles per cabinet Connectors can be obtained by ordering 2021-K903. One kit is required per cabinet.
9107 BYNET V5 Cabinet		
9107-F050	IEC 60309 CEE17, pin and sleeve, 6 hour, 30/32A, blue(250V), 2P+E, IP44 splash proof, 2 plugs per cabinet	IEC 60309 CEE17, pin and sleeve, 6 hour, 30/32A, blue(250V), 2P+E, IP44 Splash proof, 2 receptacles per cabinet Connectors can be obtained by ordering 2021-K900. One kit is required per cabinet.

2.21.3 Power: 30A single phase or phase-phase Type A (F050)

The 91908-F050 Type A power option (4 cord, 30A single phase, or phase-phase) is **not available** for all stack-ups. WOT will display an error message if the configuration exceeds the allowable constraints for the power selected.

2.22 Cabinet Power Kits for In-field Replacement

If a 2800 system has shipped with the incorrect power, or if the data center has changed power types, an in-field feeder box replacement kit may be ordered using the kit (2021-Kxxx) PIDs below. For guidance on selecting the correct power, see section 2.17 Power Selection.

Quantity is 1 per rack.

Power Feature Needed	Field-installable Kit PID	Kit Description
30A Single Phase or Phase-Phase (Type A) 9190-F050	2021-K939	• AC Feeder boxes that correspond to F050 type power • This kit can be used to convert a cabinet into one that has four cords 30A single or Phase to Phase power for worldwide use. • Includes labeling noting the limitations of this power type. • Order one kit per cabinet.
30A Three phase Delta w/watertight plugs (Type B) 9190-F051	2021-K938	• AC Feeder boxes that correspond to F051 type power. • This kit can be used to convert a cabinet into one that has four cords 30A three phase Delta for North American Power. • One kit provides sufficient feeder boxes for one Cabinet
60A Three phase Delta (Type C) 9190-F052	2021-K932	• AC Feeder boxes for F052 type power • This kit can be used to convert a cabinet into that has two cords 60 A three phase Delta for North American Power • One kit provides sufficient feeder boxes for one Cabinet
30/32A three phase wye (Type D) 9190-F053	2021-K933	• AC Feeder boxes for F053 type power; This kit can be used to convert a cabinet into one that has two cords 30/32A three phase Wye for European type power • One kit provides sufficient feeder boxes for one Cabinet

The process and procedure for changing cabinet power attributes is in the Service Guide: Teradata Data Warehouse Appliance 2750 / 2800 Cabinet Hardware Service Guide (B035-5343-092K)

2.23 Enhanced Packaging

Teradata supplies enhanced packaging for shipments of 2800 Cabinets. Enhanced Packaging includes a heavier platform tray, additional desiccant packages and an additional protective bag to provide a means for repackaging if needed during transit. The purpose of this enhanced packaging is for moisture protection of the equipment and shock protection. Moisture and rough handling can damage the equipment. In many locations, high humidity, rough roads, and marginal in-transit storage facilities are challenges to safe delivery. In other countries facilities and roads are good, but their environment is very humid which requires added moisture protection. The Enhanced Packaging helps minimize these challenges.

The Enhanced Packaging option is required for shipments to the following countries:

China	Hong Kong	India	Indonesia
Korea	Malaysia	Philippines	Singapore
Sri Lanka	Taiwan	Thailand	

All other countries do not require enhanced packaging.

Product ID	Description	Note
9190-F014	Packaging Enhanced Protection	Order one per cabinet

2.24 Russian User Guide

The Russian version of the User Guide is a new legal requirement (GOST); it must accompany systems when the product will reside in any of the following countries:

- Russia
- Belarus
- Kazakhstan
- Kyrgyzstan

If the Customer location is one of these countries WOT will automatically map the PID. **In some cases, we have customers that ship through two Ireland-based organizations in GSDB - 6210 and 7708 – which can ship to multiple countries**. Please manually add the Russian User Guide PID to your quote if the **final customer location** is one of the countries noted above, but you are using a GSDB organization that is not located in the list provided.

Product ID	Description	Note
9190-F947	9190 Russian User Manual	One per system if customer location is in country requiring Russian version of document

Note: Russia now has its own ordering Russia DDP (6361).

2.25 System Accessory Kit

The System Accessories Kit provides miscellaneous accessories whose quantities vary depending on the customer configuration and environment. Examples include manuals, Ethernet cables to connect to the SWS, and other small items. One kit is required for every two cabinets.

Product ID	Description	Note
9190-K019	9190 Class System Kit	Order one for every two (2) cabinets

2.26 Stabilizer Kit

Previously, the stabilizers were included as part of the System Kit. These are now a separate item from the System Kit. Since they are used across platforms, they have been created in the 2021 Kit Class.

Product ID	Description
2021-K221	Stabilizer Kit
Rule: If the system is comprised of a single 2800 cabinet, WOT will add quantity 1 to the quote. Otherwise, stabilizers are not needed.	

2.27 Side Panels

The 2800 offers Side Panels that can be included with the order based on the quantity entered. Select this option in WOT.

Product ID	Description
9190-K013	Rack 42U, Side Panels (Kit)
Rule: 9190-K013: Quantity based on number entered on WOT screen.	

2.28 Hardware RASUI

The 2800 hardware includes the following reliability, availability, serviceability, usability, and installability design features so that there are no mission critical single points of failure.

- Hot pluggable disk drives (Processing Node Chassis)
- Hot pluggable power supplies (Processing Node Chassis, 3GSM Chassis, VMS Chassis)
- Hot pluggable Distributed Management Boards (3GSM Chassis, VMS Chassis Processing Node Chassis)
- Redundant fans (Processing Node Chassis, 3GSM Chassis, VMS Chassis)
- Redundant power supplies (Processing Node Chassis, 3GSM Chassis, VMS Chassis)
- Redundant Interconnect (BYNET)
- Redundant I/O buses (Processing Node Chassis)
- Parity checking on I/O busses (Processing Node Chassis)
- EDAC (Error Detection and Correction) on memory (Processing Node Chassis)
- Flash EEPROM update (Processing Node Chassis, 3GSM Chassis, VMS Chassis BYNET Chassis)
- Field Serviceable Media Drives, Processors, Memory, I/O (Processing Node Chassis)
- Chassis Field Replaceable Units (All Chassis)
- Remote support capability (All Chassis)
- Dual AC Power (All Chassis and cabinets)
    - Note: The Ethernet switches for Server Management and BAR do not have dual AC power
- Environmental monitoring, i.e. temperature, power

2.29 Certifications

The products contained in this document comply with regulatory agency requirements for electrical safety, electromagnetic interference, and radio frequency interference including cTUVus (which is equivalent to UL and cUL), CE, C-TICK, and FCC Compliance. Details on Teradata product certifications including FAQs and standard RFP / RFI information is available here:
http://trd.td.teradata.com/quality/CertificationsAchievements.cfm

Consult the Teradata Data Warehouse Appliance 2800 Platform Product and Site Preparation Guide for more details and specifications including EMI and country level compliance (see Regulatory Compliance section).

2.29.1 RoHS

Teradata systems are compliant to RoHS directive 2011/65/EU with allowed exemptions.

2.29.2 WEEE

WEEE (Waste Electrical and Electronic Equipment) is a directive adopted by the European Union (EU) and India to reduce the amount of waste from electrical and electronic equipment and increase recycling. Increased recycling of electrical and electronic equipment will limit the total quantity of waste going to final disposal. The legislation dictates requirements for environmentally safe disposal of electronic equipment.

Teradata will provide pick-up and disposal services for our customers who wish to dispose of their Teradata equipment in accordance with the WEEE EU and India's E-Waste directive guidelines as established by each country. This will be a fee-based service. It is also recommended that clients contract with Teradata Customer Support for secure disk erasure of sensitive data prior to disposal of storage devices.

Customers who need to have their Teradata equipment disposed of should call their local Customer Care Center to arrange pick-up. See Teradata.Com for WEEE at: http://www.teradata.com/corporate-responsibility.aspx?id=6309

2.30 Operational Environment

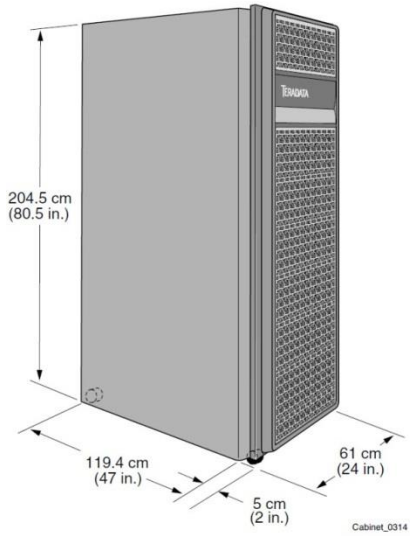
The 2800 has the following environmental guidelines:

Environmental Requirement	Operational		Storage		Transit (up to 1 week)	
	English	Metric	English	Metric	English	Metric
Temperature (dry bulb) Recommended Allowable	 64°.8^{F} – 80.6°^{F} 59°^{F} - 90°^{F}	 18°^{C} - 27°^{C} 15°^{C} - 32°^{C}	 41°^{F} - 113°^{F}	 5°^{C} - 45°^{C}	 -40°^{F} - 140°^{F}	 -40°^{C} - 60°^{C}
Moisture / Humidity Allowable	 20% - 80%	 20% - 80%	 8% - 80%	 8% - 80%	 5% - 95%	 5% - 95%
Maximum Dew Point	62°^{F}	17°^{C}	80°^{F}	27°^{C}	80°^{F}	27°^{C}
Maximum Altitude	10,000 ft.	3,050 m	10,000 ft.	3,050 m	10,000 ft.	3,050 m
Due to lower air density at higher altitudes, the maximum dry bulb operating temperature is derated linearly by a value of 1.8°^{F} per 1,000 ft./3.3°^{C} per 1,000 m between the altitude of 2,952 ft./900 m and 10,000 ft./3,050 m.						

Environmental Requirement	Operational
Vibration limit	0.01 G/Hz over frequency range of 7-500 Hz System will continue to operate without hard errors during and after a half sine wave show of 2 GHz or 11 millisecond duration Maximum double amplitude displacement is limited to 1.27 mm (0.05 in.) in a range from 0 to 10 Hz
Static discharge	4000 V direct discharge, 8000 V air discharge

2.31 Physical Specifications

The 2800 has the following physical specifications for the cabinet.



Feature	Height		Width		Depth	
	English	Metric	English	Metric	English	Metric
Cabinet frame	80.5 in	205 cm	24 in	60.96 cm	47 in	119.4 cm
+ side stabilizers	+ 0	+ 0	+ 14 in	34.6 cm	+ 9 in	+22.9 cm
+ front door	+ 0	+ 0	+ 0	+ 0	+ 2 in	+5.08 cm
+ side panels (per side)	+0	+0	+ .5 in	1.25 cm	+ 0	+ 0

3.0 Server Management with the VMS

The Virtualized Management Server (VMS) is a 1U server that is offered in two product types:

1.) Teradata System VMS: provides the capability of the existing CMIC, SWS and Viewpoint servers in a single, 1U virtualized environment
   a. Supports up to 128 nodes
2.) Teradata VMS Cabinet: provides the capability of the existing CMIC in a single, 1U virtualized environment

3.1 VMS Quantity Calculation

The first cabinet is provided a VMS as follows:

- If the system being configured has 1 to 128 nodes (Teradata nodes of Standard ½ clique and full cliques, 2nd 2800 System nodes, and Channel Nodes combined), the first cabinet will have the System VMS (9190-F302) in the first cabinet if the system being configured (Teradata nodes and Channel Nodes combined).

Subsequent cabinets are provided Cabinet VMS (CMICs) as follows:

- The second cabinet has a Cabinet VMS (9190-F300).
  - This provides CS better supportability should the System VMS fail
- Every 3rd cabinet then gets the Cabinet VMS (9190-F300).
  - Each additional 32 nodes gets a Cabinet VMS (CMIC)
- If a system has >128 nodes (Teradata nodes of Standard ½ clique and full cliques, Channel Nodes, field-installed options such as the 680 or 2ns 2800 systems combined), a standalone Viewpoint TMS is required.

For systems with more than 648 nodes, two of the 2800 cabinets must have subnet manager servers.

Product ID	Description	Notes
Subnet Manager Server		
9190-F???		For systems with more than 648 nodes, two of the 2800 cabinets must have subnet manager servers.

The VMS uses the Intel Romley R1000 1U Chassis. The VMS is paired with a KMM (1U). WOT will automatically add these PIDs to the quote when the 1U VMS System server is configured by the WOT wizard.

Product ID	Description	Notes
KMM		
9190-F073 OR***** 9190-F083	KMM, Console, 18.5" LCD w/Rails 	1U KMM installed in the "Base" system cabinet. ***Note**: During the 2800 product lifecycle, a new version (functionally identical) was released for a cost reduction (9190-F083). Release scheduled for Q3FY'15.

This 1U VMS is a replacement to ordering separate servers for the CMIC, SWS, and Viewpoint. The version of Viewpoint included with the VMS System product is a specialized version capable of monitoring only a single system (SSV, or Single-system Viewpoint). Similarly, the SWS software also monitors a single system. If the customer requires Viewpoint to monitor more than one system, a Viewpoint Appliance must be ordered. This includes:

- 2nd 2800 System(s) in the Base / System Cabinet
- 680 SMP Test / Dev Unit

Should the system exceed the limitations of System VMS, which can monitor systems with up to **128 nodes,** a SWS must instead be added to your order. The SWS options include:

1.) Use the 2U SWS placed in the Platform Framework Cabinet
2.) Use the 2U SWS (9190-F709), placed in the first cabinet of the 2800.

Since only one instance of SWS software should be running on the system, the SWS instance on the VMS will be disabled using the process documented in the Services Field Guide (3.14 How to Disable a Virtual Machine from Starting up at VMS boot):
http://teraworks.td.teradata.com/display/SRVMGMT/Virtualized+Management+Server+Field+Guide

The Viewpoint software version included with the VMS is configured for single-system monitoring; **it cannot monitor multiple systems**. If the system is required to monitor multiple systems, the Viewpoint Appliance must be added to the order.

Similarly, dual systems / Unity EcoSystem Manager requires confirmation that the customer has the Viewpoint Appliance (or it must be added to the order).

- **VMS Viewpoint can only monitor one system and is not supported in High Availability clusters (no support for clustering); therefore, it is not supported for Unity EcoSystem Manager/Dual Systems implementations.**

The "VMS Viewpoint" option in WOT may be set to "No" if the customer will be using a Viewpoint Appliance (server) to manage the 2800 configuration. If the "VMS Viewpoint" option is set to "No" the following PID will be automatically added to the order:

Product ID	Description
F444-6733-0000	VMS Server Management Software for 2800

Please note: There is <u>no process</u> to add the Viewpoint Virtual Machine to the VMS in the field. PM recommends you always set the VMS Viewpoint option to "Yes."

If the VMS Viewpoint option is set to "Yes" the following PIDs will be automatically added to the order:

Product ID	Description
F444-6733-0000	VMS Server Management Software for 2800
9687-2000-0044	Viewpoint SW Administration
F801-5533-0000	VMS Viewpoint 15.0 Portal and Self Service Portlets for 2800

The VMS server requires Linux 10 SP1 to run the virtualization software. The CMIC, running on the VMS, still requires Linux 11 SP1 for the Java Environment to operate.

3.2 System VMS Configurations

The System VMS combines the CMIC, SWS, and Viewpoint/CAM functionality into a 1U server. At the time of release, the System VMS will use the Sandy Bridge processors used in the current 2750 System VMS. However, it is expected that over the lifecycle of the product, an upgraded version of the System VMS, using the Haswell processor, will be introduced. These systems come fully configured with below components:

System VMS

- 1U Rack mountable Server
- 2 x Sandy Bridge 2620 2.0 GHz – 6 core (Romley) at initial system release **<u>OR</u>** 2 x Haswell E5-2609v3 1.9 GHz – 6 core CPUs (Grantley)
- 128 GB memory (16GB DIMMs)
- Six (6) 1.2TB drives (with HW RAID1)
- CMIC: 11.04 or later ; VMS: 01.02.01 or later
- Six Ethernet interfaces for Server Management Public LAN connectivity
    - Optional 2-port 10Gb Ethernet adapter for public LAN

Product ID	Description	VMS Notes
9190-F302	System VMS Configuration	1-128 nodes
F601-8247-0000	SUSE Linux SLES License, 1 Year	Required; 1 per VMS
F601-8248-0000	SUSE Linux SLES License for CMIC, 1 Year	Required; 1 per CMIC VM
F601-8280-0000	SLES 10 SP3 media kit	Required; 1 per System
F601-8290-0000	SLES 11 SP1 media kit	Required; 1 per System

The SM-Web software requires 1 Java License per CMIC, which WOT adds automatically.

Product ID	Description
F601-9555-0000	Teradata Sun Java Windows (Embedded) no Royalty

3.3 VMS Cabinet Configuration

The VMS Cabinet supports the VMS-based functions which include the CMIC and an optional SWS offer. The VMS Cabinet configuration may not be upgraded to the VMS System option.

The VMS Cabinet will be used in any 2800 Appliance Expansion cabinets shipped from Flextronics. This configuration may also be an option for the base cabinet when the customer does not require Viewpoint (because they already have the Enterprise version on a TMS).

The VMS Cabinet comes fully configured with below components:

- 1U Rack mountable Server
- 1 x Sandy Bridge 2620 2.0 GHz – 6 core (Romley) **OR** 1 x Haswell E5-2609v3 1.9 GHz – 6 core CPUs (Grantley)
- 64 GB memory (16GB DIMMs)
- Two (2) 600GB Hitachi drives (with HW RAID1)
- CMIC: 11.04 or later ; VMS: 01.02.01 or later

Product ID	Description	VMS Notes
9190-F300	VMS Cabinet Configuration	All Expansion cabinets
F601-8247-0000	SUSE Linux SLES License, 1 Year	Required; 1 per VMS
F601-8248-0000	SUSE Linux SLES License for CMIC, 1 Year	Required; 1 per CMIC VM
F601-9555-0000	Teradata Sun Java Windows (Embedded) no Royalty	Required; 1 per CMIC VM

3.4 SWS

In some cases, the customer may require a Service Workstation (SWS). It is somewhat common in Japan / APJ; it is required if the system exceeds 128 nodes.

Product ID	Description	SWS Notes
9190-F709	2U SWS	2U SWS suitable for installation in the 9190 Class cabinet
9190-F905	TMS Staging and Integration	Install feature for the SWS

4.0 Teradata Database Software

Notes on the Teradata Database and TTU Software

- The Teradata Database and TTU software have dedicated product managers. Please direct database/TTU questions to them or submit a GSS Help Desk Ticket.
  - **To determine the appropriate PM, go to InfoHub** (https://connections.teradata.com/community/infohub) and navigate to the appropriate product InfoHub site.
    - Database InfoHub
    - Database Product Management
    - Current Database OCI: https://connections.teradata.com/docs/DOC-24575
- Teradata Database Version Requirements
  - Please check the internal version of the Teradata Platform and Minimum Database Compatibility Matrix for the latest updates on Teradata version support for this platform.
- **All questions not answered via the resources noted above should be submitted to GSS via a GSS Help Desk Ticket.**

Teradata Database for the 2800 is targeted and optimized specifically for Decision Support System (DSS) workloads. DSS workload is characterized as follows:

- Unrestrained and ad hoc queries
- Large numbers of records accessed
- Complex joins and scans are common
- Unpredictable work that is user driven
- Usage of ad hoc tools and dynamic access
- Voluminous trickle or batch updates
- Seconds or minutes response times are acceptable

At release, the 2800 supports Teradata TD14.10 and 15.0 on SLES 11. Earlier versions of the Teradata database and different versions of the SLES OS are **not supported**.

For the Teradata Database on the 2800, the vast majority of Teradata Database features and functionality is included. The Teradata Database for the 2800 is pre-packaged and pre-tuned to enhance performance for the processing of strategic, ad hoc, and complex queries. The tuning is focused on DSS (instead of mixed workload). Due to the DSS emphasis, mixed workload management is de-emphasized. Thus, tools for mixed workload management and administration are packaged with default configurations that are **not** adjustable.

Note that full Teradata Active System Management (TASM) capabilities are not available with the Teradata Appliances. Consult the Teradata Database OCIs for details on the differences between the Active EDW and 2800 Data Warehouse Appliance feature-set.

If detailed comparisons between the 6000 Series and 2000 Series are required, there are several tools and presentations available to sales team members which may assist.

1. The InfoHub "Sell" tab has a Presentation Builder link to a PowerBuilder "Teradata Workload-Specific Platform Family" Presentation. The 128-slide presentation can be downloaded (if needed); it has several slides comparing / contrasting the 2 products. https://connections.teradata.com/community/infohub/workload-specific-platform-family-infohub
2. The Archie Tool on the GSS Portal. Refer to the GSS Helpdesk Welcome screen to find the link for the GSS Tools Portal (http://trd.td.teradata.com/bus_apps/GSS_Helpdesk/).
3. The Differentiation Tool allows you to compare / contrast Teradata products (note: Internet Explorer is **not** supported): http://sdvsue854.td.teradata.com:8080/Differentiate/

Training is available - "Using the Teradata Differentiation Tool" on Teradata U (49791)

4. Contacting GSS - you can submit a GSS Help Desk Ticket at: http://trd.td.teradata.com/bus_apps/GSS_Helpdesk/
   They can assist with the tools and understanding the business problems the customer is trying to address, and help position the best Teradata solution(s).

4.1 AMP Configuration

Teradata Database on the 2800 can achieve full system utilization with very few tasks and is configured so that the number of AMPs equals the number of physical disks:

- RAID1: 40 AMPs / node = 40 Drives / node
- RAID6: 40 AMPs / node = 45 Drives / node

In Teradata's "shared nothing" architecture, a fine-grained slicing and AMP assignment scheme ensures AMPs get proportional performance resources. This allows the system parallelism to generate enough workload to get all disk drives busy with one or a few active queries.

For RAID1 configurations, each disk pair forms 1 RAID mirror LUN, and each LUN is partitioned at the OS level into 14 partitions. Two AMPS share the LUN, with one AMP mapped to the odd-numbered partitions, and the other AMP mapped to the even-numbered partitions.

For RAID6 configurations, 9 drives (7 data drives + 2 parity) form each RAID-6 LUN. Five (5) RAID-6 LUNs (a total of 45 drives) form each TVS subpool. Each node has all 40 of its associated AMPs mapped to one subpool.

4.2 PUT Settings

Teradata Database on the 2800 has default settings, which are documented here: https://teraworks.td.teradata.com/display/PUT/Default+Teradata+Settings+by+PUT%27s+Configure+Teradata

4.3 Teradata Database for 2800: Overview

Notes on the Teradata Database and TTU Software

- The Teradata Database and TTU software have dedicated product managers. Please direct database/TTU questions to them or submit a GSS Help Desk Ticket.
  - **To determine the appropriate PM, go to InfoHub** (https://connections.teradata.com/community/infohub) and navigate to the appropriate product InfoHub site.
    - Database InfoHub
    - Database Product Management
    - Current Database OCI: https://connections.teradata.com/docs/DOC-24575

Teradata Database Version Requirements

- Please check the internal version of the Teradata Platform and Minimum Database Compatibility Matrix for the latest updates on Teradata version support for this platform.
- **All questions not answered by the resources noted above should be submitted to GSS via a GSS Help Desk Ticket.**

For Teradata Database PIDs, see the Teradata Database OCI Appendix A: Teradata Database Product IDs and Pricing

Teradata Database for the 2800 has a suite of components bundled into a single software Product ID; under this PID are bundled “reference” components which are EUI. From a feature-set perspective, the Teradata Database version used on the 2000 Series Appliance is the Teradata Base Edition (specific Appliance PIDs are created by Database Product Management). The "reference" Product IDs have a zero-dollar price. The "reference" component PIDs vary based on the version of Teradata selected, as some products moved into the Viewpoint software suite in later releases. In addition to the software Product ID, there are several subscription choices (optional) which are selected in a drop down menu on the “Database and TTU” panel in WOT.

For customers that prefer the electronic delivery mechanism for media, ESD is available. Note that the Appliance Software Bundle components are zero-dollar items, so the tax benefits of ESD do not apply.

4.3.1 Teradata Database: PIDs Enabled

Once a version of the Database has reached DRA3, it may be ordered / shipped if it has reached RRS for a given country. If Teradata Database PIDs are not enabled as expected:

1. Confirm they have reached RRS for the region / country in question
    a. https://teraworks.td.teradata.com/display/PRC/RRS+INFORMATION
2. If RRS is in place, contact Teradata Database SW Product Management for guidance.

4.3.2 PID Structure: Compare / Contrast

The database software for the Appliances and Active EDW differs in just a few small ways. The EDW includes a HSN DBS PID; the Appliance includes ABU (it is not part of the DBS). The EDW has the TASM option. The EDW also includes the following, which are Appliance upgrades:

- PT Stream
- Columnar
- Temporal
- Unity Ecosystem Manager

Outside of those differences, the other PIDs and their PID structure are quite similar, if not identical, in nature.

	Teradata Software			
2	F787-2987-A000	Teradata Subscription - 2800 Software Bundle, per each 2 nodes	0	0
2	F853-3987-0000	Teradata 15.00 / TTU 15.00 or later - 2800 SLES11 SW Bundle, per each 2 nodes	0	0
1	F853-9999-0000	Teradata 15.00 Database Reference (No License Value)	0	0
1	F864-9001-0000	TTU 15.10 - Teradata Utility Pak (Bundling Component Only)	0	0
1	F864-9005-0000	TTU 15.10 - Teradata Analyst Pack (Bundling Component Only)	0	0
1	F864-9006-0000	TTU 15.10 - Teradata C Preprocessor2 (Bundling Component Only)	0	0
1	F864-9007-0000	TTU 15.10 - Teradata COBOL Preprocessor2 (Bundling Component Only)	0	0
1	F864-9008-0000	TTU 15.10 - Teradata FastExport (Bundling Component Only)	0	0
1	F864-9009-0000	TTU 15.10 - Teradata PT Export Operator (Bundling Component Only)	0	0
1	F864-9010-0000	TTU 15.10 - Teradata FastLoad (Bundling Component Only)	0	0
1	F864-9011-0000	TTU 15.10 - Teradata PT Load Operator (Bundling Component Only)	0	0
1	F864-9012-0000	TTU 15.10 - Teradata MultiLoad (Bundling Component Only)	0	0
1	F864-9013-0000	TTU 15.10 - Teradata PT Update Operator (Bundling Component Only)	0	0
1	F864-9020-0000	TTU 15.10 - Teradata System Filters & Throttles Portlets (Appliance Bundling Component)	0	0
2	F864-AP28-0000	TTU 15.10 - Enhanced Appliance Pak for 2800, per each 2 nodes	0	0
1	F904-ABU2-0000	Appliance Backup Utility 15.10 for SMP, 1700, 1800, 2690, 2700, 2750, and 2800	0	0

	Teradata Software			
1	F152-9019-0000	Unity Ecosystem Manager 15.00 - Bundling Component - Active	0	0
1	F785-2947-0000	Teradata DBS for Hot Standby Node - SUSE Linux	0	0
91	F787-8810-A000	Teradata Subscription - 6700 High Capacity Enterprise WH Edition, per TPerf	0	0
91	F853-8815-0000	Teradata 15.00 6700 SLES11 High Capacity Enterprise WH Edition, per TPerf	8000	728000
1	F853-9023-0000	Teradata 15.00 Temporal for Enterprise Bundle (Bundling Reference Only)	0	0
1	F853-9024-0000	Teradata 15.00 Columnar for Enterprise Bundle (Bundling Reference Only)	0	0
1	F853-9999-0000	Teradata 15.00 Database Reference (No License Value)	0	0
1	F864-9001-0000	TTU 15.10 - Teradata Utility Pak (Bundling Component Only)	0	0
1	F864-9005-0000	TTU 15.10 - Teradata Analyst Pack (Bundling Component Only)	0	0
1	F864-9006-0000	TTU 15.10 - Teradata C Preprocessor2 (Bundling Component Only)	0	0
1	F864-9007-0000	TTU 15.10 - Teradata COBOL Preprocessor2 (Bundling Component Only)	0	0
1	F864-9008-0000	TTU 15.10 - Teradata FastExport (Bundling Component Only)	0	0
1	F864-9009-0000	TTU 15.10 - Teradata PT Export Operator (Bundling Component Only)	0	0
1	F864-9010-0000	TTU 15.10 - Teradata FastLoad (Bundling Component Only)	0	0
1	F864-9011-0000	TTU 15.10 - Teradata PT Load Operator (Bundling Component Only)	0	0
1	F864-9012-0000	TTU 15.10 - Teradata MultiLoad (Bundling Component Only)	0	0
1	F864-9013-0000	TTU 15.10 - Teradata PT Update Operator (Bundling Component Only)	0	0
1	F864-9014-0000	TTU 15.10 - Teradata TPUMP (Bundling Component Only)	0	0
1	F864-9015-0000	TTU 15.10 - Teradata PT Stream Operator (Bundling Component Only)	0	0
1	F864-9021-0000	TTU 15.10 - Teradata Active System Management (Bundling Component Only)	0	0
91	F864-ENTP-0000	TTU 15.10 - Enterprise Bundle Package - per TPerf	0	0

4.3.3 Teradata Database Subscription

A PID for entitlement to database software subscription is available via WOT; it is mapped by WOT when database subscription is selected. It is tied to a SID, or Services ID, which carries the MRP for the subscription. The "Subscription" field in WOT offers two choices: Subscription or No Subscription. If Subscription is selected, the following PID is also added to the quote:

Product ID	Description
9687-SUBS-5420	SID – (TSSB) Teradata Software Subscriptions

The SID Subscription MRP is currently calculated based on 4% of the cost of a single-clique system with all terabytes purchased. As a SID, this is managed by Teradata Services PM (not Hardware PM or Database PM).

Note: These Subscription PIDs are **not visible in the Test WOT system**; only Production WOT.

4.3.4 Teradata Database Software Bundle

The Data Warehouse Appliance 2800 includes a baseline bundle of Teradata database software for the standard offer, including Teradata Tools and Utilities (TTU). "Value-Add" software components are also available via WOT.

4.3.4.1 Teradata Tools and Utilities (TTU)

Notes on the Teradata Tools and Utilities

- The Teradata Tools and Utilities software has a dedicated product manager. TTU questions **should not be directed to Hardware Platform PM**, but to the appropriate software PM.
  - **To determine the appropriate PM, click here**
  - TTU is bundled with the Teradata Database
    - Database InfoHub
    - Database Product Management
    - Current Database OCI: https://connections.teradata.com/docs/DOC-24575
  - **All questions not answered by the resources noted above should be submitted to GSS via a GSS Help Desk Ticket.**

The version of TTU configured is dependent upon compatibility rules and customer selection for the Teradata database. In the 2000 Series Appliance, the TTU PIDs are noted as "Bundling Components" which are EUI (Every Unit Items). The default value configured by WOT is the most recent TTU release.

The Enhanced Appliance Pak denotes that this product supports ESD and Physical Media options.

4.3.4.2 Value-Added Software Components

Notes on the Teradata Database Value-Added Software Components

- The Teradata Database and TTU software have dedicated product managers. Please direct database/TTU questions to them or submit a GSS Help Desk Ticket.
  - **To determine the appropriate PM, go to InfoHub** (https://connections.teradata.com/community/infohub) and navigate to the appropriate product InfoHub site.
    - Database InfoHub
    - Database Product Management
    - Current Database OCI: https://connections.teradata.com/docs/DOC-24575
  - **All questions not answered by the resources noted above should be submitted to GSS via a GSS Help Desk Ticket**

The Data Warehouse Appliance 2800 offers several value-added software components and corresponding subscriptions:

- PT Stream
- Columnar
- Temporal
- Unity Ecosystem Manager
- Row Level Security
- Industry Data Models (iDM)
- Data Labs

4.3.4.3 Teradata Appliance Backup Utility (ABU)

Notes on ABU

- The ABU products have dedicated product managers. Please direct ABU questions to them or submit a GSS Help Desk Ticket.
  - **To determine the appropriate PM, go to InfoHub** (https://connections.teradata.com/community/infohub) and navigate to the appropriate product InfoHub site.
- For the latest info on ABU, please refer to those OCIs or contact BAR Product Management:
  - InfoHub: https://connections.teradata.com/docs/DOC-19498
- **All questions not answered by the resources noted above should be submitted to GSS via a GSS Help Desk Ticket.**

The Appliance Backup Utility, or ABU, is an ARC-based software was developed for the Teradata Appliances by the Teradata BAR team (who owns and manages the product). The ABU product is bundled software for the Data Warehouse Appliance.

Product ID	Description	Condition
F904-ABU0-0000	Appliance Backup Utility 15.0 (for SMP, 17xx, 26xx, 27xx & 28xx)	TD DBS 15.0 / TTU 15 (or greater)

5.0 Co-residence

The guidance for co-residence support in the 2800 Series Appliance is as follows:

- The Data Warehouse Appliance Platform allows **two generations** co-residence support:
  - 2700
    - Co-residence for the 2700 requires the In-field Node Upgrade kit to get the most performance possible out of the 2700 node.
  - 2750
    - It is recommended that the 2750 memory is the same size (or larger) as that of the 2800
- It is expected that release following the 2800 will co-reside with the 2800
  - This will be confirmed by DRA3 in the development process of the next generation, which is expected in **Q4FY'15**
    - Note that the next release in the 2000 Series does not have a Development Realization program, a DRTL, or Product Manager at the current time, so no information on the product specs is available.
  - Co-residence with a future generation is never guaranteed, as technology changes may make this impossible.

Co-residence preserves the current investment in Teradata as new node generations are added to an existing Data Warehouse appliance. The customer has the option to upgrade the nodes of the 2700 with new memory and / or CPU, and effectively modify the 2700 nodes into 2750 nodes, providing the most optimal co-residence solution for 2800 co-residence.

5.1 Co-residence with 2750 / 2700

Need details on how co-residence solutions are developed and deployed? Please contact Customer Services (CS) and request the Change Control / templates to learn more:

- Linux Expansion Prep
- Expansion Merge templates.

Developing and installing co-residence solutions is a **CS-led activity** with subject matter experts in the field services organization, and **not supported by Hardware Platform PM**.

The 2750 / 2700 co-residence (original) system must be on the same version of Teradata database and the same OS as the new 2800; the database and OS versions must be certified for use on all platforms included in the combined system. Refer to the Compatibility Matrix to determine the certified OS and database versions of all systems involved in the co-residence solution to confirm the OS and database requirements:

Teradata Platform and Minimum Database Version Compatibility Matrix KAP1B600E - (posted to the knowledge base).

Similarly, the 2800 system must be configured with one of the two (2) available interconnects used with the 2750 (either 1Gb BYNET or BYNET **V5**). Note that co-residence is the only situation where a 2800 cabinet with 1Gb BYNET is applicable.

Note that the 2700 and 2750 used hardware compression engine adapters, while the 2800 uses software compression. To understand how these differences impact the co-residence solution, review the Change Control. If questions remain, please contact Customer Services (CS) and

request the Change Control process to learn more. Developing and installing co-residence solutions is a **CS-led activity**, and **not supported by Hardware Platform PM**.

5.1.1 Co-residence Explained

Co-residence is not Co-existence.

Co-existence describes a system where each generation of platform is at least 90% utilized in system resources. This provides system growth that combines existing and new platform by balancing the number of AMPs within 10% Node Performance Range Differences to the new generation platform resources. Co-existence provides a balanced AMP mix based on flexible configurations. Co-existence is **not** available on the Teradata Data Warehouse 2800.

Co-residence describes a system where the next generation platform will perform typically in a range from 50% to 85% of new generation platform resources. Co-residence provides an unbalanced AMP mix based on fixed configurations. The percent amount will depend on the AMP count in the new platform.

Differences in drive size, drive speed, and the number of drives per node all contribute to the loss in performance, so it is important to ensure drive sizes and speeds are matched whenever possible.

6.0 Factory Installation Services

The charges for Teradata Factory Services are calculated as follows:

Product ID	Description	Notes
9190-F940	9190 Cabinet Installation	One per each cabinet
9190-F941	1 Node Install Feature	1 per node
9190-F942	1 Disk Drive Enclosure Install Feature	1 per Disk Drive Enclosure / Tray
9190-F943	Clique Expansion Installation Feature	1 per full or half clique
Rules: - Install feature should be added automatically. - Product Ids selected must match the number of nodes and drive trays in the cabinet.		

7.0 Customer Services

Teradata Services Consultants (TSC) are the primary contact for lifecycle and operational service proposals to a customer. Early engagement of the Teradata Services Consultant ensures appropriate setting of customer expectations for services and assessing of customer needs for the customer proposal for services.

Currently Customer Service charges $7000.00 per cabinet for installation. Customer Service will have no additional charge for optional kit installations if ordered and done at initial cabinet order/installation time. After the initial cabinet installation, the non-TPA servers (TMS, Viewpoint, etc.) are $4000 per server. All other options would be on a T&M basis.

Note that "Synch" countries, or those countries which are specifically mapped within the WOT catalog, will have the Customer Service charge automatically added to the order in WOT. "Non-Synch" countries, or those countries that use the Teradata Web Configuration Tool for the Customer Name, will require you to set up services locally, a manual activity not handled automatically in WOT.

Contact your regional Customer Services sales organization for service and pricing information.

7.1 System Installation

Teradata System Installation service allows a customer to begin realizing the benefits of a new, expanded or upgraded Teradata warehouse solution immediately. Specific features include the following:

- Advanced system set-up and testing
- Documented site floor plan and system maps
- On-site installation of cabinets
- Hardware functionality and software availability validation
- Confirm connectivity
- Hardware, firmware and software release level compliance verification
- System power up and turn over
- Parts replacement process review

7.2 Platform Maintenance and Support

Teradata offers two (2) platform maintenance and support services for the 2000 Series Appliance depending on whether the customer is new or existing. For **new** customers, the only option is Premier Appliance Support. For existing customers, Premier Appliance Support is available if they sign a new Premier Support Addendum. Additionally, existing customers may remain on their current Core Support/Core Advantage service level.

Teradata Premier Appliance Support is reactive support designed for the Teradata data warehouse appliance products – currently the Teradata 2xxx, 17xx, or 6xx platforms. Premier Appliance Support is a unique “customer engaged” model of support - as part of the standard offer customers are responsible for replacing certain failed parts (currently disk drives and power supplies for Teradata nodes and the storage arrays). Premier Appliance Support takes advantage of this product design to move this hardware maintenance activity to the customer in order to meet a much lower price point for maintenance and support.

Service Feature	Premier Support
Incident Creation	• Teradata @ Your Service • Telephone (P1 only) • Auto Incident Creation (AIC)
Coverage Hours • Remote, On-site (HW/SW) • FRO Implementation	**P1** / **P2** / **P3** 24 x 7 / 9 x 5 / 9 x 5 9 x 5
Response Times • Remote • On-Site	**P1** / **P2** / **P3** 2 hrs / NBD / NBD 4 hrs / NBD / NBD
Parts Options • Parts On-Site	• Warehouse • Appliance
• Repairs on Customer Replaceable (CR) Parts	• By Customer *free training* • Full Parts Replacement
Software Entitlement	• Access to SW updates
Support Management	• Standard Support Card
System Monitoring	• ServiceConnect™ • Storage Diagnostic Tools

Coverage/ Response Options

24 x 7 Priority Service			9 x 5 M-F Business Hours		
P1	**P2**	**P3**	**P1**	**P2**	**P3**
24x7	24x7 24x7	9x5	9x5	9x5 9x5	9x5
P1	**P2**	**P3**	**P1**	**P2**	**P3**
30 m 2 hrs	30 m 4 hrs	30 m 4 hrs	9 hrs NBD	NBD NBD	NBD NBD

NOTE: the Teradata 2800 was designed with a predefined set of Customer Replaceable parts. Teradata will not replace failed customer replaceable parts unless Full Parts Replacement service is ordered. Additionally, Customers are expected to perform their own database SW updates/upgrades. Teradata performed SW upgrades can be obtained via the Software Implementation offer.

Existing Teradata Customers Not Migrating to Premier Appliance Support
For existing customers that are adding a new platform or upgrading/expanding an existing one AND NOT migrating to Premier Support, Teradata will continue to offer Core Support on the 2800.

Teradata Core Support is reactive support designed for the Teradata data warehouse appliance products – currently the Teradata 2xxx, 17xx, or 6xx platforms. Core Support is a unique "customer engaged" model of support - as part of the standard offer customers are responsible for replacing certain failed parts (currently disk drives and power supplies of the storage arrays and Teradata nodes). Core Support takes advantage of this product design to move this hardware maintenance activity to the customer in order to meet a much lower price point for maintenance and support.

Core Support also requires customers to initiate all service requests – Teradata will not automatically respond to problems, monitor the need for patches/fixes/software upgrades and generally take a more active role in ensuring system health.

For more information on Core Support and other support services for the 2800 click here.

Service Feature	Teradata Core 7x24	Teradata Core 8-5
Incident Creation	*Teradata@YourService* All priorities	*Teradata@YourService* All priorities
Remote Support Coverage	7x24 for P1 only; Other: *8-5 M-F (Local)*	8-5 M-F (Local)
Remote Response	2 hrs for P1 7x24; Other: NBD 8-5	2 hrs for P1; Other: NBD
On-Site HW Coverage	7x24 for P1; Other 8-5 M-F	8-5 M-F (Local)
On-Site Response	P1 - 4 hrs; Other NBD	All Next Business Day
Customer Replaceable Parts	Yes	Yes
On-Site Spare Parts	Customer Replaceable Drives Only; others optional	Customer Replaceable Drives Only; others optional
Parts Shipping	Overnight	Next Business Day
Access to SW updates	Yes	Yes
Installation of SW Updates/Upgrades	No	No
Electronic Fault Notification	Yes-TVI; Auto Incident Create & Adept Not Available	Yes-TVI; Auto Incident Create & Adept Not Available
Remote Connectivity	ServiceLink	ServiceLink
Maintenance Training	Parts Replacement Overview during installation	Parts Replacement Overview during installation
Customer Support Plan	Support Card	Support Card

NBD = Next Business Day. Response times are during coverage hours unless otherwise indicated.

NOTE: the Teradata 2800 was designed with a predefined set of Customer Replaceable parts. Teradata will not replace failed customer replaceable parts unless Core Advantage service is ordered. Additionally, Customers are expected to perform their own database SW updates/upgrades. Teradata performed SW upgrades can be obtained via the Software Implementation offer.

7.3 2800 System Merges and Splits

There should be no need for Hardware PM, Services PM, nor the GSC to be engaged on 2800 system merges and/or splits. Similarly, if a 2700/2750 customer wishes to co-reside their existing system with a new 2800, the guidance below from CS applies. The guidance from CS:

Merges and splits, which allow customers to maximize their use of their Teradata platforms, are often done in the field. BYNET upgrades from 1Gb BYNET to BYNET V5 are less common, however they have been performed previously.

The standard process is:

- the account team and local site team must open a change control for the required service (merge, split, change BYNET)

  - getting the local team involved early ensures they are informed of the work, minimizing risk
- the Regional Change Control organization will get a Change Control Team Member assigned to assist them with this project
- the Change Control Team Member assigned to the project will provide estimated time / cost information for the change control effort
- the Change Control Team Member will work with the local site team on the planning and ensure all of the requirements for the project have been met.
- if the Change Control Team Member requires assistance they will coordinate the Change Control with the GSC System Change team, requesting specific assistance.

As the Bid Desk sizes / scopes the effort, a CS cost can be determined. With this in mind, engage a GSS Consultant so they can create a quote – it would all be manual as there is no WOT catalog for a field merges, splits, and/or BYNET upgrades.

7.4 Other Support Services

Available With Premier Appliance Support Only

Full Parts Replacement - A Teradata CSR replaces failed customer replaceable parts (drives and power supplies) instead of customer. Service is performed according to P2 on-site response times.

Critical System Management – System Operational Outsourcing

Figure 8: Critical System Management Features

Must Do Tasks	**Critical Patch Review**	Review Tech Alerts that impact system operation	Weekly
	Software Release Management	Identify and recommend appropriate Major, Minor, and Maintenance releases, plus Patches/ Fixes	Quarterly
	Software Implementation (SWI)	Change Controls and Installation of all Major, Minor, and Maintenance releases, plus Patches/ Fixes (All release levels)	As Needed
Proactive Service	**System Health Check**	Diagnostics to identify potential issues before system impacted	Bi-Weekly
Service Management	**Custom Support Plan**	Detailed, Customer-specific service delivery manual	Annual Review
	Service Reporting	An overview of all proactive and reactive services delivered; Tracks planned & unplanned downtime	Monthly
	Support Review Meetings	Regular meetings to discuss technical issues and improvements to system performance/ availability	Quarterly

Available to Existing Customers Only

Core Advantage – A Teradata CSR replaces failed customer replaceable parts (drives and power supplies for Teradata nodes) instead of customer. Service is performed according to P2 on-site response times. Auto Incident Create (AIC) and Storage Diagnostics are activated. Core

Advantage also includes the ability for a customer to phone-in a P1 incident instead of opening a request online via *Teradata@YourService*.

Business Critical Systems Management – Only Business Critical 7x24 is available on the 2800 platform. The full suite of Business Critical services will be performed. Core Advantage is required.

Available to All Customers

Parts On-site - On-site parts include the full recommended spare parts list and are in addition to any customer replaceable drives shipped with the system.

Software Implementation – Teradata performs any database software updates and upgrades. Specific features include:

- Formal change control meetings before and after the upgrade
- Comprehensive change control plan
- Detailed technical review
- Installation schedule coordination
- Software download and installation
- Data conversion, as appropriate, for major upgrades

Teradata performed SW upgrades can be obtained via the Software Implementation offer.

8.0 Dump Server

The normal process for handling database crash dumps is to capture the Teradata database dump and transfer it to the Global Support Center (GSC). The GSC experts will then look at the failure and attempt to provide a corrective action to the local CS support team.

This process is not always possible or time consuming. Some customers have "lock down" policies that prevent the transfer of files into or out of the data center. This includes preventing VPN tunneling data transfers. This kind of policy is common in large data centers especially government agencies and large banks. In addition, where data transfer is allowed, the actual transfer can take a long time depending on the number of nodes, file sizes and network speeds (sometimes exceeding 24 hours or more). Other contributing factors can be network infrastructure bottlenecks or unstable connections causing retries. Other customers will allow Teradata CS to VPN tunnel into their system to look at a dump, but will not allow a dump to be uploaded to the GSC. In those cases analyzing the dump on the customer system directly may cause a restart and a performance impact. It is preferable for CS to log into a non-production system running the same Teradata software for dump analysis locally.

To address these concerns Teradata is offering an on-site dump server to be installed as an option (required for all system greater than 12 nodes). The advantage of this feature is that it accelerates turnaround time and improves time to resolution by avoiding long file transfer times over the internet to the GSC, as well as adding a layer of security by not transferring the physical dump outside of the customer's datacenter, having the data remain behind the firewall. In addition, with the optional dump server installed, the crash dump will be moved off of the production data warehouse system and therefore can be analyzed without disruption to the production system.

The dump server must be running the same version of Teradata Database as the production system from which the dump was taken, and can support multiple production systems as long as the production systems are all on the same major software version.
The dump server will be staged and configured at Flextronics with all required software including:

1. The same version of Linux (i.e. SLES 10, SLES11, etc.), Teradata Database and PDE (Parallel Database Extensions) software packages as those on the production system.
2. The Teradata TTUs (GSCtools, dul, dultape, Data Mover) packages required for analysis.

Unless a known problem can be identified from the remote dump analysis or the problem can be recreated in-house based on the crash dump, the GSC may still need the crash dump sent in for further analysis.

A Teradata Orange book titled "Database Crash Dump Handling" is available for CS use, detailing all aspects of crash dump handling at following location:

http://sharepoint.teradata.com/eng/orangebooks/Shared%20Documents/Database%20Crash%20Dump%20Handling;2012-02.pdf

8.1 Components

Standard Components:

- Form factor: 2U rack height
- Processor: Dual Ten Core Intel E5-2670v2, 2.5GHz
- Memory: 256GB (eight 32GB 1333MHz DIMMs)
- Disk Drives: Twenty four 900 GB for data, SAS, 10K RPM hard drive
  Two 900 GB for OS, SAS, 10K RPM hard drive

Operating System (All Models): SuSE Linux Enterprise Server (SLES)

Requirements (All Models): Staging and Integration Reference Feature

RAID configuration: RAID 5

8.2 Product IDs and Prices

Product ID	Description	MRP ($)
Server – TMS Dump Server Model		
Appliances 2800 (9190 Class)		
9190-F754	TMS Dump Server	$78,650
9190-F989	TMS - STAGING & INTEGRATION Dump server version(per node)	$2,500
F852-1500-0000	Teradata 14.10 - Dump Server software bundle	$0
F853-1500-0000	Teradata 15.0 - Dump Server software bundle	$0
F854-1500-0000	Teradata 15.10 - Dump Server software bundle	$0
Linux Operating System and Media Kit		
F601-8247-0000	SuSE Linux SLES License, 1 year	$450
F601-8280-0000	SuSE Linux SLES 10 SP3, Media Kit	$50

Notes:
- TMS Dump Server requires Linux operating system; order one F601-8247-0000 per server and one F601-8280-0000 per order.
- Staging and Integration feature is required, order one per server.

9.0 Expansions and Loaner Cabinets

For the 2800 Systems, Teradata has a Loaner Cabinet Product available to assist with the expansion or upgrade of a customer's systems to help minimize the downtime of their production system. **Flextronics requires a Loaner Cabinet for Expansions to ensure the system can be properly staged and installed.** The Loaner Cabinet is used for on-site system staging and is required for all on-site expansions. It is for temporary use and is not for customer sales as it must be returned. The loaner cabinet is ordered at the time of the order for the expansion.

Loaner Cabinets are not created via a WOT wizard; they must be created manually. Please contact your GSS Consultant for assistance and review section Create Transport / Loaner Cabinet Quote.

9.1 Loaner Program Conditions

The Loaner Products Program has the following conditions:

- Loaner products must be placed on a separate loaner equipment order. They cannot be on the same order as the products being sold to the customer.
- The loaner order must include a notation stating "Right of Return" written on the order.
- Loaner products must be returned within 30 calendar days. Loaner products requiring a loan period greater than 30 days must receive advanced approval by Teradata Director of Enterprise Operations and the Flextronics Customer Program Manager.
- The loaner period begins when the system ships and end when the system is returned and received by Flextronics at:

  RMA#@Flextronics SC
  1000 Technology Drive
  West Columbia, SC 29170

- Upon shipment of the loaner products, the Account Team is charged either the MCC or ETP of the loaner products.
  - In the US – An average cost from COS will be charged for the products (normally equal to MCC)
  - For all International – ETP for the products is charged

  After the loaner products are returned to Flextronics, the Account Team will receive credit for the original MCC/ETP charge. Any damaged or missing parts will be deducted from the credit.

  Note: No peripherals are included for the Loaner Cabinet for the 2800. However, please note, if peripherals such as monitors, keyboards and power cords are included on the quote, they cannot be returned.

- A restocking fee will be charged to the Account Team based upon the loaner time period. This fee is a *percentage of the cost* (price to Teradata from Flextronics). A 15% restocking fee is charged when the product is returned within 30 calendar days. Loaner products returned after 30 calendar days from shipment are subject to an additional charge of 1.5% per additional 30 day increment. The chart below outlines the restocking rates.

Calendar Days	Restocking Fee
Within 30	15.0%
31 to 60	16.5%
61 to 90	18.0%

  All loaner products must be returned within 90 calendar days.

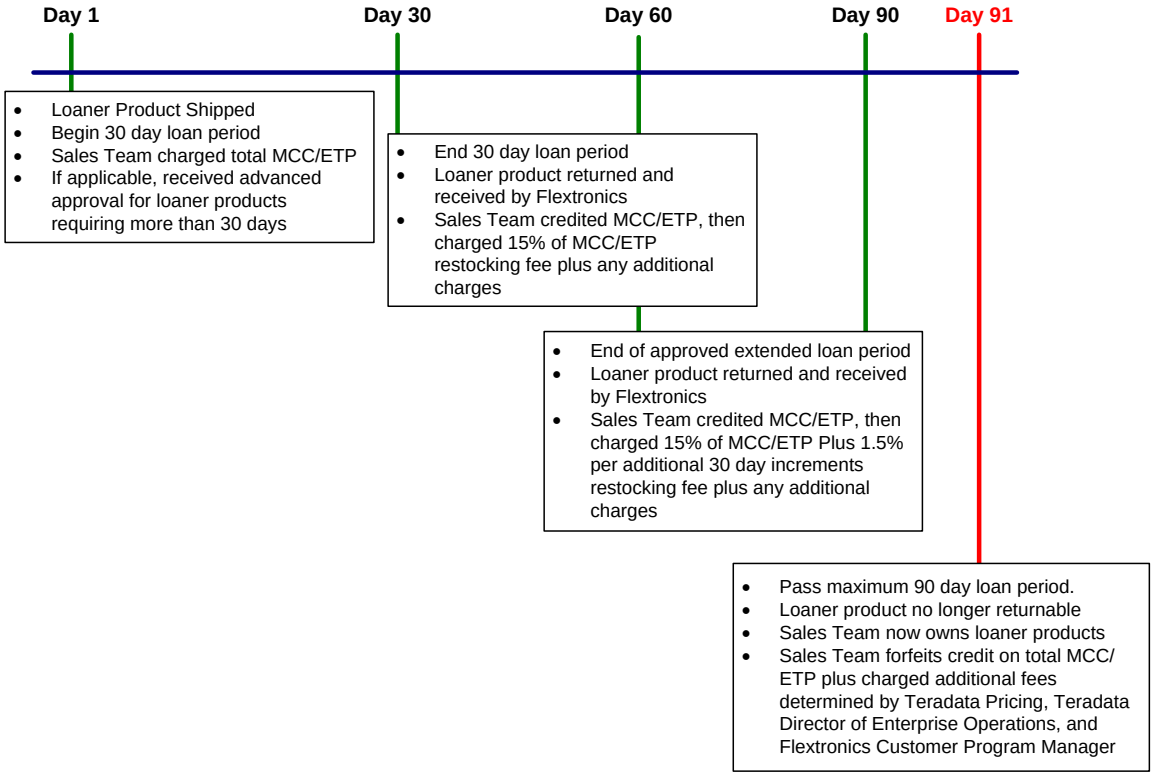
- After 90 calendar days, the loaner products cannot be returned and the Account Team takes ownership of them. The Account Team may also be assessed additional fees as determined by Teradata Pricing, Teradata Director of Enterprise Operations, and Flextronics Customer Program Manager.

9.2 Returning Loaner Products

The following procedures should be followed to return loaner products.

1. When the use of the loaner products is complete, the Account Team notifies the Customer Delivery Partner (CDP). The CDP in turn notifies Flextronics that the equipment is to be returned and Flextronics issues a Return Materials Authorization (RMA) for the return of the loaner products.
2. Upon receipt of the returned loaner products, Flextronics issues Teradata Asset & Revenue Accounting a RMA credit which consists of the full cost of the equipment less the applicable restocking fee, and less any costs due to damaged or missing parts.
3. Teradata Asset & Revenue Accounting reverses the original transaction and charges the Account Team for difference between the original cost of the equipment and the Flextronics RMA. The actual accounting of how this is handled varies depending on the country.
    a. In the United States, RMA uses an average cost, usually equal to MCC. The RMA credit is subtracted from the MCC of the product and the difference is charged to the Account Team as an Operations Cost (account number: 50171000).
    b. For International, RMA uses ETP. The RMA credit is subtracted from the ETP of the product and the difference is charge to the Account Team as a Cost of Goods Sold (account number: 15113110).

Figure 9: Loaner Product Timeline



10.0 Information Products

Following are the supporting Information Products for the 2800 system platform. Information Product publications for the Data Warehouse Appliance are **only** available to customers via **TD@YourService**.

Internally, you may click here to view all available documents, as well as sign up to be notified of changes to these documents.

Information Engineering Supporting Deliverables for 2800 and 680 Program		
Title	**Product ID**	**Availability** *(see notes below)*
2800 and 680 Platform Deliverables		
Teradata Data Warehouse Appliance 2800 Platform Product and Site Preparation Guide	B035-6006-104K	external doc web site, internal doc web site
Teradata Data Warehouse Appliance 2800 Platform Hardware Installation Guide	B035-6007-104K	internal doc web site
Teradata Data Warehouse Appliance 2800 Cabinet Hardware Service Guide	B035-6008-104K	internal doc web site
Teradata Data Warehouse Appliance 2800 Platform Customer Guide for Hardware Replacement	B035-6009-104K	internal doc web site
Teradata Data Mart Appliance 680 Platform Product Guide	B035-6018-104K	external doc web site, internal doc web site
Teradata Data Mart Appliance 680 Platform Hardware Service Guide	B035-6019-104K	internal doc web site
Teradata Data Warehouse Appliance 680 Platform Hardware Replacement Guide for Customers	B035-6020-104K	internal doc web site
Teradata BIOS for Intel Baseboard S2600WT Configuration Guide, Release xx.xx.xxxx	B035-6021-104K	internal doc web site
Teradata BYNET V5 or InfiniBand Cabinet Hardware Service Guide	B035-5349-092K	internal doc web site
BYNET Tools and Utilities Guide, DSSP Version 7.1.x.x, BYNET Pkg Version 3.5.x.x	B035-5360-051K	internal doc web site
Teradata Data Warehouse Appliance 2800 Implementation Guide	TBD?	external doc web site, internal doc web site
Cross-Platform Deliverables		
Virtualized Management Server (VMS) Operations Guide, Version 1.02	B035-5371-094K	internal doc web site
Teradata Server Management Web Services User Guide, Version 11.04 (and online help)	B035-5350-094K	internal doc web site
Teradata Server Management Web Services Configuration Guide, Version 11.04	B035-5351-094K	internal doc web site
Teradata Platform Server Management Web Services and CMIC Versions Matrix (as of 11.04)	B035-5370-033K	internal doc web site
Teradata ServiceConnect Guide Powered by Axeda Release 3.1 SWS Gateway / SMWeb 11.04 CMIC Gateway	B035-5373-094K	internal doc web site
Teradata ServiceConnect Enhanced Policy Server Installation and Configuration Guide; Powered by Axeda	B035-5374-022K	internal doc web site
Field Installation Guide for Teradata Node Software	B035-5930-034K	internal doc web site
Field Installation Media & Software Requirements Matrix	B035-5931-041K	internal doc web site
Parallel Upgrade Tool (PUT) Reference, Rel. 3.05.07	B035-5716-104K	internal doc web site

Notes:	
▪ Internal documentation web site:	Teradata Service Documentation Library
▪ External documentation web site:	Teradata - Information Products Home
▪ External restricted documentation web site:	Teradata At Your Service - Welcome

11.0 Mean Time Between Failure (MTBF) for TPA Nodes

Below are the projected Mean Time Between Failure (MTBF) numbers for current and recent Teradata processing **nodes**. MTBF calculations are a very narrow view of hardware reliability and should in **no way be interpreted to mean system availability**. Teradata does not promote or endorse the use of this measurement simply because it can be misleading or misused as a single measurement of system availability.

Teradata's system philosophy is geared towards providing the highest data availability, not just systems level availability. Data availability is dictated not only by hardware component failure rates, but also the hardware/software features that impact availability through a tight integration with the database system. Teradata/Teradata Systems are engineered for High Availability by a variety of system level hardware and software techniques. Some examples of techniques that affect availability are:

- Multiple controllers per disk storage array
- Multiple SCSI host and storage adapters
- Multiple paths to disk storage arrays
- RAID
- Fallback
- Cliques with automatic node failover
- Dual AC Power
- Redundant power supplies
- Redundant fans
- Hot swappable components
- Hot spare drives

Including the information provided above, here are the projected MTBF calculations for a single, stand-alone processing node. The node generations are similarly configured with CPUs, memory and internal hard drives.

Class	Description	MTBF Hrs.
2800	2800 Node - 2 X 2.6GHz, CPU, Haswell, 14 Core, 2 x 900GB HD, 1 x 600GB HD 2xQSAS, BYNET V5 IB Adapter	21.8K
2750	2750 Node - 2 X 2.7GHz, CPU, Ivy Bridge, 12 Core, 256GB QR Memory, 3 x 600GB HD, 2XQSAS, Quad 1GbE, 3 X HW Compression, BYNET	18K
2700	2700 Node - 2 X 2.6GHz, CPU, Sandy Bridge, 8 Core, 128GB DR Memory, 3 x 600GB HD, 2XQSAS, Quad 1GbE, 3 X HW Compression, BYNET	23.6K

12.0 2800 Pricing and Ordering Information

Prices listed in this communication are U.S. List Prices. Work with your regional pricing manager for local currency conversion and list pricing outside the U.S.

Note: For customer requiring modifications outside of the WOT 2800 Order model (including special staging instructions), please submit a GSS Help Desk ticket.

12.1 PIDs: Node Cabinets, Features, and Kits

Product ID	Description	MRP ($)
Node Cabinets (1Gb BYNET Over Ethernet)		
9190-1010-8090	Teradata Expansion Cabinet, 1Gb BYNET (co-residence only)	0
Node Cabinets (BYNET V5)		
9190-2000-8090	Teradata 2800 Base Cabinet, BYNET V5	0
9190-2010-8090	Teradata 2800 Expansion Cabinet, BYNET V5	0
Node Cabinets (Transport / Loaner for In-field Clique Expansion)		
9190-8000-8090	Teradata Clique Expansion Transport Cabinet	30,000
Clique Expansions (Nodes and Storage)		
9190-E001-8090	Teradata 2800 Full Clique Expansion, 4-nodes (BYNET V5)	740,000
9190-E002-8090	Teradata 2800 Half to Full Clique Expansion (BYNET V5)	370,000
9190-E003-8090	Teradata 2800 Half Clique Expansion (BYNET V5)	370,000
2nd 2800 System (2-node or 4-node)		
Factory Install		
9190-S841-8090	Teradata, 2800, 2+0	370,000
9190-S842-8090	Teradata, 2800, 4+0	740,000
Field Install – Ship via Crates/Boxes		
9190-T001-8090	Teradata, 2800 Database Node, Intel (R1) R1208WT, Grantley	185,000
9190-T010-8090	Teradata, RBOD (DBB Ultra), Disk Drive Enclosure, Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	0
9190-T011-8090	Teradata, EBOD (DBB Ultra), Disk Drive Enclosure, Expansion (48) 2-1/2 HDD	0
Field Install – Ship via Transport Cabinet		
9190-E101-8090	2800 Second System 4+0 (BYNET V5 I/O) (Intel)	740,000
9190-E103-8090	2800 Second System 2+0 (BYNET V5 I/O) (Intel)	370,000
Features		
Bundles		
9190-F920	2800 Data Warehouse Half to Full Clique RAID 1 HW/SW Bundle	370,000
9190-F921	2800 Data Warehouse Half-Clique RAID 1 HW/SW Bundle	370,000
9190-F922	2800 Data Warehouse Clique RAID 1 HW/SW Bundle	740,000
9190-F923	2800 Data Warehouse Half to Full Clique RAID 6 HW/SW Bundle	370,000
9190-F924	2800 Data Warehouse Half Clique RAID 6 HW/SW Bundle	370,000
9190-F925	2800 Data Warehouse Clique RAID 6 HW/SW Bundle	740,000
9190-F926	Teradata Data Warehouse 2800 BYNET V5 Bundle, per 2 nodes	10,000
Nodes		
9190-F100	2800 Node (1), Linux, I (E5-2697V2), 128GB (8 x 16GB DIMM)	0
Encryption - Hardware		
9190-F497	Teradata Data Warehouse 2800 Encryption (Storage)	10,000
9190-F200	Teradata Data Warehouse 2800 Encryption (Servers)	2,000
Encryption - Data		
9190-F200	2800 Warehouse Data Encryption (Server)	2,000
Power, Server Management, Panels		
9190-F050	Worldwide 30A Single-Phase or Phase-Phase, 4 Cord	0
9190-F051	North American 30A 3-Ph Delta 4 Cord	0

Product ID	Description	MRP ($)
9190-F052	North American 60A 3-Ph Delta 2 Cord	0
9190-F053	Euro Type 30A 3-Ph WYE 230V L-N, 2 Cords	0
9190-F060	Power, Top Egress	0
9190-F073	KMM Keyboard, Monitor, Mouse (Dell)	0
9190-F083	KMM, Console, 18.5" LCD w/Rails	0
9190-F300	Cabinet VMS: (Intel R1)	0
9190-F302	System VMS: (Intel R1)	0
9190-F305	Cabinet VMS: (Intel R1) Grantley	0
9190-F307	System VMS: (Intel R1) Grantley	0
9190-F079	Switch, Network - LAN, 24 Port, 1Gb Ethernet (2 switches, Dell 2824)	0
9190-F080	Network Switch – LAN / BYNET, 48-port, 1Gbps (Shared)	0
9190-F011	Front Door	0
9190-F012	Front Door - Green Door Insert (Appliance)	0
9190-F014	Packing-Enhanced Protection	0
9190-F020	Panel, Front Filler 1U	0
9190-F021	Panel, Front Filler 2U	0
9190-F947	9190 Russian User Manual	0
IO Modules, Node Internal Drives		
9190-F205	Module, Quad Port I/O Controller, 1Gb Ethernet	1,100
9190-F206	Module, Dual Port I/O Controller SFP+ interface, 10Gb Ethernet	3,000
9190-F207	Module, Dual RJ-45 Port 10GBASE-T I/O	1,500
9190-F210	HD DISK-600GB,10K5, 2.5" SAS, SED, HOT PLUG (Intel S2600WP)	1,275
9190-F211	HD DISK-900GB,10K5, 2.5" SAS, SED, HOT PLUG (Intel S2600WP)	1,700
9190-F216	HDD, 900GB, 2.5", SED, 10K, SAS, Hot Plug (Dell Only)	1,700
Storage		
9190-F265	Adapter-PCIe3, SAS2, 6Gb, 4-Port	0
9190-F402	RBOD, Disk Drive Enclosure - Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	0
9190-F403	EBOD, Disk Drive Enclosure - Expansion (48) 2-1/2 HDD	0
9190-F410	300GB 2.5" 10K RPM, SAS HDD	0
9190-F412	600GB 2.5" 10K RPM, SAS HDD	0
9190-F413	900GB 2.5" 10K RPM, SAS HDD	0
9190-F414	1.2TB 2.5" 10K RPM, SAS HDD	0
9190-F415	300GB 2.5" 10K RPM, SAS HDD GHS	0
9190-F417	600GB 2.5" 10K RPM, SAS HDD GHS	0
9190-F418	900GB 2.5" 10K RPM, SAS HDD GHS	0
9190-F419	1.2TB 2.5" 10K RPM, SAS HDD GHS	0
9190-F480	Cable Assembly, MiniSASHD, 2M (one cable)	0
9190-F481	Cable Assembly, MiniSASHD, 1M (one cable)	0
9190-F485	Cable Assembly, MiniSAS, 1M (one cable)	0
9190-F490	Blank Filler, Black, 2.5" Hard Drive, Disk Drive Enclosure - Dot Hill	0
Ethernet Adapters		
9190-F262	Adapter-PCIe, X540-T2 10Gb BASE-T, 2CH, CU, LP	2,500
9190-F263	Adapter-PCIe2, I350-T4 1Gb Ethernet, 4Ch, CU, LP	1,500
9190-F264	Adapter-PCIe2, I350-F2 1Gb Ethernet, 2CH, OPT, LP	2,000
BAR Adapters		
9190-F232	Adapter-PCIe 1Gb Ethernet, 4Ch, Copper, LP, TMS BAR	1,050
9190-F233	Adapter-PCIe 8Gb Fibre Channel, 4 Ch, STD, TMS BAR	3,500

Product ID	Description	MRP ($)
9190-F234	Adapter-PCIe 10Gb Ethernet, 2Ch, Fiber, LP, TMS BAR	2,500
9190-F235	Adapter-PCIe 10Gb Ethernet, 2Ch, Copper, LP, TMS BAR	1,200
9190-F236	Adapter-PCIe 56Gb/s InfiniBand, 2CH, LP, TMS BAR	5,000
9190-F240	Adapter-PCIe 8Gb Fibre Channel, 4Ch, STD	4,500
9190-F254	Adapter-PCIe, BYNET V5, IB, 2CH, LP - FCAT	5,000
BYNET, Storage Adapters		
9190-F254	Adapter- PCIe, 56Gb/s BYNET V5, 2CH, LP	0
9190-F229	ADPT-PCIe2, SAS2, 6Gb, 4 Channel	0
Memory		
9190-F281	Memory, 64GB, DDR4-2133MHz (4 x 16GB DIMM)	3,840
9190-F282	Memory, 128GB, DDR4-2133MHz (4 x 32GB DIMM)	7,680
9190-F286	Memory - 32GB, DDR3-1333MHz, (4x8GB DIMM) Dell Only	3,200
Space Reservation		
9190-F495	Reserved Space 3U - Data Domain ES30 Expansion Shelves	0
9190-F496	Reserved Space 4U - Data Domain DD4200	0
9190-F497	2800 Data Warehouse Encryption (Storage)	10,000
9190-F498	Reserved Space 6U - Quantum i80 Tape Library	0
9190-F499	Reserved Space 4U - SKM Key /Safe Net Secure Key Mgmt Server	0
Factory Integration		
9190-F849	Factory Integration, TMS (E31S) Generic, Model 8-01	750
9190-F857	Factory Integration, TMS (E31S) Generic, Model 8-01X	750
9190-F862	Factory Integration, TMS (E31S) Generic, Model 8-91X	750
9190-F850	Factory Integration, TMS (E31S) Viewpoint, Model 8-11	750
9190-F851	Factory Integration, TMS (E31S) Data Mover, Model 8-41	750
9190-F852	Factory Integration, TMS (E31S) Unity Ecosystem Manager, Model 8-31	750
9190-F853	Factory Integration, TMS (E31S) Query Grid, Model 8-71	750
9190-F854	Factory Integration, TMS (E31S) BAR, Model 8-51A	750
9190-F855	Factory Integration, TMS (E31S) BAR, Model 8-51D	750
9190-F856	Factory Integration, TMS (E31S) Load Server, Model 8-61	750
9190-F858	Factory Integration, TMS (E31S) Load Server, Model 8-61X	750
9190-F859	Factory Integration, TMS (E31S) SAS, Model 8-21X	750
9190-F847	Factory Integration, TMS (E31S) Unity Director/Loader, Model 8-81X	750
9190-F861	Factory Integration, TMS (E31S) Unity Director/Loader Exp Svr, Model 8-81XE	750
9190-F836	Factory Integration, TMSS (E31S) NAS, Model 8-91X-14HD for DSU	750
9190-F863	Factory Integration, TMSS (E31S) NAS, Model 8-91X-14HD	750
9190-F826	Factory Integration, SWS – TMS (E31S)	750
Switches and Cabling		
9190-F502	BYNET Switch, BYNET V5, 36-port (2 Switches, No cables)	0
9190-F505	Switch, Network 24 Port, 1Gbps, Dell 2824 (TMS BAR Admin/Data Srvr)	1,000
9190-F598	Cable Assy, 1Gb Ethernet I/O, 2M (1 cable)	0
9190-F599	Cable Assy, InfiniBand - QSFP+ Copper Cable Assembly, 2.0-meter	0
Services: Staging, Installation, and Memory Upgrade Features		
9190-F905	TMS - STAGING & INTEGRATION	2,000
9190-F940	9190 Base Cabinet Install Feature	0
9190-F941	1 - Node Install Feature	0
9190-F942	1 - Disk Drive Enclosure Install Feature w/SED HDD Capability	0

Product ID	Description	MRP ($)
9190-F943	Clique Expansion Install feature	0
9687-2000-0003	System Installation Entry Level	7,000
9687-2000-0085	2800 Node Memory Upgrade (per node)	2,000
SuSE Linux SLES		
F601-8247-0000	SUSE Linux Enterprise Server for Teradata, 1 Year Subscription, Fulfillment	450
F601-8280-0000	SUSE Linux Enterprise Server for Teradata, SLES 10 SP3, Media Kit	50
F601-8295-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP1, Media Kit	50
F601-8300-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP3, Media Kit	50
VMS, CMIC		
F601-8248-0000	SUSE Linux Enterprise Server for Teradata CMIC, 1 Year Subscription, Fulfillment	0
F601-8290-0000	SUSE Linux Enterprise Server for Teradata VMS/CMIC, SLES 11 SP1, Media Kit	50
F601-8247-0000	SUSE Linux Enterprise Server for Teradata, 1 Year Subscription, Fulfillment	450
Capacity on Demand		
9190-K980	Kit, 2800 Data Space Activation, 1.0TB with 300GB Drives	12,000
9190-K981	Kit, 2800 Data Space Activation, 0.1TB with 300GB Drives	1,200
9190-K982	Kit, 2800 Data Space Activation, 1.0TB with 600GB Drives	10,000
9190-K983	Kit, 2800 Data Space Activation, 0.1TB with 600GB Drives	1,000
9190-K984	Kit, 2800 Data Space Activation, 1.0TB with 900GB Drives	8,000
9190-K985	Kit, 2800 Data Space Activation, 0.1TB with 900GB Drives	800
9190-K986	Kit, 2800 Data Space Activation, 1.0TB with 1.2TB Drives	5,000
9190-K987	Kit, 2800 Data Space Activation, 0.1TB with 1.2TB Drives	500
9190-K988	Kit, 2800 Data Space Activation, 1.0TB with 1.2TB Drives, RAID1	6,500
9190-K989	Kit, 2800 Data Space Activation, 0.1TB with 1.2TB Drives, RAID1	650
Kits		
9190-K013	Kit, Rack 42U, Side Panels	0
9190-K019	Kit, 9190 System	0
9190-K020	Kit, Panel, Front Filler - 1U	0
9190-K021	Kit, Panel, Front Filler - 2U	0
9190-K200	Kit, 2800 Data Warehouse Data Encryption (Server)	2,000
9190-K205	Kit, Module, Quad Port I/O Controller, 1GBE (Intel)	1,550
9190-K206	Kit, Module, Dual SFP Port I/O Controller, 10GbE	3,050
9190-K207	Kit, Module, Dual RJ-45 Port 10GBASE-T I/O	3,050
9190-K210	Kit, HDD, 600GB, 2.5", SED, 10K, SAS, Hot Plug (Intel only)	1325
9190-K211	Kit, HDD, 900GB, 2.5", SED, 10K, SAS, Hot Plug (Intel only)	1750
9190-K216	Kit, HDD, 600GB, 2.5", SED, 10K, SAS, Hot Plug, (Dell Only)	1,750
9190-K232	Kit, Adapter-PCIe, 1Gb Ethernet, 4Ch, Copper, LP, TMS BAR	1,150
9190-K233	Kit, Adapter-PCIe, 8Gb Fibre Channel, 4 Ch, STD, TMS BAR	4,550
9190-K234	Kit, Adapter-PCIe, 10Gb Ethernet, 2Ch, Fiber, LP, TMS BAR	2,600
9190-K235	Kit, Adapter-PCIe, 10Gb Ethernet, 2Ch, Copper, LP, TMS BAR	1,300
9190-K236	Kit, Adapter-PCIe, 56Gb/s InfiniBand, 2Ch, LP, TMS BAR	20,050
9190-K240	Kit, Adapter-PCIe, 8Gb FC, 4Ch	4,550
9190-K250	Kit, Adapter-PCIe 10Gb Ethernet, 2Ch, Fiber Optic	3,500
9190-K251	Kit, Adapter-PCIe 10Gb Ethernet, 2Ch, Copper	2,500
9190-K254	Kit, Adapter-PCIe, BYNET V5, IB, 2CH, LP - FCAT	5,050
9190-K261	Kit, Adapter-PCIe, FICON-L, STD	75,000
9190-K262	Kit, Adapter-PCIe, X540-T2 10GBASE-T, 2CH, CU, LP	2,550
9190-K263	Kit, Adapter-PCIe2, I350-T4 1Gb Ethernet, 4Ch, CU, LP	1,550
9190-K264	Kit, Adapter-PCIe2, I350-F2 1Gb Ethernet, 2CH, OPT, LP	2,050
9190-K267	Kit, Adapter-PCIe, FICON-L, STD, (ECS)	75,000

Product ID	Description	MRP ($)
9190-K281	Kit, Memory - 64GB DDR4-2133 (4x 16GB RDIMMs)	3,840
9190-K282	Kit, Memory - 128GB DDR4-2133 (4x 32GB LRDIMMs)	7,680
9190-K286	Kit, Memory - 32GB, DDR3-1333MHz, (4x8GB DIMM) Dell Only	3,200
9190-K410	Kit, HDD, 300GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K412	Kit, HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K413	Kit, HDD, 900GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K414	Kit, HDD, 1.2TB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K415	Kit, GHS-HDD, 300GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K417	Kit, GHS-HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K418	Kit, GHS-HDD, 900GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K419	Kit, GHS-HDD, 1.2TB, 2.5", FDE, 10K, SAS, Hot Plug	0
9190-K497	Kit, 2800 Data Warehouse Data Encryption (Storage)	10,000
9190-K502	Kit, Switch BYNET-V5, 36 Port, IB (2 Switches no cables)	150,000

*Release / PID TBD

12.2 PIDs: In-field Clique Expansion

Product ID	Description	MRP ($)
Clique Expansion: BYNET V5		
9190-E001-8090	Teradata DW 2800 Full Clique (4-node) Expansion, BYNET V5	$740,000
9190-E002-8090	Teradata DW 2800 Partial to Full Expansion, BYNET V5	$370,000
9190-E003-8090	Teradata DW 2800 Half clique (2-node) Expansion, BYNET V5	$370,000

*PIDs for 1Gb BYNET In-field Clique Expansions, which would be used in co-residence situations only, are currently in development. If needed prior to release, use the Expansion cabinet.

12.3 PIDs: 2nd 2800 System

Product ID	Description	MRP ($)
Factory Install		
9190-S841-8090	Teradata, 2800, 2+0	370,000
9190-S842-8090	Teradata, 2800, 4+0	740,000
Field Install – Ship via Crates/Boxes		
9190-T001-8090	Teradata, 2800 Database Node, Intel (R1) R1208WT, Grantley	185,000
9190-T010-8090	Teradata, RBOD (DBB Ultra), Disk Drive Enclosure, Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	0
9190-T011-8090	Teradata, EBOD (DBB Ultra), Disk Drive Enclosure, Expansion (48) 2-1/2 HDD	0
Field Install – Ship via Transport Cabinet		
9190-E101-8090	2800 Second System 4+0 (BYNET V5 I/O) (Intel)	740,000
9190-E103-8090	2800 Second System 2+0 (BYNET V5 I/O) (Intel)	370,000

12.4 PIDs: Loaner Cabinet for In-field Clique Expansion and 2nd 2800

Product ID	Description	Quantity
9190-8000-8090	Teradata DW 2800 Staging / Loaner Cabinet	1

Product ID	Description	Quantity
9190-F502	Network Switch BYNET V5, 36-port, IB (2 Switches)	1

Product ID	Description	Quantity
9190-F598	Cable, 1Gb Ethernet 1/O, 2M (1 cable)	2 per node (4 per clique)

12.5 PIDs: Channel Solution

Product ID	Description	MRP ($)
Channel Nodes		
9228-N831-8090	Channel Node 2U, FICON-L, (Intel R2), Grantley	75,000
9228-F261	Adapter, PCIe, FICON-L, STD	75,000
9190-F831	Factory Integration, Channel Node, FICON-L, (Intel R2)	750
F785-2967-0000	Teradata DBS for Channel Node - SUSE Linux	0

12.6 PIDs: i80 Tape Library

Product ID	Description	MRP ($)
I80 Space Reservation		
9190-F498	Reserved 6U - Quantum i80 Tape Library	0
9190-F499	Reserved 3U - OKM /SKM Key /Safe Net Secure Key Management Server	0
9190-F505	24 Port Gb Ethernet Switch - Scalar Key Manager (qty = 1)	1,000

12.7 PIDs: Data Domain

Product ID	Description	MRP ($)
Data Domain 4200 Space Reservation		
9190-F495	Reserved 3U – Data Domain ES30 Expansion Shelf	0
9190-F496	Reserved 4U - Data Domain DD4200	0

12.8 ABU

Product ID	Description	MRP ($)
Teradata Appliance Backup Utility (ABU)		
F904-ABU0-0000	Appliance Backup Utility 15.0 (for SMP, 17xx, 26xx, 27xx & 28xx)	0

12.9 Operating Systems

Product ID	Description	MRP ($)
Operating Systems		
F601-8280-0000	SUSE Linux Enterprise Server for Teradata, SLES 10 SP3, Media Kit	50
F601-8295-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP1, Media Kit	50
F601-8300-0000	SUSE Linux Enterprise Server for Teradata, SLES 11 SP3, Media Kit	50
F601-8248-0000	SUSE Linux Enterprise Server for Teradata CMIC, 1 Year Subscription, Fulfillment	0
F601-8290-0000	SUSE Linux Enterprise Server for Teradata VMS/CMIC, SLES 11 SP1, Media Kit	50
F601-9500-0000	Sun Java Windows (Embedded)	0

12.10 VMS Software

Product ID	Description	MRP ($)
VMS Software		
F444-6729-0000	VMS Server Management Software for 2690/27xx	0
F802-5533-0000	VMS Viewpoint 15.10 Portal, Self Service and Management Portlets for 2800 Appliance	0

12.11 Viewpoint Appliance / Server Software

Product ID	Description	MRP ($)
Viewpoint Appliance/Server		
F802-0001-0000	Teradata Data Lab 15.10, per system	0
F802-5551-0000	Teradata Viewpoint Appliance Portal, Self Serv & Mgmt Portlets 15.10	0

12.12 BYNET v5 System Cabinet

See BYNET Switch OCI.

12.13 Teradata Database

See Teradata Database OCI. The Appliance uses the Base Teradata PID structure (no TASM).

- For the latest info on Teradata Database and TTU options, please refer to those OCIs or contact Database Product Management:
  - Database Product Management
  - OCI: https://connections.teradata.com/docs/DOC-24575
  - InfoHub: https://connections.teradata.com/community/infohub/teradata-database-infohub

12.14 Enterprise Bundle for the Appliance (without TASM)

New with the 2800 (and being added to the 2850) with Teradata database 15.10, is the ability to order the "Enterprise Bundle for the Appliance Upgrade". This bundle approach was requested by customers to allow a single priced line item at an all pricing discount. **This "Enterprise bundle for the Appliance" does not include TASM**. The components in the Enterprise bundle are:

- Columnar
- Temporal

- Ecosystem Manager
- In-Memory Optimization
- TPT Stream
- QueryGrid: TD DB-to-Teradata & TD DB-to-Aster

The Enterprise bundle for the Appliance Upgrade PIDs will be automatically added to a quote if the database edition selected in WOT is "Appliance Enterprise Bundle". Otherwise, if decided to purchase later, can be ordered in the Teradata database WOT model.

Note:
This Appliance Enterprise Bundle:

- Includes the Enterprise features currently separately orderable for the 2800 / 2850
- This software bundle does **NOT** include TASM
- This bundle can be ordered with a new 2800 order, or later as a software upgrade