TERADATA. LABS

Ordering and Configuration Information

Teradata Data Warehouse Appliance 2850

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**
August 15, 2016	First release after NDA lift, added pricing	ALL	1	Linette Draper
September 1, 2016	Updated section on Enterprise bundle without TASM	87, 89, 112	2	Linette Draper
November 4, 2016	Added information about: Clique Expansion Ship in Crate, support for 2850 2nd systems in 9400 cabinet, support for 2850 2nd systems in 2800 (field install only), mention to go to GSS if large switch desired.	Various	3	Linette Draper
November 10, 2016	Update Dump Server Section to show both server types and ordering	98, 99	4	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 / Rohit Karanam	R&D Hardware Platform Sr. Product Manager	November 4, 2016
Richard Linton	GM, Hardware Platforms	November 4, 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	November 4, 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.

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1.0 Overview

Important Note:

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.

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 >

The Teradata Data Warehouse Appliance 2850 is an optimized fully integrated data warehouse solution for decision support workloads, typically requiring fast data scans and heavy analytics. The 2850 includes the Teradata Database 15.10, a suite of Teradata Tools and Utilities (TTU 15.10 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 2850 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). The 2850 uses a RAID1 configuration with 44 disks per node. (No RAID6 option offered with the 2850.) Included are 2 Global Hot Spare drives (GHS) in each array.

Note that the RAID6 2850 requires Teradata Database version 15.10.01 or greater with SLES 11 SP3.

The 2850 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.

The 2850 release introduces support for the STAR / Satellite topology providing connectivity with only 36-port switches. Using only 36-port switches, we can connect up to 864 (2850) nodes. This topology is also supported with Aster, Hadoop and IntelliFlex,

For co-residence with 1Gb BYNET 2750 systems, the 1Gb BYNET used must be in the 2750 cabinet. The 2850 does not offer Base / System cabinets with 1Gb BYNET.

These design elements of the Teradata Data Warehouse Appliance 2850 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 either BYNET V5 or the 1Gb BYNET (BYNET over Ethernet).

Note:
At time of release, the minimum required Teradata database versions for the 2850 is TD15.10.01. As with the 2800, the 2850 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

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 2850 is configured and purchased via a simplified WOT interface and ordering process that provides limited configurability via the WOT wizard. **All 2850 configurations require GSS validation.** The 2850 cannot be customize beyond the items that are configurable in WOT. For customers requiring modifications not offered via the 2850 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 2850 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 2850 Appliance offer storage arrays with the following drive size options with RAID**1** systems:

- 600GB (2.5" drives, 10K)
- 1.2TB (2.5" drives, 10K)

The 2850 does not support 300GB or 900GB drives.

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
- Adapters
- Factory Integration Panels (Indicating to Factory the other products to include in the base cabinet):
    - Teradata Systems:
        - 680 system
        - 2nd 2850 system
        - 2nd 2800 system
        - Channel Solution (Channel Nodes and ECS)
        - Network Connectivity Server
    - TMS Nodes (R730 model, Fixed and Configurable)
    - SAS Worker nodes
    - Aster and Hadoop 5 nodes
    - BAR (space reservation only)
- 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 2850 offers high capacity drives (1.2TB) for storage for the 2850 RAID1 option, providing customers with the high capacity if required. 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 2850 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

These differences make the RAID1 2850 with 1.2TB drives an applicable solution for customers requiring a high capacity solution, but where there is a limited set of users and system availability is not mission critical. Use Archie to determine the most appropriate solution. Also note that the maximum allowed COD when using 1.2TB drives is 25%.

1.2 Key Changes between 2850 and 2800

The 2850 has the following changes over the 2800 platform:

- New Teradata Node
  - Processor: The 2850 uses new a 1U node which includes a faster processor. The new processor for the 2850 is an Intel Xeon Broadwell 2.3 GHZ (Series E5-2697v4), which has 18 cores with hyperthreading enabled and 45MB of L3 cache. It replaces the Intel Xeon 2.6 GHZ Haswell (Series E5-2697 v3), 14 core with hyperthreading enabled with 35MB L3 cache used in the 2800.
  - There are two processors in each node, providing 432 physical cores in a full rack with 12 servers (3 cliques).
    - Intel processor spec page: http://ark.intel.com/products/91755/Intel-Xeon-Processor-E5-2697-v4-45M-Cache-2_30-GHz
    - The 1U Dell® Server Chassis R630 with 10 drives:
      - http://i.dell.com/sites/doccontent/shared-content/data-sheets/en/Documents/Dell-PowerEdge-R630-Spec-Sheet.pdf
  - Rack Density: The 2850 node is a 1U node, which means a single cabinet can accommodate up to 12 nodes (same as the 2800).
  - **Two On-board 10Gb Ports for Customer Use** – The 2850 has four on-board ports on a daughter card attached to the motherboard, two of which are used by server management. This leaves two 10Gb ports for customer usage. No adapter needs to be ordered; only GBIC or SFP's as appropriate.
  - One additional PCIe slot is available for customer use (Ethernet, 1GbE or 10GbE)
- Storage – The 2850 uses storage from Seagate (Seagate purchased Dot Hill) as was used by the 2800.
  - 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
  - 44 Disks populated per tray for customer usage, 88 per array (with the 2800, it was 40 drives per tray)
  - Global Hot Spares – Two (2) additional Global Hot Spare drives per array
- SAS Adapters – The 2850 has a single SAS Adapter per node (6Gb/s).
- Compression – The Compression Engine Adapters used in the 2690, 2700, and 2750 are **not** offered in the 2850 (1U Teradata node is slot constrained), instead, software compression is used as was used by the 2800.
  - IPPzlib SW Compression;
  - 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 2850**).
- Memory – The Teradata nodes of the 2850 have two options for memory:
  - 256GB, or 512GB* of DDR4 memory (**32GB RDIMMs**); 256GB is the default in WOT and is included in the node.
  - 512GB or 1TB of DDR4 memory (**64GB LRDIMMs**); 512GB is the default in WOT and included in the node.

    ***Upgrades to larger memory require ALL DIMMs to be replaced with 64GB DIMMs, along with upgrades of the OS and replacement of the OS drives, so please choose carefully. This upgrade will be very disruptive**
  - The DDR4 memory is faster with lower latency (2400 MHz).
  - Larger memory better supports options such as Teradata Intelligent Memory (TIM), Java SPs or SAS on the nodes where more memory is consumed
  - **The nodes come with 8 DIMMs of memory. The maximum number of DIMMs supported per node is 16. Additional memory appears as a line item on the quote (previous product, 2800, had all memory as line items).**
- 0% Affinity
- 2nd System – Space permitting, the Base / System cabinets can accommodate a production 2850 system and up to two 2nd separate systems 2800/2850 (either a 2-node system or a 4-node system) to use as a Test and/or development system.
  - **Support either Factory or Field installation of the 2nd systems**
    - **If Field install, can be shipped in crates or transport cabinet**
  - 2800 or 2850 systems are supported as second systems
  - Note: Due to country-specific laws and regulations, the 2800 and 2850 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
  - Note: Due to country-specific laws and regulations, the 680 SMP is not available for sale to India.
  - **Support either 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 2850 cabinet.
  - There is **no** single-node option in the 2850 9193 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 2850 cabinet.
- Space permitting, the Base / System cabinets can accommodate a production 2850 system and up to two separate 2800/2850 2nd systems (either a 2-node system or a 4-node system) or a single 2850 / 2800 2nd system and up to two SMP's (680) to use as a Test and/or development system.
- Interconnect – BYNET V5 only (1Gb switch must be in 2750 cabinet **co-residence only**)
- Support for the STAR / Satellite topology supporting up to 864 x 2850 nodes using multiple 36-port BYNET V5 IB switches (housed in multiple 2850 cabinet), eliminating the need for a large switch cabinet.

1.3 Documentation for Previous Versions of the 2000 Platform

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

2850 OCI (Asset ID: KA75334): https://www.my.teradata.com/redir.html?assetID=KA75334
2800 OCI (Asset ID: KA71491): https://www.my.teradata.com/redir.html?assetID=KA71491
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

1.4 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 2850 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 2850, this means you will be able to order a 2nd 2850 and have it factory installed into either: a 2850 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.

A new methodology was implemented for ordering to support this multi-system factory installation. This approach requires multiple runs through WOT for a single quote, first starting with the main product and cabinet. Factory Integration product ids have been established to tell the factory that other products and TMS's will be installed into a particular cabinet. Additionally new product ids were created that indicate that the product will be installed into a different product cabinet. (Such as a 680 system being installed into a 2850 System / Base cabinet). WOT has been updated to allow users to indicate 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 2850 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 2850 System / Base cabinet: the 2nd 2850 or 2800 Clique, the 680 SMP systems, non-TPA nodes. SAS / Aster / Hadoop nodes, and TMS's**; the methodology does not apply to the primary 2850 cliques built as bundles in 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 2850 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 2850 (9193-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 2850 Appliance WOT model in the case of installing the 680 into the 2850 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 2850 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 2850 and 680 will utilize this indicator.
- "E-PIDs" indicate **field install in Transport Cabinet**. This is the method used when the 2nd 2850 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 2850 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 2850 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 2850 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 2850 node uses the Dell R630 server platform, which has two (2) Broadwell 2.3 GHz 18-core processors. This provides a performance improvement over prior generation technology. There are 2 adapter slots (used by the BYNET and SAS adapters) and one slot available for customer use. The 2850 daughter card has four on-board ports, two of which are used by server management. This leaves two 10Gb ports for customer usage. No adapter needs to be ordered; only GBIC or SFP's as appropriate. While the processor board has 24 memory DIMM slots, only 16 slots are populated to allow memory to run at full memory speeds. The memory options for 256GB of memory or 512GB of memory use 32GB DIMMs, or 1TB use 64GB DIMMs.

2.1 42U Cabinet

The 2850 utilizes the 42U rack design. The Base/System cabinet has been certified to house a number of components in addition to the standard cliques, including:

- A variety of TMS (R720 and R730)
- Channel nodes
- NCS
- BAR options
- 2nd Production System (2-node or 4-node 2800 / 2850 or 680 SMP)
- Aster Appliance 5 nodes
- Hadoop Appliance 5 nodes
- SAS nodes

The above items are only allowed in the first cabinet of the 2850 (Base / System cabinet) in the WOT model, and not the Expansion (2nd and beyond) cabinets to limit complexity in stack-ups and modeling. The various TMS and Channel Solution nodes may also reside in the 9212 Platform Framework Cabinet (PFC).

The 2850 cabinet supports 2850 cliques, comprised of nodes and storage, for the 2850 (9193) product class.

2800 (9190) nodes maybe be installed in the 2850 (Base / System) cabinet as a second system, as well as Aster Appliance 5 nodes, and Hadoop 5 / 6 nodes.

Teradata nodes from other product classes, including the other previous 2000 Series Appliance nodes (2500, 2550, 2555, 2580, 2650, 2690, 2700, or 2750) **cannot** be placed in the 2850 (9193) product class cabinet. Similarly, the 2850 cliques:

- **Cannot** be placed in the cabinet of a different Teradata product class: EDW, 1000 Series Appliance, IntelliFlex, SAS etc.)
- **Cannot** be placed in a customer-owned cabinet

Note: Due to country-specific laws and regulations, the 2850 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: teal for the Data Warehouse Appliance. Side panels should be printed at a size of 45" x 78".

2.2 2850 Clique Configuration

The 2850 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) with a pair of 36-port switches
- Two hundred sixteen (216) full cliques (864 nodes) using the STAR / Satellite topology connecting 36-port switches. This option could provide the best option for customers eliminating the need for a separate switch cabinet.

The external switch cabinets of the 9107 Class may be also used to support systems that exceed the capacity of the in-rack switch pairs or if it is preferred over the STAR / Satellite topology:

- 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 (such as Aster / Hadoop) 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 disk array features the Gallium-LX dual controller and the second drive tray is integrated via the ESM. Each drive tray has forty (44) 2.5" SAS active disks; each array has 2 global hot spare drives (one per tray).

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 disk array features the Gallium-LX dual controller and the second drive tray is integrated via the ESM. Disk protection is via RAID1 mirroring; drive sizes offered are:

- 600GB 10K (RAID1 only)
- 1.2TB 10K (RAID1 only)

2.3 2850 Node choices

The 2850 offers **two** node choices and **should be selected carefully**. The nodes are different to accommodate different memory options. One node (9193-F100) can support up to 512GB of memory (with 32GB DIMMs), and the other node (9193-F105) can support up to 1TB of memory (with 64GB DIMMs). In addition to the DIMM differences, these nodes have different OS drives sizes due to the memory requirements. **Also, each node comes with 8 DIMMs of memory (this**

is different than the 2800 nodes). The nodes allow for up to five customer drives which do not come with the node and must be specified in WOT.

We support upgrading 9193-F100 (with 32GB DIMMs) to 64GB DIMMs, but the upgrade is not simple, it will require full replacement of DIMMs and replacing the OS drives to a larger size.

Product ID	Description	Quantity / Notes
2850 Nodes		
9193-F100	Database Node, 2.3GHz, 256GB, (8X**32GB**), R630, Dell (E26S), includes 2x**1.2TB** OS drives	256GB memory with **32GB** DIMMs included with F100 node* Two **1.2TB** OS drives included Up to 5 customer drives supported (separately orderable in WOT)
9193-F105	Database Node, 2.3GHz, 512GB, (8X**64GB**), R630, Dell (E26S), includes 2X**1.8TB** OS drives	512GB memory with **64GB** DIMMs included with F105 node* Two **1.8TB** OS drives included Up to 5 customer drives supported (separately orderable in WOT)

*Note, node comes with 8 DIMMs of memory

Note:

- **9193-F100 uses the 32GB DIMMs only with 1.2TB OS drives**
- **9193-F105 uses the 64GB DIMMS only with 1.8TB OS drives**

It is possible to upgrade a node from 32GB DIMMs to 64GB DIMMs (when a customer wants to upgrade to 1TB of memory and they are currently at 256GB or 512GB with 32GB DIMMS with 9193-F100 node); however the upgrade is extensive and will result in downtime as it also requires replacing the OS drives with 1.8TB drives.

Please choose the node (and therefore DIMM choice carefully), if your customer may upgrade to 1TB of memory it is HIGHLY recommended the initial order uses 9193-F105 with the 64GB DIMMs allowing for a less disruptive upgrade and improved customer satisfaction.

2.4 2850 RAID 1 Drive Configuration

For the full RAID1 4-node clique, each drive tray is fully populated with forty-four (44) 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 528 Drives (active) and 12 Global Hot Spare drives.

2.5 2850 Database and OS

All 2850 systems are pre-configured with SuSE Linux and the Teradata database. The only Teradata Database option for the 2850 is TD DBS 15.10. (WOT will always default to the latest certified and released version of the Teradata Database and TTU). The **only** option available for the 2850 is SuSE Linux OS is SLES 11 SP3. 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 2850 is TD15.10.01.

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.

2.6 Node Interconnect (BYNET)

The 2850 utilizes Teradata's leading-class BYNET interconnect software to provide parallelism and scalability. BYNET V5 (InfiniBand) is the node interconnect on the 2850. The 1Gb BYNET over Ethernet offered in the 2000 Series previously is not available for the 2850. 1Gb BYNET for the purpose of **co-residence only** is supported using the 1Gb switch in the 2750 cabinet.

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 STAR / Satellite topology connecting multiple pairs of dual 36 port switches, or 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
2850 Appliance (Switch - BYNET V5)	
9193-F595	Network Switch BYNET V5, 36-port, IB (2 Switches)
9193-F596	Network Switch BYNET V5, 36-port, IB (2 Switches)
Notes: 9193-F595 is used in the first cabinet only. 9193-F596 is used for subsequent cabinets in support of the STAR / Satellite topology	

2.7 2850 Configurations

The Cabinet configuration of the 2850 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 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 **all 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 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 Secondary Cabinet
- TMS / Channel Solutions
- Factory Integration for Factory Install or Space Reservation (in future release of WOT) for Planned Field Installations of:
    - 2nd Teradata Systems:
        - Up to two 28xx 2nd systems (2850 or 2800, 2+0 or 4+0)
        - Up to 1 28xx 2nd system and up to 2 680 SMP systems
    - Aster Appliance 5 nodes
    - Hadoop Appliance 5 nodes
    - SAS Worker nodes
    - BAR Options (with vendor Space Reservation PIDs)
        - i80 Tape Library options with / without Key Management
        - DD4200 Disk Library options
        - TMSB Master and/or Media Servers
- System size requirements (either as purchased initially or the planned growth)

The 2850 Base / System (first) cabinet supports factory or field-installable options including:

- Up to two 2nd 2850 System* (only one allowed if ordering a 680 SMP server)
  - 2-node or 4-node 2nd 2850 / 2800 system
  - 2-node or 4-node 2nd 2850 / 2800 system
- 680 SMP*
  - 1 or 2 SMPs (also allow up to one 2800 or 2850 2nd system with the SMP's)
- BAR Options (with vendor Space Reservation PIDs)
  - i80 Tape Library options with / without Key Management **–OR-**
  - DD4200 Disk Library options
  - Up to 2, TMSB Master and/or Media Servers

Note: Due to country-specific laws and regulations, the 2850 2nd System option and the 680 are **not available for sale to India.*

The BAR options are mutually exclusive, where a 2850 Base / System cabinet can be configured with either an i80 configuration **or** a Data Domain 4200 option. The Teradata products – the 2nd 2850 and the 680 – can be sold in conjunction with one another or as individual field-installable components sold with the 2850 Base / System cabinet. Limitations are based on power type and space available. See the Teradata Multi-Systems section and *the 2850 Product Site and Preparation Guide*

The Expansion cabinet (second cabinet), which is offered with the same power and clique options, does not include the BYNET switches or the KMM. If the STAR / Satellite topology is used, then the 36-port BYNET switches will be in the second cabinet and others as appropriate.

2.7.1 2850 Systems

The following PID is for Base cabinet using **BYNET V5 and** the Bundle PID for the BYNET V5 Infrastructure. The cabinet PID is also used for the second cabinet and beyond (no expansion cabinet PID). The BYNET V5 Bundle PID is only applied when the system is configured with the 36-port BYNET V5 switch pairs (single pair or STAR / Satellite); this fee is waived when the large BYNET switches are used (9107 class).

Product ID	Description – 2850
BYNET V5	
9193-1000-8090	2850 Base Cabinet, BYNET V5
BYNET V5 Infrastructure	
9193-F926	Teradata Data Warehouse 2850 BYNET V5 Bundle, per 2 nodes

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

Product ID	Description	Notes
Switches (InfiniBand)		
9190-F595	Network Switch-BYNET V5 (pair) 36-port	Housed in the Base / System cabinet (first cabinet) and can support up to 36 nodes.

Secondary cabinets using **BYNET V5** use the following BYNET switch pair (InfiniBand) for the STAR and Satellite topology:

Product ID	Description	Notes
Switches (InfiniBand)		
9190-F596	Network Switch-BYNET V5 (pair) 36-port	If system has more than 36 nodes, the STAR / Satellite topology can be used which connects multiple 26-port switches together.

Additional components include the following, dependent upon Base or Secondary (2nd Cabinet and beyond) and the system size.

Product ID	Description	Notes
Additional Components		
9193-F083	KMM, Console, 18.5" LCD w/Rails	- Automatically mapped by WOT for Base / System Cabinet
9193-F302 Or 9193-F307	System VMS (Grantley or Romley)	- Automatically mapped by WOT
9193-F300 Or 9193-F305	Cabinet VMS (Grantley or Romley)	- Automatically mapped by WOT for Secondary 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. **Notice that there are different hardware / software bundle PIDs based upon the node selected (9193-F100 with 32GB DIMMs or 9193-F105 with 64GB DIMMs)**

Product ID	Description – 2850 ACTIVE Drives	Quantity (per 2-node)
9193-F412	600GB 2.5" SAS HDD	88 – RAID1
9193-F414	1.2TB 2.5" SAS HDD	88 – RAID1
Product ID	**Description – 2850 Global Hot Spare Drives**	**Quantity**
9193-F417	600GB 2.5" SAS HDD	1 per node
9193-F419	1.2TB 2.5" SAS HDD	1 per node

Product ID	Description – 2850 Hardware / Software Bundle	Quantity
Bundle – 512GB node (8x64GB DIMMs)		
9193-F920	Teradata Data Warehouse 2850 Half-To-Full Clique RAID1 HW/SW Bundle, 512GB (8x64) Node	
9193-F921	Teradata Data Warehouse 2850 Half Clique RAID1 HW/SW Bundle, 512GB (8x64) Node	
9193-F922	Teradata Data Warehouse 2850 Clique RAID1 HW/SW Bundle, 512GB (8x64) Node	
Bundle – 256GB node (8x32GB DIMMs)		
9193-F960	Teradata Data Warehouse 2850 Half-To-Full Clique RAID1 HW/SW Bundle, 256GB (8x32) Node	
9193-F961	Teradata Data Warehouse 2850 Half Clique RAID1 HW/SW Bundle, 256GB (8x32) Node	
9193-F962	Teradata Data Warehouse 2850 Clique RAID1 HW/SW Bundle, 256GB (8x32) Node	

2.7.2 2850 2nd System (Factory and Field Install)

A 2nd 2850 system – either a 2-node or 4-node system may be **factory or field-installed** into a 2850 Production system / base cabinet. The 2850 offers the ability to have 2nd 2850 systems, either 2-node or 4-node, placed in the cabinet. Unlike the In-field Clique Expansions, this system is NOT integrated into the existing 2850 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.

A 2nd 2850 may be installed in the 9400 cabinets (base or expansion); please refer to the **9400 Teradata Cabinet OCI** for support rules.

A 2850 2nd system can also be field installed into a 2800 base or system cabinet, please work through GSS for this request as it will require submitting a review and approval from engineering (through a deviation request).

Note: The 2850 2nd system may **not** be placed in an EDW cabinet, SAS cabinet or earlier 2000 (pre-28xx), Aster or Hadoop cabinets. The 2850 2nd system may be placed into a 9400 cabinet which supports Aster 5 and Hadoop 5 and 6 nodes. A 2850 2nd system may be placed into a 2800 Base / System cabinet (field install only with a deviation request approval through GSS).

The 2nd 2850 System has its own WOT catalog that can configure either a factory install or field install set of PIDs. The choices are in a drop down menu in the WOT model:

1.) Factory Install
2.) Field Install – ship in crates
3.) Field Install – ship in transport cabinet

A 2850 System / Base cabinet, space allowing can support either two 2800 / 2850 2nd systems or one 2800 / 2850 2nd system and up to two 680 SMP systems.

A 2nd 2850 System is priced with the same pricing structure as the standard 2850 2-node and 4-node cliques and is configured in a similar method.

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)

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 2850 2nd system offers the same drive size options and memory options as a standard 2850 nodes.

The Hardware / Software Bundle, Storage Drives, GHS Drives, BYNET V5 adapter 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.

Product ID	Description – 2850 ACTIVE Drives	Quantity (per 2-node)
9193-F412	600GB 2.5” SAS HDD	88
9193-F414	1.2TB 2.5” SAS HDD	88

Product ID	Description – 2850 Global Hot Spare Drives	Quantity
9193-F417	600GB 2.5" SAS HDD	2 per node
9193-F419	1.2TB 2.5" SAS HDD	2 per node

Product ID	Description	Quantity / Notes
Memory		
9193-F280	Memory, 128GB, 2400MHz, DDR4, (4x32GB RDIMM) Dell Only	256GB included with F100 node* 512GB / node: 2 additional per node
9193-F281	Memory, 256GB, 2400MHz, DDR4, (4x64GB LRDIMM) Dell Only	512GB included with F105 node* 1TB / node: 2 additional per node

*Note, node comes with 8 DIMMs of memory

The following PIDs **are bundled** with the 2nd System 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 2nd Systems**

Product ID	Description	Qty 4+0 2nd System Full Clique (E101, E201)		Qty 2+0 2nd System Half clique (E103, E203)
SAS Cabling				
9193-F480	Cable Assembly SAS, 2M (1 cable)	4 per clique		4 per clique
9193-F481	Cable Assembly SAS, 1M (1 cable)	12 per clique		NA
9193-F485	Cable Assembly, MiniSAS, 1M (one cable)	4 per clique		2 per clique
Adapters (SAS)				
9193-F229	Adapter, PCIe2, 6Gb SAS, 4 Channel, LSI	4		2

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

Product ID	Description	Qty
Installation (Factory)		
9193-F943	Clique Expansion Install Feature	1 per clique
Installation (CS)		
9687-2000-0020	TSD Per Clique Installation	1 per clique

Product ID	Description – 2850 Hardware / Software Bundle	
Bundle – 512GB node (8x64GB DIMMs)		
9193-F920	Teradata Data Warehouse 2850 Half-To-Full Clique RAID1 HW/SW Bundle, 512GB (8x64) Node	
9193-F921	Teradata Data Warehouse 2850 Half Clique RAID1 HW/SW Bundle, 512GB (8x64) Node	
9193-F922	Teradata Data Warehouse 2850 Clique RAID1 HW/SW Bundle, 512GB (8x64) Node	
Bundle – 256GB node (8x32GB DIMMs)		
9193-F960	Teradata Data Warehouse 2850 Half-To-Full Clique RAID1 HW/SW Bundle, 256GB (8x32) Node	
9193-F961	Teradata Data Warehouse 2850 Half Clique RAID1 HW/SW Bundle, 256GB (8x32) Node	
9193-F962	Teradata Data Warehouse 2850 Clique RAID1 HW/SW Bundle, 256GB (8x32) Node	

Here are some important considerations:

1. The 2nd 2850 System requires a separate Site ID.

2. The 2nd 2850 may ***only*** be placed in the first cabinet (Base / System cabinet) of a 2850 or 2800 system – **not in Expansion / Secondary cabinets. (field install only for placement in a 2800 base cabinet, work through GSS for the proper review and approvals)**
3. The 2850 2nd system is NOT certified in the Aster / Hadoop 5 Cabinet or UDA Appliance cabinet (not certified in those cabinets; the 2800 IS certified in those cabinets). In cases where you want Aster 5 / Hadoop 5 or 6 nodes with a 2850 2nd system, use the 9400 cabinet which will support the combination.
4. The inclusion of a 2nd 2850 system ***requires*** a Viewpoint server in the customer's environment (either in the 2850 cabinet or accessible in another cabinet); ensure the customer has this product. The Viewpoint VMS only supports 1 system.
5. *Due to country-specific laws and regulations, the 2850 2n System option and the 680 are* ***not available for sale to India.***
6. Channel nodes cannot be shared between two different systems, therefore, if Channel Nodes are needed for discrete systems in the 2850 Base / System cabinet (e.g. the 2nd 2850 System and the 1st production 2850 system in the Base / System Cabinet), individual channel nodes must be ordered and can only be in the Base / System Cabinet.

Note: The 2850 2nd System **cannot** be placed in the rack of a different appliance, such as the 2690, 2700, or 2750. Similarly, the 2850 2nd System:

- **cannot** be placed in the cabinet of a different Teradata product class (EDW, Aster 3/4/5, Hadoop 3/4/5, 1000 Series Appliance, etc.)
- **cannot** be placed in a customer-owned cabinet

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

- 2850 In-field Clique Expansions
- 2850 2nd System
- 680 SMP

2.7.2.1 2nd System - Factory Install

The 2nd 2850 System may be factory installed into the 2850 cabinet; this 2nd 2850 system is only allowed in the Base / System cabinet for those platforms.

The 9400 cabinet allows the 2850 2nd systems to be Factory Installed in expansion cabinets also; please refer to the **9400 Teradata Cabinet OCI** for rules for this support.
Note: When ordering a second system to be placed in a 9400 cabinet, select "None" for the *Inter-Cabinet Tier 1 Switch Cable* choice in the dropdown menu; the 9400 WOT model will include all the necessary IB cables.

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 2850 System. Two passes through WOT is required, the first to configure the cabinet and reserve space, and a second to configure the 2nd 2850 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 2850 WOT model.

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

Product ID	Description – 2850 2nd Production System	Quantity
Factory Install		
9193-S819-8090	Teradata, 2850, 2+0, 256GB (8x32) nodes	1
9193-S820-8090	Teradata, 2850, 4+0, 256GB (8x32) nodes	1
9193-S821-8090	Teradata, 2850, 2+0, 512GB (8x64) nodes	1
9193-S822-8090	Teradata, 2850, 4+0 512GB (8x64) nodes	1
Notes: Disk drive selections and other node and array options will be feature strung to these units.		
Factory Integration (generated by the respective WOT model)		
2850 System Cabinet		
9193-F819	Factory Integration, 6U 2850, 2+0	1
9193-F820	Factory Integration, 12U 2850, 4+0	1
9193-F821	Factory Integration, 6U 2850, 2+0, 512GB	1
9193-F822	Factory Integration, 12U 2850, 4+0, 512GB	1
9400 System or Expansion Cabinet		
9400-F819	Factory Integration, 6U 2850, 2+0	1
9400-F820	Factory Integration, 12U 2850, 4+0	1
9400-F821	Factory Integration, 6U 2850, 2+0, 512GB	1
9400-F822	Factory Integration, 12U 2850, 4+0, 512GB	1

Note: When ordering a 2850 second system to be placed in a 9400 cabinet, select "None" for the *Inter-Cabinet Tier 1 Switch Cable* choice in the dropdown menu; the 9400 WOT model will include all the necessary IB cables.

2.7.2.2 Field Install (via Transport Cabinet or Crates)

The 2nd 2850 system may be field installed into the 2850 or 2800* Base / System Cabinet or the 9400 cabinet. There are two methods of shipping a 2nd 2850 to the customer site; via crates/boxes (using "T-PIDs") or the Transport Cabinet (using "E-PIDs"). In WOT the user selects the choice in the "Shipment Type" dropdown in the "Main System" panel.

When ordering a field install, it is the responsibility of the Sales Team to verify a 2nd 2850 system can be field installed into the designated cabinet by checking that the required U space is available for the power they have in the cabinet.

When Field installing nodes, remember they must be installed in the locations outlined in the 2850 Product and Site Preparation Guide. If installed in an unapproved location, there will likely be delays in getting needed support completed as the cabinet will not be supportable by CS.

The Hardware / Software Bundle, Storage Drives, GHS Drives, BYNET V5 Adapter and storage arrays are automatically added by WOT based on selections, with WOT calculating appropriate quantities depending upon the number of Teradata nodes selected.

*** Note:** When ordering a 2850 2nd system to be field installed into a 2800 Base / System cabinet, please work through GSS for this request as it will require submitting a review and approval from engineering (through a deviation request).

Via Crates/Boxes

Shipment via Crates/Boxes is a new option that was released in February 2016 with the 2850. It allows an account team to order a 2nd 2850 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.

The PIDs are represented by "T" PIDs, which bundle nodes or storage and many common parts. See the below chart for the contents of each T-PID.

These "T" PIDs allows a customer to add either a 2-node or 4-node 2nd 2850 system, with nodes, 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 BYNET V5 adapter is also added by WOT. The drive sizes offered are the same as with a standard 2850 system.

The following PIDs are used to build a 2850 2nd system with the noted quantities to order:

Product ID	Description – 2850 2nd Production System	Quantity	
		2 Node	4 Node
9193-T001-8090	TERADATA / 2850, 1 Node for 2+0 256GB (8x32) Dell (E26S) 6U (one node)	2	n/a
9193-T002-8090	TERADATA / 2850, 1 Node for 2+0 512GB (8x64) Dell (E26S) 6U (one node)	2	n/a
9193-T003-8090	TERADATA / 2850, 1 Node for 4+0 256GB (8x32) Dell (E26S) 12U (one node)	n/a	4
9193-T004-8090	TERADATA / 2850, 1 Node for 4+0 512GB (8x64) Dell (E26S) 12U (one node)	n/a	4
9193-T010-8090	Teradata, RBOD (DBB Ultra), Disk Drive Enclosure, Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	1	2
9193-T011-8090	Teradata, EBOD (DBB Ultra), Disk Drive Enclosure, Expansion (48) 2-1/2 HDD	1	2

As noted, for this option there are separate 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 and array features under the array PIDs

The following tables outline the alignments of features to a PID:

Aligns to one Node (9193-T001-8090 and 9193-T003-8090 nodes includes 256GB memory) (9193-T002-8090 and 9193-T004-8090 nodes includes 512GB memory)	Memory Internal Drives Adapters Encryption (Servers) Hardware/Software Appliance Bundles Cable Assemblies Node Installation
Aligns to the Array Controller (9193-T010-8090)	Disk Drives Global Hot Spares Encryption (Arrays) Drive Enclosures Drive Installation
Aligns to the Array – Expansion (9193-T011-8090)	Disk Drives Global Hot Spares Drive Enclosures Drive Installation

Via Transport Cabinets

Shipping field install via the Transport Cabinet will still continue to be an option. This option ships the 2nd 2850 in a Transport Cabinet to the customer site where it can reside temporarily. Once the 2nd 2850 is installed into its permanent host cabinet, the transport cabinet would be returned.

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:

- 2850 Nodes
- SAS 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

These "E" PIDs allows a customer to add either a 2-node or 4-node 2nd 2850 system, with nodes, 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 BYNET V5 adapter is also added by WOT. The drive sizes and RAID offered are the same as the standard 2850.

The following Product IDs are used to build a 2nd 2850 System for field installation via Transport Cabinets, the choices are based upon 2nd System size and memory type:

Product ID	Description – 2850 2nd Production System	Quantity
Field Install – Ship via Transport Cabinet		
9193-E101-8090	2850 Second System, Full Clique, 256GB(8x32) per Node	1
9193-E103-8090	2850 Second System, Half Clique256GB(8x32) per Node	1
9193-E201-8090	2850 Second System, Full Clique 512GB(8x64) per Node	1
9193-E203-8090	2850 Second System, Half Clique 512GB(8x64) per Node	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.

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.

Note that due to country restrictions, these above products cannot be shipped to India.

2.7.3 Hosting a 680 SMP

The 680 SMP, either one or two, may be hosted in the 2850 Production Base/System (first) cabinet. As with the 2nd 2850 System, the 680 SMP may be factory or field installed into a 2850 Base / 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 / secondary cabinets.**
3. The inclusion of a 680 SMP ***requires*** a Viewpoint server in the customer's environment (either in the 2850 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 2850 Base / System cabinet (e.g. the 680 SMP and the 2850 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 2850 Base/System Cabinet, you must include Product ID 9193-F843 Factory Integration, 3U SMP - quantity one per 680, with the 2850 Base/System Cabinet. This Product ID is generated by selecting the 680 SMP in the "Factory Integration – Teradata Systems" panel in the 2850 Appliance WOT model.
8. Factory Installed 680's must be on the same WOT quote as the host 2850 Cabinet.
9. When planning a field install, it is the responsibility of the Sales Team to ensure the 680 system(s) can fit in the 2850 Base / System Cabinet; ensure the required U space is available.
10. If the 680 is to be field installed into the 2850 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. – (Reserve space in future WOT sync)

2.7.4 i80 Tape Library

Notes on the i80 Tape Library

- The i80 has a product manager; any i80 specific questions should be directed to BAR 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 2850. 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 **2850 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
9193-F498	Reserved 6U - Quantum i80 Tape Library	One required per i80 module (9215-8100-8090)
9193-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

2.7.5 Data Domain 4200

Notes on the Data Domain 4200 Disk Library

- The Data Domain 4200 has a product manager; questions should be directed to BAR 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 2850 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 **2850 System**; PIDs and quantity are determined by the number of 4200 Data Domain Disk Library and Expansion Libraries being added.

Product ID	Description	Notes
9193-F495	Reserved 3U – Data Domain ES30 Expansion Shelf	
9193-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 2850 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.

2.8 Cabinet Configurations – Sample stack-ups

The following section is intended to provide some sample configurations of the 2850. 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, please refer to the ***2850 Platform Product and Site Preparation Guide*** (B035-6056-056K) for the approved configurations / stack-ups for Power A.

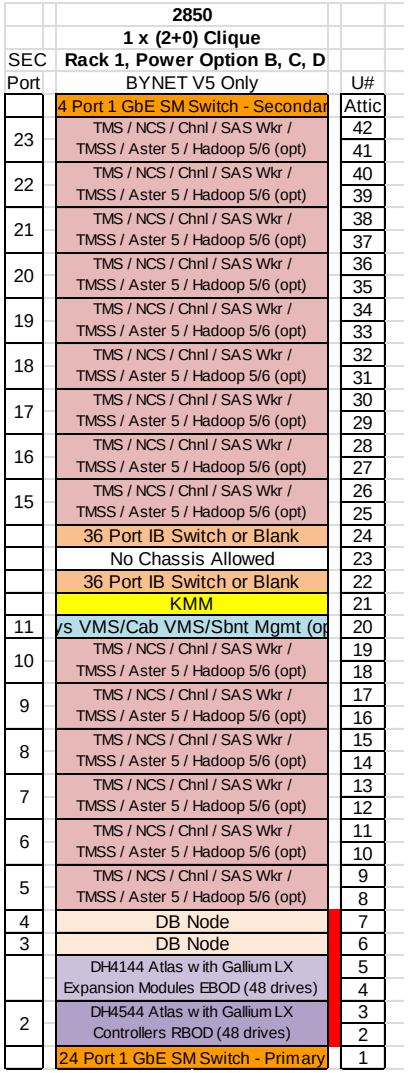
For to view a full set of the available stack-ups (available configurations) for the 2850, please refer to the ***2850 Platform Product and Site Preparation Guide*** (B035-6056-056K).

Note:

For a complete list of all supported stack-ups please refer to the *2850 Platform Product and Site Preparation Guide*

The stack-ups for the 2850 were based upon the highest power nodes for each category. This resulted in conservative stack-ups to accommodate the highest power usage. For example, for B, C, D power we have some stack-ups that require that 2U be empty. If your customer needs just one more TMS to be placed into the first 2850 cabinet to avoid ordering an additional cabinet for just one node, please contact GSS and request an engineering review and possible deviation (no promises, but it will be reviewed for an exception).

2.8.1 One (1) 2-node Half Clique Config. (System Cabinet) – Power B, C, D



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

Two 2850 Nodes each with the following every unit items:

- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
  - 2 x 1GbE Ethernet Ports (Used for SM)
  - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**)
    - Optical SFP (2021-K265)
    - 1Gb Mini-GBIC (2021-K260)
- Additional PCIe slot **for customer use**: 1GbE or 10GbE

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
- Each drive tray is populated with 44 active drives and 1 GHS drive
  - 44 active DPN, 88 disks per half clique
  - 600GB or 1.2TB 2.5" SAS (10K RPM), RAID1

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

Cabinet also includes:

- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door

Options for first cabinet (dependent upon power selection):

- up to fifteen (15) optional TMS / Aster 5 / Hadoop 5 / SAS / Channel Solution nodes
- USB Transport Drive

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

2.8.2 One (1) 1-Clique (4 Node) Config. (System Cabinet) – Power B, C, D

	2850	
	1 x (4+0) Clique	
SEC	Rack 1, Power Option B, C, D	
Port	BYNET V5 Only	U#
	4 Port 1 GbE SM Switch - Secondar	Attic
23	TMS / NCS / Chnl / SAS Wkr /	42
	TMSS / Aster 5 / Hadoop 5/6 (opt)	41
22	TMS / NCS / Chnl / SAS Wkr /	40
	TMSS / Aster 5 / Hadoop 5/6 (opt)	39
21	TMS / NCS / Chnl / SAS Wkr /	38
	TMSS / Aster 5 / Hadoop 5/6 (opt)	37
20	TMS / NCS / Chnl / SAS Wkr /	36
	TMSS / Aster 5 / Hadoop 5/6 (opt)	35
19	TMS / NCS / Chnl / SAS Wkr /	34
	TMSS / Aster 5 / Hadoop 5/6 (opt)	33
18	TMS / NCS / Chnl / SAS Wkr /	32
	TMSS / Aster 5 / Hadoop 5/6 (opt)	31
17	TMS / NCS / Chnl / SAS Wkr /	30
	TMSS / Aster 5 / Hadoop 5/6 (opt)	29
16	TMS / NCS / Chnl / SAS Wkr /	28
	TMSS / Aster 5 / Hadoop 5/6 (opt)	27
15	TMS / NCS / Chnl / SAS Wkr /	26
	TMSS / Aster 5 / Hadoop 5/6 (opt)	25
	36 Port IB Switch or Blank	24
	No Chassis Allowed	23
	36 Port IB Switch or Blank	22
	KMM	21
11	vs VMS/Cab VMS/Sbnt Mgmt (op	20
10	TMS / NCS / Chnl / SAS Wkr /	19
	TMSS / Aster 5 / Hadoop 5/6 (opt)	18
9	TMS / NCS / Chnl / SAS Wkr /	17
	TMSS / Aster 5 / Hadoop 5/6 (opt)	16
8	TMS / NCS / Chnl / SAS Wkr /	15
	TMSS / Aster 5 / Hadoop 5/6 (opt)	14
	DH4144 Atlas with Gallium LX	13
	Expansion Modules EBOD (48 drives)	12
7	DH4544 Atlas with Gallium LX	11
	Controllers RBOD (48 drives)	10
6	DB Node	9
5	DB Node	8
4	DB Node	7
3	DB Node	6
	DH4144 Atlas with Gallium LX	5
	Expansion Modules EBOD (48 drives)	4
2	DH4544 Atlas with Gallium LX	3
	Controllers RBOD (48 drives)	2
	24 Port 1 GbE SM Switch - Primary	1

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

Four (4) 2850 Nodes each with the following every unit items:
- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
  - 2 x 1GbE Ethernet Ports (Used for SM)
  - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**)
    - Optical SFP (2021-K265)
    - 1Gb Mini-GBIC (2021-K260)
- Additional PCIe slot **for customer use:** 1GbE or 10GbE

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
- Each drive tray is populated with 44 active drives and 1 GHS drive
  - 44 active DPN, 88 disks per half clique
  - 600GB or 1.2TB 2.5" SAS (10K RPM), RAID1

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

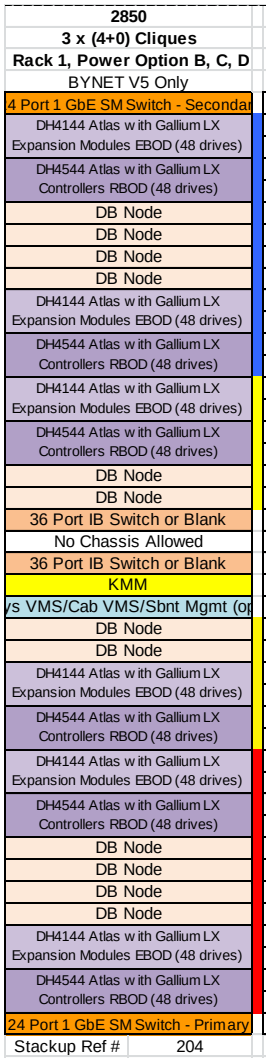
Power Components including the following:
- 0U PDUs for power

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door

Options (dependent upon power selection):
- up to twelve (12) optional TMS / Aster 5 / Hadoop 5 / SAS / Channel Solution nodes
- USB Transport Drive

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

2.8.3 Three (3) 4-node Cliques (System Cabinet) – Power B, C, D



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

Twelve (12) 2850 Nodes each with the following every unit items:

- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
    - 2 x 1GbE Ethernet Ports (Used for SM)
    - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**)
        - Optical SFP (2021-K265)
        - 1Gb Mini-GBIC (2021-K260)
- Additional PCIe slot **for customer use:** 1GbE or 10GbE

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)
- Each drive tray is populated with 44 active drives and 1 GHS drive
    - 44 active DPN, 88 disks per half clique
    - 600GB or 1.2TB 2.5” SAS (10K RPM), RAID1

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:

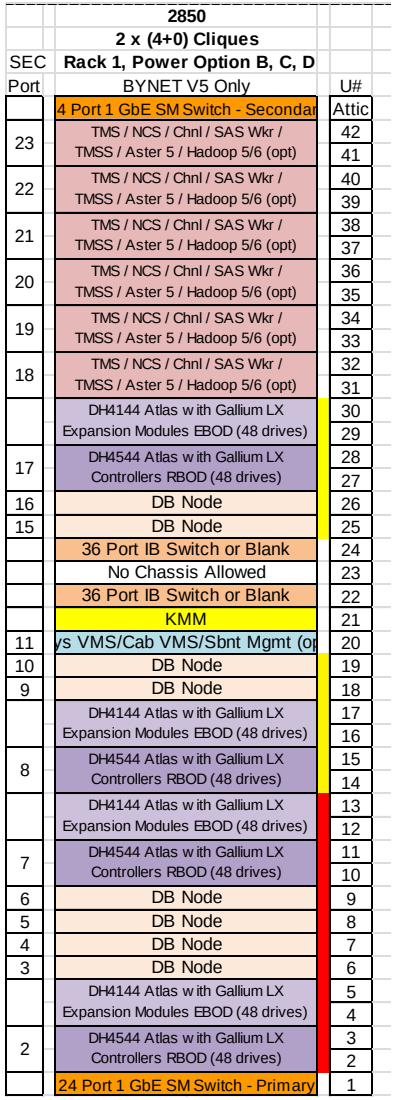
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door

Options:

- USB Transport Drive

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

2.8.4 Two (2) 4-node Cliques (System / First Cabinet) Power B,C,D



	2850	
	2 x (4+0) Cliques	
SEC	Rack 1, Power Option B, C, D	
Port	BYNET V5 Only	U#
	4 Port 1 GbE SM Switch - Secondar	Attic
23	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	42
		41
22	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	40
		39
21	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	38
		37
20	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	36
		35
19	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	34
		33
18	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	32
		31
	DH4144 Atlas with Gallium LX Expansion Modules EBOD (48 drives)	30
		29
17	DH4544 Atlas with Gallium LX Controllers RBOD (48 drives)	28
		27
16	DB Node	26
15	DB Node	25
	36 Port IB Switch or Blank	24
	No Chassis Allowed	23
	36 Port IB Switch or Blank	22
	KMM	21
11	ys VMS/Cab VMS/Sbnt Mgmt (op	20
10	DB Node	19
9	DB Node	18
	DH4144 Atlas with Gallium LX Expansion Modules EBOD (48 drives)	17
		16
8	DH4544 Atlas with Gallium LX Controllers RBOD (48 drives)	15
		14
	DH4144 Atlas with Gallium LX Expansion Modules EBOD (48 drives)	13
		12
7	DH4544 Atlas with Gallium LX Controllers RBOD (48 drives)	11
		10
6	DB Node	9
5	DB Node	8
4	DB Node	7
3	DB Node	6
	DH4144 Atlas with Gallium LX Expansion Modules EBOD (48 drives)	5
		4
2	DH4544 Atlas with Gallium LX Controllers RBOD (48 drives)	3
		2
	24 Port 1 GbE SM Switch - Primary	1

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

Eight (8) 2850 Nodes each with the following every unit items:

- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
    - 2 x 1GbE Ethernet Ports (Used for SM)
    - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**)
        - Optical SFP (2021-K265)
        - 1Gb Mini-GBIC (2021-K260)

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)
- Each drive tray is populated with 44 active drives and 1 GHS drive
    - 44 active DPN, 88 disks per half clique
    - 600GB or 1.2TB 2.5” SAS (10K RPM), RAID1

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

Cabinet also includes:

- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door

Options (dependent upon power selection):

- up to six (6) optional TMS / Aster 5 / Hadoop 5 / SAS / Channel Solution nodes
- USB Transport Drive

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

2.8.5 One (1) 4-node Clique and One (1) 2-node Clique (System Cabinet) Power B,C,D

	2850	
	1 x (4+0) and 1 x (2+0) Cliques	
SEC	**Rack 1, Power Option B, C, D**	
Port	BYNET V5 Only	U#
	4 Port 1 GbE SM Switch - Secondar	Attic
23	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	42
		41
22	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	40
		39
21	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	38
		37
20	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	36
		35
19	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	34
		33
18	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	32
		31
17	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	30
		29
16	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	28
		27
15	TMS / NCS / Chnl / SAS Wkr / TMSS / Aster 5 / Hadoop 5/6 (opt)	26
		25
	36 Port IB Switch or Blank	24
	No Chassis Allowed	23
	36 Port IB Switch or Blank	22
	KMM	21
11	ys VMS/Cab VMS/Sbnt Mgmt (op	20
10	DB Node	19
9	DB Node	18
	DH4144 Atlas with Gallium LX Expansion Modules EBOD (48 drives)	17
		16
8	DH4544 Atlas with Gallium LX Controllers RBOD (48 drives)	15
		14
	DH4144 Atlas with Gallium LX Expansion Modules EBOD (48 drives)	13
		12
7	DH4544 Atlas with Gallium LX Controllers RBOD (48 drives)	11
		10
6	DB Node	9
5	DB Node	8
4	DB Node	7
3	DB Node	6
	DH4144 Atlas with Gallium LX Expansion Modules EBOD (48 drives)	5
		4
2	DH4544 Atlas with Gallium LX Controllers RBOD (48 drives)	3
		2
	24 Port 1 GbE SM Switch - Primary	1

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) 2850 Nodes each with the following every unit items:

- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
    - 2 x 1GbE Ethernet Ports (Used for SM)
    - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**)
        - Optical SFP (2021-K265)
        - 1Gb Mini-GBIC (2021-K260)

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 (6 total)
- Two (2) drive trays with dual ESMs (6 total)
- Each drive tray is populated with 44 active drives and 1 GHS drive
    - 44 active DPN, 88 disks per half clique
    - 600GB or 1.2TB 2.5" SAS (10K RPM), RAID1

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

Cabinet also includes:

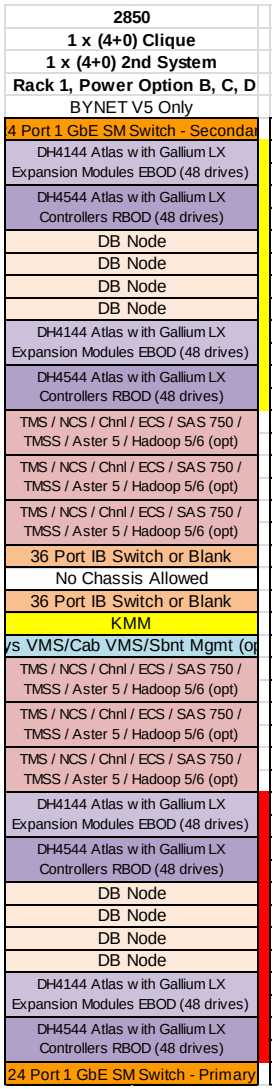
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door

Options (dependent upon power selection):

- up to nine (9) optional TMS / Aster 5 / Hadoop 5 / SAS / Channel Solution nodes
- USB Transport Drive

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

2.8.6 One (1) 4-node Clique (System Cabinet) with 2nd 2850 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 2850 System. (2-node or 4-node, this example shows a 4 node 2nd system) :

1st and 2nd 2850 Systems comprised of four (4) 2850 Nodes each with the following every unit items:

- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
  - 2 x 1GbE Ethernet Ports (Used for SM)
  - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**) – can use Optical SFP or 1Gb Mini-GBIC
- Additional PCIe slot **for customer use:** 1GbE or 10GbE

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
- Each drive tray is populated with 44 active drives and 1 GHS drive
  - 44 active DPN, 88 disks per half clique
  - 600GB or 1.2TB 2.5" SAS (10K RPM), RAID1

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
- Power B, C, D only

Cabinet also includes:

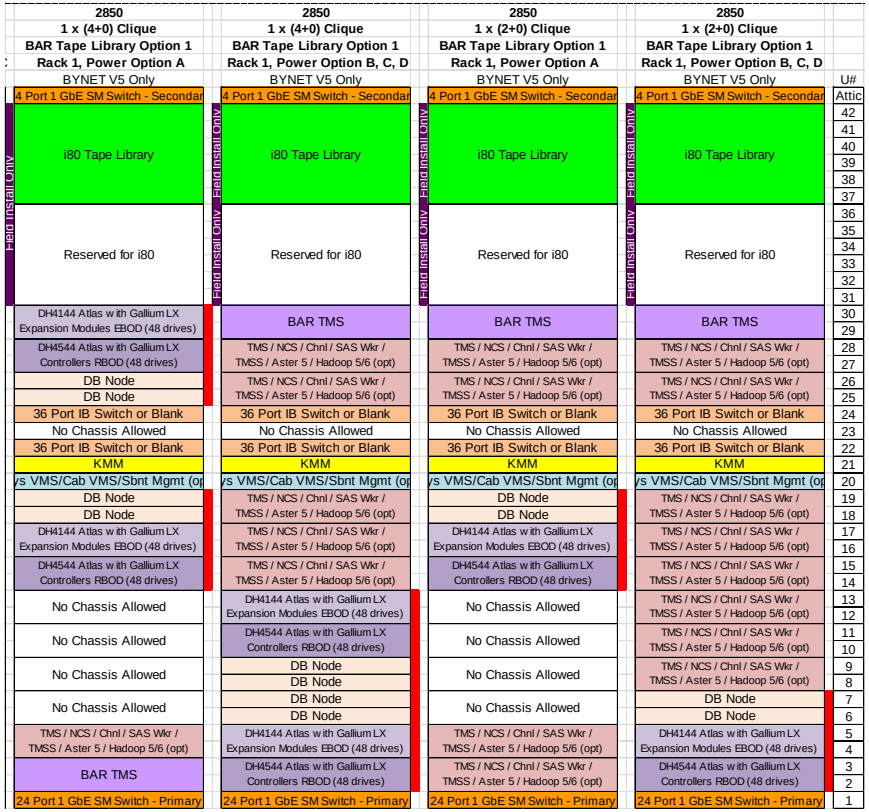
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door
- Server Management cables (cabinet cable harness) and structured cabling

Options (first cabinet only):

- up to six (6) optional TMS / Aster 5 / Hadoop 5 / SAS / Channel Solution nodes
- Shown: one (1) 2850 Primary system (4 nodes) and one (1) 2nd Production System (4 nodes) and up to six (6) optional TMS / Channel Solution nodes
- USB Transport Drive

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

2.8.7 2850: i80 (Field Installable Options)

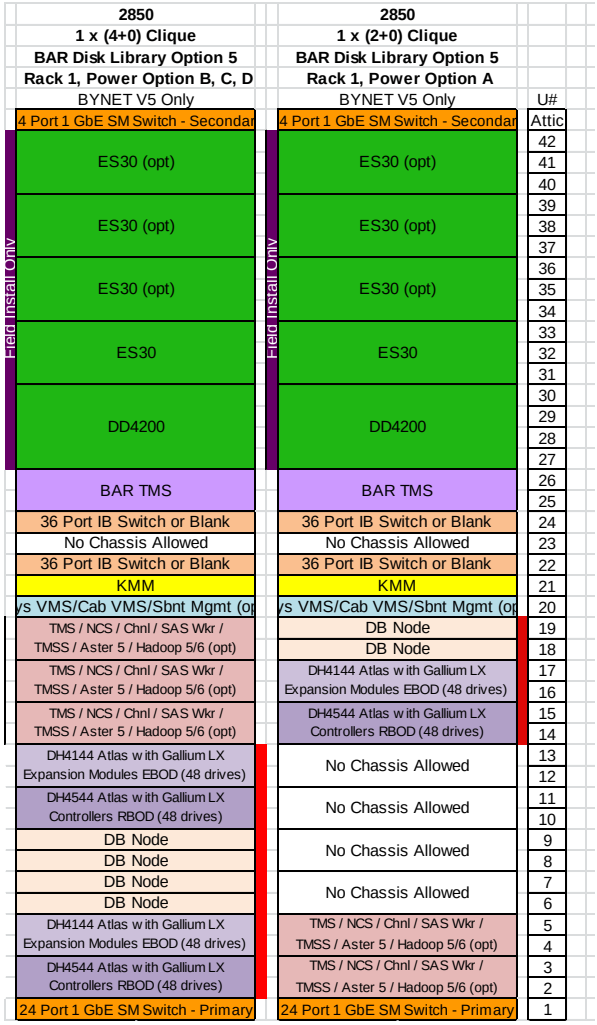


All i80 questions should be submitted via a GSS Help Desk (link below) ticket so that they may be addressed by BAR Pre-Sales.
http://trd.td.teradata.com/bus_apps/GSS_Helpdesk/

As with the 2700, 2750, 2800, the 2850 offers the option to field install i80 options into the 2850 Base / System (first) cabinet. Note that the i80 WOT catalog is not included within the 2850; 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 2850 ranging from 2-nodes to 6-nodes (depending on the power selection) can support various i80 options in the Base / System cabinet. In the 2850 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

2.8.8 2850: 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/

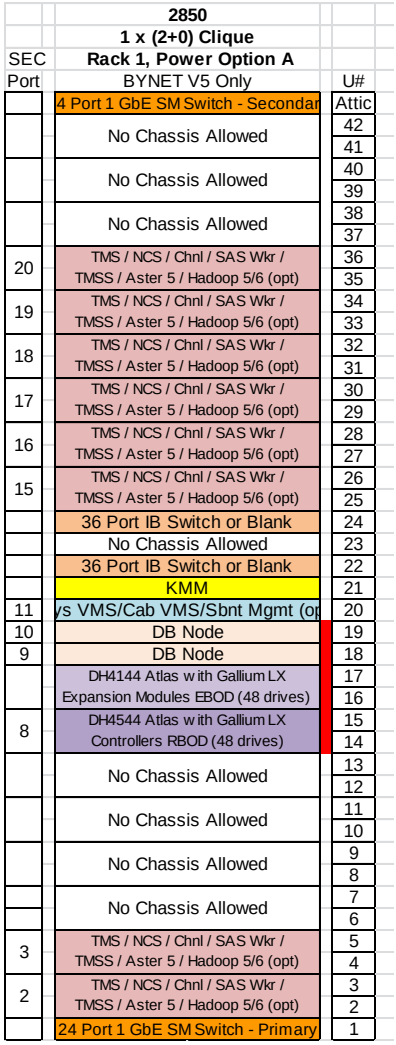
The 2850 ranging from 2-nodes to 6-nodes (depending on the power selection) can support various DD4200 options in the Base / System cabinet. Other Data Domain products are not certified or supported. The DD4200 options do not ship in the 2000 Series cabinet; they are field installed and shipped in a Transport cabinet. Note that the DD4200 WOT catalog is not included within the 2850; 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

Since the DD4200 is rack mounted at the customer site, all DD4200 configurations within the 2850 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

2.8.9 Power A: One (1) 2-node Half Clique Config. (System Cabinet) (Low Power)



	2850	
	1 x (2+0) Clique	
SEC	Rack 1, Power Option A	
Port	BYNET V5 Only	U#
	4 Port 1 GbE SM Switch - Secondar	Attic
	No Chassis Allowed	42
		41
	No Chassis Allowed	40
		39
	No Chassis Allowed	38
		37
20	TMS / NCS / Chnl / SAS Wkr /	36
	TMSS / Aster 5 / Hadoop 5/6 (opt)	35
19	TMS / NCS / Chnl / SAS Wkr /	34
	TMSS / Aster 5 / Hadoop 5/6 (opt)	33
18	TMS / NCS / Chnl / SAS Wkr /	32
	TMSS / Aster 5 / Hadoop 5/6 (opt)	31
17	TMS / NCS / Chnl / SAS Wkr /	30
	TMSS / Aster 5 / Hadoop 5/6 (opt)	29
16	TMS / NCS / Chnl / SAS Wkr /	28
	TMSS / Aster 5 / Hadoop 5/6 (opt)	27
15	TMS / NCS / Chnl / SAS Wkr /	26
	TMSS / Aster 5 / Hadoop 5/6 (opt)	25
	36 Port IB Switch or Blank	24
	No Chassis Allowed	23
	36 Port IB Switch or Blank	22
	KMM	21
11	/s VMS/Cab VMS/Sbnt Mgmt (op	20
10	DB Node	19
9	DB Node	18
	DH4144 Atlas with Gallium LX	17
	Expansion Modules EBOD (48 drives)	16
8	DH4544 Atlas with Gallium LX	15
	Controllers RBOD (48 drives)	14
	No Chassis Allowed	13
		12
	No Chassis Allowed	11
		10
	No Chassis Allowed	9
		8
	No Chassis Allowed	7
		6
3	TMS / NCS / Chnl / SAS Wkr /	5
	TMSS / Aster 5 / Hadoop 5/6 (opt)	4
2	TMS / NCS / Chnl / SAS Wkr /	3
	TMSS / Aster 5 / Hadoop 5/6 (opt)	2
	24 Port 1 GbE SM Switch - Primary	1

The 2-node half clique configuration (2 nodes, 2 drive trays) for Power A (low power) offers the following:

Two 2850 Nodes each with the following every unit items:
- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
  - 2 x 1GbE Ethernet Ports (Used for SM)
  - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**)
    - Optical SFP (2021-K265)
    - 1Gb Mini-GBIC (2021-K260)
- Additional PCIe slot **for customer use**: 1GbE or 10GbE

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
- Each drive tray is populated with 44 active drives and 1 GHS drive
  - 44 active DPN, 88 disks per half clique
  - 600GB or 1.2TB 2.5" SAS (10K RPM), RAID1

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

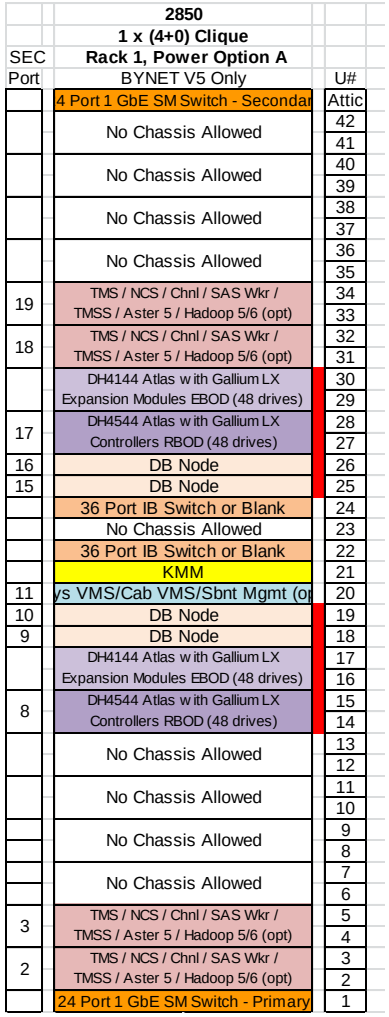
Power Components including the following:
- 0U PDUs for power

Cabinet also includes:
- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door

Options for first cabinet (dependent upon power selection):
- up to eight (8) optional TMS / Aster 5 / Hadoop 5 / SAS / Channel Solution nodes
- USB Transport Drive

Note: No chassis allowed in noted (white) locations.

2.8.10 Power A: One (1) 1-Clique (4 Node) Config. (System Cabinet) (Low Power)



The 1-clique configuration (4 nodes, 4 drive trays) with Power A (low power) consists of the following components:

Four (4) 2850 Nodes each with the following every unit items:

- Two (2) Intel 2.3GHz 18-Core, Hybrid, Broadwell Processors
- Memory options of 256, or 512 GB or 1TB of memory (with either 32GB of 64GB DIMMS)
- Two (2) (1.2 or 1.8TB) SAS HDDs for OS
- One (1) PCIe Gen3 Quad SAS 6Gb Adapter
- BYNET V5 (InfiniBand) Adapter
- On Board ports
    - 2 x 1GbE Ethernet Ports (Used for SM)
    - 2 x 10GbE (Can also support 1GbE) (**for Customer Use**)
        - Optical SFP (2021-K265)
        - 1Gb Mini-GBIC (2021-K260)
- Additional PCIe slot **for customer use:** 1GbE or 10GbE

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
- Each drive tray is populated with 44 active drives and 1 GHS drive
    - 44 active DPN, 88 disks per half clique
    - 600GB or 1.2TB 2.5" SAS (10K RPM), RAID1

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

Cabinet also includes:

- 1U KMM (Keyboard, Monitor, Mouse)
- Front Door

Options (dependent upon power selection):

- up to twelve (12) optional TMS / Aster 5 / Hadoop 5 / SAS / Channel Solution nodes
- USB Transport Drive
-

Note: No chassis allowed in noted (white) locations.

2.9 2850 Node Components

This section provides details on individual components within the 2850 Node (Dell chassis). For details on the 1U Dell® Server Chassis R630 with 10 drives, see: http://i.dell.com/sites/doccontent/shared-content/data-sheets/en/Documents/Dell-PowerEdge-R630-Spec-Sheet.pdf

2.9.1 Memory Configuration configurations

The 2850 features a 2400MHz DIMM memory board (32GB RDIMMs or 64GB LRDIMMs offered) that matches the speed of the eighteen-core processor. The Teradata node has eight DIMMs of memory bundled with it; additional memory is "feature-strung" via WOT based on end user selections in WOT. There are two node options, based upon the type of memory selected (32GB or 64GB).

Note:
- **Only 16 DIMMs of memory per node are supported.**
- **Cannot mix RDIMMs and LRDIMMS.**
- **Each node comes with 8 DIMMs of memory (additional memory added by WOT with a separate PID)**

Note:

Memory options per node are:

- 256GB (32GB DIMMs) included with the 9193-F100 node
- 512GB (32GB DIMMs) included with the 9193-F100 node and feature string 256GB of memory
- 512GB (64GB DIMMs) included with the 9193-F105 node
- 1TB (64GB DIMMs) included with the 9193-F105 node and feature string 512GB of memory

Product ID	Description	Quantity / Notes
9193-F280	Memory, 128GB, 2400MHz, DDR4, (4x32GB RDIMM) Dell Only	2 for 256GB / node
9193-F281	Memory, 256GB, 2400MHz, DDR4, (4x64GB LRDIMM) Dell Only	2 for 512GB / node

Note:
- **9193-F100 uses the 32GB DIMMs only**
- **9193-F105 uses the 64GB DIMMS only**

It is possible to upgrade a node from 32GB DIMMs to 64GB DIMMs (when a customer wants to upgrade to 1TB of memory and they are currently at 256GB or 512GB with 32GB DIMMS (with 9193-F100 node); however the upgrade is extensive and will result in downtime as it also requires replacing the OS drives with 1.8TB drives and SLES 11 SP3

Please choose the node (and therefore DIMM choice carefully), if your customer may upgrade to 1TB of memory it is HIGHLY recommended the initial order uses 9193-F105 with the 64GB DIMMs to avoid significant disruption for an upgrade and possibly customer satisfaction issues.

2.9.2 Customer Drives on the 2850 Database node

The Dell R630 database node (both 9193-F100 and 9193-F105) can accommodate up to five 1.2TB drives for customer use. These are ordered separately in the "Local Storage" panel in WOT.

Product ID	Description	Quantity / Notes
9193-F201	HDD, 1.2TB, 12Gbps, 2.5", SED, 10K RPM, SAS, (Dell Only)	Up to 5 supported in a database node

2.9.3 PCI Slots and Adapters

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

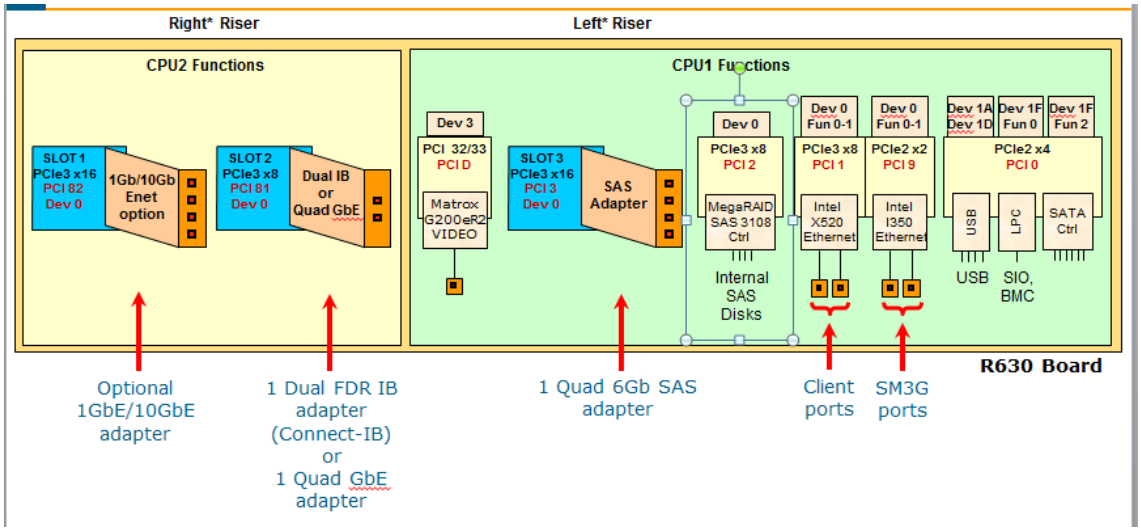


Figure 1: PCI Slots and On-board Devices (TPA Node)

2.9.4 PCI Slot Assignments for 2850 TPA node

Slot	Assignment
On-board Copper Ethernet Ports	There are four (4) on-board copper Ethernet ports on the Server board. Two ports are **used for server management**. Two 10Gb ports are available for **client usage**. (no adapter needed, but SFP or GBIC may be needed)
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). <u>Teradata Node</u> Slot 1: Available for **client use** or Empty Slot 2: Dual BYNET Interface Card (InfiniBand) -OR- Slot 2: Quad 1Gb Ethernet Copper (used in 1Gb BYNET co-residence systems **only**) Slot 3: Storage Adapter (Quad 6Gb SAS, LSI 9206-16e)
PCIe (Additional)	If additional connectivity is required, the **2U NCS Server** can be used

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>.

The R630 server comes with two 10Gb ports. SFP's GBIC's may need to be added. See below.

2.9.1 On-board 10Gb Ethernet ports: SFP and GBIC and Connectivity

It may be necessary to convert a 10Gb copper port to an optical port or a 1Gb 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**

2.9.2 BYNET Adapters

If a 2850 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			
9193-F254	Adapter, PCIe BYNET V5, LP	BYNET V5 interconnect	This adapter supports BYNET V5, providing 2850 configurations with a high performance interconnect and reducing the possibility of the BYNET becoming saturated.

2.9.3 Adapters

One adapter permitted per 2850 TPA node. **These adapters must be added manually to the order, one per node.** (WOT will be updated in a future sync)

Product ID	Description	Use	Notes
Adapter - 1Gb Ethernet			
9193-F263 9193-K263	Adapter, PCIe 1Gb Ethernet, 4 Channel, Copper	Customer needed connections	Each port is capable of supporting up to 125 MB/s *throughput per port.
9193-F264 9193-K264	Adapter, PCIe 1Gb Ethernet, 2 Channel, Fiber	Customer needed connections	Each port is capable of supporting up to 125 MB/s *throughput per port.
Adapter - 10Gb Ethernet			
9193-F251 9193-K251	Adapter, PCIe 10Gb Ethernet, 2 Channel, Copper	Customer needed connections	Each port is capable of supporting up to 1250 MB/s *throughput per port.
9193-F250 9193-K250	Adapter, PCIe 10Gb Ethernet, 2 Channel, Fiber	Customer needed connections	Each port is capable of supporting up to 1250 MB/s *throughput per port.
Adapter - 10Gb Base-T			

9193-F262 9193-K262	Adapter, PCIe 10Gb Base-T Ethernet, 2 Channel, Copper	Customer needed connections	Each port is capable of supporting up to 1250 MB/s *throughput per port. **Long lead times (7 – 10 days) may apply for this adapter**
* 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.			

2.10 Network Connectivity Server (NCS)

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.

To order an NCS server:

1. In the 2850 WOT model, select the Factory Integration PID (in the Multi-Purpose Server Panel)
2. In a second run through WOT, configure the NCS server in the Multi-Purpose Server WOT model.

2.10.1 NCS: Hardware and Software

The NCS is based on the 2U Dell server.

2.10.2 PCI Slot Assignments for NCS

Slot	Assignment
On-board Copper Ethernet Ports	There are four (4) 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 6-7: 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)

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 required for NCS node:

- Linux OS (SLES 11)
- TD Instance

2.11 Cable Requirements

The Teradata Data Warehouse Appliance 2850 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.

2.11.1 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.

2.11.2 BYNET V5 (InfiniBand) Cables

The BYNET V5 adapters connect to BYNET V5 Switches through Fiber cabling across Node Cabinets and via copper cabling within Node system cabinets. The Base / System cabinet in the 2850 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		
9193-F599	Cable, InfiniBand, Copper, 2M	2 per node (System / Base Cabinet)

The Expansion cabinets in the 2850 include cable kits. **These cables are automatically added to the order by WOT when an Expansion / Secondary 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.

The length required should be evaluated based upon the data center set up.

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

Note: When ordering a 2850 2nd system to be Factory Installed in a 9400 cabinet, select "None" for the *Inter-Cabinet Tier 1 Switch Cable* choice in the dropdown menu; the 9400 WOT model will include all the necessary BYNET V5 IB cables.

2.11.3 Ethernet Cables for 2850 (1Gb BYNET over Ethernet Co-residence)

The 1Gb BYNET over Ethernet option, which is available for co-residence uses Ethernet cables for BYNET and Server Management connectivity. **This option is only available for 2850 systems which will co-reside with a 2750 with 1Gb BYNET and the 1Gb BYNET switch will reside in the 2750 cabinet, it will not be allowed in a 2850 cabinet.**

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.

2.11.1 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				
9193-F480	Cable Assembly SAS, 2M (1 cable)	4 per clique	4 per clique	NA
9193-F481	Cable Assembly SAS, 1M (1 cable)	12 per clique	8 per clique	4 per clique
9193-F485	Cable Assembly, MiniSAS, 1M (one cable)	4 per clique	2 per clique	2 per clique

2.12 Node Storage Components

The nodes include two storage types: internal Hard Disk Drives.

2.12.1 Internal Disk Drives

The 2850 TPA node can host up to seven internal disk drives. All node hard drives are SED-capable. Each TPA node is configured with two (2) 1.2 or 1.8TB 2.5" SAS drives for OS (1.8TB required for nodes with 64GB DIMMs):

- 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.
- With the 2850, we no longer need the OS dump drive, there is enough room on the OS drives themselves to accommodate.
- The remaining five drives can be used for customer use.

Two drive sizes for internal node disk drives are available for the OS (pre-defined by node type):

- Nodes with 32GB DIMMs will use the 1.2TB drives for the OS (9193-F100 node)
- Nodes with 64GB DIMMs will use the 1.8TB drives for the OS (9193-F105 node)

One drive size for internal node disk drives is available for customer use:

- 1.2 TB 10K RPM SAS

The optional internal customer 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	
9193-F201	HDD, 1.2TB, 12Gbps, 2.5", SED, 10K RPM, SAS, (Dell Only)
Kits (Field Upgrade or Replacement)	
9193-K201	Kit, HDD, 1.2TB 10K RPM, 2.5", SED, Hot Plug, (Dell Only)

2.12.2 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

2.13 Operating System - SuSE Linux SLES 11

The 2850 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.

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 2850 Teradata node uses SuSE Linux Enterprise Server 11.

We support both SLES 11 SP3 Operating System versions on the 2850 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 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 F601-8300-0000 (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	

2.14 BYNET V5 (Hardware Components)

The Teradata Data Warehouse Appliance 2850 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.

2.14.1 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 SX6036: switch pair may be used. For larger BYNET V5 systems we now offer the STAR / Satellite topology which allows 36-port BYNET V5 IB switches in additional 2850 cabinets. Using the STAR topology and second tier switches, we can support up to 864 2850 nodes. For configurations larger than 864 nodes, or in cases where it is preferred, an external InfiniBand switch cabinet is used.

Product ID	Description
2850 Appliance (Switch - BYNET V5)	
9193-F595	Network Switch BYNET V5, 36-port, IB (2 Switches)
9193-F596	Network Switch BYNET V5, 36-port, IB (2 Switches)
Notes: 9193-F595 is used in the first cabinet only. 9193-F596 is used for subsequent cabinets in support of the STAR / Satellite topology	

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

2.14.2 BYNET V5 Node Adapter Card (MCB194A-FCAT Connect-IB)

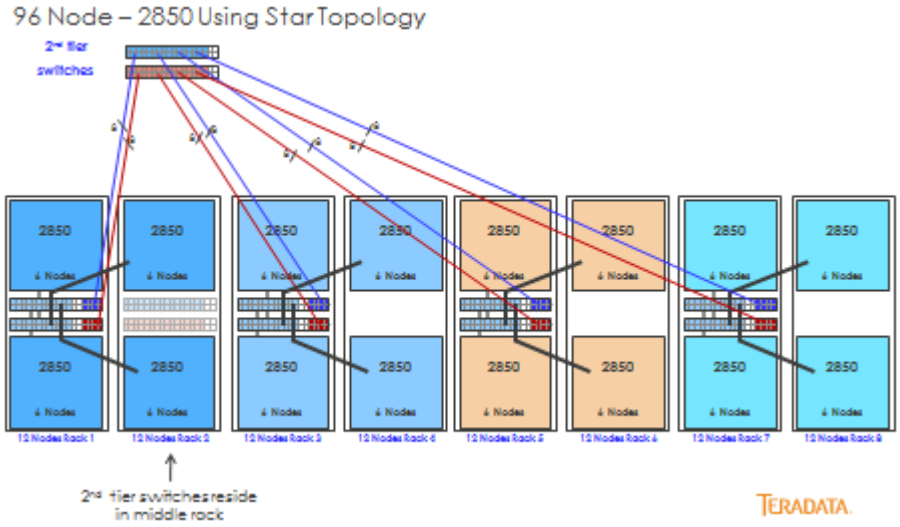
The BYNET V5 Adapter Card runs at InfiniBand speeds **(56 Gb/s).** The BYNET V5 Node Adapter is a low profile PCIe Generation 3 adapter that has two ports, one for each BYNET fabric (typically numbered 0 and 1). When the BYNET V5 option is selected, a BYNET V5 Node Adapter is included with every Teradata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

The BYNET V5 Node Adapter is compatible with all BYNET V5 switches. The BYNET Adapter is automatically added to the order by WOT (quantity is one per node).

Product ID	Description
2850 Appliance (BYNET V5 Adapter)	
9190-F254	Adapter-PCIe, BYNET V5, IB, 2CH, LP - FCAT

2.14.3 STAR / Satellite topology

New with the 2850 is the support of the STAR / Satellite topology. This topology, available with other platforms, and now recently enhanced to support even more cabinets / nodes, leverages multiple BYNET V5 36-port IB switches in multiple cabinets. This topology essentially eliminates the need for a separate switch cabinet (which can be costly). It also allows for support for slower growth and investment by using the more economical 36-port switches and avoiding the need for the large switch cabinet in the data center. This topology leverage the 2m cables where appropriate, connecting nodes to switches in the cabinet, 5M cables to connect nodes to a switch in the adjoining cabinet and 15 meter cables to connect the switches together (this can be customized for your data center layout. WOT will automatically generate the cabinets with the switches and the default cables for configurations greater than 36 nodes, and where the "Satellite / STAR (2^{nd} tier swich) choice for BYNET type in the Analysis Panel of the WOT model.



Product ID	Description
2850 Appliance (Switch - BYNET V5)	
9193-F595	Network Switch BYNET V5, 36-port, IB (2 Switches)
9193-F596	Network Switch BYNET V5, 36-port, IB (2 Switches)
Notes: 9193-F595 is used in the first cabinet only. 9193-F596 is used for subsequent cabinets in support of the STAR / Satellite topology	

2.14.4 BYNET V5 Switch Cabinet

The BYNET V5 Cabinet can be used with 2850 systems, if the Star / Satellite topology is not desired. The BYNET V5 Switch Cabinet enables the modular design of BYNET V5 by supporting the following BYNET V5 switch options:

- 108-port Switch
- 324-port Switch – Please contact Product Management to confirm availability
- 648-port Switch – Please contact Product Management to confirm availability

This switch will be configured using the BYNET Switch cabinet WOT model, not the 2850.

Important Notes

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

If your customer is choosing to use a large switch instead of the 36-port BYNET V5 switch (with Satellite / STAR Topology), **please contact GSS to assist** as the production 2850 WOT model will assume use of the 36-port BYNET V5 switch pairs.

2.15 Disk Array Storage

The Teradata Data Warehouse Appliance 2850 uses enterprise-class Seagate Storage Systems (formally named Dot Hill) storage drive trays featuring dual redundant controllers in one drive tray, Dual ESMs in a second drive tray, and SAS drives for data storage.

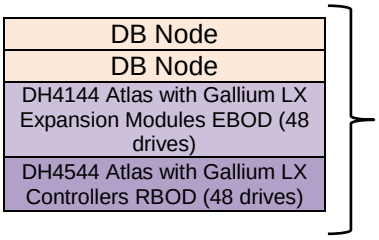


Figure 2: 2-node Half Clique

Storage for the 2850 2-node half clique includes the following items:

- One (1) 2850 Storage Drive Tray with Disk Array Controller pair
- One (1) 2850 Storage Drive Tray with ESM
- All drive trays are populated:
  - 44 DPN (RAID1)
  - 1 GHS drive
- Drive sizes:
  - 2.5" 600GB (10K) SAS (RAID1)
  - 2.5” 1.2TB (10K) SAS (RAID1)
- SAS cabling for direct node to controller connections

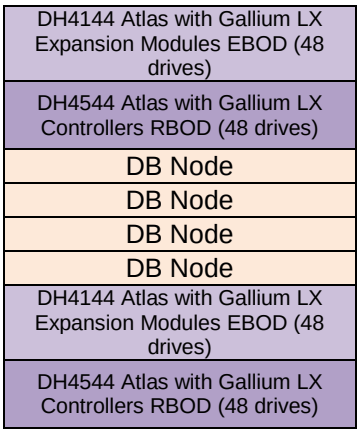


Figure 3: 4-node Full Clique

Storage for the 2850 4-node clique includes the following items:

- Two (2) 2850 Storage Drive Trays with Disk Array Controller pair
- Two (2) 2850 Storage Drive Trays with ESM
- All drive trays are populated:
  - 44 DPN (RAID1)
  - 1 GHS drive
- Drive sizes:
  - 2.5" 600GB (10K) SAS (RAID1)
  - 2.5” 1.2TB (10K) SAS (RAID1)
- SAS cabling for direct node to controller connections

The 2850 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.

Disk / RAID	No Load	Med	Heavy	Extreme
	Q=0/drv	Q=2/drv	Q=4/drv	Q=8/drv
600 / R1	1.5	4.3	5.7	9.1
1.2TB* / R1	3.2	8.4	12.5	19.9

Figure 4: Estimated Drive Rebuild Times (Hours)

2.16 In-field Clique Expansions (via Transport Cabinet or Crates)

Note: Due to country-specific laws and regulations, the 2850 In-field Clique Expansions **are not available for sale to India.**

The 2850 offers the "In-field Clique Expansions" which are integrated into the existing 2850 system allowing it to expand. There are two choices for the shipment type: *Field Installation via Transport Cabinet* (using "E" PIDs), or *Field Installation via Crates* (using "T" PIDs).

Please work with your CS person to ensure they agree with the ordering approach. Some CS members will require the use of the Transport Cabinet, instead of using crates to allow for a completely separate environment for initial validation before merging with the original 2800 system.

This 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 node type, drive size and memory. The drive sizes offered include the following options:

- 600GB (RAID1)
- 1.2TB (RAID 1)

Memory offered includes the following options:

- 256GB (32GB DIMMs)
- 512GB (32GB or 64GB DIMMs)
- 1TB (64GB DIMMs)

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.

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.

The PIDs are represented by "E" (Ship via Transport cabinet) or "T" PIDs (ship via crate):

- With the "T" PIDs, each node has its own "T" PID depending on the clique expansion type, and the array components are bundled in two other "T" PIDs. (see chart for the breakdown, and more information in the Ship in Crate section)

Aligns to the Node 9193-T005-8090 or 9193-T006-8090 or 9193-T007-8090 or 9193-T008-8090 or 9193-T009-8090 or 9193-T0012-8090 or (quantity ordered equals the number of nodes being ordered)	Memory Internal Drives Adapters I/O Modules Encryption (Servers) Hardware/Software Appliance Bundles Cable Assemblies Node Installation
Aligns to the Array Controller (9193-T010-8090)	Disk Drives Global Hot Spares Encryption (Arrays) Drive Enclosures Drive Installation
Aligns to the Array – Expansion (9193-T011-8090)	Disk Drives Global Hot Spares Drive Enclosures Drive Installation

- With the "E" PID instead of several types of PIDs (like the "T" PID), the single "E" PID bundles all the components of the clique (except the BYNET V5 Adapter and its cables). This single PID, bundle nodes, storage and many common parts via a single PID, including:
  - 2850 Nodes
  - SAS 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

The In-field Clique Expansion is subject to standard lead and ship times**.**

2.16.1 In-field Clique Expansions via Transport Cabinet

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)

There are different PIDs based upon the memory type selected.

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**.

The 12-digit In-field Clique Expansion PIDs are bundled in nature, in that the PIDs include most items required to place the In-field Clique Expansion in a Loaner Cabinet (for staging) and in the customer system cabinet. The one PID added by WOT and not part of the bundle is the BYNET adapter.

2850 New Full Clique

Product ID	Description - Full Clique	Qty	Open U Required
Clique Upgrade: BYNET V5			
9193-E001-8090	2850 Full Clique Expansion, 4 nodes, 256GB (8x32) node	1	12U
9193-E011-8090	2850 Full Clique Expansion, 4 nodes, 512GB (8x64) node	1	12U

2850 New Half to Full clique **

Product ID	Description - Half to Full Clique Expansion	Qty	Open U Required
Clique Upgrade: BYNET V5			
9193-E002-8090	Teradata 2850 Half-to-Full Clique Expansion, 2-nodes, 256GB (8x32) node	1	6U
9193-E012-8090	Teradata 2850 Half-to-Full Clique Expansion, 2-nodes, 512GB (8x64) node	1	6U

2850 New Half Clique Expansion **

Product ID	Description – Half Clique	Qty	Open U Required
Clique Upgrade: BYNET V5			
9193-E003-8090	Teradata 2850 Half Clique Expansion, 2-nodes, 256GB (8x32) node	1	6U
9193-E013-8090	Teradata 2850 Half Clique Expansion, 2-nodes, 512GB (8x64) node	1	6U

**** 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.**

2.16.2 Ship Clique Expansion via Crates

Shipment via Crates/Boxes is a new option that was released in 2016. It allows an account team to order a 2850 Clique Expansion 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.

The PIDs are represented by "T" PIDs, which bundle nodes or storage and many common parts. See the below chart for the contents of each T-PID.

These "T" PIDs allows a customer to add a 2850 clique expansion, with nodes, 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 BYNET V5 adapter is also added by WOT. The drive sizes offered are the same as with a standard 2850 system.

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)

These orders are supported in two parts:

1.) The In-field Clique Expansion nodes, quantities to order are noted below (each PID represents a single node, so multiple must be ordered)
2.) The Disk tray PIDS, quantities to order are noted below.

As noted above, for this option there are separate 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 T-PIDs (T005 through T009, and T012) and array under (9193-T010-8090 and 9193-T011-8090). Additionally for the node, while the T-PID only contains one node (and other bundled components like SAS cables), there are several T-PID choices based upon the type of clique expansion being ordered, so choose carefully. The chart below outlines how many of each PID required depending on the Clique Expansion type being ordered.

Clique Expansion Product IDs for Nodes *

Product ID	Description Clique Expansion – via Crates		Quantity to order
	Nodes		
9193-T005-8090	TERADATA / 2850, **1 node for Half to Full**, Clique Expansion, **256GB (8x32)**, Dell (E26S)		2
9193-T006-8090	TERADATA / 2850, **1 node for Half to Full**, Clique Expansion, **512GB (8x64)**, Dell (E26S)		2
9193-T007-8090	TERADATA / 2850, **1 node for Half Clique** Expansion, **256GB (8x32)**, Dell (E26S)		2
9193-T009-8090	TERADATA / 2850, **1 node for Half Clique** Expansion, **512GB (8x64)**, Dell (E26S)		2
9193-T008-8090	TERADATA / 2850, **1 node for Full Clique** Expansion, **256GB (8x32)**, Dell (E26S)		4
9193-T012-8090	TERADATA / 2850, **1 node for Full Clique** Expansion, **512GB (8x64)**, Dell (E26S)		4

*** 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.**

Clique Expansion Product IDs for Disk Arrays

Product ID	Description Clique Expansion – via Crates	Quantity	
	Disk arrays	**2 Node**	**4 Node**
9193-T010-8090	Teradata, RBOD (DBB Ultra), Disk Drive Enclosure, Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	1	2
9193-T011-8090	Teradata, EBOD (DBB Ultra), Disk Drive Enclosure, Expansion (48) 2-1/2 HDD	1	2

The following tables outline the alignments of components to PIDs:

Aligns to the Node 9193-T005-8090 or 9193-T006-8090 or 9193-T007-8090 or 9193-T008-8090 or 9193-T009-8090 or 9193-T0012-8090 or (quantity ordered equals the number of nodes being ordered)	Memory Internal Drives Adapters I/O Modules Encryption (Servers) Hardware/Software Appliance Bundles Cable Assemblies Node Installation
Aligns to the Array Controller (9193-T010-8090)	Disk Drives Global Hot Spares Encryption (Arrays) Drive Enclosures Drive Installation
Aligns to the Array – Expansion (9193-T011-8090)	Disk Drives Global Hot Spares Drive Enclosures Drive Installation

2.16.3 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				
9193-F412	600GB 2.5" SAS HDD	176	88	88
9193-F414	1.2TB 2.5" SAS HDD *RAID1*	176	88	88

Product ID	Description	Quantity
Global Hot Spare Disk Drives		
9193-F417	600GB 2.5" SAS HDD	1 per node
9193-F419	1.2TB 2.5" SAS HDD *RAID1*	1 per node

Product ID	Description	Quantity / Notes
Memory		
9193-F280	Memory, 128GB, 2400MHz, DDR4, (4x32GB RDIMM) Dell Only	256GB included with F100 node* 512GB / node: 2 additional per node
9193-F281	Memory, 256GB, 2400MHz, DDR4, (4x64GB LRDIMM) Dell Only	512GB included with F105 node* 1TB / node: 2 additional per node

*Note, node comes with 8 DIMMs of memory

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 or E1011)	Qty Half-to-Full Clique (E102 or E1012)	Qty Half clique (E103 or E1013)
SAS Cabling				
9193-F480	Cable Assembly SAS, 2M (1 cable)	4 per clique	4 per clique	4 per clique
9193-F481	Cable Assembly SAS, 1M (1 cable)	12 per clique	8 per clique	NA
9193-F485	Cable Assembly, MiniSAS, 1M (one cable)	4 per clique	2 per clique	2 per clique
Adapters (SAS)				
9193-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
BYNET V5 Adapter		
9193-F254	Adapter-PCIe, BYNET V5, IB, 2CH, LP - FCAT	1 per node
Installation (Factory)		
9193-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 2850: Overview to select the appropriate software for the In-field Clique Expansion.

Note: The 2850 In-field Clique Expansion **cannot** be placed in the rack of a different appliance, such as the 2690, 2700, or 2750. It can be placed in a 2800 cabinet to expand a 2 node 2nd system into a 4 node 2nd system in the Base / System cabinet (via GSS submitting a review and requesting a deviation). Similarly, the 2850 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

2.16.4 Create Transport / Loaner Cabinet Quote

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

- 2850 In-field Clique Expansions
- 2850 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 (9193-8000-8090) PID **includes** the following items **bundled** with the PID:

- System VMS (9193-F300)
- KMM (9193-F083)
- Side panels (9193-F013)

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
9193-8000-8090	Teradata DW 2850 Staging / Loaner Cabinet	1

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

Product ID	Description	Quantity
9193-F050	30A single phase or phase-phase (Type A)	1
9193-F051	30A three-phase delta (Type B)	1
9193-F052	60A three-phase delta (Type C)	1
9193-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
9193-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
9193-F502	Network Switch BYNET V5 36-port (pair)	1

2.17 Memory Upgrades

The Teradata node has eight DIMMs of memory bundled with it; additional memory is "feature-strung" via WOT based on end user selections in WOT. There are two node options, based upon the type of memory selected (32GB or 64GB). The memory may also be added later and installed by CS in the field (ordering the Kit). You cannot mix 32GB and 64GB memory DIMMs in the same node. Moving from 32GB DIMMs to 64GB DIMMs requires replacing the OS drives with 1.8TB drives which is can be time consuming and require downtime.

Product ID	Description	Quantity / Notes
9193-F280 9193-K280	Memory, 128GB, 2400MHz, DDR4, (4x32GB RDIMM) Dell Only	2 for 256GB / node
9193-F281 9193-K281	Memory, 256GB, 2400MHz, DDR4, (4x64GB LRDIMM) Dell Only	2 for 512GB / node

Note:
- **Each node comes with 8 DIMMs of memory (additional memory added by WOT with a separate PID)**
- **Nodes that come with 512GB of memory use the 64GB DIMMs**
- **Only 16 DIMMs of memory per node are supported.**
- **Cannot mix RDIMMs and LRDIMMS.**

Note:
It is possible to upgrade a node from 32GB DIMMs to 64GB DIMMs (when a customer wants to upgrade to 1TB of memory and they are currently at 256GB or 512GB with 32GB DIMMS (with 9193-F100 node); however the upgrade is extensive and will result in downtime as it also requires replacing the OS drives with 1.8TB drives and SLES 11 SP3

Please choose the node (and therefore DIMM choice carefully), if your customer may upgrade to 1TB of memory it is HIGHLY recommended the initial order uses 9193-F105 with the 64GB DIMMs to avoid significant disruption for an upgrade and possibly customer satisfaction issues.

2.17.1 Encryption

The 2850 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, 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/852562180046427 4/0/79C9CEF9EBB7B74285257DC8005A822A

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		
9193-F497	Teradata Data Warehouse Encryption (Storage)	1 per node
9193-F200	Teradata Data Warehouse Encryption (Server)	1 per TPA, VMS, TMS, , Channel Solution, NCS, and Dump Server

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

In some cases, a 2850 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		
9193-K497	Teradata Data Warehouse Encryption, Kit (Storage)	1 per node
9193-K200	Teradata Data Warehouse Encryption, Kit (Server)	1 per TPA, TMS, VMS, Channel Solution, ECS, NCS, and Dump Server

2.18 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 2850 appliance. The CDS used for pricing and minimum required CDS for 2850 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% for 600GB drives and 25% for 1.2TB drives 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 for 600GB drives (0% to 50% in 5% increments)
- Percent of HDD Disk Space on CoD for 1.2TB drives (0% to 25% 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 **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.

This disk-COD method is only available on the 2800 and 2850 (in the 2000 Series Appliance space) at this time; it will not be released on previous models.

2.18.1 600GB Disk Space COD / CDS

A 2850 half clique (2 nodes and 2 drive trays with 44 active drives per tray and 2 GHS drives) with 600GB drives has a total of 16.75TB of customer data space (CDS) with 0% compression. A 2850 full clique (**4** nodes and 4 drive trays with 44 active drives and 4 GHS drives) with 600GB drives has a total of 33.5TB 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 following table shows the 600GB drive CDS ranges using **20% spool and 0% compression:**

600GB Drives: Teradata Database (20% Spool)			
Cliques	**Total Number of Nodes**	**Minimum Licensed CDS (TB)**	**Maximum Licensed CDS (TB)**
1/2	2	8	16.8
1	4	16	33.6
1 1/2	6	24	50.2
2	8	32	67
2 1/2	10	40	83.8
3	**12**	**48**	**100.5**
3 1/2	14	56	117.3
4	16	64	134.1

The rules for ordering fractional values 600GB drives; only the maximum values change as reflected in the table.

Product ID	Description
9193-K982	Activation of 1.0 Terabytes Customer Data Space 600GB drives
9193-K983	Activation of 0.1 Terabytes Customer Data Space 600GB drives

2.18.2 1.2TB – RAID1 Disk Space COD / CDS

A 2850 clique (2 nodes and 2 drive trays with 44 active drives per tray and 2 GHS drives) with 1.2TB drives has a total of 33.5TB of customer data space (CDS) with 0% compression and 20% spool. A 2850 full clique (**4** nodes and 4 drive trays with 44 active drives per tray and 4 GHS drives) with 1.2TB drives has a total of 67TB 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 25TB CDS beginning with the 2-node half clique and 50TB CDS for the 4-node full clique.

Maximum COD allowed with 1.2TB drives is 25%

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 (20% Spool)			
Cliques	**Total Number of Nodes**	**Minimum Licensed CDS (TB)**	**Maximum Licensed CDS (TB)**
1/2	2	25	33.5
1	4	50	67

1 1/2	6	75	100.5
2	8	100	134.1
2 1/2	10	125	167.6
3	12	150	200.1
3 1/2	14	175	234.6
4	16	200	268.2

Product ID	Description
9193-K986	Activation of 1.0 Terabytes Customer Data Space 1.2TB drives, RAID1
9193-K987	Activation of 0.1 Terabytes Customer Data Space 1.2TB drives, RAID1

2.19 Teradata Multi-purpose Servers (TMS)

Notes on the TMS and Associated Software

- The Teradata Multi-purpose Servers and, where applicable, the respective associated software products for the Teradata Multi-purpose 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 (9228) OCI, which is Knowledge Asset KA74493.
    - 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 2850 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 (first) 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.

Please refer to the ***2850 Product and Site Preparation Guide*** for the allowed configurations (stack-ups) for the Base / System (first) cabinet.

WOT rules will determine the best arrangement for TMS / Channel Solution / Aster / Hadoop/ SAS nodes. When appropriate, WOT will note when there is no more room in the first cabinet and direct the end user to configure a 9212 Platform Framework Cabinet.

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

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 2850 cabinets. A cabinet has two or four 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 two options that have four distribution boxes are: 30A Single or Phase-Phase, 4 cords per rack, all continents; and 30A 3-ph Delta, 4 cords per rack, North American style power. The AC Distribution Box has the 9 feet of cable egress.

The 2850 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 9193 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.

Important Note:
The 2850 does not use an Uninterruptible Power Supply (UPS). Customers must be made aware that they are responsible for ensuring there is a consistent power supply for the system.

2.20.2 Power Consumption

Estimated Power for 2850 Cabinets
The estimated power for a 2850 configuration with three 4+0 cliques, one system VMS, one KVM, two 36-port InfiniBand switches, and two server management switches is 14,600 watts. The actual power consumption levels for a particular configuration may be different depending on many factors such as the hardware configuration of each chassis, the applications running at the time of measurement, and the operating temperature. Below are estimates for common configurations – **note that the formula for total power used is complicated and for more accurate power level estimates specific to a particular configuration, contact Teradata Customer Support.**

- 4n2850 / Power = 5.4kW - estimated
- 2n2850 / Power = 3.0kW - estimated
- 2n2850 + 1n680 / Power = 4.3kW - estimated

Estimated Power for Cabinets
The actual power consumption levels for a particular configuration may be different depending on many factors such as the hardware configuration of each chassis, the applications running at the time of measurement, and the operating temperature. For power level estimates specific to a particular configuration, contact Teradata Customer Support.

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 2850 are much higher because:

1.) Power consumption levels are generally higher for 2850 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 2850 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 2850 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
9193-F060	Top Egress	1 per cabinet

2.21.1 Power Feature Description

Each cabinet has two or four AC Feeder Boxes and is designed for "dual feed" so that feeder boxes on the left and right of the cabinet are connected to separate electrical circuits for redundancy. The cabinet can continue to operate should power be lost on one input. The AC Feeder boxes provide the connections from the site AC power receptacles to the AC power input on the chassis.

In previous generations, there were only two power features – a "North American standard" power feature and an "International" (often referred to as IEC) power feature. While some countries had both available, in general a country had only one type available. Recent developments have led to a more complicated set of power options now being offered. First, there is a growing industry trend in many *newer* North American data centers to use "European" type power (230V Line to neutral rather than 120V line to neutral) to achieve a small percentage savings on power and infrastructure costs.

In response to customer requirements, the 2850 offers new power features that can support both traditional North American and International. For the United States and Canada, both types of power will be available. Please pay close attention to the following bullets.

- Power feature F050 can now be used worldwide. It is used at sites with European type power in a line to neutral format (Single Phase) and is used line to line in North America (Phase to Phase). This power feature in North America replaces power features in older products that used to have NEMA plugs. The plug change makes this feature a product that can be used worldwide. As this feature is limited to 9.6kVA, there are WOT cabinet configuration restrictions around when this features can be applied. This power feature has a plug that is rated in Europe at 32A and in North America at 30A.
- Feature F053 is a power feature providing three phase WYE 32A power plug (rated at 30A in North America). This feature is not region restricted as international power feature were on older products. Feature F053 will **not** work at sites in North America that have traditional power infrastructure (120V Line to neutral). Thus, it is very important to verify that the power feature you order is appropriate for your customer specific site. Feature F053 is for sites that have European type power even if that site resides in North America.

Past product generations used NEMA or Russellstoll plugs for site with North America type power. All new generation products for use in North America will only use IEC60309 style

plugs. The IEC60309 style plug is a multi-vendor plug and will eliminate issues experience with the single sourced Russellstoll connectors which caused delays in site preparations. Due to the use of this new plug, the term "IEC" can no longer be used to discriminate a power feature by region as all power features for North America and Europe use IEC plugs.

Power feature F052 is only suitable for sites with traditional North American type utility power (120V Line to neutral –used in a delta connection – 200 or 208V on each side). Feature F052 offers the simplicity of two cord connection to customers with North American type power. In addition to reduced cord count, feature F052 reduces the amount of circuit breaker positions required per cabinet.

2.21.2 Cabinet Power Features

Feature/Model	Input Cords	Power Type	Notes	County/ Region
Type A				
9193-F050	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				
9193-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				
9193-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	Americas, Japan, Taiwan

Feature/Model	Input Cords	Power Type	Notes	County/ Region
			the power plug will not have a neutral connection.	
Type D				
9193-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.

2.21.3 Power Receptacles and Connectors

Power receptacles (wall or panel-mounted) or connectors (that attach 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 2850 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
2850 Cabinet		
9193-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.
9193-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.
9193-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.
9193-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.

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

The 9193-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 2850 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 2.20 Power Selection.

Quantity is 1 per rack.

Power Feature Needed	Field-installable Kit PID	Kit Description
30A Single Phase or Phase-Phase (Type A) 9193-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. • Only supports limited stack—ups. Please refer to the Site Prep Guide for the 2850 for allowed stack-ups. • Order one kit per cabinet.
30A Three phase Delta w/watertight plugs (Type B) 9193-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) 9193-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) 9193-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 / 2850 Cabinet Hardware Service Guide (B035-5343-092K)

2.23 Enhanced Packaging

Teradata supplies enhanced packaging for shipments of 2850 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
9193-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 (EAC – Eurasian Customs Union Technical Regulations); it must accompany systems when the product will reside in any of the following countries:

- Russia
- Belarus

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
9193-F946	9193 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
9193-K019	9193 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 2850 cabinet, WOT will add quantity 1 to the quote. Otherwise, stabilizers are not needed.	

2.27 Side Panels

The 2850 offers Side Panels that can be included with the order based on the quantity entered. Select this option in WOT.

Product ID	Description
9193-K013	Rack 42U, Side Panels (Kit)
Rule: 9193-K013: Quantity based on number entered on WOT screen.	

2.28 Hardware RASUI

The 2850 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 2850 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

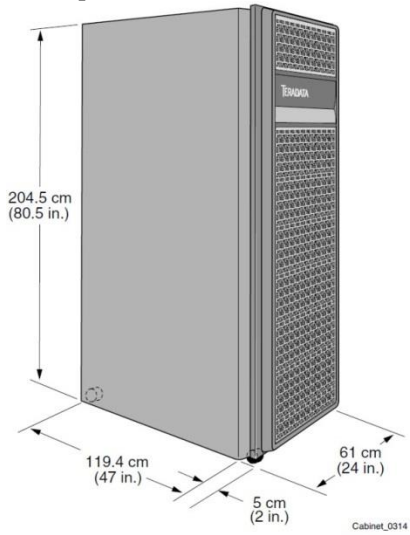
The 2850 has the following environmental guidelines:

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}	N/A	N/A
Maximum Altitude	10,000 ft.	3,050 m	N/A	N/A	N/A	N/A
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 2850 has the following physical specifications for the cabinet.



Feature	Height		Width		Depth	
	English	Metric	English	Metric	English	Metric
Cabinet frame	80.5 in	204.5 cm	24 in	61 cm	47 in	119.4 cm
+ side stabilizers	+ 0	+ 0	+ 14 in	+35.5 cm	+ 9 in	+22.9 cm
+ front door	+ 0	+ 0	+ 0	+ 0	+ 2 in	+5 cm
+ side panels (per side)	+0	+0	+ .15 in	+.4 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 2850 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 2850 systems combined), a standalone Viewpoint TMS is required.

For systems with more than 648 nodes, two of the 2850 cabinets must have subnet manager servers. If this is needed, in the 2850 WOT model select the Factory Integration PID for this server (under the Multi-purpose Server Panel), and then with a second round through WOT, configure the actual server in the Multi-Purpose Server WOT model.

The VMS uses the Intel Romley or Grantly 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		
9193-F083	KMM, Console, 18.5" LCD w/Rails 	1U KMM installed in the "Base" system cabinet.

The 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 2850 System(s) in the Base / System Cabinet
- 680 SMP Test / Dev Unit(s)

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 placed in the first cabinet of the 2850. This is done by selecting the Factory Integration choice in the 2850 Multi-Purpose Server panel and with a second run through WOT, configuring the SWS (in the Multi-Purpose Server WOT model)

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 / 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 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 2850 configuration. If the "VMS Viewpoint" option is set to "No" the following PID will be automatically added to the order:

Product ID	Description
F644-6736-0000	VMS Server Management Software for 2850

Please note: There is no process 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
F644-6736-0000	VMS Server Management Software for 2850
9687-2000-0044	Viewpoint SW Administration
F803-5536-0000	VMS Viewpoint 15.11 Portal and Self Service Portlets for 2850

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 2800 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 **OR** 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
9193-F302 OR 9193-F207	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	Required; 1 per CMIC VM

	Year	
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 2850 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 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
9193-F305	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. As noted earlier, to order the SWS, two steps are performed:

1. In the 2850 WOT model select the Factory Integration choice for the SWS in the Multi-Purpose Server panel
2. In a second run through WOT configure the SWS in the Multi-Purpose Server WOT model.

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 2850 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 **2850 supports Teradata TD 15.10.01 (or greater) on SLES 11 SP3 only.** Earlier versions of the Teradata database and different versions of the SLES OS are **not supported**.

For the Teradata Database on the 2850, the vast majority of Teradata Database features and functionality is included. The Teradata Database for the 2850 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 2850 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 2850 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: 44 AMPs / node = 44 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.

4.2 PUT Settings

Teradata Database on the 2850 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 2850: 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 2850 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
- Memory Optimization
- Ecosystem Manager

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

Enterprise Bundle for the Appliance (without TASM)

New with the 2850 (and being added to the 2800) 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 a 20% over all pricing discount. **This "Enterprise bundle for the Appliance" does <u>not</u> include TASM**. The components in the Enterprise bundle are:

- Columnar
- Temporal
- Ecosystem Manager
- TPT Stream
- Memory Optimization
- 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.

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 2850 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 2850 offers several value-added software components and corresponding subscriptions that can be ordered separately:

- PT Stream
- Columnar
- Temporal
- Ecosystem Manager
- Row Level Security
- Memory Optimization
- Secure Zones
- Industry Data Models (iDM)
- Data Labs

4.3.5 Enterprise Bundle for the Appliance (without TASM)

New with the 2850 (and being added to the 2800) 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 a 20% over all pricing discount. **This "Enterprise bundle for the Appliance" does not include TASM**. The components in the Enterprise bundle are:

- Columnar
- Temporal
- Ecosystem Manager
- TPT Stream
- Memory Optimization
- 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.

4.3.6 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, and is a simple no-cost Appliance Backup Utility (ABU) software utility for backing up data to a designated storage target using the Network File System (NFS) protocol. ABU allows customers to back up data (at the file or object level) by copying it to the NFS storage target, providing an inexpensive and simple method for satisfying basic data protection and archival needs.

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)

4.3.1 Teradata Data Stream Utility (DSU)

Notes on DSU

- The DSU products have dedicated product managers. Please direct DSU 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 DSU, please refer to those OCIs or contact BAR Product Management:
  - InfoHub: TBD
- **All questions not answered by the resources noted above should be submitted to GSS via a GSS Help Desk Ticket.**

The Data Stream Utility, or DSU, is DSA-based software developed for the Teradata Appliances by the Teradata BAR team (who owns and manages the product). The DSU product is bundled software for the Data Warehouse Appliance, and is a simple no-cost backup utility software utility for backing up data to a designated storage target using the Network File System (NFS) protocol. DSU allows customers to back up data (at the file or object level) by copying it to the NFS storage target, providing an inexpensive and simple method for satisfying basic data protection and archival needs. As compared to ABU, DSU provides the benefits of the Data Stream Architecture, including improved backup storage utilization by leaving the node data in its native state (for example, compressed data remains compressed, requiring up to 2.5X less storage). DSU requires the use of a Data Stream Controller –equipped Teradata Multipurpose Server for Storage (i.e., 8-51A TMSB, 855NAS-DSU or 8-91X-14D for DSU TMSS. The PIDs are automatically added. Please refer to the DSA OCI for more information.

5.0 Co-residence

The guidance for co-residence support in the 2850 Series Appliance is as follows:

- The Data Warehouse Appliance Platform allows **two generations** co-residence support:
  - 2750
    - It is recommended that the 2750 memory is the same size as that of the 2850, therefore co-residence with 2850 nodes with 1TB memory is not recommended and must be reviewed by GSS / ERB
  - 2800
    - It is recommended that the 2800 memory is the same size as that of the 2850, therefore co-residence with 2850 nodes with 1TB memory is not recommended and must be reviewed by GSS / ERB

- 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.

Notes:

When adding 2850 nodes to a 2800 cabinet, please contact GSS for an engineering review for placement in the 2800 cabinet.

For co-residence with 1Gb BYNET 2750 systems, the 1Gb BYNET used must be in the 2750 cabinet. The 2850 does not offer Base / System cabinets with 1Gb BYNET. BYNET over Ethernet (2750 co-residence only) will be limited to 22-nodes, the limit of BYNET over Ethernet imposed in the 2750.

Both systems must be running the same SLES 11 version (currently SP3)

5.1 Co-residence with 2750 / 2800 / 2850

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 / 2800 / 2850 co-residence (original) system must be on the same version of Teradata database and the same OS as the new 2850; 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 2850 system must be configured with one of the two (2) available interconnects used with the 2750 (either 1Gb BYNET or BYNET V5).

Co-residence is the only situation where a 2850 cabinet with 1Gb BYNET is applicable. For co-residence with 1Gb BYNET 2750 systems, the 1Gb BYNET used must be in the 2750 cabinet. The 2850 does not offer Base / System cabinets with 1Gb BYNET. BYNET over Ethernet (2750 co-residence only) will be limited to 22-nodes, the limit of BYNET over Ethernet imposed in the 2750.

Note that the 2750 used hardware compression engine adapters, while the 2800 and 2850 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 2850.

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
9193-F901	9193 Base Cabinet Install Feature	One per each cabinet
9193-F902	1 Node Install Feature	1 per node
9193-F906	1 Disk Drive Enclosure Install Feature	1 per Disk Drive Enclosure / Tray
9193-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.

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	**P1**	**P2**	**P3**
• Remote, On-site (HW/SW)	24 x 7	9 x 5	9 x 5
• FRO Implementation		9 x 5	
Response Times	**P1**	**P2**	**P3**
• Remote	2 hrs	NBD	NBD
• On-Site	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 2850 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 2850.

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 2850 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 2850 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 2850 System Merges and Splits

There should be no need for Hardware PM, Services PM, nor the GSC to be engaged on 2850 system merges and/or splits. Similarly, if a 2750/2800 customer wishes to co-reside their existing system with a new 2850, 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 5: 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 2850 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. SLES11 SP3 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 Dump Server Components

Standard Components:

(Dump Server 8A0)):

- Form factor: 2U rack height , R720
- 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: SuSE Linux Enterprise Server (SLES) – same version as TPA nodes
Requirements (All Models): Staging and Integration Reference Feature
RAID configuration: RAID 5

The R730 Dump Server is defined in the Teradata Multipurpose Server OCI.

8.2 Product IDs and Prices

Ordered with Factory Integration PIDs and a second run through WOT to order / configure the actual Dump server. Below are the R720 and R730 server PIDs, initially the 2850 will be shipped with R720 servers, and later R730 Dump servers will be used.

The R730 Server will require a Factory Integration PID, the R720 Dump Server just requires the TMS Staging and Integration PID (this is added by WOT when selecting the correct choice).

Product ID	Description
Dump Server Model 8A0 (No Factory Integration PID required)	
2850	
9193-F754	TMS (E14S), Dump Server, Model 8A0
9193-F905	TMS – STAGING & INTEGRATION Dump server version (1 per dump server)
Dump Server Software Bundle – Choose One that matches the TPA node dbs version	
F854-1500-0000	Teradata 15.10 - Dump Server software bundle, choose one
Linux – Choose the one that is running on the TPA nodes	
F601-8247-0000	Linux operating system, one per dump server (SLES11), one per dump server
F601-8300-0000	SuSE Linux SLES11 SP3, Media Kit, one per dump server
Notes: • TMS Dump Server Model 8A0 requires Linux operating system; order one F601-8247-0000 per server and one F601-8300-0000 per order. • Staging and Integration feature is required, order one per server. • Be sure and choose the correct media kit for your dump server (SLES11 SP3 for the 2850 running TD 15.10)	

Teradata is in the process of moving to a new R730XD based Dump Server. When the Dump Server 8A0 inventory runs out, you will need to order the dump server using the Factory Integration PID (9193-F830). This is accomplished in the Factory Integration Multipurpose Servers Panel in the 2850 WOT model. You will then need to make a second run through WOT in order to configure the actual Dump server in the Teradata Multipurpose Server WOT model.

Product ID	Description
Factory Integration – TMS Dump Server Model E31S	
2850	
9193-F830	Factory Integration 9228-F830 Dump Server 2.6 GHz E5-2640v3 Dell (E31S), R730XD.
Teradata Multipurpose Server	
9228-N830-8090	Dump Server 2.6 GHz E5-2640v3 (E31S), R730XD, (Factory Install)
9228-T830-8090	Dump Server 2.6 GHz E5-2640v3 (E31S), R730XD, (Field Install)
Dump Server Software Bundle – Choose One based upon the software running on the TPA node	
F854-1500-0000	Teradata 15.10 - Dump Server software bundle, choose one
Linux	
F601-8247-0000	Linux operating system, one per dump server (SLES11), one per dump server
F601-8295-0000	SuSE Linux SLES11 SP1, Media Kit, one per dump server
or	
F601-8300-0000	SuSE Linux SLES11 SP3, Media Kit, one per dump server
Notes: • Dump Server Model E31S requires Linux operating system; order one F601-8247-0000 per server and one F601-8295-0000 or F601-8300-0000 per dump server. • Be sure and choose the correct media kit for your dump server (SLES11 SP3)	

9.0 Expansions and Loaner Cabinets

For the 2850 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. 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 2850. 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.

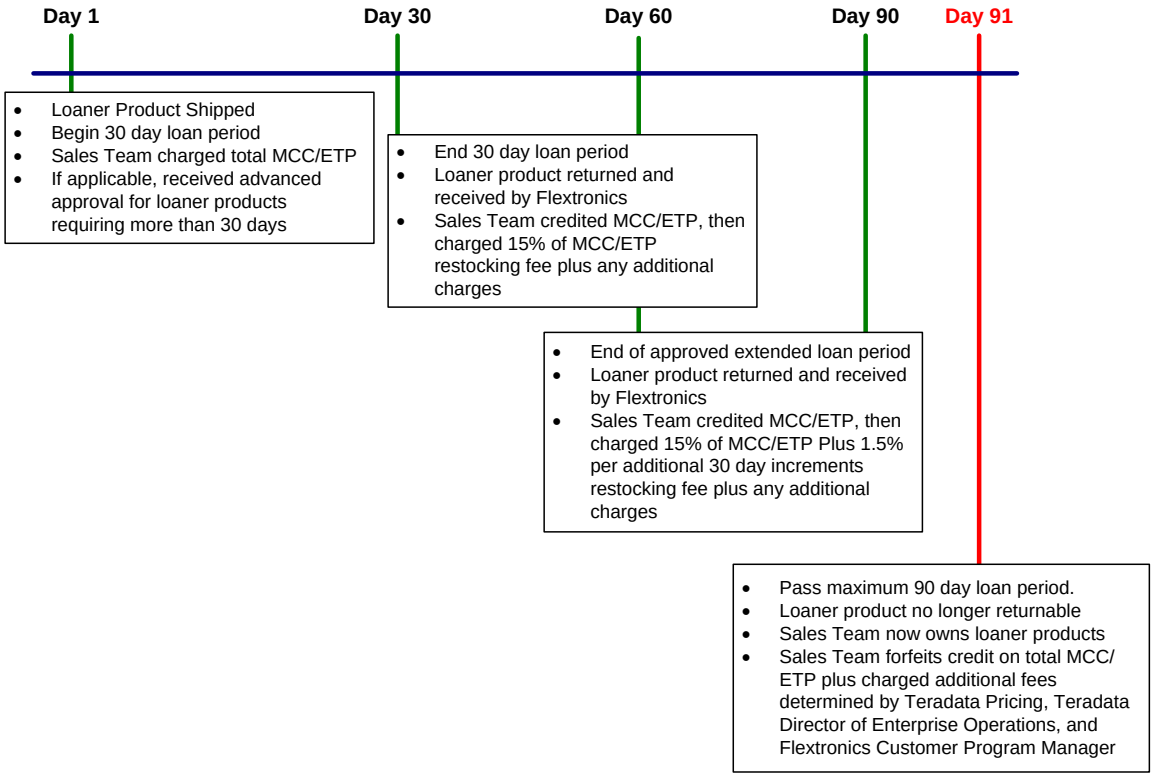
- After 90 calendar days, the loaner products cannot be returned and the Account Team takes ownership of them. The Account Team may also be assessed additional fees as determined by Teradata Pricing, Teradata Director of Enterprise Operations, and Flextronics Customer Program Manager.

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 6: Loaner Product Timeline



10.0 Information Products

Following are the supporting Information Products for the 2850 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 2850 and 680 Program		
Title	**Product ID**	**Availability** *(see notes below)*
2850 and 680 Platform Deliverables		
Teradata Data Warehouse Appliance 2850 Platform Product and Site Preparation Guide	B035-6006-104K	external doc web site, internal doc web site
Teradata Data Warehouse Appliance 2850 Platform Hardware Installation Guide	B035-6007-104K	internal doc web site
Teradata Data Warehouse Appliance 2850 Cabinet Hardware Service Guide	B035-6008-104K	internal doc web site
Teradata Data Warehouse Appliance 2850 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 2850 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

The projected Mean Time Between Failure (MTBF) calculations for processing nodes 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

12.0 2850 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 2850 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 ($)
2850 Cabinets (BYNET V5)		
9193-1000-8090	2850 Base Cabinet	30,000
2850 Cabinets (Transport / Loaner for In-field Clique Expansion)		
9193-8000-8090	2850 Transport Cabinet	30,000
2850 Node Options and Bundles		
Node types by Memory (node includes 8 DIMMs of Memory		
9193-F100	Database Node, 2.3GHz, 256GB, (8X32GB), R630, Dell (E26S)	0
9193-F105	Database Node, 2.3GHz, 512GB, (8X64GB), R630, Dell (E26S)	0
Bundles by Node type		
9193-F920	2850 Data Warehouse Half to Full Clique RAID 1 HW/SW Bundle, 512GB (8x64) node	481,920
9193-F921	2850 Data Warehouse Half-Clique RAID 1 HW/SW Bundle, 512GB (8x64)node	481,920
9193-F922	2850 Data Warehouse (Full) Clique RAID 1 HW/SW Bundle, 512GB(8x64) node	963,840
9193-F960	2850 Data Warehouse Half to Full Clique RAID 1 HW/SW Bundle, 256GB (8x32) nodes	420,480
9193-F961	2850 Data Warehouse Half-Clique RAID 1 HW/SW Bundle, 256GB (8x32) nodes	420,480
9193-F962	2850 Data Warehouse (Full) Clique RAID 1 HW/SW Bundle, 256GB (8x32) nodes	840,960
9193-F926	2850 Data Warehouse BYNET V5 HW/SW Bundle per 2 nodes (either node type)	10,000
Clique Expansions (Nodes and Storage)		
Field Install – Ship via Transport Cabinet		
9193-E001-8090	2850 Full Clique Expansion, 256GB (8x32) node	840,960
9193-E002-8090	2850 Half to Full Clique Expansion, 256GB (8x32) node	420,480
9193-E003-8090	2850 Half Clique Expansion, 256GB (8x32) node	420,480
9193-E011-8090	2850 Full Clique Expansion, 512GB (8x64) node	963,840
9193-E012-8090	2850 Half to Full Clique Expansion, 512GB (8x64) node	481,920
9193-E013-8090	2850 Half Clique Expansion, 512GB (8x64) node	481,920
Field Install – Ship via Crates/Boxes		
9193-T005-8090	2850, 1 node for Half to Full, Clique Expansion, 256GB (8x32), Dell (E26S)	210,240
9193-T006-8090	2850, 1 node for Half to Full, Clique Expansion, 512GB (8x64), Dell (E26S)	240,960
9193-T007-8090	2850, 1 node for Half Clique Expansion, 256GB (8x32), Dell (E26S)	210,240
9193-T008-8090	2850, 1 node for Full Clique Expansion, 256GB (8x32), Dell (E26S)	210,240
9193-T009-8090	2850, 1 node for Half Clique Expansion, 512GB (8x64), Dell (E26S)	240,960

Product ID	Description	MRP ($)
9193-T010-8090	TERADATA / RBOD (DBB Ultra), Disk Drive Enclosure, Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	0
9193-T011-8090	TERADATA / EBOD (DBB Ultra), Disk Drive Enclosure, (48) 2-1/2 HDD	0
9193-T012-8090	TERADATA / 2850, 1 node for Full Clique Expansion, 512GB (8x64), Dell (E26S)	240,960
9193-T005-8090	2850, 1 node for Half to Full, Clique Expansion, 256GB (8x32), Dell (E26S)	210,240
2nd 2850 System (2-node or 4-node based on node type)		
Factory Install		
9193-S819-8090	2850, 2+0, 256GB (8x32)	420,480
9193-S820-8090	2850, 4+0, 256GB (8x32)	840,960
9193-S821-8090	2850, 2+0, 512GB (8x64)	481,920
9193-S822-8090	2850, 4+0, 512GB (8x64)	963,840
Field Install – Ship via Crates/Boxes		
9193-T001-8090	2850, 1 node for 2+0, 256GB (8x32), Dell (E26S)	210,240
9193-T002-8090	2850, 1 node for 2+0, 512GB (8x64), Dell (E26S)	240,960
9193-T003-8090	2850, 1 node for 4+0, 256GB (8x32), Dell (E26S)	210,240
9193-T004-8090	2850, 1 node for 4+0, 512GB (8x64), Dell (E26S)	240,960
Field Install – Ship via Transport Cabinet		
9193-E101-8090	2850 Second System, Full Clique 256GB (8x32) node	840,960
9193-E103-8090	2850 Second System, Half Clique 256GB (8x32) node	420,480
9193-E201-8090	2850 Second System, Full Clique 512GB (8x64) node	963,840
9193-E203-8090	2850 Second System, Half Clique 512GB (8x64) node	481,920
Features		
Encryption – Storage per node (Feature / Kit)		
9193-F497	Teradata Data Warehouse 2850 Encryption (Storage)	5,000
9193-K497	Data Warehouse Data 2850 Encryption (Storage)	5,000
Encryption - Server		
9193-F200	2850 Warehouse Data Encryption (Server)	1,000
9193-K200	2850 Data Warehouse Data Encryption (Server)	1,000
Power, Server Management, Panels		
9193-F050	30A Single or Phase-Phase - Four Cords per Cabinet - For all continents.	0
9193-F051	30A Three Phase DELTA - Four Cords per Cabinet- North American Type Power.	0
9193-F052	60A Three Phase DELTA - Two Cords per Cabinet - North American Type Power	0
9193-F053	30A Three Phase WYE 230V L-N - Two Cords per Cabinet.	0
9193-F060	Top AC Power Egress	0
9193-F083	KMM, Console, 18.5" LCD w/Rails	0
9193-F300	Cabinet VMS: (Intel R1000 - 1U)	0
9193-F302	System VMS: (Intel R1000 - 1U)	0
9193-F305	Cabinet VMS: (Intel R1) R1208WT Grantley	0
9193-F307	System VMS: (Intel R1) R1208WT Grantley	0
BYNET-V5 Switches and cables (Feature / Kit)		
9193-F595	Switch, BYNET-V5, 36 Port, IB (2 Switches)	0
9193-F596	Switch, BYNET-V5, 36 Port, IB (2 Switches) Opt 2	40,000
9193-K596	Switch, BYNET-V5, 36 Port, IB (2 Switches no cables) Opt 2	40,000

Product ID	Description	MRP ($)
9193-F598	Cable Assy, 1Gb Ethernet I/O, 2M (1 cable)	0
9193-F599	Cable Assy, InfiniBand - QSFP+ Copper Cable Assembly, 2.0-meter	0
Cabinet features		
9193-F005	Assembly, Bracket and Spools	0
9193-F006	Packaging - Every Unit Item RBOD, (DBB Ultra)	0
9193-F011	Front Door	0
9193-F012	Label, PID Front Door (Green)	0
9193-F013	Side Panels	0
9193-F014	Packaging-Enhanced Protection	0
9193-F015	Packaging Single Storage - Every Unit Item	0
9193-F020	Front Filler Panel, 1U	0
9193-F021	Front Filler Panel, 2U	0
9193-F946	User Guide, 9193 Platform - Russian Language	0
Node Internal Drives		
9193-F201	HDD, 1.2TB, 12Gbps, 2.5", SED, 10K RPM, SAS, (Dell Only)	1650
Array Storage		
9193-F265	Adapter-PCIe3, SAS2, 6Gb, 4-Port	0
9193-F402	RBOD, Disk Drive Enclosure - Atlas/Gallium 6Gb/s (48) 2-1/2 HDD	0
9193-F403	EBOD, Disk Drive Enclosure - Expansion (48) 2-1/2 HDD	0
9193-F412	600GB 2.5", 10K RPM, SAS HDD, DotHill	0
9193-F414	HDD, 1.2TB, 2.5", FDE, 10K, SAS, Hot Plug	0
9193-F417	600GB 2.5", 10K RPM, SAS HDD, DotHill - Global Hot Spare	0
9193-F419	GHS-HDD, 1.2TB, 2.5", FDE, 10K, SAS, Hot Plug	0
9193-F480	Cable Assembly, MiniSASHD, 2M (one cable)	0
9193-F481	Cable Assembly, MiniSASHD, 1M (one cable)	0
9193-F485	Cable Assembly, MiniSAS, 1M (one cable)	0
9193-F490	Air Mgt Blank Filler, Black 2.5" for Disk Drive Enclosure	0
Ethernet Adapters		
9193-F250	Adapter-PCIe 10Gb Ethernet, 2Ch, Fiber Optic	3,500
9193-F251	Adapter-PCIe 10Gb Ethernet, 2Ch, Copper	2,500
9193-F262	Adapter, PCIe, X540-T2 10GBASE-T, 2CH, CU, LP	2,500
9193-F263	Adapter, PCIe2, I350-T4 1GbE, 4CH,CU,LP	1,500
9193-F264	Adapter, PCIe2, I350-F2 1GbE, 2CH, OPT, LP	2,000
SFP Transceivers		
2021-K260-V001	1Gb Mini-GBIC module (Converts SFP port to 1000Base-T copper)	
2021-K265-V001	10Gb Optical SFP Transceiver (Dual-rate 10Gb/1Gb. Auto-negotiates based on switch)	
BYNET, Storage Adapters		
9193-F254	Adapter-PCIe, BYNET V5, 2CH, LP (Connect IB)	0
9193-F265	Adapter-PCIe3, SAS2, 6Gb, 4-Port	0
Memory		
9193-F280	Memory, 128GB, 2400MHz, DDR4, (4x32GB RDIMM) Dell Only	5,120
9193-F281	Memory, 256GB, 2400MHz, DDR4, (4x64GB LRDIMM) Dell Only	20,480
Storage - Data Space Activation – Capacity on Demand		
9193-K982	Kit, 2850 Data Space Activation, 1.0TB with 600GB Drives	10,000
9193-K983	Kit, 2850 Data Space Activation, 0.1TB with 600GB Drives	1,000

Product ID	Description	MRP ($)
9193-K986	Kit, 2850 Data Space Activation, 1.0TB with 1.2TB Drives	6,500
9193-K987	Kit, 2850 Data Space Activation, 0.1TB with 1.2TB Drives	650
Factory Integration – 2850 2nd Systems		
9193-F819	Factory Integration, 6U 2850 2+0	500
9193-F820	Factory Integration, 12U 2850 4+0	500
9193-F821	Factory Integration, 6U 2850 2+0, (8X64), 512GB	500
9193-F822	Factory Integration, 12U 2850 4+0, (8X64), 512GB	500
Factory Integration – 2800 2nd Systems and 680 SMP		
9193-F841	Factory Integration (9190), 6U 2800 2+0	500
9193-F842	Factory Integration (9190), 12U 2800 4+0	500
9193-F843	Factory Integration (9191), 3U SMP (680)	500
Factory Integration - TMS		
9193-F500	Factory Integration, TMS (E31S) Generic, Model 8-01	500
9193-F501	Factory Integration, TMS (E31S) Generic, Model 8-01X	500
9193-F503	Factory Integration, TMS (E31S) Generic, Model 8-91X	500
9193-F504	Factory Integration, TMS (E31S) Generic, Model 14-V1X, Consolidated	500
9193-F510	Factory Integration, TMS (E31S), Viewpoint, Model 8-11	500
9193-F511	Factory Integration, TMS (E31S), Data Mover, Model 8-41	500
9193-F512	Factory Integration, TMS (E31S), Unity Ecosystem Manager, Model 8-31	500
9193-F513	Factory Integration, TMS (E31S), Unity Source Link/Query Grid, Model 8-71	500
9193-F514	Factory Integration, TMS (E31S), BAR, Model 8-51A	500
9193-F515	Factory Integration, TMS (E31S), BAR, Model 8-51D	500
9193-F516	Factory Integration, TMS (E31S), Load, Model 8-61	500
9193-F517	Factory Integration, TMS (E31S), Load, Model 8-61X	500
9193-F518	Factory Integration, TMS (E31S), SAS, Model 8-21X	500
9193-F519	Factory Integration, TMS (E31S), Unity Director/Loader, Model 8-81X	500
9193-F520	Factory Integration, TMS (E31S), Unity Director/Loader, Expansion Server, Model 8-81XE	500
9193-F521	Factory Integration, TMSS (E31S), Network Attached Storage, Model 8-91XNAS-14HD for DSU	500
9193-F522	Factory Integration, TMSS (E31S), Network Attached Storage, Model 8-91XNAS-14HD	500
9193-F524	Factory Integration, TMS (E31S), Model 14-V1X-EM-DM, Consolidated	500
9193-F525	Factory Integration, TMS (E31S), Model 14-V1X-EM, Consolidated	500
9193-F526	Factory Integration, TMS (E31S), Model 14-V1X-DM, Consolidated	500
9193-F527	Factory Integration, TMS (E31S), Model 14-V1X-VP, Consolidated	500
9193-F528	Factory Integration, TMS (E31S), Model 14-V1X-VP-EM-DM, Consolidated	500
9193-F529	Factory Integration, TMS (E31S), Model 14-V1X-VP-EM, Consolidated	500

Product ID	Description	MRP ($)
9193-F530	Factory Integration, TMS (E31S), Model 14-V1X-VP-DM, Consolidated	500
9193-F344	Factory Integration, 9193-F344 Teradata Managed Storage Server (TMSS) , 2U, Dell E14S	500
9193-F345	Factory Integration, 9193-F345 Teradata Managed Storage Server (TMSS), Infiniband, 2U, Dell E14S	500
9193-F346	Factory Integration, 9193-F346 Teradata Managed Storage Server (Data Stream Utility) , 2U, Dell E14S	500
9193-F347	Factory Integration, 9193-F347 Teradata Managed Storage Server (Data Stream Utility), Infiniband, 2U, Dell E14S	500
Factory Integration – Aster / Hadoop / SAS nodes		
9193-F800	Factory Integration (9232), Aster Queen Node, Dell (E31S)	500
9193-F801	Factory Integration (9232), Aster Worker Node, Dell (E31S),	500
9193-F802	Factory Integration (9232), Aster Backup Node, Dell (E31S),	500
9193-F803	Factory Integration (9232), Aster Loader Node, Dell (E31S),	500
9193-F804	Factory Integration (9232), Aster Appliance 5, AppCenter Server Dell (E31S), (SiteID)	500
9193-F810	Factory Integration (9233), Hadoop Master Node, Dell (E31S),	500
9193-F811	Factory Integration (9233), Hadoop Data Node Balanced, Dell (E31S),	500
9193-F812	Factory Integration (9233), Hadoop Edge Node, Dell (E31S),	500
9193-F813	Factory Integration (9233), Hadoop Data Node Capacity, Dell (E31S),	500
9193-F814	Factory Integration (9233), Hadoop Data Node Performance, Dell (E31S),	500
9193-F815	Factory Integration (9233), Hadoop Data Node, Capacity, 8TB Non-SED Data Drives, Dell (E31S),	500
9193-F816	Factory Integration (9233), Hadoop Data Node, Balanced, 8TB Non-SED Data Drives, Dell (E31S),	500
9193-F833	Factory Integration (9228) 2U, SAS Worker - Base (E31S) R730	500
9193-F834	Factory Integration (9228) 2U, SAS Worker - Performance (E31S) R730XD	500
Factory Integration – NCS, SWS, Dump Server, Channel nodes		
9193-F823	Factory Integration, 9228-F823 NCS, Dell (E31S) Grantley	500
9193-F826	Factory Integration (9228) 2U, SWS - TMS/R730 (E31S)	500
9193-F830	Factory Integration (9228), TMS (E31S), Dump Server	500
9193-F832	Factory Integration (9228), Channel Node, Dell E31S, FICON-L	500
9193-F840	Factory Integration (9228) 1U, Subnet Management Server (Intel R1) R1208WT Grantley	500
Space Reservation - BAR		
9193-F495	Reserved Space 3U - Data Domain ES30 Expansion Shelves	0

Product ID	Description	MRP ($)
9193-F496	Reserved Space 4U - Data Domain DD4200	0
9193-F498	Reserved Space 6U - Quantum i80 Tape Library	0
9193-F499	Reserved Space - SKM Key /Safe Net Secure Key Mgmt Server	0
Services: Staging, Installation Features		
9193-F901	9193 Base Cabinet Install Feature	0
9193-F902	1 - Node Install Feature	0
9193-F906	1 - Disk Drive Enclosure Install Feature	0
9193-F943	Clique Expansion Install feature	0
9193-F950	Special Customer Order	0
9193-F979	UDA - Staging & Integration (per node)	0
9687-2000-0003	2000 System Installation	7,000
SuSE Linux SLES		
F601-8247-0000	SUSE Linux Enterprise Server for Teradata, 1 Year Subscription, Fulfillment	450
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
Kits		
9193-K013	Kit, Rack 42U, Side Panels	0
9193-K019	KIT, 9193 SYSTEM	0
9193-K020	Kit, Panel, Front Filler - 1U	0
9193-K021	Kit, Panel, Front Filler - 2U	0
9193-K025	Kit, Hardware, 42U, Cabinet Docking	0
9193-K200	Data Warehouse Data Encryption (Server)	1,000
9193-K201	Kit, HDD, 1.2TB 10K RPM, 2.5", SED, Hot Plug, (Dell Only)	1,650
9193-K202	Kit, HDD, 1.8TB 10K RPM, 2.5", SED, Hot Plug, (Dell Only)	1,925
9193-K250	Kit, Adapter-PCIe, 10Gb Ethernet, 2Channel, Fiber Optic, LP	3500
9193-K251	Kit, Adapter, PCIe, 10Gb Ethernet, 2Channel, Copper, LP	2,500
9193-K254	Kit, Adapter-PCIe, BYNET V5, 2CH, LP (Connect IB)	5,000
9193-K262	Kit, Adapter-PCIe, X540-T2 10GBASE-T, 2CH, CU, LP	2,500
9193-K263	Kit, Adapter, PCIe2, I350-T4 1GbE, 4CH,CU,LP	1,500
9193-K264	Kit, Adapter-PCIe2, I350-F2 1Gb Ethernet, 2CH, OPT, LP	2,000
9193-K265	Kit, Adapter-PCIe3, SAS2, 6Gb, 4-Port	1,750
9193-K270	Kit, Adapter, SFP+, SR, 10GbE Ethernet Optical Module	500
9193-K271	Kit, Module, SFP Electrical Transceiver, 1000Base-T, Mini-GBIC	250
9193-K280	Kit, Memory, 128GB, 2400MHz, DDR4, (4x32GB RDIMM) Dell Only	5,120
9193-K281	Kit, Memory, 256GB, 2400MHz, DDR4, (4x64GB LRDIMM) Dell Only	20,480
9193-K412	Kit, HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9193-K414	Kit, HDD, 1.2TB, 2.5", FDE, 10K, SAS, Hot Plug	0

Product ID	Description	MRP ($)
9193-K417	Kit, GHS-HDD, 600GB, 2.5", FDE, 10K, SAS, Hot Plug	0
9193-K419	Kit, GHS-HDD, 1.2TB, 2.5", FDE, 10K, SAS, Hot Plug	0
9193-K497	Data Warehouse Data Encryption (Storage)	5,000
9193-K596	Switch BYNET-V5, 36 Port, IB (2 Switches no cables)	40,000
9193-K982	Kit, 2850 Data Space Activation, 1.0TB with 600GB Drives	10,000
9193-K983	Kit, 2850 Data Space Activation, 0.1TB with 600GB Drives	1,000
9193-K986	Kit, 2850 Data Space Activation, 1.0TB with 1.2TB Drives	6,500
9193-K987	Kit, 2850 Data Space Activation, 0.1TB with 1.2TB Drives	650

12.2 PIDs: Loaner Cabinet for In-field Clique Expansion and 2nd 2850

Product ID	Description	Quantity
9193-8000-8090	2850 Transport Cabinet	1

Product ID	Description	Quantity
9193-F595	Switch, BYNET-V5, 36 Port, IB (2 Switches)	1

Product ID	Description	Quantity
9193-F599	Cable Assy, InfiniBand - QSFP+ Copper Cable Assembly, 2.0-meter	2 per node

12.3 ABU

Product ID	Description	MRP ($)
Teradata Appliance Backup Utility (ABU)		
F904-ABU2-0000	Appliance Backup Utility 15.10 for SMP, 1700, 1800, 2690, 2700, 2750, and 2800, 2850	0

12.4 Operating Systems

Product ID	Description	MRP ($)
Operating Systems		
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

12.5 VMS Software

Product ID	Description	MRP ($)
VMS Software		
F803-5536-0000	VMS Viewpoint 15.11 Portal, Self Service and Management Portlets for 2850 Appliance	0
F644-6736-0000	VMS Management Software (SWS) for 2850 Appliance	0

12.6 BYNET v5 System Cabinet

See BYNET Switch OCI.

12.7 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

12.7.1 Appliance Enterprise Bundle for the 2850 without TASM

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 2850 order, or later as a software upgrade

With the 2850 and 2800 platforms for Teradata database 15.10, we offer an "Enterprise Bundle for the Appliance w/o TASM" with reduced pricing. This is implemented with a Base to Enterprise Upgrade Bundle. In the 2850 WOT model, in the TTU / DBS panel, the drop down contains two choices:

- Appliance and Traditional (Base – previously the only offer for the 28xx)
- Appliance Enterprise Bundle (new offer for the 28xx as software upgrade)

When "Appliance Enterprise Bundle" drop down choice is selected in WOT, the tool will include all the product IDs for the Traditional / Base Edition of the database and TTU, and then include the "2850 Appliance Base to Enterprise Bundle Upgrade (w/o TASM)" PIDs along with the appropriate additional bundle and TTU PIDs.

Product ID	Description	MRP ($)
Appliance Enterprise Bundle w/o TASM – Database PIDs		
F854-ME36-0000	**Teradata 15.10 / TTU 15.10 - 2850 Appliance Base to Enterprise Bundle Upgrade (w/o TASM), per each 2 nodes**	**300,000**
F787-E036-A000	Teradata Subscription - 2850 Appliance Enterprise Bundle (w/o TASM), per each 2 nodes	32,000
F854-9024-0000	Teradata 15.10 Columnar for Enterprise Bundle (Bundling Reference Only)	0
F854-9023-0000	Teradata 15.10 Temporal for Enterprise Bundle (Bundling Reference Only)	0
F854-9029-0000	Teradata 15.10 In-Memory Optimization (Bundling Component Only)	0
F853-9028-0000	Teradata 15.xx - Teradata QueryGrid: TD DB-to-Teradata & TD DB-to-Aster (Bundling Component Only)	0
F154-9019-0000	Ecosystem Manager 15.11 - Bundling Component - Active	0
Appliance Enterprise Bundle w/o TASM – TTU PIDs		
F864-ENTA-0000	TTU 15.10 - Enterprise Appliance Pack for 2800/2850 (w/o TASM) - per each two nodes	0
F864-9015-0000	TTU 15.10 - Teradata PT Stream Operator (Bundling Component Only)	0