Frequently Asked Questions
Netra Modular System

Introduction
Today’s organizations face a myriad of challenges that impact their ability to improve revenues and margins while deploying new infrastructure to support new services and meet the increasing but variable network demands driven by these new services. Business challenges include increasing operating costs, resource constraints, speed to new services, and unpredictable compute and network demands. In order to address these challenges, organizations are searching for new data center architectures that can easily scale virtually and physically while providing breakthrough improvements in operational time and cost. To achieve these breakthroughs, organizations also are turning to network functions virtualization (NFV), OpenStack, and IT virtualization technologies. Oracle’s Netra Modular System introduces a new data center architecture that helps organizations bring new services to market faster, lower business risks, and improve business agility.

New Innovative Architecture

Q: What is unique about Netra Modular System’s architecture?
A: Its innovative architecture uses plug-and-play blade system type management, allowing faster time to bring up and scale up new services.

Netra Modular System takes the best features of the blade architecture, including ease of use with centralized management, simplified cabling, and plug-and-play servers. Yet, it addresses many of its shortcomings including form-factor constraints and the use of proprietary hardware. Netra Modular System also takes the best features of rackmount servers, including large I/O and disk capacity and rack independence while addressing the shortcomings of complicated system and cable management.

Q: How is the plug and play accomplished?
A: Netra Modular System does this by taking general-purpose rackmount servers and adding an adapter, called a frame backplane adapter that then mates to a frame backplane segment connected to the back of the frame.

Q: What is a frame backplane adapter?
A: A frame backplane adapter connects to the compute node and aggregates all I/O and power to known locations. The design ensures support for multiple generations and types of rackmount servers.

Q: What is a frame backplane segment?
A: A frame backplane segment connects all the networking, management, and power. Once the server is connected to the frame backplane segment, it is automatically verified and connected to the rack management for bring up. The
rack comes preinstalled with the frame backplane segment.

Q: Does Netra Modular System come precabled?
A: Netra Modular System comes precabled from the factory. Its simplified cabling is designed for reliability and ease of management. There is no cable management required for the end user, and the management software ensures no incorrect connections.

**Key Components**

Q: What compute node is used in Netra Modular System?
A: The compute nodes are currently comprised of Oracle Server X5-2M, which is powered by two Intel® Xeon® processor E5-2600 v3 product family CPUs. With up to 18 cores per socket, this server supports the highest performing processor and delivers extreme compute density in a compact 1U enclosure. Each Oracle Server X5-2M includes the frame backplane adapter to give it the plug-and-play capability and eight small-form-factor drive bays, four of which can support hot-swappable, high-bandwidth NVM Express-based flash. Each compute node can be added and removed without any downtime. Netra Modular System will automatically bring up and configure each node as it is inserted. Netra Modular System supports from 2 to 30 nodes giving up to 1,080 cores and 2,160 threads aggregate. Each compute node can support a choice of operating systems and virtualization technologies.

Q: What networking fabric technology is used?
A: Netra Modular System currently supports up to six Oracle 10/40 Gbps Ethernet switches. These next-generation 1U Ethernet switches from Oracle come complete with industry standard Layer 2 and Layer 3 features. The switches enable high-speed, low-latency networking among all components and integrate with existing Ethernet and storage networks. Netra Modular System can support up to four physically isolated redundant networks.

Q: What storage is currently supported in the system?
A: Netra Modular System provides large storage capacity using the local storage within the compute node. This takes advantage of the server infrastructure and saves cost. If additional storage capacity is required, then customers can take advantage of Oracle ZFS Storage Appliance or connect to other NAS storage.

**System Management and Software**

Q: What blade style system management is supported?
A: Netra Modular System provides a unified management system for both in-band and out-of-band management. The frame monitoring module included in the rack is used for out-of-band management and is not required during runtime. In addition to environmental monitoring, alarm notification, and reset, it provides the following:

- Remote console interface to Oracle Integrated Lights Out Manager (Oracle ILOM) in each compute node
- Remote lights-out manageability of the compute nodes in the frame
- Policy-based compute node's host power control

The in-band management software is included on two of the compute nodes to provide redundant runtime management nodes. Its functions include:

- Enables a single point for external frame management
- Manages server hot swap
- Provides GUI for at-a-glance hardware status monitoring
- Provides preactivation recognition and validation
- Furnishes automatic hardware “bring-up”
- Powers on, installs, and configures:
  - Servers, networking, and storage hardware
  - Virtual networking and machines
- Supports multiple racks (up to eight) setup and control
- Supports point-to-point (P2P)—physical link topology validation

Q: What operating systems are supported?
A: Netra Modular System supports Oracle Linux and Oracle Solaris. Red Hat Enterprise Linux, SUSE Linux Enterprise Server, and Microsoft Windows Server also can be run.

Q: What virtualization technologies can be used?
A: Netra Modular System offers a choice of virtualization technologies including Oracle VM. KVM and VMware also can be used.
Q: Does Netra Modular System support OpenStack?
A: Netra Modular System supports Oracle OpenStack. Third-party OpenStack options also can be used.

For information on how to download Oracle OpenStack see the following links:

Link to download software: [http://public-yum.oracle.com](http://public-yum.oracle.com)


Q: Does Netra Modular System come preloaded with any applications?
A: No. There are no applications preloaded on Netra Modular System.

NFVI Foundation Platform

Q: What is NFV?
A: Network functions virtualization (NFV) uses traditional IT server and virtualization techniques to implement network functions as software that can run on industry-standard servers.

Q: What is NFVI?
A: NFVI stands for network functions virtualization infrastructure.

Q: What are some of the key attributes of an NFVI platform?
A: Some key attributes include:
   - Choice of virtualization technologies, Oracle VM or third-party virtual machines
   - General purpose hardware, servers, switches, and infrastructure
   - Preintegrated and supported hardware and system software

Q: Why is Netra Modular System an ideal NFVI platform?
A: Virtualizing network functions on general-purpose hardware, like Netra Modular System, can help reduce capital and operational expenditures and accelerate product and service introduction. Oracle’s Netra Modular System capitalizes on Oracle’s ability to engineer hardware and software together to deliver NFV infrastructure with a preintegrated and managed hardware and virtualization layer.

Key Customer Benefits

Q: What key benefits does Netra Modular System provide?
A: Netra Modular System minimizes product and vendor complexity with a platform design that includes compute, networking, storage, and management, dramatically reducing operational time and expense with a flexible plug-and-play blade-like architecture. It enables lower development and business risk with an integrated and qualified hardware and software platform that supports technology evolution with ease and is designed to support 5+ nines reliable deployments.

More Information

Q: Where do I go for more information on Oracle’s Netra Modular System?
A: Contact an Oracle sales representative directly or call 1-800-Oracle1.

For more information on Netra Modular System:
- [Netra Modular System](http://www.oracle.com/technetwork/server-storage/openstack/linux/documentation/oracle-openstack-user-guide-2296176.pdf)

For more information on support services: