

## 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 on-premises and cloud 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 architecture that helps organizations bring new services to market faster, lower business risks, and improve business agility.

### General Overview

Oracle's Netra Modular System is a transformative preintegrated platform for customers looking to build out their communications on-premise and cloud infrastructures. With extreme agility and scale in a platform that can be completely virtualized, users benefit from accelerated development, rapid bring up, and low-cost maintenance. Netra Modular System takes today's traditional bladed and rackmount architectures and merges them to create a new, innovative, best-of-breed, next-generation platform. This integrated system is designed to

handle compute, networking, and storage evolution without forklift upgrades. Netra Modular System provides the service and business agility required in today's fast-paced market.

### Key Customer Benefits

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.

### 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 rack.
- 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 segments.

**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 X6-2M, which is powered by two Intel® Xeon® processor E5-2600 v4 product family CPUs. With up to 22 cores per socket, this server supports the highest performing processor and delivers extreme compute density in a compact 1U enclosure. Each Oracle Server X6-2M 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 1,320 cores and 2,640 threads aggregate. Each compute node can support a choice of operating systems and virtualization technologies and can now be configured with different CPUs, memory, and drive options. Note: the system can interoperate with the previous generation node, Oracle Server X5-2M within the same rack.

**Q:** What networking fabric technology is used?

**A:** Netra Modular System currently supports up to six Oracle 10/40 Gb/sec 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 interoperate with external

Ethernet and storage networks. Netra Modular System can support up to six physically separate networks (can be configured as three redundant) and one pass through.

**Q:** What is the patch panel option?

**A:** Netra Modular System provides an option for one to four optical patch panels used in place of the optional Oracle Ethernet switches. This allows the system to interface with SAN networks via external connections into Fibre Channel switches. The patch panel also provides an interface into external InfiniBand or Ethernet switches.

**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, customers can take advantage of Oracle ZFS Storage Appliance or Oracle FS1 Flash Storage System (with the patch panel option). NAS or SAN connections to other third party storage can be used as well.

## 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 control, it provides the following:

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

The frame system agent, responsible for in-band management, is included on two of the compute nodes to provide redundant runtime management nodes. Its functions include:

- Automatic hardware bring-up to operating system availability
- Single point for external rack management
- Compute node hot swap management

- GUI for at-a-glance hardware status monitoring (Oracle Fabric Manager)
- Policy-based preactivation, recognition, and validation
  - Point-to-point (P2P)—physical link topology validation
  - Node type and configuration validation
- Power on, install, and configure:
  - Compute, networking, and storage hardware
  - Virtual networking and machines
- Multiple rack (up to eight) setup and control
- Access to out-of-band operations

**Q:** What is the GUI interface for the system management?

**A:** The Oracle Fabric Manager provides the GUI interface and the single management framework for:

Bare metal:

- Firmware updates
- Inventory Management
- Pre-activation audits of infrastructure components and interconnects
- Point-to-point cable connection verification

Network Fabric:

- Provisioning, configuring, and management

Virtual Network Services:

- Load balancer, Firewall, VPN, Router, NAT (Network Address Translator)

**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, VMware, and Hyper-V 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.

**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
- 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.

## More Information

**Q:** Where do I go for more information on Oracle's Netra Modular System?

Contact an Oracle sales representative directly or call 1-800-Oracle1.

For more information on Netra Modular System:

[Netra Modular System](#)

For more information on support services:

[Oracle Premier Support](#)







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