Cisco Prime Network Registrar Jumpstart 8.1

Q. What is Cisco Prime™ Network Registrar Jumpstart?

A. Cisco Prime Network Registrar Jumpstart is a high-performing hardware appliance for Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) services. The appliance combines the speed, scalability, and reliability of Cisco Prime Network Registrar, and its robust, world-class DHCP and DNS servers, with the ease of deployment of an appliance format and the high performance of Cisco® server hardware.

The Jumpstart solution is available in two variations:

- Cisco Prime Network Registrar Jumpstart for DHCP and DNS Authoritative
- Cisco Prime Network Registrar Jumpstart for DNS Caching

Both appliances include the following:

- Cisco Prime Network Registrar application components (DHCP and DNS Authoritative together or DNS Caching alone), the CentOS operating system v6.x, and VMware ESXi 5 - all preinstalled on the server.
- Cisco Unified Computing System™ (Cisco UCS™) C220 M3 (one rack-unit [RU] rack-mount server) with an Intel Xeon 2.30 GHz E5-2630 processor, 16 GB of RAM, two 300 GB 15K SCSI drives configured for RAID 1, two PCI Express Gen 3 slots, and two 1 Gigabit Ethernet LAN interfaces on the motherboard, and dual power supplies.

Q. What are the Cisco Prime Network Registrar Jumpstart application options?

A. Cisco Prime Network Registrar Jumpstart is available in two different configurations. The first, Cisco Prime Network Registrar DHCP/DNS Authoritative Jumpstart includes two Cisco Prime Network Registrar applications: Cisco Prime Network Registrar DNS Authoritative and Cisco Prime Network DHCP. The second configuration, called Cisco Prime Network Registrar DNS Caching Jumpstart includes the Cisco Prime Network Registrar DNS Caching Server.

Q. What are the benefits of Cisco Prime Network Registrar Jumpstart?

A. Cisco Prime Network Registrar Jumpstart is designed to help network operators address the challenges of network and device growth, the transition to IPv6, and the reduction of operating expenses (OpEx).The solution is fast and easy to implement with low startup costs. DHCP and DNS services can be immediately turned on, configured, and integrated into the network service for fast time to value. The Cisco UCS C220 M3 server provides superior scale and performance in a compact form factor, and the application is preinstalled as a virtual machine, providing support for virtualized data centers. The solution grows with the business; the appliance ships with 1000 permanent IP node licenses, and customers may buy additional licenses to support up to 500,000 IP nodes with this single Cisco UCS server. Finally, Cisco Prime Network Registrar Jumpstart is an integrated solution from one vendor, on one box - all supported by Cisco.

Q. How many IP nodes are included with Cisco Prime Network Registrar Jumpstart?

A. Cisco Prime Network Registrar Jumpstart for DHCP and DNS Authoritative includes a base license of 1000 IP nodes. This means that “out of the box,” users can assign up to 1000 DHCP leases and 1000 DNS resource records.

Cisco Prime Network Registrar DNS Caching Jumpstart includes a single caching DNS license.

Q. Can additional IP nodes be added to the 1000 count base license that is shipped with Cisco Prime Network Registrar Jumpstart?

A. Yes. If a network has more than 1000 IP nodes, operators can order additional licenses to cover the remaining IP nodes. Cisco recommends running up to 500,000 active IP nodes for the standard configuration and not to exceed a 1,000,000 active IP node count on a single Cisco UCS server. For networks with greater than 500,000 IP nodes, Cisco recommends deploying additional appliances for optimized performance. Cisco also recommends that customers purchase additional appliances for failover situations.

Network settings (lease duration and other lease settings) and performance requirements may affect the total IP node count.

Information concerning licensing for additional IP nodes can be found in the Cisco Prime Network Registrar data sheet.

Q. What operating system runs on the Cisco UCS server?

A. Cisco Prime Network Registrar Jumpstart ships preinstalled with the CentOS Linux operating system version 6.x. The Jumpstart appliance also supports Red Hat Enterprise Linux versions 5 or 6 which can be installed on another virtual machine.

Q. What are the performance expectations?

A. Performance is dependent on a variety of factors. Initial performance testing has shown the following performance characteristics. Note that these numbers were demonstrated on a system for which few of the more advanced features of Cisco Prime Network Registrar were configured (for example, no DHCP lease history, no DHCP failover). In an actual deployment, performance results will vary from those shown below.

Each of the following tests was run individually - they were not run simultaneously.

- DHCPv4:
  - New leases: 4293/second
  - Granting leases to returning clients: 19,798/second
- DHCPv6:
  - New leases: 1499/second
  - Prefix delegation: 3491/second
  - Granting leases and prefixes to returning clients: 16,254/second
- DNS Query:
  - New resource records: 43,640 queries/second
  - Returning resource records: 70,588 queries/second
- DNS Caching:
  - Up to 160,000 queries/second

Q. Cisco Prime Network Registrar provides DHCP and DNS functionality for Cisco Broadband Access Center. Is Cisco Broadband Access Center preinstalled on Cisco Prime Network Registrar Jumpstart?

A. No, Cisco Broadband Access Center is not preinstalled on Cisco Prime Network Registrar Jumpstart; however it does provide full support for Linux and Cisco UCS. Red Hat Enterprise Linux 5 (RHEL 5) and Cisco UCS support is now extended to all components of the Cisco Broadband Access Center product including the regional distribution unit (RDU) and the Kerberos Key Distribution Center (KDC).

Q. What is the value of introducing a virtualization layer with VMware ESXi between the operating system and the hardware if the operator has no plans to run additional virtual machines?

A. There is considerable value in running the Cisco Prime Network Registrar virtual machine on top of VMware ESXi instead of running the operating system directly on the hardware. The value in this case is not realized so much during day-to-day operations as it is when conditions change or performance weakens. Operators routinely find that the load that they have placed on a particular server has grown beyond what that server can handle as network traffic levels increase and requirements change. At some point, an operator may wish to move Cisco Prime Network Registrar to a larger hardware base. While this task is straightforward in the traditional model where the operating system runs on bare hardware, it is time consuming at best, incurs some risk, and may be hard to fit into a maintenance window. However, in a virtualized environment, such as that provided with the Cisco Prime Network Registrar Jumpstart appliance, the operator can simply shut down the virtual machine, use VMware tools to copy the virtual machine to another VMware platform, and then turn it on. This can reduce a complicated and time-consuming task to one that takes only a few minutes.

Q. Can additional virtual machines run on the Cisco Prime Network Registrar Jumpstart appliance? It comes with VMware ESXi installed.

A. Yes, additional virtual machines can run on the Cisco Prime Network Registrar Jumpstart appliance, assuming sufficient resources (CPU, memory, disk space, disk bandwidth) are available to support them. Running a Cisco Network Registrar regional cluster virtual appliance on the hardware (along with the preinstalled Cisco Prime Network Registrar virtual machine) is one example. Recognize that both the DHCP and DNS servers included in the Cisco Prime Network Registrar Jumpstart appliance are usually constrained in their performance by the bandwidth of the disk. You can see this in the performance numbers above, where the new clients for DHCP require a disk write but granting leases to returning clients does not require any disk access. Thus, it is recommended that operators ensure there is sufficient disk bandwidth available for all of the virtual machines they might want to run.

Q. What support is available with Cisco Prime Network Registrar Jumpstart?

A. SMARTnet® support applies to the hardware. Software Application Support (SAS) is available for the Cisco Prime Network Registrar application.

Q. What type of warranty does the appliance carry?

A. The product ships with a standard 90-day hardware warranty.

Q. Where and when can I obtain more information?

A. For more information about Cisco Prime Network Registrar Jumpstart, go to http://www.cisco.com/go/jumpstart-nr, contact your local account representative, or send an email to ask-networkregistrar@cisco.com.

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