Cisco Network Registrar 7.0

Cisco® Network Registrar® 7 is a full-featured Domain Name System (DNS)/Dynamic Host Configuration Protocol (DHCP) system that provides scalable naming and addressing services for enterprise and service provider networks. It significantly improves the reliability of naming and addressing services for enterprise networks. Cisco Network Registrar provides scalable DNS and DHCP services for hundreds of thousands of devices in cable networks and forms the basis of a DOCSIS® cable modem provisioning system. Additionally, Cisco Network Registrar continues to play an important role in service activation for data, voice-over-IP (VoIP), and mobile services.

The scalable deployment architecture of Cisco Network Registrar consists of several local clusters and one regional cluster. The local cluster is deployed in the network to handle DNS and DHCP services, whereas the regional cluster is usually deployed at the data center or the network operations center (NOC) to centrally manage the local clusters.

The regional cluster implements many IP address management (IPAM) features to help users reduce operational costs. With IPAM, Cisco Network Registrar administrators can control and monitor DNS and DHCP servers from a centralized location. This capability eliminates many manual, repetitive, and error-prone tasks in configuring the local servers deployed in the network and allows for a single point of data aggregation and delegation.

Cisco Network Registrar 7.0 introduces new features for improved usability, better lease reservation performance, and an enhanced IPv6 capability to facilitate DOCSIS 3.0 deployment.

New Features

Cisco Network Registrar is based on a distributed architecture that delivers the highest DNS and DHCP performance in its class. With the latest release, Cisco Network Registrar continues to further heighten its leadership with the following new features:

- Configuration wizard: A configuration wizard helps users navigate through different Cisco Network Registrar configuration steps. With the wizard, users can easily perform DHCP and DNS configuration by entering the parameters that are essential for the configuration. This is the basic configuration mode. The advanced mode is still available for users with more in-depth experience of DNS and DHCP configuration. The main objective of the configuration wizard is to ease the configuration of DNS and DHCP services. Instead of presenting a screen with many fields to complete, the configuration wizard only asks the user for the mandatory parameters. For users who are new to Cisco Network Registrar, the configuration wizard provides a much more friendly and much less intimidating interface than the advanced mode.
- Real-time server status dashboard: The dashboard provides an at-a-glance, real time indicator of the server health, system metrics, alarms and alerts, and inventories of the Cisco Network Registrar server. The dashboard displays graphs for monitoring DHCP and DNS general information, throughput, and error data that can impact network operation. To

measure address usage over time, the dashboard can collect DHCP utilization information for a time period and present graphs showing trends that are useful for capacity planning. The status dashboard provides all the information that is critical to the daily operations of Cisco Network Registrar DNS and DHCP servers.

- Searching capability improvement: Users can search for an IP address and retrieve the relevant information associated with the address. Users can find out the current state of the address, the scope to which it belongs, and the date and time the lease was granted. Users can start the search by entering the IP address or a MAC address that is associated with the IP address.
- Carrier-class lease reservation performance: For users with needs for static IP address assignment, Cisco Network Registrar can handle up to 500,000 lease reservations. Because Cisco Network Registrar supports failover deployment, the enhanced lease reservation synchronizes the lease reservation between the main and the backup server to make sure that any update to the configuration will be populated between these servers. Modification to the reserved lease configuration can be done through the Web UI, a command-line interface (CLI), and the Java Software Development Kit (SDK). Many service providers offer static IP addresses as a premium service. In a metropolitan area, it is very common to see demands for tens of thousands of static IP addresses, and the scalable lease reservation capability of Cisco Network Registrar helps service providers meet this demand.
- Installation wizard: To help users through the installation procedure, the wizard provides assistance on each data point or wherever a decision is required. Default configuration is available to allow users to quickly install Cisco Network Registrar. The wizard summarizes and presents all the entered input to users, thus effectively giving user a chance to review the configuration values before proceeding with the installation.
- Sanity check before installation: Cisco Network Registrar helps ensure that the server has the required minimum memory and disk capacity before allowing the installation process to move forward. The checklist includes the appropriate operating system version, hardware dependencies, and required software components like Java. If the server does not meet all the items on the checklist, the installation will not proceed, thus avoiding potential problems that might arise due to inadequate system resources.
- Installation auditing: Cisco Network Registrar creates a log file that captures all the user input, responses, and error information generated during the installation. If users encounter any problem during the installation, they can diagnose the problem by reviewing the input and output information, which plays back the full installation activities.
- Lease query conformance: Cisco Network Registrar conforms to DHCP lease query per RFC 4388. This allows external devices and processes to query Cisco Network Registrar for information about a lease.
- Enhanced error reporting: Cisco Network Registrar provides a consistent error reporting mechanism to help users better understand and correct any DHCP and DNS problems encountered in the network. Moreover, Cisco Network Registrar simplifies the reporting schemes by eliminating intermediate translations and highlighting the information that is essential for problem identification and correction.
- DHCPv6 enhancements: Cisco Network Registrar expands the DHCP extension capability to include support for DHCPv6. The newly added extension features assist users in classifying client types in IPv6 networks. Cisco Network Registrar also supports dynamic

DNS update per RFC 3315 to allow the Cisco Network Registrar DHCPv6 protocol server to update the DNSv6 zone and records. Users can configure dynamic DNS update through the Web UI, CLI, or the Java SDK. This support simplifies the integration of DNSv6 and DHCPv6 by allowing DNS information to be updated automatically when the client receives or returns a DHCPv6 lease. To differentiate client types, users can allow client-class processing to handle DHCPv6 clients just as they have been doing. The client-class support gives users the option to configure Cisco Network Registrar to differentiate clients and treat the clients accordingly.

- Support for DOCSIS 3.0: The DOCSIS 3.0 support primarily consists of new options that users can configure from the CLI and Web UI that allow Cisco Network Registrar to decode, display, and return the configured values to clients.

  The DOCSIS 3.0 DHCPv6 options are:

  - CableLabs® vendor-specific information options:

    CL_OPTION_ORO (option request)

    CL_OPTION_TFTP_SERVERS (TFTP server addresses)

    CL_OPTION_CONFIG_FILE_NAME (configuration file name)

    CL_OPTION_SYSLOG_SERVERS (syslog server addresses)

    CL_OPTION_TLV5

    CL_OPTION_DEVICE_ID (DOCSIS device identifier)

    CL_OPTION_CCC (client configuration) placeholder for PacketCable™/CableHome™

    Relay agent cable modem termination system (CMTS capabilities and its suboptions (1 = DOCSIS version number)

- DHCPv6 relay agent remote ID option (RFC 4649)
- DHCPv6 relay agent subscriber-ID option (RFC 4580)
- DHCPv6 relay agent assignment notification option (draft-ietf-dhc-dhcpv6-agentopt-delegate)
- DHCPv6 relay agent RADIUS attribute option (draft-ietf-dhc-v6-relay-radius)
- DHCPv6 vendor-specific information PacketCable/CableHome for device class
- DHCPv6 time protocol servers and time offset options (draft-ietf-dhc-dhcpv6-rfc868-servers)

With support for DOCSIS 3.0, Cisco Network Registrar provides Cable multiple service operators (MSOs) the capability to roll out new revenue-generating services.

Ordering Information

Table 1 lists ordering information for Cisco Network Registrar. To place an order, visit the Cisco Ordering Homepage. To download software, visit the Cisco Software Center.

Table 1. Ordering Information

Product Name	Part Number
CNR-7.0-ADD5K	Nwk Reg 7.0, add 5K IP nodes, lic-only
CNR-7.0-ADD10K	Nwk Reg 7.0, add 10K IP nodes, lic-only
CNR-7.0-BASE1K	Nwk Reg 7.0, base license/kit, all pltfms, 1K IP nodes
CNR-7.0-ADD25K	Nwk Reg 7.0, add 25K IP nodes, lic-only

CNR-7.0-ADD50K	Nwk Reg 7.0, add 50K IP nodes, lic-only
CNR-7.0-ADD100K	Nwk Reg 7.0, add 100K IP nodes, lic-only
CNR-7.0-ADD500K	Nwk Reg 7.0, add 500K IP nodes, lic-only
CNR-7.0-ADD1M	Nwk Reg 7.0, add 1M IP nodes, lic-only
CNR-7.0-SDK=	CNR SDK including license
CNR-7.0-UPG-BASE1K	Nwk Reg 7.0, ver upg, bse lic/kit, all pltfms, 1K
CNR-7.0-UPG-A5K	Nwk Reg, 7.0 ver upg, 5K, all pltfm, lic only
CNR-7.0-UPG-A10K	Nwk Reg, 7.0, ver upg, 10K, all pltfm, lic only
CNR-7.0-UPG-A25K	Nwk Reg, 7.0 ver upg, 25K, all pltfm, lic only
CNR-7.0-UPG-A50K	Nwk Reg 7.0, ver upg, add 50K IP nodes, lic-only
CNR-7.0-UPG-A100K	Nwk Reg, 7.0, ver upg, 100K, all pltfm, lic only
CNR-7.0-UPG-A500K	Nwk Reg 7.0, ver upg, add 500K IP, lic-only kit
CNR-7.0-UPG-A1M	Nwk Reg, 7.0, ver upg, 1M, all pltfm, lic only
CNR-UBR-7.0-12K=	CNR V7.0 Cbl Pkg used with Cisco uBR, 12K IP
CNR-UBR-7.0-24K=	CNR V7.0 Cbl Pkg used with Cisco uBR, 24K IP
CNR-UBR-7.0-2K=	CNR V7.0 Cbl Pkg used with Cisco ubR, 2K IP
CNR-UBR-7.0-32K=	CNR V7.0 Cbl Pkg used with Cisco uBR, 32K IP
CNR-UBR-7.0-1K=	CNR V7.0 Cbl Pkg used with Cisco uBR, 1K IP
CNR-UBR-7.0-5K=	CNR V7.0 Cbl Pkg used with Cisco uBR, 5K IP

For More Information

For more information about Cisco Network Registrar, visit
http://www.cisco.com/en/US/products/sw/netmgtsw/ps1982/index.html

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