CW/RME and IPv6 Today

White Paper

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CONTENTS

Introduction

This intent of this paper is to describe how CiscoWorks can currently support IPv6 enabled devices in the network. Products within the CiscoWorks bundle that support IPv6 functionality today are described below. Future developments of CiscoWorks will enhance IPv6 support.

Resource Manager Essentials (RME)

RME is a product within CiscoWorks which consists of various applications such as Inventory, Configuration Management, Software Management, Availability and Syslog. The following sections show how IPv6-capable devices can be managed using IPv4 Transport; using currently shipping versions of RME. RME product documentation can be found at:

http://www.cisco.com/en/US/products/sw/cscowork/ps2073/index.html

User manual and release notes can be read by clicking on the relevant RME version.

Inventory

Inventory is the first module which is used to manage devices within RME. Inventory uses the SNMP credentials of the device to collect device information and manage it. Today, all Cisco IPv6-capable devices are configured as Dual-Stack enabling the use of an IPv4 address for management; RME can use this address to manage IPv6 enabled devices.

Note RME will not display IPv6 addresses assigned to interfaces in the Inventory reports. All other device information included in Custom Reports, Hardware Report, Software Report, Detailed Device Report, Hardware Summary Graph, Software Version Graph, Chassis Slot Summary, Chassis Slot Details, MultiService Port Details and Scan History would be displayed accurately. The user can also group IPv6 enabled devices under a separate view, making it easier to manage and report on IPv6 devices.

Configuration Management

Configuration Management provides tools within RME to make it easy to backup, view, update and track changes to device configurations on all managed devices. The sections below describe ways in which configuration applications can be leveraged for managing an IPv6 device.

Config Archive

Config Archive can be used to backup the configuration of IPv6 enabled devices by using IPv4 transport. Config Archive's "Search Archive by Device" and "Search Archive by Pattern" facility can be used to search for IPv6 related information in the configuration files.

Note: The configuration file for the IPv6 enabled device will show only the IPv6 addresses and commands obtained from show running or show startup. The link-local or the full IPv6 address generated from EUI-64 cannot be displayed since the "show" configuration parameter does not allow that. IPv6 information is found in the relevant configlets in the processed mode; however only the IPv6 information obtained from the "show" command can be seen.

The "Processed" mode makes it easier for the user to look at the configuration file since the commands are grouped according to configlets, e.g. Global, IP, Interface etc. One can also do a search for IPv6 related information in the "Quick View" mode.

NetConfig

NetConfig jobs can be used to configure IPv6 information on multiple devices in the network in a single task. The user can create "Adhoc" or "User Defined" templates for IPv6 related commands and schedule the job for execution. Some of the IPv6 commands the user can execute are listed below.

1.ipv6 access-class ipv6-access-list-name {in | out}

2.ipv6 access-list access-list-name

3.ipv6 enable

4.ipv6 host name [port] ipv6-address1 [ipv6-address2...ipv6-address4]

5.ipv6 neighbor ipv6-address interface-type interface-number hardware-address

6.ipv6 ospf process-id area area-id [instance instance-id]

7.ipv6 route ipv6-prefix/prefix-length {ipv6-address | interface-type interface-number [ipv6-address]} [administrative-distance]

Please reference the following URL for the complete list of IPv6 commands:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/ipv6_vcg.htm

Currently, RME does not have any IPv6 specific templates. The network layer used as transport for NetConfig jobs is IPv4.

Config Editor

Config Editor allows a network administrator to edit a configuration file that exists in the configuration archive. The user can check out the file, change it, and download it to the device by updating the config file with IPv6 related commands.

Net Show

Net Show can be used to periodically run show commands from IPv6 devices and store the output. There are no templates defined specifically for IPv6 commands. However, a user can add IPv6 commands by defining a new command set. The command set can be defined by going to Resource Manager Essentials -> Administration -> Configuration Management -> Network Show -> Define Command Set. The user provides a name and description for the command set, chooses the device category, enters the custom command definitions and adds them to the newly defined command set. Provided below is the list of some common IPv6 commands that the user can add to the IPv6 command set.

1.show ipv6 access-list [access-list-name]

2.show ipv6 interface [brief] [[interface-type interface-number] [prefix]]

3.show ipv6 local pool [poolname [cache]]

4.show ipv6 neighbors [interface-type interface-number | ipv6-address | ipv6-hostname]

5.show ipv6 ospf [process-id] [area-id]

6.show ipv6 ospf [process-id] [area-id] interface [interface-type interface-number]

7.show ipv6 ospf [process-id] [area-id] neighbor [interface-type interface-number] [neighbor-id] [detail]

8.show ipv6 protocols [summary]

9.show ipv6 route [ipv6-address | ipv6-prefix/prefix-length | protocol | interface-type interface-number]

10.show ipv6 routers [interface-type interface-number] [conflicts]

11.show ipv6 traffic

Please reference the following URL for the complete list of IPv6 commands:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/ipv6_r/index.htm

Once the command set has been defined and the commands added to it, go to Resource Manager Essentials -> Administration -> Configuration Management -> Network Show -> Assign Users and assign the command set to the users who would have the authorization to run those commands. The user should then be able to run the NetShow commands in the Execution Mode, Batch mode or from the remote console.

cwconfig

cwconfig commands can be used to manage configuration files for IPv6 enabled device over IPv4 transport. The user can execute all cwconfig commands since the application would be using IPv4 transport.

Software Image Management (SWIM)

SWIM makes it easier to store copies of all Cisco software images running on network devices and helps plan and execute software upgrade to multiple devices. It can also analyze devices against software image requirements to determine device compatibility and make recommendations prior to performing upgrade. All SWIM features would be supported in an IPv6 enabled device since the device will be managed using an IPv4 management address and IPv4 transport.

Syslog

Syslog's sent out by the device are processed by RME; certain types of Syslogs will trigger Inventory Collection and Config Archive. Such actions will continue to work on devices with IPv6 enabled since Syslog messages would have IPv4 address of the managed interface.

Test Details

CMF 2.2 and RME 3.5

Cisco 1721 with Version 12.2(15) T1