Network Management Tool
IPV6 Validation
NASA Integrated Services Network (NISN)
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17 April 06

Direction Given

- Based on the memorandum received from the Office of Management and Budget dated August 2005. All federal agencies were to deliver to OMB a series of milestones involving the implementation of IPV6 by June 2008.

- NISN delivered the first set of milestones involving the hardware inventory of the mission and mission support network.

- NISN engineers surveyed several network management tool vendors to determine IPV6 compliancy.

CiscoWorks 2000/RWAN

Vendor	Cisco Systems
Product(s) used by NISN	CiscoWorks 2000/RWAN
Role of Product(s)	Element management system for Cisco routers and switches.
Type of Contact	Case with vendor: #601609707
Description of current IPV6 Support	**CiscoWorks 2000/RWAN** IPV6 is not supported in this EOL'd product, nor will it be prior to its final obsolescence date.
Description of future IPV6 Support	None expected.
Additional Detail	CiscoView (CV) is a sub-application bundled in with CW2K/RWAN. The highest version of CV available for CW2K/RWAN is 5.5. This is the version of CV we have installed.
Impact Analysis	Many portions of this application become inoperable with respect to IPv6 Cisco devices, including CiscoView.
Future Action	Plan to replace CW2K/RWAN with CW2K/LMS in 1Q2006.

CiscoWorks 2000/LMS

Vendor	Cisco Systems
Product(s) used by NISN	CiscoWorks 2000/LMS
Role of Product(s)	Element management system for Cisco routers and switches.
Type of Contact	Case with vendor: #601609707
Description of current IPV6 Support	**CiscoWorks 2000/LMS** CiscoView 6.1 contains IPv6 functionality with the installation of the IPv6 device package. CiscoView manages IPv6 functionality using Telnet/SNMP over IPv4 transport using dual stacks.
Description of future IPV6 Support	Not applicable.
Additional Detail	CiscoView (CV) is a sub-application bundled in with CW2K/LMS. The highest version of CV available at this writing is 6.1. For a list of devices on which CiscoView 6.1 supports IPv6 functionality, see the IPv6 device package readme file on Cisco.com. http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000_d/comser30/relnotes/cwcs_rnw.htm#wp1099371
Impact Analysis	Since IPv6 support is largely in place within this product, no impact is expected except that associated with testing and potential re-configuration.
Future Action	Plan to replace CW2K/RWAN with CW2K/LMS in 1Q2006.

CiscoSecure ACS

Vendor	Cisco Systems
Product(s) used by NISN	CiscoSecure ACS
Role of Product(s)	Used in conjunction with RSA SecurID to authenticate/authorize logins to Cisco devices.
Type of Contact	Case with vendor: #601609707
Description of current IPV6 Support	This application not affected by the IPv4/IPv6 issue -- the OS will handle network protocol details, and simply relay the request to the application.
Description of future IPV6 Support	Not applicable.
Additional Detail	
Impact Analysis	No impact.
Future Action	None needed.

Cisco Transport Manager

Vendor	**Cisco Systems**
Product(s) used by NISN	Cisco Transport Manager
Role of Product(s)	Element management system for Cisco ONS switches.
Type of Contact	Case with vendor: #601609707
Description of current IPV6 Support	There are two aspects of IPV6 support for CTM. -CTM support of the IPV6 features on an NE, -CTM using IPV6 to talk to its clients and NEs. Cisco supports neither.
Description of future IPV6 Support	IPv6 is not supported on the 15454's TCC currently, nor is it committed in future releases of code at this time.
Additional Detail	
Impact Analysis	If not resolved by June 2008, this could be a problem.
Future Action	Cisco system engineer has submitted a request for IPv6 support on the 15454 and CTC.

eHealth, LiveHealth

Product(s) used by NISN	eHealth, LiveHealth
Role of Product(s)	Statistical analysis of network/device performance and trending.
Type of Contact	Case with vendor: #115072
Description of current IPV6 Support	Concord extends eHealth for SNMP version 3 support via Emanate, the agent from SNMP Research Inc. To add this support to eHealth, Concord requires professional support be costed as part of this upgrade.
Description of future IPV6 Support	Email 5-jul-2005: "We are tentatively planning on support of IPv6 at the end of 2006. Until that time, we will not support discovery and polling of IPv6-enabled Cisco routers and switches."
Additional Detail	Suggestion that follows is from one of the developers at SNMP Research Inc.

Concord extends eHealth for SNMP version 3 support via Emanate, the agent from SNMP Research Inc. Concord requires that professional support be part of this upgrade.

Suggestion is to take a lab instance of eHealth and install SNMP Security Pack on it, and see if we can't make it work ourselves. |
| **Impact Analysis** | |
| **Future Action** | Submit an Engineering Change Request with vendor. |

SYSTEMedge

Vendor	Concord / Computer Associates
Product(s) used by NISN	SYSTEMedge
Role of Product(s)	SNMP agent on Solaris and Windows servers and workstations
Type of Contact	Case with vendor: #115072
Description of current IPV6 Support	Not yet supported.
Description of future IPV6 Support	No timeframe available.
Additional Detail	
Impact Analysis	On a dual-stack system, this could have serious implications.
Future Action	Submit an Engineering Change Request with vendor.

HP OpenView Network Node Manager (NNM) and Extended Topology

Vendor	**Hewlett-Packard**
Product(s) used by NISN	HP OpenView Network Node Manager (NNM) and Extended Topology
Role of Product(s)	Mid-tier management platform.
Type of Contact	Case with vendor: #3211364568
Description of current IPV6 Support	No modification required. The management station must be dual stacked IPv6 and IPv4. Once that is configured, then the setupExtTopo.ovpl must re-executed. Configure the IPv6 seedfile to discover IPV6 devices.
Description of future IPV6 Support	Not applicable.
Additional Detail	"Using Extended Topology", HP manual that includes section on IPv6 configuration: http://ovweb.external.hp.com/ovnsmdps/pdf/j5303-90001.pdf
Impact Analysis	Time to test and configure.
Future Action	None needed except configuration-related.

Correlation Designer

Vendor	**Hewlett-Packard**
Product(s) used by NISN	Correlation Designer
Role of Product(s)	Tool to design event correlation circuits for NNM.
Type of Contact	Case with vendor: #3211364568
Description of current IPV6 Support	Correlation Designer has nothing to do with discovery or polling, so there are no IPV6 issues for this product.
Description of future IPV6 Support	
Additional Detail	
Impact Analysis	No impact.
Future Action	None needed.

JUNOScope

Vendor	**Juniper**
Product(s) used by NISN	JUNOScope
Role of Product(s)	Element management system for Juniper routers.
Type of Contact	Email and telephone
Description of current IPV6 Support	**JUNOScope**
Description of future IPV6 Support JUNOScope	Not applicable.
Additional Detail	Email 19-aug-2005, M. Bankey: "Managing of IPv6 currently is kind of used with IPv4. Most providers aren't ready to do a prime time... HP from the last I saw could monitor IPV6 interfaces et al, but had to do so over IPv4. We can do IPv6 directly. Are you looking at specific vendors, then I can get you more info... The AAAA for DNS is difficult, the WINS support is not there. The network part of IPv6 is easy as in routers, it is the servers and DNS etc... that tend to be the sticking points." Email 19-aug-2005, C. Wyant: "We'd love to help NASA become the first civilian agency to adopt IPv6."
Impact Analysis	Time to test and configure.
Future Action	None needed except configuration-related.

JUNOS

Vendor	**Juniper**
Product(s) used by NISN	M320 routers running JUNOS
Role of Product(s)	WAN Replacement project High Performance Router (HPR)
Type of Contact	Email and telephone
Description of current IPV6 Support	**M320's** All you need to do on the routers is enable it
Description of future IPV6 Support	Not applicable.
Additional Detail	
Impact Analysis	Time to test and configure.
Future Action	None needed except configuration-related.

Micromuse

Vendor	Micromuse
Product(s) used by NISN	Netcool/OMNIbus, RAD, Impact, Webtop, Reporter
Role of Product(s)	Aggregation point for network events from all managed NISN devices.
Type of Contact	None made.
Description of current IPV6 Support	Not applicable. All applications that are currently part of our deployment will have IPv6 protocols handled by the OS.
Description of future IPV6 Support	Not applicable.
Additional Detail	
Impact Analysis	None at this time.
Future Action	Determine whether a Netcool product being considered for deployment (Precision) supports IPv6. Precision performs polling and discovery. Its support of IPv6 is therefore critical.

nGenius Performance Manager

Vendor	NetScout Systems
Product(s) used by NISN	nGenius Performance Manager
Role of Product(s)	Application to manage RMON probes and to generate reports based on data from RMON probes.
Type of Contact	Case with vendor:
Description of current IPV6 Support	IPV6 is supported by RMON probe OS CDM3.0 and CDM3.0.1, in conjunction with PM version 3.0 and PM3.0.1. Exception to this statement is that the support does not extend to host, conversation, and responsiveness data.
Description of future IPV6 Support	IPv6 support expected to be significantly extended in 2006.
Additional Detail	If IPV4 is tunneled in iPV6, NetScout does not currently parse through IPV6 headers to get the tunneled IPV4 hosts/conversations data. Probe's TCP/IP stack does not support having an IPV6 address. Reporting capabilities with respect to IPV6 MIB objects limited to only the stats (packets/octets) for IPV6. There is no Host, Conversation or Responsiveness on IPV6 monitored packets.
Impact Analysis	Potentially major.
Future Action	Submit an Engineering Change Request with vendor.

SecurID ACE Server

Vendor	**RSA Security**
Product(s) used by NISN	SecurID ACE Server
Role of Product(s)	Used in conjunction with RSA SecurID to authenticate/authorize logins to Cisco devices. Used to authenticate logins to UNIX servers and workstations.
Type of Contact	Case with vendor: # C0520053
Description of current IPV6 Support	Vendor states they have done no IPv6 testing. Expect the OS to handle all network protocol details, and to simply relay the request to the application. "We can't say definitively if it will work or not."
Description of future IPV6 Support	Not available.
Additional Detail	
Impact Analysis	Time to test and configure.
Future Action	Lab testing to confirm vendor's assessment.

CIA Agent

Product(s) used by NISN	CIA Agent
Role of Product(s)	Not yet deployed.
Type of Contact	Telephone
Description of current IPV6 Support	An IPV6-enabled version of CIA agent is available now for the Solaris version.
Description of future IPV6 Support	Short lead time is required for Microsoft Windows, Linux, and HP/UX versions of CIAgent
Additional Detail	This vendor considers IPV6 to be a "value-add feature" so they charge extra for it. Modifying our Solaris CIA Agent licenses for IPV6 would be $250 per copy ($300 per copy with support). Throughout their product line, their core technology is called "Brass". They have already extended Brass for IPV6 support. They are now engaged in pushing IPV6 support out to their application layer products. EnterPol - Includes applications to support deployment of SNMPv3, CIAgent. - Available immediately for Solaris, IPv4 support only. - IPv6 support has not yet been developed (see below). - This product is described in a book that was published within the past year: The entry cost for IPv6 for CIAgent for Solaris, Microsoft Windows, Linux, and HP/UX is low, because other customers of SNMP Research have already contracted with them to help fund the development.
Impact Analysis	Minimal. NISN network management is almost entirely based on Solaris servers.
Future Action	Submit an Engineering Change Request with vendor for the Windows platform.

SNMP Security Pack

Vendor	**SNMP Research**
Product(s) used by NISN	SNMP Security Pack
Role of Product(s)	Adds SNMP version 3 support to the SNMP agent residing on Solaris and Windows workstations and servers.
Type of Contact	Telephone
Description of current IPV6 Support	It is not yet available for SNMP Security Pack.
Description of future IPV6 Support	They cannot offer a Q/Y for its release, though D. Spakes stated it will likely be available in 2006.
Additional Detail	As noted elsewhere, Concord/CA extends eHealth for SNMP version 3 support via Emanate, the agent from SNMP Research Inc. **Remote Forwarder** - This add-in will be provided to NASA by the vendor at no extra cost due to provisions in our maintenance contract. - This is a module used in conjunction with the "Distributed" version of SNMP Security Pack to enable management of SNMP devices located behind firewalls that block UDP. - Beta Test ongoing. GA version will be released in conjunction with upcoming Release 17.1 upgrade - IPv6 support has not yet been developed.
Impact Analysis	Potentially major.
Future Action	Submit an Engineering Change Request with vendor.

Solaris 8, Solaris 9, Solaris 10

Vendor	Sun Microsystems
Product(s) used by NISN	Solaris 8, Solaris 9, Solaris 10
Role of Product(s)	Operating System on Sun servers and workstations.
Type of Contact	Case with vendor: #64648738
Description of current IPV6 Support	Already present in product.
Description of future IPV6 Support	Not applicable.
Additional Detail	Important to be up to date on the ifconfig and libnsl patches prior to the IPV6 reconfiguration. Also, any DNS and NIS+ updates should be taken care of. Step-by-step procedure for migration in the solaris 8 sysadmin guide (vol3) on sunsolve: http://docs.sun.com/app/docs/doc/806-0916 Also available Infodoc #24643. The short answer for "Can I convert w/o re-loading the OS": Yes. However one would most likely reboot multiple times to ensure that the configuration is correct and that the appropriate services are starting and interfaces being plumbed.
Impact Analysis	Time to test and configure.
Future Action	None needed except configuration-related.

Next Steps

Name	Description	Expected Date	Replacement
ISS	Application provides system vulnerability analysis and levels.	None Give	Foundstone
RRDTool	SNMP pollinng for statistics .	None Given	Requires Investigation
Cricket	Web graphics utility	None Given	Requires Investigation
mySQL	Database	None Given	Requires Investigation
TCPWrappers	Wrap service with IP based access control	None Given	Requires Investigation
SE Toolkit	Performance reporting for services and workstations that go beyond what is available in SNMP.	None Give	Requires Investigation