Data Sheet

# Cisco Network Planning Solution Version 1.1

**Cisco® Network Planning Solution (NPS) helps users to optimize network capacity and performance, ensure network resiliency even during unplanned changes, improve application and service continuity, plan for new technology deployments, and validate planned configuration changes. Cisco NPS helps reduce the risks associated with network growth, migration, and consolidation.**

## Product Overview

The network has become a critical business resource, and organizations need strategies that strengthen business continuity through improved network and application resilience while reducing operational expense. This includes the ability to predict, avoid, and mitigate against costly network and application service disruptions, and the confidence to quickly adapt the network to changing business opportunities.

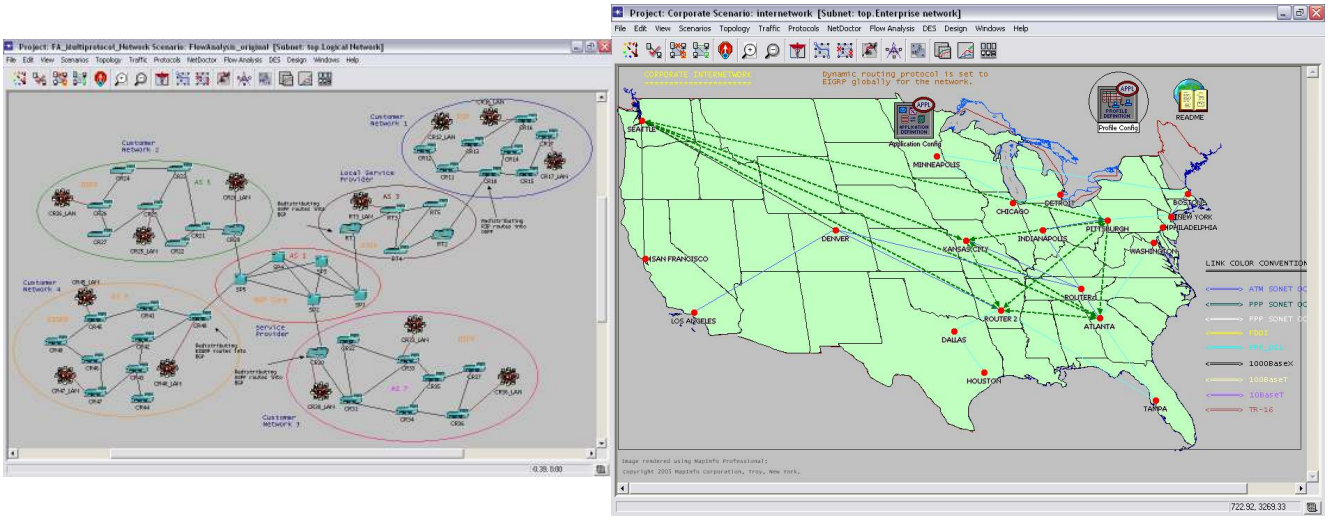
Cisco NPS is part of the Cisco Network Application Performance Analysis (NAPA) Solution, an innovative combination of sophisticated management tools and services from Cisco Systems® which provide IT management with a holistic view of the interaction between network resources and application performance. Cisco NAPA Solution redefines how enterprises can monitor and manage application performance and network services to support business initiatives.

Cisco NPS is a vital tool for improving network availability as well as the continuity of applications and services. It operates on a high-fidelity software model of the production network, accurately simulating the behavior of routers, switches, firewalls, and applications to enable a broad range of change impact ("what-if") analyses. Actionable information derived from analysis is used to make automated or guided configuration changes in the network. Using Cisco NPS removes the guesswork in the rollout of new applications and services, reduces costs by eliminating manual and time-consuming tasks, and can lower capital expenses. With Cisco NPS you can:

- Plan for network and traffic growth, consolidation, and migration
- Maintain an online, continuously available repository of network data
- Automatically size links for network performance and resilience
- Plan for new technologies such as VPNs and voice over IP (VoIP)
- Forecast traffic based on trends
- Predict the impact of node and link failures on traffic flows and resource usage
- Optimize network topology for projected growth

Cisco NPS provides a graphical view of the network topology (Figure 1), with the ability to access detailed information about node and link attributes. The network model can be modified through the GUI to predict the impact of changes in topology, device configuration, and traffic. Configuration changes can also be introduced into the model through a Cisco IOS® Software command-line interface (CLI). Study results from Cisco NPS are provided in Web (HTML), MS Word (.rtf), or Extensible Markup Language (XML) reports.

**Figure 1**
Network Topology View from Cisco NPS




## Key Features and Benefits

### High-Fidelity Network Data Model

Cisco NPS includes a Virtual Network Data Server that automatically maintains a detailed data model of the production network, including topology, configuration, and traffic. It collects and intelligently merges detailed network data from a broad range of sources, reconciling conflicts based on user-configurable priorities. Information can be obtained online from network devices including Cisco routers, Cisco Catalyst® switches, the Cisco PIX® Security Appliance, and devices from many other vendors. Built-in software intelligence also allows data to be imported from CiscoWorks, Cisco Network Connectivity Center, Cisco WAN Manager, Cisco NetFlow FlowCollector, and numerous third-party sources.

### Advanced Network Planning and Analysis

Cisco NPS accurately models a broad range of Layer 2 and Layer 3 technologies, Cisco devices, and third-party devices. Link utilization or end-to-end flow data can be introduced into the network model to perform accurate traffic-flow simulations. Multilayer failure analysis determines which traffic flows will be most affected by outages, and where resulting bottlenecks are likely to occur in a network. You can subject the entire network to an automated “reachability” analysis to identify potential connectivity problems. Cisco NPS also helps you predict the impact of deploying new technologies, protocols, or hosted applications, including VPNs, VLANs, and more. A VoIP Readiness Assessment guides you through a step-by-step analysis, scoring the network’s readiness for VoIP deployment.

### Automated Network Design and Optimization

Cisco NPS features an integrated design framework with standard, configurable models for common design operations. Configurable design actions can be parameterized, sequenced, and saved for repeated execution as a compound task.

- *Capacity planning* analyzes trends in the current traffic patterns and projects future traffic loads.
- *Resilient link dimensioning* determines the optimum network-wide link capacity in an existing topology to support projected traffic flows under normal and failure conditions. A failure case can encompass selected links, nodes, and shared risk groups.

- *Topology design* determines link placement for a ring backbone, a spanning tree, or dual spanning trees. Topology design actions can be used to design new networks as well as perform incremental expansion of an existing network.
- *QoS planning* automatically sets IP QoS parameters and sizes the queue bandwidths or weights on IP interfaces based on the queue load and queue configuration rules.

### Rules-Based Configuration Analysis

Proposed network changes can be validated before deploying them. Cisco NPS features a powerful rules-based engine that systematically checks the entire network model, diagnosing device misconfigurations, errors, policy violations, and inefficiencies. Cisco NPS processes and interprets device configurations the same way that production network devices do during operation. Expert knowledge of network devices, protocols, and routing behavior enables networkwide analysis of connectivity and resiliency, unlike other analysis tools that are limited to simple syntax checks on a single device at a time. A nonintrusive test of network security detects gaps in network defenses and pinpoints misconfigured nodes that block valid network traffic. Customizable reports can demonstrate compliance with regulatory and IT Governance requirements, such as Sarbanes-Oxley, the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the Federal Information Security Management Act (FISMA), and others.

Cisco NPS is provided with hundreds of standard checks that reflect industry best practices published by Cisco, U.S. government agencies, and others. Rules are provided with source code, sample policy templates, and an integrated authoring environment to help incorporate your organization's best practices. Standard checks encompass:

- IP addressing and routing
- Protocol configurations, including Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Interior Gateway Routing Protocol (IGRP), Enhanced IGRP (EIGRP), and Border Gateway Protocol (BGP)
- Route maps and access control lists (ACLs)
- Hot Standby Router Protocol (HSRP)
- Simple Network Management Protocol (SNMP), system logging, and router administration
- Firewall configurations and security protocols including authentication, authorization, and accounting (AAA), Kerberos, Network Address Translation (NAT), RADIUS, and TACACS+
- VPNs, tunnels, and VLANs
- Quality of service (QoS) and more

## Service Provider Module (SPM)

The optional Cisco NPS Service Provider Module (NPS-SPM) extends its functionality to encompass service provider-related technologies and protocols, such as MPLS, Intermediate System-to-Intermediate System (IS-IS), and large interconnected BGP networks. Cisco NPS-SPM provides support to automate planning for MPLS networks, including Label Switched Path (LSP) topology design, LSP link sizing, and introducing traffic engineering into the network.

## System Requirements

Cisco NPS contains a Design and Analysis engine and Virtual Network Data Server. The Design and Analysis engine is typically implemented on the user desktop. The Virtual Network Data Server is generally implemented on a dual-processor platform with the prerequisite database environment. The Virtual Network Data Server can be used in a single network-management environment with an additional Cisco NPS license added per concurrent user to provide design and analysis functions. Table 1 lists the system requirements for Cisco NPS.

**Table 1.** System Requirements

| | Design and Analysis | Virtual Network Data Server |
|---|---|---|
| **Disk space** | 20 GB | 80 GB (or larger depending on network size and data retention practices) |
| **Hardware** | • Intel Pentium 3, 4, or equivalent 1.5+ GHz (Windows)<br>• Sun Ultrasparc II or III (Solaris) | Dual 3.0+ GHz Intel Pentium 4 or Xeon with 800-MHz FSB |
| **Memory** | 1 GB (minimum) | 4 GB (minimum) |
| **Software** | Only English-language versions are supported:<br>• Windows Server 2003<br>• Windows 2000 Server<br>• Windows XP Professional<br>• Windows 2000 Professional<br>• Solaris 8<br>• Solaris 9 | Only English-language versions are supported:<br>• Windows Server 2003<br>• Windows 2000 Server<br>• Windows XP Professional<br>• Windows 2000 Professional |
| **Prerequisites**<br>(not included with Cisco NPS 1.1) | | Only English-language versions are supported:<br>• Oracle 9i Release 2 Database (9.2.0.1 or higher)<br>• Oracle 9i Application Server (AS) TopLink patched to Release 9.0.3.5 |

## Ordering Information

Cisco Network Planning Solution 1.1 is available for purchase through regular Cisco sales and distribution channels worldwide. To place an order, contact your Cisco representative or visit http://www.cisco.com.

Cisco NPS 1.1 licensing options are described in the Cisco NPS 1.1 product bulletin, available at: http://www.cisco.com/en/US/products/ps6363/prod_bulletins_list.html.

## Service and Support

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## For More Information

For more information about the Cisco Network Planning Solution, contact your Cisco representative or visit: http://www.cisco.com/en/US/products/ps6363/index.html.


**Corporate Headquarters**
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

**European Headquarters**
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

**Americas Headquarters**
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

**Asia Pacific Headquarters**
Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799


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