



# CHAPTER 1

## General Overview

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This module provides a general overview of the Cisco Application Performance Assurance solution. It introduces the Cisco Application Performance Assurance concept and the Application Performance Assurance capabilities.

It also briefly describes the hardware capabilities of the Network Module Enhanced Application Performance Assurance (NME-APA) and the Cisco specific applications that together compose the total Cisco Application Performance Assurance solution.

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## Information About the Cisco Application Performance Assurance Concept

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## The Cisco Application Performance Assurance Solution

The Cisco Application Performance Assurance solution is delivered through a combination of purpose-built hardware and specific software solutions that address various traffic management challenges faced by enterprises. The NME-APA is designed to support classification and analysis of Internet/IP traffic.

Cisco Application Performance Assurance enables enterprises to accommodate more traffic while capitalizing on their existing infrastructure. With the power of Application Performance Assurance, enterprises have the ability to analyze IP network traffic at high speeds. The Cisco Application Performance Assurance solution also gives enterprises the tools they need to identify and target overhead content-based traffic and to disable their delivery.

## Application Performance Assurance for Enterprises

Enterprises of any industry must find new ways to get maximum leverage from their existing infrastructure, while differentiating their offerings with enhanced IP capabilities.

The Cisco Application Performance Assurance solution adds a new layer of service intelligence and control to existing networks that can:

- Report and analyze network traffic at user and aggregate level for capacity planning
- Identify network abusers who are violating the Acceptable Use Policy
- Identify peer-to-peer and NNTP (news) traffic
- Integrate Application Performance Assurance solutions easily with existing network elements and BSS/OSS systems

## Cisco Application Performance Assurance Capabilities

The core of the Cisco Application Performance Assurance solution is the application for managing traffic including:

- User and application awareness—Application-level drilling into IP traffic for real-time understanding of usage and content at the granularity of a specific user.
  - User awareness—The ability to map between IP flows and a specific user in order to maintain the state of each user transmitting or receiving traffic through the NME-APA.
  - Application awareness—The ability to understand and analyze traffic up to the application protocol layer (Layer 7).

For application protocols implemented using bundled flows (such as FTP, which is implemented using Control and Data flows), the NME-APA understands the bundling connection between the flows and treats them accordingly.

- Programmability—The ability to quickly add new protocols and easily adapt to new services and applications in the ever-changing enterprise environment. Programmability is achieved using the Cisco Service Modeling Language (SML).

Programmability provides an easy upgrade path for network and application growth.

- Robust and flexible back-office integration—The ability to integrate with existing third-party systems at the enterprise, including provisioning systems, user repositories, billing systems, and OSS systems. The NME-APA provides a set of open and well-documented APIs that allows a quick and robust integration process.
- Scalable high-performance service engines—The ability to perform all these operations at 45Mbps bi-directional.

## The Application Performance Assurance Technology

The network devices are capable of performing application-layer stateful-flow inspection of IP traffic, and controlling that traffic based on configurable rules. The network device uses FPGA simulation to go beyond packet counting and delve deeper into the contents of network traffic. Providing programmable, stateful inspection of bidirectional traffic flows and mapping these flows with user ownership, it provides real-time classification of network usage. This information provides the basis of the advanced

traffic-control and bandwidth-shaping functionality. Where most bandwidth shaper functionality ends, the Cisco Application Performance Assurance solution provides more control and shaping options, including:

- Layer 7 stateful packet inspection and classification
- Robust support for over 600 protocols and applications, including:
  - General—HTTP, HTTPS, FTP, TELNET, NNTP, SMTP, POP3, IMAP, WAP, and others
  - P2P file sharing—FastTrack-KazaA, Gnutella, BitTorrent, Winny, Hotline, eDonkey, DirectConnect, Piolet, and others
  - P2P VoIP—Skype, Skinny, DingoTel, and others
  - Streaming and Multimedia—RTSP, SIP, HTTP streaming, RTP/RTCP, and others
  - Enterprise protocols—Citrix, Oracle, SAP, MS SQL, MS Exchange, Instant Messengers, and others
- Programmable system core for flexible reporting
- Transparent network and BSS/OSS integration into existing networks
- User awareness that relates traffic and usage to specific customers

## Information About Management and Collection

The Cisco Application Performance Assurance solution includes a complete management infrastructure that provides the following management components to manage all aspects of the solution:

- Traffic Management
- Reporting Facility

These management interfaces are designed to comply with common management standards and to integrate easily with existing OSS infrastructure.

## Device Management

Cisco provides network Fault, Configuration, Performance, and Security Management.

Three interfaces are provided for network management:

- Graphical User Interface (GUI)—Accessible through the intranet, the GUI is used for configuration and security functions.
- SNMP—Provides fault management (via SNMP traps) and performance monitoring functionality.
- Command-line interface (CLI)—Accessible through a Telnet connection, the CLI is used for configuration and security functions.

## User Management

Where the Cisco Application Performance Assurance solution tracks usage on an individual user basis, the Cisco Application Performance Assurance solution also provides the capability to store user information in a local database.

## Class Configuration Management

Class configuration management is the ability to configure the general class definitions of a network application. A class configuration file containing settings for traffic classification, accounting and reporting, and control is created and applied to the NME-APA. The APA Device Console application provides a tool to distribute these configuration files to devices. This simple, standards-based approach makes it easy to manage multiple devices in a large network.

The APA Device Console provides an easy-to-use GUI to edit and create these files.

## Data Collection

The Cisco Application Performance Assurance solution generates usage data and statistics and manages them as Raw Data Records (RDRs), using a simple TCP-based protocol (RDR-Protocol). The Cisco Application Performance Assurance solution implements the collection system and processing them on the local machine. The data is then stored for analysis and reporting functions, and for the collection and presentation of data to additional OSS systems.