



Cisco Application Performance Assurance (APA) Network Module



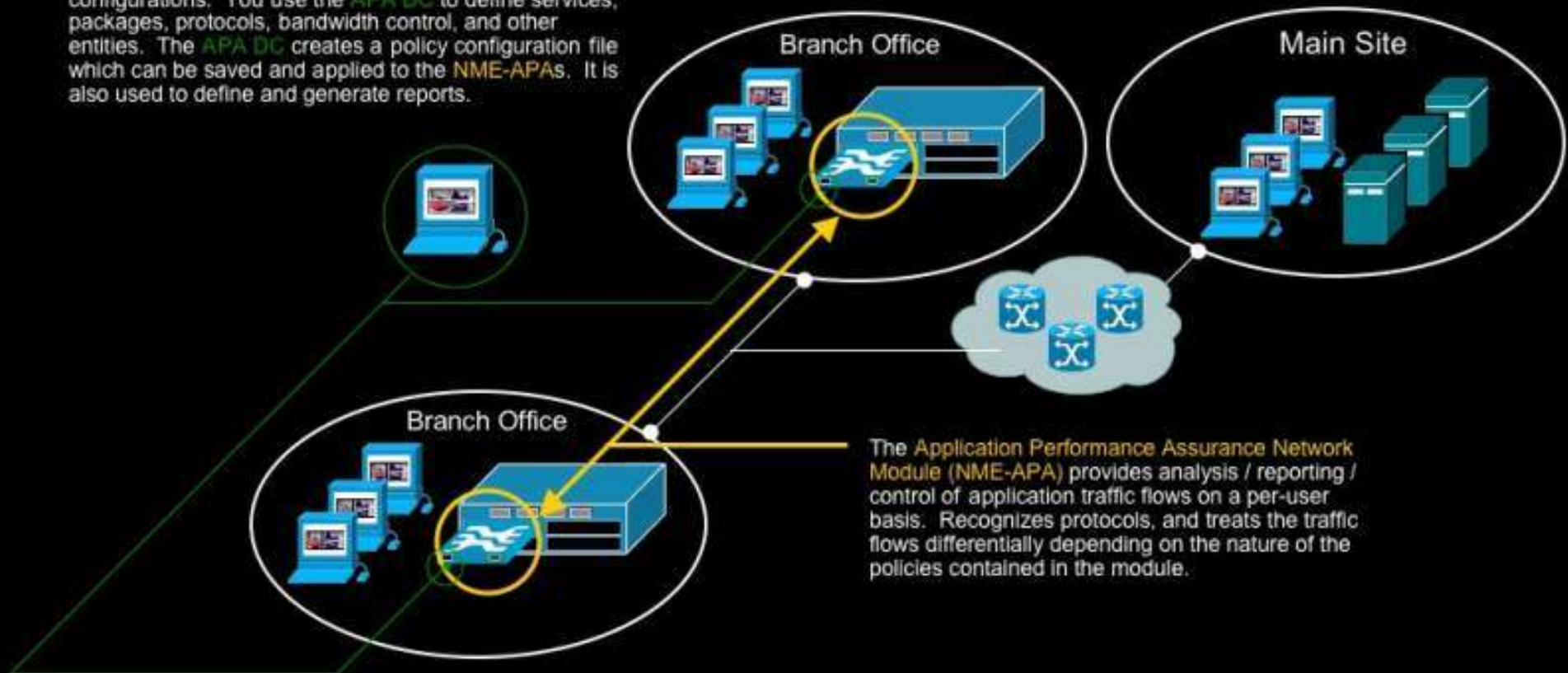
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Ožujak 2008

APA Network Module - Overview

- ▶ ISR module that addresses the need for traffic visibility and control at the enterprise branch office
- ▶ Enhances the capability of the ISR product line, providing incremental revenue and another means of countering competitive threats from dedicated WAN Optimization companies
- ▶ Capabilities consist of the following:
 - ▶ Excelsior Release (Currently Available) - visibility and reporting on per-application and per-user bases
 - ▶ Galaxy Release (July'08) - SW upgrade from Excelsior Release, adds ability to facilitate control over traffic flows
 - ▶ Ambassador Release (1HCY'09) - integrated deep message inspection capability, sophisticated application productivity measurements
- ▶ Addresses needs of both the SP and enterprise markets :
 - ▶ SP - managed service that provides sell-up from managed router services
 - ▶ Enterprise - control over application performance in branch offices

APA Network Module - Components

Application Performance Assurance Device Console (APADC) is used to create, modify, and apply service configurations. You use the **APA DC** to define services, packages, protocols, bandwidth control, and other entities. The **APA DC** creates a policy configuration file which can be saved and applied to the **NME-APAs**. It is also used to define and generate reports.



The **Application Performance Assurance Network Module (NME-APA)** provides analysis / reporting / control of application traffic flows on a per-user basis. Recognizes protocols, and treats the traffic flows differentially depending on the nature of the policies contained in the module.

Solution Components (cont'd)

- ▶ The NME-APA is responsible for the following functions:
 - ▶ Traffic classification using Deep Packet Inspection of the traffic
 - ▶ User Awareness
 - ▶ Reporting Data collection
 - ▶ Policy Enforcement (Galaxy)
- ▶ Application Performance Assurance Device Console (APADC) is responsible for the following functions:
 - ▶ Device Management of the NME-APA units
 - ▶ Service and Policy (Galaxy) Configuration
 - ▶ User Management
 - ▶ Report Generation

NME-APA Hardware

Hardware Feature	NME-APA
Processor	1.0 Ghz Intel Celeron
RAM	512 MB (or 1GB)
HD Capacity	80 GB SATA Hard Disk
Internal Network Interfaces	10/100/1000 GE connectivity to router backplane
External Network Interfaces	10/100/1000 GE
Flash Memory	16MB
Form Factor	Single Width



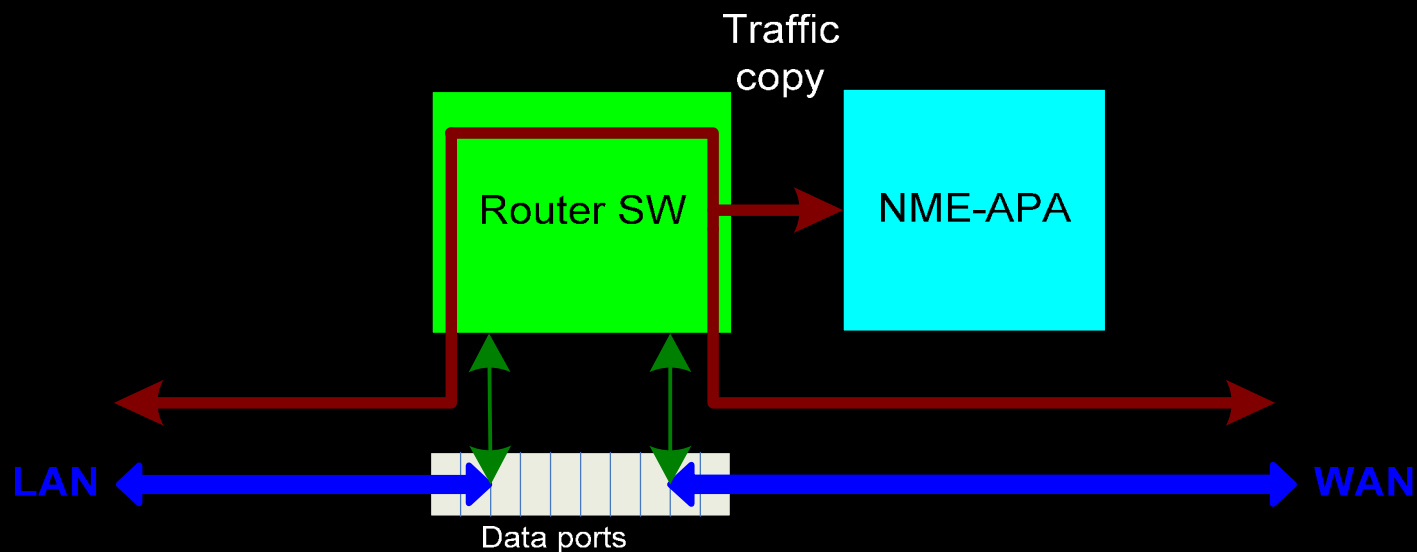
- ▶ Externally-accessible network module designed for 2800- and 3800-series ISRs
- ▶ Hot-swappable on 3800-series router without reboot
- ▶ Single module supported for each ISR

NME-APA - HW / SW Requirements



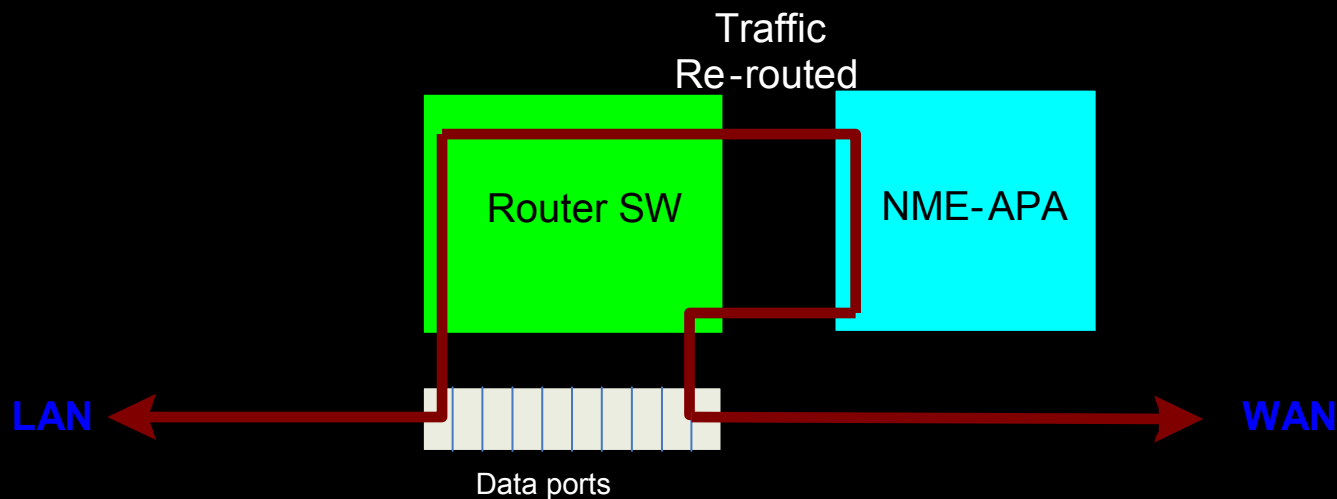
IOS Traffic Diversion (Excelsior SW Release)

- ▶ Traffic Diversion from IOS Router to NME-APA module:
 - ▶ Promiscuous Mode - ISR makes a copy of the packet and then diverts it to the NME-APA module.
 - ▶ The NME-APA application has two virtual links, one each on the User and Network side
 - ▶ IOS Router interfaces are mapped into one of the two endpoints.



IOS Traffic Diversion (Galaxy SW Release)

- ▶ Traffic Diversion from IOS Router to NME-APA module:
 - ▶ Inline Mode - Packets going through designated interfaces are re-routed to NME-APA for traffic shaping and control.
 - ▶ All monitored interfaces must be either all promiscuous or all inline.
 - ▶ Traffic diversion supported in CEF and Process Switching path, but not in Fast Switching path

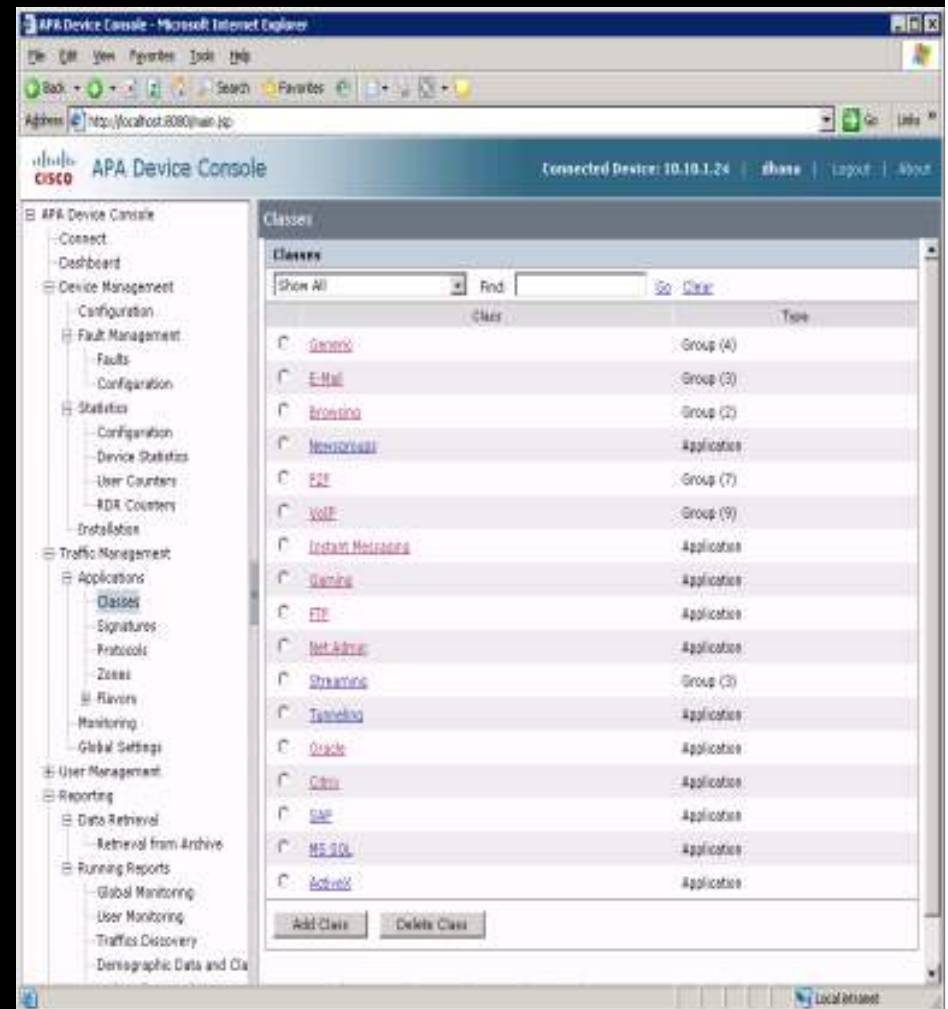


IOS Traffic Diversion (cont'd)

- ▶ NME-APA cannot understand encrypted/compressed packets.
- ▶ In Egress path, the NME-APA monitoring point is before Encryption, NAT, Compression and similar router features.
- ▶ In Ingress path, the NME-APA monitoring point is after Decryption, NAT, Decompression and similar router features.

Application Classification

- ▶ **Stateful Deep Packet Inspection (L3-7)**
 - ▶ Port hopping applications (P2P)
 - ▶ New Signature based Enterprise protocols
 - ▶ Layer 7 attribute classification
- ▶ **Application Support**
 - ▶ Enterprise Protocols: Oracle, Citrix, SAP, MS SQL, AIM, ActiveX, MS Exchange, MSN Messenger, Yahoo Messenger, Google Talk
 - ▶ P2P: BitTorrent, KazaA, eDonkey, ...
 - ▶ Voice: Skype, Vonga, SIP/MGCP, ...
 - ▶ Internet: HTTP, NNTP, RTSP, ...
- ▶ **Programmable**
 - ▶ Accurate classification
 - ▶ Rapid protocol support
- ▶ **Hardware Accelerated**
 - ▶ Performance
 - ▶ Minimal latency



User Awareness

Mode	Description	Use Case
No awareness	No user awareness. Aggregated traffic Monitoring/Control on the physical/virtual link	Global analysis and Control
Anonymous User Mode	User is defined as an anonymous group which is identified by an IP range	User prioritization
User Mode	Differentiated policy applied individually to each subscriber Excelsior supports User Mode with Static Configuration Galaxy will support dynamic user management by integration with AAA/DHCP/LDAP/Microsoft Active Directory	Differentiated Application Access

▶ User Limits

- ▶ 250 for 2800-Series ISRs
- ▶ 500 for 3800-Series ISRs

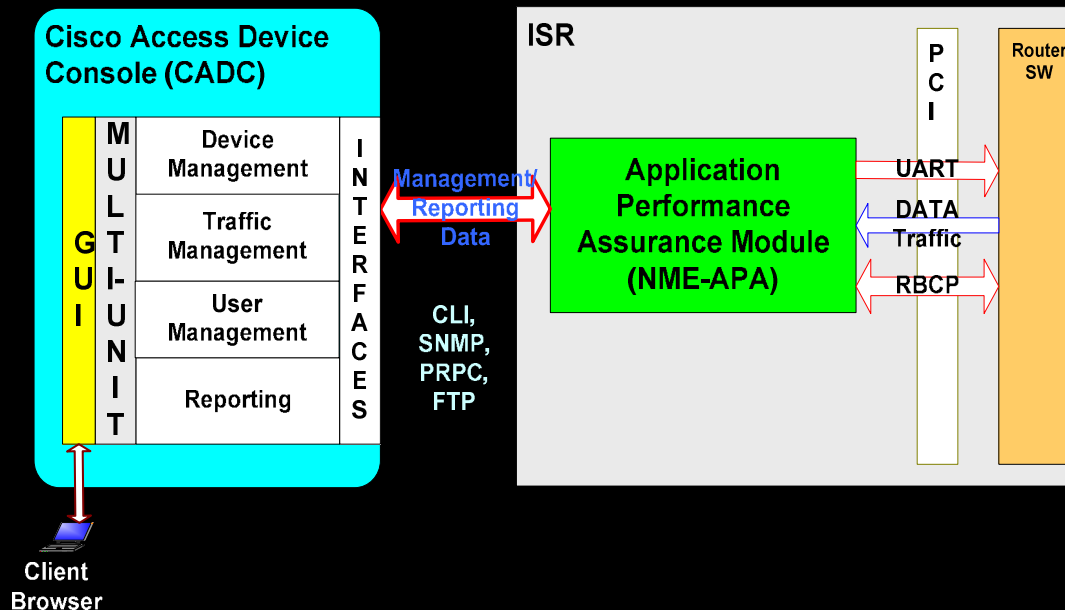


Performance and Capacity (Target)

	Excelsior	Galaxy
Operational mode	Monitor	Monitor and Control
Service Rate	90 Mbps (Aggregate Bi-directional)	60-90 Mbps
PPS	18750	TBD
Latency	N/A	10 msec
Memory	1GB	1GB
Maximum Users	250 (2800-series) or 500 (3800-series)	250 (2800-series) or 500 (3800-series)
Maximum Flows	5000	5000
Maximum IPs	1000	1000

APA Device Console (APADC)

- ▶ Web based Element Management Application for NME-APA
- ▶ Multi-unit Management capability is supported for certain Service Configuration operations
- ▶ One executable installs complete package



Application Visibility and Reporting

▶ Visibility

- ▶ Classification of over 1000 protocols, including Oracle, SAP, IM protocols, broadband voice protocols
- ▶ Also includes vertical market protocols, such as FIX, DICOM, HL7, WebCT, others
- ▶ Protocol Packs issued every 2-3 months, containing both new protocols and protocol updates

▶ Reporting

- ▶ Module designed to collect reporting data at a maximum of 1 minute increments for all application transactions, stored locally on the module hard drive and uploaded to APA DC
- ▶ 100 report templates, providing in-depth understanding of application traffic on a per-user basis

Application Control / Enhancements (July)

- ▶ Application Control

- ▶ APA Module enables facilitated control over application traffic
 - ▶ APA module initiates policy decision
 - ▶ Router QoS enables application control
- ▶ Policies are enabled through the APA DC, and can be applied to the overall branch office, selected workgroups within the branch, or individual users

- ▶ Other Enhancements

- ▶ Behavioral Classification - enables identification of specific types of traffic without the need for an updated protocol signature
- ▶ Netflow Export - exporting of data records for mediation and reporting in Netflow V9 format

