Cisco Network Analysis Module Software 4.0

Overview Presentation

Improve Operational Efficiency with Increased Network and Application Visibility

Enhancing Operational Manageability

Optimize Application Performance and Network Resources

Virtualization

- Enable effective campus network resource segmentation
- Manage Cisco® Catalyst® 6500 Virtual Switching System (VSS) deployments

Collaboration

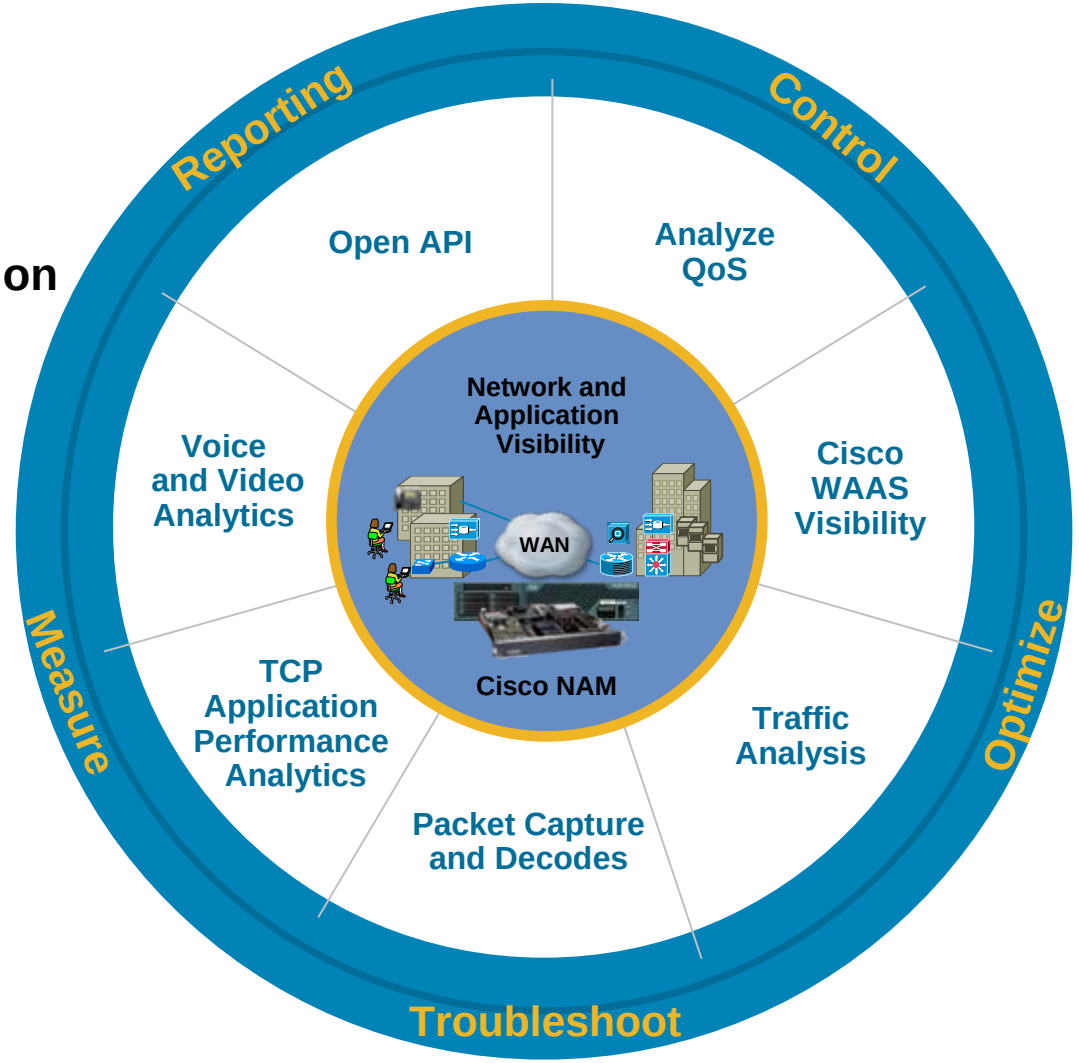
- Ensure reliable delivery of converged network services- data, voice, and video
- Enhance end-user quality of experience

Operational Efficiency

- Accelerate problem isolation and root-cause analysis
- Minimize the effect of service disruption to the end user

Cisco Network Analysis Module Software 4.0

- Monitor application performance
- Effectively use Cisco® Wide Area Application Services (WAAS) optimization to improve application performance
- Validate and fine-tune QoS
- Perform per-application, per-user traffic analysis
- Troubleshoot performance issues in real time
- Gather switch and router health statistics
- Access web-based console from anywhere, anytime



Customer Benefits

Network and Application Visibility
Ensure consistent application and service delivery.

Improve Operational Efficiency
Accelerate problem resolution.

Maximize IT Investments
Optimize network resources.

Anticipate Infrastructure Changes
Understand usage and trends.

Right-Size the Network
Meet changing global business needs.

Cisco Catalyst 6500 Virtual Switching System Deployments

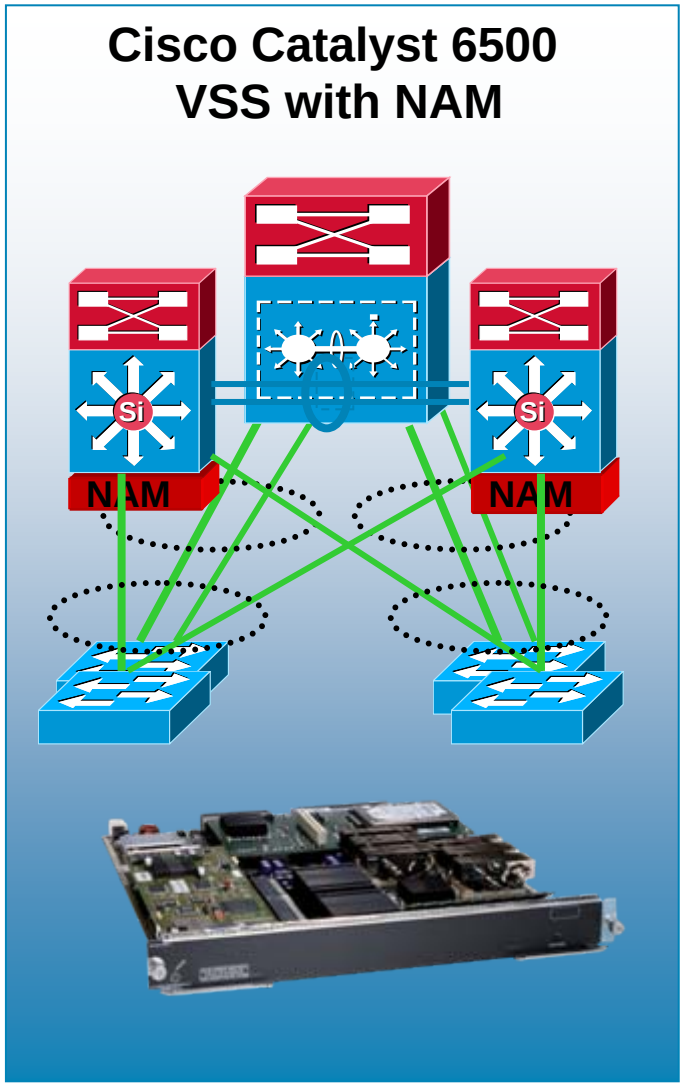
Cisco NAM Enhances Operational Visibility

NAM enables:

- Visibility into traffic running on all switch ports of both virtual switches from either NAM
- Simplification of application performance management by using SPAN to analyze traffic on both switches
- Monitoring of the health of both switches from either NAM

NAM benefits include:

- Understand what is happening on the network before and after deploying Cisco® Catalyst® VSS.
- Ensure the consistent and efficient delivery of business-critical applications to end users.
- Improve the operational effectiveness of switch, server, and application resources.



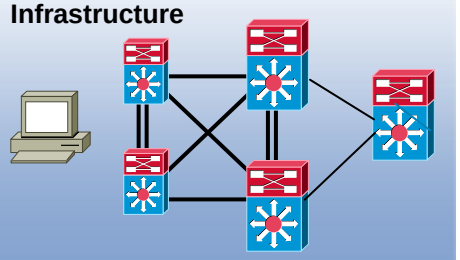
Campus Network Virtualization

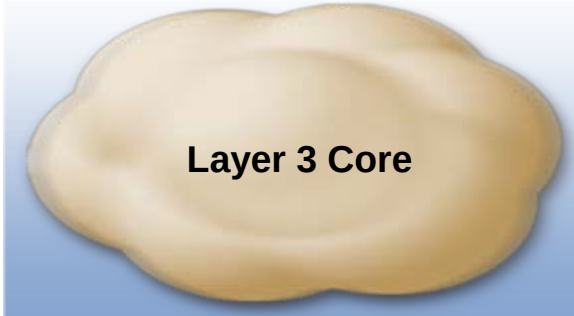
Cisco NAM Enables Secure Network Resource Segmentation

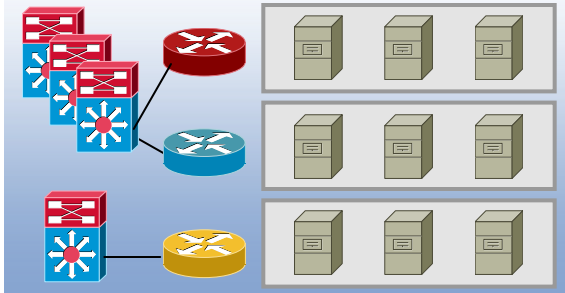
Access Control
802.x Identity, NAC, and MAC Auth Bypass

Path Isolation
VLAN, GRE, and MPLS

Policy Enforcement
Firewall, Context (Cisco® Security Manager and Cisco ACE)







Cisco NAM

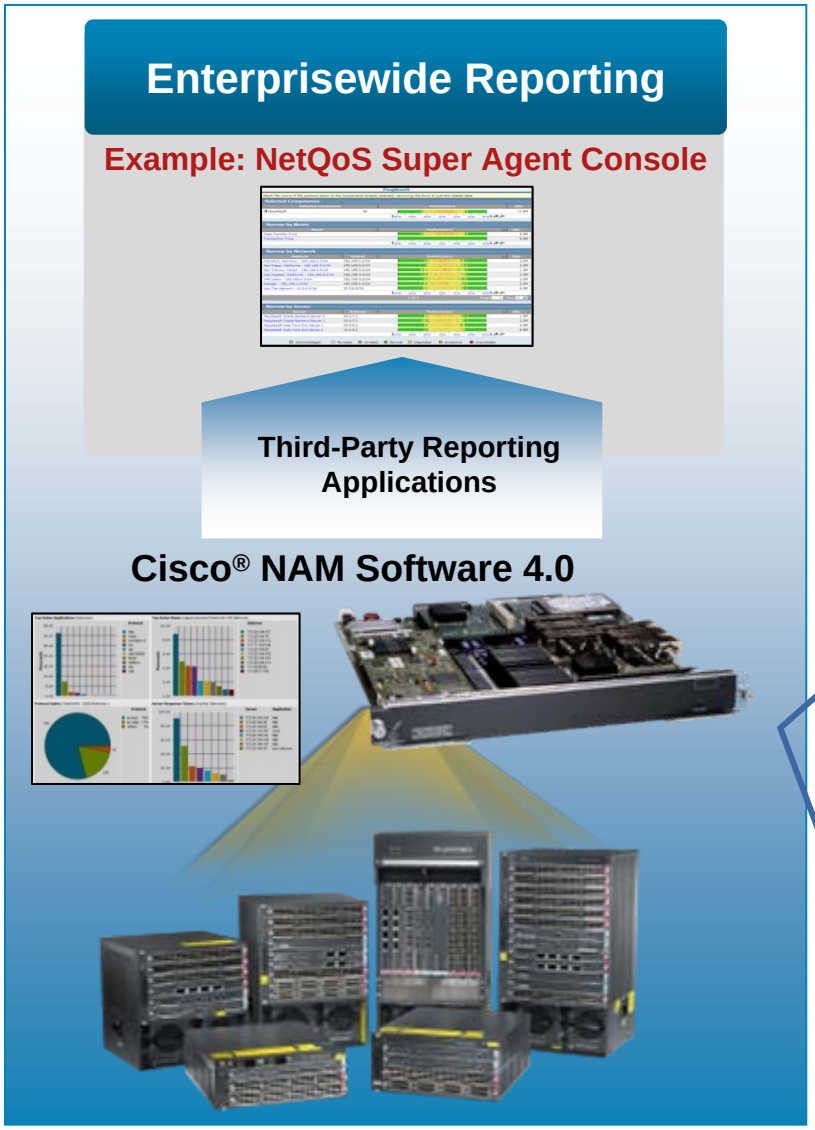
Maps Users to Applications to Server Port

Source	Destination	Application	Port	Packets	Bytes
1.1.1.1	192.6.2.1*	http	TCP-80	2,949,192	477,769,104
1.1.1.2	192.168.6.1*	citrix	TCP-1494	1,568,345	254,071,890
1.1.1.3	192.6.2.2*	ftp	TCP-21	645,251	104,530,662
1.1.1.4	192.6.2.3*	h.323	UDP-720	589,992	95,578,704

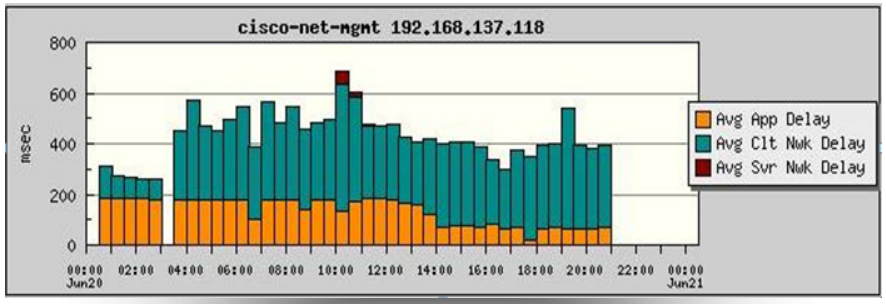
Helps Establish Security Policies to Segment Pools of Resources

Application-Delivery Management

Cisco NAM Offers Real-Time Performance Visibility



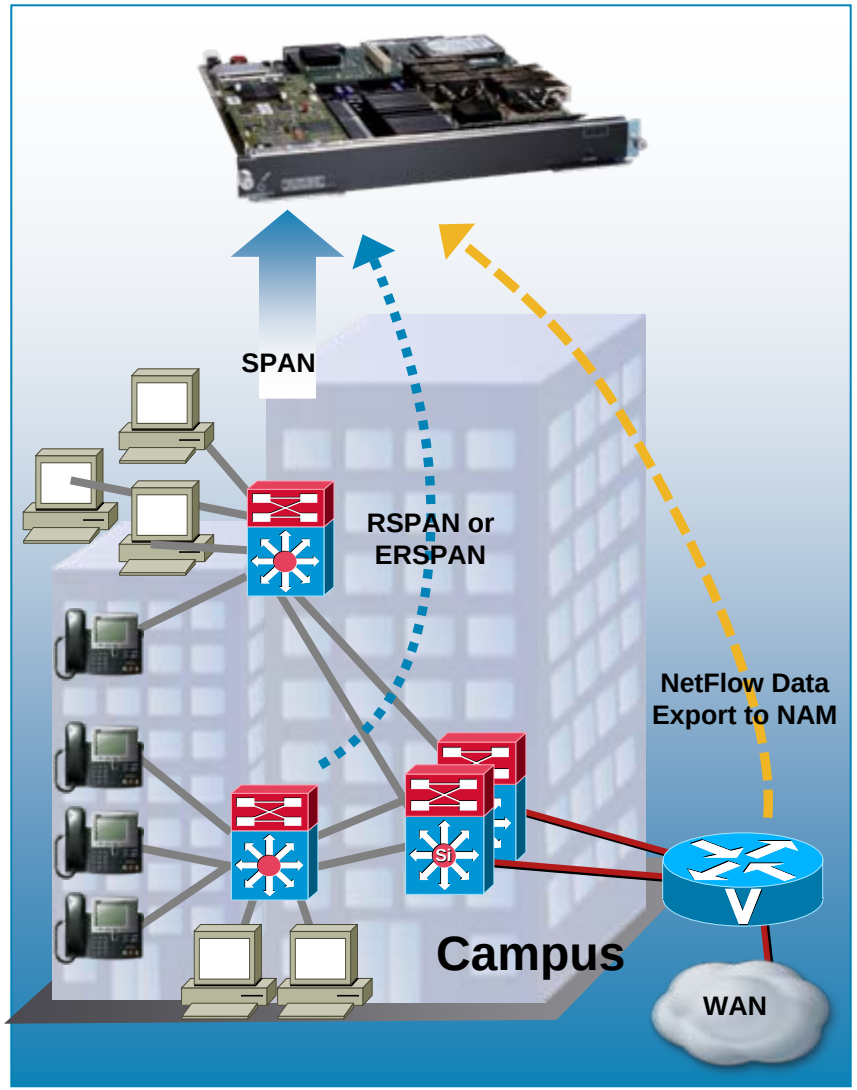
- Monitor end-user experience for business-critical services such as voice and TCP-based business applications.
- Traffic analysis: Discover what applications are running on your network and view real-time statistics.
- Advanced troubleshooting: Accelerate problem resolution with intelligent packet captures, decodes, and filters.
- Northbound interface: Export performance data to build additional value.



Integrated Monitoring and Management

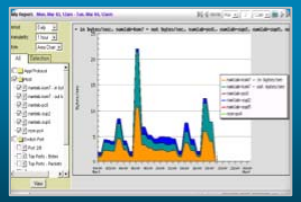
Flexibility to Use Multiple Data Sources to Best Advantage for Comprehensive Network Visibility

- Analyze traffic on the host Cisco® Catalyst® switch using Switched Port Analyzer (SPAN).
- Monitor remote switches using Remote SPAN (RSPAN) and Encapsulated SPAN (ERSPAN).
- Analyze WAN ports by using VACLs or forwarding NetFlow data.
- Monitor port statistics for host Cisco Catalyst switch interfaces using mini-RMON.
- Use VACLs to advantage to prefilter traffic directed to Cisco NAM using SPAN for analysis.
- Enhance application visibility by using NBAR-Protocol Discovery MIB supported on host Cisco Catalyst switch.



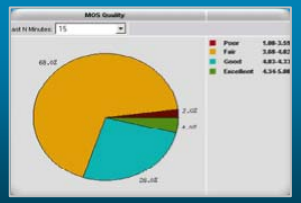
Cisco NAM 4.0 Feature Highlights

New



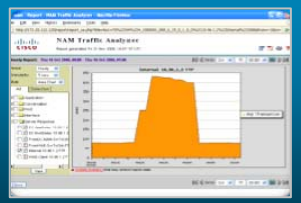
Intelligent Application Performance (IAP)

- Reflection of true end-user quality experience
- Transaction-aware performance metrics that accurately characterize end-to-end application performance



Advanced Voice-Quality Monitoring

- Standards-based voice-quality (MOS) measurements
- Integration with Cisco® Unified Communications Management Suite for enterprise-wide monitoring



Visibility into WAN-Optimized Networks

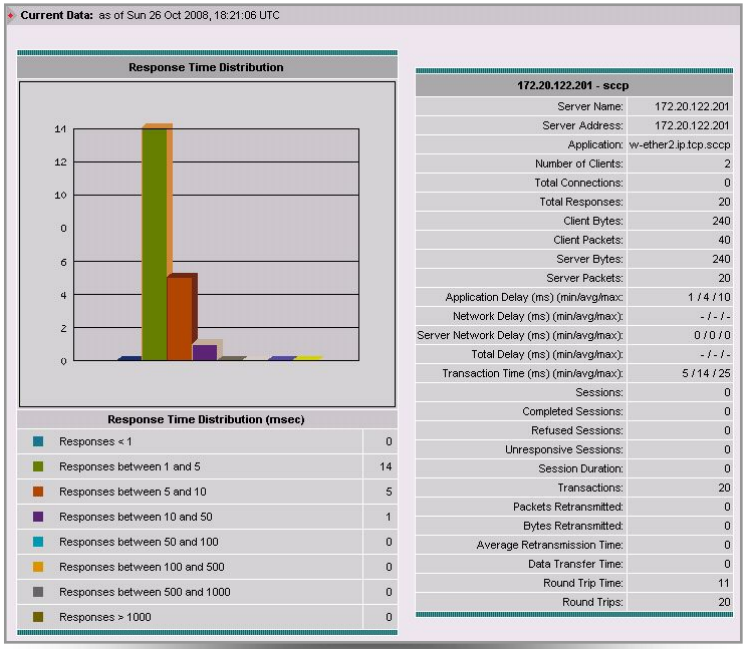
- Identification of opportunities for WAN optimization
- Effect of Cisco WAAS deployment on application performance
- Real-time troubleshooting

Intelligent Application Performance

Advanced Analytics for Monitoring TCP-Based Applications

- **Comprehensive transaction- and session- based statistics (more than 45 metrics)**
- **Improved response-time granularity**
- **Broader coverage of response time in complex deployments**

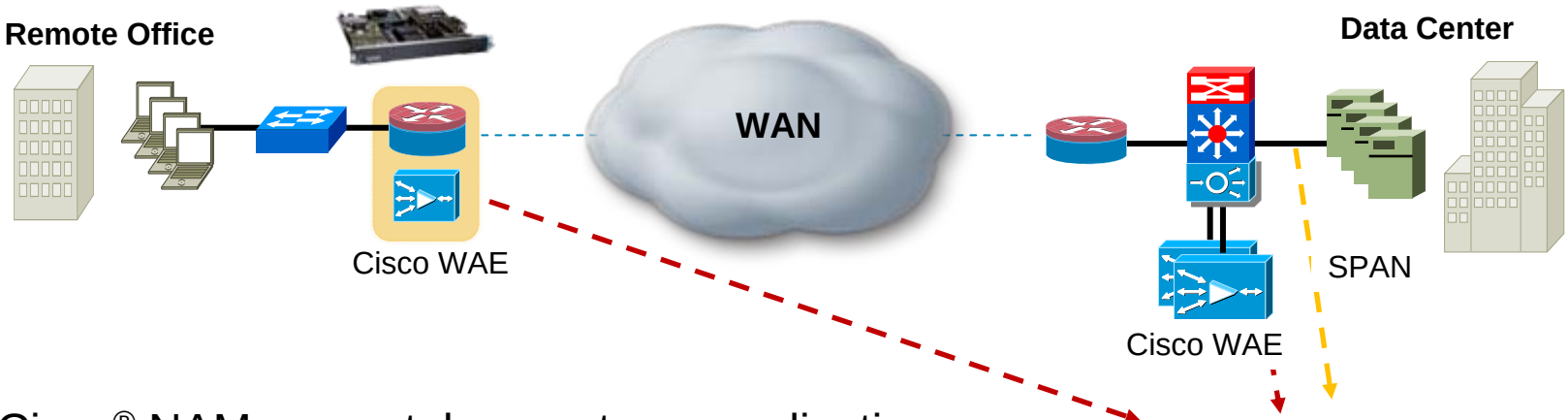
- Data-transfer time
- Transaction time
- Connection duration
- Number of bytes and packets retransmitted
- Retransmission delay
- Acknowledgement delay
- Number of open connections
- Number of closed connections
- Number of refused connections
- Number of unresponsive connections
- And more…



Unifies Application Performance with End-User Experience

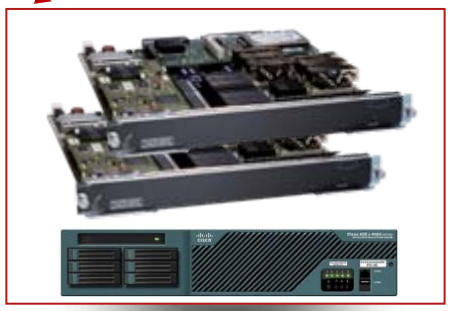
Insight into WAN-Optimized Networks

Application Performance Visibility Across All Segments

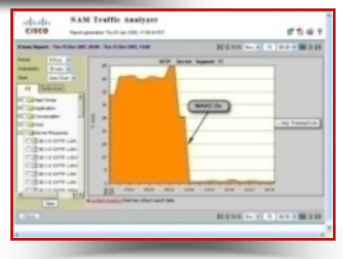


Cisco® NAM accurately reports on application response time, WAN bandwidth usage, LAN and WAN data throughput, and other application performance metrics to:

- Identify application optimization opportunities
- Analyze effect of Cisco WAAS implementation
- Take advantage of visibility for ongoing optimization improvements and troubleshooting

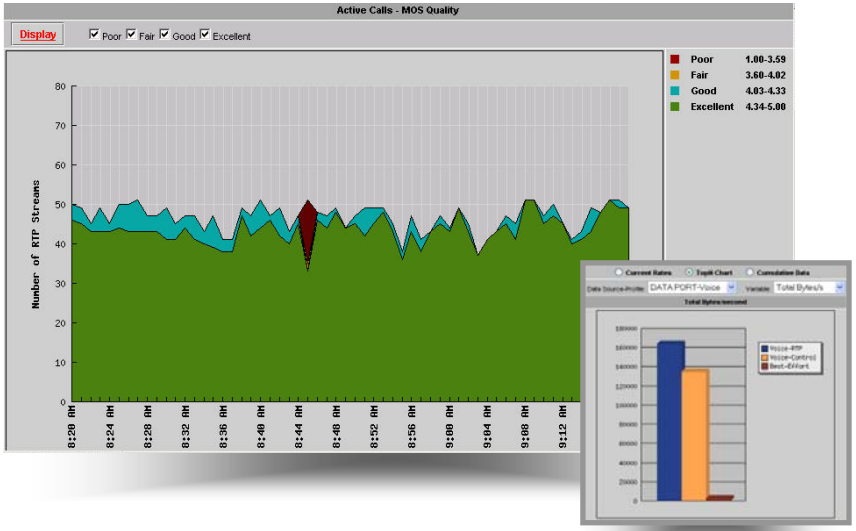


Cisco NAM



Advanced Voice-Quality Monitoring

- Characterize voice quality accurately with R-Factor-based MOS.
- Proactively detect voice-quality degradation.
- Drill down to individual RTP stream for analysis and real-time troubleshooting.



#	Source Addr : Port	Dest Addr : Port	Payload Type	SSRC	Pkt Loss /million	Worst MOS	Adj Pkt Loss (%)	Jitter (ms)	SSC	Status
1.	10.14.1.2 : 1280	10.14.1.20 : 1250	G711Ulaw_64k	34933	40.00	1.76	40.00	0.05	60.0	Active
2.	10.14.1.2 : 1494	10.14.1.20 : 6374	G711Ulaw_64k	54306	40.00	1.76	40.00	0.06	60.0	Active
3.	10.14.1.2 : 2032	10.14.1.20 : 4836	G711Ulaw_64k	24211	40.00	1.76	40.00	0.06	60.0	Active

Stream Lifetime

Worst / Avg / Max MOS:	1.76 / 1.76 / 1.76
Worst / Avg / Min Jitter (ms):	0.05 / 0.05 / 0.05
Worst / Avg / Min Adjusted Packet Loss (%):	40.00 / 40.00 / 40.00
Worst / Avg / Min Actual Packet Loss (%):	40.00 / 40.00 / 40.00
Worst / Avg / Min Seconds of Concealment:	60.0 / 60.0 / 60.0
Worst / Avg / Min Seconds of Severe Concealment:	60.0 / 60.0 / 60.0

Last N Reports

Report Timestamp	Report Duration (seconds)	Worst MOS	Jitter (ms)	Adjusted Pkt Loss (%)	Actual Pkt Loss (%)	Seconds of Concealment	Seconds of Severe Concealment
10-26-08 22:15:00 America/Los_Angeles	60	1.76	0.05	40.00	40.00	60.0	60.0
10-26-08 22:14:00 America/Los_Angeles	60	1.76	0.05	40.00	40.00	60.0	60.0

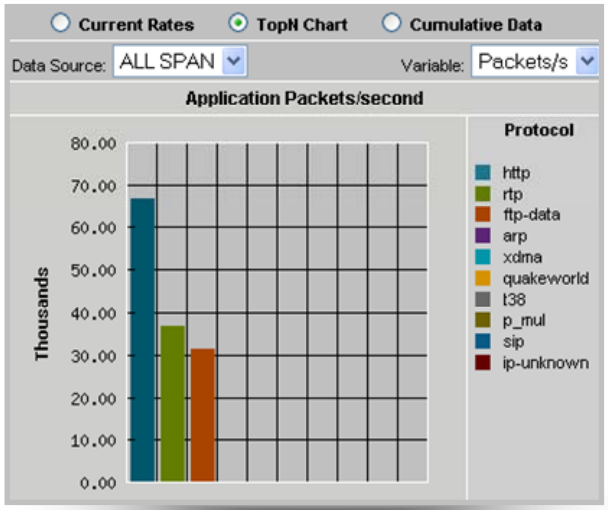
Assess network performance indicators (jitter, packet loss, SoC, and SSC).

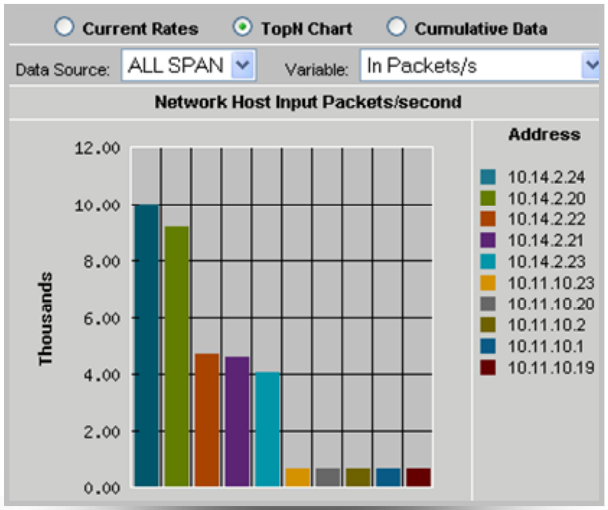
Analyze VoIP traffic by DSCP values.

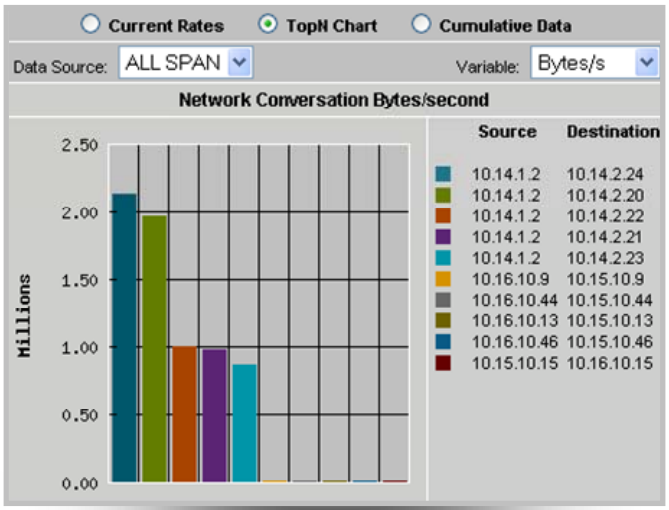
Investigate interface statistics.

Monitor Cisco® Unified Communications Manager response time using IAP analytics.

Real-Time and Historical Traffic Analysis





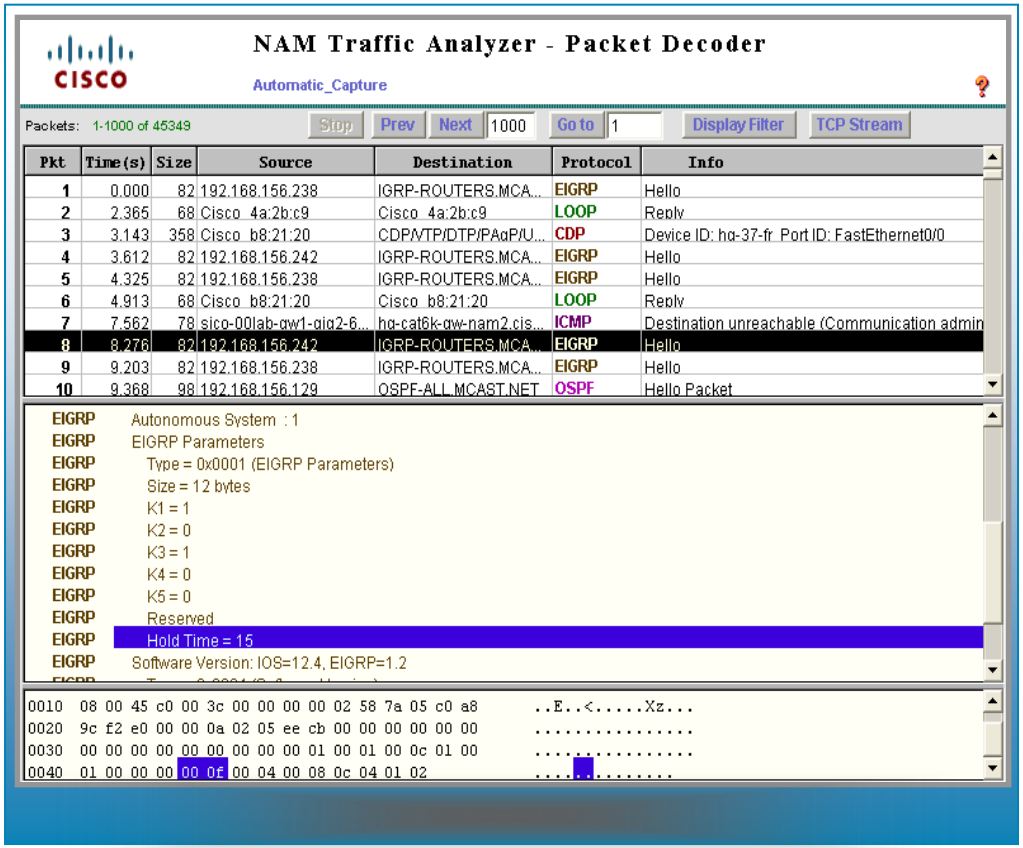


- Identify what applications are running on the network, who is using them, and how much bandwidth they are consuming.
- Proactively spot bottlenecks before your network suffers degradation in performance.
- Define and improve the consistency and quality of both individual and overall network services to take advantage of comprehensive traffic visibility.
- Understand network behavior before and after a business change such as data center consolidation, WAN optimization, and VoIP deployment.

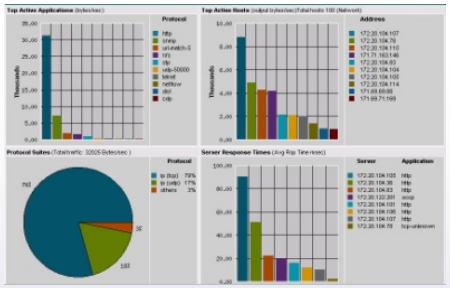
Advanced Troubleshooting

Intelligent Packet Capture, Filter, and Decode

- Trigger packet capture proactively with performance thresholds.
- Perform multiple captures simultaneously.
- View decodes while the data is still being captured.
- Use filters and a capture analysis toolkit to accelerate problem identification and resolution.
- Save captures onboard or remotely.



Cisco NAM 4.0 Platforms and Data Sources



Integrated Management and Reporting Console

HTTP

HTTP

HTTP

Cisco Catalyst® 6500 and Cisco 7600 Series NAM

Cisco® NAM 2200 Series Appliances

Cisco 2800 and 3800 Series Integrated Services Router NAM

- SPAN
- ERSPAN
- RSPAN
- NDE
- Cisco Express Forwarding Packet Copy
- VACL Capture
- Cisco WAAS

Cisco NAM Combines a Rich Set of Embedded Data Collection and Performance Analytics with a Remotely Accessible, Web-Based Management Console—All on a Single Blade or Appliance.

Deployment Flexibility Enables Networkwide Visibility