Overview Presentation: Cisco Branch Routers Series Network Analysis Module

November 2006

Customer Challenges

- Networks have become increasingly complex
- It's no longer enough to ensure traffic flow from one point to another—now you must also ensure optimum performance
- Need clarity on how to tie user and business needs together
- Need to move beyond reactive management

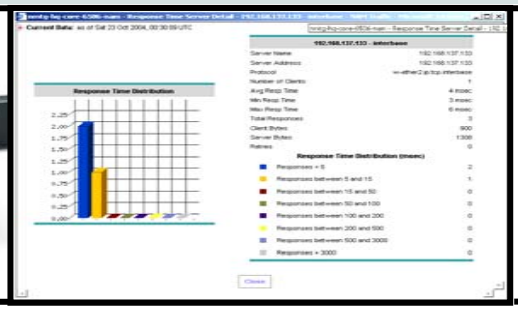
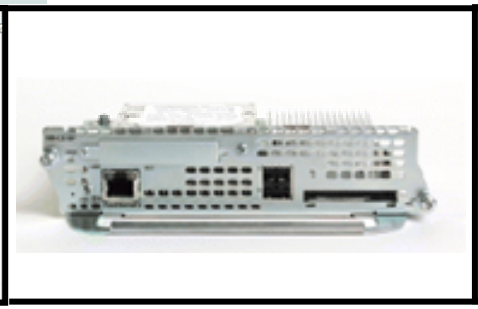
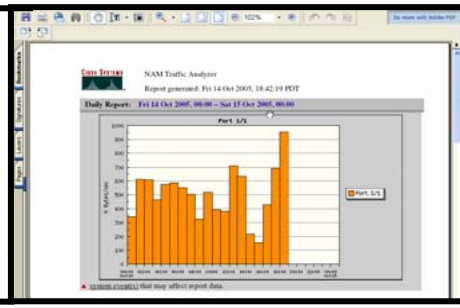
The Solution:
Cisco Network Analysis Module (NAM)

Cisco® NAM Feature

- **Traffic analysis integrated in the network**
  - Critical points, Web-based GUI
- **Real-time and historical monitoring**
  - Applications, hosts, conversations
- **Application response time monitoring**
  - User's experience of the network
- **Troubleshooting**
  - Packet capture and decode

Benefits

- **Eases deployment, management, and support**
- **Detects how applications and users use the network and receive services**
- **Reveals how applications are performing**
- **Isolates problems before they affect users**

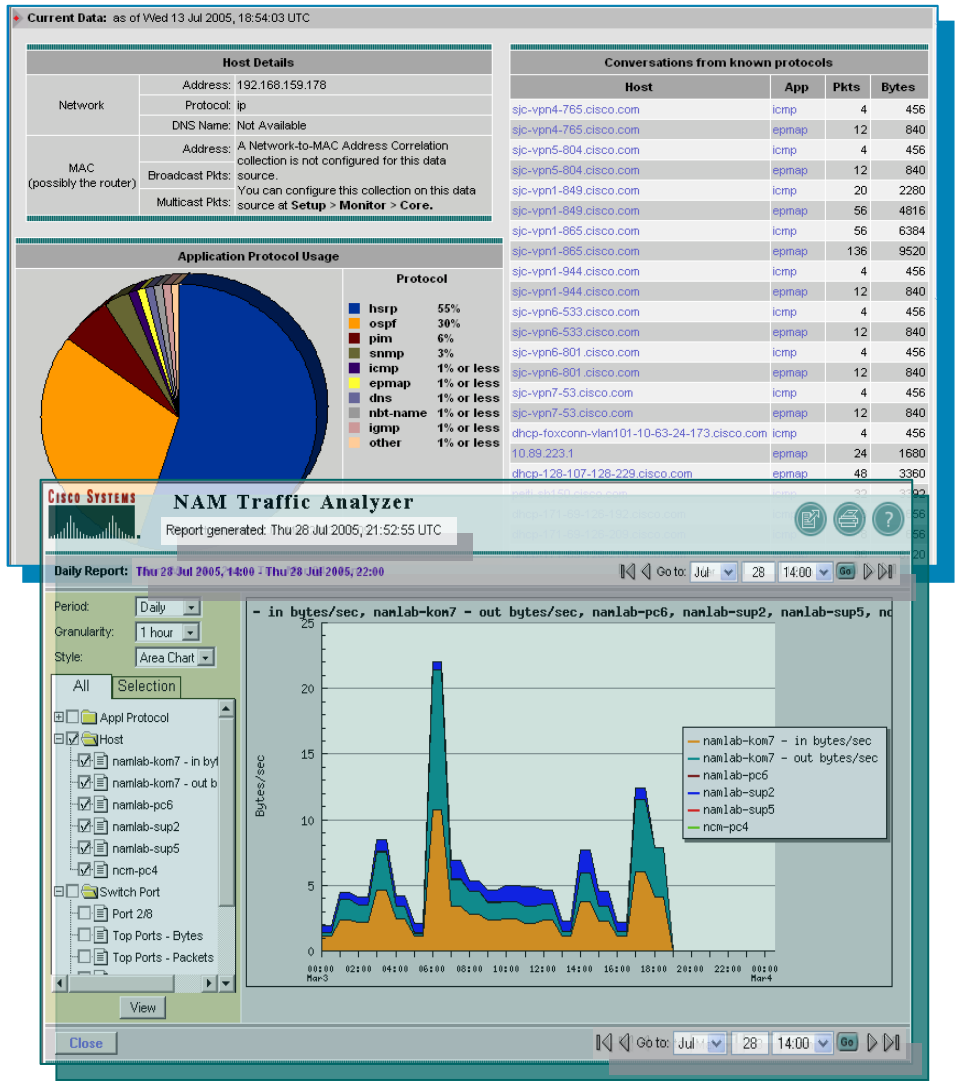





Cisco Branch Routers Series NAM

- Features and Functions

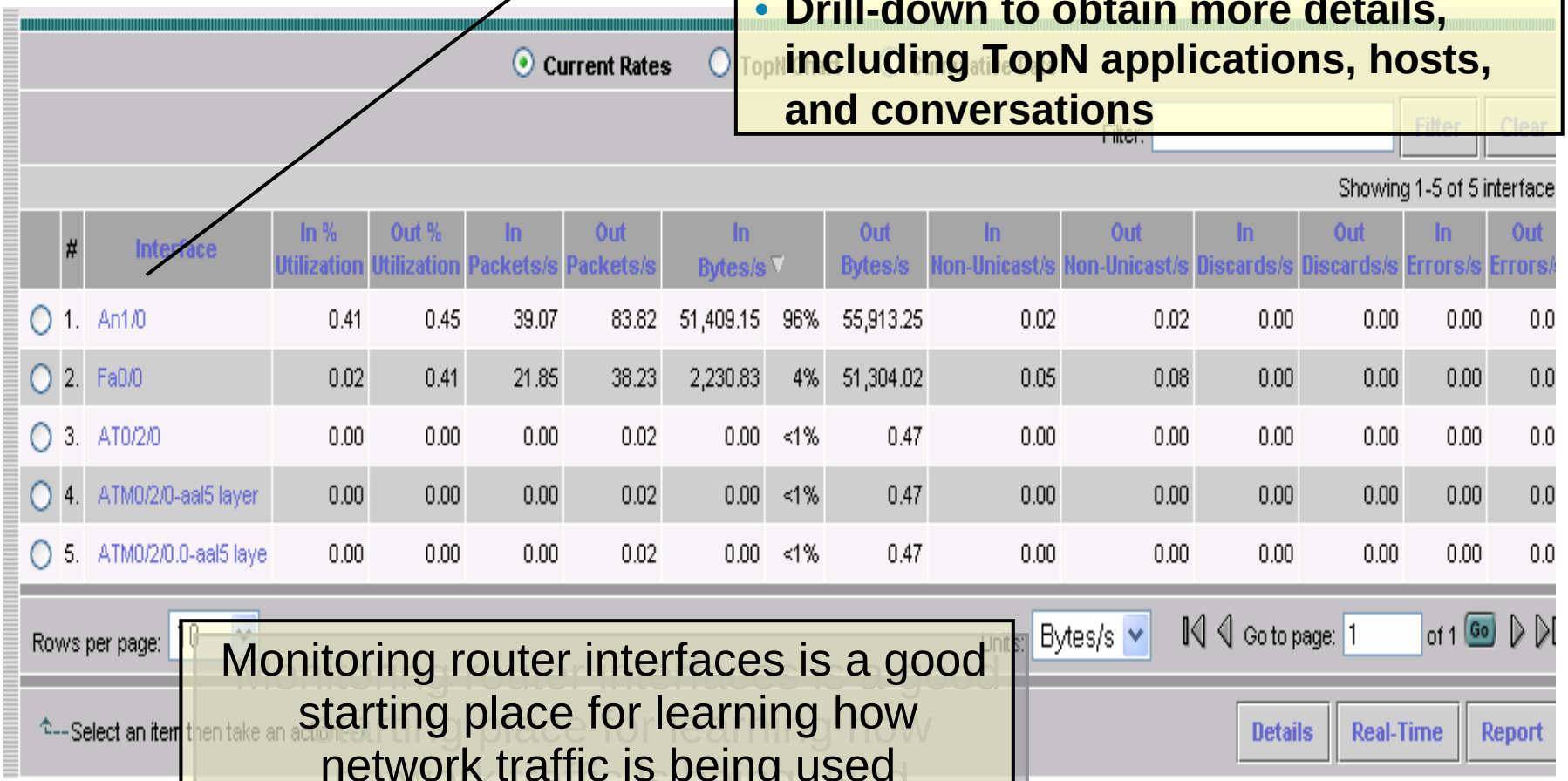
Embedded Traffic Analyzer Software

- **Configuration of the NAM**
  - Network parameters
  - Selection of traffic to monitor
  - Types of statistics to gather
- **Real-time and historical reports**
  - MIB-II monitoring
  - Application, hosts, and conversation monitoring
  - Packet capture and decode
  - Application response time monitoring
  - Voice over IP (VoIP) and video monitoring
  - Differentiated Services (DiffServ) monitoring



Interface Monitoring

- View traffic statistics for all interfaces
- Drill-down to obtain more details, including TopN applications, hosts, and conversations

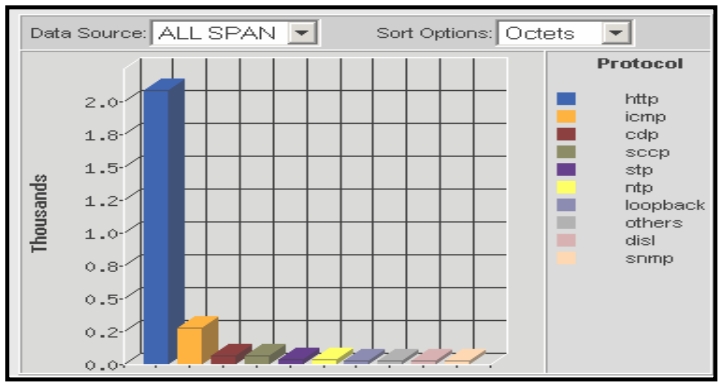


#	Interface	In % Utilization	Out % Utilization	In Packets/s	Out Packets/s	In Bytes/s		Out Bytes/s	In Non-Unicast/s	Out Non-Unicast/s	In Discards/s	Out Discards/s	In Errors/s	Out Errors/s
1.	An1/0	0.41	0.45	39.07	83.82	51,409.15	96%	55,913.25	0.02	0.02	0.00	0.00	0.00	0.0
2.	Fa0/0	0.02	0.41	21.85	38.23	2,230.83	4%	51,304.02	0.05	0.08	0.00	0.00	0.00	0.0
3.	AT0/2/0	0.00	0.00	0.00	0.02	0.00	<1%	0.47	0.00	0.00	0.00	0.00	0.00	0.0
4.	ATM0/2/0-aal5 layer	0.00	0.00	0.00	0.02	0.00	<1%	0.47	0.00	0.00	0.00	0.00	0.00	0.0
5.	ATM0/2/0.0-aal5 laye	0.00	0.00	0.00	0.02	0.00	<1%	0.47	0.00	0.00	0.00	0.00	0.00	0.0

Monitoring router interfaces is a good starting place for learning how network traffic is being used

Application, Host, and Conversation Monitoring

Protocol Distribution



Conversation Pair Statistics

Data Source: ALL SPAN Address: Filter

#	Source	Via	Destination	Pkts	Octets
1	namlab-pik2.cisco.com	ip	static-10-24-2-108.cisco.com	1	1510
2	dhcp-171-69-69-92.cisco.com	ip	namlab-shared.cisco.com	1	424
3	static-10-24-2-108.cisco.com	ip	namlab-pik2.cisco.com	1	273
4	10.0.0.22	ip	namlab-pc5.cisco.com	1	102
5	namlab-pc5.cisco.com	ip	10.0.0.22	1	102
6	namlab-sup1.cisco.com	ip	cbucci-u10.cisco.com	< 1	9
7	cbucci-u10.cisco.com	ip	namlab-sup1.cisco.com	< 1	8
8	172.20.98.129	ip	namlab-sup1.cisco.com	< 1	7
9	172.20.98.129	ip	namlab-sup2.cisco.com	< 1	7
10	172.20.98.129	ip	namlab-sup3.cisco.com	< 1	7

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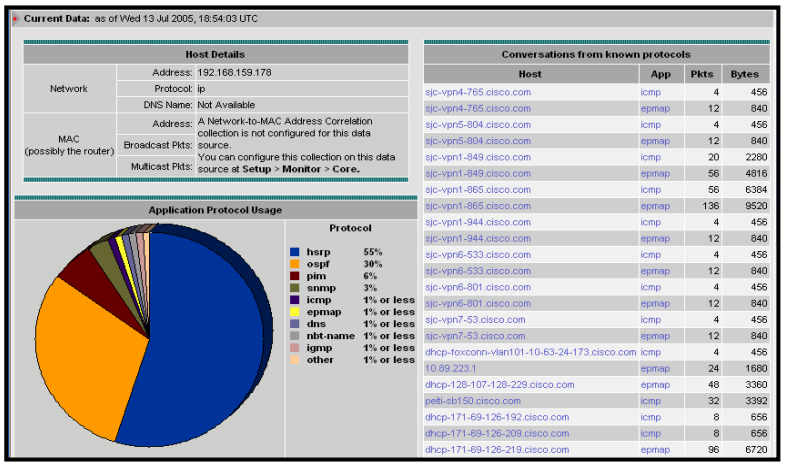
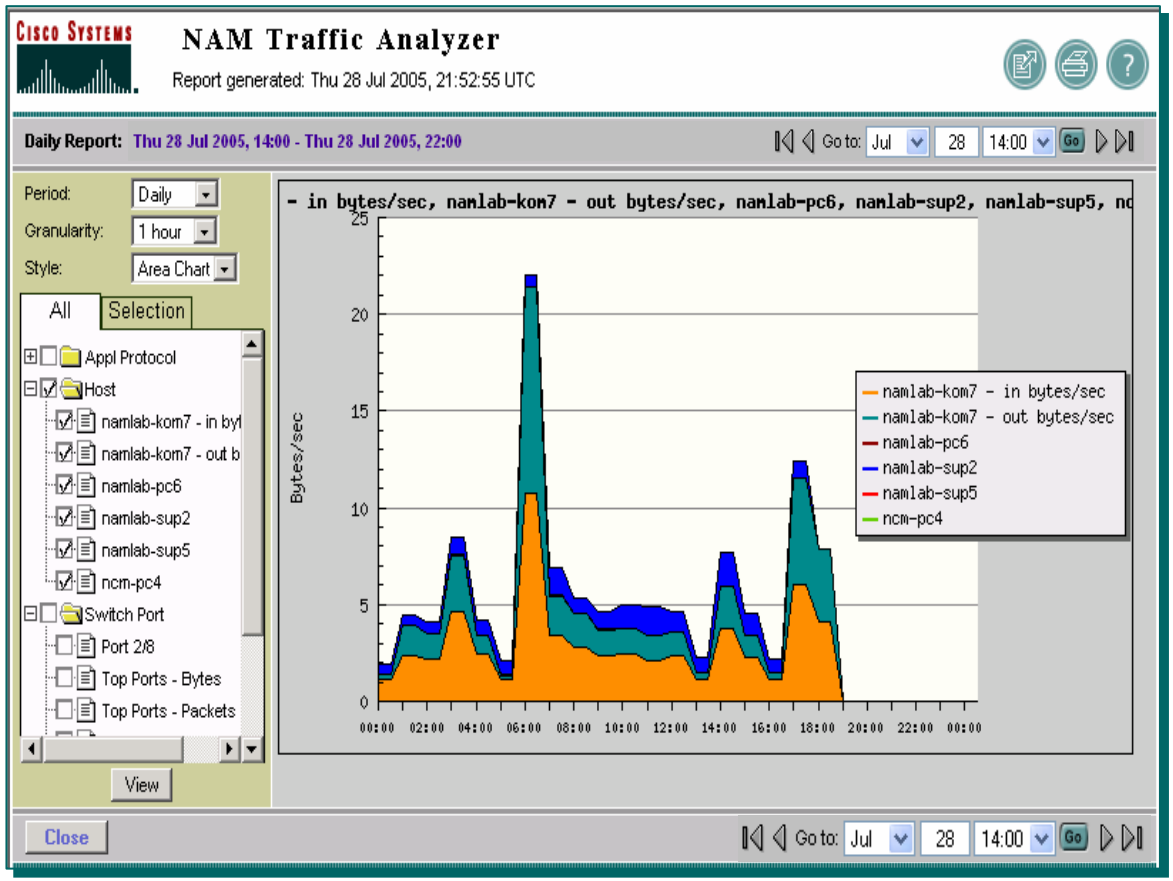


NAM detects the applications, the bandwidth they consume, and the hosts using costly WAN resources

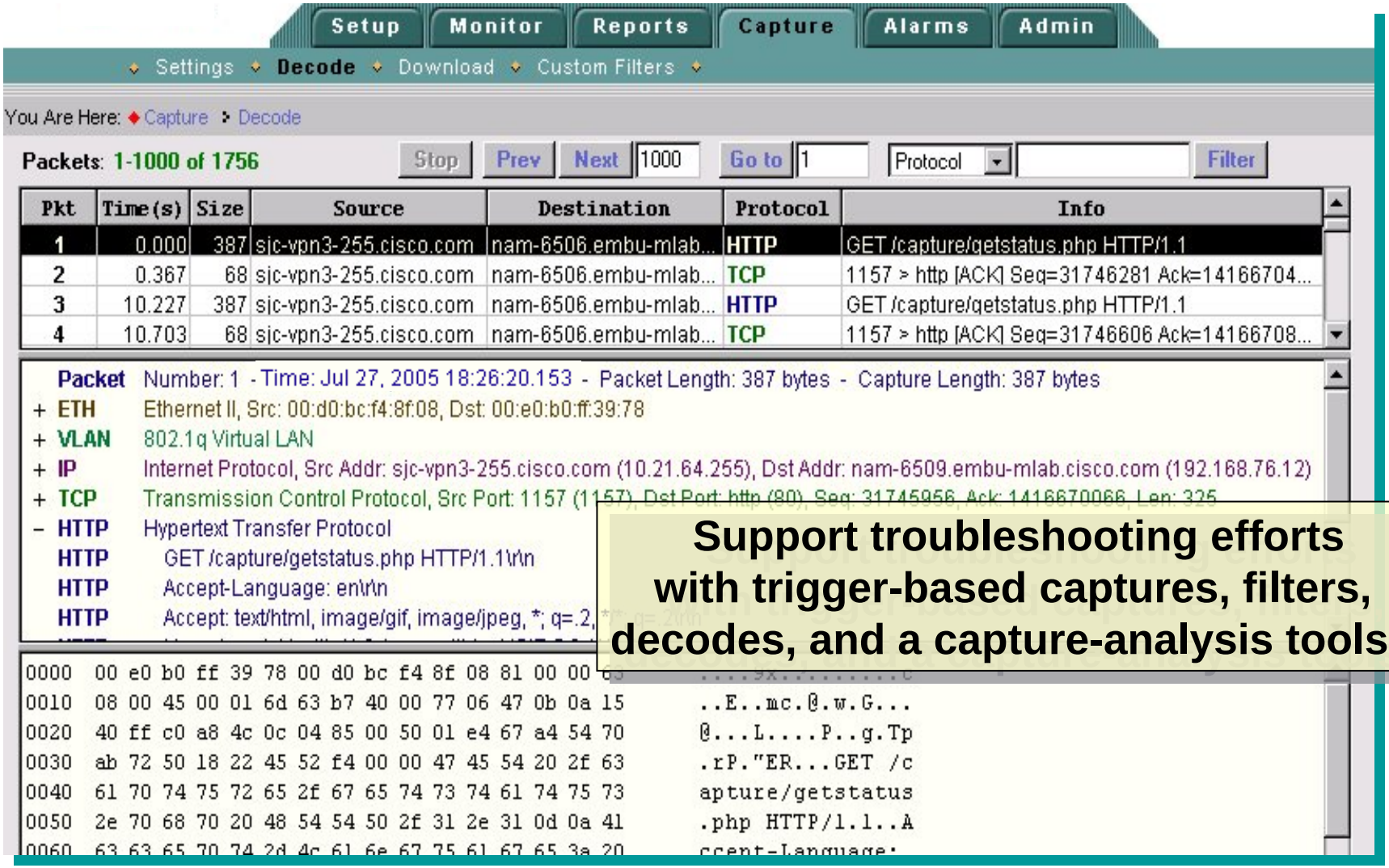
Detailed Host and Conversation Statistics

Historical Reporting

- **Select and monitor network performance over time**
- **100-day historical reports for preselected variables**
- **Detailed information to support planning activities and to aid postevent troubleshooting**



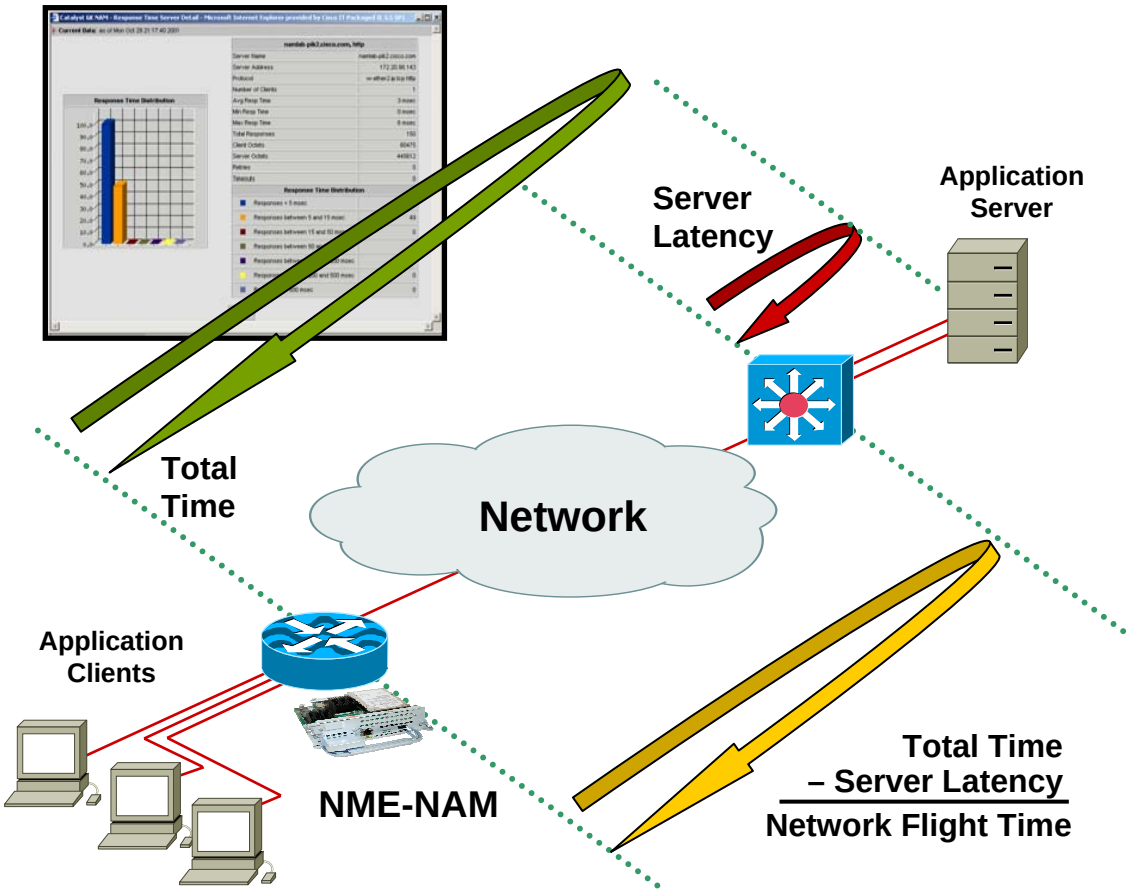
Packet Capture and Decode



Support troubleshooting efforts with trigger-based captures, filters, decodes, and a capture-analysis toolset

Application Response Time (ART) Monitoring

Learn how users experience application performance



- Statistics include Client-Server Network Round Trip Time, Application Response Time, Total Transaction Time
- Displays the data in intuitive tables and graphs
- Historical viewing and reporting

Voice Monitoring

Anticipate infrastructure improvements needed to support increased demand in voice services

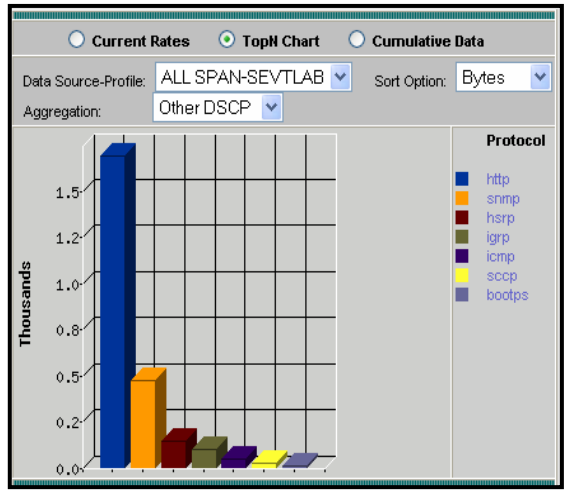
- Active IP telephony monitoring
  - Track active call attributes
  - Identify call quality degradation via packet loss and jitter statistics
  - See call details for individual phones
- Voice-application monitoring
  - View distribution of VoIP protocols
- Application response time (ART)
  - Measure Cisco® CallManager response times
- QoS
  - Monitor voice traffic for QoS violations
  - Verify that voice traffic is receiving the appropriate priority
- Video telephony
  - Identify active video calls

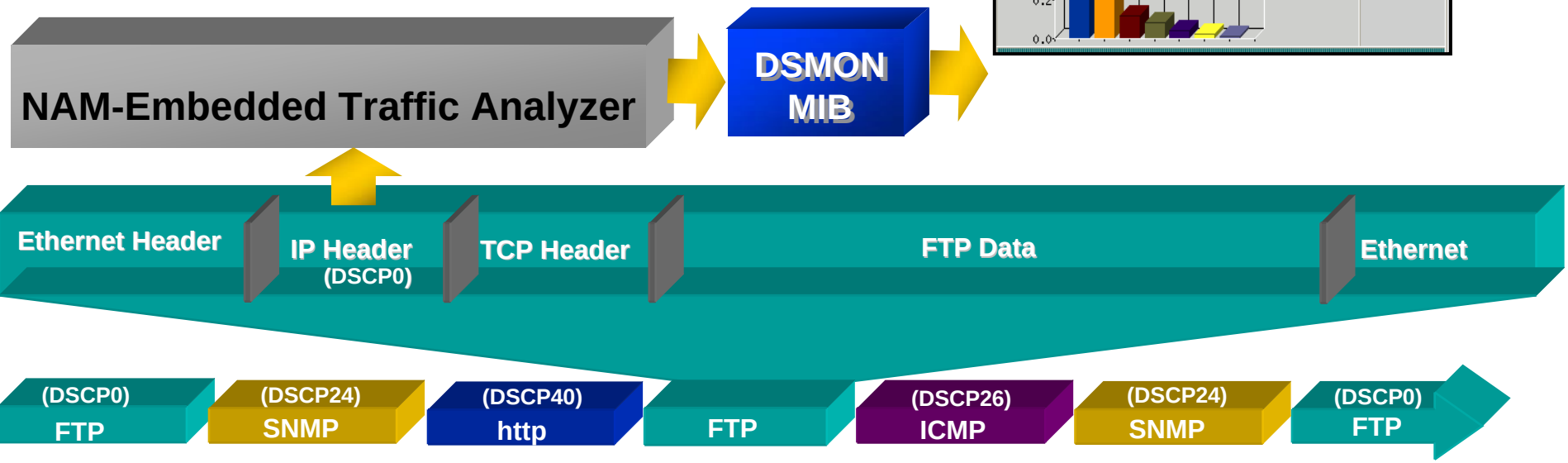
SCCP call detail for called party		
	Calling Party	Called Party
Phone Number:	1101	1001
IP Address:	191.167.138.42	192.168.159.203
Call Reference:	16784794	
Owner:	-	-
Call State:	On Hook	
RTP Port:	65535	-
Line Instance:	1	
Conference Id:	16784794	
Pass Thru Party Id:	16898465	
RTP Sampling Period:	20	
Payload Type:	G.711 ulaw 64k	
RTP Pre Value:	184	
Silence Suppression:	Off	
Max Frames per Pkt:	0	
G.723 Bit Rate:	-	
Start Time:	Thu 28 Jul 2005, 22:36:43 UTC	
End Time:	Thu 28 Jul 2005, 22:36:43 UTC	
Packets Sent:	0	
Packets Received:	0	
Octets Sent:	0	
Octets Received:	0	
Packet Loss (%):	0.00	
Jitter (msec):	0	
Switch Port:	-	

Differentiated Services Monitoring (DSMON)

DiffServ monitoring can be used to:

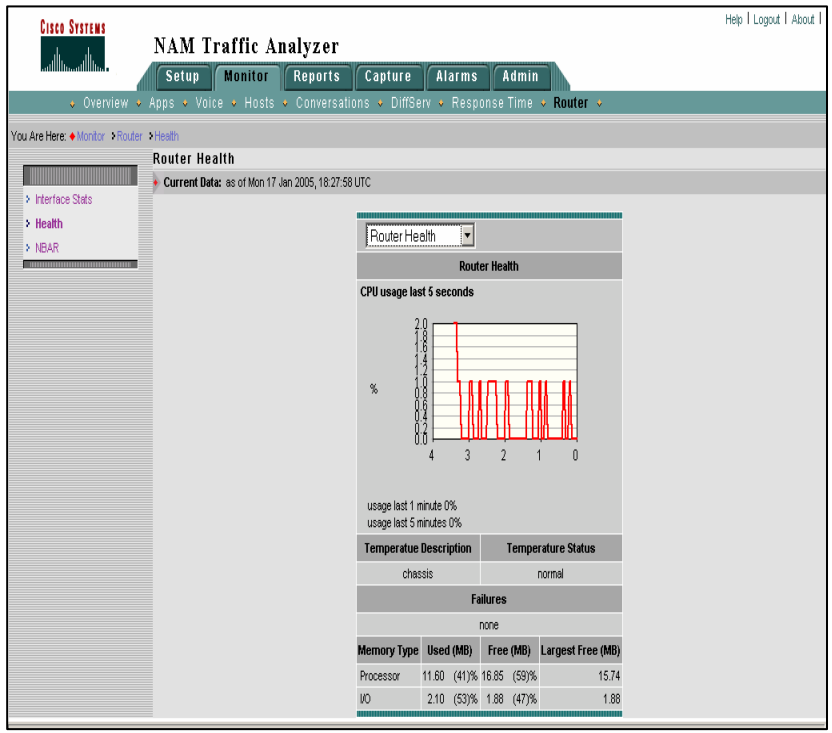
- **Validate planning assumptions and QoS allocations**
- **Detect incorrectly marked or unauthorized traffic**





Router Health Monitoring

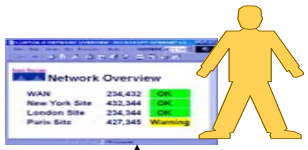
- Monitor vital router resources such as CPU usage, memory usage, temperature and fan status, sysUpTime, hardware revisions, and power-supply status
- Provides the network manager with immediate information on the health of critical network devices



Tight integration with the router permits the NAM to monitor and track important infrastructure health diagnostics

Managing NAM—
Cisco Performance Visibility Manager (PVM)

Available Now



Reports

API

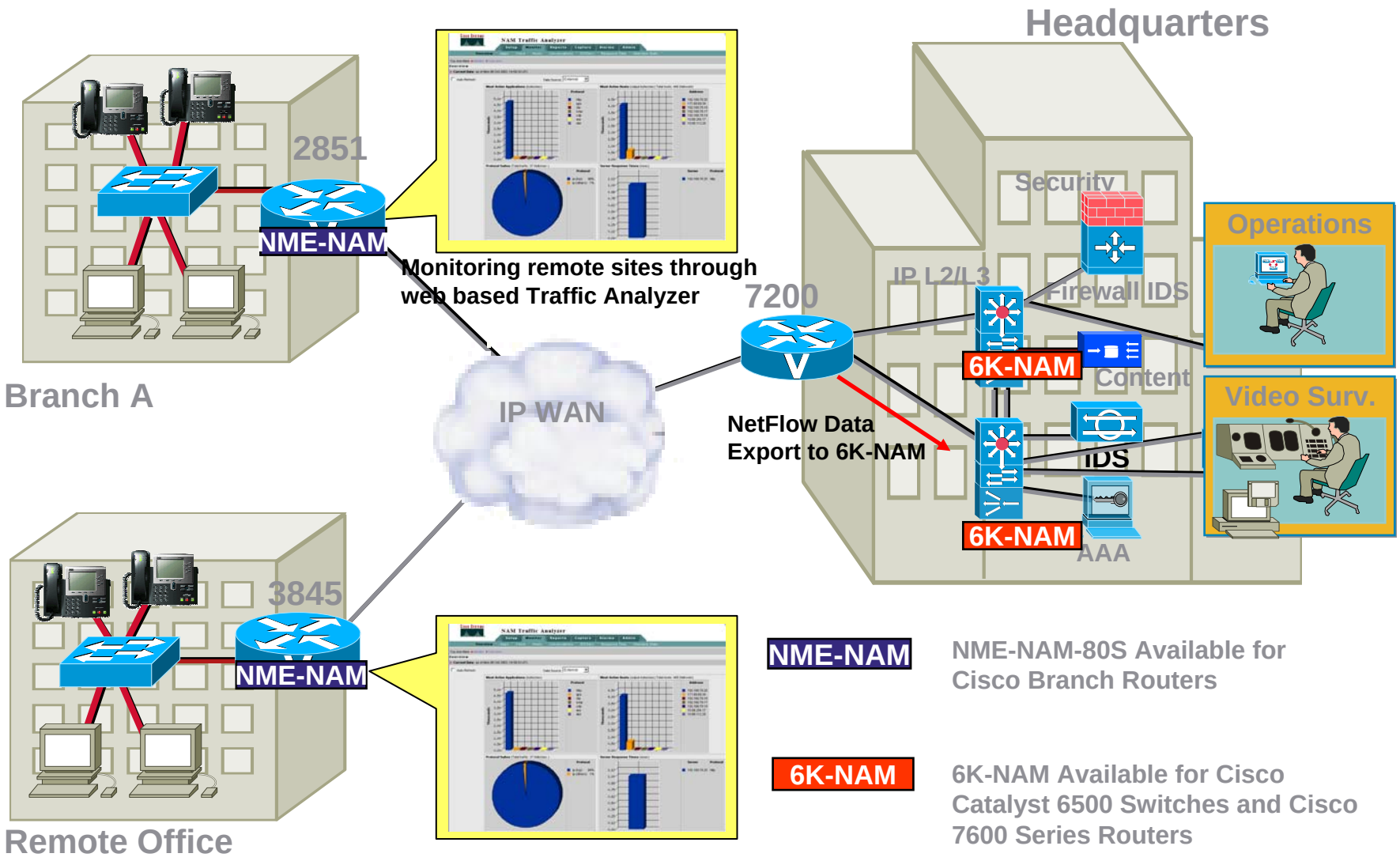
- Data collection, aggregation, correlation
- Application response time correlation
- Traffic analysis
- Bandwidth utilization
- Baselining
- Monitoring based on policy and thresholds
- History and trending

RMON
ART MIB
DSMON
SMON
Mini-RMON

NetFlow

Cisco® NAMs

Deployment Scenario: NAMs in LAN and WAN



Business Benefits

- **Gain visibility into the network services and applications that make up the business**
  - **Monitor how applications and users utilize the network and receive services**
  - **Improve network performance**
- **Better visibility enables enterprises and service providers to optimize IT investments and enhance network security**
  - **Prevent unauthorized or frivolous use of network resources**
  - **Reduce downtime and failures**
- **“Right-size” the network to reduce network spending**
  - **Determine services trends to anticipate infrastructure improvements that will be needed to support increased demand**
  - **Tie network usage to business need**