



Network Capacity Planning

How Cisco IT Uses NetFlow to Improve Network Capacity Planning



A Cisco on Cisco Case Study: Inside Cisco IT

Overview

- Challenge

 - Getting accurate information about network use

- Solution

 - Implement Cisco IOS® Net Flow technology

- Results

 - Bandwidth upgrades become a business decision

- Next Steps

 - Increase information detail

Challenge: Getting accurate information about network use

- Voice over IP (Vo IP) and Video on Demand (Vo D) drove consumption from the late '90s
 - Bandwidth was shared with normal business applications
- Network traffic was increasing exponentially and not in line with expectations
 - IT did not have access to the level of detail necessary to understand the problem
- Cisco did not have a clearly-established proactive planning process
 - IT tended to implement network bandwidth upgrades in response to internal customer complaints

Solution: Implementing Cisco IOS® Net Flow technology

- Traffic categorization

IT first characterized network traffic as legitimate, inappropriate, or unwise

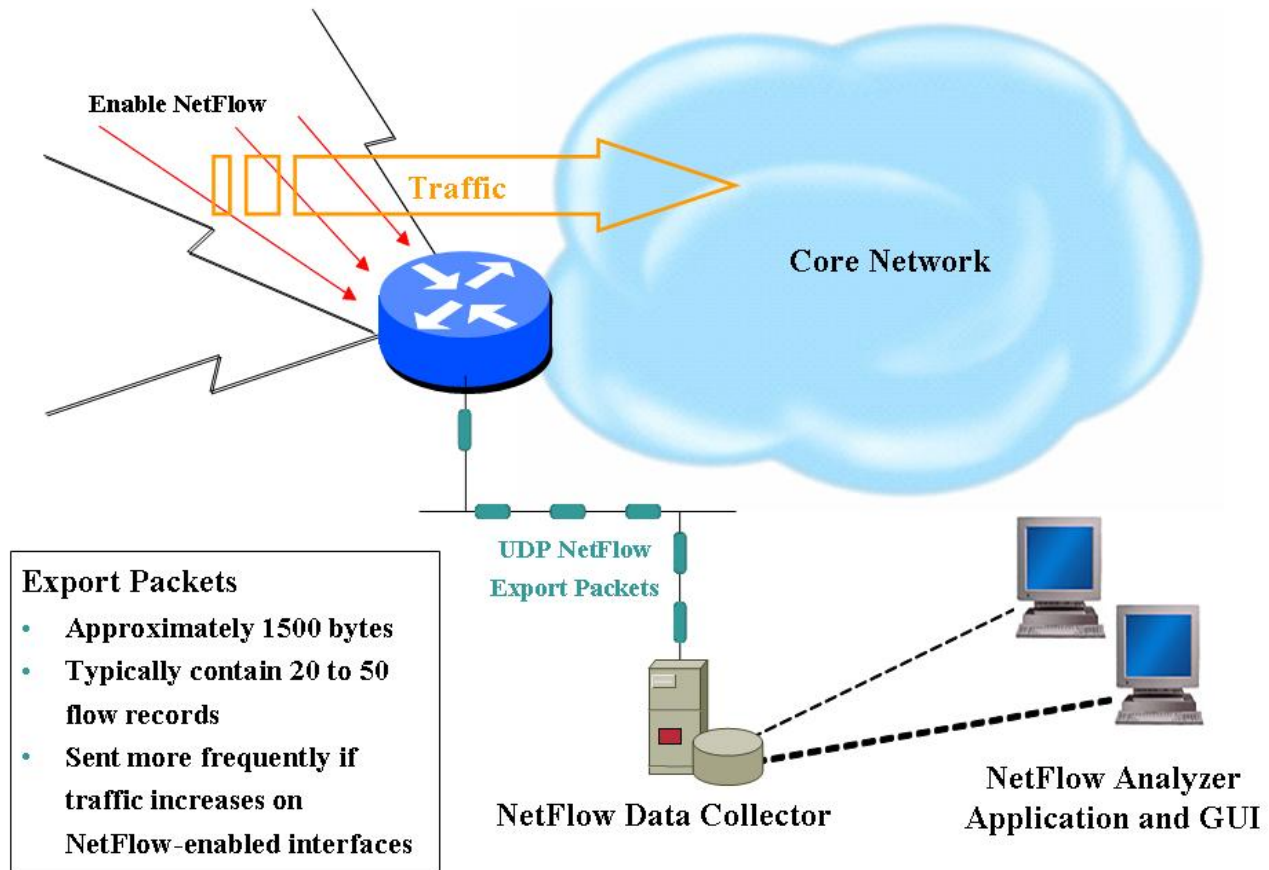
- Establishment of sizing and utilization guidelines

While important, they did not eliminate the need for an engineering analysis of individual sites

- Deployment of IOS® Net Flow technology (and selected third party solutions)

Cisco Net Flow provides detailed network traffic information and has become the leading accounting and anomaly-detection solution in the network industry

Solution: Cisco IOS Net Flow



Solution: Sizing and Utilization Threshold Charts

Sample Initial Sizing Chart			Sample Utilization Threshold Chart		
Headcount	Primary WAN Bandwidth	Secondary WAN Bandwidth	Primary/Backup WAN Bandwidth	*Percentage Utilization (watch)	**Percentage Utilization (upgrade)
1-10	1.5 Mbps	None	***100/100	60%	80%
11- 40	1.5 Mbps	1.5 Mbps	****100/50	40%	50%
41-100	3 Mbps	3 Mbps	*****50/50	40%	50%
101-150	4.5 Mbps	4.5 Mbps			
151-200	6.0 Mbps	6.0 Mbps			
201-500	45 Mbps	6.0 Mbps			
501+	155 Mbps	45 Mbps			

Results: Bandwidth upgrades become a business decision

- Capacity planners enter a recommendation into the Cisco Intelligent Networking Solutions (INS) process
- With real, granular information, IT can comfortably help build a business case for bandwidth upgrades
- Cisco capacity planners can plan and manage deployments effectively—delivering bandwidth before performance deteriorates and building better internal relationships

Next Steps: Increase information detail

- The capacity planning team will use Cisco NetFlow to develop increasingly more granular information:

In an MPLS environment, where bandwidth circuit providers charge differentially for classes of service, it is important not to pay unnecessary service charges

- By monitoring and reporting on classes of service at a deeper level, Cisco should be able align service charges with what actual needs, saving significantly going forward.

To read the entire case study, or for additional Cisco IT case studies on a variety of business solutions, visit Cisco on Cisco: Inside Cisco IT

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