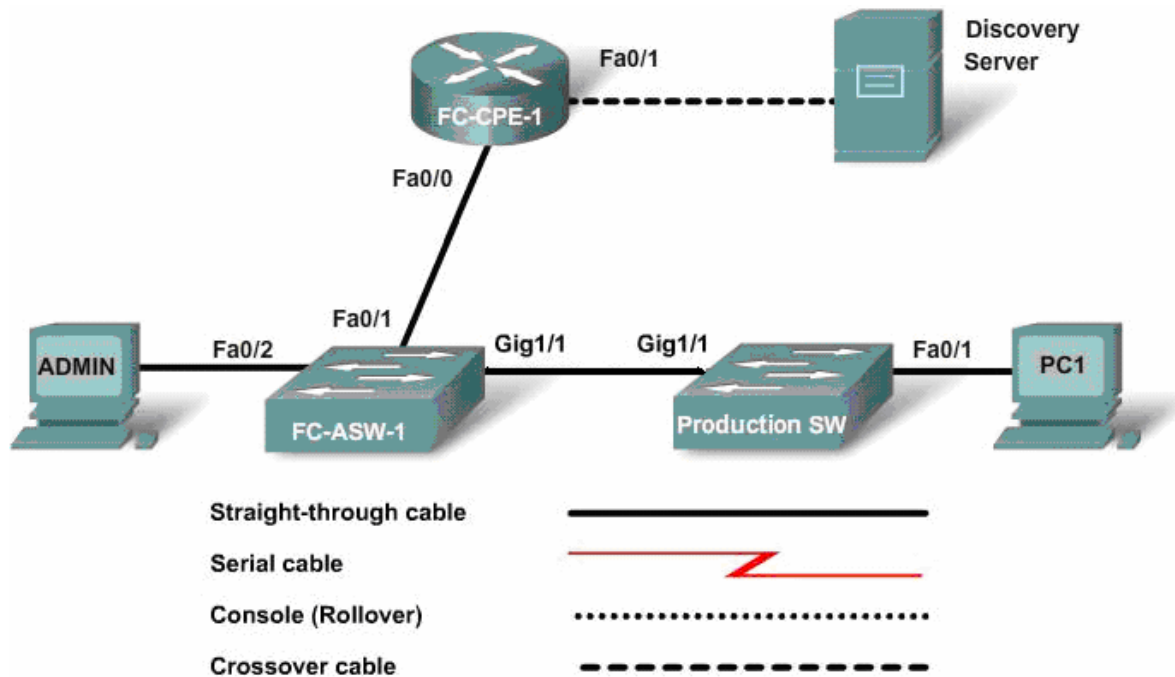


Lab 2.5.2 Monitoring Network Performance



Device Designation	Device Name	IP Address	Subnet mask
Switch 1	FC-ASW-1	VLAN 10.0.0.4	255.255.255.0
Switch 2	ProductionSW	VLAN 10.0.0.5	255.255.255.0
Admin PC	ADMIN	10.0.0.2	255.255.255.0
PC1	PC1	10.0.0.3	255.255.255.0
Router	FC-CPE-1	Fa0/0 10.0.0.1	255.255.255.0
		Fa0/1 172.17.0.1	255.255.0.0
Discovery Server	Discovery Server	172.17.1.1	255.255.0.0

Objective

- Describe methods of monitoring network performance to ensure that the network design is working appropriately.

640-802 CCNA Exam Objectives

This lab contains skills that relate to the following CCNA exam objectives:

- Describe the purpose and functions of various network devices.

- Select the components required to meet a network specification.
- Determine the path between two hosts across a network.

Expected Results and Success Criteria

Before starting this lab, read through the tasks that you are expected to perform. What do you expect the result of performing these tasks will be?

What benefits are gained from monitoring network performance?

What are possible actions a network administrator could take if network performance was noted to be deteriorating?

Background / Preparation

FilmCompany is an expanding small advertising company moving into interactive advertising media, including video presentations. This company has just been awarded a large video support contract by the StadiumCompany. With this new contract, FilmCompany expects to see their business grow approximately 70 percent.

To facilitate this growth, the FilmCompany has decided to significantly upgrade its data network. You have the role of network design consultant. Your job is to develop network design and project documents for the FilmCompany that will meet the requirements of this upgrade.

After the network is upgraded, the FilmCompany personnel will manage the network to ensure that it is performing to the design specifications outlined in the Prepare and Plan phases.

This lab simulates the monitoring of the current FilmCompany network during its operations. It is used to note if baseline performance is exceeded. This information will help determine how the network needs to be upgraded to meet the requirements of the new stadium contract.

The network management and monitoring program Cisco Network Assistant is required to be installed on each PC used in this lab. Cisco Network Assistant is a program provided free and can be downloaded from <http://www.cisco.com>. See your instructor if this program is not available in the lab.

Step 1: Configure network connectivity

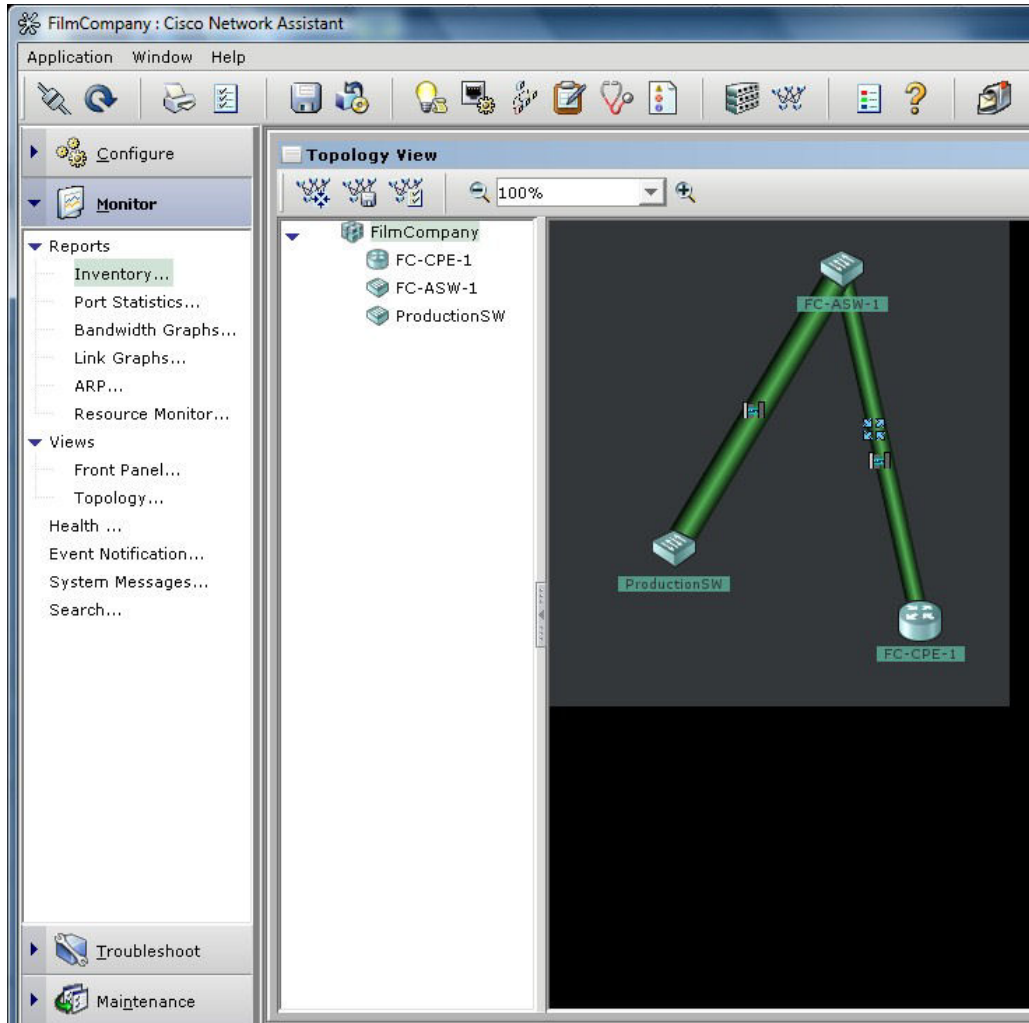
NOTE: If the PCs used in this lab are also connected to your Academy LAN or to the Internet, ensure that you record the cable connections and TCP/IP settings so these can be restored at the conclusion of the lab.

- a. Connect the devices in accordance with the given topology and configuration. Your instructor may substitute Discovery Server with an equivalent server for this lab.
- b. See your instructor regarding device configuration. If the devices are not configured from the Admin PC, establish a terminal session in turn to each switch and the router using HyperTerminal or TeraTerm. Configure these devices in accordance with the configuration details provided.

- c. Ping between all devices to confirm network connectivity. Troubleshoot and establish connectivity if the pings fail.

Step 2 Set up Cisco Network Assistant

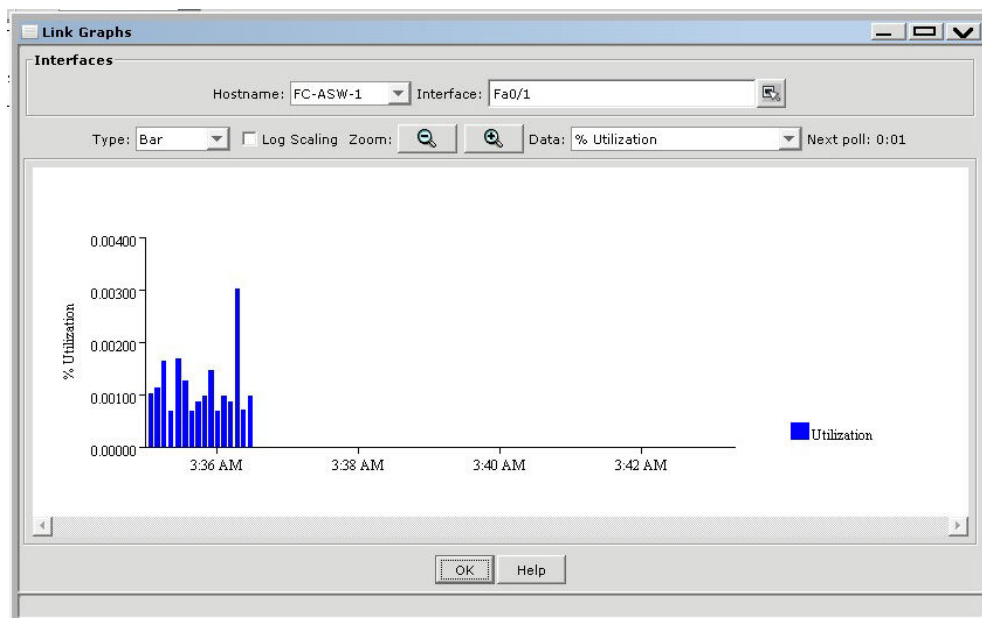
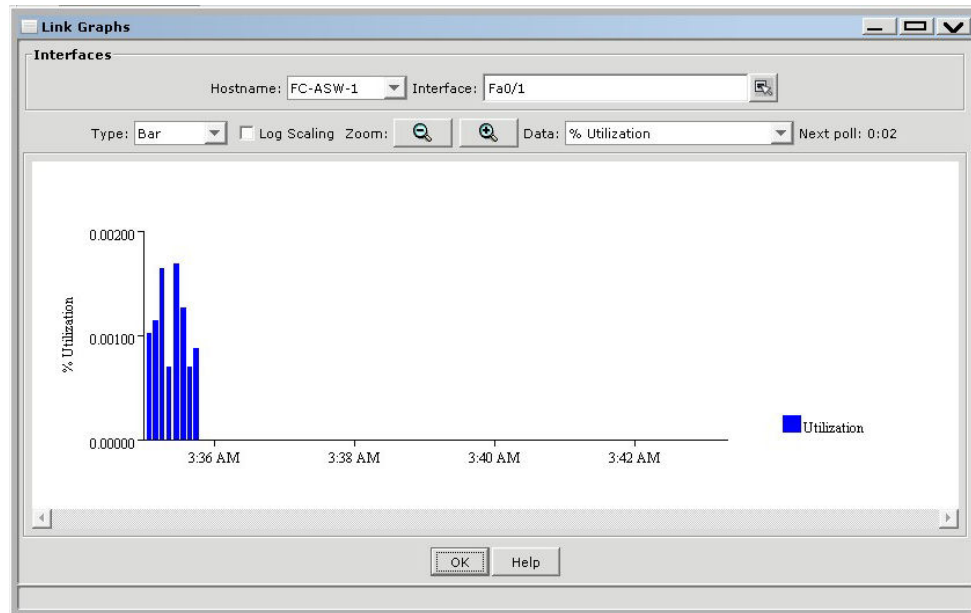
- a. From the Admin PC, launch the Cisco Network Assistant program.
- b. Set Cisco Network Assistant to discover the network. Establish a "community" of devices.
 - 1) From the **Application** menu, select **Communities**.
 - 2) In the Name field, enter **FilmCompany**.
 - 3) From the Discover drop-down list, select **Devices in an IP address range**.
 - 4) Enter the start and end addresses of the router and two switches.
Start IP address _____
End IP address _____
- c. Display the network topology and add the found devices to the community.

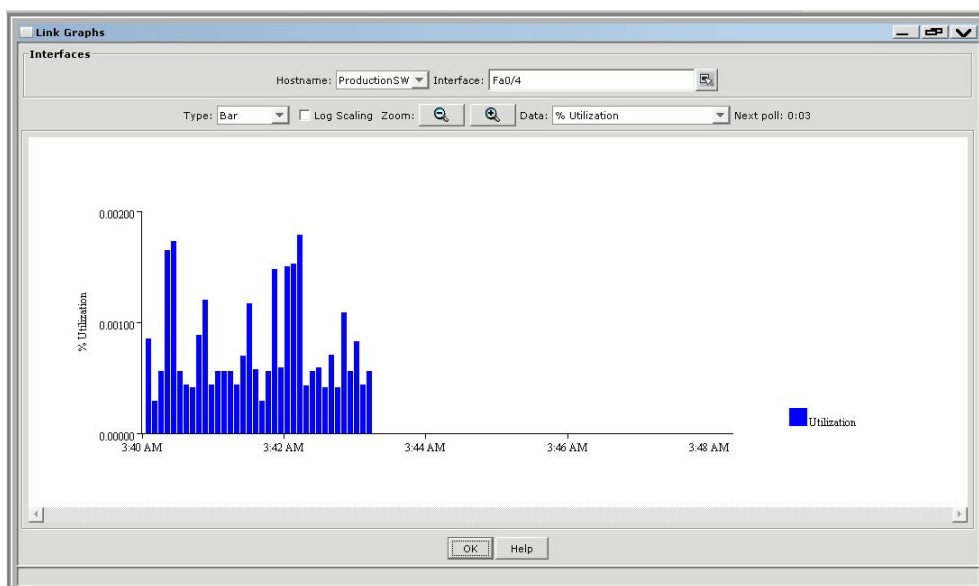
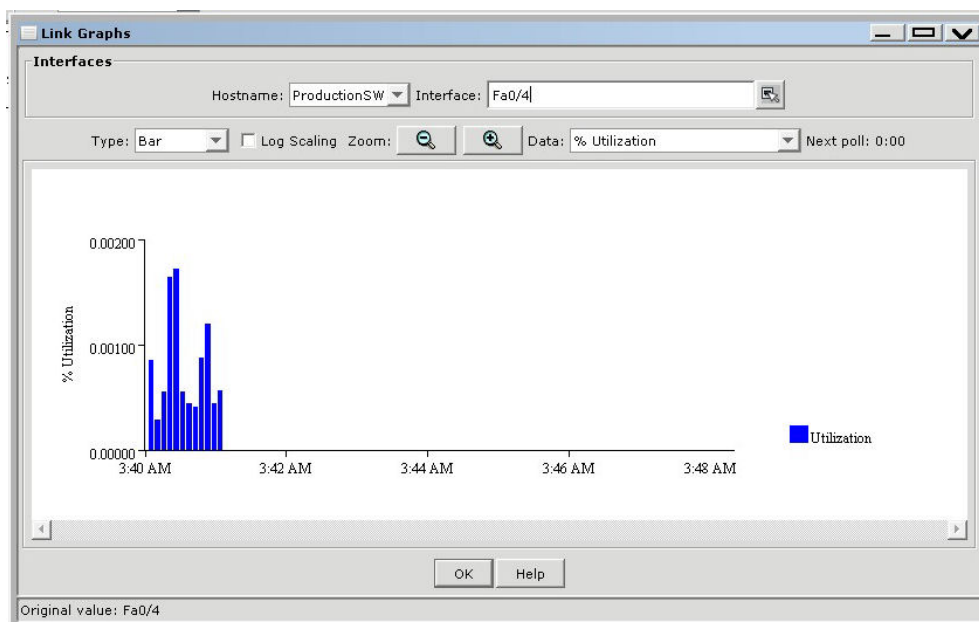


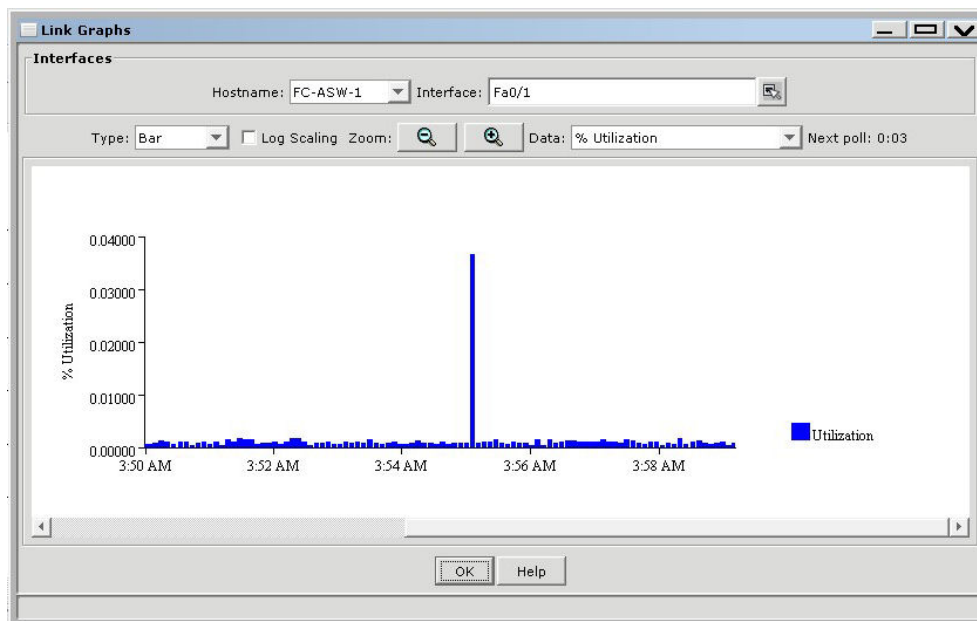
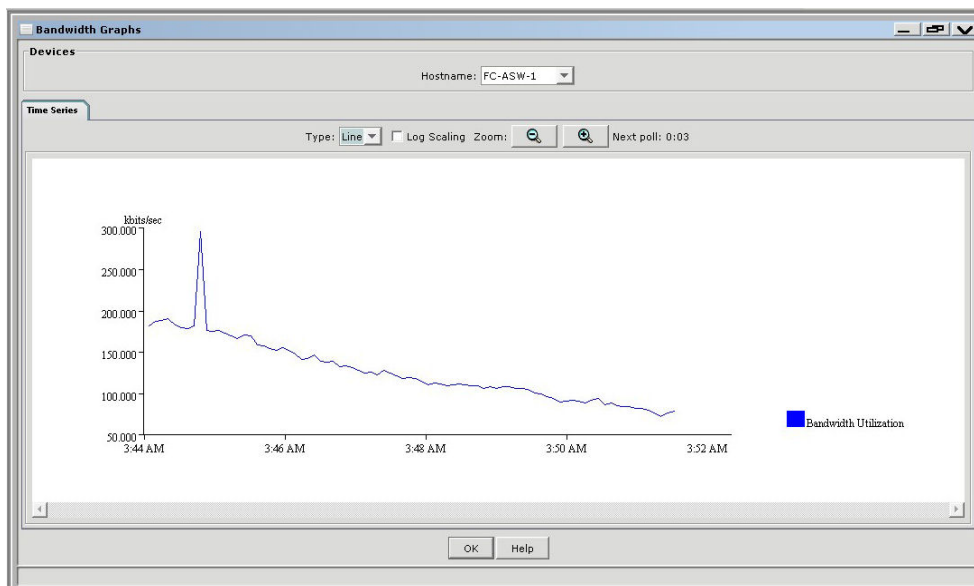
Step 3: Monitor network traffic

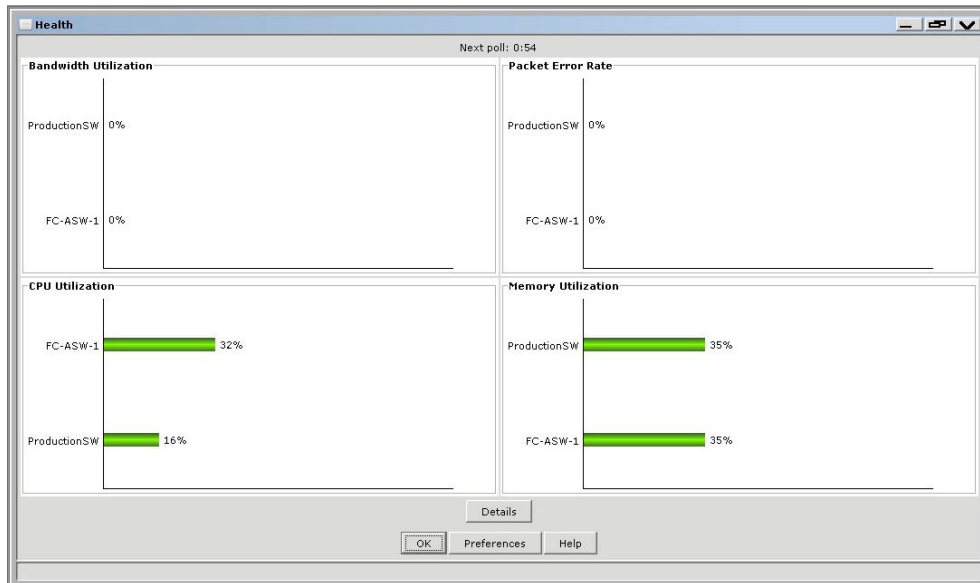
Examine the different bandwidth graphs for the network devices and determine what graphs are the most useful for monitoring network traffic at this stage.

- Use PC1 to generate network traffic.
- Ping and telnet to Discovery Server.
- Open the Discovery Server home web page in a browser on PC1.
- Use FTP to download a file from Discovery Server.









Step 4: Review the data

Typical network monitoring would be performed over a period of time. Discuss with other students and record here what conclusions could be drawn from the limited information monitored in this lab. What area do you think requires more investigation before the information would be useful in planning a network upgrade?

Step 5: Clean up

Erase the configurations and reload the routers and switches. Disconnect and store the cabling. For PC hosts that are normally connected to other networks (such as the school LAN or to the Internet), reconnect the appropriate cabling and restore the TCP/IP settings.

Step 6: Reflection

The usefulness of monitoring network traffic and performance is maximized when the full range of network usage and service situations has been recorded. Consider and discuss when recorded network performance data should be considered for network design purposes and occasions when it should not be included.
