Frame Relay Budget Proposal (Instructor Version)

Instructor Note: Red font color or Gray highlights indicate text that appears in the instructor copy only.

Objective

Describe Frame Relay operation.

Instructor Note: This activity can be completed singularly or in small groups and then shared between groups or with the class.

Scenario

It has been decided that your company will use Frame Relay technology to provide video connectivity between your main office location and two branch offices. The company will also use the new network for redundancy in case their current ISP network connectivity is interrupted for any reason.

As usual, with any kind of network upgrade, you must develop a cost proposal for your administrator.

After doing some research, you decide to use this Frame Relay web site for your cost analysis. Costs listed on the site are representative of real ISP costs – they are referenced only to help you create your cost analysis design.

For more detailed instructions, open the PDF accompanying this activity.

Resources

- Packet Tracer software
- Word processing or spreadsheet calculating software

Directions

Step 1: Use Packet Tracer to show your home office and two branch offices.

a. Use the Note tool to name the required three routers.

b. Include a Frame Relay router to show where connectivity will be placed on the ISP cloud.

c. Include the ISP cloud in the topology so that the administrators can visualize where the new Frame Relay service will connect to your Frame Relay device or router.

Step 2: Decide how many DLCI connections you need from your home office to your branch offices.

a. Determine whether to use 1.544 T1 lines for all your DLCI circuits or combination bandwidth connections of varying bandwidths.

b. Be able to justify your decisions made in Step 2a.

Step 3: Create a Frame Relay cost proposal matrix. Include approximate cost pricing found on the Frame Relay web site. Include in your matrix:

a. Access costs to the ISP

   1) Service area tariffs

   2) Interstate area tariffs

b. Cost of the Frame Relay ports

c. DLCI costs

Instructor: Students can choose to design more than one matrix for their cost proposal; however, one matrix will suffice to list all pricing or two can be designed to show one-time costs and monthly costs.

Ensure that all students are aware that Frame Relay costs are approximate and vary per ISP carrier and that different ISPs charge different rates for different services.

Step 4: Present the cost analysis to solicit comments and approval from the company administrators.

Instructor – Example Activity Solution

Frame Relay Topology Example

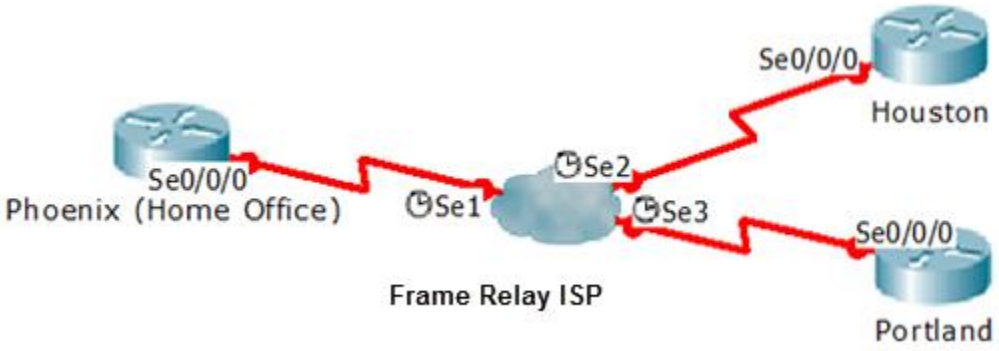

Table 1 - DLCI Virtual Circuits Requested

Phoenix to Houston Houston to Phoenix Phoenix to Portland Portland to Phoenix Houston to Portland Portland to Houston
6 DLCI Virtual Circuits

Table 2 - Frame Relay Cost Analysis

Access Costs (service area tariff)	Installation of T1 line at three sites (one time cost) 3 x $634	$1,902
	Monthly cost for three T1 lines 3 x $175 per month	$525
Access Costs (interstate tariff)	Installation of T1 line (see service area cost – included in one-time, no cost fee in this example only)	$0
	Monthly cost for three T1 lines (inter-state tariff) 3 x $120 per month	$360

Cost of Frame Relay Port(s)	Three T1 ports (one-time installation only) 3 x $375	$1,125
	Monthly cost for three T1 ports 3 x $500 per month	$1,500
DLCI Virtual Circuit Costs	Six DLCI virtual circuits (see Table 1) 6 x $15 each DLCI , monthly	$90
	Total One-Time Costs	**$3,027***
*__Does not__ include internetwork customer premises equipment costs, which could be charged by the ISP or purchased by the company for Frame Relay connectivity; for example, CSU/DSUs.		
	Total Monthly Costs	**$2,475**
	Total First Month Frame Relay Cost	**$5,502**

Identify elements of the model that map to IT-related content:

- Frame Relay ports
- Bandwidth cost
- Frame Relay device
- DLCI requirements
- Frame Relay topology