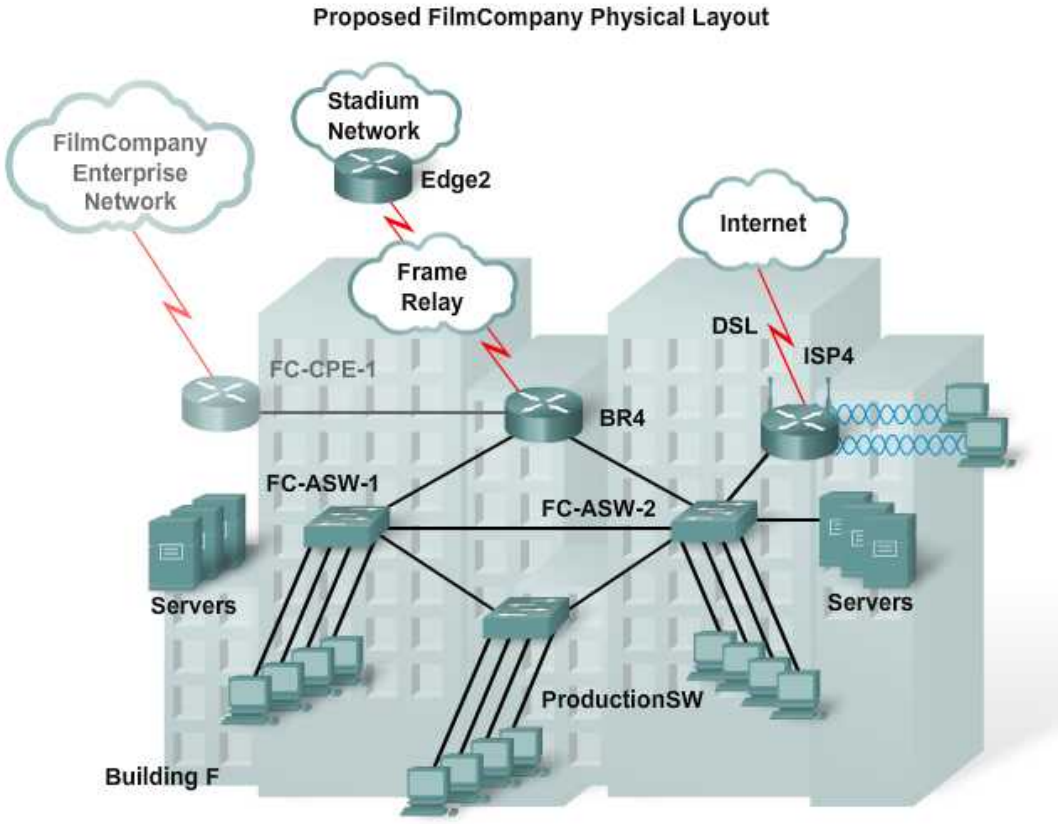
Lab 5.2.3.3 Designing the Core Layer



Objective

- Design requirements for the Core Layer network.

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.

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?

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What are the advantages of diagramming the Core Layer devices?

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What benefit can be gained from diagramming a topology before it is implemented?

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Background / Preparation

FilmCompany is an expanding 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 expansion, the state of data flow across the current network has to be established so that the network upgrade can be planned and implemented.

Developing a diagram of the Core Layer enables the designer to analyze the proposed design and identify where the network can be improved. The logical topology diagram shows that each router is identified by name and has a unique address. Redundant paths to the internal network should be planned and implemented when applicable. The logical design for the Core Layer must be aligned with the initial business goals and technical requirements of the customer. The diagram gives the designer and customer a visual idea of what is already on the network and helps to get a better view of what is still required.

In this lab, you will use a graphic program to create the Core Layer topology design.

Step 1: Identify Core Layer Requirements

a. Use word processing software to create a new document called “Core Layer Diagram.”

b. Use the identified topology and associated equipment to determine Core Layer design requirements.

Design requirements for the Core Layer network include:

High-speed connectivity to the Distribution Layer switches

24 x 7 availability

Routed interconnections between Core devices

High-speed redundant links between Core switches and between the Core and Distribution Layer devices

c. Brainstorm with other students to identify areas that may have been missed in the initial requirements document.

Step 2: Create an Access Layer module design

Using the list developed from the group discussion, create an Access Layer module (design only).

a. Create your design using the existing equipment.

The FilmCompany network equipment includes:

2 x 1841 Routers (FC-CPE-1, FC-CPE-2)

3 x 2960 Switches (FC-ASW-1, FC-ASW-2, ProductionSW)

1 x ADSL Modem for Internet Access

b. Using the list of equipment, identify modules that can be added to the existing equipment to support new features, such as redundancy.

c. Save your Core Layer Diagram document.

Step 3: Select Core Layer devices

a. Use word processing software to create an addition to the Core Layer Diagram document.

b. The identified Core Layer module diagram will be used to adjust the Distribution Layer design. Equipment selected must include existing equipment. Use Layer 3 devices at the Core Layer in a redundant configuration.

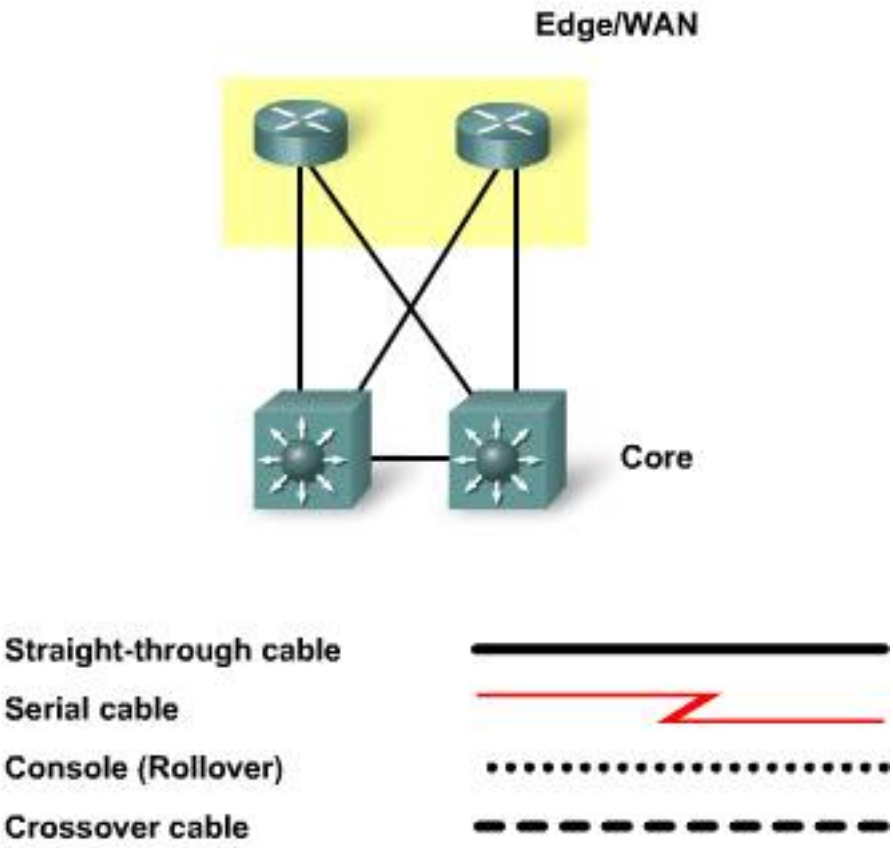
c. Save your Core Layer Diagram document.

Step 4: Design Redundancy

a. Use word processing software to create an addition to the Core Layer Diagram document.

b. Design a redundancy plan that combines multiple Layer 3 links to increase available bandwidth.

c. Create a design that incorporates redundancy similar to the example shown:



d. Save your Core Layer Diagram document.

Step 5: Reflection / Challenge

The design strategies for the FilmCompany pose many challenges for the designer. What were a few of the more difficult challenges you encountered?

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Consider and discuss the identified strategies. Do all of the strategies designed accomplish the task the same way?

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Would one be less expensive or less time-consuming than the other?

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