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Internetworking Design Basics

Designing an internetwork can be a challenging task. An internetwork that consists of only 50 meshed routing nodes can pose complex problems that lead to unpredictable results. Attempting to optimize internetworks that feature thousands of nodes can pose even more complex problems.

Despite improvements in equipment performance and media capabilities, internetwork design is becoming more difficult. The trend is toward increasingly complex environments involving multiple media, multiple protocols, and interconnection to networks outside any single organization's dominion of control. Carefully designing internetworks can reduce the hardships associated with growth as a networking environment evolves.

This chapter provides an overview of planning and design guidelines. Discussions are divided into the following general topics:

- Understanding Basic Internetworking Concepts
- Identifying and Selecting Internetworking Capabilities
- Identifying and Selecting Internetworking Devices

Understanding Basic Internetworking Concepts

This section covers the following basic internetworking concepts:

- Overview of Internetworking Devices
- Switching Overview

Overview of Internetworking Devices

Network designers faced with designing an internetwork have four basic types of internetworking devices available to them:

- Hubs (concentrators)
- Bridges
- Switches
- Routers

Table 2-1 summarizes these four internetworking devices.

Table 2-1: Summary of Internetworking Devices