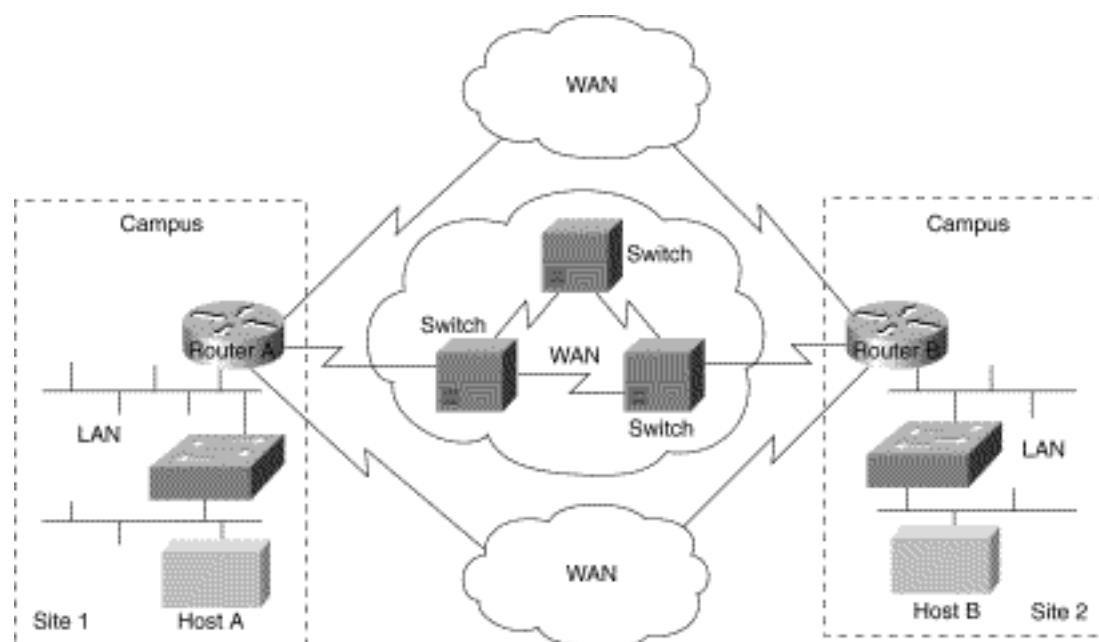**Figure 1-1: Example of a typical enterprise internetwork.**

Designing an internetwork can be a challenging task. To design reliable, scalable internetworks, network designers must realize that each of the three major components of an internetwork have distinct design requirements. 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 the technologies available today to design internetworks. Discussions are divided into the following general topics:

- Designing Campus Networks
- Designing WANs
- Utilizing Remote Connection Design
- Providing Integrated Solutions
- Determining Your Internetworking Requirements

Designing Campus Networks

A *campus* is a building or group of buildings all connected into one enterprise network that consists of many local area networks (LANs). A campus is generally a portion of a company (or the whole company) constrained to a fixed geographic area, as shown in Figure 1-2.