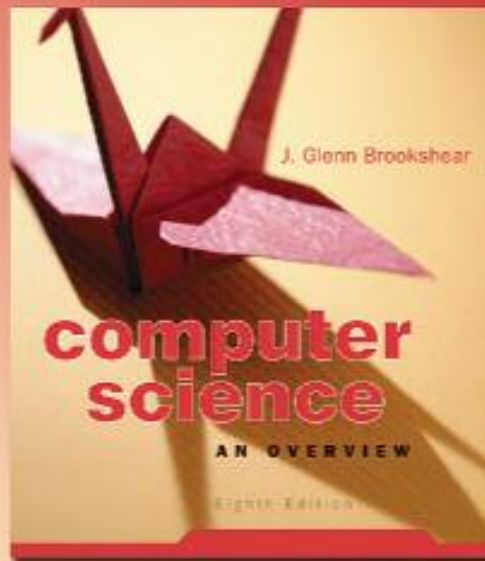


Chapter 4



Chapter 4: Networking and the Internet

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Network classifications

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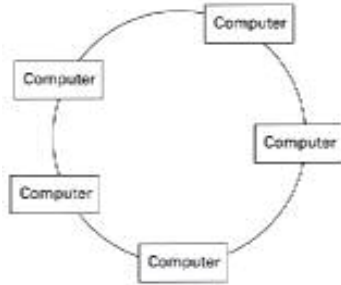
Network topologies

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Figure 4.1 Network topologies

a. Ring



b. Bus

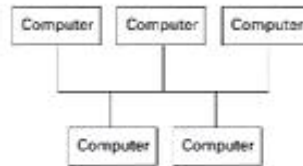
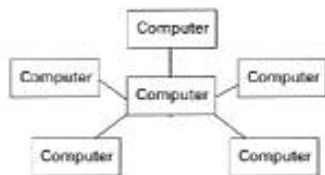
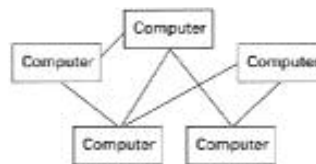


Figure 4.1 Network topologies (cont'd)

c. Star



d. Irregular



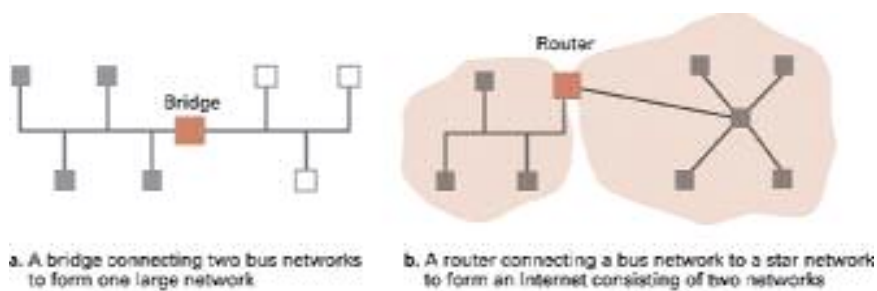


Connecting networks

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Figure 4.2 The distinction between a bridge and a router





Inter-process communication

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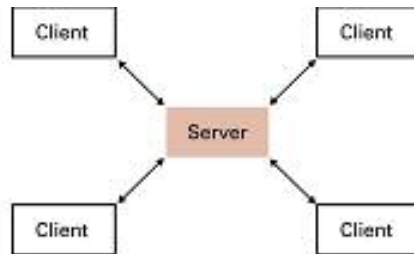


Figure 4.3 The client/ server model





Figure 4.4 The client/server model compared to the peer-to-peer-model



a. Server must be prepared to serve multiple clients at any time.



b. Peers communicate as equals on a one-to-one basis.

4-11



Distributed systems

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The Internet

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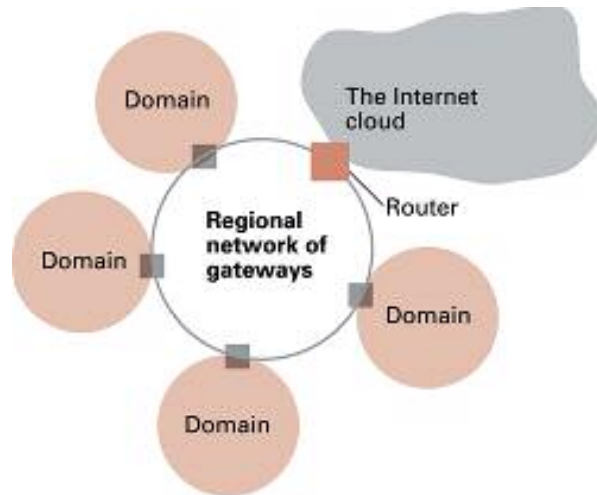


Internet Architecture

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Figure 4.5 A typical approach to connecting to the Internet



Strategies for connecting to the Internet

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Internet Addressing: IP Addresses

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Internet addressing: host names

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Internet applications

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Electronic mail

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World Wide Web

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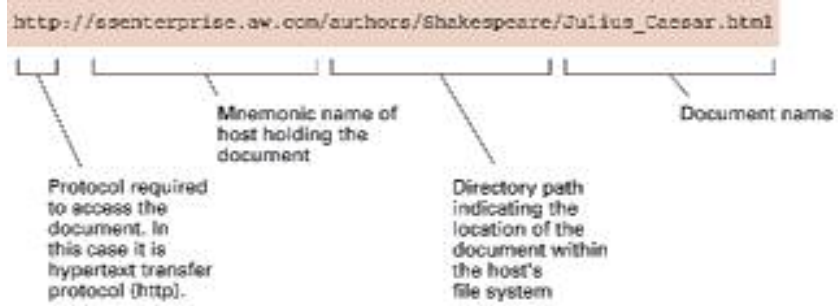


World Wide Web implementation

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Figure 4.6 A typical URL



Hypertext document format

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Figure 4.7 A simple Web page

a. The page encoded using HTML.

Tag indicating beginning of document	<html>
Preliminaries	<head>
	<title>demonstration page</title>
	</head>
Part of the page that will be displayed by browser	<body>
	<h1>My Web Page</h1>
	<p>Click here for another page.</p>
	</body>
Tag indicating end of document	</html>



Figure 4.7 A simple Web page (cont'd)

b. The page as it would appear on a computer screen.





Figure 4.8 An enhanced simple Web page

a. The page encoded using HTML.

```
<html>
<head>
<title>demonstration page</title>
</head>
<body>
<h1>My Web Page</h1>
<p>Click
  <a href="http://crafty.com/demo.html">
    here
  </a>
  for another page.</p>
</body>
</html>
```

Anchor tag containing parameter — ``

Closing anchor tag — ``



Figure 4.8 An enhanced simple Web page (cont'd)

b. The page as it would appear on a computer screen.





Extensible Markup Language (XML)

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Figure 4.9 The first two bars of Beethoven's Fifth Symphony





Dynamic web pages

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Network protocols: transmission control

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Internet software layers

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Figure 4.10 Communication over a ring network

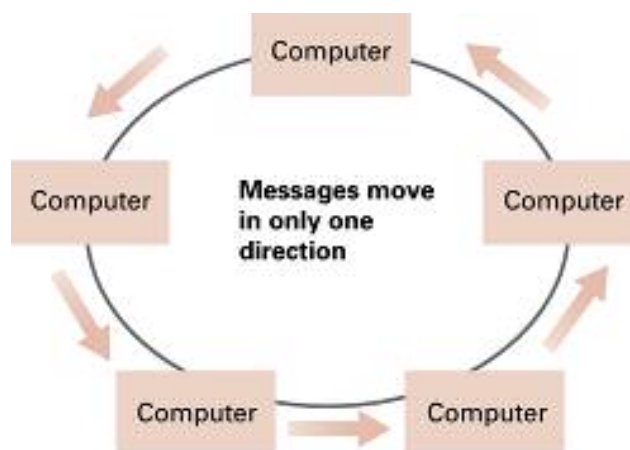
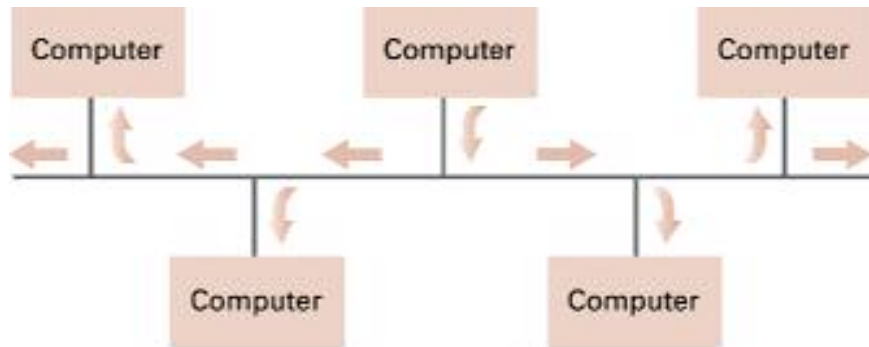




Figure 4.11 Communication over a bus network

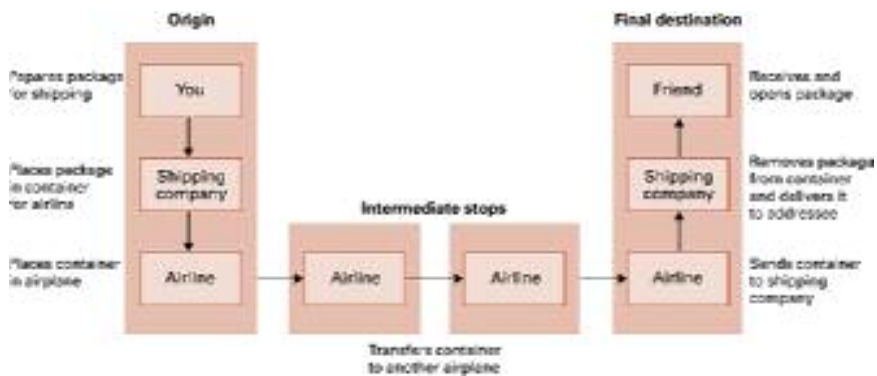


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Figure 4.12 Package-shipping example

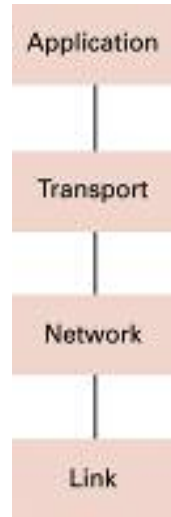


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Figure 4.13 The Internet software layers

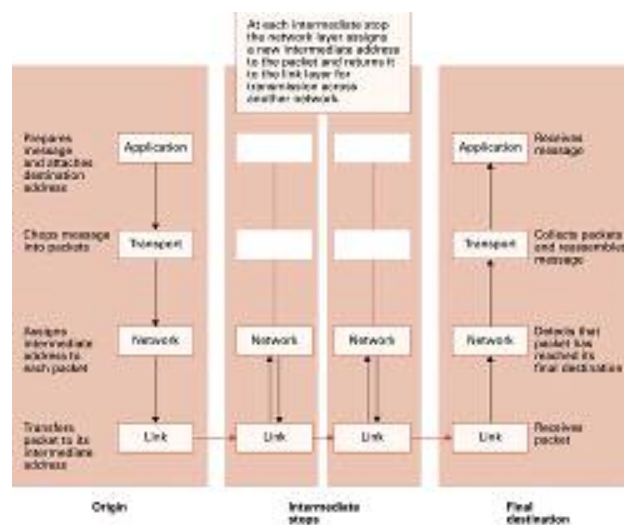


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Figure 4.14 Following a message through the Internet

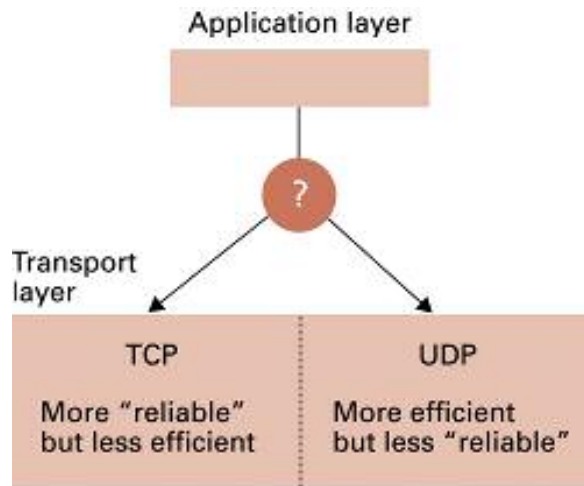


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Figure 4.15 Choosing between TCP and UDP



Network security

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