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## CHAPTER 25

# Domain Name System (DNS)

## *Solutions to Review Questions and Exercises*

### Review Questions

1. When the name space is large, searching a name in *hierarchical* structure (tree) is much faster than searching it in a *flat* structure (linear). The first can use a binary search; the second needs to use a sequential search.
2. A *primary server* is a server that stores a file about the zone for which it is an authority. It is responsible for creating, maintaining, and updating the zone file. A *secondary server* is a server that transfers the complete information about a zone from another server (primary or secondary) and stores the file on its local disk. The secondary server neither creates nor updates the zone files.
3. *Generic domain*, *country domain*, and *inverse domain*.
4. The *inverse domain* maps an address to a name.
5. In *recursive resolution* the client queries just one server. In *iterative resolution* the client queries more than one server.
6. An *FQDN* is a domain name consisting of labels beginning with the host and going back through each level to the root node.
7. A *PQDN* is a domain name that does not include all the levels between the host and the root node.
8. A *zone* is an area for which a server is responsible.
9. *Caching* reduces the search time for a name.
10. A *DNS* message is either a *query* or a *response*.
11. *DDNS* is needed because the many address changes makes manual updating inefficient.

### Exercises

12.
  - a. *PQDN*
  - b. *FQDN*
  - c. *PQDN*

- d. FQDN
- 13.
- a. FQDN
  - b. FQDN
  - c. PQDN
  - d. PQDN
14. No specific answer.
15. Remembering a *name* is often easier than remembering a *number*.
16. If computer A needs the IP address of destination B, the answer is in the IP data field. The IP destination field contains the address of computer A.
17. There are *three labels* but *four levels* of hierarchy since the root is considered a level.
18. It is always shorter by *at least a dot*.
19. This is a *generic domain*.
20. The recursive resolution is *normally faster* because multiple requests are handled by faster servers.
21. The number of question sections and answer sections must be the same. The relationship is *one-to-one*.