
Chapter 1 Solutions

Vocabulary Exercises

1. Configuring hardware and system software is an activity of the UP _____ discipline.
deployment
2. IS students and professionals should be familiar with professional societies, such as _____, _____, and _____.
ACM, AITP, IEEE Computer Society
3. Selecting hardware, network components, and system software is an activity of the UP _____ discipline.
design or architectural design
4. During the _____ UP disciplines, the business, its environment, and user requirements are defined and modeled.
business modeling and requirements
5. A technology brief found on a vendor or manufacturer Web site is often called a _____.
white paper
6. Computer- and network-related standards can be found in the digital library of the _____.
IEEE Computer Society
7. The term _____ includes several other types of computer-related architecture including computer, network, and software architecture.
technology architecture

Review Questions

1. Why does a building architect need to understand the technology of building materials and construction? Does a systems architect have a similar need to understand computer related technology? Why or why not?

A building design may satisfy functional and aesthetic requirements but it's of little value if it can't be constructed with currently-available building materials and technology. To ensure that their designs can result in actual buildings, architects must study the technology of building materials and construction. For similar reasons, a system designer must understand the technology of system components including computer hardware, software, databases, and networks.
2. How is the knowledge needed to operate complex devices different from the knowledge needed to acquire and configure them?

Operating knowledge is generally less detailed. Acquisition and configuration require a more detailed understanding of technology to address issues of compatibility and suitability for the intended purpose.

3. What knowledge of computer hardware and system software is necessary to perform activities in the UP business modeling and requirements disciplines?

A broad but not deep knowledge is needed. The fundamental question in these disciplines is “Do unmet user needs warrant developing a new system?” Answering this question requires understanding what technology should be used to meet users’ needs and a rough idea of the cost of acquiring, configuring, and installing the technology.

4. What knowledge of computer hardware and system software is necessary to perform activities in the UP design and deployment disciplines?

A deep knowledge is needed because of the detailed nature of design tasks, including acquisition, installation, and configuration. Configuration, for example, requires detailed knowledge of each component’s technology, internal operations, and interactions.

5. What additional technical issues must be addressed when managing a computer center or campus-wide network compared with developing a single information system?

Issues of cross-system compatibility and planning technology investments to meet future needs must be addressed. A large organization’s IS resources contain interrelated hardware and software technologies that partly determine the costs of providing IS services. They also define and limit the IS capabilities that can be provided to users.

6. List three types of technical information sources that an IS professional might use when researching a new storage technology and selecting specific products that incorporate that technology. Which information source types are most likely to provide unbiased information? Why?

Possible information sources include vendor and manufacturer Web sites, technology-oriented publications and Web sites, and professional society Web sites. Professional society Web sites provide the most unbiased information because those societies are typically non-profit organizations with a mission to serve the best interests of their members. Other information sources have higher bias potential because they are operated by for-profit companies with a specific interest in selling their own products or those of their sponsors and customers.

Research Problems

Project 1

New question 1: You’re an IS professional, and your boss has asked you to prepare a briefing for senior staff on the comparative advantages and disadvantages of three competing secondary storage technologies: magnetic hard disk drives, solid-state drives using single-level cell flash memory, and solid-state drives using multilevel cell flash memory. Search the digital libraries and technology Web sites listed in this chapter for source material to help you prepare the briefing. Which sites have the most advertising? Which sites seem to contain biased information and what is the nature of the bias?

Expect answers here to mirror the issues covered in the answer to review question #6. In general, technology-oriented Web sites will have the most advertising. They may also have biased content though the bias may be very subtle (e.g., ordering of links in response to a search query). Manufacturer web sites are generally light on advertising but heavy on bias (e.g., white papers). Vendor web sites will fall somewhere in the middle with less overt bias and various amounts of advertising. Professional society web sites will typically have some unbiased useful background information without advertising. But that information typically won’t extend to the latest commercially-available products.

Project 2

Answers will vary, but students might point out a trend that jobs at all levels require a broad knowledge of computer technology. However, high-level management jobs tend to emphasize broad knowledge, and many mid-level administrator, engineer, and specialist jobs require extensive knowledge in a specialized aspect of computer technology. Low-level jobs tend to require a broad but less detailed knowledge of computer technology.

Students should note that job listings from only a few companies dominate the returned listings. It's likely that some companies pay the site more money to have a higher priority in search results.