

CPSC155b, Spring 2003
Solutions to Exam 1

1. (a) Each of the following is correct and is worth two points:
 - multiplexed utilization of existing networks
 - survivability in the face of failure
 - support for multiple types of communications services
 - accommodation of a variety of network types
 - distributed resource management
 - cost effectiveness
 - low effort to attach a host
 - accounting for resources
 - (b) The second line is wrong. It is the Internet that is a best-effort network and the telephone network that does admission control.
 - (c) (i) False
(ii) False
(iii) True
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2. (a) The four factors used to test fair use are:
 - The purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes
 - The nature of the copyright work
 - The amount and substantiality of the portion used in relation to the copyright work as a whole
 - The effect of the use upon the potential market for or value of the copyrighted work.
 - (b) (iv)
 - (c) Examples of objections include the following:
 - The definition of an “effective technological-protection measure” is unclear. If a skilled hacker can break it, is it effective? If an average computer user can, but few do, is it effective?
 - The DMCA weakens incentives for content owners to pay for good content-management technology.
 - The DMCA shifts costs from content owners to society at large, by shifting responsibility from TPSs to courts and police.
 - Exceptions for R&D are vague.
 - (d) False

3. (a) Revenue models include:
- Sell goods and services and take a cut
 - Advertising
 - Transaction fees
 - Sell digital content through subscription
- (b) True
- (c) False
- (d) A product or service is *technically commoditizable* if it is built using standard parts and/or protocols (*i.e.*, “commodities”), and its functionality can be relatively easily reproduced by competitors. By contrast, an information product or service that requires significant proprietary or specialized knowledge to produce, deliver, or maintain is not technically commoditizable. Internet services such as Amazon and eBay are classic examples of technically commoditizable businesses. Complex, proprietary products such as the Windows and Macintosh platforms are classic examples of information products that are not technically commoditizable.
- (e) (iv)
4. (a) Copyright law, technical-protection services, and business models
- (b) (iii)
- (c) Give away the client software, sell the server software and subscriptions to premium content.
- (d) Microsoft’s content-distribution system is limited to Windows and (for receivers only) MacOS, and Windows servers make up only about 20% of the publicly accessible Internet. RealServer, on the other hand, runs on 11 different operating systems.
5. (a) (ii)
- (b) (i), VeriSign
- (c) Correct answers include:
- The data in them are relatively easy targets for “insider attacks.” Many system administrators and other data-processing and content-area professionals have *legitimate* access to these databases in the course of their jobs. If one of them is corrupt, he or she can do immense damage to data subjects.
 - Because of their size and importance, massive databases containing security-critical information provide more tempting targets for hackers and terrorists than do smaller, more specialized databases. They will be attacked more often and hence are more likely to be compromised.
 - Encryption-key management and other technical aspects of information-system security are harder to accomplish on a massive scale than on a smaller scale.

- Data synthesized from heterogeneous sources are likely to contain even more errors than existing consumer or credit-rating databases, because errors are introduced during synthesis. Mining of databases synthesized from numerous sources is likely to lead to misclassification of many data subjects.

(d) OECD Fair Information Principles include:

- Collection limitation
- Data quality
- Purpose specification
- Use limitation
- Security safeguards
- Openness
- Individual participation
- Accountability

The following are “simplified versions” of the above principles:

- Notice and disclosure
- Choice and consent
- Data security
- Data quality and access
- Recourse and remedies

6. (a) Network effects

(b) Napster

(c) Users are said to be “locked in” to a product or service when, because of network effects in a market or “systems effects” such as data formats, protocol standards, or past choices of complementary products, they would experience high switching costs if they moved to a competing product or service. As the Netscape story clearly demonstrates, network effects do not guarantee lock-in or high switching costs for Internet-based products. Many of these products rely only on standard Internet protocols and are technically commoditizable. A product with a large user base (such as Netscape) can be displaced by a competing product (such as IE) that provides equivalent functionality and a similar user interface.

(d) Jane Hacker, an expert “circumventor” of technical-protection technology, can post circumvention tools on a website and provide “click and install” functionality that makes these tools easy for Joe Average to use. This type of world-wide, instantaneous, and inexpensive distribution of circumvention technology is not feasible in other communication systems (such as cable TV).

7. (a) (i) both
(ii) HTML
(iii) HTML
(iv) both
(v) XML

(b) A horizontal B2B is a company with broad product focus that often serves many different industries. A vertical B2B is a company that serves a single industry and focuses on value-chain integration within that industry and expertise and in-depth content knowledge for that industry.

(c) False. XML makes processing information easier, but the companies must decide on a document format for the information. This is technically necessary because XML cannot be parsed without an accompanying document type definition (DTD).

(d) Answers include the following (see lecture notes from February 11, 2003):

- As a participant-owned B2B, Covisint's revenues will eventually come out of the revenues of its participant companies, which might provide a disincentive for the growth of Covisint.
- Auto companies are the only ones to set the rules for the exchange.
- Not all auto companies and auto-industry suppliers are signed up, possibly limiting the improvements gained by using Covisint services.
- Initially, there aren't real-time, transparent supply-chain connections between all auto companies and suppliers. Thus, the integration improvements Covisint hopes to provide are not visible from the start.
- Covisint faces competition from similar exchanges created by other auto companies.
- Rising tensions exist between software partners as Covisint delays final specifications for application development.