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History: The First Internet - NSFNet
Graded Assignment • 30 min

Due Feb 25, 11:59 PM CET

1. What was the primary reason for the development of store and forward networks by the academic community? — 1 point

- (•) Due to a imited number of installed copper wires, transfer with leased lines was expensive
- ( ) There were no leased lines available in the US
- ( ) Leased lines were only available to businesses like banks
- ( ) Wireless communications like 4G were much slower than the leased copper wires from the phone company

2. What is the relationship between the number of hops on the store and forward network, and the time taken for a message to be delivered? — 1 point

- ( ) For each new hop in the network the delivery time always doubles
- ( ) The number of hops don't matter because more hops means less traffic per hop
- ( ) More hops in the network decrease delivery time
- (•) More hops within the network usually result in a longer delivery time

3. What were the primary motivations for the Department of Defense to develop the research network ARPANET? — 1 point

- ( ) There was a desire to make sure consumer hand-held devices would continue to function in case of nuclear war
- (•) To improve computing equipment for military purposes, making it easier for people to access computers, and communicate more effectively across the military.
- ( ) They knew that if they built the ARPANET during the 1970's it would lay the groundwork for massive economic growth in the later 1990's
- ( ) Cisco was using the ARPANET to test the performance and reliability of its early products in the 1970's and 1980's

4. What was the fundamental difference between the store and forward network of BITNET, and ARPANET? — 1 point

- (•) Packet switching
- ( ) ARPANET was essentially a store-and-forward network for the U.S. Military
- ( ) The use of leased lines from the telephone company
- ( ) The use of computer terminals

5. In the shared network, the role of the router is: — 1 point

- (•) To quickly forward packets to the next router
- ( ) To reassemble packets into the original message
- ( ) To store all of the possible routes between a pair of connected computers
- ( ) To store data when a network link went down

6. What are the advantages of packet switching? — 1 point

- (•) Many messages can be in-flight at the same time, preventing large messages from blocking small ones
- ( ) Packet switching slows all messages down to the speed of the slowest message
- ( ) Packet switching makes sure every packet takes exactly the same path from the source computer to the destination computer
- ( ) There is no major advantage and the decision to do packet switching was politically motivated

7. Why did the National Science Foundation decide to build a national shared network? — 1 point

- (•) It was very expensive to give each university its own supercomputer. A national shared network was more affordable.
- ( ) Microsoft wanted to build networking into Windows-95 and they needed a testbed for their new software
- ( ) Cisco wanted someone to develop and test router technology so they could build a business around network hardware
- ( ) AT&T and other telephone companies wanted to give academics a chance to build a prototype of a next-generation fiber-optic network

8. Larry Smarr was one of many instrumental players in creating the first national network. What do we learn from his interview? — 1 point

- (•) That high performance computing needs at universities and the Internet were deeply connected
- ( ) From the first moment that NSFNet was turned on, Google was the most popular application
- ( ) Access to shared library resources (journals etc) were the primary motivator of the NSFNet
- ( ) Telephone companies were very supportive of NSFNet.

9. Why did the University of Michigan not participate in the ARPANET research project? — 1 point

- ( ) No states starting with the letter 'M' were included
- ( ) Michigan had its own state-wide network, consisting of 10 nodes
- ( ) When Michigan first connected to ARPANET they crashed the network, and so were permanently removed from the project
- (•) Michigan had its own state-wide network, consisting of 3 nodes

10. In the late 1980s, how did the first average citizens get Internet access? — 1 point

- (•) First the 'academic-only' rules were quietly ignored and then later the 'academic-only' rules were removed completely
- ( ) Average citizens could purchase Internet access commercially
- ( ) Some citizens hacked into the network
- ( ) ARPANET became the first Internet Service Provider (ISP) and sold access to the NSFNet

11. What was the primary difference between the University of Michigan proposal to build the NSFNet, and the other proposals? — 1 point

- ( ) The University of Michigan proposal used the superior store-and-forward approach. The other proposals used packet network approaches.
- (•) The University of Michigan Proposal used partnerships to deliver $55Million of value for $15M of NSF funds awarded.
- ( ) The University of Michigan proposal included a search engine. The other proposals only had a directory-style lookup of Web resources.
- ( ) The University of Michigan proposal connected high-schools to the Internet. The other proposals only connected the supercomputer centers.

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