

Information Network I Exam (2014)

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NOTE:

- Mind the readability of your writings, as well as the detail and clarity of logic, for fair evaluation.
1. Think of designing an automated network diagnostic device that do not require any user input. The outcome of network diagnostics may include, but not limited to, cabling issues, hardware failures, configuration issues, software bugs, and excess workload. How would you combine application/transport/network layer protocols to diagnose networks automatically?
 2. Consider building a distributed wireshark that can be placed at arbitrary two points in your network and analyze discrepancies between the distant measurements. Present outline of your design, along with its benefits, using one or two diagrams and accompanying text. Benefits may include, but not limited to, performance, security, or manageability.
 3. Revisit Assignment 1 and describe how you would model differently with your current knowledge.

(Assignment 1)

Choose one particular scene of the future-vision videos that we have seen, then describe how two or more existing technologies are combined to make it happen. The description can be based on your hypothesis and your current (limited) knowledge.

4. Flow/congestion control of TCP uses a parameter called congestion window, or `cwnd`, for better handling of slow start and throughput estimation. Describe the role, meaning and behavior of `cwnd` precisely.
5. DNS protocol is not protected from potential adversaries and other network failures. Describe why it is not protected, and how it can be protected.

End