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Chapter 1:

**1.** Explain the term *network management* in one sentence.

Network Management is a term used to define the running of a network; this encompasses troubleshooting, diagnosis and daily maintenance of a network, along with upgrading or scaling it.

**2.** We used a patient in intensive care as one analogy to explain network management. Can you

think of areas in network management that this analogy does not capture?

A patient in intensive care is a good analogy to explain network management, however, when it comes to networks, upgrading often times means a better alternative while saving money. These decisions are usually taken by the administration staff of the network.

**3.** Can you think of other areas in which you would expect analogies to network management to

apply?

Another good analogy to network management would be a city’s transportation system. Subway, busses and rail, can be a good analogy to a computer network. Both need to people during peak loads, or better adjust in case of maintenance, whichever the case may be.

**4.** Give two examples of how network management can help an enterprise IT department save

money.

Network management can save money by quickly troubleshooting network issues or better distributing tasks among employees.

**5.** Give two examples of how network management can help a service provider increase

revenue.

Network management can help a service provider increase revenue by offering high quality of service (fast rollout) and or offer new services, resulting in new customers looking for more communication capabilities.

**6.** A famous requirement for availability is “five nines.” This refers to the requirement that a

device or a service must be available 99.999 percent of the time. Assume that you have a

device with hardware availability of 99.9995 percent. Now assume that an operational error

is made that causes the device to go offline for 5 minutes until the error is corrected.

Calculated over a period of a month, how much has the operational error just caused

availability to drop?

Assuming a month has 2592000 seconds. With the 99.9995% availability AND the 5 minutes down time, the number of uptime is (2592000\*99.995% - 300 sec) = 2591987.04 seconds. This will amount to 99.988% uptime for that particular month.

**7.** How does the perspective under which network management is approached often differ for an

enterprise IT department compared to a service provider?

Network management is the lifeblood of a service provider. This means any advantage such as better uptime, cost effective hardware deployment or faster data transfer means a better business model, whereas an enterprise IT department often views network management as a necessity which must run on a budget. Another words, staff is minimal and there is no cutting edge innovation or hardware deployment.

**8.** Name at least two factors that can be important to the business success of a third-party

management application vendor that potentially has to compete with a network management

offering of a network equipment vendor.

The ability to support new vendors and equipment along with quick rollout to the marketplace can help a third party management application vendor have success in the business.

**9.** What does the term *swivel-chair syndrome* refer to, and why is this undesired?

This refers to the need to switch between terminals due to lack of integration between management applications. In the optimal setting, everything can be run from the same terminal without the need to switch terminals, or change places.

**10.** Name two or more reasons for network management applications to be approached as

distributed systems.

Network management applications are distributed systems because they can scale the network size, they have a global reach and they are capable of communication across multiple systems.

Chapter 2:

**1.** Is running a network only a matter of network management technology, or are there other

considerations?

The most important aspect of running a network is the human factor, but we can also add procedures and organizations to this list.

**2.** What does Pat’s employer use to track the resolution of problems in the network?

Network problems can be tracked through a trouble tickets and managed via the trouble ticketing system.

**3.** How does the integration of the work order system with the trouble ticket system make Pat’s

job easier?

It helps by quickly resolving repetitive issues and it notifies when these issues have been solved.

**4.** Which network provider do you think will be more vulnerable to human failures by

operations personnel, Pat’s or Chris’s?

Chris’s because of the lack of well-defined procedures. Pat’s network provider is well organized.

**5.** Which of the following can be used as management tools? A. alarm management system, B.

spreadsheet, C. pencil and piece of paper, D. all of them.

D. All of them, because they can each be used to track network issues.

**6.** In how many different places does Chris need to maintain the same phone number, and why

could this be an issue?

He needs four places in order to maintain the same number. This can be an issue if the network size will increase.

**7.** When Chris is worried about compromised security of his company’s network, does the threat

come from outside attackers or from within the network?

The threat comes from within the network. The security issue needs to be treated with respect on both sides: outside and inside the network.

**8.** Connectivity between different company sites is provided by an outside MSP. Why is Chris

nevertheless concerned with monitoring traffic statistics across these outside connections?

Traffic statistics can provide a good measure of how much data is sent across the network. This is important because it can give a good measure of what resources are needed and how to manage the costs.

**9.** When Sandy wants to implement a security policy for the Internet Data Center, at what

different levels does she take security into account?

Two different levels have to be taken into account: the user or application level and the network level.

**10.** Why is Sandy interested in “old” performance data and traffic statistics, even though she is

not monitoring actual network operations?

Old network traffic data is still useful because it can show growth or decline in network traffic. This can be used to scale up or scale down the network in order to optimize costs and available resources.