CompTIA Network+ Domain 4 - Study Guide

4.0 Network Management

Network management comprises approximately 20 % or 20 questions related to the CompTIA Network+ Certification.

Below are a list of web sites that may prove to be quite helpful for learning more about network management and troubleshooting. The links can also be used for the next CompTIA Domain 5 - Network Tools. Domain 4 and 5 are closely related as you will see.

An IBM troubleshooting link.
http://www-947.ibm.com/systems/support/supportsite.wss/docdisplay?lndocid=MIGR-40284&brandind=5000008

Troubleshooting links located at the Microsoft TechNet site.

http://technet.microsoft.com/en-us/windowsserver/cc135396.aspx

http://technet.microsoft.com/en-us/library/cc753935(WS.10).aspx

http://technet.microsoft.com/en-us/library/cc770751(WS.10).aspx

http://technet.microsoft.com/en-us/library/cc754868(WS.10,printer).aspx

There is a corresponding practice test located at the www.RMRoberts.com website at the following link (link here). Do not take the Network+ Practice Exam until you have completed the study guide.

4.1 Explain the function of each layer of the OSI model

There will be several questions related to the OSI model. The questions will typically ask you to identify a specific layer as it relates to common network protocols and as it relates to network functions.

• Layer 1 – physical

• Layer 2 – data link

• Layer 3 – network

• Layer 4 – transport

• Layer 5 – session

• Layer 6 – presentation

• Layer 7 – application

4.2 Identify types of configuration management documentation

• Wiring schematics

• Physical and logical network diagrams

• Baselines

• Policies, procedures and configurations

• Regulations

4.3 Given a scenario, evaluate the network based on configuration management documentation

• Compare wiring schematics, physical and logical network diagrams, baselines, policies and procedures and configurations to network devices and infrastructure.

• Update wiring schematics, physical and logical network diagrams, configurations and job logs as needed .

4.4 Conduct network monitoring to identify performance and connectivity issues using the following:

• Network monitoring utilities (e.g. packet sniffers, connectivity software, load testing, throughput testers).
• System logs, history logs, event logs

4.5 Explain different methods and rationales for network performance optimization.

Methods:

• QoS

• Traffic shaping

• Load balancing

• High availability

• Caching engines

• Fault tolerance

Reasons:

• Latency sensitivity

• High bandwidth applications
    - VoIP
    - Video applications
• Uptime

4.6 Given a scenario, implement the following network troubleshooting methodology.

• Information gathering – identify symptoms and problems
• Identify the affected areas of the network
• Determine if anything has changed
• Establish the most probable cause
• Determine if escalation is necessary
• Create an action plan and solution identifying potential effects

• Implement and test the solution
• Identify the results and effects of the solution
• Document the solution and the entire process

4.7 Given a scenario, troubleshoot common connectivity issues and select an appropriate solution.

Physical issues:
• Cross talk

• Near End crosstalk

• Attenuation

• Collisions

• Shorts

• Open

• Impedance mismatch (echo)

• Interference

Logical issues:
• Port speed

• Port duplex mismatch

• Incorrect VLAN

• Incorrect IP address

• Wrong gateway

• Wrong DNS

• Wrong subnet mask

Issues that should be identified, but "escalated:"

The fact that the test item committee of CompTIA wants you to "escalate" the issue is a quite interesting choice of word. "Identifed but escalated" means that the problem should be referred to a more-experienced network tech, but you are still responsible to diagnose or simply identify the problem however you should not be required to repair it. It is obvious that, for the test area, the test committee was split on the responsibility of the first year network technician. It sounds like the committee thinks the first year tech should now be able to identify problems, but not to fix them without direct supervision from a more experienced technician.

I recommend that you know the symptoms produced by each problem, and what type of device will most likely cause the problem and the most common way to correct the problem.

Switching loop

Routing loop

Route problems

Proxy arp

Broadcast storms

Wireless Issues:

Interference (bleed, environmental factors)

Incorrect encryption

Incorrect channel

Incorrect frequency

ESSID mismatch

Standard mismatch (802.11 a/b/g/n)

Distance

Bounce

Incorrect antenna placement

This study guide is provided to you by www.RMRoberts.com Please feel free to use this guide in your classroom. No answers will be provided and each student should create a unique set of responses for the guide.