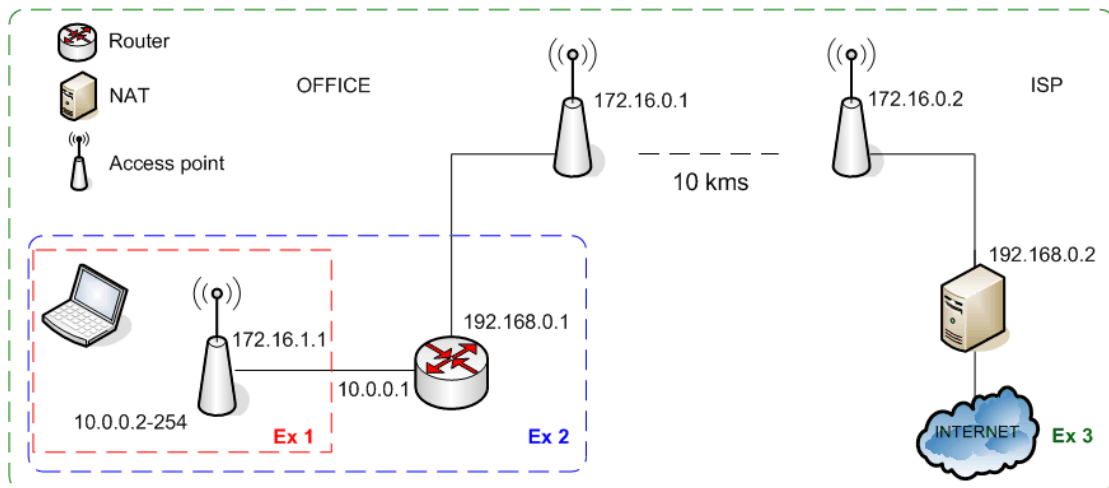


ITRAINONLINE MMTK

Exercises: Wireless Troubleshooting

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The image above shows (on the left) an office building connected via a PtP wireless link (10 kms) to an ISP. The wireless PtP link is bridged.

The clients in the office are connected to a wireless LAN. The clients are assigned IP addresses in the range of 10.0.0.2-254 via DHCP from the access points.

Exercise 1: Layer 2 – The Media Access Layer

A client enters his office, which is covered by wireless LAN. He starts up his laptop to check mail. The mail can not be reached. He calls the support team and says "I can not read my mail, please come here and have a look!".

You are working for the support team. Approach the problem with a bottom-up approach and start to troubleshoot from Layer 1 in the TCP/IP protocol stack - the Media Access Layer.

Question 1: How can you troubleshoot the Media Access Layer?

- Which functionality can you test and how do you perform the tests?
- If a problem is identified, what are the steps you follow to fix it?

Question 2: Name one tool that can be useful for troubleshooting the Media Access Layer.

Exercise 2: Layer 3 – The IP layer

Assume that the Media Access Layer is functioning properly but the problem still persists. Move onto the next layer in the stack - the IP Layer.

The IP addresses in the Office are given by a DHCP server (10.0.0.1) that runs in the router .

Question 1: How can you troubleshoot the IP Layer (first hop to the router)?

- *Which functionality can you test and how do you perform the tests?*
- *If a problem is identified, what steps do you follow to fix it?*

Question 2: Name one tool that can be useful for troubleshooting the IP layer.

Exercise 3: Level 3+ – The transport layer and above

Assume that the client has a valid IP address (range 10.0.0.2-10.0.0.254) but the problem still persists (the client cannot check mail from the Internet). Troubleshoot Layer 3+ – the Transport Layer and above.

Note that the whole 10.0.0.0/8 network is connected to the Internet by a point-to-point wireless link. The 10.0.0.0/8 network is routed to the NAT server 192.168.0.2.

Question 1 : Describe what can go wrong in every communication “hop” in the whole picture.

Question 2 : Describe how to solve the problems or who you might need to contact to solve them.

Question 3 : Describe what tools can be useful to identify each problem.