Intro:

ACME Inc. network is running slow again. The company's Support Team, following guidelines left by you on your last visit, reports they already checked for viruses and malicious software running on the user PCs but nothing was found.

The Scenario:

You get to ACME office and, once more, go check the server. ACME software is up and running and the system itself is correctly updated. The process queue is normal and the server is operating at normal pace. No viruses or malicious software are running on it either.

A visual inspection on the Central Switch leads to the belief that it isn't suffering an attack. To double check it you connect your laptop to the Central Switch's console port, issue a few commands and conclude the Central Switch has no problems.

You take a look on the reports generated by ACME's Support Team and, based on the tools, procedures and tests performed by them, you conclude no viruses or malicious software are running on the user PCs as well.

You randomly pick a user PC to simulate a regular ACME user network access and verify that even though there is connectivity, the network's response is a way slower than normal. This behavior matches the report given to you via telephone.

After your last visit you left the network working at its full power and with no traffic delays. Based on your own tests and reports received from ACME's Support Team, you start suspecting an external factor. You ask one of the managers if something was changed on the office and he tells you a second air conditioning unit was installed at the A/C room. After a quick check you learn that the A/C room is the room next door from the wiring closet, the room where the Central Switch and ACME Server are hosted.

A visual inspection shows the network conduits, and thus network cables, were originally run over the A/C room ceiling. Since ACME cabling is based on non-shielded CAT-5 UTP cables, they are subject to external interference.

Using a cable tester, you test all the cables running from the wiring closet and conclude that cables over the A/C room ceiling have a high level of noise. A quick talk to maintenance staff reveals the new A/C unit's power line was installed just besides the previous installed network cabling.

You explain the situation to ACME's manager and to the maintenance person and sign an A/C power line change formal request, on behalf of ACME's network.

Challenge Questions:

a. What's the name of this kind of interference?
b. Explain why it can slow down the network traffic.
c. Would the result of the tests be any different if the networking cabling was running next to a just installed small alarm clock instead of an A/C unit? Why?