TOPIC: UPnP for the open Internet - a security review

RATING: Undergraduate, medium challenging

BACKGROUND
Universal Plug and Play is a system for allowing easy networking connectivity for peripherials like printers. It could be useful in the open Internet and for enabling the participants of a mobile community to find each other, but has several security flaws.

BASIC TARGET
Start by reading http://www.goland.org/upnp_security_flaws/ from 2002 and find out how the UPnP has developed since. Analyse the articles and technical documents you find and write your own evaluation.

ADVANCED TARGET

REFERENCES
Goland, Yaron, UPnP Security Flaws, 2002, http://www.goland.org/upnp_security_flaws/
UPnP Forum: http://www.upnp.org/

TOPIC: An overview of service discovery methods for mobile entities

RATING: Undergraduate, medium challenging to very challengig

BACKGROUND
The members of a mobile community need to find each other. One method is service discovery protocols, which enable network entities to find about services around them.

BASIC TARGET
Find out what are the different service discovery protocols and decide on criteria for mobile requirements (modify exising criteria in the papers). Analyse the protocols and present your analysis.

ADVANCED TARGET
Take a broader scope of maintaining the mobile community besides the service location protocols (e.g. rendezvous servers) or put more work into analyzing the requirements and evaluation criteria.

REFERENCES
McGarth, Robert E., Discovery Protocols for Ubiquitous Computing, 2000

TOPIC: Analysis of service location protocol interactions

RATING: Undergraduate, challenging, tehcnical

BACKGROUND
When traveling in the electronic landscape and connecting to different services, we meet service solicitations, answer to them and accept or reject the services.

BASIC TARGET
Select a few protocols (e.g. UPnP, SLP, JINI) and analyze their communications, paying attention to the information received and passed and possible security implications. The purpose is to put the different protocols on same line for analyzing them further. You need to make a framework for yourself and to categorize the roles of a server, client, peer, etc. Two or three protocols should be challenging enough, maybe even one.

ADVANCED TARGET

REFERENCES
This paper lists sources to different protocols:
Raatikainen, Kimmo, A New Look at Mobile Computing, IWCT 2005