

Network design

Design



In this paper I will be going over a network design proposal for a building on the COMIC campus in Delphi, Maryland. I would plan to run a fiber optic network to ensure the fastest speeds possible and fiber optics are notorious for not having any signal loss compared to a Cattle. Using a star topology throughout the building with the servers in each classroom connected to the server room on the respective floor. Equipment used to build the network will consist of servers, routers, hubs and computers.

There will be a physical firewall installed on each server and an IDS Snort) for the network as well as AVGAS firewall and virus scanner. The network will have a 116 subnet with the following Pips serving each section: 10. 11. 0. 0 as the Network Identifier 10. 11. 1. 0 as the Instructional Network (. NET) The broadcast IP will be 10. 11. 1. 255 Available will be 10. 11. 1. 1 - 254 10. 11. 2. 0 as the Administrative Network (ADAM) The broadcast IP will be 10. 11. 2. 255 Available WTLS be 10. 11. 2. 1 - 254 10. 1. 3. 0 as the public Network (PUB) The Broadcast IP WTLS be 10. 11. 3. 255 Available will be 10. 11. 3. 1 - 254 Each subnet will have a maximum of 253 IP addresses, which is more than enough for each section. The Instructional and administrative networks will use assigned IP addresses to keep all traffic segmented. The public network will use DDCD beginning with 10. 11. 3. 2 through 10. 11. 3. 254. This network is a Star Network as all computers will have the ability to communicate with each other.

By using a star topology we avoid a situation where if a machine goes down then the whole network goes down. The Admin computers will be on a separate network to keep the students from access to higher functions on the network, and the IT Staff computer will be given the highest access

based on their Job. **FIRST FLOOR** On the first floor, there are 60 student computers (INSIST), 13 teacher/adman computers (ADAM), 4 servers (ADAM), and WIFE In the student lobby (PUB) with 253 available connections. 0 of these student computers will be located In the Library, and 20 student computers In classrooms 1, 2, 4. This network will be maladapted by 4 servers with one In classrooms 1, 2, and 4 and one they all connect to In the server room. On each server will be a Snort IDS running with specific rules Identified to capture malicious attempts to enter the network. Avgas Firewall and Virus software will check very connection to Identify virus's anomalous code and prevent unauthorized traffic.

SECOND FLOOR On the second floor, there are 60 student computers (INSIST), 9 teacher/adman computers (ADAM), and 5 servers (ADAM). 30 of these student computers will be located In the computer lab, and 20 student computers In classrooms 1, 2, 5. This network will be maintained by 5 servers on this floor with one In classrooms 1, 2, and 5 and with specific rules identified to capture malicious attempts to enter the network. Avgas Firewall and Virus software will check every connection to identify virus's malicious code and prevent unauthorized traffic.