

## MISLG4: Assignment to Measure Student Performance

You have just been hired as the only IT support staff for a manufacturing company that employs approximately 70 people. Your first assignment is to design a network that supports the companies needs while providing security for their data and operations.

The company has the following departments:

- Sales with five employees who use laptops both in and out of the office.
- Finance with five employees, **each** with a desktop computer and network-connected printer for reports and/or checks.
- Engineering with five employees, each with a high-end CAD workstation. The department shares a networked plotter for printing drawings
- Information technology with one employee (you!), a desktop and laptop.
- Manufacturing with two shifts of 20 employees that operate two network-enabled machines to produce the company's products.

You are currently responsible for (in addition to the printers in Finance & Engineering) four networked printers available to everyone in the company, an authentication server, a DHCP & DNS server, a file server, a database server, and an Internet webserver.

The president of the company is security and cloud aware, and has set the following requirements that your design must meet:

- The company cannot afford to maintain their "server closet", so there will not be any additional servers installed on-site. Future server needs (including replacements for the current servers as the age) will be handled in the cloud.
- Individual machines must be identifiable in system logs for both on-site and cloud services.
- Sales and Finance are the only departments that need access to the database server.
- Engineering saves final CAD documents to the file server for Manufacturing to use in production.
- The web server accepts orders from the general public.
- The company has obtained 203.0.113.0/26 from their Internet Service Provider.

In your assigned groups, create a table of machines with assigned IP ranges and subnet masking as learned to isolate functional groups for security reasons. Be sure to include the network and broadcast addresses for each domain. It might be helpful to create a network map for visualization purposes but this is not mandatory. You will present your solution to the class on Wednesday, December 11 @ 3:30 pm during the final exam time slot. All members of your group must speak and you will have 10 minutes to share your design, talk about the choices you have made and why. I expect your time to be utilized effectively and efficiently. (Meaning, 9:15-10:45 minutes is your target presentation time. More or less will be penalized.) If it helps, think of it as a design proposal for your client (me)!