**ITMO 440/540 - Introduction to Data Networking and the Internet**

**Lab #3 Building a Network**

**Due: May 4th, 2017**

You have been hired by a consulting firm in downtown Chicago as the Network Manager. They are still using a token ring network in their current environment as the prior Network Manager Vasilios "Billy" Pappademetriou refused to learn about updated networking standards.

Your first task is it bring their networking infrastructure up to industry current standards. You will be submitting this to the Director of Information Technology so it should be written as a standard business proposal (spelling, grammar, matter!). Additionally, you should submit a spreadsheet with a breakdown of the items you plan to purchase in this upgrade scenario along with links to each item and costs. Visio diagram of what you are designing might be a nice addition but it is not required. Remember this is a business document you are giving to the Director of IT (neatness, ease of reading, organization count).

* You support a staff of 80 employees in a one-floor office building, with access to power, ceiling, and basement. There are no right-of-way issues.
  + Overall square footage is 15,000 square feet for the office space
* In terms of the overall environment you have the following:
  + 120 Desktop computers (remember the token ring network, what needs to change)
  + 4 Servers (one email, one file, one print, and one DNS/DHCP/AD)
  + 4 Multifunction Printers
  + 90 VoIP Phones
  + The legacy token ring network
  + You have an ISP, but it is not renewing your contact. You need a new one for Internet to your office. What speed do you need?
  + The computers, printers, are in working order and do not need to be replaced. How do you upgrade them from the legacy token ring network to a current standard? What item needs to be added to the desktops?
* Overall budget of $50,000 USD for all equipment, services, ect.
* When it comes to the overall layout of the office. The desktops are in rows of with 20 computers per row (so 6 rows total). The servers are all located in a server room and this is where the current ISP drop is located as well. The 4 printers are located against the walls in the North, South, East, and West parts of the floor.
* For the VoIP phones, they currently use power bricks to power them, which are located at each person’s desk. How do you power them and use them without the power brick? (Extra credit) -----🡪>>>>>>PoE
* What networking equipment do you need? At minimum, you require a wired network. Should you have a wireless one as well?
* Do you need routers, switches, wireless AP’s, are you going to make cables or purchase pre made, firewall….make this fun. Think outside the box.

If you have, any questions please email Deepak and myself and we will address them.