**Networking Project**

**The scenario:** Newton Ad Agency is a startup with three locations. The headquarters is located in Austin, TX, with a satellite office located 2 miles away in a rural area. There is a clear line of sight between the two offices. The New York office needs to share large media files with the Austin office. The New York office will also have a web server for clients to download large media files and needs to be able to do it quickly.

To hire the best talents, Newton Ad Agency allows employees to work from home full-time. Remote workers will need access to the network in Austin. The IT Department should have the ability to log into all of the workstations, including the remote computers, when they are connected to the network.

You have been hired as the network administrator. You are tasked with building the network IP strategy, building a remote access strategy, and selecting WAN technologies that meet the business requirements. As one of your first tasks, you have been asked to develop a proposal for the management team. These members have varying backgrounds and sometimes limited knowledge of IT services.

**Newton Ad Agency: Business and Technical Requirements**

1. Spend no more than $1,100 per month on internet for all sites (after initial hardware and setup costs)
2. The company IP addresses should be within the following range: 192.168.100.0–192.168.103.255

**Austin Headquarters: Business and Technical Requirements**

1. Fast WAN connectivity
2. Must have backup WAN connectivity with 99.999% uptime
3. IP addresses must support 500 hosts
4. Must provide wireless access for users
5. All wireless connectivity must be centrally managed

**Austin Headquarters: Available Internet Options**

1. Fiber Optics ($700)
2. T1 ($300)
3. Cable ($175)
4. DSL ($75)

**New York Office: Business and Technical Requirements**

1. Fast WAN connectivity
2. IP address strategy for 200 users/PCs

**New York Office: Available Internet Options**

1. Fiber Optics ($600)
2. T1 ($300)
3. Cable ($125)
4. DSL ($50)

**Rural Satellite Office: Business and Technical Requirements**

1. Does not have any type of commercial WAN connectivity
2. Needs to have WAN connectivity (located 2 miles from headquarters and line of sight—show this in a diagram)
3. IP address strategy needs to support 200 users/PCs

**Critical Elements**

Based on the scenario above, students will develop a 5- to 7-page networking report for the owners of the advertising agency. The report must include the following:

1. The WAN connectivity at each location
2. A diagram showing the WAN connectivity
3. An explanation of why the specific WAN technology was chosen
4. **IP address strategies at each location** (determine the IP assignments for each site for the Newton Ad Agency, a startup with three locations. In addition to the IP address assignments, include a thorough explanation, including calculations, of how you sub-netted the addresses.)
5. Wireless access strategy at the Austin office
   1. List and explain the services that will support remote workers
   2. List and explain the service(s) that IT will use to access all workstations on the network
6. An explanation of the terms and concepts used in the paper