

# Wan design

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Logical Network Setup and Locations Interconnection A LAN setup with routers and Ethernet cables would be the choice. This is a reasonable option because the speeds of the network will be noticeably greater and accordingly will result in a lesser amount of cost. Other three locations are the distribution offices which are located in Chicago, Phoenix, and New York. Satellite communication would be the chosen type of connection to the headquarters building. The last department is the plant facility which is located in China. For this, including satellite as well will be used to communicate to the headquarters network.

On a general note, all locations should be interconnected which allows function flow between each other. This allows uncomplicated communication to be accomplished for particular needs, for orders and production. Additionally, it decreases inadequate communication which occurs in delivering messages. The network topology used for Acme's WAN should be a star topology with each site having only a direct connection to headquarters; the benefit is that network administration is centralized. My proposed WAN topology for Acme Manufacturing is represented in figure one below. Pick Figure 1 - Proposed WAN Topology for Acme Manufacturing The company would benefit from the T1 type of leased lines. This is the type that makes available a high bandwidth speed which reduces communication times for industrialized issues and regulating purposes. A T1 line transmission speed is approximately 1.544 Mbps and can be used for transmission of 24 digitally converted voice channels (Kane, 2009). Telecommunications System The telecommunication system that would suit Acme Manufacturing would be T1. T1 would provide many benefits.

Enhanced productivity, decreased cost for the wiring setup, and lower maintenance costs are just some of the benefits. Such benefit as cost-efficiency in the use of technology cuts down telecommunication costs. With PoE system the same cables and wiring that is used within a network can be utilized for the telecommunication system as well. Thinking "outside the box", of doing business. IP Address and PLAN When thinking of IP address, such a large network would require a class C, assuming that the same network mask relates to each subnet (building) of the same outwork IP address (Reagan, 2004).

Setting up a Virtual Local Area Network (PLAN) would be beneficial. The main reasoning is increased productivity and improved communication due to connection of all six different buildings this network will be dealing with. Although departments are not physically grouped together, grouping them into logical networks would provide increased performance since the broadcast traffic to executing similar functions is limited. Network Equipment Network equipment is one of the critical parts necessary in planning a WAN.

The following are the recommendations of hardware network equipment:

Large mainframe computers Routers and switches Physical firewalls

Telephony systems Wireless technologies Mainframe computers would be

the main part to each network. The central network located at the

headquarters building will distribute the connection of all networks of different buildings; then connect the networks within a building which

consequently is a result of connection of all routers and firewalls to the mainframe computer. Wireless Technology

Wireless technologies such as web cameras and microphones would be used for the wireless connection between mobile employees that would have to commute within different locations of the building. In order to satisfy the teleconferencing needs a few components will be needed. Each employee will have a web cam unit and a voice and audio head set to enable teleconferences. The wireless network will operate on wireless satellite signals which are used for communication between each building. Another recommendation would be Wireless Wide Area Network as it is easy to engage and user friendly.

**Router Protocols** The router protocols will be OSPF which stands for open shortest path first. As a part of the Interior Gateway Protocols group it corresponds to internal networks. This protocol releases the direct path first which helps with the use of bandwidth. OSPF is designed to function with larger networks and its domain subdivision authorizes easier management.

**Network Security** The final mention would be network security, but not being less important. Security of the network is a complicated issue. So, it is important to choose the right amount of security for the network.