Learning Outcomes:

- To have an understanding of the issues of procuring corporate networking
- To have practical experience in designing corporate networks including the specification of a network design
- To be able to review network management techniques and appropriate softwares
- To be able to identify integration networking strategies analysis
- To understand the infrastructure of different technologies including the practical use of ISDN, frame relay and IP
- To be able to manage a secure network solution including the practical setup of VPNS
- To be able to determine the network path
- To be able to review the role of virtual LANS

Company Name: ParsTech Inc
Challenges Faced by ParsTech Inc

Background

ParsTech Inc. was founded in 2004 to deliver different IT solutions for personal or commercial users. The company focuses more on troubleshooting and maintenance. After a few years the company began to grow and extended its services nationally. It established several branches across the country and trained IT technicians and specialist placed in every branch.

In order to provide central management and also communication facilities between branches, high speed leased lines are rented from Telecommunication Company. In this way all financial tasks like billing, payrolls, etc. as well as administrative jobs could be handled from the central branch.

As the number of customers grew, several issues has been taken into consideration (e.g. increasing the number of employees and Quality of Service, customer satisfaction, complicated administrative tasks, etc…) that all lead to have more expenses and it became a serious problem for the company. The top management of the company then decided to optimize the structure of the organization in case of network and communications. They reduced the number of manpower and suggest the following changes:

- The cost of branch communications should be reduced by using current technologies.
- Services to personal users should become online so that technicians can do their job remotely. This will reduce expenses for manpower and transportation.
- Online services will be extended from nationally to internationally, so appropriate techniques and methodologies should be defined.
- Since the network becomes more available online, there should be proper security solutions for both internal and external network accesses.
- Online services (troubleshooting and maintenance) should be able to continue its operation on 24/7 basis without interruption. Therefore backup or recovery strategies needed to be applied in the system.
- Existing technologies should be used as much as possible along with the new technologies, to reduce the cost of implementation.

As their network consultant, your team was given approximately three months to complete this project, which includes coming out with a strategy, putting into a plan, providing testing schedules, setting up implementation strategies and eventually documenting a project close-out to ensure project reappraisal had been done to deem the project being successfully completed.

Existing Network Technology

- **Network Connectivity**
  - LAN connection for office automation with bus/star topology used with Ethernet LAN transmission medium.
  - MAN connection with leases lines.
- **Applications**
  - All applications used in branches are dedicatedly designed for administrative tasks.
- **E-Mail and Communications**
  - Employees often use IT facilities extensively, especially logging on to the corporate E-mail (Outlook) using the private network.

General Assumptions/Plans

- The design process will be divided into two categories. One is the corporate network and the other is the remote connection between technicians inside the company and clients' machines that need troubleshooting.
- The new design should benefit from the current technologies. All necessary hardware and software should be addressed.
- The number of branches will be reduced to 5, locating in 5 different cities across the country.
- All existing leased lines will be replaced with lower costs current technologies.
- Continued use of Mainframe Applications but restricted to legacy applications.
- Application servers should be placed at central branch for security issues and cannot be located in any part of the country. However there are some general tasks/applications that can be accessed or used in shared or distributed manner.
- Networks have to be managed remotely.
- Use of Wireless Mobile Computing is permitted.
- Security for the connections and the applications must be in place.

Individual Deliverables (Research & Documentation by individual members)

1. Network Architecture, Corporate E-mail and Communications with an appreciation of the various topology/transmission mediums including details on estimated costing.

    - **Network Architecture**
      - A new base Infrastructure and Network Design to support the connectivity for the offices (including high speed technologies)

- **Corporate Communications**
  - A standard logon procedure for employees to access all applications remotely.
  - A standard and secure communication design for remote connections to the client machines.
- **Topology**
  Bus/Star with High Speed Ethernet
- **Transmission Media**
  - Cables & Media Selection etc.

2. Desktop Requirements and Applications with the network design and server Design concepts including details on estimated costing.

- **Hardware, Software and Desktop Requirements**
  - Platform specification

- **Client Server Architecture**
  - A client/server design to support the applications within the region.

- **Cost Benefit and Return on Investment**

3. Network Security and Control substantiated with a Risk Assessment Matrix, Disaster Recovery Plan and a Network Security and Control Diagram including details on estimated costing**.**

- A secured remote network connection and Backup/Recovery plan to ensure the network is well secured against break-ins and to provide network recovery in the event of a failure in the existing network infrastructure. This section must include these documents:
  Disaster Recovery Plan, Sample Security Policy, and Sample Disaster Recovery Report

Notes:
All sections above should include proper evaluation of alternatives.
An effort to ensure there is standardization must be indicated in all designs.
Use appropriate diagrams wherever possible to illustrate your proposals.

Important:

This is a team effort. ***All members*** *must be* ***fully informed about*** *and* ***involved in*** *all aspects of the project plans. Individual members will be responsible for researching and documenting certain discrete portions of the project. All findings must be shared and discussed and work on the project should be done on a collaborative basis.*
Final documentation and discussion of each section is what is expected individually.

Assignment Requirements

1. You are required to work in a group of 3 members.

2. Your report must be typed using Microsoft Word with Times New Roman font size 12. Expected length is from 7000 to 8000 words. You need to include a word count at the end of the report. Report should be in 1.5 spacing.

3. You are required to prepare PowerPoint presentation, print out 6 slides in a page and attach it in the appendices section. Include the softcopy of the presentation slides together with the assignment.

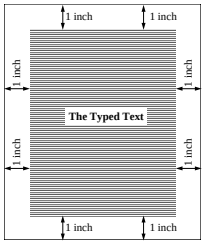
4. As part of project management, you are required to develop a Gantt chart (project plan) that indicates clearly the activities required in order for the project to be a success.

5. The report has to be well presented and should be *typed*. Submission of reports that are *unprofessional* in its outlook will not fare well when marks are allocated.

6. Your report must combine all the deliverables in one coherent document.

7. Ensure that the report is printed on standard A4 (210 X 297 mm) sized paper. Paper weight of 80 grams and above is highly recommended.

8. The report should have a one (1") margin all around the page as illustrated below:



9. The assignment should attach front cover, detailed workload matrix, table of contents and marking scheme. A transparent plastic sheet can be placed in front of the report to protect the front cover.

10. Plagiarism is a serious offence and will automatically be awarded zero (0) mark.

11. All information, figures and diagrams obtained from external sources must be referenced using the Harvard referencing system accordingly.

IMPORTANT

You have to hand in your assignment (hardcopy & softcopy) on time with the Coursework Submission and Feedback Form.

Marking Scheme

Student's Name	Student 1	Student 2	Student 3
Group Components (A)			
Overall design (5)			
Current trends & best practices (5)			
Executive summary (5)			
Coherence & integration (10)			
Referencing (5)			
Total Marks (Group Component)			
Individual Components (B)			
Technical accuracy (25)			
Critical analysis & justification (20)			
Research & completeness (10)			
Presentation (15)			
Total Marks (Individual Component)			

	Student 1	Student 2	Student 3
Group Components (A)			
Individual Components (B)			
Overall Marks (A + B)			

Marking Criteria

Distinction (80% and above)

Distinctive work will exhibit a high level of analysis and outstanding cogency and clarity in communication and reflection. The supporting report should be exceptionally well-substantiated in its analysis, reasoning, and conclusions within each area.

In addition, at the advanced level the student will demonstrate an exceptional ability to synthesize innovative perspectives of the topic with work from other parts of the discipline.

Credit (60 – 79%)

Student should be able to show further evidence of knowledge, understanding and application of the module material. The supporting report should be well written should be supported throughout in its analysis, reasoning and conclusions.

An advanced level will be indicated by the student's reference to, and integration of materials from previous programmes of study.

Pass (50 – 59%)

There should be a basic evidence of knowledge, understanding and application of the module material in the supporting report. Generally, the report will be less effective in conveying meaning.

Fail (0 – 49%)

The report is not meeting up with the standard requirement.