The University of Auckland
Information Technology, Bachelor of Technology

BTech450: Industrial Project

End of Semester One Report

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Abstract. *This is the end of semester one report for the BTech450 project, it contains: background information of the project, the goals and objectives, methods of approach, current progress, identified problems and future plans.*

Table of Contents

1. Introduction

This project is to design a model information system (hardware and software) for a mid size company with two satellite branches and several mobile staff members.

The design has to consider in depth the following functional requirements: high availability (24x7) and high performance for users including remote access and mobile workers, high security against hacker and virus, secure and easy to retrieve storage and fast disaster recovery.

The approach must be based on academic considerations as well as commercial practicality.

The student will need to learn or know Microsoft W2003, Mandriva Linux and Citrix Metaframe as the commercial references. We will take a fitness-for-purpose and Total-cost-of-ownership approach, and design the procedure for developing and implementing information systems.

Appeal: the appointed student will be able to meet and mix with various IT consultants once a month in Compucon House to discuss similar issues in seminars hosted by CNZ.

This project is sponsored by Computers New Zealand (CNZ). TN Chan, CEO of CNZ acts as the industrial mentor and oversees the project progress.

1.2 Initiative

CNZ believes that currently in New Zealand, system integrators are not doing a very good job on providing a robust and comprehensive information system.

Most companies just put together something that “works”, with no consideration major issues such as: system management, usability, accessibility, expendability, and security. Important long term factors such as: operating cost, maintenance cost and disaster prevention/recovery are also overlooked.

1.3 Objectives

The requirements on the final system are:

High Availability (24/7)
High Performance
Remote Access / Mobile Workers
High Security
Fast Disaster Recovery
Commercial Practicality

1.4 Perspectives

We will be looking at things from the following perspectives:

Academic Perspective
System design and evaluation techniques, unbiased decisions to commercial products

Commercial Perspective
Commercial practicality

Fitness for Purpose, FFP
Does the design satisfies our needs?

Total Cost of Ownership, TCO
Startup and operating costs

1.5 The Company

The “mid-sized” company is defined as:

Not directly related to computer industry
Head office, 30 employees
Two branches, 5 employees each
7 mobile works (5 + 1 + 1)

2. Approach

The main steps of the project are:

1. Set requirements for the different components, such as software, hardware and services
2. Market research: find and evaluate products that meet our requirements
3. Design template: put everything together into a whole system
4. Refine and redesign the template until satisfied

3. Visualization

The visualization of the final deliverable will help us to identify the major components and requirements of the system. The visualization is based on my personal understanding of information systems, along with some basic research.

The final design may or may not be based on this.

3.1 Workstations

Two types of configuration: Process Worker and Knowledge Worker.

The Process Worker workstation will have basic level of hardware that is suitable for everyday office tasks such as word processing and spreadsheet.

The Knowledge Worker workstation will have more powerful hardware that can be used to run resource intensive applications efficiently, such as Photoshop and AutoCAD.

The personal files are not stored locally on the workstations, but on a central file server. This will give us the benefits of:

Easy remote access
Easy to backup files
Easy to update the workstation configuration

3.2 Software

Operating system: Microsoft Windows XP Professional
Windows offers users with familiar working environment for most people; supports most software and hardware available on the market.

Office application: Microsoft Office 2003
Office contains applications for most common tasks such as word processing (Word), spreadsheet (Excel), presentation (PowerPoint) and e-mail (Outlook). Its formats are most commonly used, so the files will be easily exchangeable.

Custom applications
Depending on the nature of the company, most will run some kind of custom applications. For example: an engineering firm might want to use AutoCAD, and an advertising firm might want to use Photoshop.

3.3 Servers

Public Website and E-mail Server
This provides an online presence of the company.

Private Website
This is an internal company website for posting announcements, events, discussions and sharing files.

File Server
This is the central location to store all employees' files. The files can be easily remote accessed and backed up.

Backup Server
This server will automatically backup files every night, and will be located in one of the branch offices.

3.4 Services

System Administrator
One dedicated personnel to manage and support the company's information system. Most problems will be able to be resolved immediately without external resources.

Backup
In addition to the backup server, files should be backed up on to a physical medium such as a DVD or external hard disk. This will then be given to a trusted employee and to be kept at his house.

3.5 Remote Access

Virtual Private Network
A VPN will connect all the offices together through the internet. This also allows employees to access their files from externally.

WAP version of the internal website
This will allow mobile devices, such as cell phones and PDAs, to access important company resources.

Terminal Services ("Remote Desktop")
This will allow off-site access to all resources, including some custom applications that are not normally available.

3.6 Preliminary Topology

This diagram is based on the visualization and shows the possible components and their locations.

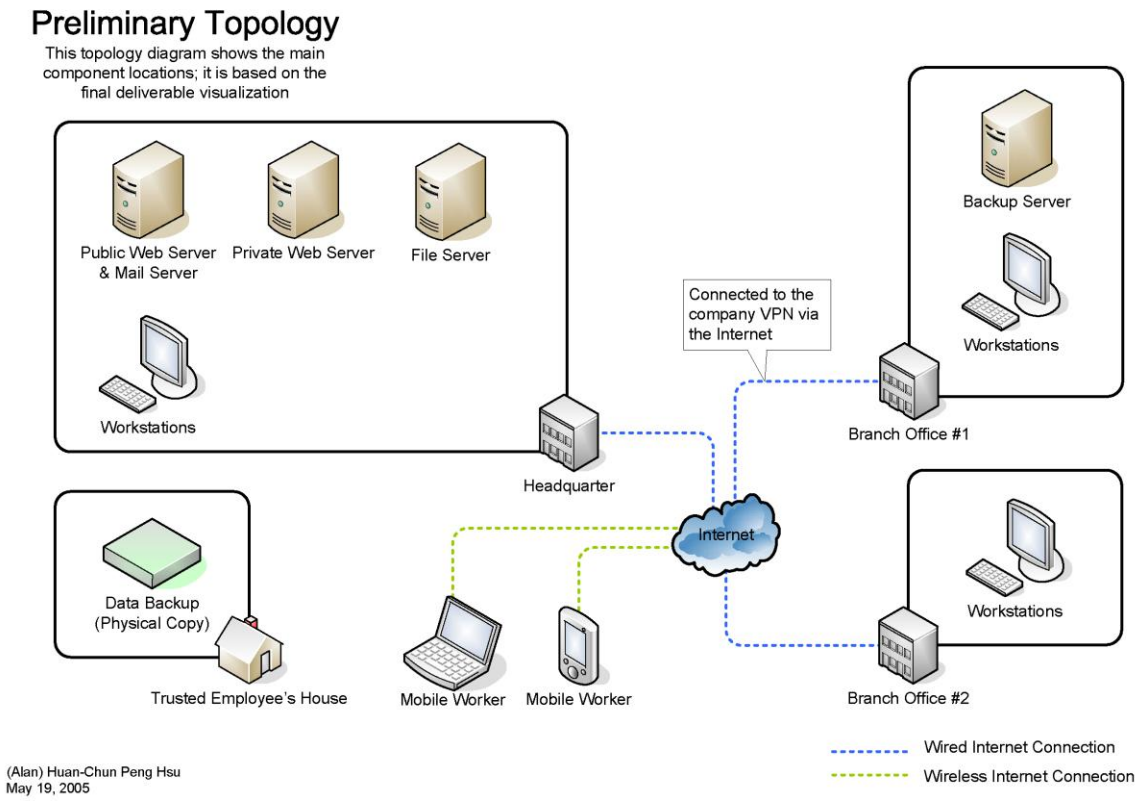

Figure 1: Preliminary Topology

4. Identified Requirements

The following are the main requirements which have been identified from the visualization:

- Software
  - Operating System
    - Support many hardware and software
    - Easy to use and maintain
  - Office Application
    - Exchangeable format
- Hardware
  - Workstation
    - Process Worker
    - Knowledge Worker
  - Server
    - Public Website / E-mail
    - Private Website
    - File Server
    - Backup Server

5. Identified Problems

The following are the problems identified from the visualization:

Network
How are the computers and servers connected?
What kind of internet connection is necessary?

Servers
Are the different servers really required? Can they be combined?
What about redundant servers?
What about backup power?

Remote Access
What kind of remote access is necessary?
Is terminal services really required?

Mobile Worker
In order to ensure service quality, does the company need to supply notebook/PDA and the internet connection?

Others
What about security, anti-virus and firewall?
What about disaster recovery?

6. Next Steps

Solve the problems identified above
Start market research
Start draft template design