

**Integrated Action Learning Project Final Report**  
**Development of a Network Plan for Remnant Ministries**

**Mike Bates**

**TS4990 Integrated Action Learning Project**

**Instructor, Dr. Sharon L. Bender**

**June, 2006**

**Project Description**

My project was to develop a network plan for Remnant Ministries, a new church that I recently started attending in December of last year. The church currently meets in a high school theatre on Sunday's. Remnant Ministries has a building currently being built with an estimated completion of late this summer. For my project I would develop a plan to design and implement their network in their new building.

This plan included the network setup including (Internet Service Provider) ISP, the purchase of desktops/laptops for staff to use, as well as all software needed to complete daily operations such as Microsoft windows, and office. Also we made sure all software is SLA (Service License Agreements)

Non-profit organizations as a whole usually need many volunteers to help with the daily operations because there simply isn't enough money flowing through the organization to fund operations. This plan will benefit the church because it will help the church save the money they would ordinarily pay to a consultant.

The stakeholder involved in this project was Pastor Randall Cunningham. This project will begin in Unit 6 and conclude in Unit 10 of the TS4990 course.

In performing a feasibility check I examined the following areas:

1. Support - Leadership is unsure of what their desires are for network and operations
2. Budget – There are definite budget constraints in regards to implementation
3. Location – Since property is a new location it might be difficult to determine what ISP's are available

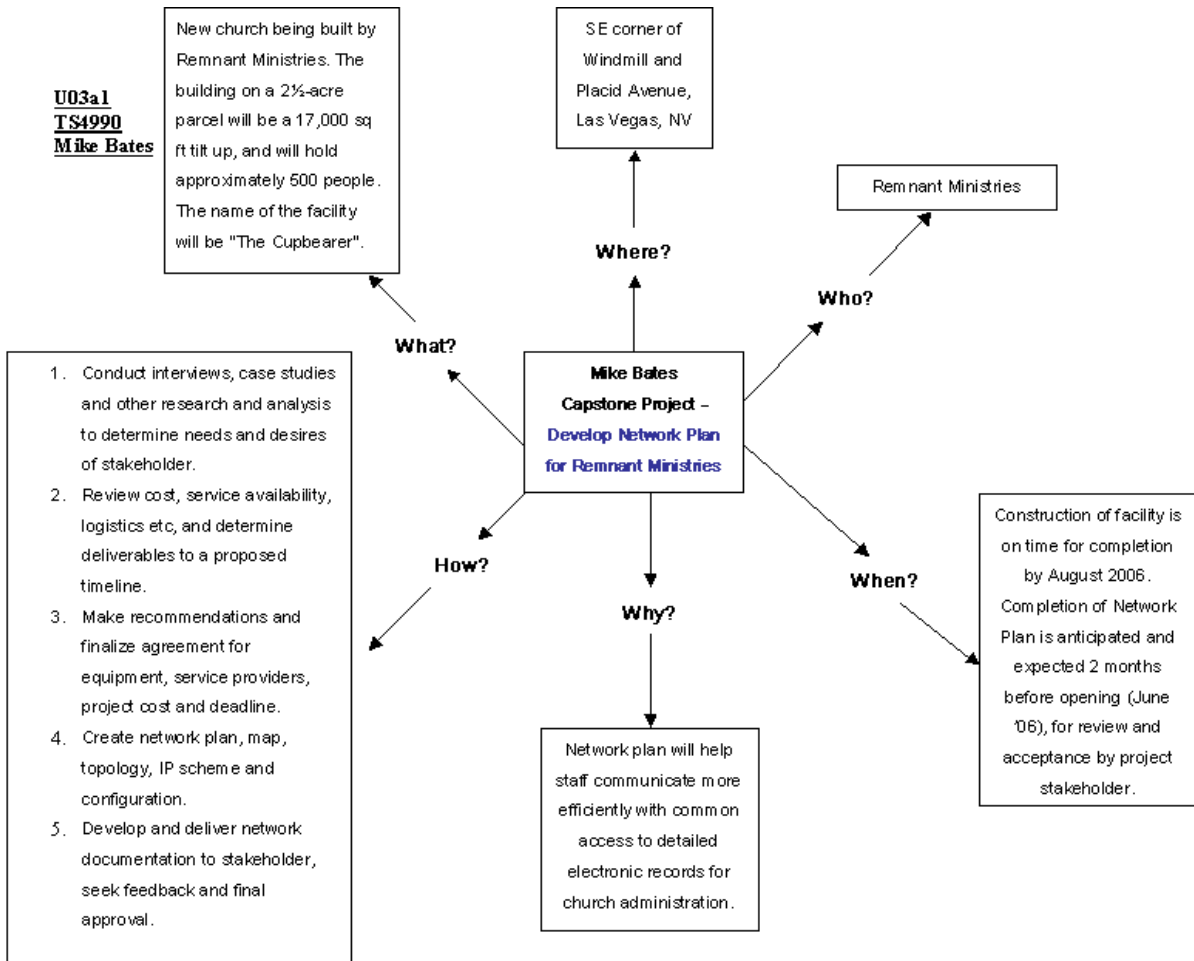
**Objectives**

In producing my project my **major objectives** were to:

1. Produce a plan for the Remnant Ministries network for its new building.
2. Develop a means for which Remnant Ministries can save money.

In producing my project my **learning objectives** were to:

1. Improve problem solving and troubleshooting
2. Develop interpersonal skills, communicating technical issues to non-technical people.
3. Understand the daily operations of the Church



## Project Schedule

The following schedule would guide the production of my project:

Tasks	Duration
<b>Research Phase (Fact-finding)</b>	<b>5/8/06 – 5/14/06</b>
Task 1: Conduct interviews with church administration to determine needs, desires	
Task 2: Conduct case study of other church(es) with similar needs	
Task 3: Research network planning and design	
Assisting Resources:	
<u>Literature</u>	
Bender, S. L. (2003). Producing the Capstone Project.	
<u>Internet</u>	
Microsoft Small business Server	
<a href="http://www.microsoft.com/windowsserver2003/sbs/default.aspx">http://www.microsoft.com/windowsserver2003/sbs/default.aspx</a>	
<a href="http://www.microsoft.com/technet/prodtechnol/sbs/2000/reskit/sbrk0004.mspx?mfr=true">http://www.microsoft.com/technet/prodtechnol/sbs/2000/reskit/sbrk0004.mspx?mfr=true</a>	

<p>Network Planning and Design  <a href="http://www.more.net/technical/netserv/netdesign.html">http://www.more.net/technical/netserv/netdesign.html</a></p> <p><u>People</u>  Tony Perez, Systems Administrator, Calvary Chapel Spring Valley  Stakeholder, Pastor Randall Cunningham</p>	
<b>Analysis Phase (Feasibility studies)</b>	<b>5/15/06 – 5/21/06</b>
<p>Task 1: Review potential costs with consideration for 'non-profit' status  Task 2: Review available service providers, building plans and logistics  Task 3: Consider timeline and deliverable deadlines</p> <p>Assisting Resources:</p> <p><u>Literature</u>  Bender, S. L. (2003). Producing the Capstone Project.</p> <p><u>Internet</u>  <a href="http://www.itworld.com/Net/2574/IW000131opbiggs/">http://www.itworld.com/Net/2574/IW000131opbiggs/</a></p> <p><u>People</u>  Tony Perez, Systems Administrator, Calvary Chapel Spring Valley  Stakeholder, Pastor Randall Cunningham</p>	
<b>Planning Phase (Make decisions)</b>	<b>5/22/06 – 5/28/06</b>
<p>Task 1: Decide on equipment to be implemented (networking, computers and software)  Task 2: Initiate service provider and supplier agreements  Task 3: Formulate complete project cost &amp; time agreement</p> <p>Assisting Resources:</p> <p><u>Literature</u>  Bender, S. L. (2003). Producing the Capstone Project.</p> <p><u>Internet</u>  <a href="http://www.businessweek.com/magazine/content/02_17/b3780009.htm">http://www.businessweek.com/magazine/content/02_17/b3780009.htm</a></p> <p><u>People</u>  Tony Perez, Systems Administrator, Calvary Chapel Spring Valley  Stakeholder, Pastor Randall Cunningham</p>	
<b>Design Phase</b>	<b>5/29/06 – 6/4/06</b>
<p>Task 1: Create network plan  Task 2: Create map and topology  Task 3: Develop IP Scheme and configuration (Workgroup or Domain setup)</p>	

Assisting Resources:

Literature

Bender, S. L. (2003). Producing the Capstone Project.

Internet

Network Design Tips

<http://www.microsoft.com/technet/itsolutions/smbiz/sitsol/LPDesigning.msp>

<http://compnetworking.about.com/cs/wireless/f/arewlansecure.htm>

People

Tony Perez, Systems Administrator, Calvary Chapel Spring Valley  
Stakeholder, Pastor Randall Cunningham

**Documentation Phase**

**6/5/06 – 6/11/06**

Task 1: Develop network documentation

Task 2: Provide network documentation

Task 3: Seek feedback from the Stakeholder.

Assisting Resources:

Literature

Bender, S. L. (2003). Producing the Capstone Project.

Internet

Developing Documentation

<http://builder.com.com/5100-6387-1045547.html>

People

Tony Perez, Systems Administrator, Calvary Chapel Spring Valley  
Stakeholder, Pastor Randall Cunningham

## Risk Management

In producing my project I performed the following risk assessment:

<b>Risk Factor Checklist</b>			
<b>Risk Considerations</b>	<b>Low Risk</b>	<b>Medium Risk</b>	<b>High Risk</b>
Accessibility to Building Plan	X		
Staff Needs			X
Budget Constraints			X
ISP availability			X
Documentation time frame		X	
Pricing of Software		X	
<b>High Risk Analysis</b>			
<b>Risk Considerations</b>	<b>Risk Significance and Potential Solution</b>		

Staff Needs	Significance: If client is unaware of needs it will be difficult to design a plan. Solutions: Ask what they would like to accomplish and develop a solution around this. Do not try to convey technical issues.
ISP Availability	Significance: This will limit our options for establishing connectivity Solution(s): We may have to connect network using satellite technology
Budget Constraints	Significance: Cabling of the building may be expensive. Also licensing for software may also be pricey. Solutions: Might need to use wireless setup to cut down on cabling costs and search for free ware, software that is free for public use.

### Contingency Plan

After completing a risk analysis it has been determined that the high-level risks to the successful completion of my project were:

1. Staff Needs
2. ISP Availability.
3. Budget Constraints

### Literature Review

I performed the following literature review concerning the value in producing my project:

1. <http://www.churchbusiness.com/hotnews/64h261086.html>

This article discusses the belief that when churches and businesses implement web based applications they can save time and money. Many churches do not implement technology for fear of costs. In truth, using technology can actually save time and money. This article discusses web based solutions, however the concepts of technology in business are not limited to web based applications.

2. Convery, J. (2006). 21<sup>st</sup> century business broadband: The business of benefits.

Although this article takes place in Ireland, it an issue the rest of the world deals with as well. Broadband internet access is a very important service provided for businesses. Some of the benefits of broadband business include video conferencing and electronic file storage. "Aside from the difference to a company's bottom line and productivity gains, broadband can transform the face of business. "

The research materials I used in producing my IAL Project and what purpose they served follows. Included is a brief discussion of what I learned from each of the resources.

<http://www.microsoft.com/technet/prodtechnol/sbs/2000/reskit/sbrk0004.msp?mfr=true>

Microsoft has designed a specific Network Operating System (NOS) for small businesses. Microsoft Small Business Server 2003 (SBS) will suit our needs perfectly at this time. SBS is much more affordable than trying to purchase Microsoft items separately. There are some limitations to SBS such as you may only connect 50 computers to the operating system, after that point you must upgrade to a more expensive product.

<http://www.itworld.com/Net/2574/IW000131opbiggs/>

The article discusses the advantages of having broadband internet for business. The article also discussed it is a big financial benefit to have broadband. The primary focus of Remnant Ministries is not to make money, but having broadband internet and an internal network setup will help increase communication both with internal staff and the outside world.

[http://www.businessweek.com/magazine/content/02\\_17/b3780009.htm](http://www.businessweek.com/magazine/content/02_17/b3780009.htm)

Wireless is a very viable option for businesses. Many companies are turning to wireless because it is cost effective to traditional networks. Many cell phone companies offer phones a wireless capability. As wireless continues to pick up steam, more vendors will continue to create products that will increase wireless options and services.

<http://compnetworking.about.com/cs/wireless/f/arewlansecure.htm>

There is no network that is completely secure, however wireless networks add an additional layer of security because of going through the airwaves. As it has evolved wireless networks now use security such as WEP or WPA that can encrypt a network so that most hackers can't get in.

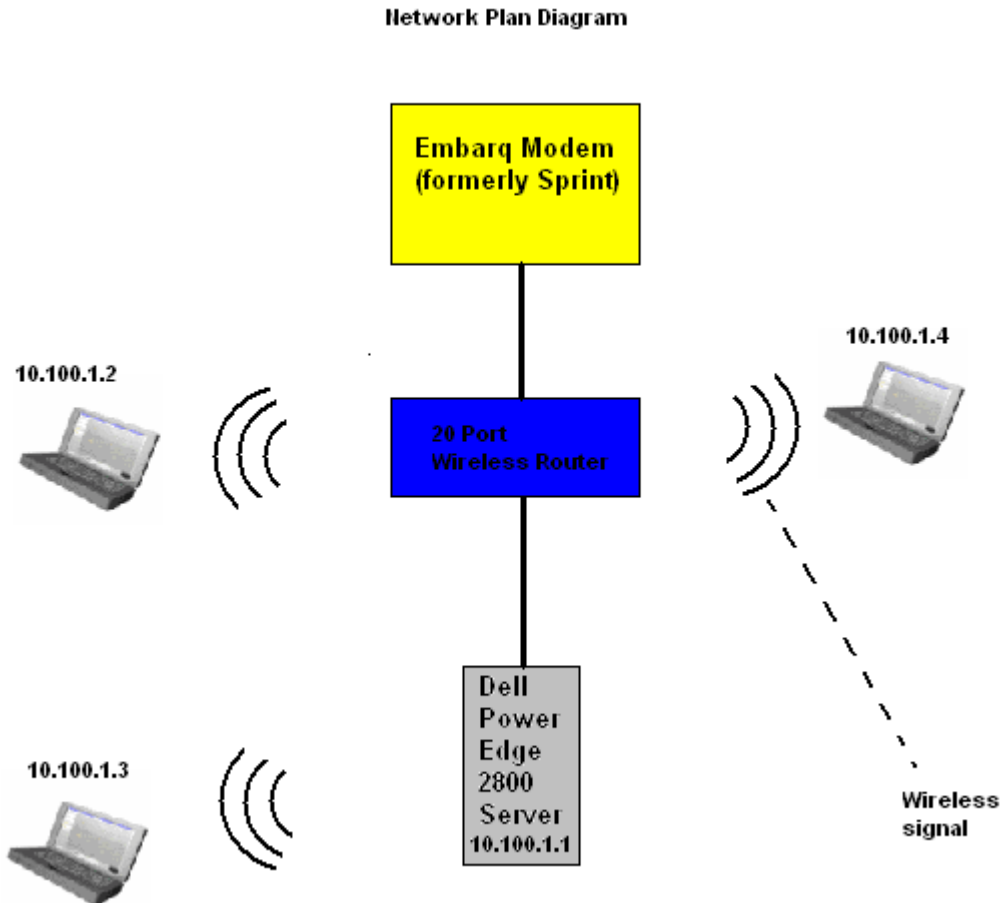
The best and most helpful research came not from literature but people. The one person in particular who had the largest impact on this project was Tony Perez. Tony fills the role of system administrator for a sister church Calvary Chapel Spring Valley. I was able to rely on Tony's expertise in the computer field and working at a church throughout this project.

## **Lessons Learned**

Developing a network plan for Remnant Ministries has been a very challenging yet rewarding experience. My learning objectives were to improve problem solving and troubleshooting, develop interpersonal skills, communicating technical issues to non-technical people, and to understand the daily operations of the Church. I was able to accomplish all of these goals. This course will definitely help me with project management in the future, which is an area I plan on going into.

## Appendix

### Appendix A: Sample of the Network Plan



### Appendix B: Letter of Project Completion from Stakeholder, Pastor Randall Cunningham

Date: 06-10-06

To: Capella University

From: Randall Cunningham

Subject: Satisfactory Project Completion

To whom it may concern:

Mike Bates satisfactorily completed the project titled, "Development of a Network Plan Remnant Ministries" per the project plan and/or according to the specifications of the stakeholder.

I have reviewed the project final report and find that there is no content that breaches security or privacy needs of the stakeholder or beneficiary in the project. It is therefore deemed "publishable." This means that the learner will upload a copy to a project tracking website that has been maintained to meet academic requirements in the respective degree program.

Sincerely,

Randall Cunningham  
[remnantministries@email.com](mailto:remnantministries@email.com)