Protecting Church Data from the Unthinkable

Information Technology (IT) Disaster Recovery Planning

National Institute in Church Finance and Administration
Candler School of Theology
Emory University
Atlanta, Georgia
Summer 2008

Brian J. Shoup
Louisiana Annual Conference of the United Methodist Church
527 North Boulevard
Baton Rouge, LA 70802
(225) 346-1646
www.la-umc.org

Table of Contents

Preface

Autobiographical Statement

The path to where I am today began in the summer of 2001 when I met my future wife, Sarah Williams Shoup, at the Northeast Campus Ministry, located at the University of Louisiana at Monroe. I was raised in the Southern Baptist Church, but a good friend of mine invited me to the campus ministry owned jointly by the Presbyterian Church (U.S.A.) and the United Methodist Church (UMC).

Sarah was raised in the Methodist church by two Methodist ministers. She became one too! Sarah was ordained in 2008 as a Deacon in full connection with the Louisiana Conference UMC. When she stole my heart and told me she was going to be a minister I knew I had but one choice and that was to become a United Methodist. Before joining the church, I wanted to know what it meant to be a United Methodist. I learned the roots of Methodism through several classes on John Wesley and the beliefs of the United Methodist Church. I am a firm believer in free will through God's prevenient grace and the two recognized sacraments Holy Communion and Baptism.

I graduated from the University of Louisiana at Monroe in December 2002 with a Bachelor in Business Administration, majoring in Computer Information Systems. Two weeks later, Sarah and I were married. If it were not for my college baseball career, I would have joined her immediately in Dallas at Perkins School of Theology, Southern Methodist University. As it was, I stayed in Monroe that spring to play baseball and delay the inevitable task of finding a job!

I was fortunate to begin my career with an internship at a small technology firm in Monroe in the summer of 2003. I assisted my employer with network installations, computer

repair, and worked toward becoming a Microsoft Certified Systems Administrator. I became a Microsoft Certified Professional and obtained some valuable tools for the work I am doing today. That fall I moved to Dallas with Sarah and began the arduous task of job hunting in a big city with no connections. After a few temp jobs, I settled for a position as a valet and concierge at a high-rise condominium in downtown Dallas. There I gained an appreciation for people working in the service industry.

In the summer of 2004 I landed a position with Hertz Local Edition Car Rental as a manager trainee. I was able to obtain sales and marketing, as well as office management skills. It was a good experience with long hours, challenging customers, and demanding sales goals. The position ended in June 2005 when Sarah graduated from seminary and received an appointment as an associate pastor at First United Methodist Church in Denham Springs, Louisiana.

Her parents informed me of an opening at the Louisiana Conference Office of the United Methodist Church located in downtown Baton Rouge, Louisiana (LA), a thirty minute commute from Denham Springs. The position was in the Office of Administrative Services, serving as the Accounts and Insurance Officer. I did not know much about the position, but I was excited about the opportunity, and after interviewing with Rev. Carl Rhoads, I was offered the position.

A few months later, just as we were getting settled in, on August 29, 2005 Hurricane Katrina made landfall on the Gulf Coast of Louisiana, Mississippi, and Alabama. In the aftermath the demands on our office grew and I felt like I needed to do more to help. I offered to take on administration of the pension plan from Belinda Denicola, the assistant treasurer and pension officer. In the spring of 2006 I became the Accounts and Assistant Benefits Officer.

Some of my duties include handling accounts receivables and billing the 510 churches in our conference for medical, pension, and apportionments. I also oversee the administration of our self-funded health insurance and pension plan for some 630 employees. In addition, I have volunteered my services overseeing the Information Technology for our 30 member office staff.

I enjoy my work, but more importantly, I feel that God has called me to serve in church administration. When I discovered the certification program for church business administrators, I knew that it was my next step in this journey. God has blessed me with a supportive family, Sarah and Elizabeth Marie, our one-year old. I cannot say enough about my friends and co-workers who also help me pursue this goal. It has opened my eyes to the possibilities for the Louisiana Conference UMC and me.

Setting

In setting the stage for this project I looked at two recent disasters that have impacted my life and influenced my work. They are a reminder that the world is constantly changing and unpredictable. First is my place of work, The Louisiana Conference Office of the United Methodist Church (UMC), and the effect Hurricanes Katrina and Rita had on our office and our churches. Second is my place of worship, First UMC of Denham Springs, and the effect of a major fire at the church.

The Louisiana Conference Office of the United Methodist Church

Organized in 1847, the Louisiana Conference UMC has gone through many transitions over the years. At our very first annual conference meeting that year, 8,044 members were

reported. In the 1930s, the north and south branches of the Methodist Episcopal Church and the Methodist Protestant Church joined to form the Methodist Church. On November 16, 1939 the uniting service for the Louisiana Conference of the Methodist Church, South Central Jurisdiction, was held at Trinity Methodist Church in Ruston, LA. The Evangelical United Brethren Church and the Methodist Church merged in 1968 to form the United Methodist Church. We were not truly united until 1971. On the evening of June 1, 1971, over 2,800 members of Conferences A (white churches) and B (African American churches) met at the Gold Dome at Centenary College in Shreveport, LA. Bishop Aubrey Walton, who had been working towards this union for over a decade, completed the merger.[1]

In 1981 the conference built our current home in downtown Baton Rouge, Louisiana on North Boulevard. It is a four story brick building that houses the Louisiana Area Bishop, the Office of Administrative Services, the Office of Connectional Ministries, the Center for Pastoral Effectiveness, the Louisiana Prison Chapel Foundation, and the Louisiana Interchurch Conference Offices. Today the Louisiana Conference is comprised of 510 churches divided into seven districts. We have over 600 clergy serving around 123,000 members.

The Office of Administrative Services, of which I am a part, consists of six people: the executive director, assistant treasurer, assistant benefits officer, executive assistant, receptionist, and custodian. Our office is responsible for all administrative aspects of the conference.

On Monday, August 29, 2005 Hurricane Katrina made landfall on the gulf coast. Less than a month later, on September 24, 2005, Hurricane Rita made landfall in southwestern Louisiana just east of Sabine Pass, Texas. Lives, homes, businesses, and churches were lost.

[1] Hebert, Tim. "A Concise History of the Louisiana Conference." Archives and History: The Louisiana Conference of the United Methodist Church. 21 April 2008 <http://www.iscuo.org/briefhis.htm>.

The people of Southeast and Southwest Louisiana, including United Methodist pastors and church members, scattered all over the country.

Over forty United Methodist churches in the New Orleans area and fifteen in the Lake Charles area were affected. Connecting with the pastors of these churches was challenging. The Louisiana Conference felt a responsibility to take care of our pastors and churches, so Bishop William Hutchinson established The Bishop's Appeal for Hurricane Relief. This fund assists the local churches by providing support for the salaries of pastors and staff, as well as monetary support for ministries of affected churches. The United Methodist Committee on Relief (UMCOR) also provided assistance by creating The Louisiana Disaster Recovery Ministry, which aids homeowners in rebuilding their homes.

The New Orleans District Office was temporarily relocated to the conference office. The conference staff helped prepare their office space and made them feel at home, but the demands put on the administrative office of the conference were great.

Over the last three years the New Orleans district has lost 2,800 members and average worship attendance is down by 2,200 each Sunday. Thirty-five percent of the population has left the area. In large part people were forced to relocate because of their work. Inadequate IT disaster planning did not play a major role in the loss of church members, but it has hindered the churches' ability to rebuild and grow.

In regards to the IT system at the conference office, we have not done an adequate job of keeping up with technology. Prior to May 2007, our IT system consisted of two separate server networks. One network used a server strictly for file sharing. This server had a Pentium II processor with a 10-gigabyte (GB) hard drive running Windows NT Server. The finance office network was on a separate network with a newer server. This machine has a Pentium III

processor with a 60 GB hard drive running Windows 2000 Server. We were using it for file sharing and database management.

We have not had an IT disaster since a major virus crippled the network in 1997. Our system is well protected from viruses now that we incorporate Symantec's Multi-Tier Protection software with anti-spam software and firewalls, as well as spy blockers. In 1999, the conference purchased custom accounting software designed on the Windows Access 2000 platform. As old as our servers were, our desktops were even older, giving us ample reason to overhaul our computer system. In January 2007 Belinda was forced to do over one hundred W-2's on a typewriter because our accounting software did not come through. It was time to upgrade our accounting software and we knew there was no way we could run new software on our current server and still have the memory and hard drive space needed to run other applications. We also knew that we needed to retire the old Windows NT Server.

Our previous IT consultant had a full-time job at the YMCA and did work for us on the side. The service was not adequately meeting our needs, and I learned of a local pastor in our conference, Rev. Mark Lubbock, who owned an IT consulting firm, LA Data Systems. Rev. Lubbock was installing a new network at my church, First UMC of Denham Springs, and I learned of his background and work ethic. Rev. Lubbock made a strong impression on me and I recommended that the conference hire LA Data Systems as our IT consultant.

After evaluating our current system, Mark recommended that we go with a single server running Windows Small Business Server (SBS) 2003. It is a more robust version of Windows Server 2003 that incorporates a version of Microsoft Exchange Server 2003; fax service, firewall service, remote access, and a solution for internal websites. We were using two servers in the past to provide a secure environment for the financial data. With the change to SBS, we would

not need to have separate networks. This one server would handle the entire building and continue to provide a secure environment for the financial data.

The new server was installed the week my daughter was born, May 1, 2007. For the next two weeks Mark was around to work out the kinks and assist people with their questions. I made the mistake of not making time to ask questions, thinking I could figure it out myself. Eventually, I learned how to administer the system with Mark's help, and the conference office was running well on its new system.

First United Methodist Church of Denham Springs

Established in 1899, the First United Methodist Church of Denham Springs began on the banks of the Amite River. After several floods they decided to relocate to the current location on Mattie Street. My wife Sarah was appointed to First UMC in June 2005 as the minister of youth and missions. When we moved here the membership was about 1000 with an average worship attendance of 300. I have enjoyed serving First UMC with Sarah, and I assist her with the youth activities, sing in the praise team, drive the church van, participate in Bible studies, and teach Sunday school.

The First UMC staff includes: the senior pastor and two associates, a music director, accompanist, secretary, financial secretary, receptionist, and custodian. The church budget this year is approximately $350,000.00.

The former senior pastor, Rev. Wybra Price, encouraged the church to replace the computers and server and install a new network, because their network was hastily pieced together, and was having serious issues. As mentioned earlier, First UMC hired Rev. Mark

Lubbock to do the work. Rev. Lubbock installed a network similar to the conference's using Windows SBS 2003.

In June 2007 Rev. Robert Deich was appointed to First UMC. On October 29, 2007 a four-alarm fire destroyed the education and administrative building leaving us with a smoke and water damaged sanctuary and a gymnasium that is an estimated forty percent loss. The damage was estimated at two million dollars.

The following Sunday, we worshiped in the church parking lot. Since then, we have been worshipping at First Baptist Church, Denham Springs, LA. We were able to salvage most of the computers and fortunately, the church secretary kept a removable backup of the server off site. Rev. Lubbock was out of town the week of the fire, and when he returned the financial software and data were loaded onto a desktop PC that the financial secretary could use to run payroll and payables.

Two months later, the staff moved into their long-term temporary office and was then able to establish a network utilizing a new server. According to Rev. Lubbock he was able to recover everything except the e-mails because the new server would not read the e-mail files since it was slightly different from the old server. He said the machine would open the files, but they all appeared to be blank since they could not be read, so the decision was made to create new e-mail addresses for everyone. This was a major overhaul of the IT system, and it had a major impact on the staff and their ability to manage daily tasks. Church members could not understand why the office staff was not able to function like they had before the fire, and communicating this message proved a major challenge.

First UMC Denham Springs had a decent IT system prior to the fire, and I never would have imagined it taking two months to recover their IT system. Even without the e-mail issue,

they would have been without their server for at least one week. In this day and age, the average church relies heavily on IT making it increasingly difficult to function without it. I cannot imagine the Louisiana Conference going one week without a server and workstations. IT disaster preparedness is not going to solve all of the issues that come with a disaster, but it will enable the ability to recover more quickly and efficiently.

Consultative Team

This project would not be what it is without the assistance of two key groups:
my mentors; Rev. Carl Rhoads, Rev. Mark Lubbock, and Rev. Freddie Henderson;
my Disaster Recovery Team; Belinda Denicola, Sally Davidson, and Rhonda Whitley.

Mentors

Rev. Carl Rhoads – Rev. Rhoads has been the Executive Director of Administrative Services at the conference office for 10 years. He serves as Treasurer, Pension Officer, Secretary, Statistician, and replenisher of the coke machine. Prior to coming to the conference office, Rev. Rhoads was the executive pastor at First UMC Shreveport, LA for fourteen years, the senior pastor of First UMC Minden, LA for two years and the North Shore District Superintendent for six years. Carl is not only my supervisor, he is someone I call a friend and a great leader.
Rev. Mark Lubbock – Rev. Lubbock is the owner and operator of Louisiana Data Systems LLC. I advised the hiring of Mark as our IT consultant, not because he is a local pastor in the Louisiana Conference, or because he has worked for a Fortune 500 company, but because I know his work and can trust him. He is an extremely talented and caring man.

Rev. Freddie Henderson – I wanted Freddie to be involved for several reasons. Freddie was the New Orleans District Superintendent during Hurricane Katrina and now serves as the Director of Disaster Preparedness for the Louisiana Conference. As a survivor and leader in the New Orleans community and Louisiana Conference, he brings a lot of valuable experience to this project.

Disaster Recovery Team

Belinda Denicola – Belinda is the Assistant Treasurer for the conference. She has worked at the conference office for 15 years. As the controller, her duties include payroll, payables, human resources, and office supervisor. She plays a key role in the functioning of our office.

Sally Davidson – Sally is the Printing Director and fellow IT Administrator for the conference. She is responsible for encouraging me to pick the topic of my project, IT Disaster Recovery Planning. She asked me almost every day at lunch about the progress of my work.

Rhonda Whitley – Rhonda is the Administrative Assistant to the Provost of the Louisiana Conference. She has experience in the local church as a youth director and facilities director. Like Belinda, Rhonda is a key component in making this office work. She is the communications hub for the conference staff. She is the first contact in any disaster.

Biblical/Theological Foundation

There are several references in the bible about using the wisdom God has given us for preservation and protection. I found three scriptures that spoke to me in a special way. The first is the story of Noah and the flood. The second is a proverb about wisdom. The third is a parable about foundations.

> This is the account of Noah. Noah was a righteous man, blameless among the people of his time, and he walked with God…Make yourself an ark of cypress wood; make rooms in it and coat it with pitch inside and out. Noah did everything just as God commanded him.
>
> Genesis 6:9,22[2]

God assisted Noah in the planning and implementation of this monumental project to protect humankind from an unthinkable disaster. Unlike Noah, I do not claim to be righteous or blameless, but my goal is to walk with God and do what he commands. This project is a small part of my ark, and I hope that it can make a difference.

> For forty days the flood kept coming on the earth, and as the waters increased they lifted the ark high above the earth. The waters rose and increased greatly on the earth, and the ark floated on the surface of the water. They rose greatly on the earth, and all the high mountains under the entire heavens were covered. The waters rose and covered the mountains to a depth of more than twenty feet.
>
> Genesis 7:17-20[3]

This is an incredible image of nature's abilities. It also speaks of the ark's ability to rise above the disaster. With God's assistance we can build an ark that can float above any natural disaster. It is a relief to know that God will never again destroy all living creatures and to know that he remembers us. This does not mean disaster will never fall on the earth again. The future of humankind does not hinge on this project. It does however, hinge on God, and the assistance he provides. The goal is to be on the ark, and have the IT with you.

> The fear of the Lord is the beginning of wisdom, and knowledge of the Holy One is understanding. For through me your days will be many, and years will be added to your life. If you are wise, your wisdom will reward you; if you are a mocker, you alone will suffer.
>
> Proverbs 9: 10 - 12[4]

[2] The Holy Bible: New International Version (Nashville: Holman Bible Publishers, 1984), 5-6
[3] Ibid, 6

This passage speaks to me in so many ways. It reminds me that in order to obtain wisdom, I must listen to God and walk with Him. This scripture reminds me of the Serenity Prayer. "God, give us grace to accept with serenity the things that cannot be changed, courage to change the things that should be changed, and the wisdom to distinguish the one from the other.[5]" God can and will grant us the wisdom to know the difference. Knowing what I can and cannot change is challenging. Knowing that God is with me is reassuring. God has given us the wisdom and ability to protect each other and even our IT systems and data.

> Why do you call me, 'Lord, Lord,' and do not do what I say? I will show you what he is like who comes to me and hears my words and puts them into practice. He is like a man building a house, who dug down deep and laid the foundation on rock. When a flood came, the torrent struck that house but could not shake it, because it was well built. But the one who hears my words and does not put them into practice is like a man who built a house on the ground without a foundation. The moment the torrent struck that house, it collapsed and its destruction was complete.
>
> Luke 6:46-49[6]

A house can represent several things: a place you live or visit, or something you put your faith in to protect you. If we hear God's words and put them into practice, the flood will not destroy us. Everyone who uses a computer puts faith in his or her IT backup system that is meant to protect your information. How firm is the foundation of your IT disaster recovery plan? Can it withstand a flood or fire? It can, if you read and listen to God.

As United Methodists, we also have a book, The Book of Discipline, that sets the law, plans, polity, and processes by which The United Methodist Church governs itself. I never

---

[4] Ibid, 569
[5] Elisabeth Sifton, *The Serenity Prayer: Faith and Politics in Times of Peace and War*, New York, W. W. Norton & Company, 277
[6] The Holy Bible: New International Version, 911

would have thought this book would have something referring to the use of information systems. There are, however, two paragraphs that speak to IT backup systems and the role the annual conference has in assisting the local church with IT matters:

¶233.3 *Record Keeping*—When an electronic information system is used for record keeping, printout copies of the membership records and backup electronic media shall be retained in a secure off-site place (*see* ¶245). [7]
¶245 *Information Technology* ---Each local church, as it creates or maintains computerized information and data, is strongly encouraged to confer with its annual conference for recommendations and guidelines as it relates to information technology.[8]

What this says to me, is that if a church is using an IT system for record keeping that church is to retain a backup of electronic records in a secure off-site place. Furthermore, each local church is to come to us, the annual conference, for recommendations on matters related to IT. I have not had a local church confer with me on any IT issues, but if they were to do so, I do not think that we are in a position to recommend anything. We are retaining a backup of our electronic media off-site, but I do not think keeping that backup with me is a secure place. We do not have a disaster recovery plan in place as it relates to IT, and the Book of Discipline strongly encourages us to.

Objectives

I wanted to be very intentional about the scope of this project. This is not a generic disaster recovery (DR) plan that encompasses all things. This project is specific to IT DR planning. There are other aspects of disaster preparedness that should be an integral part of DR planning, but this project focuses on the IT aspect.

Geoffrey Wold suggests that the primary objective of disaster recovery planning is to protect an organization in the event that all or parts of its operations are rendered unusable, by

[7] The Book of Discipline of The United Methodist Church 2004, Abingdon Press, Nashville, 2004
[8] Ibid.

minimizing the disruption of operations and ensuring some level of organizational stability and order. Other objectives include: providing a sense of security, minimizing risk of delays, and providing a standard for testing the plan.[9]

Tragedies are right in front of us every day. Recently massive floods stretched from Texas to Pennsylvania. Tornado outbreaks are a constant threat as they seem to increase year-by-year. In a study from the U.S. Fire Administration, each year from 1996 to 1998, an average of 1,300 churches reported a fire causing $38 million in property loss.[10] Destruction is all around us.

Society and churches have become extremely dependent on the assistance of computers. How would the church function without resources that allow communication with members or track finances and membership? One of the significant benefits, of IT, is how staff members feel they have tools at their disposal and they are empowered to get the job done.[11]

Imagine transporting every piece of paper you have ever created for work. Then imagine making copies of all this paper and shipping it to remote, secure locations so if disaster strikes, you can retrieve it. With IT, this is not only possible but also feasible for any size local church.

Is it possible to be prepared for the unthinkable? I do not have all the answers, but I do know there are ways to protect the functionality of the church from most any type of disaster by proper planning. I will go into greater detail through the steps of the IT Disaster Recovery Planning Guide, as demonstrated from my personal experience.

---

[9] Geoffrey H. Wold, "Disaster Recovery Planning Process," Disaster Recovery Journal 15 January 2008, < http://www.drj.com/new2dr/w2_002.htm>.
[10] U.S. Fire Administration, Topical Fire Research Series 15 January 2008, < http://www.usfa.dhs.gov/downloads/pdf/tfrs/v2i7-508.pdf>
[11] Linda Stewart, The Church and Technology, NICFA Certification Project, Candler School of Theology, Atlanta, GA 1999.

My hope is that churches and denominational headquarters of any size will be able to gain from this project. Furthermore, I want the average church business administrator who does not have a great deal of IT knowledge, to have the confidence to take on this task. Part of the reason we are blasé about backing up is that we have so much data, we're overwhelmed at the thought of having to consciously manage it all.[12] I know this might be overwhelming for most administrators, including myself, but once I learned what it takes to be prepared for an IT disaster in the church, and that it was easily achievable, I felt more confident in my ability to reach preparedness.

Guide to Develop an IT Disaster Recovery Plan

In 2005 when I started working at the Louisiana Conference UMC, I did not give much thought to our backup and recovery system. I was more concerned with making sure I was doing my job correctly and trying to control the chaos caused by the hurricanes that hit Louisiana shortly after I arrived. Now that I have settled in and am able to take a closer look, I realize how ignorant I was. However, I feel better knowing that I am not alone, and that adult computer users in the United States are the world's most negligent about backing up data to external storage, with 35 percent failing to do so, according to a Harris Interactive online poll conducted for Seagate.[13]

From my research I have created a six-step guide to developing an IT disaster recovery plan. I will detail each step showing what I did for the conference office. The steps are as follows:

[12] N'Gai Croal, "The Pain of a Lost Memory," Newsweek Nov. 5, 2007: 69.
[13] N'Gai Croal, 69.

1) Get church/leadership support.
2) Select a disaster recovery team.
3) Conduct a Business/Ministry Impact Analysis.
4) Build a Technology Recovery Plan.
5) Testing and Monitoring
6) Document the plan.

Step 1 – Get church/leadership support

The first step is obtaining the support of church leadership. In a church setting this might be the senior pastor, chair of the trustees or staff parish relations. Getting the support of leadership is key because without it, the project cannot go forward. In my case, I went to my supervisor, Rev. Carl Rhoads, to ask for time to work on this project, for his approval to form the Disaster Recovery team and to conduct the Business Impact Analysis. Rev. Rhoads has been very supportive in my endeavors with the National Institute of Church Finance and Administration and he approved my request. After completion of this project, I then went back to Rev. Rhoads and Dr. Don Cottrill, the Provost of the Louisiana Conference UMC, to present my findings.

Step 2 – Select a disaster recovery team

The process of selecting an IT Disaster Recovery team is very important. I had to select people who would not only be able to commit time to the project, but who also had adequate knowledge of the Louisiana Conference office operations. There usually are not many people in the church able to fill this role, so choosing carefully is a necessity.

My team consisted of five people including myself. First, I selected Rev. Freddie Henderson. He is a survivor of Hurricane Katrina and is now the Louisiana Conference Director of Disaster Preparedness. Then, I selected Sally Davidson. She shares the IT administration

duties with me and brings crucial knowledge of our system. Next, I selected Belinda Denicola, the assistant treasurer. She handles the finances and administration of the office. The last person I selected was Rhonda Whitley, the assistant to the Provost/Director of Connectional Ministries. She coordinates office communications and works with Belinda on administration of office staff. Each person on the team plays a key role in the operations of the office, and brought important insights when I met with them to brainstorm ideas for the Business Impact Analysis (BIA) and the recovery plan.

Step 3 – Conduct a Business/Ministry Impact Analysis

With the assistance of the IT Disaster Recovery team I was able to conduct a Business/Ministry Impact Analysis (BIA) to identify the most important processes and functions of the organization. A Business Impact Analysis is a detailed inventory of the primary processes, systems, assets, people, and suppliers associated with an organization's principle business activities. It helps determine which business processes need to recover and restart as soon as possible after a disaster.[14] It also identifies how soon a business needs to restart in order to survive the disaster. It can be difficult to think of the church as a business, but if the church is going to survive a disaster, it must think like a business.

I created a questionnaire to interview every staff member in our office. The questions were aimed at identifying the main programs and files they used, how their work would be affected without access to their computer, how data loss would affect their work, and what they were doing on their own to protect their data. The reason we used this line of questioning was to discover not only the different needs for IT, but also, to develop an awareness of the expectations of the IT system.

[14] Peter Gregory, IT DR Planning for Dummies (Indianapolis: Wiley Publishing, 2008) 52

After conducting the interviews I discovered that only two people out of thirty were backing up data on their own. The main programs used were: Microsoft Office Suite, Internet Explorer, Mission Base (database software), and Shelby (accounting software). How a disaster would affect their work varied depending on the timing of the disaster. The conference office coordinates many events throughout the year. The time leading up to an event is critical, whereas the time after the event is complete is not as critical.

The affect of data loss on people's work was the most delicate question. The thought of losing data is unnerving to many people, including me. Everyone, with the exception of Rev. Henderson, said that no data loss was acceptable. The reason Rev. Henderson was the exception is that he and I are the only people backing up files to a USB flash drive, keeping it with us at all times.

Identifying our principle business activities was not difficult. The Louisiana Conference office has two principle activities that are necessary for our survival. One of those activities is the collection of apportionments from the local churches. The money collected and distributed by the conference enables all of our ministries to function. The other principle activity is communications. Our IT system plays a key role in both of these activities. We have a dedicated server for our Shelby accounting software that is backed up to the main server. We also use the Mission Base software for accounts receivables and billing. Our connection to the people of the Louisiana conference would not exist without the ability to communicate with them. E-mail and telephone are the main two sources of communication for our office. The Small Business Server hosts our e-mail accounts, which are critical to the mission and ministry of the conference.

There are two key factors to keep in mind when developing an IT disaster recovery plan. Those factors are: Recovery Point Objective (RPO) and Recovery Time Objective (RTO). The RPO asks the question: at what point in the history of backup data would you like to recover? Can your church afford to lose any data and if so, how much? Right now, if a disaster were to strike our office over the weekend, we would lose one week of data. What we learned from the BIA is that we cannot afford to lose more than one hour of data, mainly because of e-mails and financial data, making our RPO one hour.

The RTO asks the question: what is the target period of time to have the IT system operating after a disaster? According to our IT consultant Mark, under normal conditions, it would take his staff two to three days to rebuild our current server with our current backup system. After a small-scale disaster, such as the server becoming inoperable, the conference office would like to have our IT system back up in one to three hours. For a large-scale disaster, in the event we were displaced, the RTO would be two to three days once at a new site.

Step 4 – Building a Technology Recovery Plan

Building the plan is a five-step process:

1) Why should you backup?
2) What should you backup?
3) When should you backup?
4) How should you backup?
5) Who should put your backup system together?

Why should you backup?

This question has already been answered, but to reiterate, as administrators of the church, it is our duty to protect both the church people and church property. Having an IT Disaster Recovery Plan protects both the personal information of the people and the physical property of

the church. When I think of protecting people and property I think of insurance. It is a safety precaution to protect you or your loved ones in the event of an accident or disaster. Most people do not purchase insurance, with the exception of health insurance, with the definite intention of using it. If you believe in having insurance, why would you not believe in backing up your system? Is it worth the risk?

What should you backup?

More specifically, the question asks what part or parts of your system you should backup. Experience shows that one of the most common causes of data loss is that the lost data was never configured to be backed up.[15] For those of us who are unsure and do not know much about IT, this question can be quite difficult to answer. It is really easier than you think. There are basically two ways to backup data: select certain items from a list or select everything. Backing up everything is easier and safer than backing up from a list, and not backing up everything is very dangerous.[16] It is easy to forget something on a list. The Louisiana Conference UMC will always back up everything, even the operating system. With the low cost of storage media, there is really no reason not to.

When should you backup?

When it comes to the data on your server(s), you should back up every night including the weekends. The bigger question becomes what level of backup to run? There are three basic levels of backing up. The first is easy, a full backup. The other levels are a little complex. They are an incremental backup and a differential backup. An incremental backup only backs up the

[15] W. Curtis Preston, Backup & Recovery (Sebastopol: O'Reilly, 2007) 19.
[16] Ibid, 25.

data segments that have changed since the last time the system was backed up. A differential backup backs up the data segments that have changed since the last time the system ran a full backup. I do not think that it is necessary to run a full backup every night in a server situation. However, in a workgroup environment with no server, I could see where each computer could run a full backup every night.

Our office runs an incremental backup on Saturday, Sunday, Monday, Tuesday, and Thursday. We run a differential backup on Wednesday and a full backup on Friday. Incremental backups use less storage space, but differential backups allows for a quicker recovery in the event of a disaster. Without a differential, if a disaster struck on Thursday, we would first have to load the previous Friday's full backup and then load all the incremental backups for Saturday, Sunday, Monday, Tuesday, and Wednesday. With a differential backup, we still have to load Friday's full backup, but we can then skip all the incremental backups and go straight to Wednesday's differential backup.

How should you backup?

There are four basic types of media that can be used to backup data. There are optical drives like CD and DVDs, Hard Disk Drives (HDD) like external hard drives, and then there are tape drives. The fourth is my favorite, Solid State Disks (SSD), like a flash drive, they use Random Access Memory (RAM), stored on a microchip.

Before the conference office installed the new server, we were using a daily tape backup system. It was a very simple system that had 10 tapes or two weeks of backups. Every night it would run a full backup of the server. The good thing about tape is that tape media is

inexpensive and it can store large amounts of data. On the negative side, tape is not reliable, not flexible, and recovering data is a slow process because it reads and writes data sequentially.

Rev. Lubbock suggested we use a backup system that incorporates two removable data cartridges or SSDs. I had never operated a backup system like this one and did not know much about it. When deciding to use a removable cartridge backup system we had several things to consider.

The first factor was reliability. W. Curtis Preston states that, "disk drives are inherently more reliable than tape drives." Any electronic repair shop will tell you that moving parts fail.[17] This makes SSDs inherently more reliable than HDDs because they have no moving parts. A backup system is only as reliable as the media being used.

Another key factor is time-to-data. This tells you how long it takes to access data. A HDD and SSD have random access capabilities taking you straight to the file you want. A tape drive has sequential access, which means it has to go through the entire tape to find your file. This would mean a slower recovery time.

The next two factors to consider were cost and capacity. The reason tape drive systems used to be the backup system of choice is because they were a better value, and provided more storage for the dollar. They still provide more storage for the dollar, but looking at the total cost of purchasing the equipment that uses similar capacity media, a Dell PV110T LTO-2L External Tape Drive with one 200 giga-byte (GB) tape and no software, costs $1,000. A Dell POWERVAULT RD1000 External Disk Drive with one 160 GB SSD and no software, costs $365. An organization would need more than 600 GB of backup storage to spend more money

[17] Ibid, 250.

on a SSD system than a tape drive system, with external HDDs being even cheaper, as low as thirty cents per gigabyte. Before considering an external hard drive though, you need to consider portability and software options.

Having the right backup software is just as important as storage space. Our new server and RD1000 backup drive came with a customized version of Yosemite Backup Standard 8.1 that provides easy installation, management, and basic backup and restore for a single server. This software was ideal for us because it is wizard driven which makes it simple to operate, and it offers centralized administration of both local and remote backups. It also has a multi-tier architecture that allows us to expand our backup capacity as data needs grow.

The next part of the question, how should you backup, looks at redundancy and off-site storage. When considering how you want to backup your system, there is no reason not to use more than one type of backup. The IT Disaster Recovery team identified two additional backups that should be put in place. The first was a very simple solution that involves the use of flash drives. The second is the installation of a dedicated backup server called "The Ultimate Backup." USB flash drives are a very inexpensive and simple form of backup. The team suggested the conference purchase a USB flash drive for each staff member to backup the "My Documents" folder. Everyone will be instructed to make certain all files are stored in the My Documents folder, or an administrator designated folder, and backed up at least once a week to their flash drive. They are to carry this flash drive with them at all times. This will be part of the documentation in step six.

The Ultimate Backup is a network attached storage (NAS) device designed with the sole purpose of supplying file-based data storage services to other devices. This all-encompassing

on-site server solution provides small to medium size businesses with near real-time backups. Backups are performed at the block level, as frequently as every 15 minutes. Block level data is raw data with no file structure imposed on it making it simpler to restore data to dissimilar hardware, which is important as rapidly changing as technology is. Each time the system is backed up a copy of the backup is created and securely sent to two highly available, redundant off-site collocation facilities. These facilities, located in California and North Carolina, provide world-class physical security, power availability, infrastructure flexibility and customer support to ensure business continuity, disaster avoidance, and disaster recovery solutions. These data centers will provide 24x7 monitoring, notifying LA Data Systems of any problems as they happen. The most fascinating part of this system is the server virtualization capabilities. The NAS device is able to virtually host the main server's operating system and applications in the event of a server failure. Once the virtual environment is in place and the server's backup image is running, we are back in business. The process usually takes less than one hour, depending on the size of the disk, and there are no additional configurations necessary as the system retains its original system state, including the IP address. Once the virtual server is running, the backups continue just as they did before the server crash. This will allow time to repair or replace the failed server.

Who should put your backup system together?

This was a simple question for me to answer because I have a person, Rev. Lubbock, whom I can trust. It is important to have an outside IT consultant to support your IT system. It is also important not to settle for someone inside or outside the church that has been around and is affordable. If you are looking for an IT consultant to assist your church there are several ways

to find a reliable consultant. The best way is word of mouth. This could come from another church business administrator or church member. Replacing our IT consultant was the best decision we made.

Step 5 – Monitoring and Testing

"If you are not monitoring your backups, they are not doing what you think they are doing, guaranteed," says Preston. Even if you do monitor them, they might not be doing what they are supposed to. This is an important part of disaster preparedness. Putting a system in place is only half of the equation; making sure the system is functioning properly is the other half. This does not involve spending time on the server checking the logs every day, but your IT consultant should setup your backup system to e-mail you a report. It could send you a report only when something goes wrong with the backup. Do not put the task of monitoring square on the shoulders of your IT person if you are not willing or able to pay for monitoring services. Share or delegate the task to someone you can trust. I do not like being pulled away from my work to monitor our system, but I do it. In fact, I was able to identify a problem with the initial setup of our backup system by monitoring the backups and it does not require a great deal of expertise or time, just the willingness to do it.

Testing your backup system is just as important as installing a backup system. You do not know if it works until you test it, and this is something the conference office has not done enough of. Since installing our new system we have only tested the backups once. Testing should be done quarterly, but monthly is better. Testing can be as simple as restoring a single

file or as detailed as rebuilding your server on another machine. The simple testing techniques should not require the assistance of an IT consultant. The detailed ones will, but you only need to do large scale testing once per year. January or February is a good time for large scale testing after you have closed the previous year and archived its data. Another good time to test is after installing a new program or database. Every change you make has a potential for data loss. If you are not testing, you are not prepared for the unthinkable.

Step 6 – Document the Plan

The last step in the guide to developing an IT disaster recovery plan is putting the plan in writing. This will not only help protect the church, but you the administrator as well. Documentation should include: current backup procedures, a disaster-declaration procedure, emergency contact lists, damage assessment procedures, system recovery and restart procedures. I have not documented our plan as of this paper, but I will be working with Sally Davidson and LA Data Systems to develop our current backup procedures. Then I will work with Rev. Henderson and Rhonda Whitley on the disaster-declaration and emergency contact lists. The Disaster Recovery Team will work on the remaining parts.

Conclusion

I wanted a solution that made financial sense for the conference or any local church with a server. I began my research looking at online backup solutions because I knew that online

backups are the best protection against the unthinkable. I started by pricing online backups and every company I looked at charged by the amount of storage you needed. At the conference office one full backup and six incrementals of data on our system is roughly 100 GB. The prices for online backup services for 100 GB ranged from $200 to $800 per month just to store data. Prices that high are cost prohibitive for most churches. I never would have thought that an online backup solution such as the "Ultimate Backup System" would make financial sense for the conference office or the local church. I found out that we could get this system from LA Data Systems for $3,000 annually or $250 monthly. This would include installation, setup, monitoring and online backup services. This might not make financial sense for every church or denominational headquarters, but it does for our office.

This solution is ideal for the Louisiana Conference UMC for serveral reasons. It will allow us to meet our Recovery Point Objective of one hour and it should allow us to meet our Recovery Time Objectives in even the worst of disasters. Being able to maintain the same IP address is critical for us because our server is hosting our e-mails, and I know it would take several days to have a new IP address assigned. We will also be able to meet our goal of having at least three redundant backups: one on the removable data cartridge, one on the NAS device, and two online. This will allow us to archive and monitor our system much more easily.

Strengths

My background in computers helped me a lot for this project. In dealing with IT, it is important to stay current on new developments. I used the most current resources available to support my findings. My mentor Rev. Lubbock is a wealth of knowledge. He stays on top of

technology changes and helps keep me informed. He also has much more experience dealing with IT disaster recovery than I do.

My disaster recovery team was an amazing group. They brought so many ideas and experiences that I never could have thought of on my own. Having the experience with our old tape backup system and our current disk backup system gave me a first hand view of the progression of IT backup systems. Using online backups, this project is a furthering of that progression, moving to the next generation of backup systems.

Things I would do differently

I was hesitant to start working on this project last spring when the conference was upgrading to a new server and new software. I was aware of budget restrictions and did not think my project would be appreciated or viewed as necessary. I would have spent more time interviewing people at churches in New Orleans and at First UMC Denham Springs. There is so much to learn from their experiences. Time was a rare comodity in this past year with so much happening around me.

I would have loved to visit a business or church that is using The Ultimate Backup System or a version of it, because it was a challenge understanding this system and what it was capable of. I would have liked to see other systems in general , but after speaking with Rev. Lubbock who has seen many different backup systems, I have no doubt this is the best solution for us. IT is a small part of my work and it is difficult devoting time to it, and I am fortunate to have a supervisor that allowed me this time.

New Discoveries/Central Conclusions

Network Area Storage devices are a new discovery to me. According to wikipedia, "Network-attached storage was introduced with the early file sharing server operating systems in 1983. The original 3Server shipped in 1985 with 512k of RAM and a single 36MB hard disk. It had slots for adding six additional drives, making it one of the first network attached storage (NAS) arrays." NAS devices have come a long way since 1985, but the technology is still very similar.

Online backup services became very popular in the 1990's tech boom. Dell and HP offer these services when you purchase a computer from them. Symantec and McAfee offer online backups with their software that are affordable and easy to use. Best Buy offers an online backup service for personal computers that cost $49 annually for the first 25 GB. Their Geeksquad will set it up to backup automatically.

There are always going to be budget restrictions and people who are resistant to change. The key to getting support is education. I knew that if I helped the conference leaders understand what we were currently doing to backup and the solution we needed, it should not be difficult to get their support. After presenting the information to them, they have agreed to purchase this backup solution. The Ultimate Backup is not the best backup available. It is impossible to think of and cover every possible disaster scenario. You ask the questions, brainstorm ideas and put together a solution for your budget. Even if that means purchasing one flash drive at a time, the key is doing something to protect what you value. I hope that you value your church's data. I can tell you The Louisiana Conference of the United Methodist Church does.

Bibliography

1. The Book of Discipline of The United Methodist Church 2004, Abingdon Press, Nashville, 2004

2. Croal, N'Gai, "The Pain of a Lost Memory," Newsweek Nov. 5, 2007

3. Gregory, Peter, IT DR Planning for Dummies (Indianapolis: Wiley Publishing, 2008)

4. Hebert, Tim. "A Concise History of the Louisiana Conference." Archives and History: The Louisiana Conference of the United Methodist Church. 21 April 2008 <http://www.iscuo.org/briefhis.htm>.

5. The Holy Bible: New International Version (Nashville: Holman Bible Publishers, 1984)

6. Preston, W. Curtis, Backup & Recovery (Sebastopol: O'Reilly, 2007)

7. Sifton, Elisabeth, *The Serenity Prayer: Faith and Politics in Times of Peace and War*, New York, W. W. Norton & Company

8. Stewart, Linda, The Church and Technology, NICFA Certification Project, Candler School of Theology, Atlanta, GA 1999.

9. U.S. Fire Administration, Topical Fire Research Series 15 January 2008, < http://www.usfa.dhs.gov/downloads/pdf/tfrs/v2i7-508.pdf>

10. Wold, Geoffrey H., "Disaster Recovery Planning Process," Disaster Recovery Journal 15 January 2008, < http://www.drj.com/new2dr/w2_002.htm>.

Appendix I.

THE "ULTIMATE" BACKUP!

ONSITE & OFFSITE DISASTER RECOVERY SOLUTION

Louisiana Data Systems now offers the only complete cohesive Backup and Disaster Recovery Solution (BDR) for Windows 2000 and Windows 2003 Servers.

This reasonably priced, all-encompassing on-site server solution provides Small to Medium size businesses with near real-time backups that also includes seamless *off-site data storage* along with multi-year archiving and fast server virtualization capabilities.

There are advanced restoration options like file and folder level restorations, with Exchange message and mailbox recovery and bare metal restorations to dissimilar hardware. Within hours, the unique NAS device can also be configured to function as a virtual server if needed. This solution will replace management intensive, error-prone tape backups while providing much more.

ONSITE DATA STORAGE SERVER!
OFFSITE REDUNDANT COLLOCATION FACILITIES!
MONITORED 24 X 7!
MULTIPLE DISASTER RECOVERY OPTIONS!
UP TO 15 MINUTE BACKUP INTERVALS!
MULTI-YEAR ARCHIVING!

". . . Data is securely sent from the local NAS device to high availability, redundant offsite collocation facilities."

This new NAS-based technology performs data backup at the block level where the actual 1's and 0's are captured from the hard drive essentially eliminating failures related to open files. Block level data is raw data which does not have a file structure imposed on it. Database applications such as Microsoft SQL Server and Microsoft Exchange Server transfer data in blocks without having to worry if files are open or being used. Block transfer is the most efficient way to write to disk. Backups are performed as frequent as every 15 minutes providing clients with an increased amount of restore points when compared to traditional tape backups.

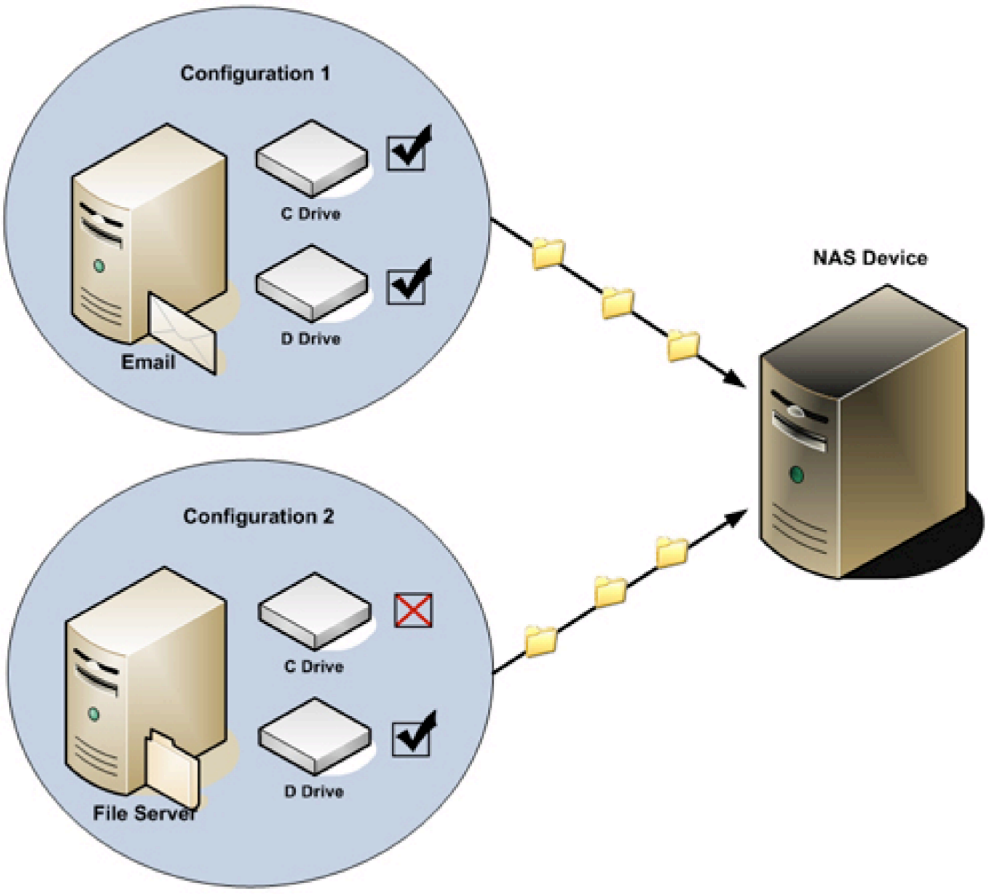
Data is securely sent from the local NAS device to high availability, redundant off-site collocation facilities. All aspects of the on-site and off-site solution are monitored 24X7 by Louisiana Data Systems NOC (Network Operation Center).

Our revolutionary "Ultimate" Backup Solution allows your business to continue to function even after a disastrous event without the need to deploy redundant hardware & software and the need for you to invest in costly fault tolerant systems. This solution allows a solid, more frequent backup and a well thought out recovery strategy that is the primary component of a Business Continuity Plan.

How it Works

Configuration

The NAS device can be configured to backup multiple Windows 2000 and Windows 2003 Servers and their volumes or logical drives. There are no file or folder level exclusions because a snapshot of the entire volume is taken at the block level or the actual 1's and 0's on the hard drive. In order to take advantage of the virtualization services the operating system drive must be selected. Additionally, the data backup can be scheduled to run during selected times and days of the week.



Incremental Forever Methodology

The Incremental Forever Methodology is similar to Incremental Backups where each Incremental performs a backup of all changes since the last backup. Where this technology differs is that only one full backup or base image is required. This greatly reduces the time it takes to perform backups as each Incremental takes only seconds to complete. As the Incrementals are taken they are collapsed into what we call Synthetic Incrementals. For example, imagine two Incremental backups with the first backup taken at 10:15am and a second taken at 10:30am. When the collapsing process occurs the 10:15am backup is collapsed into the 10: backup 30am

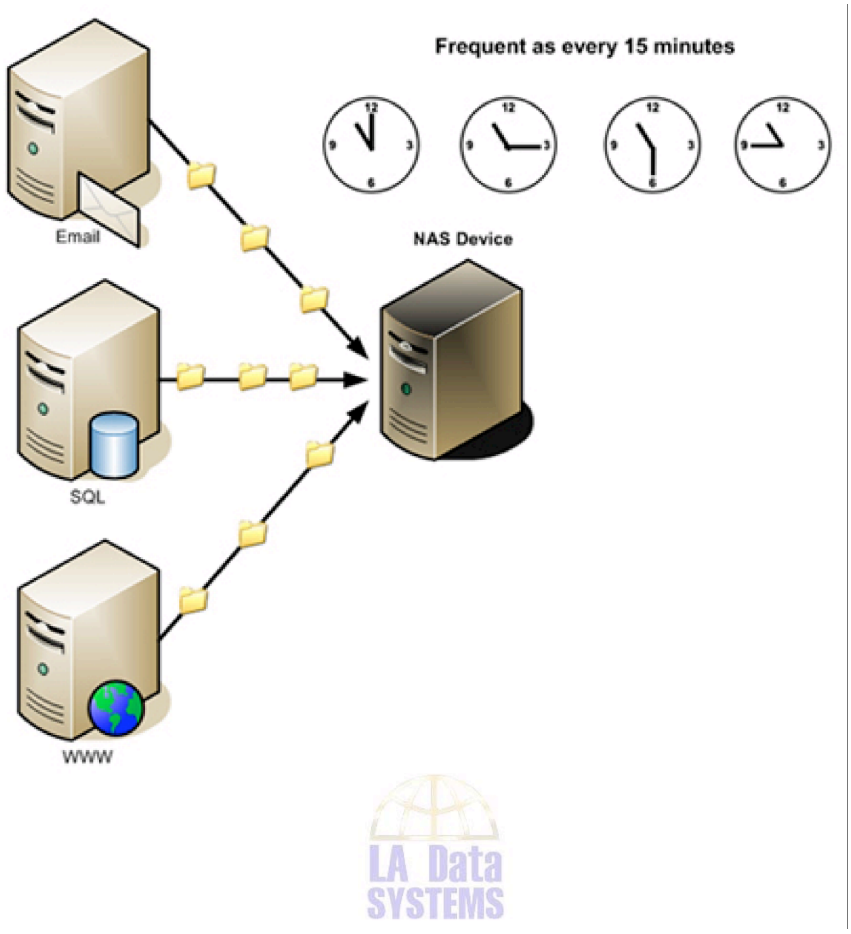
Please bear in mind that the frequency of offsite back ups is limited by the amount of available bandwidth at the client site. Limited bandwidth will result in longer transmission periods which means back ups may only be done hourly or daily depending on the available internet bandwidth.

Base Image

The base image is the first backup that occurs on the server, which is a complete image of the volumes intended for backup. The base image serves as a starting point for all incremental backups. The incrementals collapse into the base image when a restoration is performed providing you with a complete image of the server from the selected point in time.

Incrementals

The Incremental Backups are the changes on the hard drive since the last backup. For example, the first Incremental will be all of the changes since the Base Image and the second Incremental will be all of the changes since the first Incremental. There are nearly 100 incrementals in a 24 hour period if the backup frequency is set to every 15 minutes.



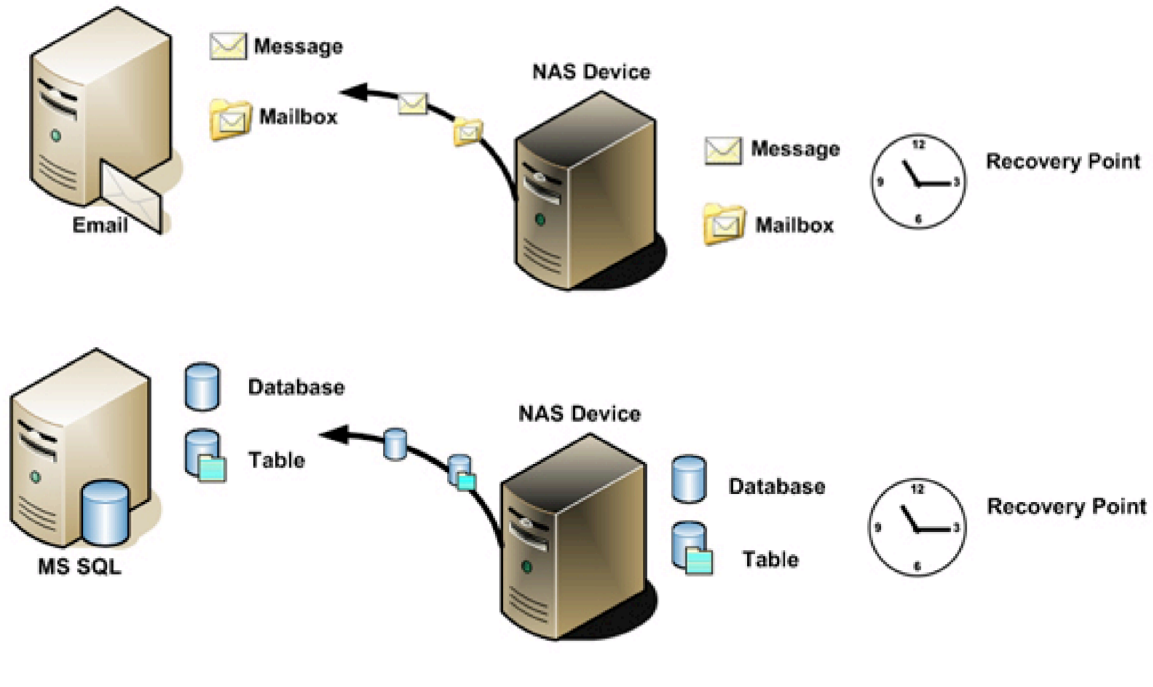
Synthetic Incrementals

Synthetic Incrementals (SI) are the result of collapsing multiple Incremental snapshots into single file or Incremental. The Daily Synthetic Incrementals are created at the end of the day or 24 hour period when all of the 15 minute Incrementals are collapsed leaving you with a single recovery point for that day.

The Synthetic Incrementals result in a complete archiving solution as each Daily SI is collapsed to create a Weekly SI, each Weekly SI is collapsed into a Monthly SI and finally each Monthly SI is collapsed into a Yearly SI. When recovery from a specific month or a is year needed we simply join together the necessary incrementals in a chain with the base image to create the desired point in time image. The entire joining process takes a few seconds to complete

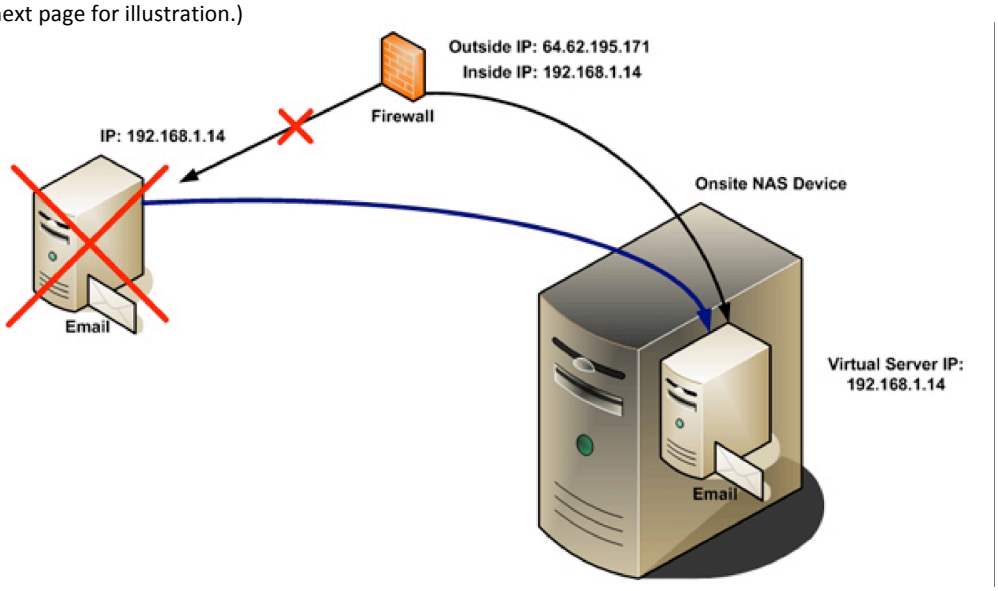
Recovery Options

Recovering files and folders is a simple process where the entire server is mounted as a volume on the NAS device. The files can then be copied to the destination server over the network. We also provide utilities to restore files, folders, and Exchange mailbox or message.



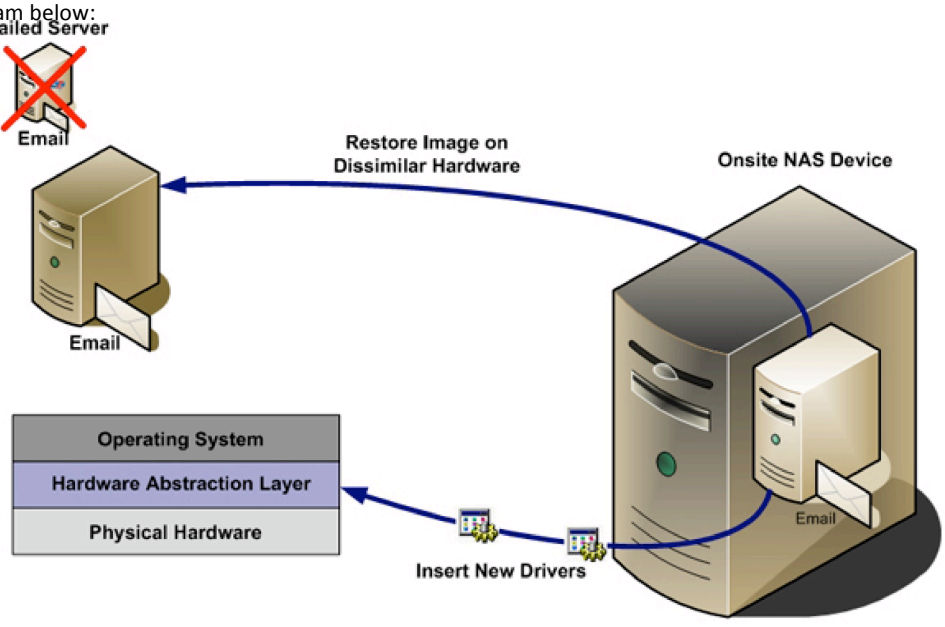
Virtualization (Physical to Virtual)

The NAS device is capable of virtualizing failed servers while keeping the exact system state previous to the failure. This means there are no configurations necessary as the server retains the same IP address and application state. Once virtualized, the server will resume the same backup schedule previous to the failure. Our Engineers will perform this work at no additional cost. (See next page for illustration.)



Bare Metal Restore (Virtual to Physical Recovery)

When it comes time to restore the Virtualized Server back to physical hardware our Bare Metal Restore process allows restorations to dissimilar hardware. Once the server image is loaded on the new server we can manipulate the Hardware Abstraction Layer by inserting new drivers for the new hardware. Our Engineers will perform this work at no additional cost. Please refer to diagram below:

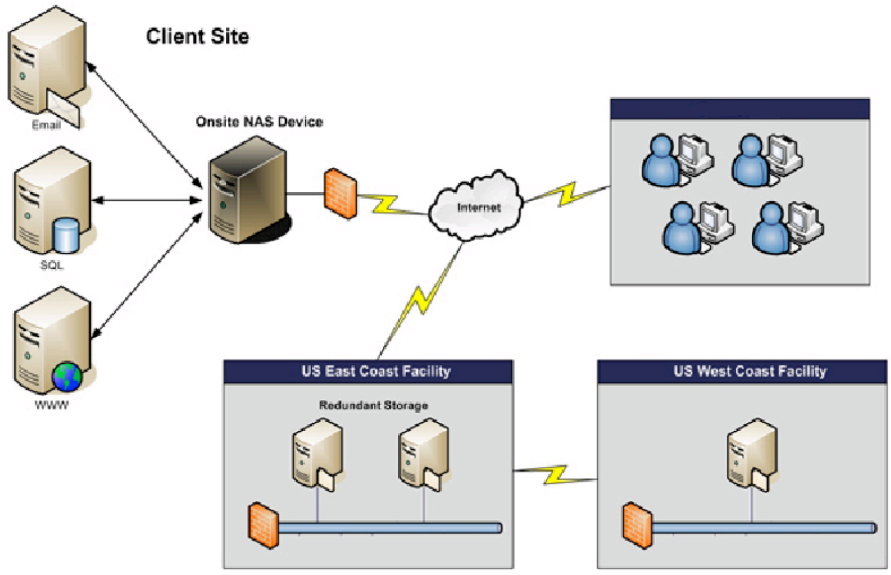


Monitoring and Management

Louisiana Data System's total BDR Solution is monitored and managed 24x7 by our NOC Team. Our staff spends about 45 minutes setting up a new NAS. Once the NAS unit arrives it will be added to the LAN, establish an internet connection and call our NOC and we'll do the rest of the work.

NOC set up time is approximately 4 hours per NAS. If an issue occurs during any backup or with the hardware we are immediately notified and take corrective action. Not only do we monitor the entire solution Servers, NAS and Remote Storage facilities, but we also manage it by performing restorations and virtualization of servers as needed.

We perform daily verification tests to verify the integrity of base image and incrementals. Should an incremental have a corruption, our engineers copy the corrupt incremental from the offsite collocation facility to the NAS and the run verification again. If this does not solve the problem then corrective action is taken by creating a different image to get the backup to a consistent state.



For more information contact us at:

Louisiana Data Systems

www.ladatasystems.com

Frequently Asked Questions

How secure is my data and are there multiple copies of it in the event of a total disaster?

The data on the NAS device is compressed, encrypted using 256bit encryption then transferred over a 256bit encrypted UDP tunnel to the offsite collocation facility on the West Coast. Once the data reaches the offsite facility it is also copied to a fail over server at the same collocation facility then transferred to a separate collocation facility on the East Coast. In total there are 4 copies of your data if the offsite storage option is selected.

How are VSS backups handled?

When configuring the backup of servers an option to schedule a daily VSS Incremental backup is available. When the VSS Incremental backup occurs it shuts down all VSS aware applications then performs the backup.

What is the frequency of backups?

After the base image backup of the server completes the maximum number of incrementals in a 24 hour period is 96. This configuration performs 96 incremental snapshots of the server every 15 minutes throughout the day.

Can I select what files and folders to backup or exclude?

Backups are performed by server volume. For virtualization you must capture the boot volume and any other volume(s) containing server applications. For example if you install the operating system to drive C and Exchange to drive D, you must have both C and D backed up if you want to virtualize the server.

Can I restore Exchange Mailboxes?

Yes, we have a utility that allows the restoration at the mailbox and message level.

Do you backup workstations?

Not currently but we are planning a release of desktop backup later in 2007. If you are able to synchronize or host your users data on the server then this would be included in the backup.

Do I have to reconfigure my firewall settings and any DNS or MX records if we need to virtualize a server?

No, the virtualization process keeps the servers system state so no additional configurations are needed. Service will continue to run like they did prior to the server failure.

If we have more than 8 servers can we have multiple NAS Device's on site?

Yes, multiple NAS configurations are possible.

Can I have more than one server running in a virtual state on the NAS Device?

Yes, depending on the amount of hard disk space, memory and processor a server consumes. The only limitation is the physical hardware of the NAS Device.

Can I select what volumes on the server to send offsite to the colocation facility?

No, the entire server—regardless of what volumes are being backed, up are sent offsite if this option is selected.

Appendix II.

Louisiana Conference UMC

IT Disaster Recovery Proposal

IT DR Team

- Freddie Henderson
- Sally Davidson
- Belinda Denicola
- Rhonda Whitley
- Mark Lubbock

What are we doing now?

- My Documents Folder and E-mail synched
- Backup to data cartridge
- Cartridge rotated Weekly
- Storing backup offsite with me

Key Development Factors

- Recovery Point Objective (RPO) - How much data can you afford to loose?
- Recovery Time Objective (RTO) - How long can you afford to be without data?

Where are we now?

- Potential to loose one week of data
- Potential to loose all e-mail data
- Potential down time of one week
- Not compliant with Book of Discipline

Paragraph Number: 233

- 3. When an electronic information system is used for record keeping, printout copies of the membership records and backup electronic media shall be retained in a secure off-site place (see ¶ 245).

Paragraph Number: 245

- Information Technology – Each local church, as it creates or maintains computerized information and data, is strongly encouraged to confer with its annual conference for recommendations and guidelines as it relates to information technology.

Objectives

- RPO - No more than 1 hour of data
- Especially e-mails
- RTO - (no more than 1 day down)
- Redundant Backups (at least 3)
- Archive the system yearly
- Document the Plan

How do we get there?

- Take backup cartridge to secure location
- Purchase flash drives for every user
- Create secondary backup for Shelby data
- Establish alternate e-mail list for users
- Implement The “Ultimate” Backup solution
- Establish Procedures for testing system

The Ultimate Backup!

- Onsite data storage server
- Offsite redundant collocation facilities
- Monitored 24 x 7
- Multiple Disaster Recovery Options
- Up to 15 Minute Backup Intervals
- Multi-Year Archiving

Onsite Data Server

- Purchase or lease a dedicated server
- Backs up data every hour
- Copies data and sends to remote servers
- One in California and One in North Carolina

Monitored 24 x 7

- Louisiana Data Systems hired a TPA
- This TPA will notify LA Data Systems
- LA Data Systems will investigate issues
- Data is backed up at the block level (raw data)
- Certain e-mails are safely backed up

Recovery Options

- Virtualization – The back up server or a new server is capable of becoming our server within minutes to hours
- Bare Metal Restore - once new hardware is in place, the server image or backup is loaded

Documentation

- LA Data Systems
- Sally and myself
- Rhonda - alternate e-mail addresses
- Belinda and I - secondary plan for Shelby

Pricing

- Plan A - Purchase Server outright
  - We own & maintain the server
  - Must sign a 2 year service contract

  Server - $1,995
  Service fee - $150/month
  $5,595 over 2 years

Pricing

- Plan B - Lease the Server from LA Data Systems
  - LA DATA owns & maintains the server
  - Combined with a 2 year service contract

  Server + Service - $250/monthly
  $6,000 over 2 years
  Additional $400 & $1,200/year

Questions?

Thank you!