Tivoli Storage Manager – Internal Projects

Internal Projects to maintain and retain technical skillsets edge

TSM Library Sharing with Sharepoint VM integration with peer collaboration

TSM Server Migration

TSM Project

Library Sharing-VM SharePoint

Prepared for

Bill Horejs

Version 1.1

August 5, 2008

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Abstract

Bill Horejs assigned me (Kim Tran) with the task of building a Tivoli Storage Manager (TSM) server for various testing purposes in the BPIC. Also a SharePoint vm was to be created as part of the testing purposes.

Plan and Preparations

For this project, I approached it from the test first then implement. I spent the majority of the time on the testing, in addition to researching the complications that I encountered.

I worked on the installation/settings/configurations in a test vm to be more comfortable before 'tampering' with physical/live equipment/data.

I spoke with Chris Gibes, Carlo Bonura, Dan Gramza, Lisa Atarian, Dave Bach to find out the information needed to build the TSM server along with the SharePoint vm.

Chris suggested to just load Windows 2003, rather than 2008, since at the time it was still unsupported, granted the original intention was to load Windows 2008. The library sharing was not originally part of the configuration, but was an added value of learning to set it up and having access to the physical library from a secondary TSM server.

Carlo assisted with the building of the vm for the SharePoint testing. Lisa greatly assisted with the setup/configurations (with growth testing) of the Microsoft Office SharePoint Server / MS SQL Server . Dave provided specifications/sizing for the vm partitions for installation/utilization of SharePoint.

Dan provided the supplementary information on IP and other issues that I ran into. Matt Koerten graciously assisted during the testing phase when complications arose in the BPIC (down switch, cabling, assistance with troubleshooting).

Out of Scope

In depth configuration for SQL/SharePoint for "specific" testing was not specified. An environment where SQL/SharePoint was installed and "ready" for configuration specific needs at time of actual testing.

TSM

> Step-by-step configuration of TSM server, storage pools, other components (devices, paths, class)

Restoration of SQL/SharePoint

> Client is installed, ready for backup.
>
> Restore process is an issue that requires more time for testing/troubleshooting

Library sharing – setup:

> Defining the library, drives, paths –for the [main/manager] server. This scenario assumes the library, drives, and path to the drives and library are already defined, with the "shared" option set to "yes"
>
> (Please see the TSM 5.x Admin / Reference Guide for syntax and examples)

TSM Server Setup/Install

The actual installation of each software itself varies from around one minute to possibly over an hour—depending on system specifications. The operating system averages around forty minutes, in addition to another one-two hours for patching the system with necessary security updates.

The TSM server/client software can be installed in two-three minutes. The Integrated Solutions Console (ISC) and the Administration Center can vary between fifteen minutes to an hour or more.

Estimated time: three-five hours (actual may vary)

TSM Server Setup/Configurations

The things that needed to be done for this part of the setup:

- Configure the TSM server instance
- Define the storage pools
- Setup the server-to-server communications with demors (bpic tsm server)
- Setup the library manager/client to share the library
- Configure the TSM backup client
- Test the configurations

Setup of the environment can be done via the command line interface (CLI) or through the administration center (GUI).

Granted no complications are encountered, estimated time: one-three hours (actual may vary)

System Setup Info

Server IP: 172.30.26.x(static)

Login: Administrator/xxx

TSM server is running Windows Server 2003 R2 Enterprise

TSM Server 5.5.1, Client 5.5.1

Local drive : 25GB

Diskpool partition: 40GB

Virtual Tape Library partition: 36GB

SharePoint IP: 172.30.92.xxx (static)

Login: Admin/xxx

SharePoint server is running Windows server 2003 Standard

TSM Client 5.5.1.1

Tivoli Data Protection for SQL 5.5.1

Microsoft Office SharePoint Server 2007

Microsoft SQL Server 2005

Local drive: 12GB

SharePoint drive (data): 20GB

Complications

The main complication that I ran into was the defining/sharing of the library on demors.

Following the syntax and instructions to setting up the library, I was able to 'define' the servers for server-to-server communication then define them to be the library manager and client on each server. The problem came from defining the shared library on the client. Since the library client server needed to connect with the library manager server to request the sharing privileges.

The error was an 'authentication failure'. The majority of the research pointed to either starting over by removing then redefining the servers, passwords or to update the servers making sure the password was correct on both servers for the communication. This did not resolve the issue, a document on the IBM website pointed to a possible issue that was resolved in a fix release. The current version of TSM on demors was 5.5.0. With assistance from Ingrid K. and Chris G. to verify that the settings were all 'correct', it was agreed that demors could be upgraded to 5.5.1. Following the upgrade, I redefined the server-to-server communications and when defining the shared library this time, it was successful. I strongly believe the upgrade fixed the issue/complication that was hindering me from setting up the shared library.

End of Document

Appendix A: Server-to-Server Communication

Library Sharing Setup

Server-to-Server Communication

On the main server:

- set servername [name]
- set serverpassword [password]

define the client server on the main server

- define server [name] serverpassword [password] hladdress [ip address] lladdress [tcp port]

On the client server(s)

- set servername [name]
- set serverpassword [password]

define the main server on the client server

- define server [name] serverpassword [password] hladdress [ip address] lladdress [tcp port]

On each server, turn the crossdefine option on

- set crossdefine on

Library Sharing Setup

On the client server(s)

- define library [name] libtype=shared primarylibmanager=[main server name]

Define the all the device class associated (or to be used) with the shared library

- define devclass [class name] library [library name] devtype [type]

(parameters for device class should be same on client /manager server, using the same device class is good practice but not required)

Define a storage pool to be used with the shared library

- define stgpool [name] [device class defined] maxscratch=[number]

On the main server:

Define a path to the drive(s) from the client server that it will be allowed access to

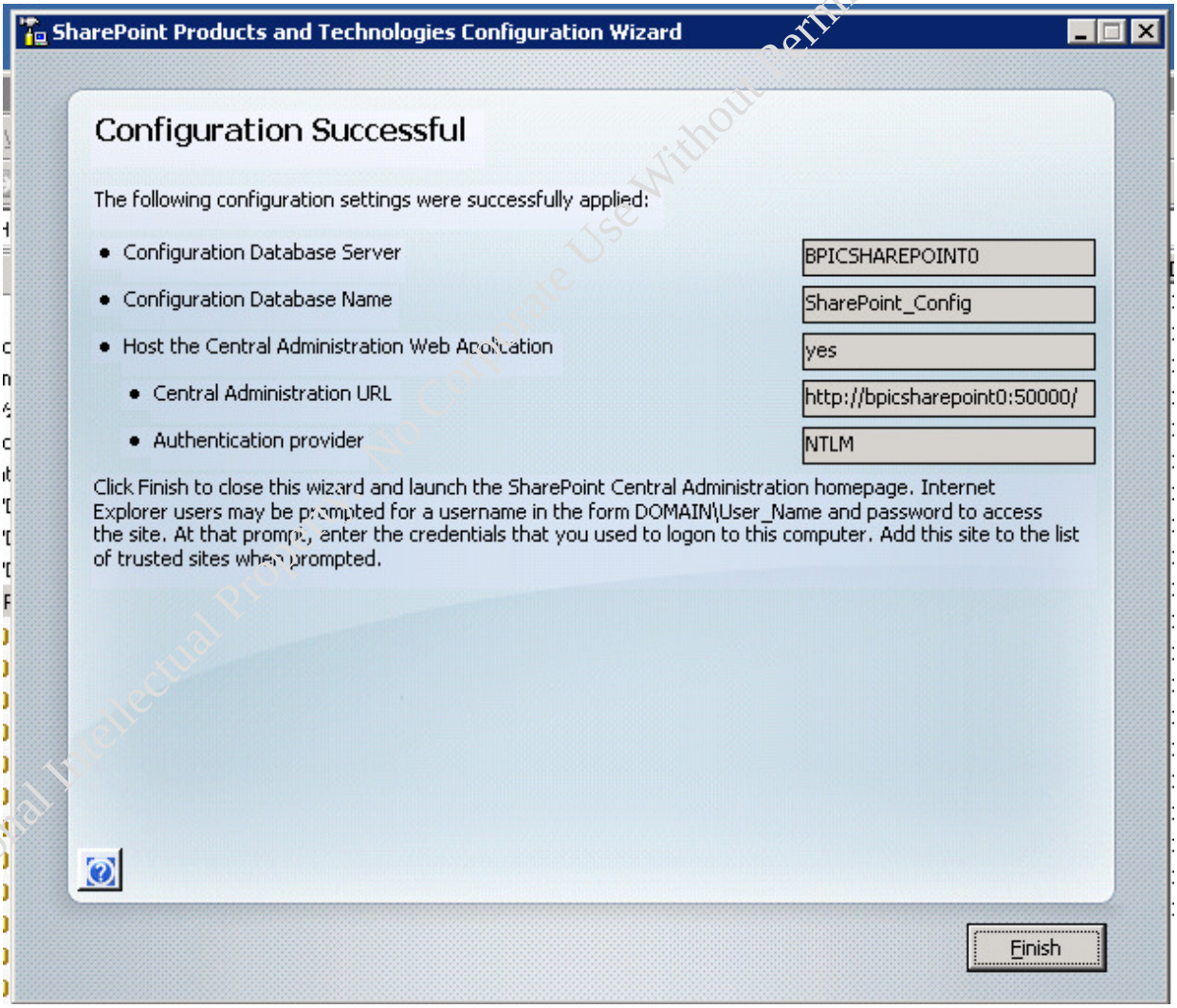
- define path [client server] [name of drive] srctype=[type "server"] desttype=[type "drive"] library=[library name] device=[device]

Appendix B: Sharepoint VM Specifications/Install Notes

By Lisa Atarian

1. Created two localhost accounts (sp_install and sp_SQL) to use for SharePoint install
2. Installed MOSS using the below specs

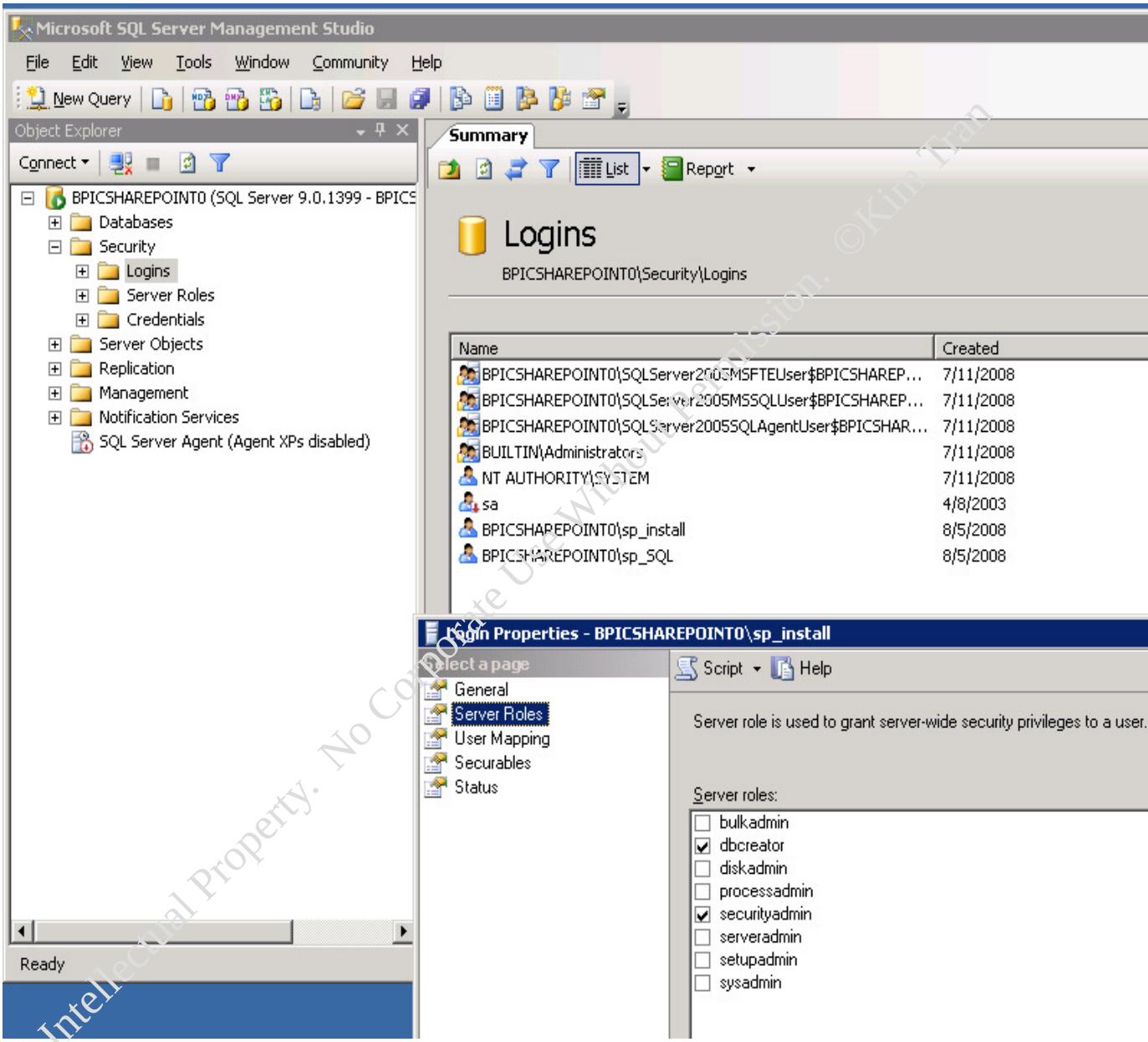
SharePoint Enterprise Edition, Complete Installation



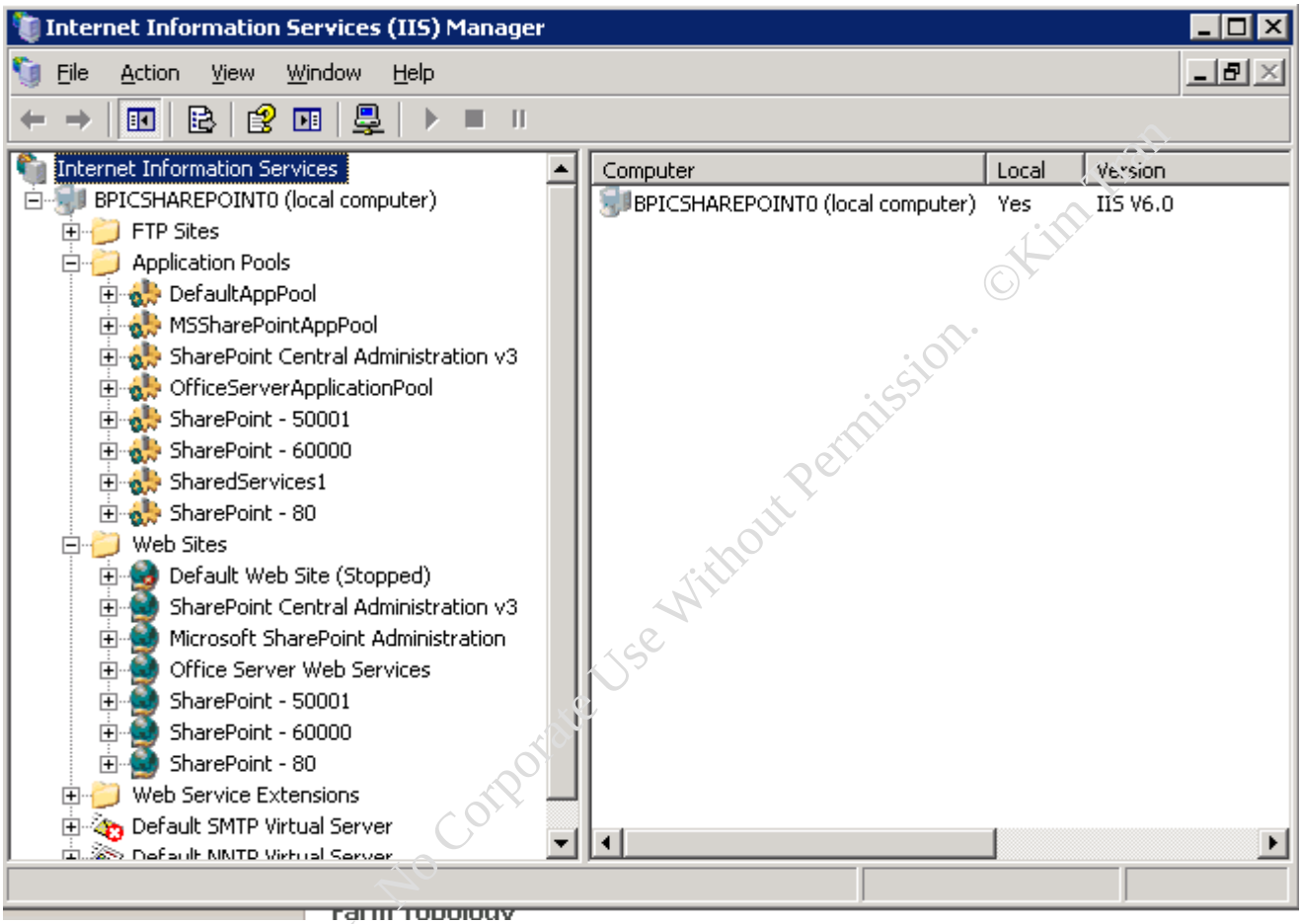
Central Administration URL is - http://bpicsharepoint0:50000
Log on to the Central Administration Site using sp_install/sp_install username and psswd

SharePoint SQL access account is: username sp_SQL, password sp_SQL
SharePoint SQL installation account is (this is also used as the SharePoint service account): username sp_install, password sp_install

Both of these SQL accounts are using BPICSHAREPOINT0 SQL instance, and are given SQL Security Administrator and SQL Database Creator rights on the SQL box



Site Collection URL is - http://BPICSHAREPOINT0 (log on as any bpicsharepoint0 user account - for example: username bpicsharepoint0\admin, password berbee)



SharePoint - 50001 is Central Administration
SharePoint - 60000 is MySite
SharedServices1 is for Shared Services Provider
SharePoint - 80 is the Backup_Test site collection

TSM Project

Appleton TSM Server Migration

Prepared for

Gerry Thome

Version 1.0

September 29th, 2008

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Abstract

This is an internal TSM project in which I will be working with Gerry Thome to migrate the Appleton TSM server from the current physical server to a new, more reliable physical server.

Plan and Preparation

The approach was to update and prepare the newer physical server with firmware, drivers, and OS patches. Install and configure a base instance of the TSM server and client applications, followed by the migration/restoration of the current TSM server database.

TSM Server Setup/Install

The actual installation of each software itself varies from around one minute to possibly over an hour—depending on system specifications. The operating system averages around forty minutes, in addition to another one-two hours for patching the system with necessary security updates.

The TSM server/client software can be installed in two-three minutes. The Integrated Solutions Console (ISC) and the Administration Center can vary between fifteen minutes to an hour or more.

Estimated time: three-five hours (actual may vary)

TSM Server Setup/Configurations

The tasks that needed to be completed for this part of the setup:

- Configure the basic TSM server instance
- Define the basic storage pools
- Configure the TSM backup client (basic/default settings)
- Test the configurations

Setup of the environment can be done via the command line interface (CLI) or through the administration center (GUI).

Granted no complications are encountered, estimated time: one-three hours (actual may vary)

System Setup Info

Server IP: 172.30.x.x (static)

Login: Administrator/xxxxx

TSM server is running Windows Server 2003 Standard

TSM Server 5.5.1, Client 5.5.1

Local drive: 205GB (raid 5)

Diskpool dir: 50GB

Small File pool dir: 30GB

Complications

The main complication that I ran into was the current TSM server dying (no longer starting up) before the "volhist.out" and "devcnfg.out" files along with a database backup for that current point in time was done. Therefore the restoration of the TSM database took longer than anticipated, by manually searching the tapes for the type of data that equaled the database backups.

After I researched the ways to query the tapes for database backups, the database was restored.

Summary

The tasks completed to rebuild and migrate the former TSM server consisted of:

- Updating and patching of the newer TSM server machine
- Installation of TSM server and client
- Configuration of TSM server and client
- Restoration of the TSM database
- Configuration, setup, and audit of hardware (library and tape volumes)
    - The audit of the library and volumes is to correct the information that the TSM database has on record of what volumes and data is actually present.
- Creation, restoration, and audit of storage pool volumes
- Setup of ISC and Admin Center for GUI administration
- Inspection and verification of log activity, ensuring scripts and schedules are functional after the database restore

End of Document

Appendix A: Library Setup

Library Setup

On the TSM server

- define library [name] libtype=[“scsi”]

Define a path to the library from the server that it will have access

- define path [name of server] [name of library] srctype=[type “server”] desttype=[type “library”] device=[device]

Define the drive(s)

- define drive [library name] [drive name]

Define a path to the drive(s) from the server that it will have access

- define path [server] [name of drive] srctype=[type “server”] desttype=[type “drive”] library=[library name] device=[device]

Define the all the device class associated (or to be used) with the library

- define devclass [class name] library [library name] devtype [type “lto”]

Finding the database backup volumes

On the TSM server (command prompt in the TSM “server” directory)

- dsmserv display dbbackupvolume devc=<devclass name> volumenames=<volume names, 1,2,3>

***When I entered in that command, if I was searching through multiple volumes…and for my experiences…if it didn’t find the contents it was looking for on the first volume in the series, it would have an error then return you to the command prompt. I manually input the volume name one at a time:

“volumenames=vol1” then “volumenames=vol2”, and “volumenames=vol3” instead of

“volumenames=vol1,vol2,vol3”***

The other option instead of manually inputting the volumes one at a time is to create a script and a file with a list of the volumes to be searched as noted here:

http://www-01.ibm.com/support/docview.wss?rs=1019&context=SSSQWC&context=SSGSG7&q1=restore+db+volhist&uid=swg21143559&loc=en_US&cs=utf-8&lang=en

search for "swg21143559" on the IBM site if the link no longer works

The results, if a valid database backup is found should have some content similar to:

Date/Time: 09/16/2008 04:22:01

Volume Type: BACKUPFULL

Backup Series: 3,052

Backup Operation: 0

Volume Seq: 1

Device Class: LTOCLASS

Volume Name: 001373

Restoring the database from a volume with a valid database backup

Ensure that the library/drives/paths/devclass are defined, the database and recovery log from the base instance of the TSM server is at least large enough to process the restored database and recovery log data.

- Define dbvolume [volume name]
- Define logvolume [volume name]
- Extend db [size in mb]
- Extend log [size in mb]

One the valid database backup volume is found:

- dsmserv restore db volumenames=[name of volume] devc=[device class name] commit=[yes]

Appleton TSM Server Migration Project End Report

Prepared for Gerry Thome

Version 1.0

September 29, 2008

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Contents

Introduction

This is the Project End Report for the Appleton TSM Server Migration project, the recently completed effort to migrate the TSM server from an older physical machine to a newer, more powerful machine. Although the project has formally closed, Berbee believes that further benefit can accrue to Gerry Thome by analyzing the conduct of the project and its outcome.

In this document, Berbee details the overall outcome of the project:

- What went well?
- What are the lessons learned?
- What issues remain open, and how does Berbee plan for them to be resolved?
- What activities are recommended as follow-ons to Appleton TSM Server Migration project?

Additionally, the appendix of Open Issues provides detail about any pending open issues.

By providing this information, Berbee intends to help Gerry Thome gain maximum benefit from its experience with the project.

Recap

In summary, this was an internal project, in which Gerry Thome would be working with Kim Tran in order to strengthen his skills/knowledge on TSM while awaiting shadowing opportunities. The agenda was to migrate the current TSM server to a new, more reliable physical server. Due to the current server suddenly becoming out of service before some important files were readily backed up, the migration process became more complicated.

The extra steps and time to resolve the issue consisted of researching the methods to restore the TSM database without the "volhist.out" and the "devcnfg.out" file in addition to searching the tape volumes for the most recent database backups. After researching the methods to restore and finding the recent backup copy, the TSM database was restored. The library volumes and storage pools were audited and recreated. The log files were checked and verified to make sure scripts and schedules were functional.

Services Completed

- Updating and patching of the newer TSM server machine
- Installation of TSM server and client
- Configuration of TSM server and client
- Restoration of the TSM database
- Configuration, setup, and audit of hardware (library and tape volumes)
- Creation, restoration, and audit of storage pool volumes
- Setup of ISC and Admin Center for GUI administration

Deliverables Completed

- Project documentation
- Pose project debrief
- Project closure documentation

What Went Well

Key successes of Appleton TSM Server Migration project appear in Table 1, with notes on the lessons learned that can be applied to future projects.

TABLE 1. SUCCESS STORIES

SUCCESS AREA	NOTES
Updating and patching the physical server	I used the IBM update xpress cd 4.06 (latest) to update the latest firmware drivers for the hardwares on the eserver x346. The Windows 2003 server was also updated and patched via windows update.
Installation of TSM server and client	There were no issues with the installation of the server and client software.
Configuration of TSM server and client	There were no issues with the configuration of the server and client.
Communication	Communications to update Gerry on the status as things progress was smooth and on track.

Lessons Learned

Lessons learned throughout the Appleton TSM Server Migration appear in Table 2, with notes illustrating specifically how they can be applied to future projects.

TABLE 2. LESSONS LEARNED

ITEM/AREA	NOTES
Migration / Restore of TSM database	The major problem during this step was the fact that the former TSM died (no longer starting up) before the "volhist.out" and "devcnfg.out" files were backuped to a readily accessible media. Therefore extra research and steps were taken to restore the TSM database. In the future, the lesson learned is to immediately create readily accessible copies of the "volhist.out" and "devcnfg.out" in preparation for unexpected situations, such as hardware failure. These files are needed for the restoration of the TSM database…the volhist file contains the location of the database backups to be restored, while the devcnfig file has information on the library/hardware setup. Without these files, restoration becomes more complicated, by searching manually through the tapes, or to script the searching of the volumes if there are a lot of tapes. The process to restore the database without the files breaks down into creating a new, base install of the TSM server and client. Creating and mapping the paths for the hardware (library and drives), then searching for the database backups on the volumes available. Followed by the syntax for the commands to restore the database.

Wrapping Up

Table 3 provides information on outstanding issues related to Appleton TSM Server Migration project, with notes on how Berbee plans for them to be resolved.

For a detailed Issues Log report, see the appendix of Open Issues on page 8.

TABLE 3. OUTSTANDING ISSUES

ISSUE	PLAN FOR RESOLUTION
Pending Issues	After the creation of the base TSM server/client instance; creation of the library/drive paths for the hardware; search of the database backups; restoration of the database, restoration and audits of the library and volumes; successful test restores; and verifications of the log files that scripts and schedules are running… I am unsure of what more that needs to be done. I will continue to monitor the server, and touch base with Gerry Thome on any pending/opening issues.

What's Next?

Based on the outcome of Appleton TSM Server Migration project, Berbee recommends that Gerry Thome capitalize on the benefits of the project by pursuing the initiatives outlined in Table 4.

TABLE 4. RECOMMENDED FOLLOW-ON ACTIVITIES

ACTIVITY	NOTES
Updates to the Server	Should the current server need updates or other tasks to be performed, please keep me informed and I will be willing to assist.
Migration and additions	If the TSM needs to be migrated again, or if another instance (physical) is planned. I will be willing to offer my assistance per your request.
Troubleshooting and Support	I will be ready and willing to assist with current and future support issues

Project Closure Acknowledgement

Berbee Information Networks Corporation

By: _____

Name: _____

Title: Account Manager

Name: _____

Title: Project Manager

Date: _____

[Client Representative Signature]

By: _____

Name: _____

Title: _____

Appendix. Open Issues

This appendix provides a detailed report of open issues as of 9/29/08.

The report begins on the next page.

For information on how Berbee plans for these issues to be resolved, refer to the What's Next Section on page 6.

Not Applicable

Post Project Review and Lessons Learned

This is a post project review and input on the lessons learned from the project.

General Information

Project Name	Appleton TSM Server Migration
Today's Date	March 15, 2009
Project Wrap-up Completed (Yes, No)	YES
Describe any problems being adequately prepared prior to arriving at the customer site? (Statement of Work, BEST, any other needed information)	I was adequately prepared. Although, the project would have been smoother if the TSM server didn't just die (without starting up again) leading to a loss of two files that are beneficial to the restoration of the TSM database.
Describe any customer satisfaction issues related to the deliverables or quality of deliverables.	No Issues
Describe customer satisfaction issues/concerns	No Issues
Describe any problems staying on schedule.	On Schedule
If there were change requests, was the change management process used? Describe any issues related to change management or scope containment.	Change management process not used
What 2 things could have been done to improve customer satisfaction?	1. More personal client interaction time to discuss in real time issues and resolutions. 2. More prompt with the immediate backups of crucial restoration files—a lesson for future references.