CONESTOGA
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Deliverable:	In-Class Tasks Week 4 Assignment
Course Name:	NTWK8181-24F-Sec1-IT Environmental Planning

Date Assigned:	03/09/2024
Date Due:	22/09/2024
Rules:	• Individual. • Cheating is not allowed. • Plagiarism counts as cheating! • That FAILURE to submit work in the course can result in a grade of 'F' or 'I' for failure to complete the course!

Contents

Introduction

Every Organisation needs to upgrade their infrastructure at some point of time in terms of hardware, software and so on. Currently we have an organization for which we need to develop a plan to update 300 server of windows 2016 to windows 2022 within the entire company. This plan will include multiple coordination with multiple vendors team owners. Once the approvals are taken for each server that we are going to upgrade before that we need to take backup, create rollback plan test all the dependencies and wide scenarios to have smooth upgradations.

Assignment 1:

IT environments comprise of complex architectures, various software and hardware nodes, and now encompass cloud and multi-region designs.

For this assignment, you are to develop a plan that will update 300 Windows 2016 servers to Microsoft Windows 2022 within the entire company.

This will involve coordination between teams, as these servers will house many different applications on them, for example Microsoft Exchange, Microsoft SQL servers, Active Directory Services etc.

Your plan should touch on the following points, and your assignment should be no more than 10 pages in length.

It should cover the following aspects:

What is the approx. time frame for the entire project? (Example should it take one year?)

- ➔ Upgrading 300 Servers in a company is a big task and lots of responsibilities with risks adhering to multiple departments and approvals to perform the project.
- ➔ The approx. time frame for the entire project will be **2 years**

Breakdown of Tasks

Phases of Upgradation:

Analysing servers running status: 1 month
Evaluating dependencies: 1 month
Planning upgrades: 1 month
Testing: 2 months
Deploying in Phase1 and later phase2 as per priority: 15 months 2 weeks
Implementation: 1 month
Rollback if required: 1 week
Verifying working status after upgrade: 1 month
Monitoring servers: 1 month

The upgradation will be executed as per priority and timelines with all the phase wise mentioned above with confirming smooth working with network connectivity's and dependencies with required approvals and documentations.

Plan notification schedule

Which groups need to be notified for this plan?

- ➔ To notify the plan and its execution, it can be different phases at different levels.
- ➔ Groups that need to be notified are IT admin team, Security team, application team, End users, Management team, Mailing team, backup team, Vendor team, Database Team and Networking team.
- ➔ After every priority upgrade notification to be sent to end users to all the effected due to upgrade/downtime at that moment.

Plan timeline

How will each region be upgraded accordingly in a timely fashion?

		Phase2	Phase1		
Types of Server	**No. of Servers**	**DC**	**DR**	**Priority**	**Timeline**
1. Web Server	28	14	14	5	2
2. Database Server	40	20	20	2	4
3. Email Server	20	10	10	3	4
4. Web Proxy Server	4	2	2	8	1
5. DNS Server	6	3	3	9	1
6. FTP Server	10	5	5	10	2
7. File Server	16	8	8	11	2
8. DHCP Server	10	5	5	7	1
9. Cloud Server	40	20	20	12	4
10. Application Server	50	25	25	4	4
11. Print Server	8	4	4	15	1
12. NTP Server	4	2	2	13	2
13. Radius Server	4	2	2	1	2
14. Syslog Server	10	5	5	14	1
15. Physical Server	50	25	25	6	3
	300	**150 Server**	**150 Server**		**34 weeks**
		34 Weeks	**34 Weeks**		

Total: 68 weeks (1 Year, 3 Months and 2 Weeks)

The upgradation will happen in phase wise like first Phase 1 will be done and all connectivity and compatibility will be checked, similarly, if everything is working in phase1 than with approval phase2 will be upgraded to windows server 2022 too.

In Each phase each server will be upgraded as per their priorities and their timelines.

If any rollout is required, it will be covered in timeline.

“To ensure a smooth and efficient transition, the upgrade will be conducted on a region-by-region basis, aligned with the company's network infrastructure. The migration will commence with regions that have fewer dependencies and lower risk of operational disruption, ensuring that lessons learned from these initial upgrades can inform subsequent phases. Regions hosting critical applications and complex architectures will be addressed later in the plan to mitigate risks.

The rollout will be staggered, with updates occurring in defined waves, allowing for thorough testing and feedback collection between each phase. Upgrades will be scheduled during off-peak hours specific to each region's time zone to minimize impact on business operations. This approach not only ensures timely completion but also reduces the risk of widespread downtime.” (vet4SLiOPIJjidJ, 2024)

What software impacts will there be for moving between Windows 2016 to Windows 2022.

There can be various kinds of issues faced before and after upgrading which can be hardware or software related or application related too.

As each server have different hardware compatibility based on their running applications on it requirements there can be compatibility, driver, software or dependency issue too.

“The migration from Windows Server 2016 to Windows Server 2022 requires a detailed evaluation of potential software impacts. Key areas of focus include application compatibility, where both in-house and third-party applications must be thoroughly reviewed to ensure they function properly on the new platform. Additionally, hardware drivers will be inventoried and assessed for compatibility, with any necessary updates identified. Security configurations may need adjustments to align with the enhanced features and best practices of Windows Server 2022, while current IT management tools and scripts must be reviewed and possibly updated to support the new environment. Backup and monitoring solutions will also be evaluated to ensure continued functionality and performance. Prior to each server upgrade, a comprehensive application compatibility assessment will be conducted to proactively mitigate risks, ensuring a smooth transition. These findings will guide the overall upgrade strategy and may influence the timeline and preparatory steps for each server.” (Vera, 2024)

How long is downtime expected to be for the servers that host critical services, such as Active Directory.

The critical Servers that host critical services are

Microsoft Exchange (8-12 hours)

Microsoft SQL Server (8-12 hours)

Active Directory Services (8-12 hours)

Other Applications that host critical services on windows servers (24 hours)

- ➔ Critical Servers are not upgraded all together, each server will be upgraded phase wise priority wise with observations and higher authority approval to minimize risk of downtime and end user issues.

What back-ups need to be taken?

- ➔ Each and every server backup needs to be taken.
- ➔ Backup can be taken of different types such as Full backup, differential backup, Incremental Backup.
- ➔ Final backup needs to be taken before performing the upgradation of the respective department activity.
- ➔ Critical Servers backup need to be taken twice and saved within team.
- ➔ These backups can be used in case of rollbacks need to be done.
- ➔ Full Server backups will be helpful to shift traffic of existing servers

Who needs to approve the plan of this?

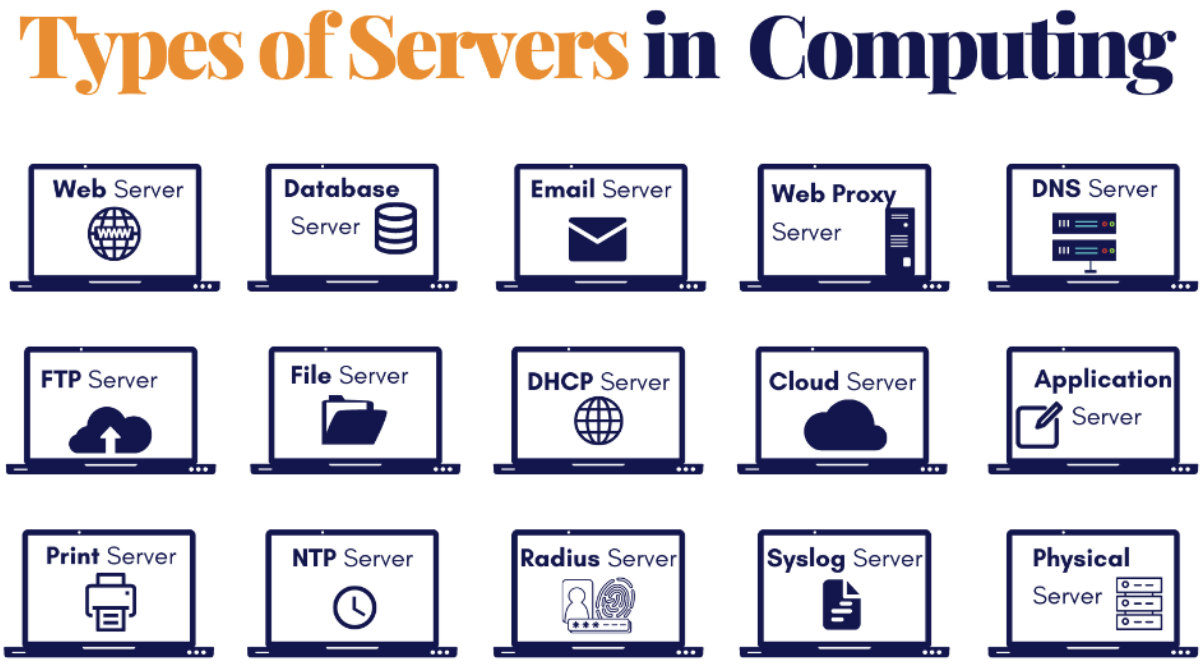
- ➔ This plan needs to be approved by multiple teams, stakeholders, Managers and higher management authorities at regular intervals.
- ➔ Approvals can be taken at different levels and at different phases of different stakeholder with documentations.
- ➔ Stakeholders that need to approve are
    - Chief Infrastructure Officer
    - Chief IT Manager
    - IT Manager
    - Server Team Manager
    - Server Owner approval
    - Respective Servers Downtime approvals
    - Network Team approval
    - Security Team
    - Admin Team

- ➔ As it's a critical project of upgrading server's Top management to team level the change request to perform the upgradation activity needs to be reviewed at multiple levels as in this planned activity there can be various setbacks and delays.
- ➔ Each Team needs to be ready with backup of their software and checking all working conditions.
- ➔ For example: if Microsoft Exchange server is upgraded. Exchange team needs to be ready with backup and checklists.

"Types of Servers

1. Web Server
2. Database Server
3. Email Server
4. Web Proxy Server
5. DNS Server

6. FTP Server
7. File Server
8. DHCP Server
9. Cloud Server
10. Application Server
11. Print Server
12. NTP Server
13. Radius Server
14. Syslog Server
15. Physical Server



” (*15 Different Types of Servers in Computing - Zenarmor.com*, 2024)

Conclusion

All 300 servers will be upgraded with interdepartmental coordination execution phase wise and testing the work environment with dependency as normal just like before upgrade but with new performance, reliability, security and so on. After every few years with new technologies upgrade in market and with new achievements every company needs to upgrade their infrastructure just like upgrading servers from Windows 2016 to window 2022. The timeline provided can differ based on the dependency, on going issues while executing the project.

References

➔ vet4SLiOPIJjidJ. (2024, January 31). A comprehensive guide to planning for server upgrade, consolidation, migration, or decommissioning. *TechiT Services*. https://techit-services.com/comprehensive-guide-to-planning-for-server-upgrade/

➔ Vera. (2024, July 29). *Upgrade Windows Server 2016 to 2022: In-Place upgrade/via USB*. MiniTool. https://www.minitool.com/backup-tips/upgrade-windows-server-2016-to-2022.html

➔ *15 different types of servers in computing - Zenarmor.com*. (2024, May 10). https://www.zenarmor.com/docs/network-basics/types-of-servers

➔ Marketing Team. (2024, April 3). 8 Easy Steps to Upgrade Your Server. *NA*. https://www.itsasap.com/blog/upgrade-old-servers-process