UNIVERSITY OF Baguio

SCHOOL OF INFORMATION TECHNOLOGY

NAME: Zhaun Gabrielle F. Pasion	
SECTION: IDC2	DATE SUBMITTED: 12/7/2024

SYSADM1

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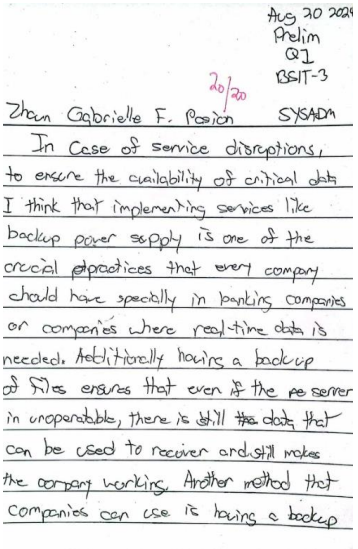
First Grading

Quiz 1	August 20, 2024	20/20



Aug 20 2024
Prelim
Q1
BSIT-3

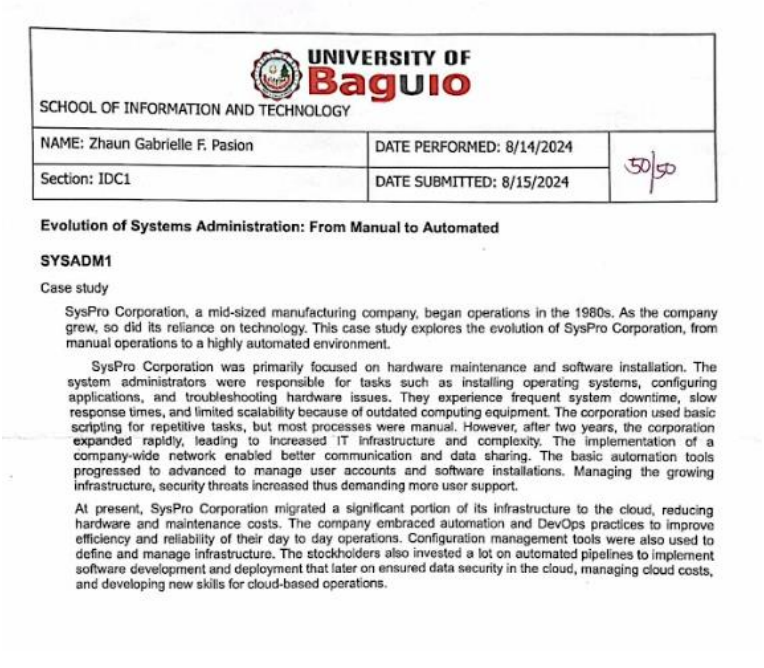
20/20

Zhaun Gabrielle F. Pasion SYSADM

In case of service disruptions, to ensure the availability of critical data I think that implementing services like backup power supply is one of the crucial practices that every company should have specially in banking companies or companies where real-time data is needed. Additionally having a backup of files ensures that even if the pc server in unoperable, there is still the data that can be used to receiver and still makes the company working. Another method that companies can use is having a backup

The first quiz we had back in the first grading. If I remembered correctly, the topic was all about incase of service disruptions, how do you ensure the availability of critical data. At the time, my mind was full of answers and at the end, I ended up filling my ¼ paper with answers. I remembered that there are still some that I wanted to write in my paper but I don't have enough space to write anymore so I just submitted my paper. Little did I know this was just the start of our jurney in SYSADM1, as we go further, topics go deep and deeper

Case Study	August 15, 2024	50/50



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SCHOOL OF INFORMATION AND TECHNOLOGY

NAME: Zhaun Gabrielle F. Pasion	DATE PERFORMED: 8/14/2024	50/50
Section: IDC1	DATE SUBMITTED: 8/15/2024	

Evolution of Systems Administration: From Manual to Automated

SYSADM1

Case study

SysPro Corporation, a mid-sized manufacturing company, began operations in the 1980s. As the company grew, so did its reliance on technology. This case study explores the evolution of SysPro Corporation, from manual operations to a highly automated environment.

SysPro Corporation was primarily focused on hardware maintenance and software installation. The system administrators were responsible for tasks such as installing operating systems, configuring applications, and troubleshooting hardware issues. They experience frequent system downtime, slow response times, and limited scalability because of outdated computing equipment. The corporation used basic scripting for repetitive tasks, but most processes were manual. However, after two years, the corporation expanded rapidly, leading to increased IT infrastructure and complexity. The implementation of a company-wide network enabled better communication and data sharing. The basic automation tools progressed to advanced to manage user accounts and software installations. Managing the growing infrastructure, security threats increased thus demanding more user support.

At present, SysPro Corporation migrated a significant portion of its infrastructure to the cloud, reducing hardware and maintenance costs. The company embraced automation and DevOps practices to improve efficiency and reliability of their day to day operations. Configuration management tools were also used to define and manage infrastructure. The stockholders also invested a lot on automated pipelines to implement software development and deployment that later on ensured data security in the cloud, managing cloud costs, and developing new skills for cloud-based operations.

Our first Case Study Activity during the prelims was about the roles of a system administrator and the pros and cons of manual system management and using automated tools. It was a fun activity that made us think about what the best answer is for a given situation. We learned that system administrators are important for keeping systems running smoothly, but deciding whether to manage systems manually or with automated tools depends on the task. Manual management can take a lot of time and cause mistakes, but it's flexible. On the other hand, automated tools help reduce errors and are faster, but they need to be set up right and might not handle everything. This case study showed us the need to know when to use each method to keep systems safe and working well.

Managing Services in Windows	**August 29, 2024**

UNIVERSITY OF Baguio
SCHOOL OF INFORMATION AND TECHNOLOGY

NAME: Zhaun Gabrielle F. Pasion	DATE PERFORMED: 29/8/2024
Section: IDC2	DATE SUBMITTED: 29/8/2024

SYSADM1 – Managing Services in Windows

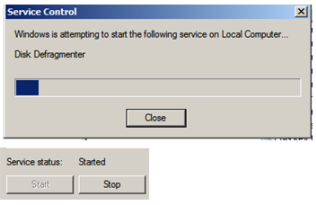
Requirement:

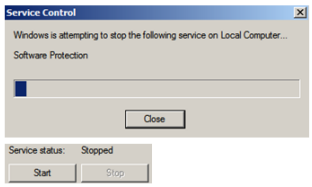
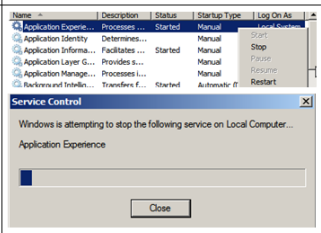
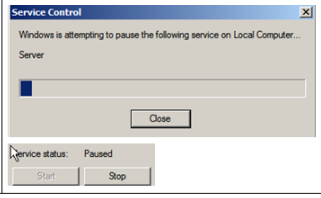
- A virtual machine running Linux and Windows OS

Services are background processes that run independently of user interactions in Windows. They provide essential system functions, such as network connectivity, printing, and time synchronization. This lab will guide you through the process of managing services using the Services app.

Instructions:

1. Open the Start menu and search for "Services"
2. Familiarize yourself with the columns, including Service Name, Display Name, Status, and Startup type.
3. Right-click on a service and select "Start", "Stop", or "Restart". Fill out the table below

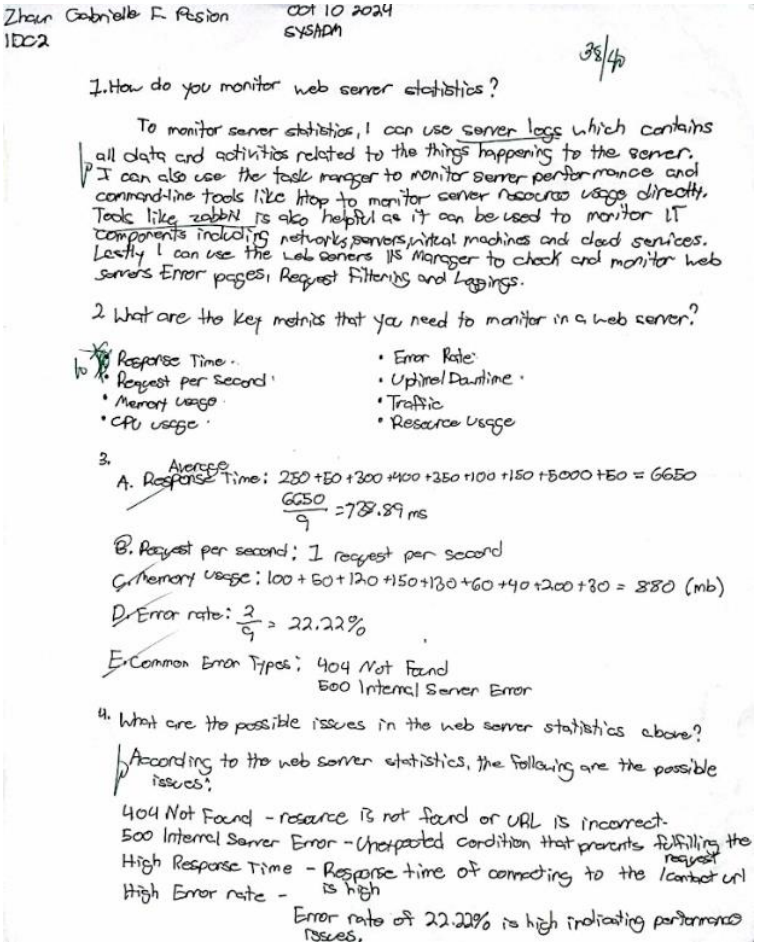
Status	Name of Service	Screenshot
Start	Disk Defragmeter	

Stop	Software Protection	
Restart	Application Experience	
Pause	Server	

One of my favorite lab activities during the prelims was managing services in Windows. In this activity, we learned how to stop, restart, pause, and start different services, among other options. This helped me realize that opening and closing programs isn't just about clicking on them; we can also manage them through the services menu. This is especially useful when a program refuses to start, even after trying to open it multiple times. Overall, the activity taught me a new way to control and troubleshoot programs, making it easier to fix problems that might come up.

Midterms

Log Monitoring	October 10 2024	38/40



Zhaur Gabrielle F. Pasion
IT002
OCT 10 2024
SYSADM

38/40

1. How do you monitor web server statistics?

To monitor server statistics, I can use server logs which contains all data and activities related to the things happening to the server. I can also use the task manager to monitor server performance and command-line tools like htop to monitor server resource usage directly. Tools like zabbix is also helpful as it can be used to monitor IT components including networks, servers, virtual machines and cloud services. Lastly I can use the Web servers IIS Manager to check and monitor web servers Error pages, Request Filtering and Loggings.

2. What are the key metrics that you need to monitor in a web server?

- Response Time
- Request per second
- Memory usage
- CPU usage
- Error Rate
- Uptime/Dauntime
- Traffic
- Resource Usage

3.
A. Average Response Time: 250+50+300+400+350+100+150+5000+50 = 6650
$\frac{6650}{9}$ = 738.89 ms

B. Request per second: 1 request per second

C. Memory usage: 100+50+120+150+130+60+40+200+30 = 880 (mb)

D. Error rate: $\frac{2}{9}$ = 22.22%

E. Common Error Types: 404 Not Found
500 Internal Server Error

4. What are the possible issues in the web server statistics above?

According to the web server statistics, the following are the possible issues:

404 Not Found - resource is not found or URL is incorrect.
500 Internal Server Error - Unexpected condition that prevents fulfilling the request
High Response Time - Response time of connecting to the /contact url is high
High Error rate - Error rate of 22.22% is high indicating performance issues.

For our midterm, one of the activities we did was monitoring a server. We were given an image showing server statistics, and our task was to identify key metrics used to monitor the server. We also had to describe what we saw in the image, including details like requests per second, error rate, and common error types. I scored 38/40 because I got the requests per second wrong. This activity made me realize that it's similar to what we learned in our Operating Systems (OPSYS) class during our first year, where we discussed how logs may appear in different seconds but actually happen at the same time. This happens because of the "first come, first served" rule or other configurations set by the system. I also learned how important it is to accurately interpret server data since it helps identify performance issues or potential errors that could affect the server's operation. Monitoring a server requires attention to detail and a good understanding of how different metrics impact the system as a whole. This activity gave me hands-on experience with server monitoring and reinforced the importance of tracking key metrics to ensure smooth system performance. It was a great opportunity to apply theoretical knowledge to real-world scenarios, and I look forward to learning more about server management in the future.

Setting Up Web Server	October 10 2024	/50

UNIVERSITY OF Baguio

SCHOOL OF INFORMATION AND TECHNOLOGY

NAME: Zhaun Gabrielle F. Pasion	DATE PERFORMED: 10/10/24	
Section: IDC2	DATE SUBMITTED: 10/10/24	/50

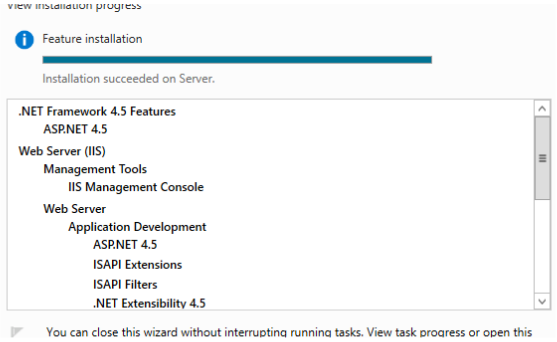
SYSADM1 – Setting Up Webserver

Requirement:

- A virtual machine running Linux and Windows OS

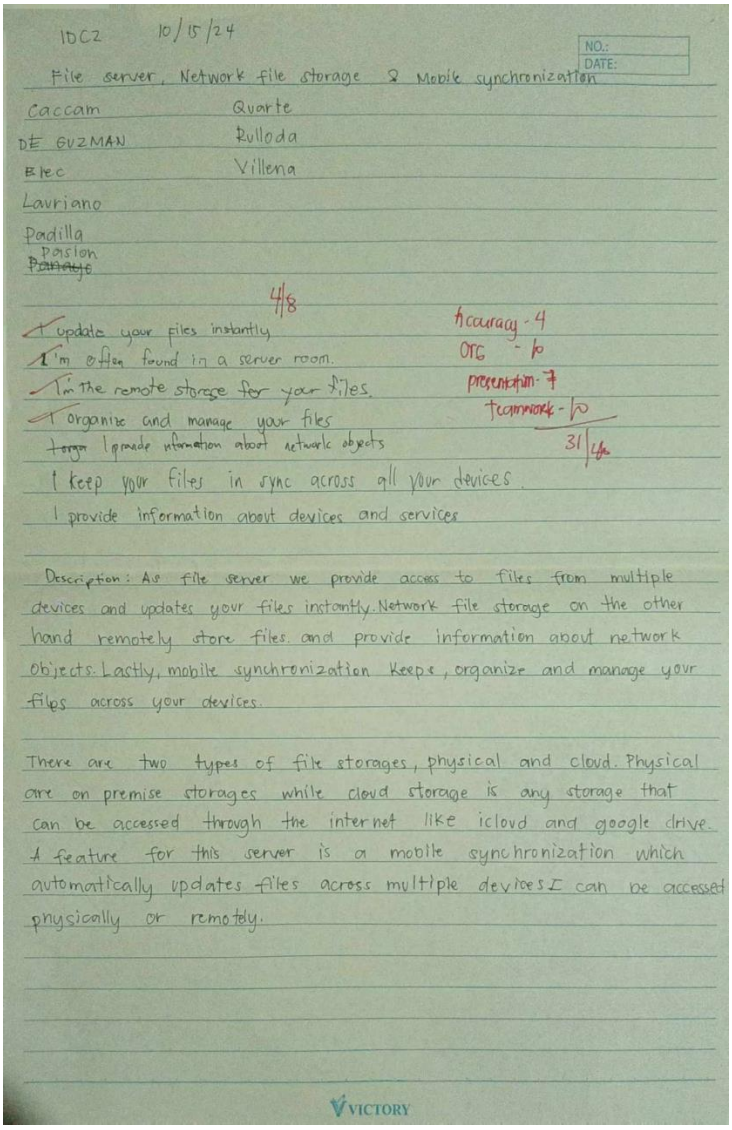
Task Instructions:

1. Install IIS by adding it as a role, select necessary features, include monitoring tools



Another fun activity we did in our SYSADM1 subject was setting up a web server. This activity was both fun and informative because it guided us through the steps of implementing a web server. At first, we encountered some errors, like not being able to use the link we created to access the server. When we typed the URL, it didn't direct us to the main page. After some debugging, I realized that the problem was that we weren't supposed to create a new link. Instead, we needed to direct the page to the DNS of the server we created. This was the reason the wrong page kept showing up whenever we entered the link we had made. This activity taught me the importance of correctly configuring DNS settings and how small mistakes can lead to big issues in server setup. It was a great hands-on learning experience, and it gave me a better understanding of how web servers work and how to troubleshoot common problems that can arise when setting one up.

File Server, Network File Storage and Mobile Synchronization	October 15 2024	4/8



IDC2 10/15/24

NO.:
DATE:

File server, Network file storage & Mobile synchronization

Caccam Quarte
DE GUZMAN Rulloda
Elec Villena
Lavriano
Padilla
Pasion
~~Patricio~~

4/8

I update your files instantly
I'm often found in a server room.
I'm the remote storage for your files.
I organize and manage your files
~~forgot~~ I provide information about network objects
I keep your files in sync across all your devices.
I provide information about devices and services

accuracy - 4
org - 10
presentation - 7
teamwork - 10
31/40

Description: As file server we provide access to files from multiple devices and updates your files instantly. Network file storage on the other hand remotely store files and provide information about network objects. Lastly, mobile synchronization keeps, organize and manage your files across your devices.

There are two types of file storages, physical and cloud. Physical are on premise storages while cloud storage is any storage that can be accessed through the internet like icloud and google drive. A feature for this server is a mobile synchronization which automatically updates files across multiple devices I can be accessed physically or remotely.

VICTORY

Another one of my favorite activities we did was about File Servers, Network File Storage, Mobile Synchronization, Web Servers, Load Balancers, and more. It was one of my favorites because it was a group activity, and Ma'am Kath made it really fun by turning it into a game. Each of us had to find our own group based on a clue she gave us. My clue was easy, so I quickly figured out which group I belonged to. However, some of my classmates had a harder time because their clues were more confusing. Once we identified our groups, the task was to create a sentence that would describe our group based on the clues each member had. Our group's focus was on File Servers and Mobile Synchronization. This activity was enjoyable because it allowed us to work together, think critically, and learn about the different topics in a fun and interactive way. It was a great way to dive deeper into the subject while strengthening teamwork and problem-solving skills.

Finals

FQuiz1_Recovery	November 21, 2024

UNIVERSITY OF Baguio
SCHOOL OF INFORMATION AND TECHNOLOGY

NAME: Zhaun Gabrielle F. Pasion	DATE PERFORMED: 11/21/24	
Section: IDC2	DATE SUBMITTED: 11/21/24	

WINDOWS ADMINISTRATIVE TOOLS

Read the case study presented below and answer the questions after reading the case study.

Cybersecurity Resilience: TechGuard Solutions' Recovery Disk Strategy in Action

TechGuard Solutions, a medium-sized cybersecurity firm, recently encountered a malware attack that put its systems and sensitive client information at risk. This case study explores how TechGuard Solutions solved this crisis, highlighting the pivotal role of their comprehensive recovery disk strategy.

TechGuard Solutions discovered signs of a malware attack during a routine cybersecurity audit. The malware, equipped with ransomware capabilities, posed a significant threat to the confidentiality and integrity of client data. The incident prompted a reevaluation of the company's preparedness and response mechanisms.

Prior to the incident, TechGuard Solutions had implemented a series of proactive measures. Robust cybersecurity protocols, routine system audits, and employee training programs formed the foundation of the company's preemptive approach. The incident emphasized the importance of foreseeing and preparing for potential threats in an industry where the stakes are high. A linchpin of TechGuard Solutions' preparedness was its comprehensive recovery disk strategy.

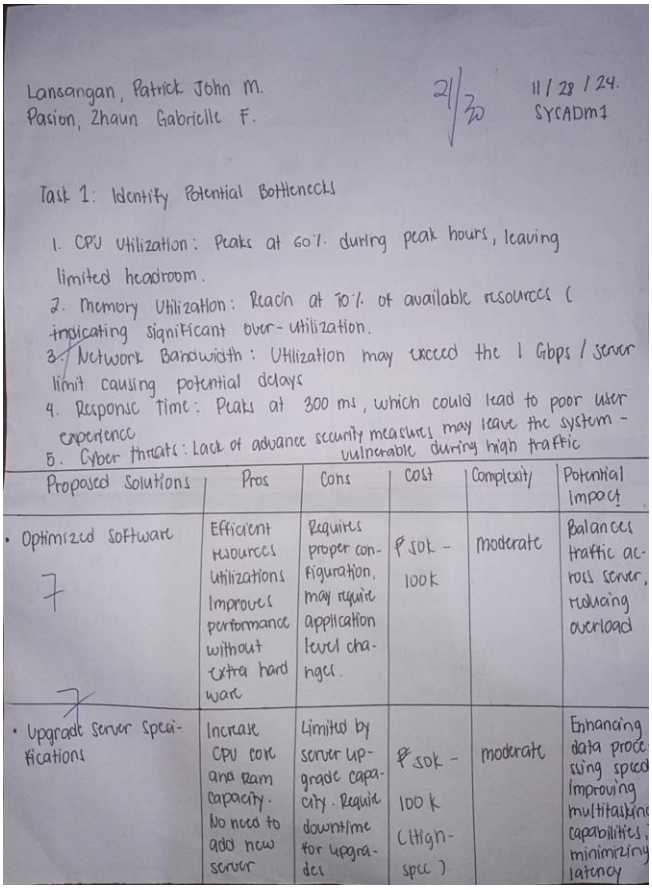
Crafted meticulously, these recovery disks went beyond standard restoration tools. They included offline backup copies of critical client databases and proprietary threat intelligence. The recovery disk strategy aimed to provide a swift and effective response in the face of a cybersecurity crisis. When the malware attack unfolded, the IT security team at TechGuard Solutions swiftly used the recovery disks.

Booting the infected workstations in an isolated environment prevented the malware from spreading further within the company's network. The recovery disks, equipped with decryption tools specific to the ransomware, played a critical role in decrypting and restoring files from offline backups. The inclusion of offline backups on the recovery disks proved pivotal in ensuring data protection during the ransomware attack. With redundant copies of critical client data stored offline, TechGuard Solutions efficiently restored files without being pressured into letting the attackers' get critical information in their own system.

This not only minimized data loss but also emphasized the strategic importance of data backup in cybersecurity resilience. Following the resolution of the cybersecurity incident, TechGuard Solutions conducted a thorough post-incident analysis. The insights gleaned from this analysis informed the implementation of enhanced security measures. This included regular updates to threat intelligence on the recovery disks and targeted employee training programs to prevent future phishing attempts. The company's commitment to continuous improvement in its cybersecurity protocols shone through. The

For our finals, we had another case study, and this time it was about TechGuard Solutions and how they handled a cybersecurity crisis. The case study focused on a malware attack they faced and the strategies they used to recover. It was fascinating to see how their preparation, especially their recovery disk strategy, played a big role in solving the problem. We learned how the company used offline backups and decryption tools to restore their data without giving in to the attackers, which showed the importance of being proactive in cybersecurity. The case also highlighted the need for regular employee training and continuous updates to security protocols to prevent future incidents. Reflecting on this, it became clear to me how critical it is for companies to have strong recovery and prevention plans in place. It was a great learning experience that emphasized not just solving issues when they arise but also being prepared for anything that might happen.

Network Topology Part 1	November 28, 2024	21/30



Lansangan, Patrick John M.
Pasion, Zhaun Gabrielle F.

21/30

11/28/24.
SYSADM1

Task 1: Identify Potential Bottlenecks

1. CPU Utilization: Peaks at 60% during peak hours, leaving limited headroom.
2. Memory Utilization: Reach at 70% of available resources (indicating significant over-utilization.
3. Network Bandwidth: Utilization may exceed the 1 Gbps / server limit causing potential delays
4. Response Time: Peaks at 300 ms, which could lead to poor user experience
5. Cyber Threats: Lack of advance security measures may leave the system - vulnerable during high traffic

Proposed Solutions	Pros	Cons	Cost	Complexity	Potential Impact
• Optimized Software	Efficient resources utilizations Improves performance without extra hardware	Requires proper configuration, may require application level changes.	₱50k - 100k	moderate	Balances traffic across server, reducing overload
• Upgrade Server Specifications	Increase CPU core and ram capacity. No need to add new server	Limited by server upgrade capacity. Requires downtime for upgrades	₱50k - 100k (High-spec)	moderate	Enhancing data processing speed improving multitasking capabilities, minimizing latency

This task was one of the final activities we completed in SYSADM1, and it was a paired activity that really challenged us to think critically. The task required us to understand, evaluate, and create a solution for an e-commerce network topology. The given topology had several major issues, such as scalability problems, security risks, and bottlenecks, which made us think deeply about how to address these challenges. We proposed solutions like implementing firewalls for added security, introducing redundant network devices for load balancing, and ensuring redundancy to prevent downtime. This activity not only tested our technical knowledge but also pushed us to think like network engineers. We had to put ourselves in the shoes of professionals who face these real-world challenges every day. It helped us realize that network engineers must constantly adapt to solve issues related to network growth and efficiency, and this experience opened our eyes to the complexities of designing scalable and secure networks. Overall, the activity was an invaluable learning experience that taught us how to approach and solve problems that companies face in their day-to-day operations, and it reinforced the importance of planning for future network needs.

Network Topology Part 2	December 5, 2024

UNIVERSITY OF Baguio

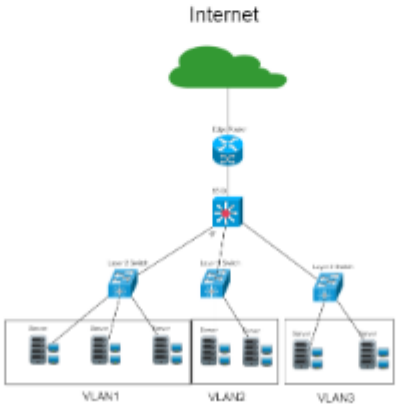
SCHOOL OF INFORMATION AND TECHNOLOGY

NAME: Patrick John M. Lansangan Zhaun Gabrielle F. Pasion	DATE PERFORMED: 28/11/2024	
Section: IDC2	DATE SUBMITTED: 5/12/2024	/50

SYSADM1 – Capacity Management & Planning

Part 2. Network Scalability Analysis

Recall the e-commerce website scenario we discussed earlier. Given the expected surge in traffic, analyze the provided network topology diagram. Identify potential bottlenecks and areas where scalability might be a concern. Propose specific strategies to improve the network's scalability and performance to ensure a seamless user experience during the peak traffic period. Consider factors such as increased user demand, new applications, and security threats.



Continuing from the previous reflection, we created a topology to help the company solve its current problems while also preparing for future challenges. It felt like a big responsibility because we had to design a network that would improve performance, reliability, and security. We focused on scalability to handle future growth, redundancy to avoid single points of failure, and traffic distribution to prevent bottlenecks. We also made sure the design protected their data with strong security measures. This experience taught me the importance of teamwork and careful planning because every decision had to be well thought out. It was challenging, but it felt rewarding to create a solution that not only fixes current issues but also supports the company's success in the long run.

Course Reflection

What were your initial expectations for the course? Did the course meet, exceed, or fall short of these expectations?

My initial expectations for the course were that we would mainly talk about managing and handling systems and the specific tasks of a system administrator. Little did I know, we would tackle a wide range of topics, including cyber security, recovery strategies, and real-world case studies like TechGuard Solutions. This broadened my understanding of the field and gave me practical insights into solving real problems. The course didn't just meet my expectations but exceeded them by providing valuable knowledge and hands-on experiences that I know will be useful in my future career.

What were the main topics or concepts covered in the course? How did these topics contribute to your understanding of the subject matter?

The main topics covered in the course were the roles and responsibilities of a system administrator, how to manage systems effectively, understanding various types of attacks and their impact, storage solutions, file storage protocols, web server management, case studies, logs and monitoring, EULA (End User License Agreement), Linux, and cloud computing models such as IAAS, PAAS, SAAS, and NAAS. These topics ranged from foundational knowledge about system administration to more advanced concepts in cybersecurity and cloud computing.

These topics significantly contributed to my understanding of the subject matter by providing both theoretical knowledge and practical insights into systems administration, cybersecurity, and modern IT infrastructure. They allowed me to gain a clearer understanding of the day-to-day responsibilities of a system administrator, how to protect systems from various types of attacks, and the importance of effective data storage and file management. The case studies helped me apply what I learned to real-world scenarios, enhancing my problem-solving skills. Topics like web server management, logs, and monitoring taught me how to ensure system performance and prevent issues, while legal aspects like EULA highlighted the importance of compliance. Additionally, learning about cloud computing models such as IAAS, PAAS, and SAAS broadened my perspective on how these technologies are transforming the IT landscape. Overall, these topics deepened my knowledge of both the technical and strategic elements of systems administration and cybersecurity.

Reflecting on your learning process, what were the most effective strategies or techniques that helped you grasp and retain the course material?

Reflecting on my learning process, the most effective strategies that helped me grasp and retain the course material were active engagement with case studies, hands-on practice, and consistent review. Analyzing real-world case studies allowed me to connect theoretical knowledge with practical scenarios, making the concepts more relatable and easier to understand. Hands-on practice, such as configuring systems or troubleshooting issues, reinforced my learning by providing direct experience. Additionally, reviewing key concepts regularly, whether through notes, discussions, or self-quizzes, helped solidify my understanding and ensured I retained important information. These techniques, combined with collaborative learning and seeking clarification when needed, were crucial in helping me fully grasp the course material.

Were there any particular assignments, projects, or activities that significantly enhanced your learning experience? Why were they effective?

Yes, there are several assignments and activities that played a key role in enhancing my learning experience, particularly the Network Topology activity, case studies, and the group activity on File Servers, Network File Storage, Mobile Synchronization, Web Servers, and Load Balancers. The Network Topology activity gave me a solid understanding of how networks are structured and interconnected. Knowing that being a network engineer is not just creating a topology that will help the company but also taking consideration of what the company wants us to do. The case studies provided valuable opportunities to apply what I learned to real-world situations, sharpening my analytical skills. And the activity that focused on File Servers and Mobile Synchronization was especially engaging, as it encouraged collaboration and critical thinking. By working together to explore complex topics, I was able to deepen my understanding in an enjoyable and effective way, while also improving my teamwork abilities.

Did you encounter any challenges or difficulties during the course? How did you overcome these obstacles, and what did you learn from them?

Yes, I did encounter some challenges during the course, particularly when it came to grasping some of the more technical aspects, such as understanding the complexities of network configurations and cloud computing models. At times, I struggled with fully comprehending the finer details of topics like IAAS, PAAS, and setting up proper network topologies. Additionally, I faced difficulties during the web server activity, which was challenging at first. To overcome these obstacles, I sought additional resources like online tutorials and discussions with classmates, which helped clarify some of the more complicated concepts. Working with classmates on the web server activity allowed me to break down tasks into smaller, more manageable steps, making the process easier to navigate. Through this process, I learned the importance of seeking help when needed, taking the time to review and reinforce my understanding, and the value of collaboration. It also taught me that overcoming challenges is part of the learning journey, and persistence is the key to mastering complex topics.

Did the course encourage critical thinking and analysis? How did it promote higher-order thinking skills, such as problem-solving or decision-making?

Yes, the course definitely encouraged critical thinking and analysis. It promoted higher-order thinking skills through various activities and assignments that required us to apply the concepts we learned in real-world scenarios. For example, the case studies forced us to analyze complex problems, evaluate different solutions, and make informed decisions based on the information available. These case studies were particularly effective in developing our problem-solving skills because they mimicked situations a system administrator might face in a professional environment. Additionally, the group activities, such as the one focused on web servers, file servers, and mobile synchronization, challenged us to think critically, collaborate with others, and develop solutions together. This hands-on approach helped deepen our understanding by encouraging us to think beyond memorization and focus on practical application. By requiring us to make decisions in these exercises, the course fostered a mindset of careful analysis, weighing various options before making conclusions, which will be valuable in future career scenarios.

Reflecting on your personal growth, what new knowledge, skills, or perspectives did you gain from this course?

Reflecting on my personal growth, this course has significantly broadened my knowledge and skills in systems administration. I gained a deeper understanding of various technical concepts, such as cloud computing models, and server management, which were previously unfamiliar to me. I also developed practical skills, particularly in setting up and managing network topologies, configuring web servers, and understanding different storage solutions. These skills are essential for any IT professional and have given me the confidence to tackle real-world challenges.

Additionally, the course changed my perspective on the role of a system administrator. I now recognize the complexity of the job, including not just technical proficiency, but also the importance of problem-solving, decision-making, and effective communication within teams. I also gained a stronger appreciation for the legal and ethical aspects of IT, such as EULAs, and their impact on decision-making, system management, and how to monitor servers efficiently. Overall, this course has equipped me with both technical skills and a strategic mindset, allowing me to approach problems in a more comprehensive way and prepare for a career in IT with a more informed outlook.

How do you plan to apply what you have learned in this course to your future studies, career, or personal life?

The knowledge and skills I gained from this course will significantly impact my future studies, career, and personal life. Through learning about system administration, I now have a deeper understanding of managing and maintaining systems, handling network configurations, and ensuring security within IT environments. In my future studies, I can apply this knowledge to more advanced IT and cybersecurity courses, particularly in areas related to system management and cloud computing.

In terms of my career, the practical experience with system administration tasks, such as configuring servers, and maintaining system performance, has equipped me with a strong foundation for roles in IT support, system administration, or cybersecurity. The critical thinking and problem-solving skills I developed will help me address complex technical issues and optimize system performance in a professional setting. On a personal level, I feel more confident in managing my own digital environments, ensuring security, and understanding how systems operate, which will aid me in making informed decisions regarding technology and personal data security.