Project Description

In this project, I analyze the IT infrastructure of three fictional companies, identify their weaknesses, and recommend a suite of process improvements to enhance their systems.

Scenario 1:

You're doing systems administration work for Network Funtime Company. Evaluate their current IT infrastructure needs and limitations, then provide at least five process improvements and rationale behind those improvements. Write a 200-400 word process review for this consultation. Remember, there's no right or wrong answer, but make sure to provide your reasoning.

Software Company:

Network Funtime Company is a small company that builds open-source software. The company is made up software engineers, a few designers, one person in Human Resources (HR), and a small sales team. Altogether, there are 100 employees. They recently hired you as a system administrator to come in and become their IT department.

When a new person is hired on, the HR person purchases a laptop for them to do their work. The HR representative is unfamiliar with what type of hardware is out there; if a new employee requests a laptop, the HR person will purchase the cheapest option for a laptop online. Because of this, almost everyone has a different laptop model. The company doesn't have too much revenue to spend, so they don't order laptops until someone gets hired at the company. This leads to a few days of wait time from when someone starts to when they can actually work on a laptop.

The company doesn't label their computers with anything, so if a computer is missing or stolen, there's no way to audit it. There's no inventory system to keep track of what's currently in the fleet.

Once a computer is purchased, the HR person hands it to the new employee to set up. Software engineers that use Linux have to find a USB drive and add their preferred distribution to the laptop. Anytime someone needs something from HR -- whether it's office related or tech related -- they email the HR representative directly.

When a new employee gets a machine, they're given logins to use cloud services. They get a personal orientation with HR to make sure they can login. This requires the HR person to block off a few hours for every new employee. If an employee forgets the login to their machine, they have no way to retrieve a password and they have to re-image their machine. Employees don't have a strict password requirement to set for their computers.

The company currently has many of their services in the cloud, such as email, word processors, spreadsheet applications, etc. They also use the application, Slack, for instant communication.

Scenario 1
Process Review:

Network Funtime Company's current IT infrastructure exhibits several inefficiencies and lacks essential processes for managing hardware, software, and user access. Here are five recommended process improvements to streamline operations and enhance security:

   Standardized Hardware Procurement: Implement a standardized hardware procurement process to ensure consistency and compatibility across the company's laptops. Define specifications for performance, security features, and compatibility with the software stack used by the employees. By purchasing laptops in bulk with pre-approved configurations, the company can potentially negotiate better prices and reduce setup time for new employees.

   Asset Management and Labeling: Establish an asset management system to track and label all company-owned computers. Each device should be assigned a unique identifier and recorded in an inventory database. This enables efficient auditing, monitoring, and troubleshooting of hardware issues. Additionally, labeling computers with asset tags deters theft and facilitates recovery efforts.

   Automated Operating System Deployment: Implement automated operating system deployment tools to streamline the setup process for new laptops. Develop standardized system images pre-configured with necessary software and security settings. This eliminates the need for manual installation and customization, reducing setup time and ensuring consistency across devices.

   Centralized User Account Management: Introduce a centralized user account management system to streamline user provisioning, password management, and access control. This system should integrate with cloud services used by the company, allowing HR to efficiently onboard new employees and manage access permissions. Enforce password policies to enhance security and facilitate password recovery procedures.

   Employee Onboarding and Training: Develop a comprehensive employee onboarding program that includes IT orientation and training sessions. Provide new hires with clear instructions on setting up their laptops, accessing cloud services, and adhering to IT security policies. Offer ongoing training and support to help employees maximize productivity and minimize IT-related issues.

These process improvements aim to address the current inefficiencies and limitations in Network Funtime Company's IT infrastructure while promoting standardization, efficiency, and security across the organization. By implementing these changes, the company can enhance productivity, mitigate risks, and improve the overall user experience for employees.

Scenario 2:

You're doing systems administration work for W.D. Widgets. Evaluate their current IT infrastructure needs and limitations, then provide at least five process improvements and rationale behind those improvements. Please write a 200-400 word process review for this consultation. Remember, there's no right or wrong answer, but make sure to provide your reasoning.

Sales Company:

W.D. Widgets is a small company that sells widgets. They're mostly made up of salespeople who work with lots of clients. You've taken over as the sole IT person for this company of 80-100 people.

When HR tells you to provision a machine for a new employee, you order the hardware directly from a business vendor. You keep one or two machines in stock, in case of emergency. The users receive a username that you generate for them. You then give them an orientation on how to login when they start. You currently manage all of your machines using Windows Active Directory. The company uses only Windows computers. When a new computer is provisioned, you have to install lots of sales-specific applications manually onto every machine. This takes a few hours of your time for each machine. When someone has an IT-related request, they email you directly to help them.

Almost all software is kept in-house, meaning that you're responsible for the email server, local machine software, and instant messenger. None of the company's services are kept on the cloud.

Customer data is stored on a single file server. When a new salesperson starts, you also map this file server onto their local machine, so that they can access it like a directory. Whoever creates a folder on this server owns that folder and everything in it. There are no backups to this critical customer data. If a user deletes something, it may be lost for everyone.

The company generates a lot of revenue and is rapidly growing. They're expecting to hire hundreds of new employees in the next year or so, and you may not be able to scale your operations at the pace you're working.

Scenario 2
Process Review:

W.D. Widgets' current IT infrastructure presents several challenges and limitations that need to be addressed to accommodate their growth and ensure operational efficiency. Here are five recommended process improvements along with their rationale:

   Automated Deployment and Application Management: Implement automated deployment tools, such as Microsoft Deployment Toolkit (MDT) or Windows Deployment Services (WDS), to streamline the provisioning of new computers. Preconfigure standardized system images with necessary sales-specific applications to reduce manual installation time. By automating this process, you can significantly decrease setup time for new employees and free up resources for other IT tasks.

   Centralized Software Management: Introduce a centralized software management solution, such as Microsoft System Center Configuration Manager (SCCM), to efficiently deploy and manage sales-specific applications across all Windows computers. This allows for remote installation, updates, and patch management, saving time and ensuring consistency in software configurations.

   Transition to Cloud Services: Evaluate and migrate critical services, such as email and instant messaging, to cloud-based solutions like Microsoft 365 or Google Workspace. By leveraging cloud services, you can offload infrastructure maintenance and scale more effectively to accommodate the company's growth. Additionally, cloud solutions offer built-in redundancy and disaster recovery capabilities, mitigating the risk of data loss.

   Improved Data Management and Backup Strategy: Establish a comprehensive data management and backup strategy to safeguard critical customer data. Implement regular backups of the file server using reliable backup software and store backups offsite or in the cloud for redundancy. Utilize access controls and folder permissions to ensure data security and prevent accidental deletion or unauthorized access.

   Scalable IT Infrastructure: Plan and implement a scalable IT infrastructure capable of accommodating the company's anticipated growth. Consider investing in virtualization technologies, such as Hyper-V or VMware, to optimize resource utilization and scalability. Additionally, evaluate options for outsourcing certain IT functions or hiring additional IT personnel to support the growing workforce efficiently.

These process improvements aim to address the current limitations in W.D. Widgets' IT infrastructure while preparing for future scalability and growth. By streamlining IT operations, improving data management practices, and embracing cloud technologies, the company can enhance productivity, reduce risks, and support its expanding business needs effectively.

Scenario 3:

You're doing systems administration work for Dewgood. Evaluate their current IT infrastructure needs and limitations, then provide at least five process improvements and rationale behind those improvements. Please write a 200-400 word process review for this consultation. Remember, there's no right or wrong answer, but make sure to provide your reasoning.

Non-profit Company:

Dewgood is a small, local non-profit company of 50 employees. They hired you as the sole IT person in the company. The HR person tells you when they need a new computer for an employee. Currently, computers are purchased directly in a physical store on the day that an employee is hired. This is due to budget reasons, as they can't keep extra stock in the store.

The company has a single server with multiple services on it, a file server, and email. They don't currently have a messaging system in place. When a new employee is hired, you have to do an orientation with them for login. You're also responsible for installing all the software they need on their machine, and mapping the file server to their computer. The computers are managed through Windows Active Directory. When an employee leaves, they're currently not disabled in the directory service.

The company uses an open-source ticketing system to handle all internal requests as well as external non-profit requests. But the ticketing system is confusing and difficult to use, so lots of the employees reach out to you directly to figure out how to do things. In fact, so many things are difficult to find that employees typically ask around when they have a question.

There are nightly backups in place of the file server. You store this information on a disk backup and take it home with you everyday to keep it safe in case something happens onsite. There's also a small company website that's hosted on the single server at the company. This website is a single html page that explains the mission of the company and provides contact information. The website has gone down many times, and no one knows what to do when it happens.

Scenario 3
Process Review:

Dewgood's current IT infrastructure exhibits several areas of improvement to enhance efficiency, security, and user experience. Here are five recommended process improvements along with their rationale:

Standardized Computer Procurement: Implement a standardized computer procurement process to ensure timely and cost-effective acquisition of new computers for employees. Instead of purchasing computers from physical stores on an ad hoc basis, establish relationships with vendors to negotiate bulk discounts and pre-configure standard computer models. This approach minimizes setup time and ensures consistency in hardware configurations.

Automated Software Deployment: Introduce automated software deployment tools, such as Microsoft Endpoint Configuration Manager or open-source alternatives like Ansible, to streamline the installation of required software on new computers. Create software packages for commonly used applications and automate deployment through group policies or scripts. This reduces manual intervention and ensures uniformity in software installations across all machines.

Enhanced User Onboarding and Offboarding: Develop a comprehensive user onboarding and offboarding process that includes standardized orientations for new employees and proper account deactivation procedures for departing employees. Utilize Windows Active Directory to manage user accounts and ensure timely updates to user permissions and access rights. Implement account disabling protocols to revoke access to company resources promptly upon employee departure, minimizing security risks.

Improved Ticketing System: Evaluate and implement a user-friendly ticketing system with intuitive interfaces and clear documentation to streamline internal and external request management. Choose a system that offers customizable workflows, automated ticket routing, and self-service options to empower employees to resolve issues independently. By centralizing and standardizing request management, the IT department can prioritize tasks effectively and reduce direct inquiries to IT personnel.

Robust Website Hosting and Maintenance: Enhance the reliability and stability of the company website by migrating it to a more robust hosting environment and implementing proactive maintenance procedures. Consider hosting the website on a dedicated web server or utilizing cloud-based hosting services to ensure uptime and scalability. Implement monitoring tools to detect and address issues promptly, and document troubleshooting procedures for quick resolution in case of downtime.

These process improvements aim to address the current limitations in Dewgood's IT infrastructure while promoting efficiency, reliability, and user empowerment. By standardizing procedures, adopting automation tools, and investing in robust solutions, the company can optimize its IT operations and better support its mission as a non-profit organization.