MODULE 4

Email, Security, File, Print, and Platform Services

Email Services

One communication service that you're almost guaranteed to use today is email. We use email for a wide range of communication. In an enterprise setting, it's important for a sysadmin, or a sole IT support specialist, to be able to configure email services for the company

Domain Name

- A company should have a domain name
  - rheymard.doneza@sscr.edu
- You may use this email to send and receive messages

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Setting Up Company Email

- Running your Own Email Server
  - Set up the email service software on a server, then you create a DNS record for your mail server
- Use an email service provider, like Google Suite
  - These service providers allow you to create email inboxes and more by paying a monthly fee for every user in your organization

Email Protocols

- POP3 – Post Office Protocol
  - the most recent version of a standard protocol for receiving e-mail. POP3 is a client/server protocol in which e-mail is received and held for you by your Internet server. Periodically, you (or your client e-mail receiver) check your mail-box on the server and download any mail, probably using POP3. This standard protocol is built into most popular e-mail products, such as Eudora and Outlook Express. It's also built into the Netscape and Microsoft Internet Explorer browsers.

Email Protocols

- IMAP - internet Message Access Protocol
  - IMAP allows you to access your email wherever you are, from any device. When you read an email message using IMAP, you aren't actually downloading or storing it on your computer; instead, you're reading it from the email service. As a result, you can check your email from different devices, anywhere in the world: your phone, a computer, a friend's computer.
  - IMAP only downloads a message when you click on it, and attachments aren't automatically downloaded. This way you're able to check your messages a lot more quickly than POP.

Email Protocols

- SMTP – Simple Mail Transfer Protocol
  - An SMTP email server will have an address (or addresses) that can be set by the mail client or application that you are using and is generally formatted as smtp.serveraddress.com. For example, Gmail's SMTP server host address is smtp.gmail.com, and Twilio SendGrid's is smtp.sendgrid.com. You can generally find your SMTP email server address in the account or settings section of your mail client.

SMTP Provider	URL
AOL	aol.com
AT&T	att.net
Comcast	comcast.net
iCloud	icloud.com/mail
Gmail	gmail.com
Outlook	outlook.com
Yahoo	mail.yahoo.com

User Productivity Services

In any organization the software that employees need to do their job is the software that an IT support specialist managing IT infrastructure needs to provide

User Productivity Services

- software development programs
- word processing
- graphical editors
- finance software

Sources of Productivity Applications

- Developed In-house
- Outsourced
  - Customized Application
  - Vendor

Licenses!

Configuring Security Services

Security is never over acting

Which is more important, Security or Privacy?

HTTPS

- Hypertext Transfer Protocol Secure (https) is a combination of the Hypertext Transfer Protocol (HTTP) with the Secure Socket Layer (SSL)/Transport Layer Security (TLS) protocol. TLS is an authentication and security protocol widely implemented in browsers and Web servers. SSL works by using a public key to encrypt data transferred over the SSL connection. Most Web browsers support SSL. It allows you to communicate securely with the web server.

Secure Socket Layer Protocol

- SSL stands for Secure Sockets Layer and, in short, it's the standard technology for keeping an internet connection secure and safeguarding any sensitive data that is being sent between two systems, preventing criminals from reading and modifying any information transferred, including potential personal details. The two systems can be a server and a client (for example, a shopping website and browser) or server to server (for example, an application with personal identifiable information or with payroll information).

Transport Layer Security

- Encrypts data sent over the Internet to ensure that eavesdroppers and hackers are unable to see what you transmit which is particularly useful for private and sensitive information such as passwords, credit card numbers, and personal correspondence

Network File System (NFS)

The Network File System (NFS) is a mechanism for storing files on a network. It is a distributed file system that allows users to access files and directories located on remote computers and treat those files and directories as if they were local

Benefits of NFS

- Multiple clients can use the same files, which allows everyone on the network to use the same data, accessing it on remote hosts as if it were acceding local files.
- Computers share applications, which eliminates the needs for local disk space and reduces storage costs.
- All users can read the same files, so data can remain up-to-date, and it's consistent and reliable.
- Mounting the file system is transparent to all users.
- Support for heterogeneous environments allows you to run mixed technology from multiple vendors and use interoperable components.
- System admin overhead is reduced due to centralization of data.
- Fewer removable disks and drives laying around provides a reduction of security concerns—which is always good!

Mobile Synchronization

Synchronization occurs when a mobile device communicates with applications on a personal computer or a server. This is often referred to simply as a "sync" or a "docking"

Mobile Synchronization

Microsoft Exchange will synchronize your contact lists, your emails, your calendar settings, and so much more. If you’re using Apple’s iOS operating system on your mobile device, you can sync all of this data to Apple’s iCloud. It provides a backup and recovery process so if something happens to your mobile device, you can simply purchase a new device, put in your iCloud credentials, and the device will download all of your information and update that new device.

Mobile Synchronization

For Android, cloud-based synchronization is provided through Google. So you would log into your Android device with your Google credentials. And that’s what will provide the synchronization to your Google account. If you prefer not synchronizing to the cloud or you don’t have access to be able to do that, you can always synchronize to your desktop computer. This means that you would need to use an application on your desktop that supports this synchronization. And you have to make sure that you have enough disk space to store all of this data that’s from your mobile devices.

Configuring Print Servers

Many organizations still use printers, and as an IT support specialist, you have to manage them as you would any other device. Most large organizations have lots of printers that need to be managed and large volumes of information that need to be printed

Configuring Print Servers

- In the Windows server operating system, there's a Print and Document Services that can be enabled. All you have to do is add your network printer to the service and install the drivers for those printers
- In Linux, a common print server that's usually pre-installed on machines is CUPS or Common UNIX Printing System, let me show you. CUPS allows you to easily manage printers from a simple web URL

Cloud Concepts and Infrastructure

Cloud infrastructure is a term used to describe the components needed for cloud computing, which includes hardware, abstracted resources, storage, and network resources. Think of cloud infrastructure as the tools needed to build a cloud. In order to host services and applications in the cloud, you need cloud infrastructure.

How does it work?

An abstraction technology or process—like virtualization—is used to separate resources from physical hardware and pool them into clouds; automation software and management tools allocate these resources and provision new environments so users can access what they need—when they need it.

Components of Cloud Infrastructure

- Hardware
- Virtualization
- Storage
- Network

Components of Cloud Infrastructure Hardware

- A cloud network is made up of a variety of physical hardware that can be located at multiple geographical locations.
- The hardware includes networking equipment, like switches, routers, firewalls, and load balancers, storage arrays, backup devices, and servers.
- Virtualization connects the servers together, dividing and abstracting resources to make them accessible to users.

Components of Cloud Infrastructure
Virtualization

- Virtualization is technology that separates IT services and functions from hardware.
- Software called a hypervisor sits on top of physical hardware and abstracts the machine's resources, such as memory, computing power, and storage.
- Once these virtual resources are allocated into centralized pools they're considered clouds.
- With clouds, you get the benefits of self-service access, automated infrastructure scaling, and dynamic resource pools.

Components of Cloud Infrastructure

Storage

- Within a single datacenter, data may be stored across many disks in a single storage array. Storage management ensures data is correctly being backed up, that outdated backups are removed regularly, and that data is indexed for retrieval in case any storage component fails.
- Virtualization abstracts storage space from hardware systems so that it can be accessed by users as cloud storage.
- When storage is turned into a cloud resource, you can add or remove drives, repurpose hardware, and respond to change without manually provisioning separate storage servers for every new initiative.

Components of Cloud Infrastructure

Network

- The network is composed of physical wires, switches, routers, and other equipment. Virtual networks are created on top of these physical resources.
- A typical cloud network configuration is composed of multiple subnetworks, each with varying levels of visibility. The cloud permits the creation of virtual local area networks (VLANs) and assigns static and/or dynamic addresses as needed for all network resources.
- The cloud resources are delivered to users over a network, such as the internet or an intranet, so you can access cloud services or apps remotely on demand.

Types of Cloud Computing

- Public Clouds
- Private Clouds
- Hybrid Clouds
- Multiclouds

Public Clouds

- Public clouds are cloud environments typically created from IT infrastructure not owned by the end user. Some of the largest public cloud providers include Alibaba Cloud, Amazon Web Services (AWS), Google Cloud, IBM Cloud, and Microsoft Azure.
- All clouds become public clouds when the environments are partitioned and redistributed to multiple tenants.

Hybrid Clouds

- A hybrid cloud is a seemingly single IT environment created from multiple environments connected through local area networks (LANs), wide area networks (WANs), virtual private networks (VPNs), and/or APIs.
- The characteristics of hybrid clouds are complex and the requirements can differ, depending on whom you ask. For example, a hybrid cloud may need to include:
  - At least 1 private cloud and at least 1 public cloud
  - 2 or more private clouds
  - 2 or more public clouds
  - A bare-metal or virtual environment connected to at least 1 public cloud or private cloud

Hybrid Clouds

- Multiclouds are a cloud approach made up of more than 1 cloud service, from more than 1 cloud vendor—public or private. All hybrid clouds are multiclouds, but not all multiclouds are hybrid clouds. Multiclouds become hybrid clouds when multiple clouds are connected by some form of integration or orchestration.
- A multicloud environment might exist on purpose (to better control sensitive data or as redundant storage space for improved disaster recovery) or by accident (usually the result of shadow IT). Either way, having multiple clouds is becoming more common across enterprises that seek to improve security and performance through an expanded portfolio of environments.