

Chapter 23

Virtualization, Cloud
Computing, and AI

Episode 23.02

Episode **Your First Virtual Machine**
title:

4.1 - Explain virtualization concepts

Objective:

- Requirements
 - o Network
 - o Storage

L3s

- 0:19 - Objective term - Virtual machines are great for cross-platform virtualization
- 2:32 - Objective term - Different operating systems have different resource requirements in VMs
- 2:37 - Objective term - VMs are also good to run legacy software and OSes (like Windows 7)
- Virtual network interface card or V-NIC

Storage Virtualization

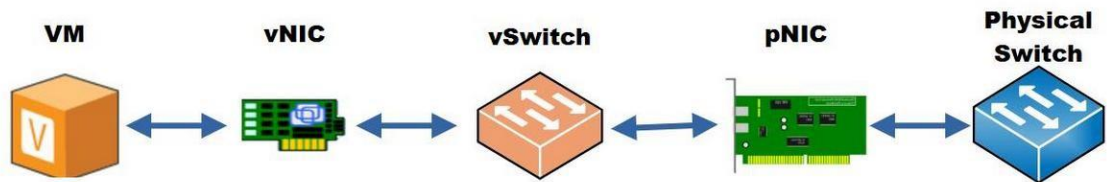
NOT Virtual Storage

Runs within a VM

Abstraction of physical storage

- **Obscures the actual physical device**
- **Example: Five physical drives look like a single drive**

vNET



Might need to change the title, this was the name of the JPEG.

Episode 23.03

Episode title: **Advanced Virtualization Setup**

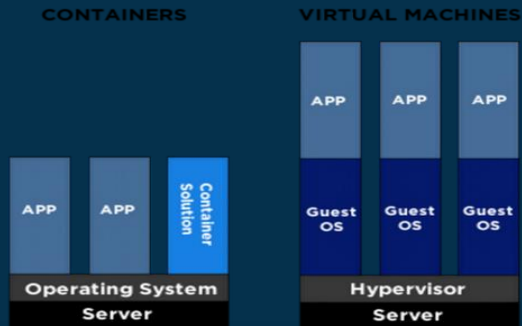
Objective: 4.1 - Explain virtualization concepts

- Containers

L3s

- 4:11 - Bridged adapter
- 5:15 - Network Address Translation (NAT)
- 6:07 - NAT Network
- 8:47 - Internal Network
- 8:59 - Host-only Adapter
- 9:08 - Generic Driver
- Containers

Container vs. VM



Might need to change the title

Episode 23.04

Episode **Cloud computing**
title:

Objective:

Lower 3rds

OBJ - Cloud characteristics

OBJ - Metered utilization

OBJ - Ingress/egress

OBJ - Multi-tenancy

Metered systems allow users to only pay for what they use, take in, or send out

multi-tenant system is virtualized to protect subscriber processing, data, and storage

Metered Utilization

Allow users to only pay for what they use, take in, or send out



Multi-tenancy for Cloud Services

Virtualized to protect each subscriber's processing, data, and storage



Episode 23.06

Episode title: **Cloud-Based Applications**

Objective:

1.11 Given a scenario, install and configure cloud-based productivity tools.

•Collaboration tools

- Video conferencing
- Instant messaging

•Identity synchronization

•Licensing assignment

L3s

- 0:39 - Objective term - Cloud storage and file synchronization
- 2:21 - Conflicted copy
- 4:05 - Objective term - Virtual desktops and virtual desktop infrastructure (VDI)
- 4:26 - Objective term - Virtual desktops can be access on-premises or in the cloud
- 4:41 - Streaming applications

Episode 23.07

Episode title: **Application integration**

Objective:

L3s

OBJ - Application integration

Artificial intelligence is the use of a computer system that performs tasks that humans have traditionally had to do

AI application integration is the process of inserting AI processing into existing systems, applications, workflows, and procedures to improve their function and effectiveness.

AI provides a variety of capabilities to a systems administrator, network technician, or other IT professionals.

AI can provide high-level algorithms

Natural Language Processing (NLP)

Artificial intelligence

Computer system
that performs tasks
traditionally done
by humans



AI application integration

Process of inserting AI processing into existing

- Systems
- Applications
- Workflows
- Procedures

As to improve their function and effectiveness

Artificial intelligence

Can provide:

- High-level algorithms
- Machine learning
- Natural Language Processing (NLP)

Real benefit of AI

On system administration, time is freed up from:

- Routine
- Repetitive tasks
- Mundane tasks
 - **system updates**
 - **backups (etc)**



AI provides

AI can aid in a variety of capabilities, including but not limited to:

- Systems administrator
- Network technician
- Other IT professionals



Episode 23.08

Episode title: **Policy and procedures**

Objective:

Lower 3rds

OBJ - Appropriate use

OBJ – Plagiarism

There are three main areas that you need to consider when putting together an AI policy for your organization: regulations and legality, ethics, and fairness

Policies regarding AI and plagiarism generally follow the policies of any writing in that to NOT cite the use of AI for research, writing, editing, speaking, etc. can be considered plagiarism

Regulations and legality

Training

Organization for Economic Co-operation and Development (OECD)

Fairness

AI policies and procedures

Focuses on only two areas:

- AI's appropriate uses
- issue of AI and plagiarism



AI policy for organization

Three main areas

- Regulations and legality
- Ethics
- Fairness

Policies regarding AI and plagiarism

Follow the policies of any writing

- NOT citing the use of AI can be considered plagiarism

Episode 23.09

Episode title: AI limitations

Objective:

Lower 3rds

OBJ - Bias

OBJ - Hallucinations

OBJ – Accuracy

There are two major types of artificial intelligence models: generative AI and predictive AI

Generative AI models are limited to basing their deductions and conclusions on patterns they detect in the data

If the data has bias or inaccuracies, so will the results

Generative AI

Able to develop data:

- Text
- Images
- Code
- More

Perhaps the AI form that is growing the fastest



Predictive AI

Analyzes data to
produce forecasts
and predictions



Hallucinations

One major flaw detected in many generative AI tools is a penchant for inventing or making up a result

Many generative AI tools can produce a result that is fabricated, although it's presented as factual

Episode 23.10

Episode title: AI private versus public

Objective:

Lower 3rds

OBJ - Data security

OBJ - Data source

OBJ - Data privacy

Artificial intelligence (AI)

The biggest difference between these two AI models is data security and privacy

Public AI was created to provide AI resources that are focused on public benefit

Private AI is an on-premise, closely controlled, model in which the database is always under the control of its organization

Public AI

Created to provide AI resources that are focused on public benefit



Private AI

On-premise, closely controlled
Database is always under the
control of its organization

