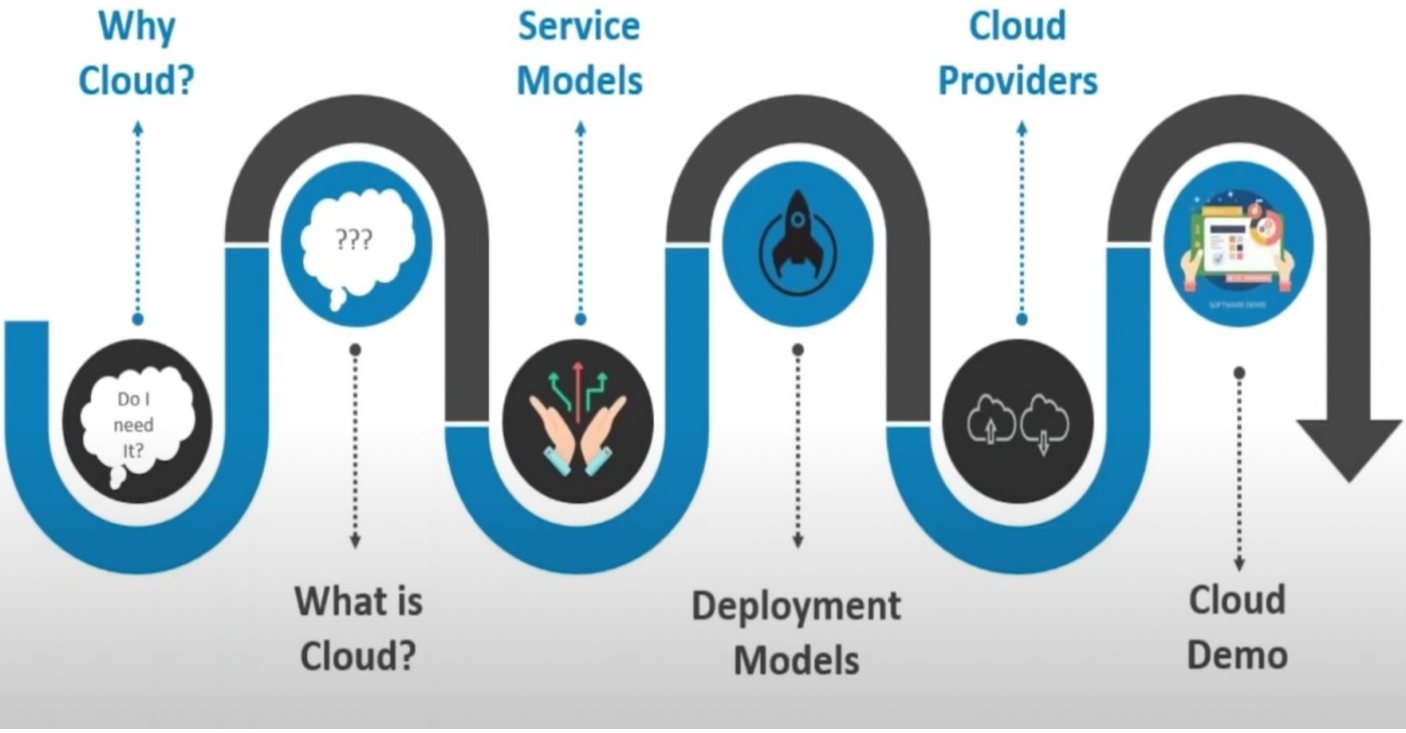
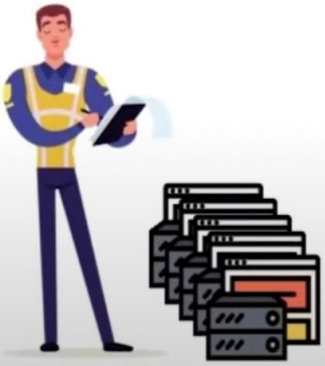
Introduction to cloud computing


Why Cloud?
Do I need It?
???
What is Cloud?
Service Models
Deployment Models
Cloud Providers
Cloud Demo

Before Cloud Computing

Suppose you want to host a website, these are the following things that you would need to do:

Buy a stack of servers.



Monitoring and Maintain servers.

High traffic? More servers.

Project 1

Build CI CD Pipline using Jenkins and Deploy the Application in AWS Cloud

Create jenkins file using our inhouse code repo

Create Docker file in the same repository

Jenkins stages are as per below

Build-Docker image with tagging as build version, unit test cases should pass if any for the code

The Image should be available in ECR with build version as TAG

The Dcoker Image should be deployed to EC2 Machine

The EC2 Machine Need to open specific Inbound Port and restrictAccess only for Few Admins users to login

Jenkins Jobs Should do Validation final Display Successful message

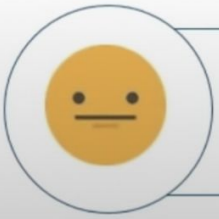
Report Should be sent to mail and it should contain status of each JOB

Register domain with rout53 and host the website

Disadvantages

If you consider costs then this setup is expensive.

Troubleshooting problems can be tedious and may conflict with your business goals.



Since the traffic is varying, your servers will be idle most of the time.

1) We need to buy stack of servers but servers are very costly means ended up paying lot of money
2) High Traffic More servers
3) Monitoring and Maintain servers
4) The amount of data generated is huge
5) Everything is going online these days
6) Earlier Paper work was more compared to now

Why Cloud?

Files

music

E-books

Videos

Applications

Podcasts

What Is Cloud?

Just move your data to Cloud

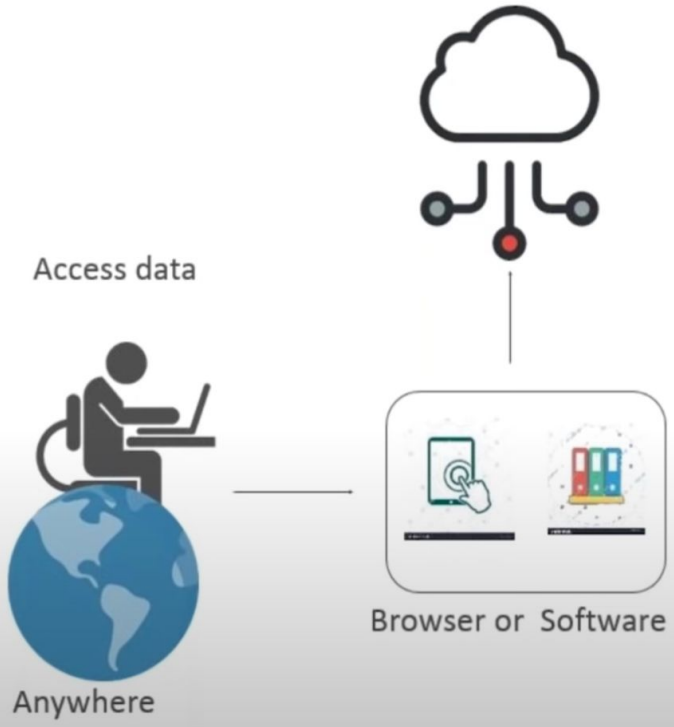
Local system with limited space

Cloud with unlimited space

What Is Cloud Computing?

Cloud computing is:

- Storing data/applications on remote servers
- Processing data/applications from servers
- Accessing data/applications via Internet



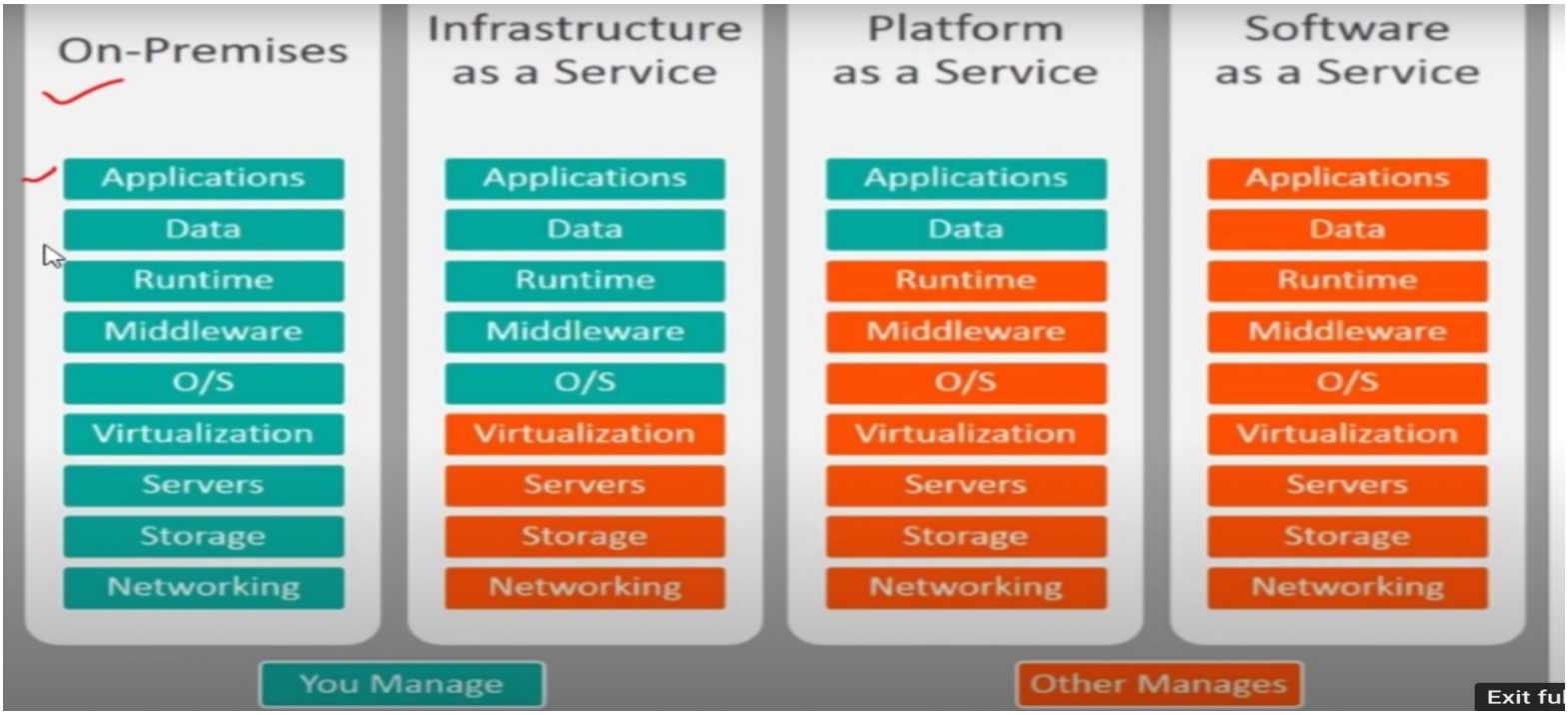
Advantages of Cloud Computing

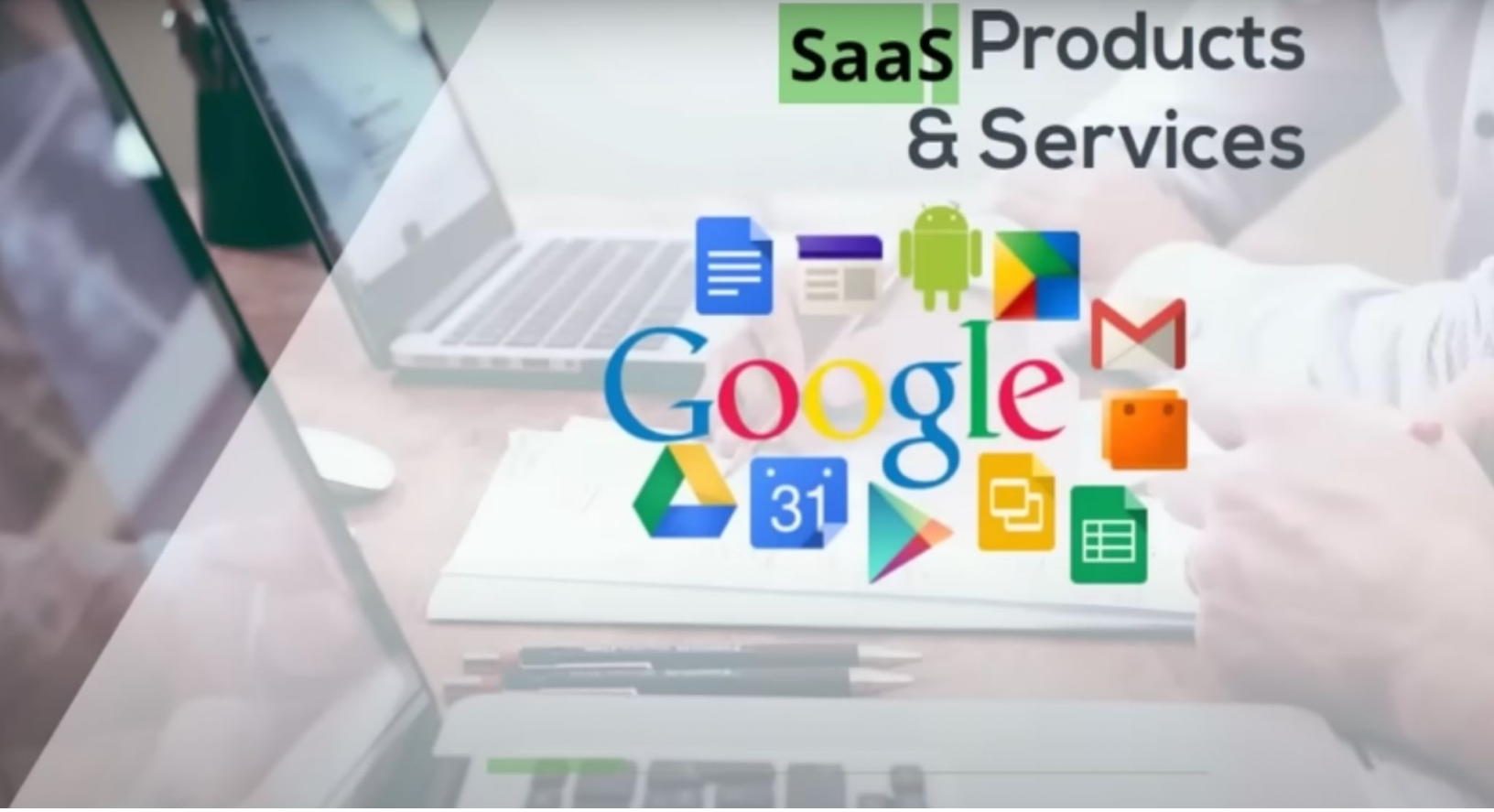
1. Resource Accessible anywhere ,Anytime
2. Reduced of Cost of Provisioning
3. Low maintenance cost
4. Scalability
5. Pay as per use

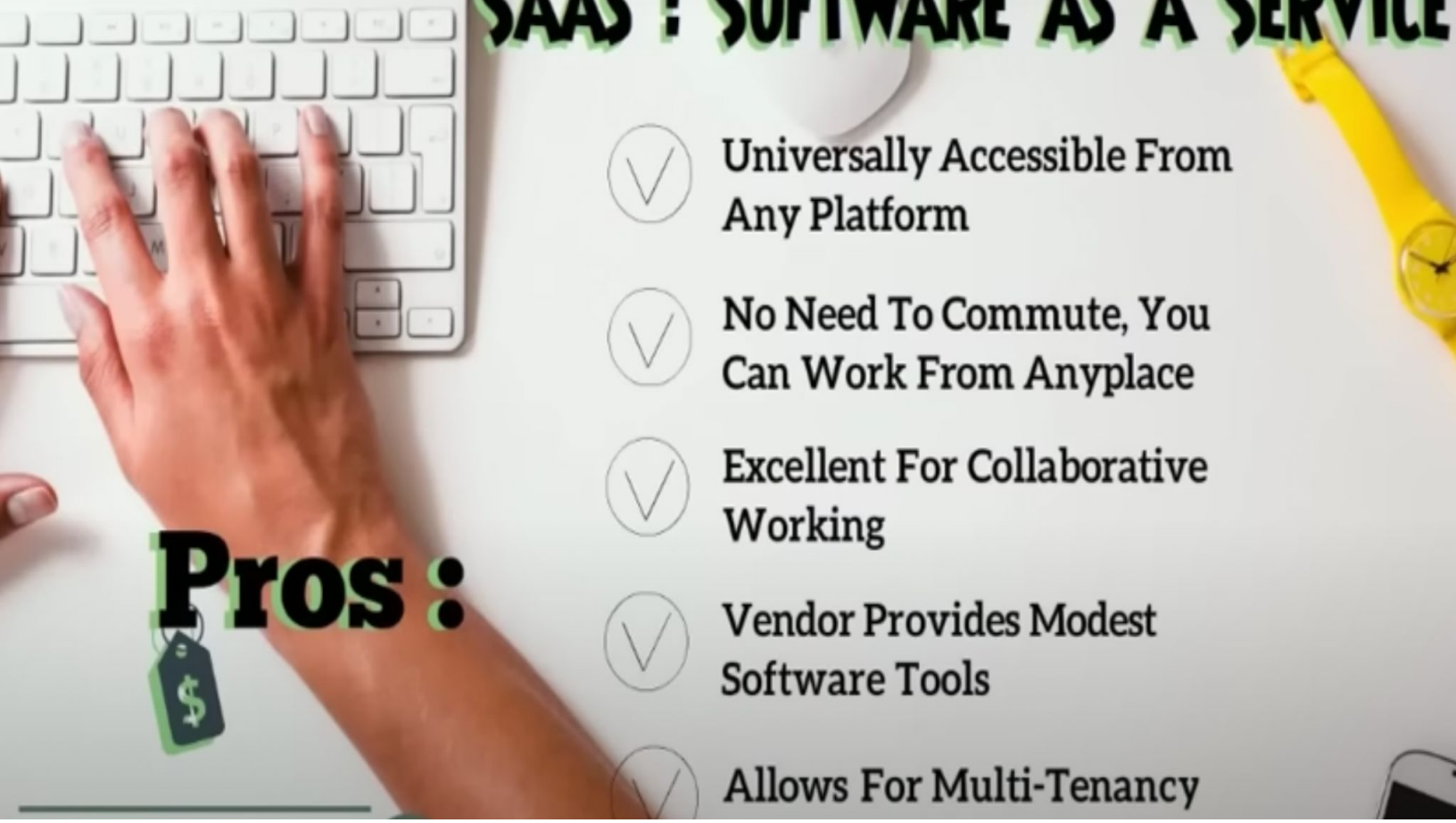
Assigment/Question-

Disadvantages ?

SaaS, IaaS & PaaS




SaaS Products
& Services
Google
31


SAAS : SOFTWARE AS A SERVICE
Pros :
Universally Accessible From Any Platform
No Need To Commute, You Can Work From Anyplace
Excellent For Collaborative Working
Vendor Provides Modest Software Tools
Allows For Multi-Tenancy

Types Of Cloud Services: SaaS

It stands for 'Software as a Service'

- On demand service
- Independent Platform
- No need to install on PC
- Resources Managed by vendor

Who Uses It?

- End Customers

Types Of Cloud Services: SaaS

Pros	Cons
Universally accessible from any Platform	Portability
Excellent for collaborative working	Browser Issues
Vendor provides modest software tools	Compliance Restrictions
Allows for Multi Tenancy	Internet dictates overall performance

Types Of Cloud Services: PaaS

It stands for 'Platform as a Service'

- Programming language + OS + Server + Database
- Provides Encapsulation
- Build, compile & run programs
- Users manage data & application resources

Who Uses It?

- Developers

Types Of Cloud Services: PaaS

Pros	Cons
Scalable and cost effective	Provider Languages Only
Faster Market for developers	Developers limited
Easy deployment of web applications	Migration Issues
Private and public deployment	Vendor Lock-In

Types Of Cloud Services: IaaS

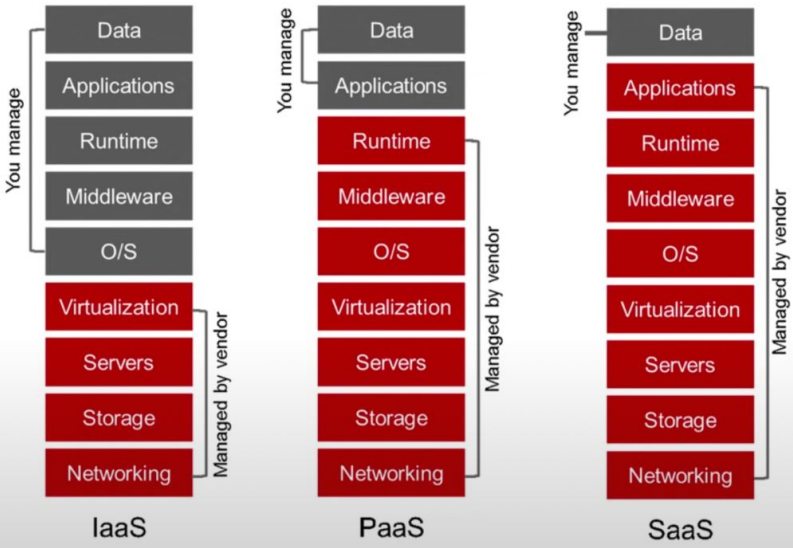
It stands for 'Infrastructure as a Service'

- Provides Computing Architecture & Infrastructure
- Data storage + Virtulization + Servers + Networking
- Vendors manage above resources
- Users handle data & middleware

Who Uses It?

- System administrators

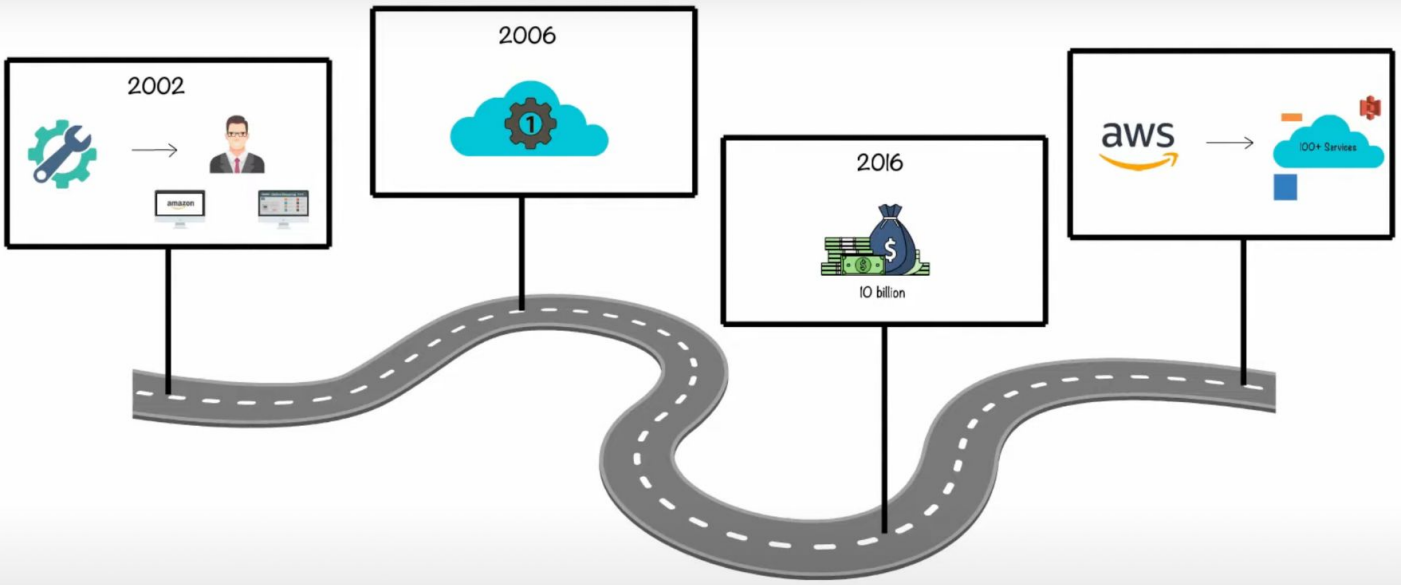
Types Of Cloud Services




Online Shopping

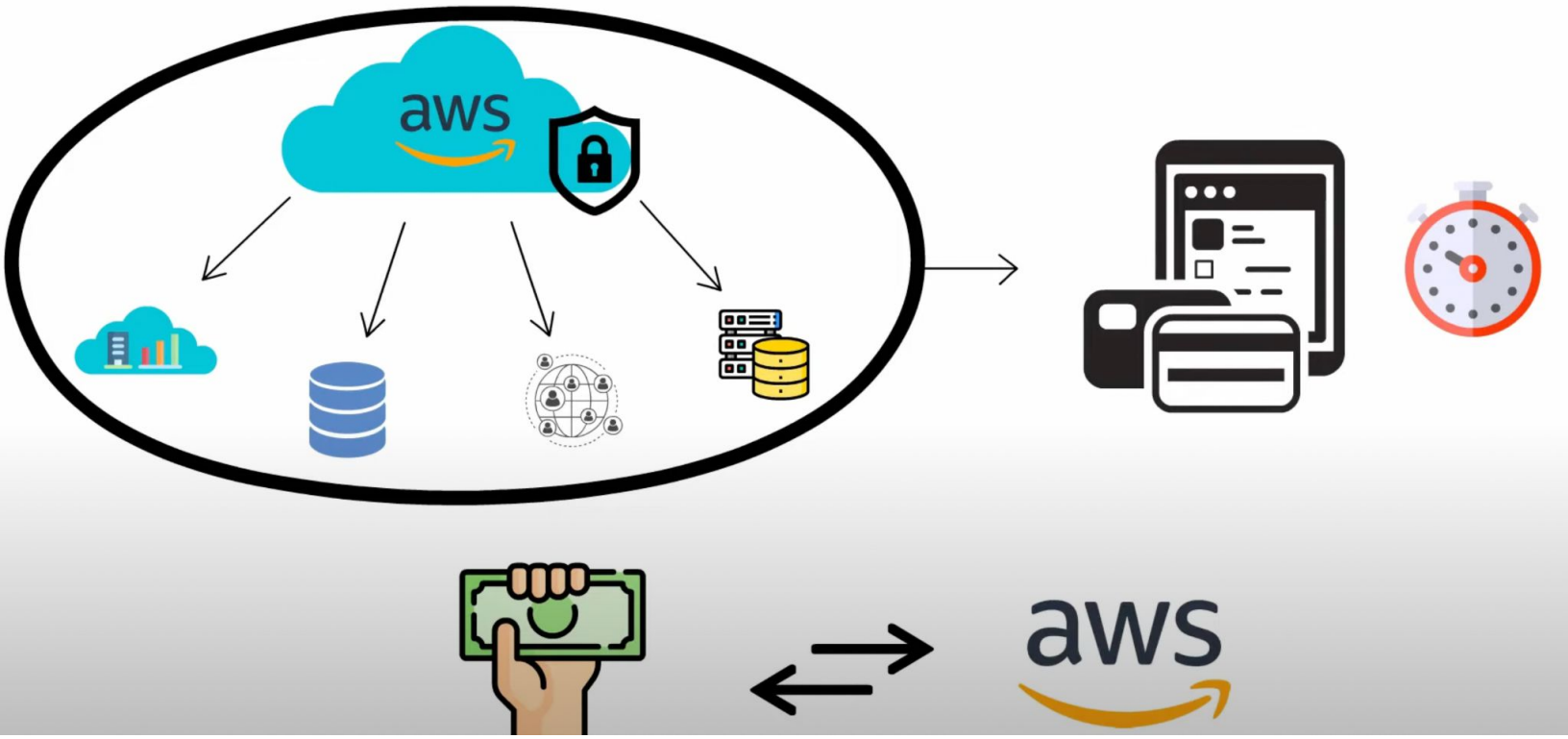

BLACK
Sale
FRIDAY


HOLIDAY
Sale



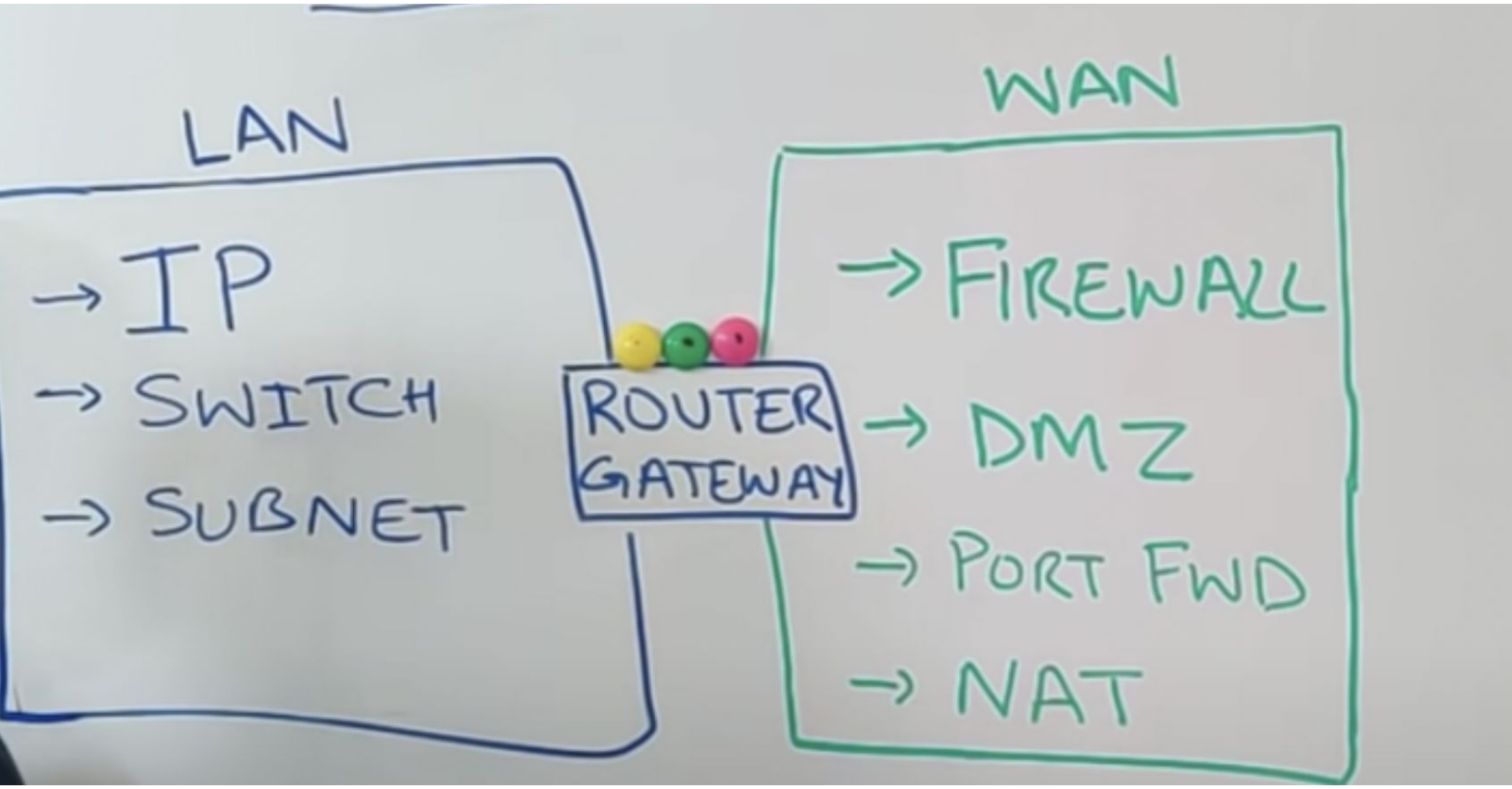
The AWS cloud service platform is now used by more than 45% of the global market

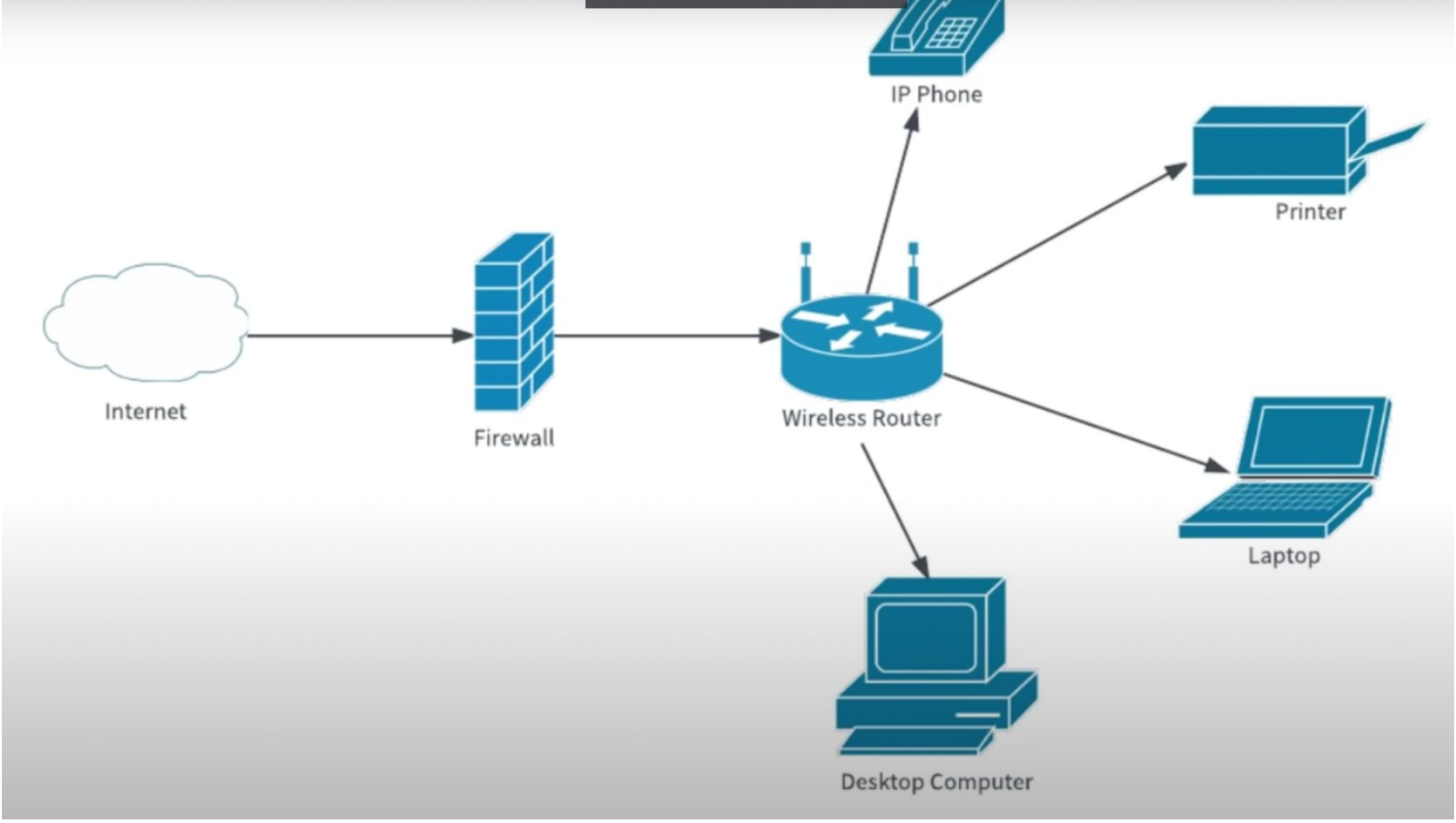
Now, let's talk about what is AWS



Companies

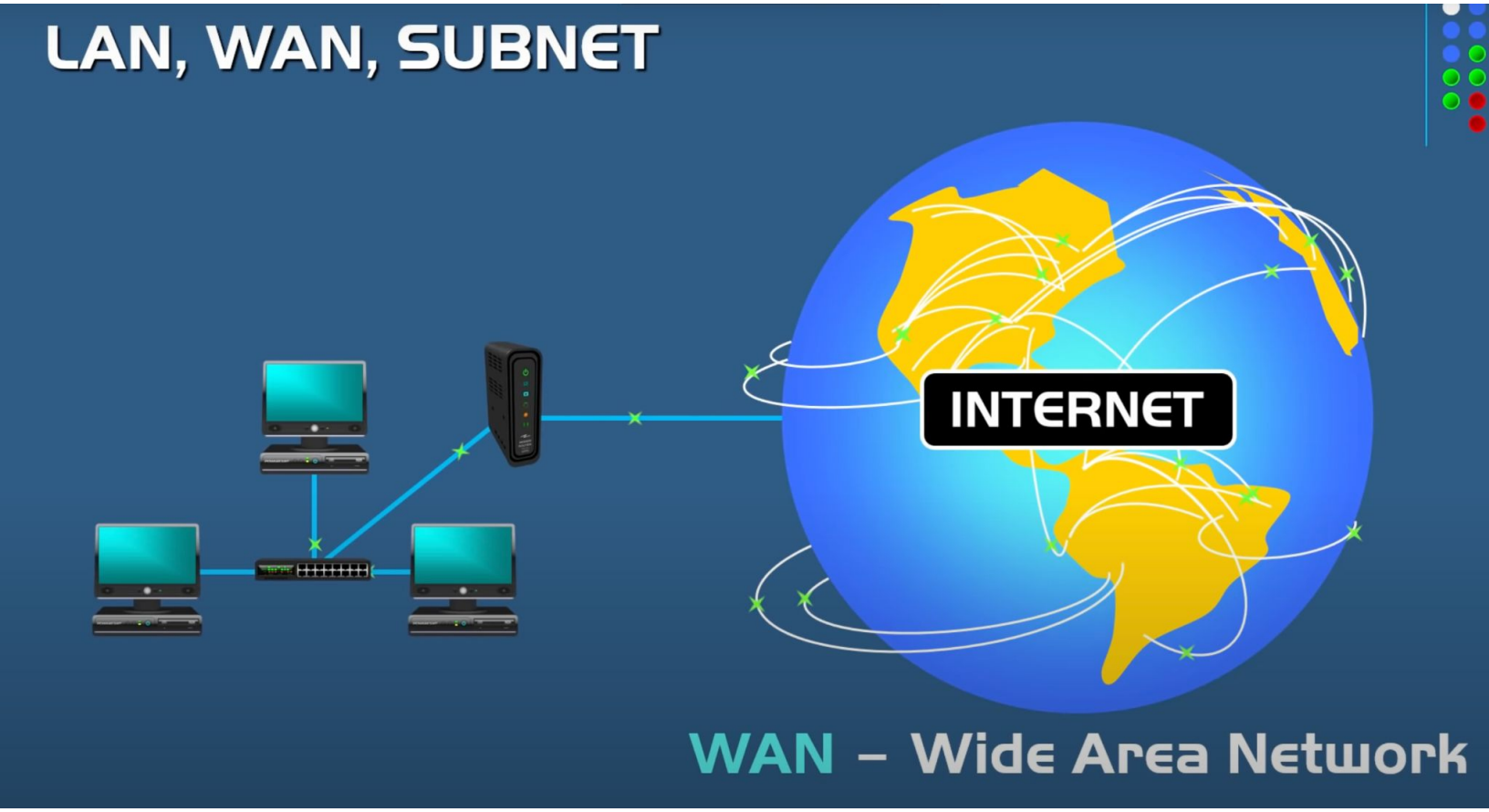
Have taken advantage of the services
offered by AWS to improve their business efficiency


LAN
→ IP
→ SWITCH
→ SUBNET
ROUTER
GATEWAY
WAN
→ FIREWALL
→ DMZ
→ PORT FWD
→ NAT

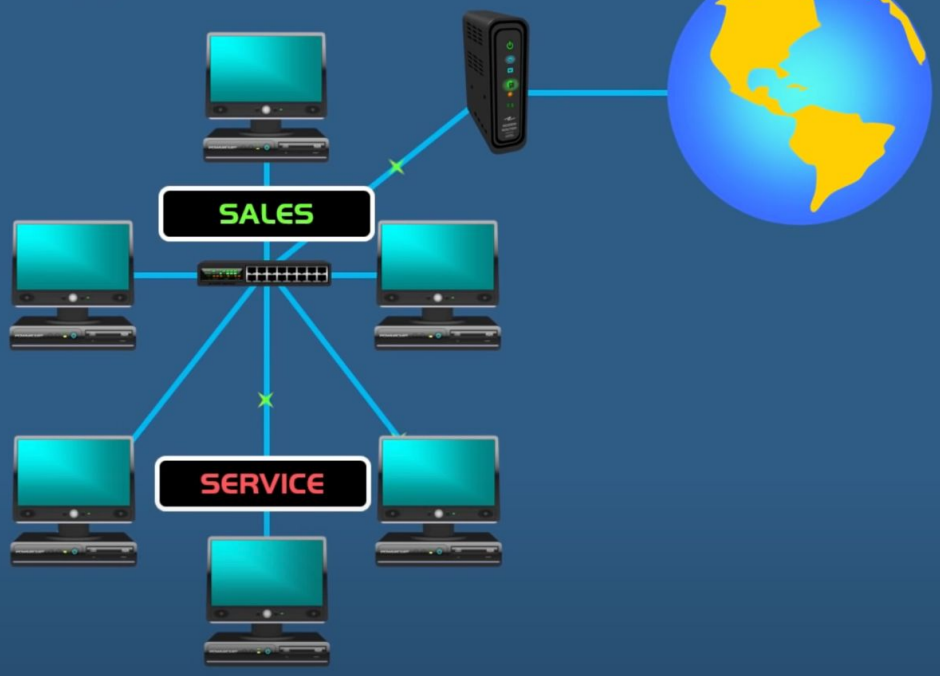

IP Phone
Printer
Internet
Firewall
Wireless Router
Laptop
Desktop Computer

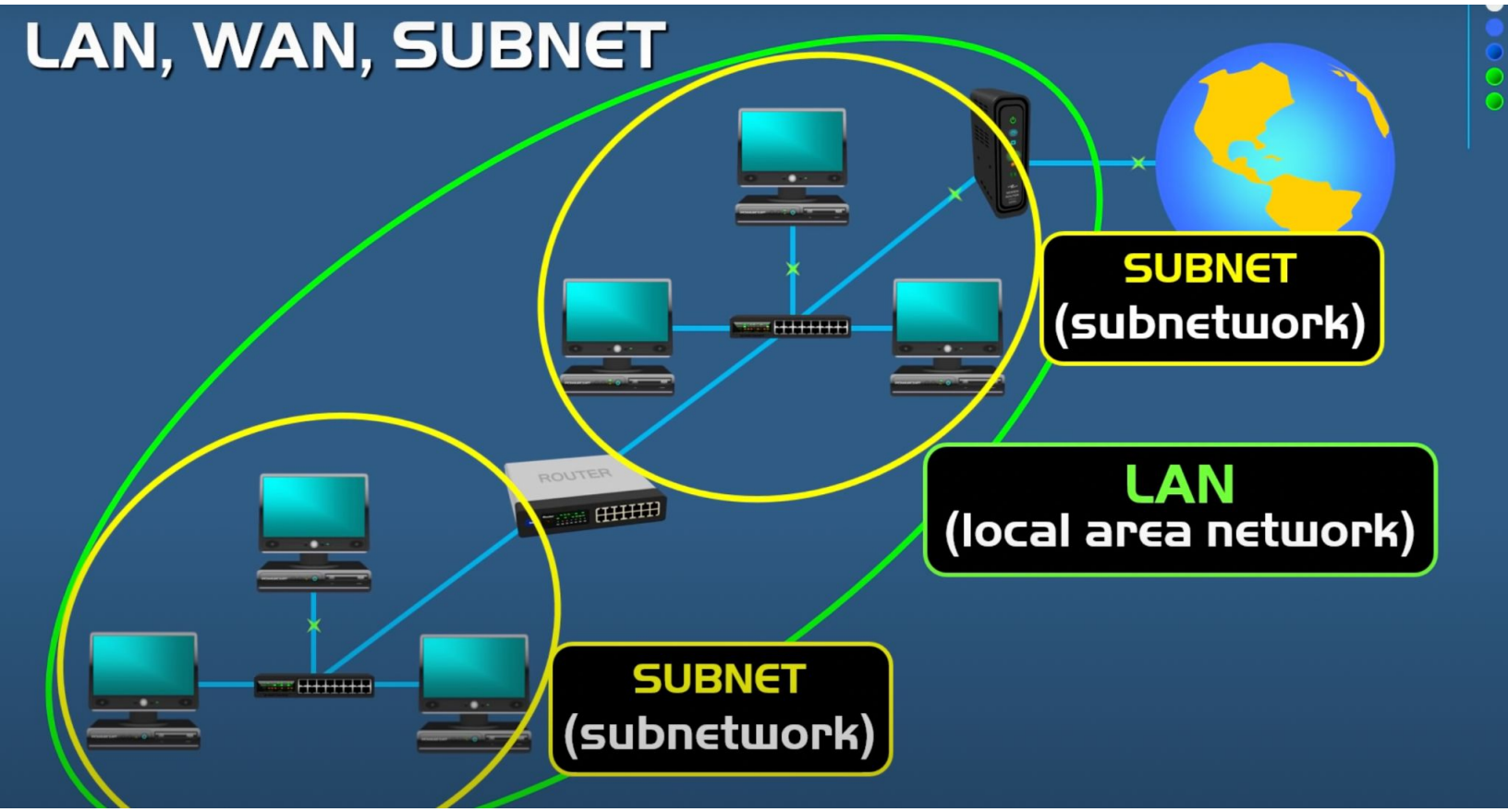
LAN, WAN, SUBNET

- A network is just computers connected to each other to exchange information.


LAN, WAN, SUBNET
INTERNET
WAN – Wide Area Network

LAN, WAN, SUBNET




LAN, WAN, SUBNET
SUBNET
(subnetwork)
LAN
(local area network)
ROUTER
SUBNET
(subnetwork)

A router is the gateway or door to separate networks

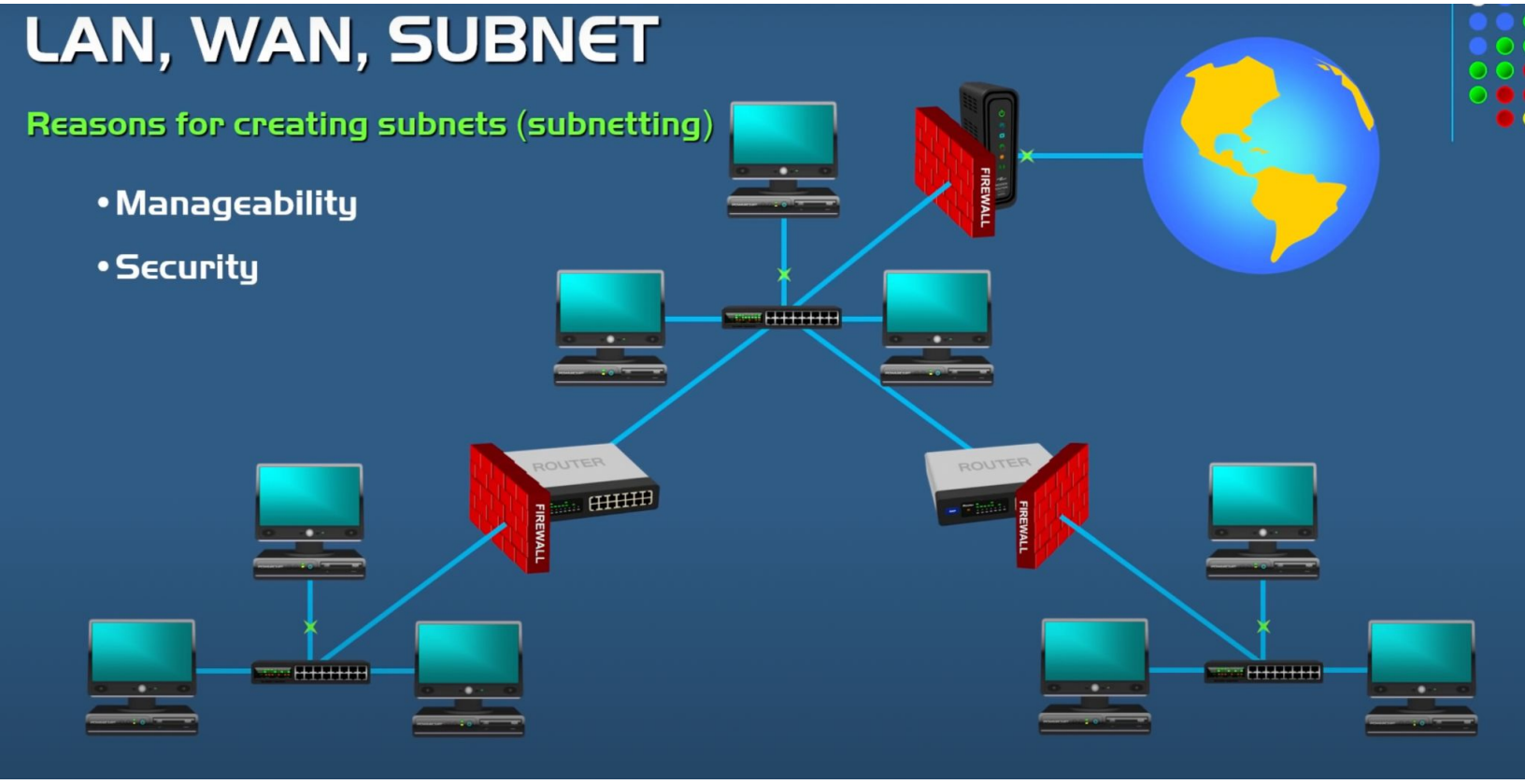
An IP is an logical address of a device in the network

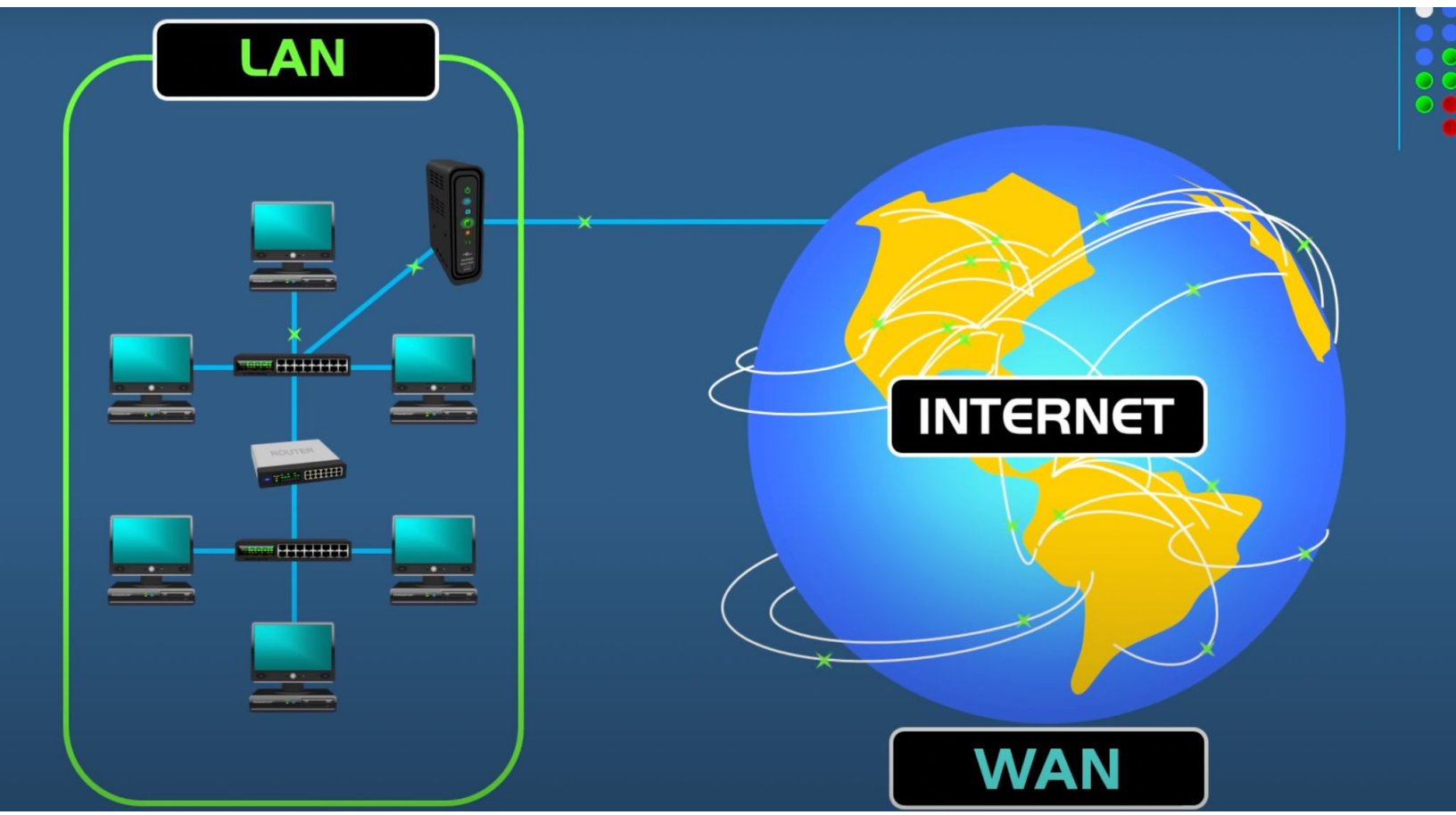
Switch-connect devices with same network

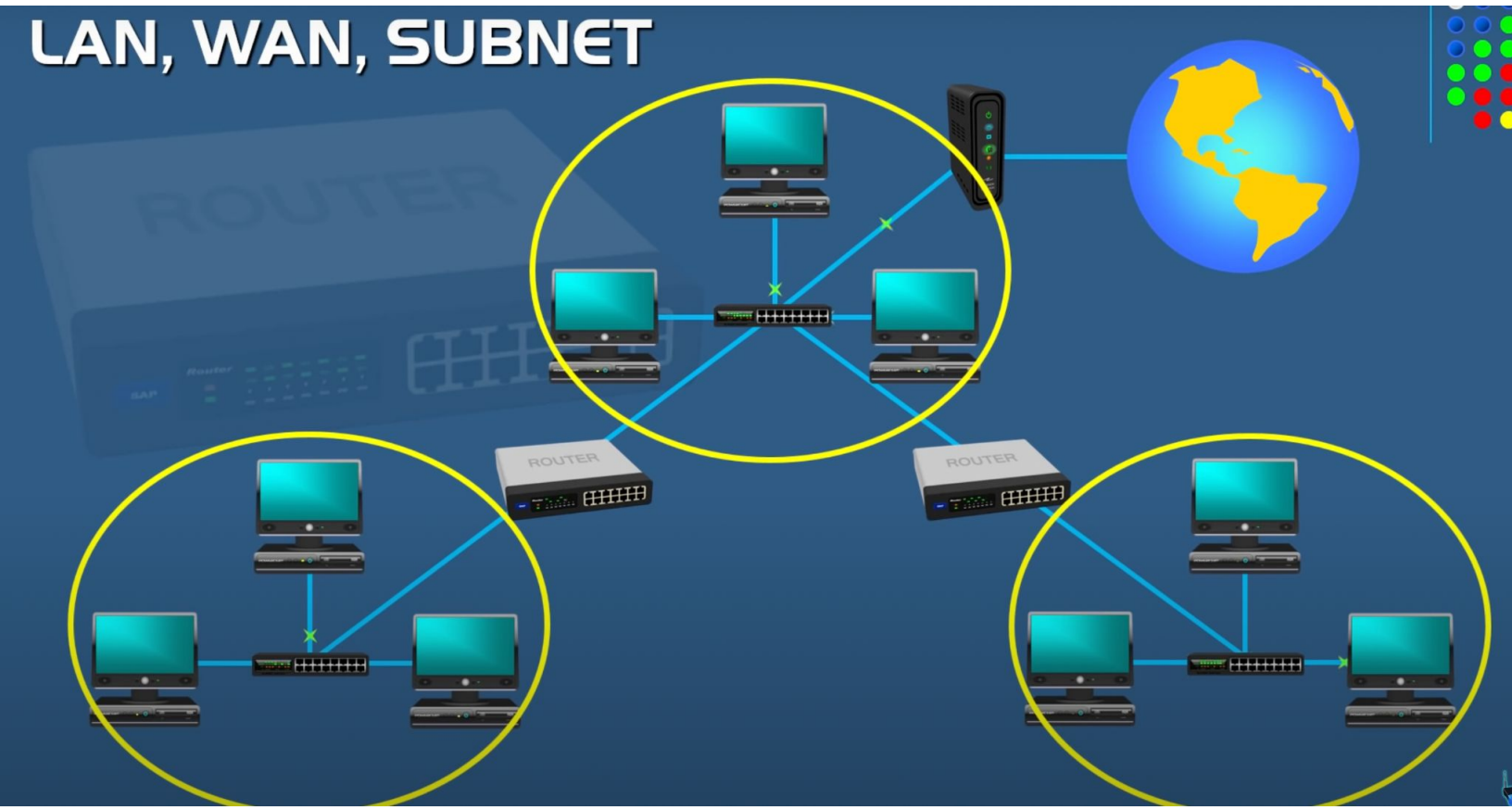
LAN, WAN, SUBNET

Reasons for creating subnets (subnetting)

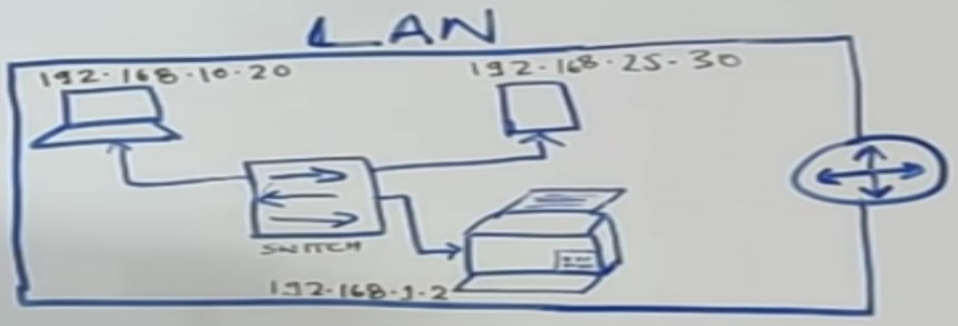
- Manageability
- Security

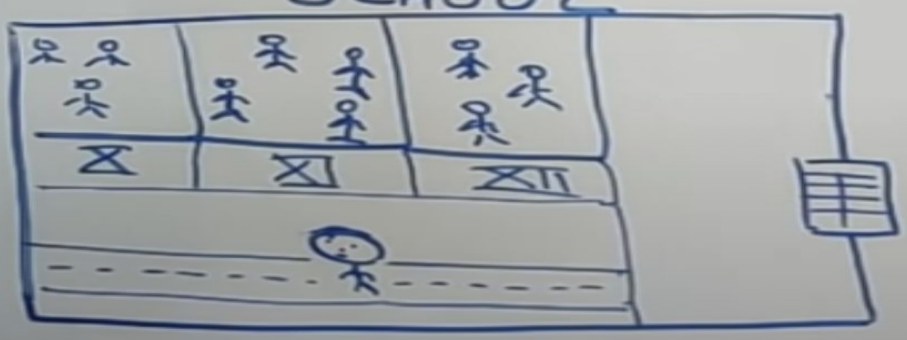



LAN
ROUTER
INTERNET
WAN


LAN, WAN, SUBNET
ROUTER
ROUTER
ROUTER

NETWORKING BASICS

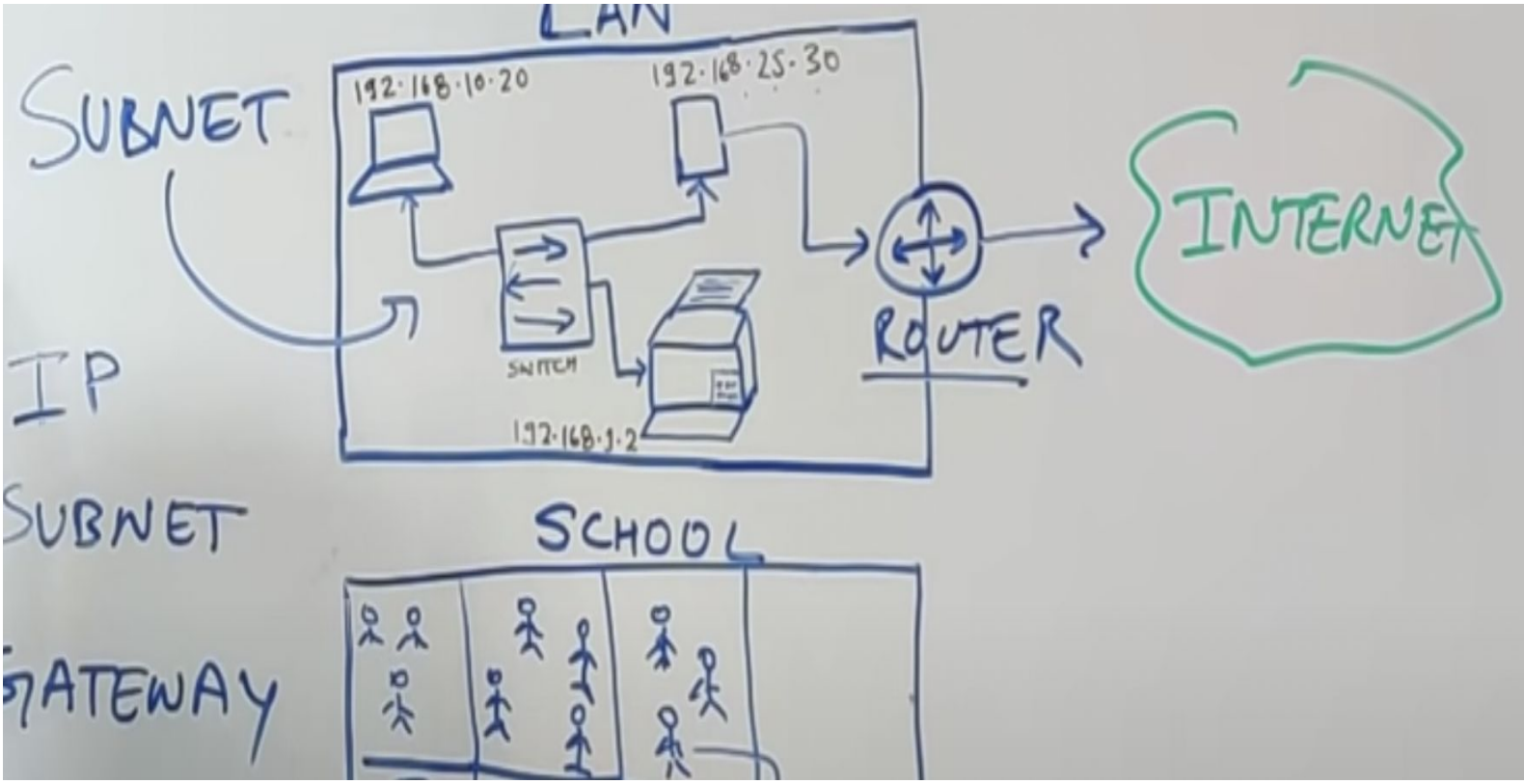




IP=roll number

switch=teacher

router=security guard which allow to go outside


LAN
SUBNET
192.168.10.20
192.168.25.30
SWITCH
192.168.1.2
ROUTER
INTERNET
IP
SUBNET
SCHOOL
GATEWAY

Public vs Private IP ADDRESSES

IPv4

12 . 234 . 56 . 78

192.168.0.1

12.250.10.5

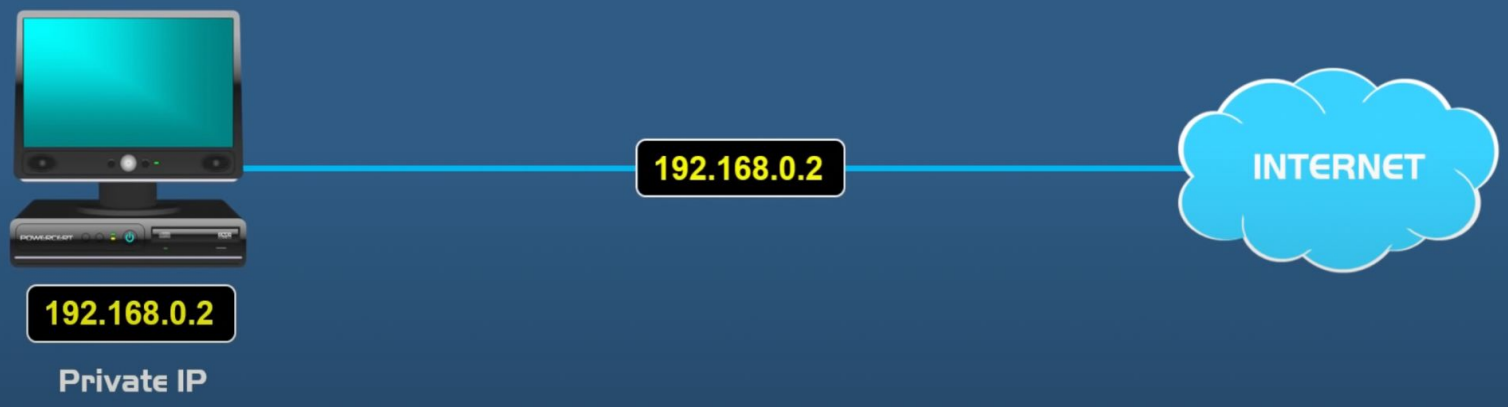
192.168.0.2

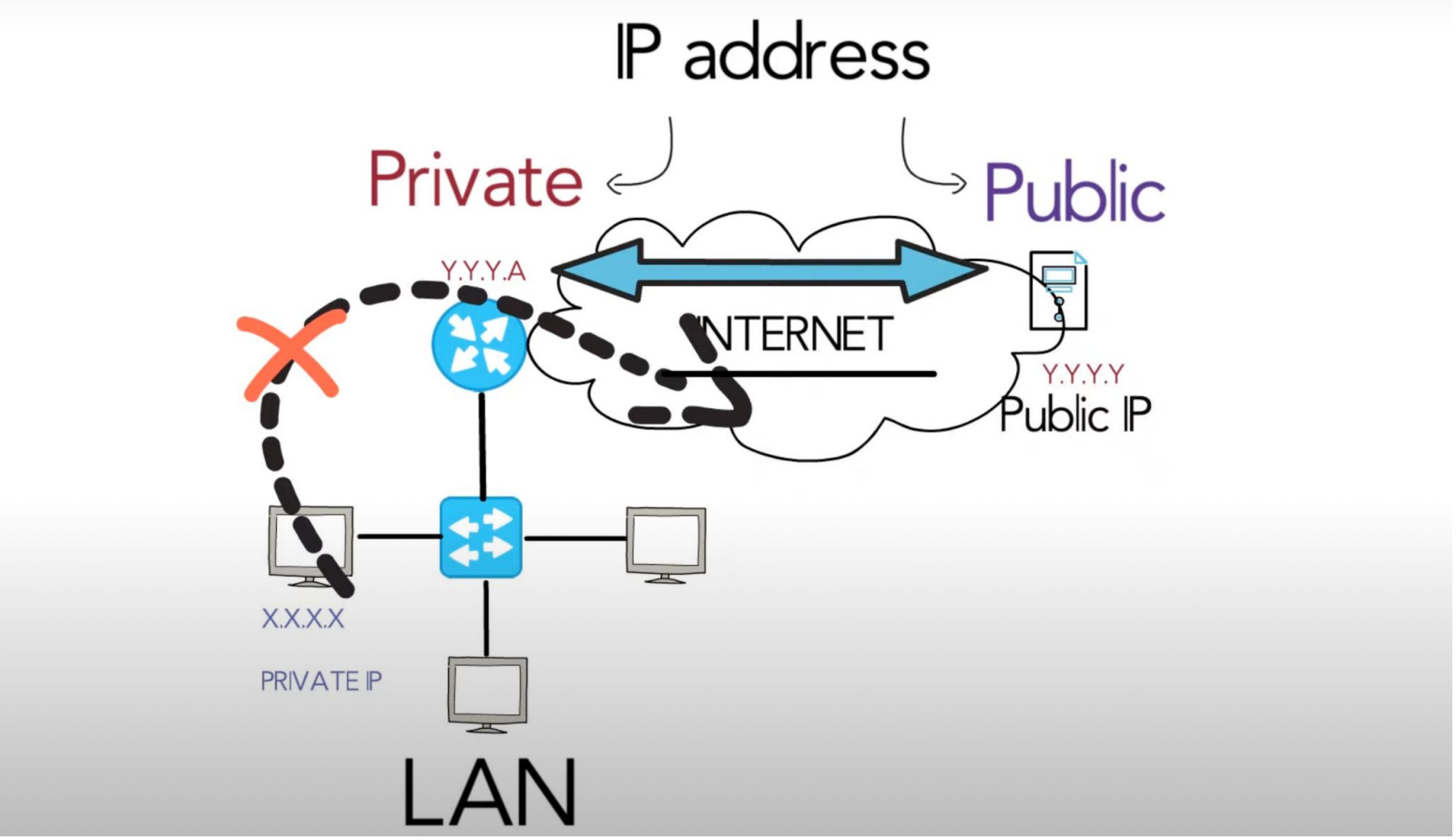
74.11.98.41

192.168.0.3

Public vs Private IP ADDRESSES

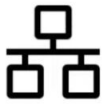
Private IP addresses are not publicly registered on the internet.




IP address
Private
Public
Y.Y.Y.A
INTERNET
Y.Y.Y.Y
Public IP
X.X.X.X
PRIVATE IP
LAN

Private

LAN



Not recognized over internet

Assigned by LAN admin

Unique only in LAN

Public

Internet

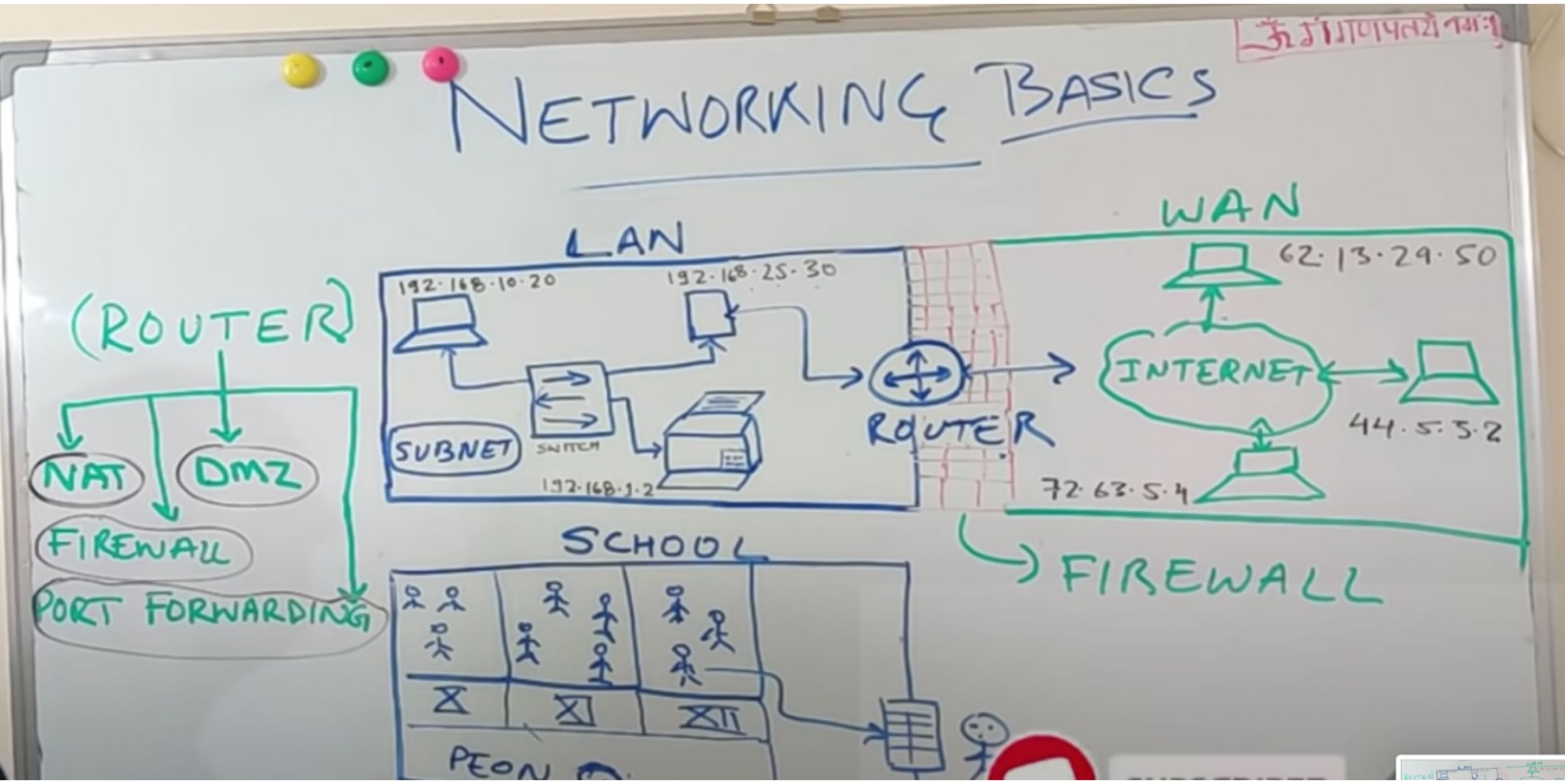
Recognized over internet

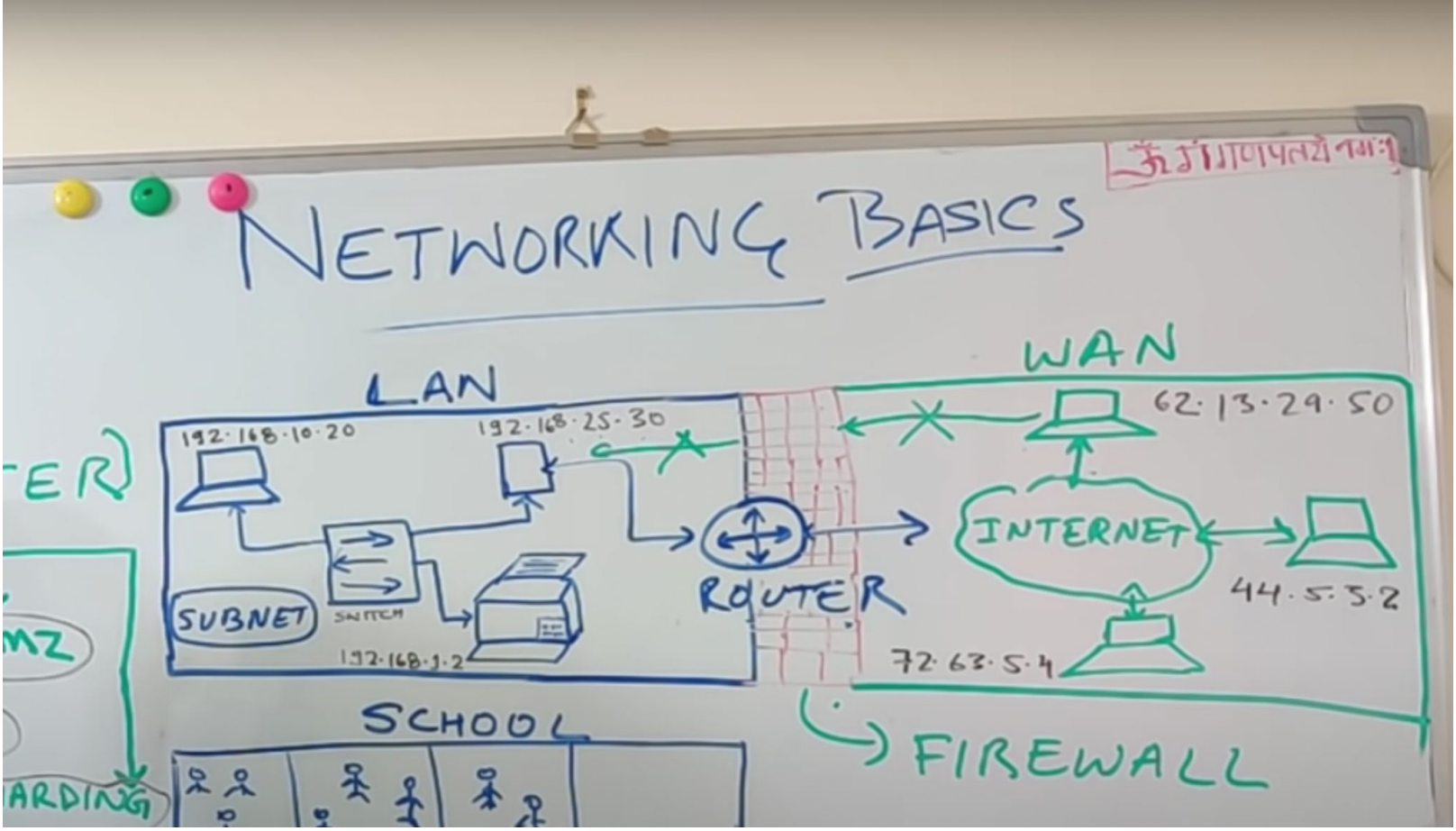
Assigned by Service provider/IANA

iana

Internet Assigned Numbers Authority

Uniqe Globally


ॐ गणपतये नमः
NETWORKING BASICS
LAN
WAN
192.168.10.20
192.168.25.30
62.13.29.50
(ROUTER)
NAT
DMZ
FIREWALL
PORT FORWARDING
SUBNET
SWITCH
192.168.1.2
ROUTER
INTERNET
44.5.5.2
72.63.5.4
FIREWALL
SCHOOL
PEON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NETWORKING BASICS
LAN
WAN
192.168.10.20
192.168.25.30
62.13.29.50
SUBNET
SWITCH
192.168.1.2
ROUTER
INTERNET
44.5.5.2
72.63.5.4
SCHOOL
FIREWALL

Firewall-its rules which will prevent unauthorized access to particular network