



TRƯỜNG ĐẠI HỌC CÔNG NGHỆ THÔNG TIN - ĐHQG-HCM
KHOA MẠNG MÁY TÍNH VÀ TRUYỀN THÔNG

Introduction to Network Infrastructures

QUẢN TRỊ MẠNG VÀ HỆ THỐNG
Networks and Systems Administration

MSc. Nguyễn Khánh Thuật

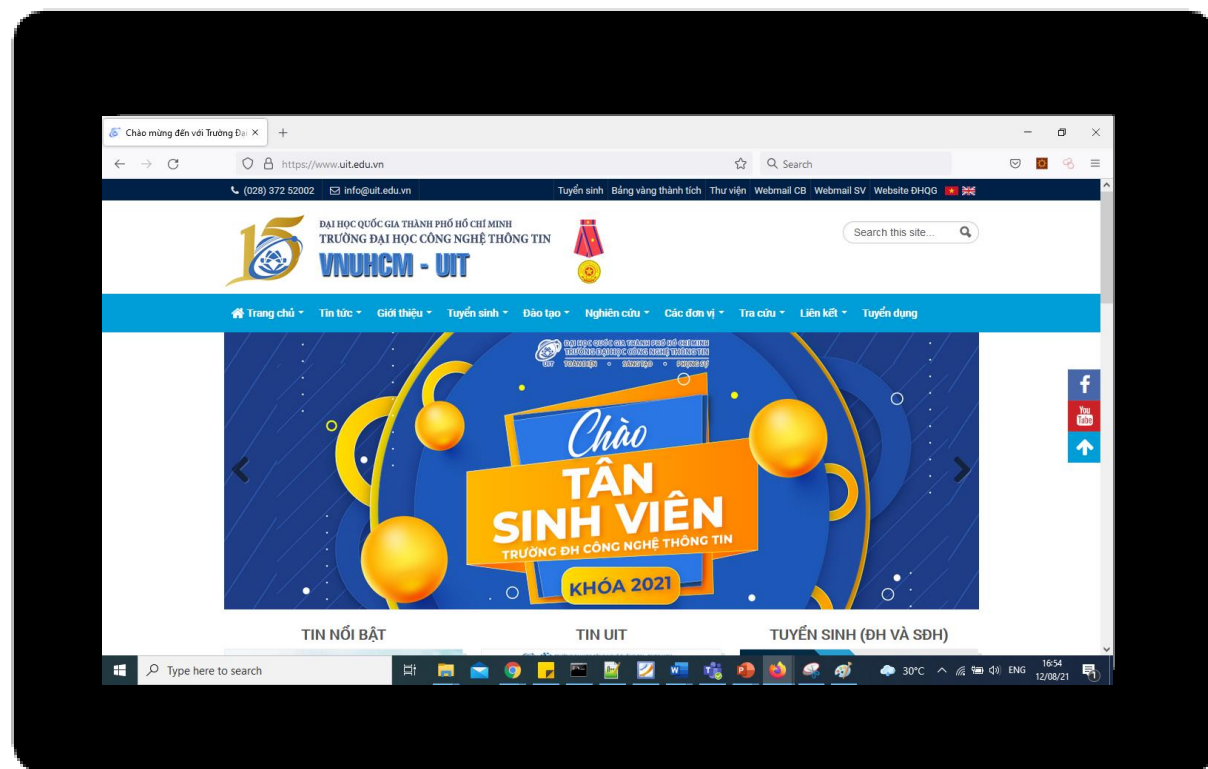


Outline

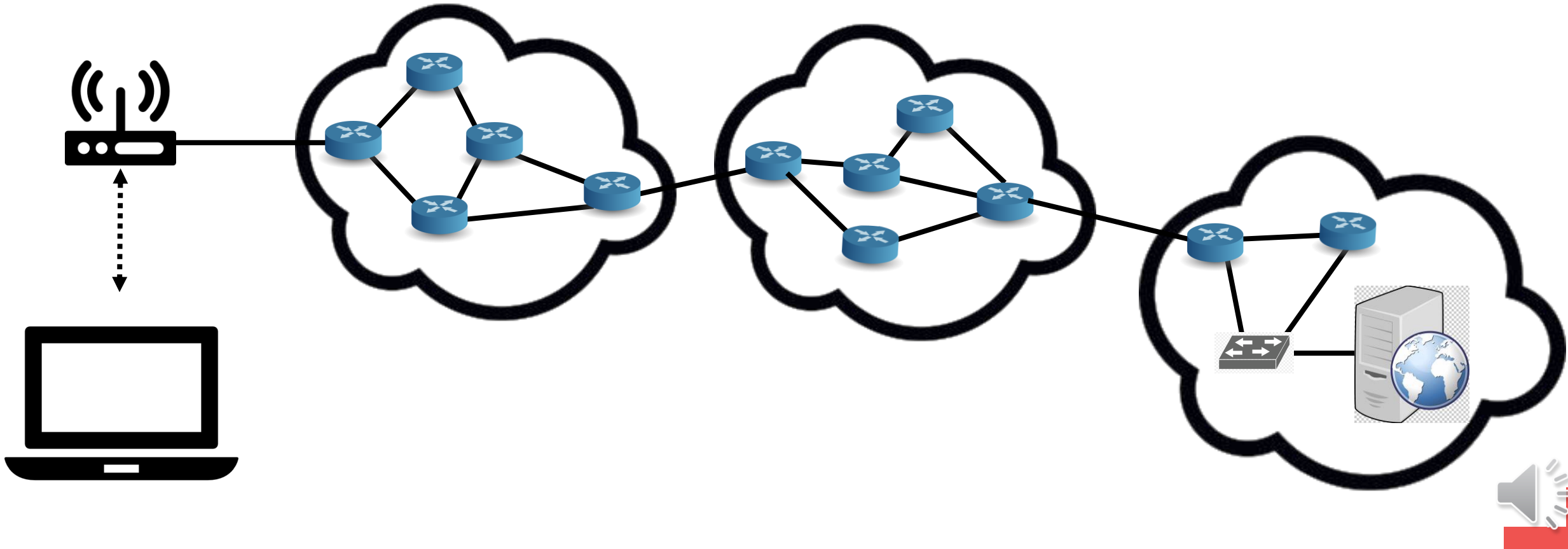
- Introduction to the Network Infrastructures
 - Network Devices
 - Network media types
 - Network Services
- Introduction to Router
- Data transmission in a LAN
- Data transmission over LANs



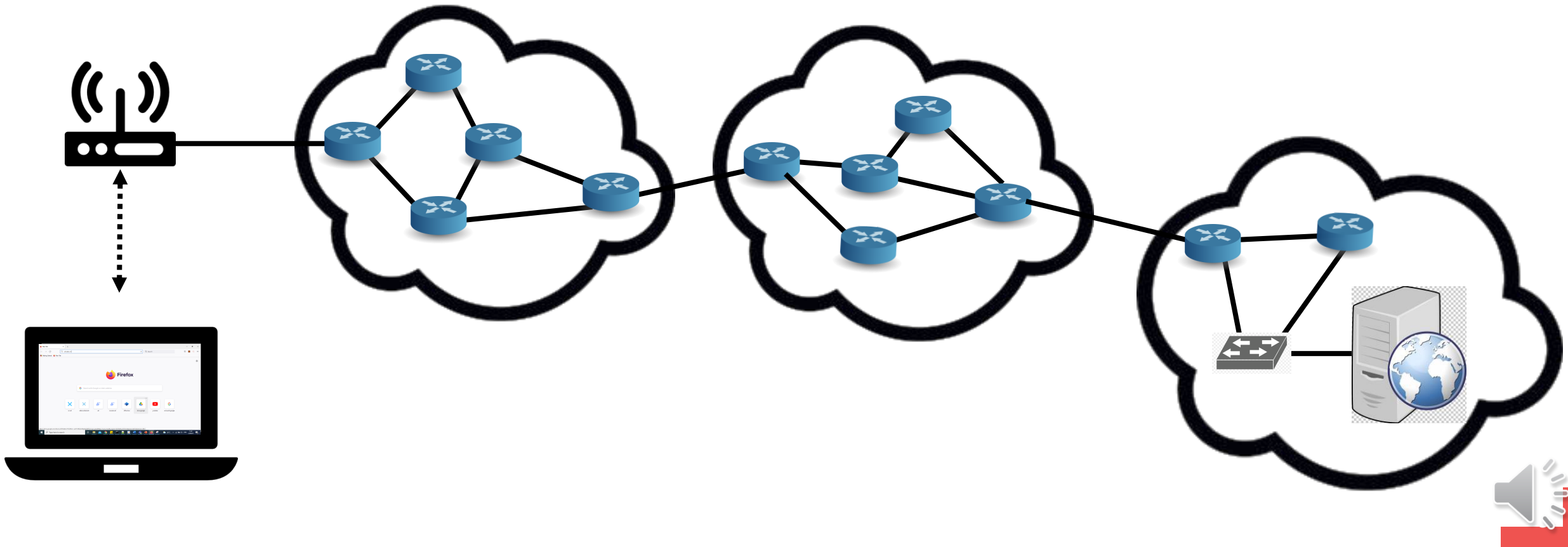
Introduction to the Network Infrastructures (1/2)



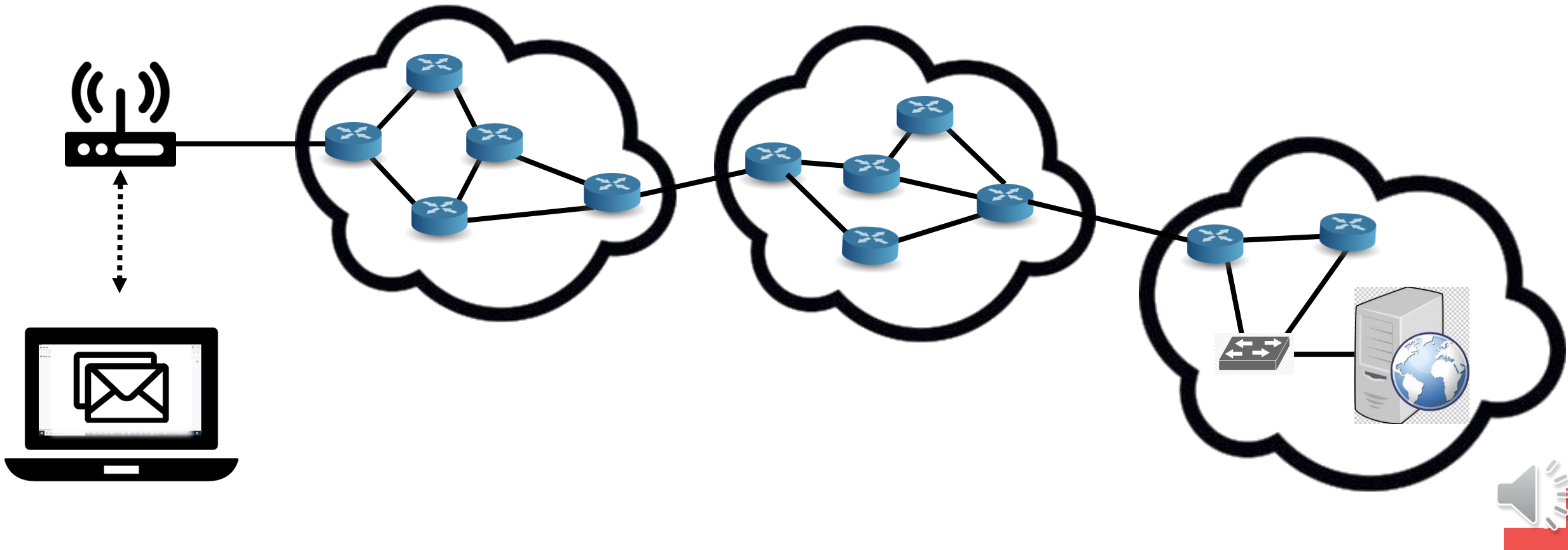
Introduction to the Network Infrastructures (2/2)



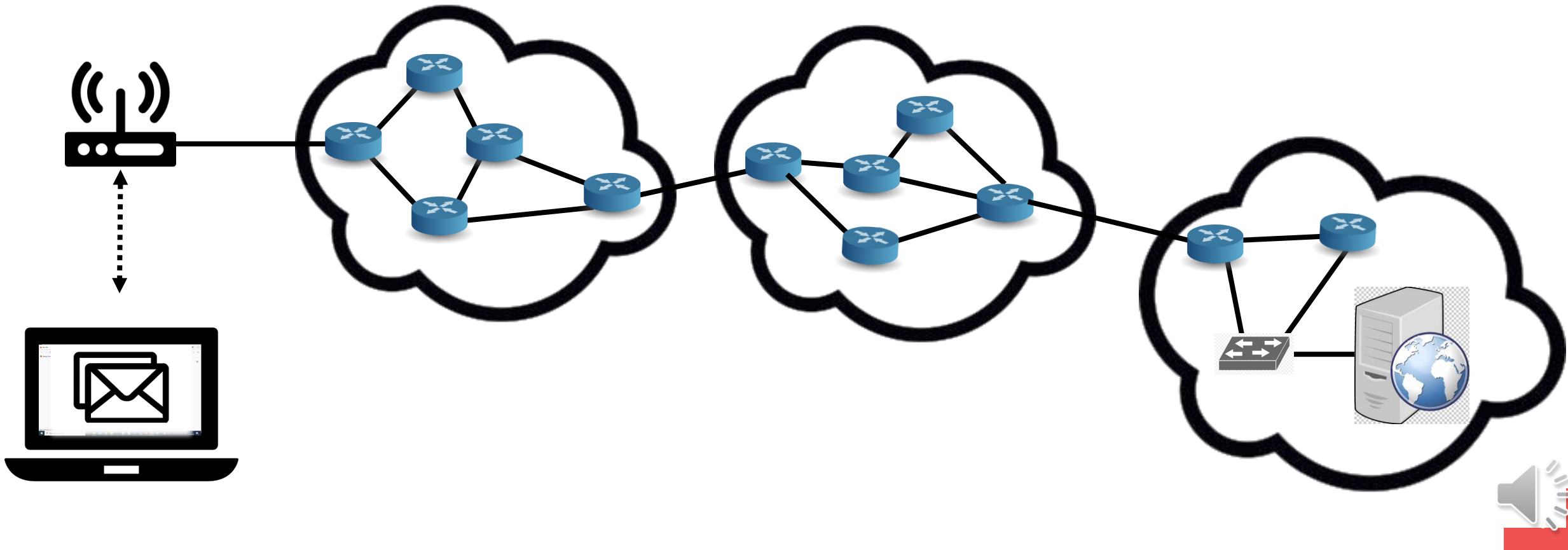
Introduction to the Network Infrastructures (2/2)



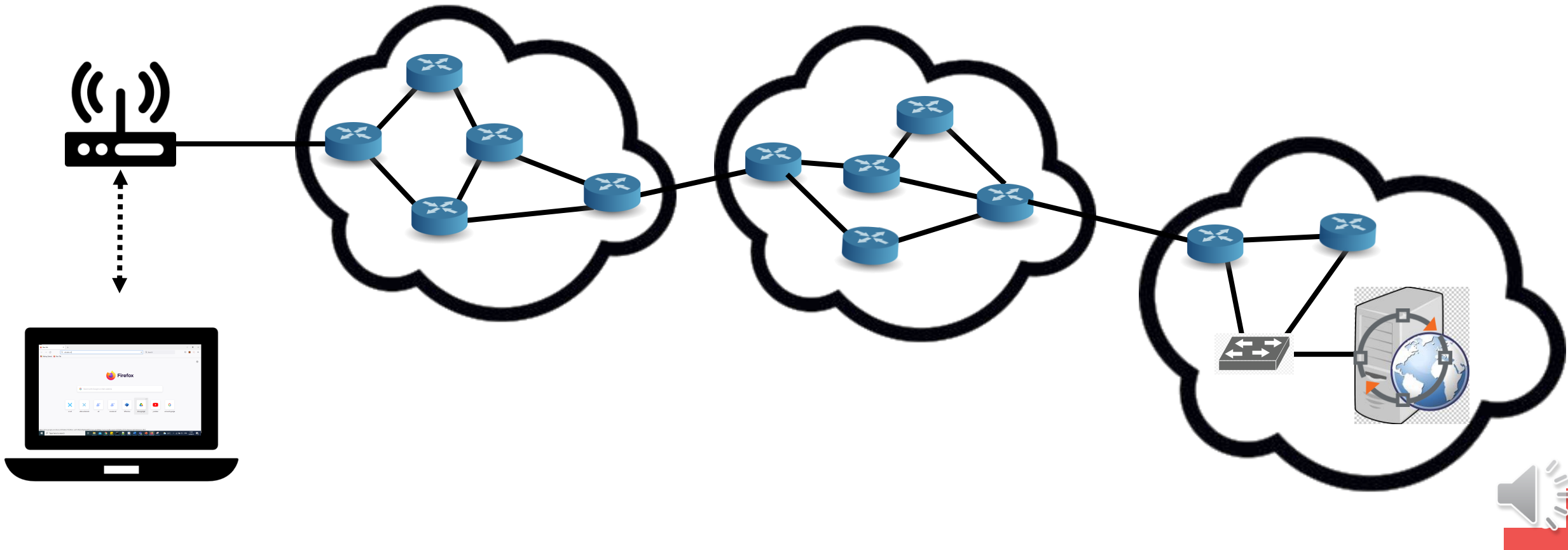
Introduction to the Network Infrastructures (2/2)



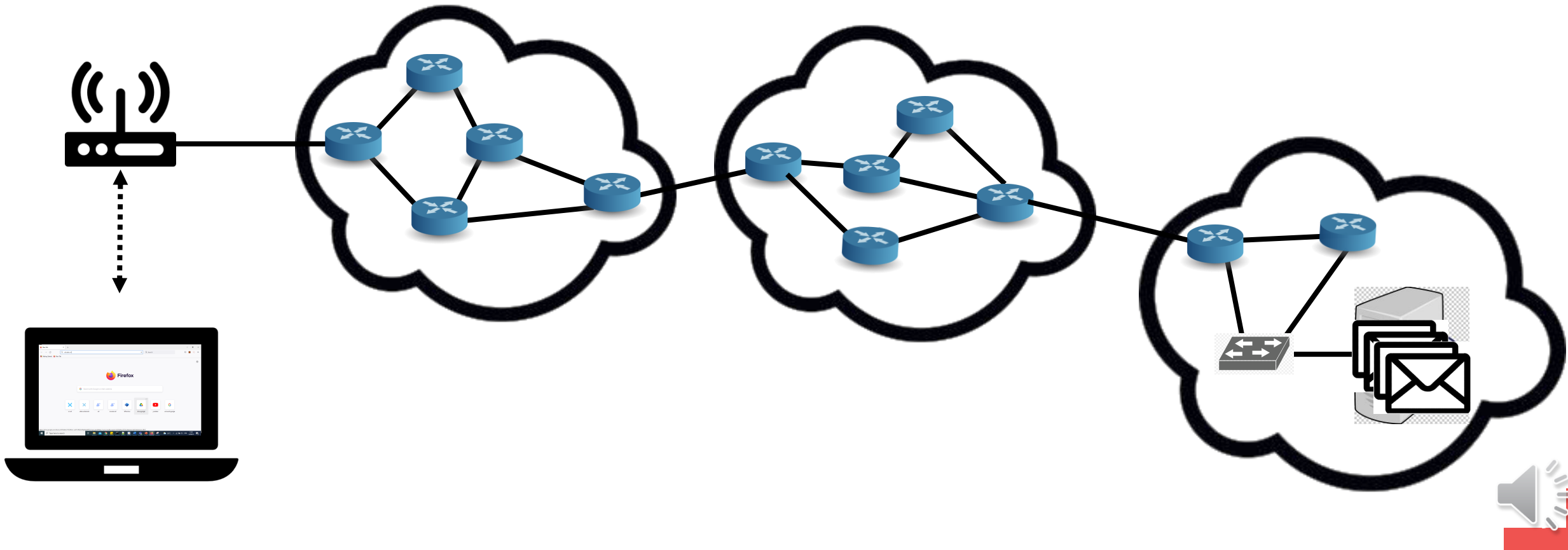
Introduction to the Network Infrastructures (2/2)



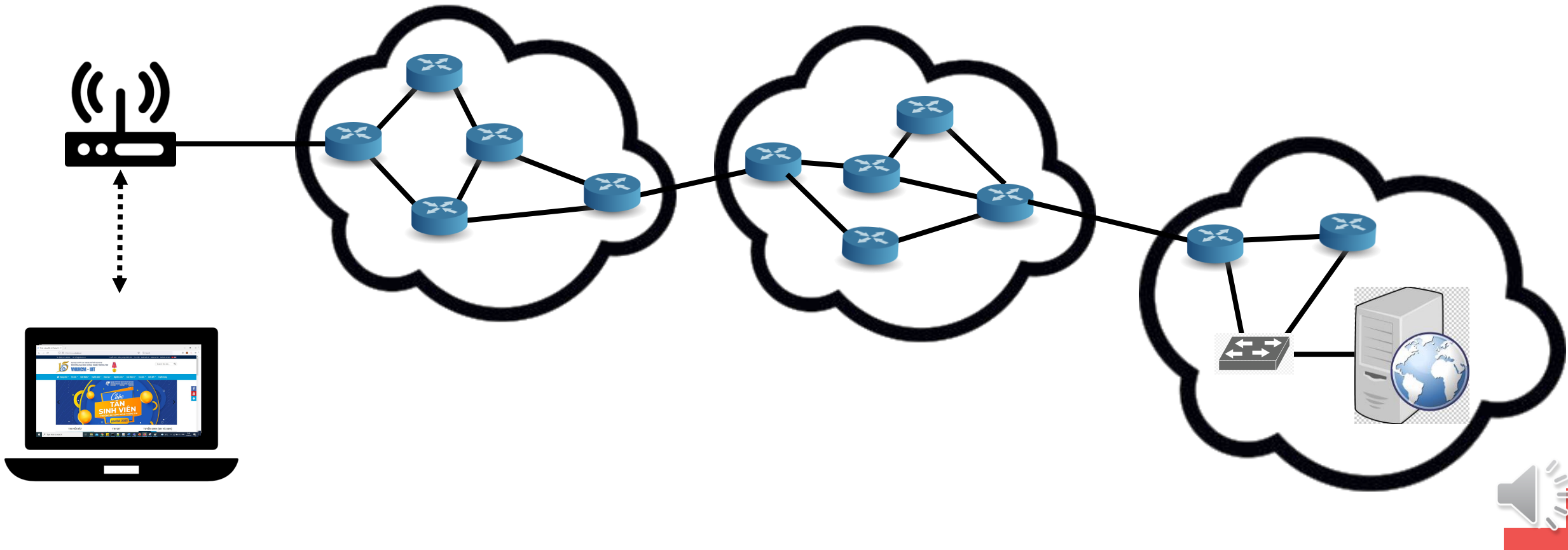
Introduction to the Network Infrastructures (2/2)



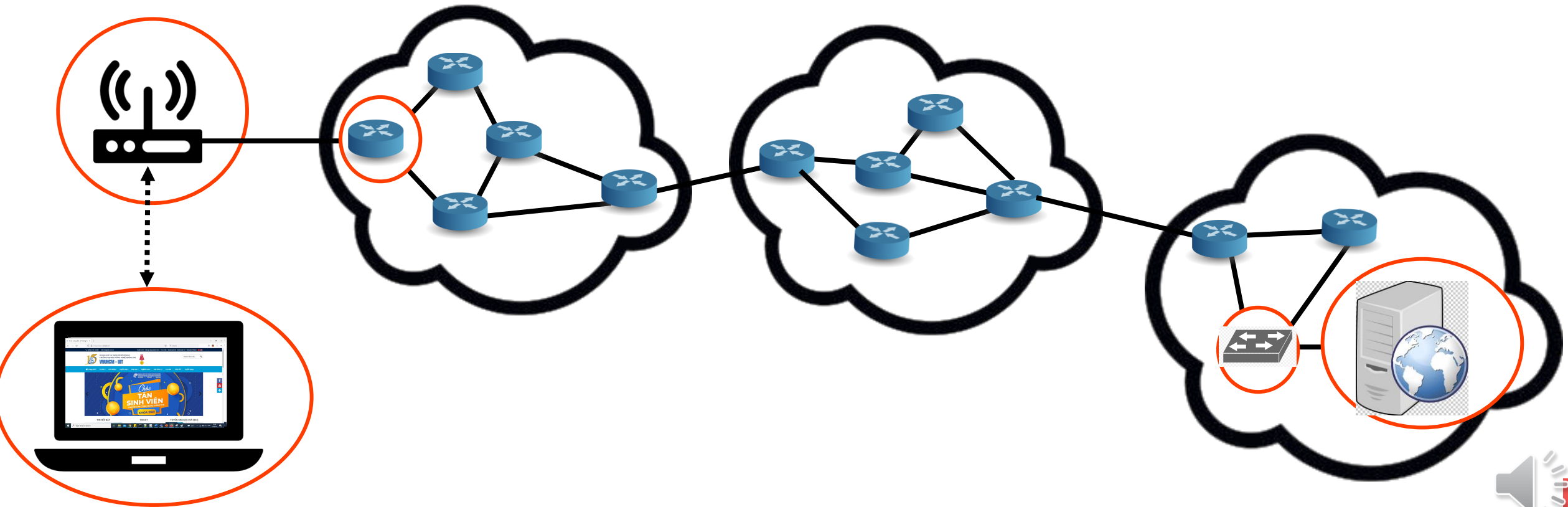
Introduction to the Network Infrastructures (2/2)



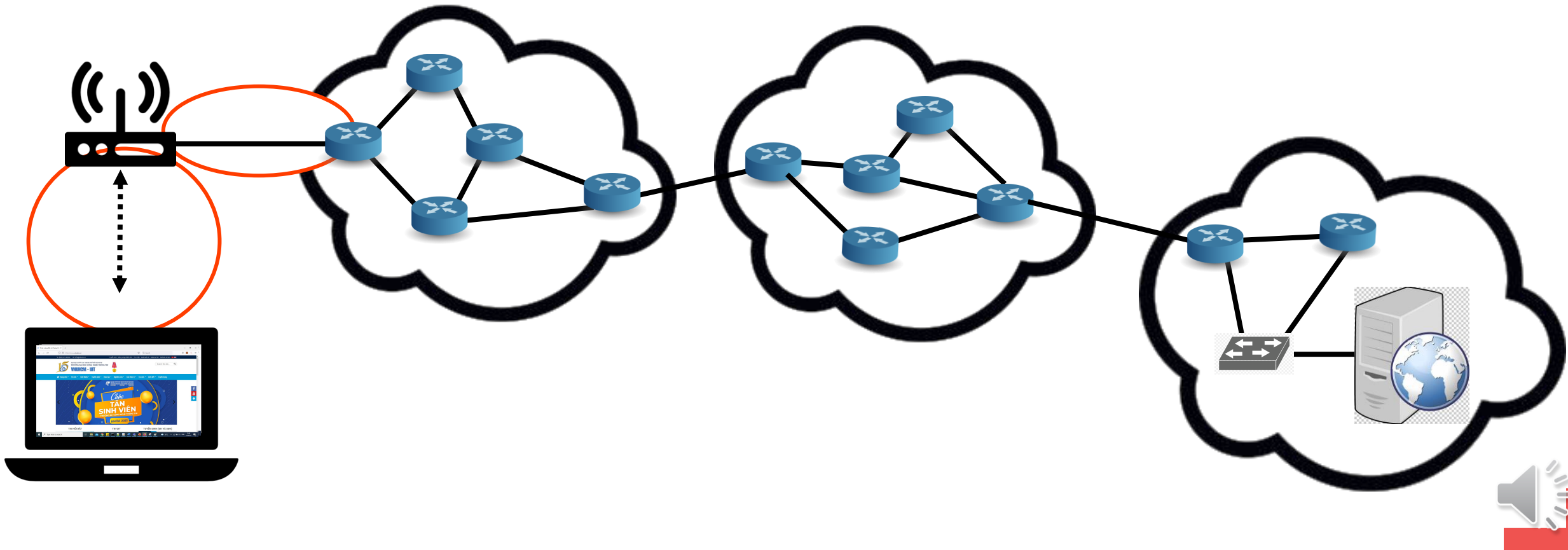
Introduction to the Network Infrastructures (2/2)



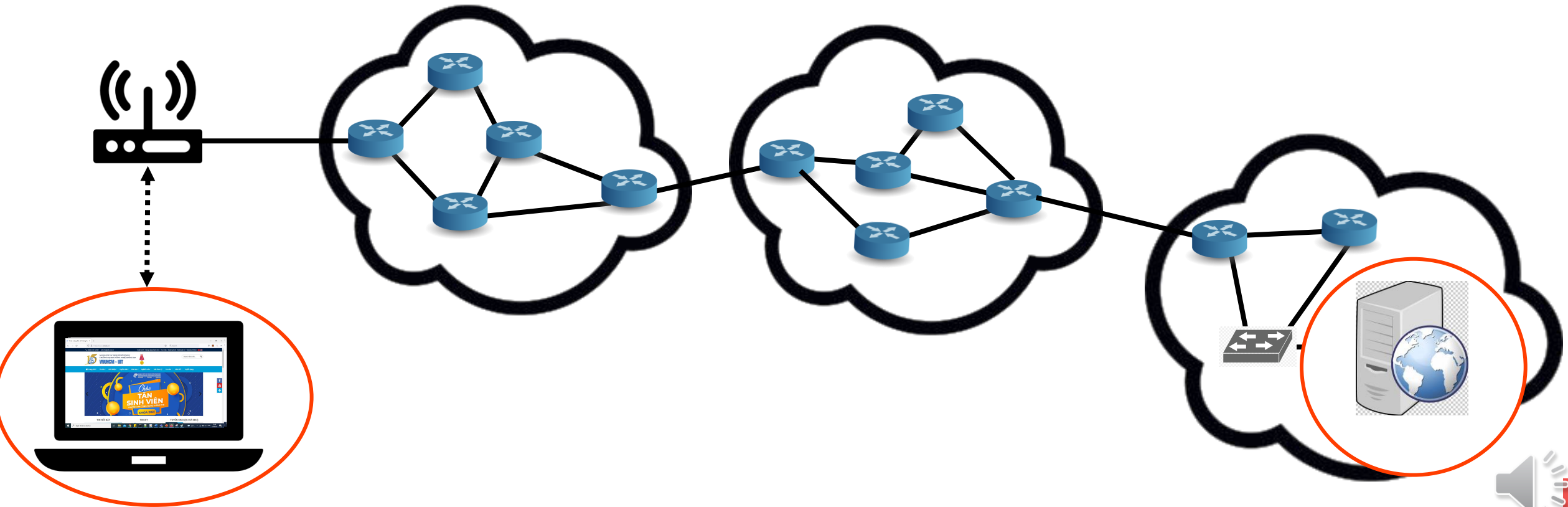
Introduction to the Network Infrastructures (2/2)



Introduction to the Network Infrastructures (2/2)



Introduction to the Network Infrastructures (2/2)



Introduction to Router (1/2)

- Router components:
 - CPU
 - RAM
 - running-config
 - Flash
 - NVRAM
 - startup-config
 - Interfaces
 - Management
 - Console, MiniUSB, AUX
 - LAN
 - GigaEthernet, FastEthernet
 - WAN
 - Serial

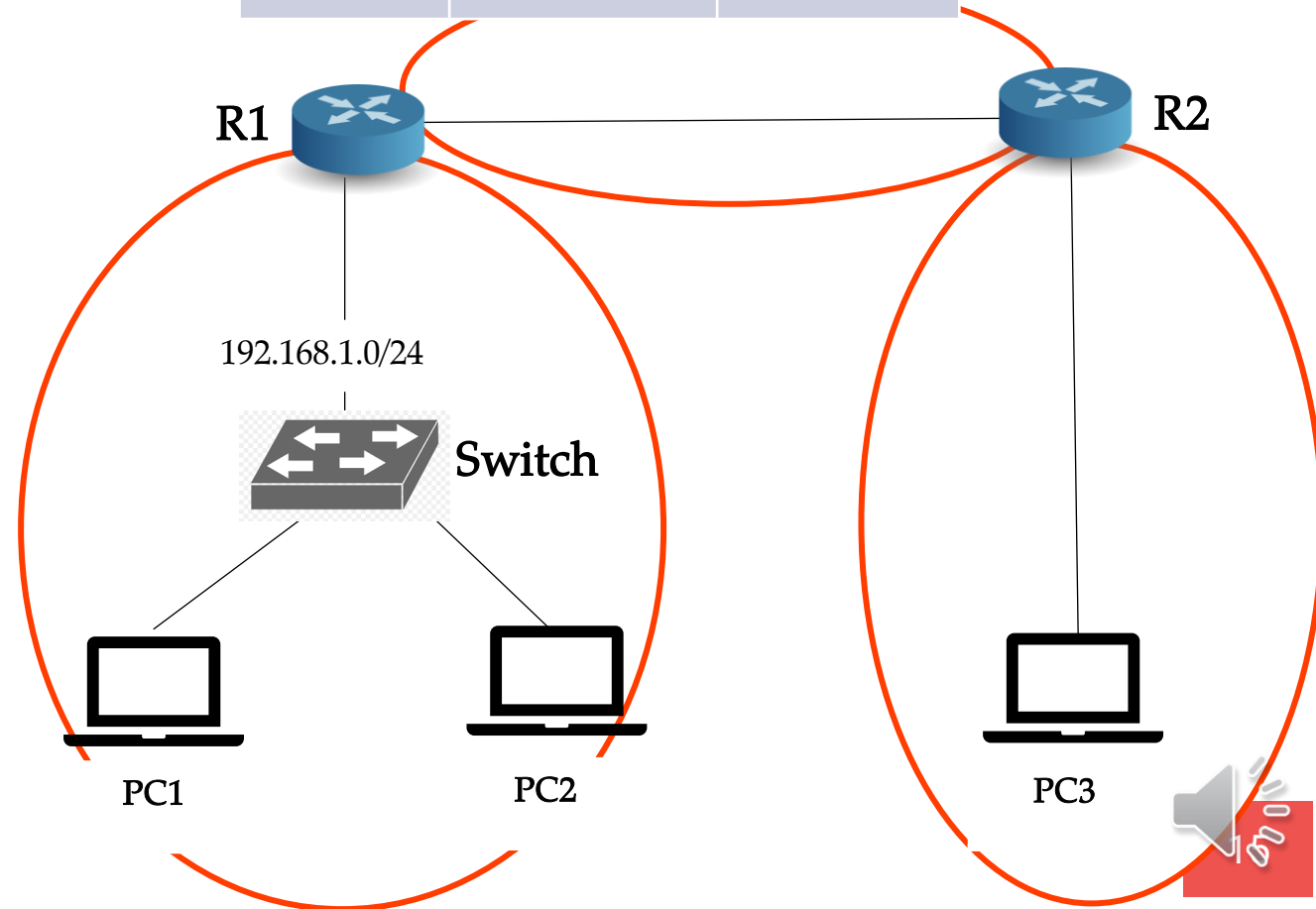


Introduction to Router (2/2)

○ The roles of Router in Network topology:

- LAN Segmentation
- Routing
- Forwarding

Network Protocol	Destination Network	Exit Interface
Connected	192.168.1.0/24	Interface 1
Connected	192.168.12.0/24	Interface 2
Learned	192.168.2.0/24	Interface 2



Data Transmission in a Local Area Network (LAN)

Interface	MAC
1	AAAA
2	BBBB

Switch



Source MAC: AAAA Destination MAC: **BBBB**



Source MAC: AAAA Destination MAC: BBBB

PC1

IP: 192.168.1.10
MAC: AAAA



PC2

IP: 192.168.1.20
MAC: BBBB

Data Transmission over LANs

Network Protocol	Destination Network	Exit Interface
Connected	192.168.1.0/24	Interface 1
Connected	192.168.12.0/24	Interface 2
Learned	192.168.2.0/24	Interface 2

Interface 2
IP: 192.168.12.1/24
MAC: 2222

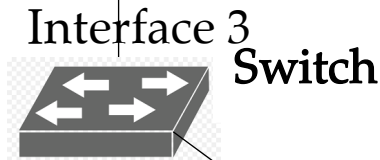
Interface 1
IP: 192.168.12.2/24
MAC: 3333

Interface	
1	AAAA
2	BBBB
3	1111

Source IP: 192.168.1.10 Destination IP: 192.168.2.10

Source MAC: 2222 Destination MAC: 3333

MAC: 1111



Source IP: 192.168.1.10 Destination IP: 192.168.2.10

Source MAC: AAAA Destination MAC: 1111

IP: 192.168.1.10/24
Gateway: 192.168.1.1
MAC: AAAA



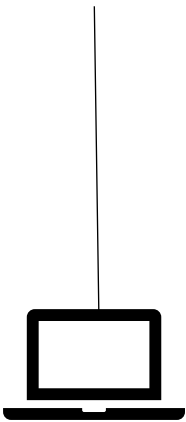
PC2
IP: 192.168.1.20/24
Gateway: 192.168.1.1
MAC: BBBB



Source IP: 192.168.1.10 Destination IP: 192.168.2.10

Source MAC: 4444 Destination MAC: CCCC

IP: 192.168.2.1/24
MAC: 4444



PC3
IP: 192.168.2.10/24
Gateway: 192.168.2.1
MAC: CCCC