



Computer Communication and Networks

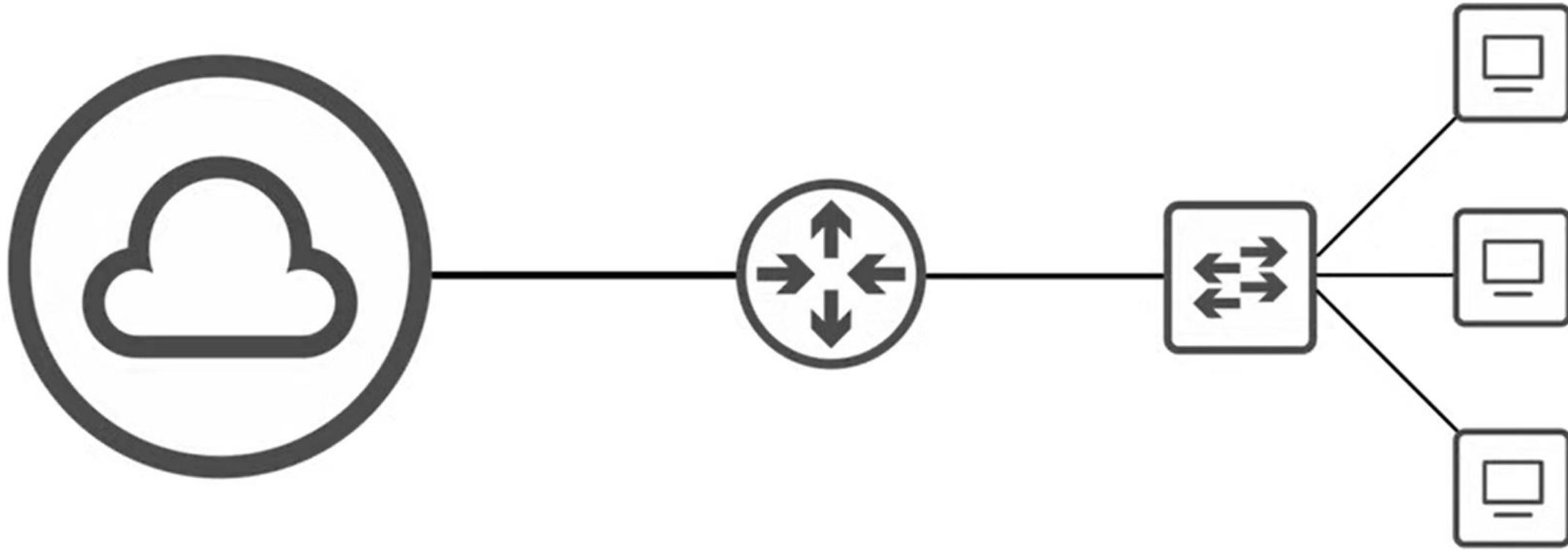
for Computer Networks Networking Devices

(LAB-1)



CCNA 200-301 Part 1

Networking Devices



What is a network?

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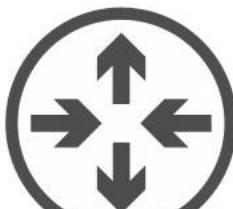
Computer network

From Wikipedia, the free encyclopedia

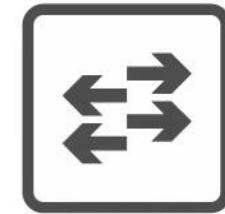
"Datacom" redirects here. For other uses, see [Datacom \(disambiguation\)](#).

A **computer network** is a [digital telecommunications network](#) which allows nodes to share resources. In computer networks, computing devices exchange data with each other using connections (data links) between nodes. These data links are established over cable media such as wires or optic cables, or wireless media such as Wi-Fi.

"A computer network is a digital telecommunications network which allows nodes to share resources."



router



switch



firewall



server



client

end hosts
endpoints

Clients



Clients



A client is a device that accesses a service made available by a server.



So... what's a server?

A large, hand-drawn style thought bubble with irregular edges, containing the question "So... what's a server?" in a bold, sans-serif font.

Servers



Servers



A client is ...

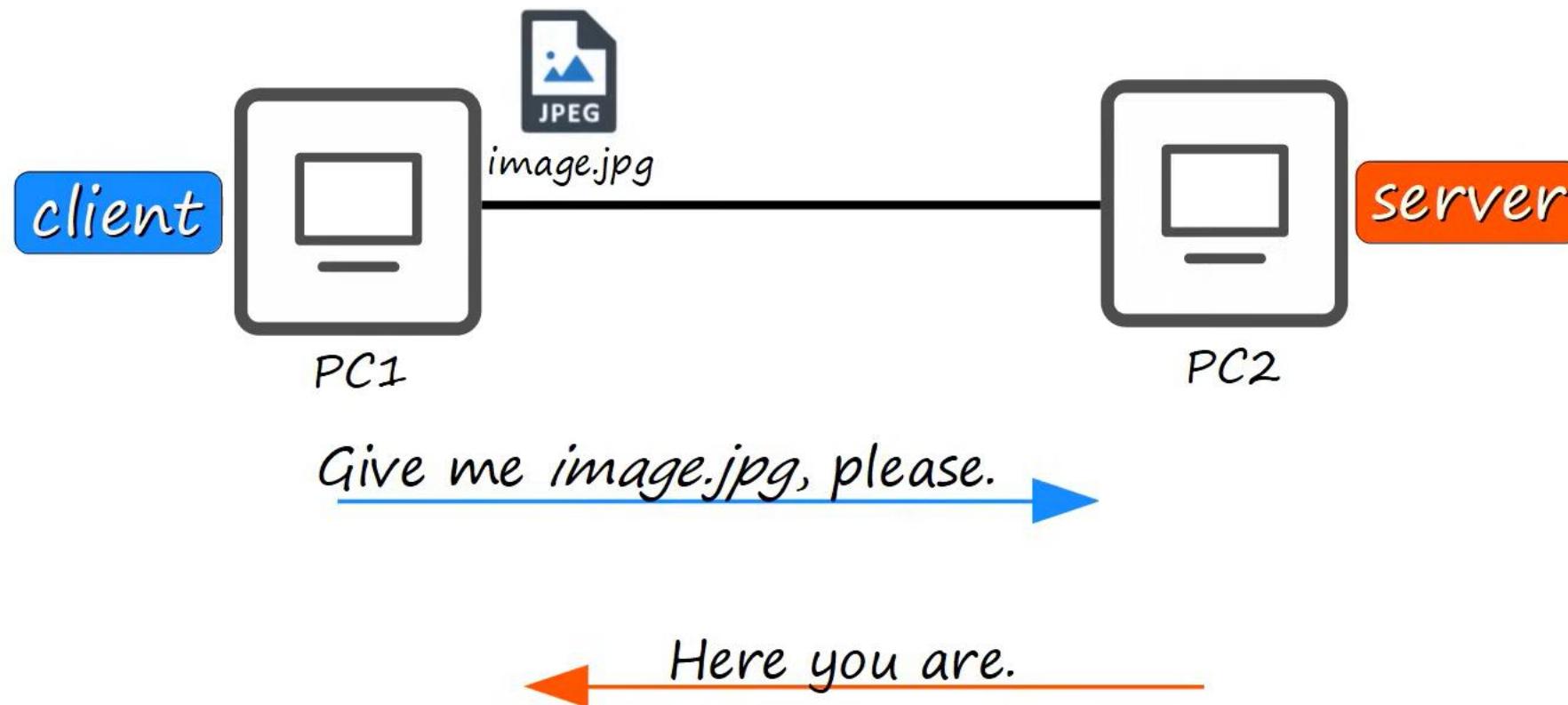
a device that accesses a service made available by a server.



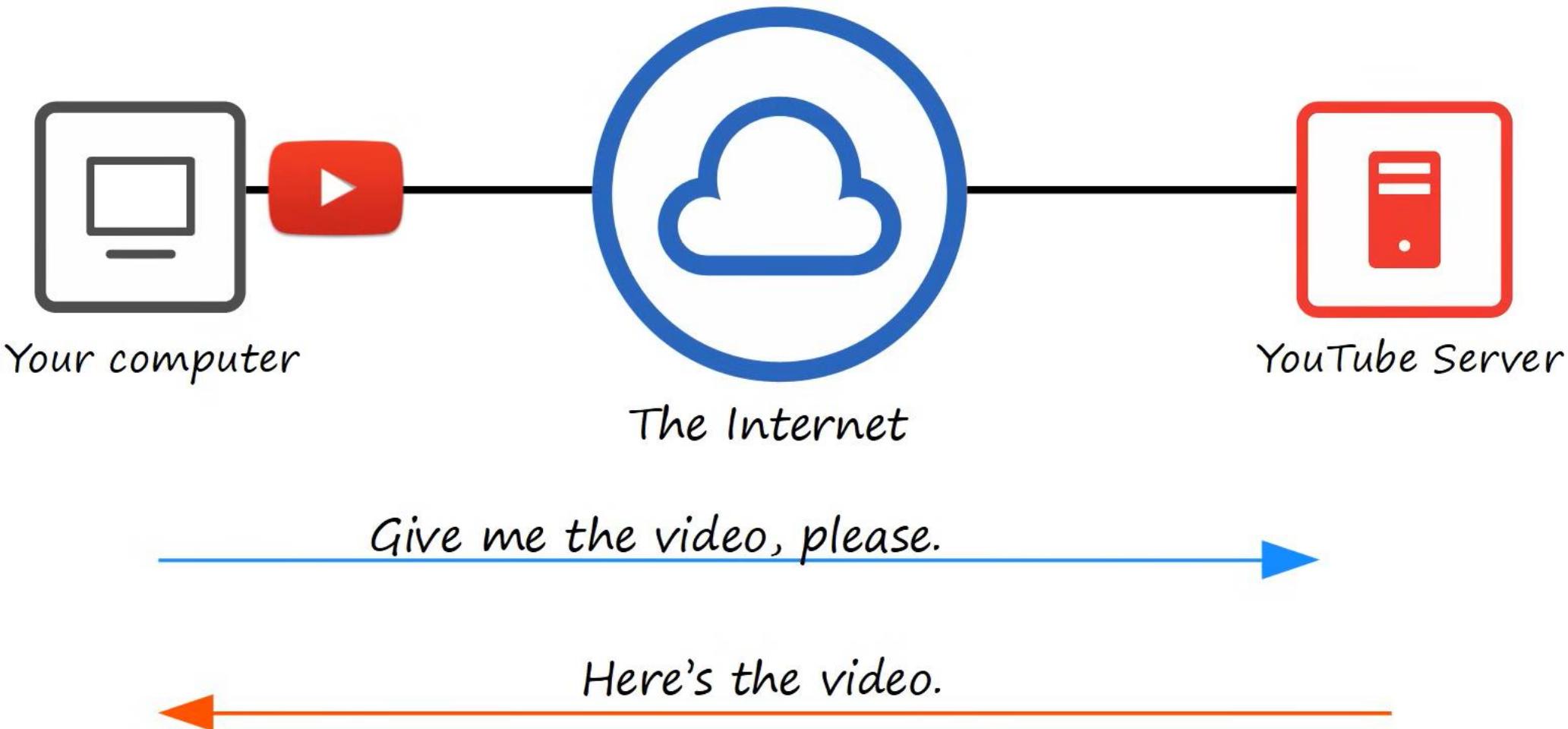
A server is ...

a device that provides functions or services for clients.

Servers and Clients



Servers and Clients



Servers and Clients



Give me the video, please.

Here's the video.

Servers and Clients

A client is ...

a device that accesses a service made available by a server.

A server is ...

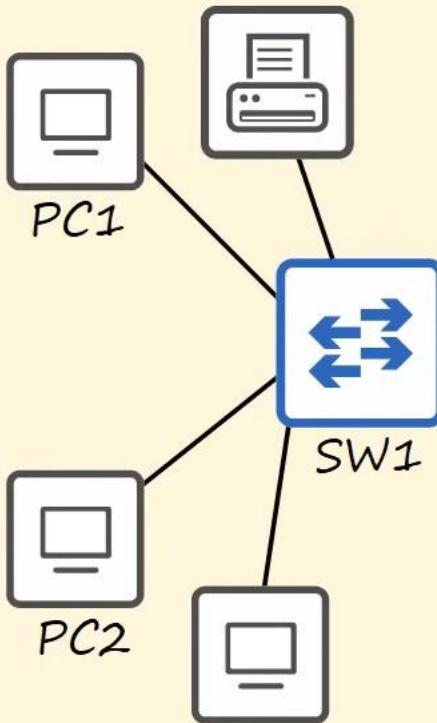
a device that provides functions or services for clients.

The same device can be a client in some situations, and a server in other situations.

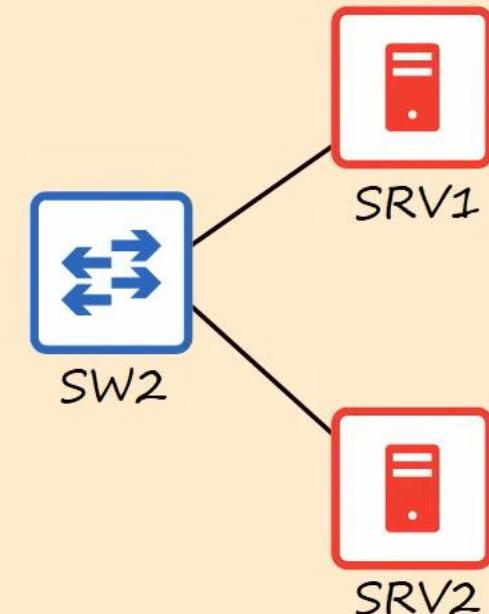


Switches

New York Branch



Tokyo Branch

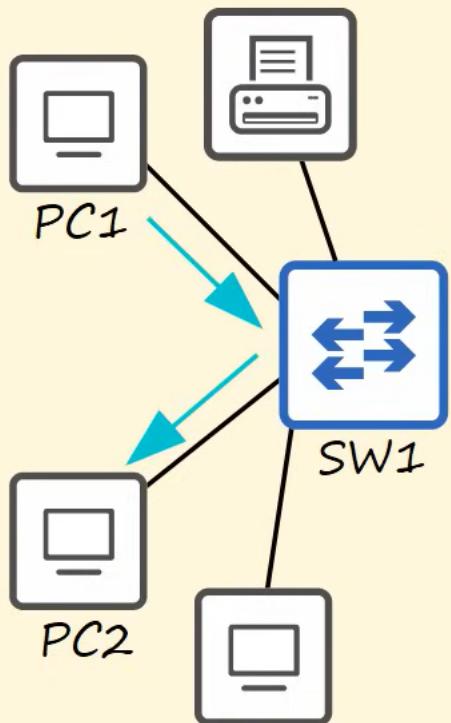


LAN (Local Area Network)

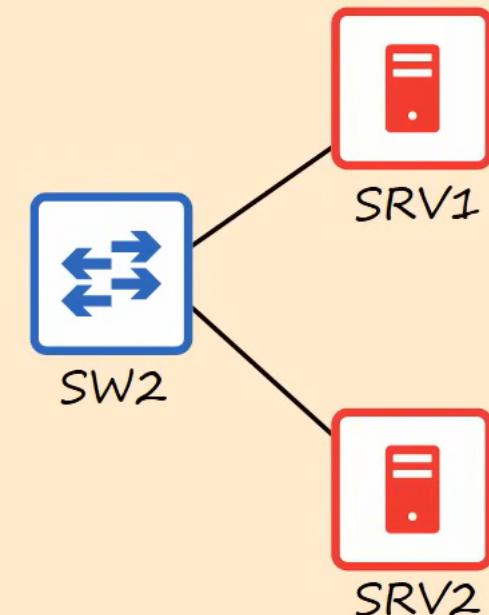


Switches

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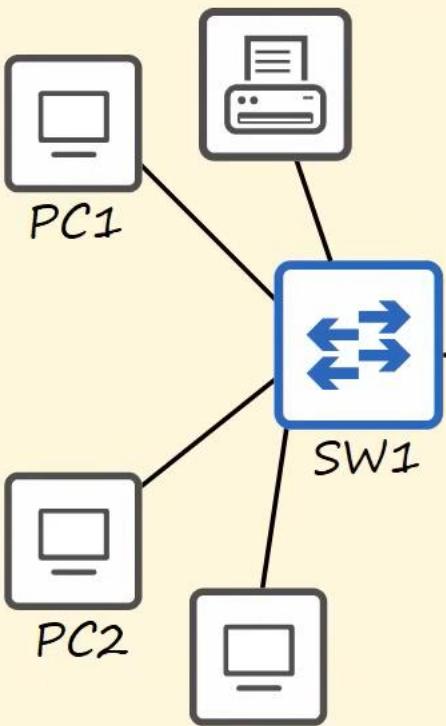


Tokyo Branch

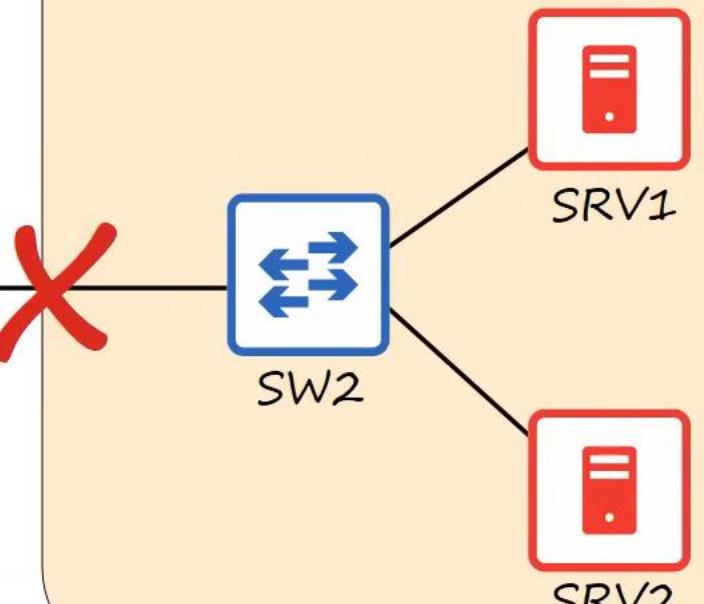


Switches

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The Internet

Switches



Catalyst 9200



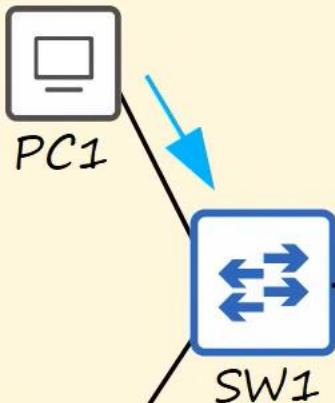
Catalyst 3650

Switches...

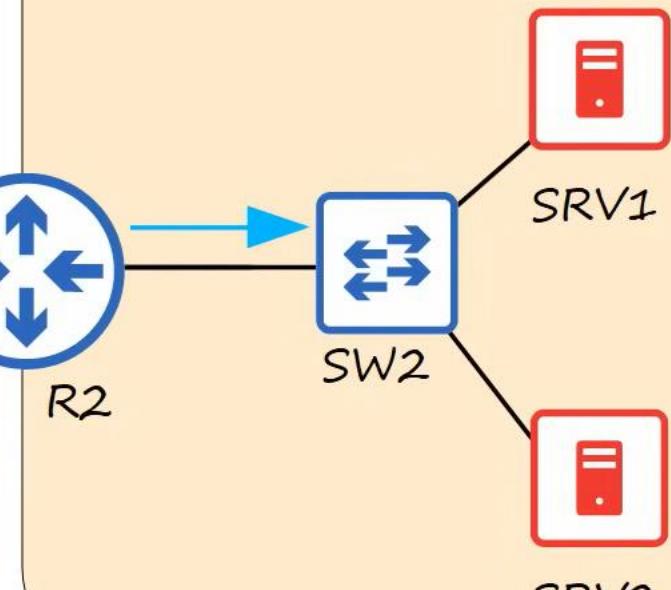
- have many network interfaces/ports for end hosts to connect to (usually 24+).
- provide connectivity to hosts within the same LAN (Local Area Network).
- do not provide connectivity between LANs/over the Internet.

Routers

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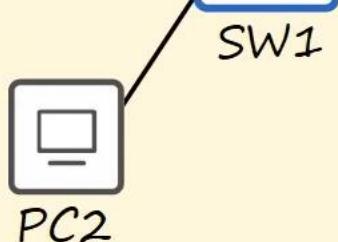
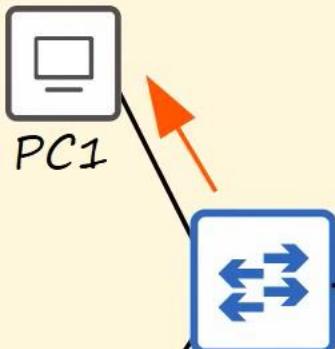


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Routers

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Routers



ISR 1000



ISR 900

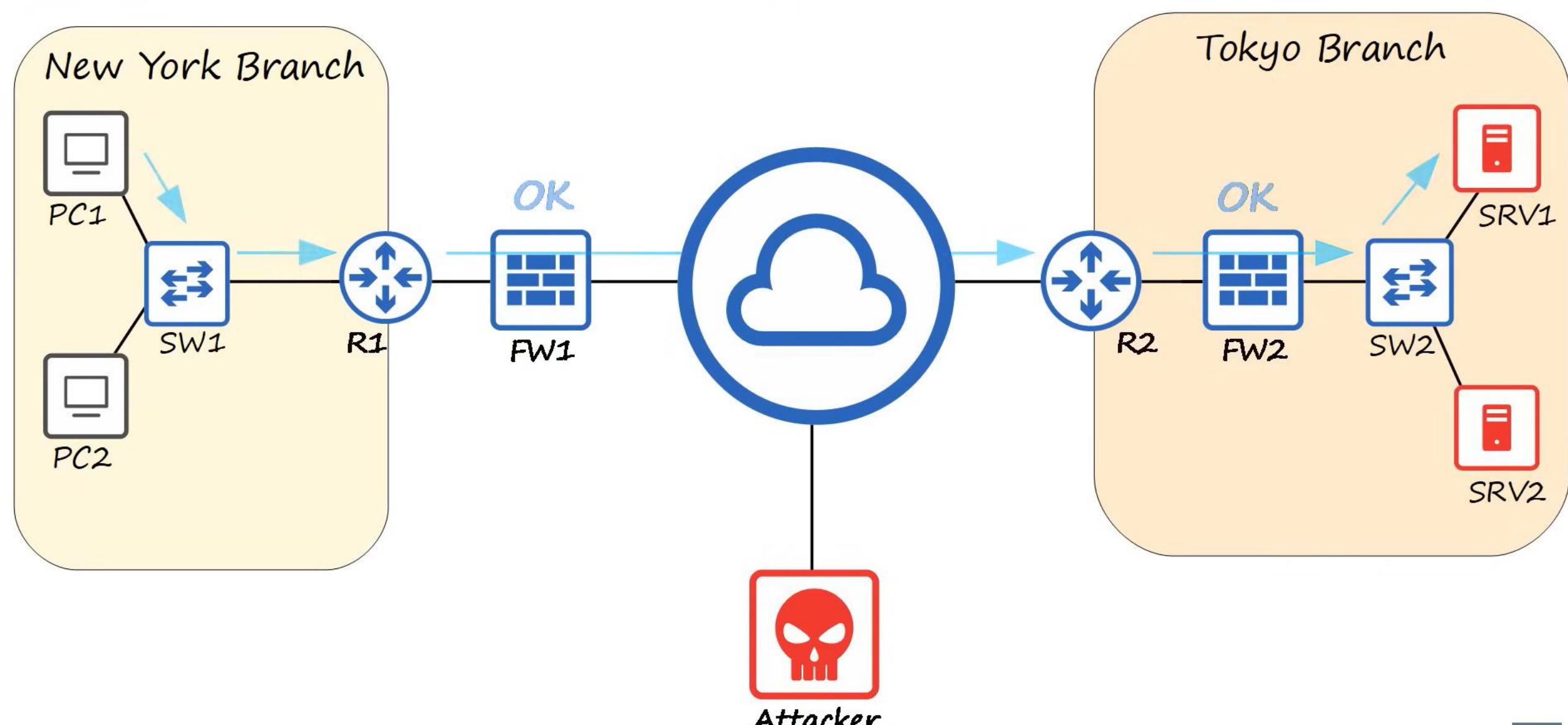


ISR 4000

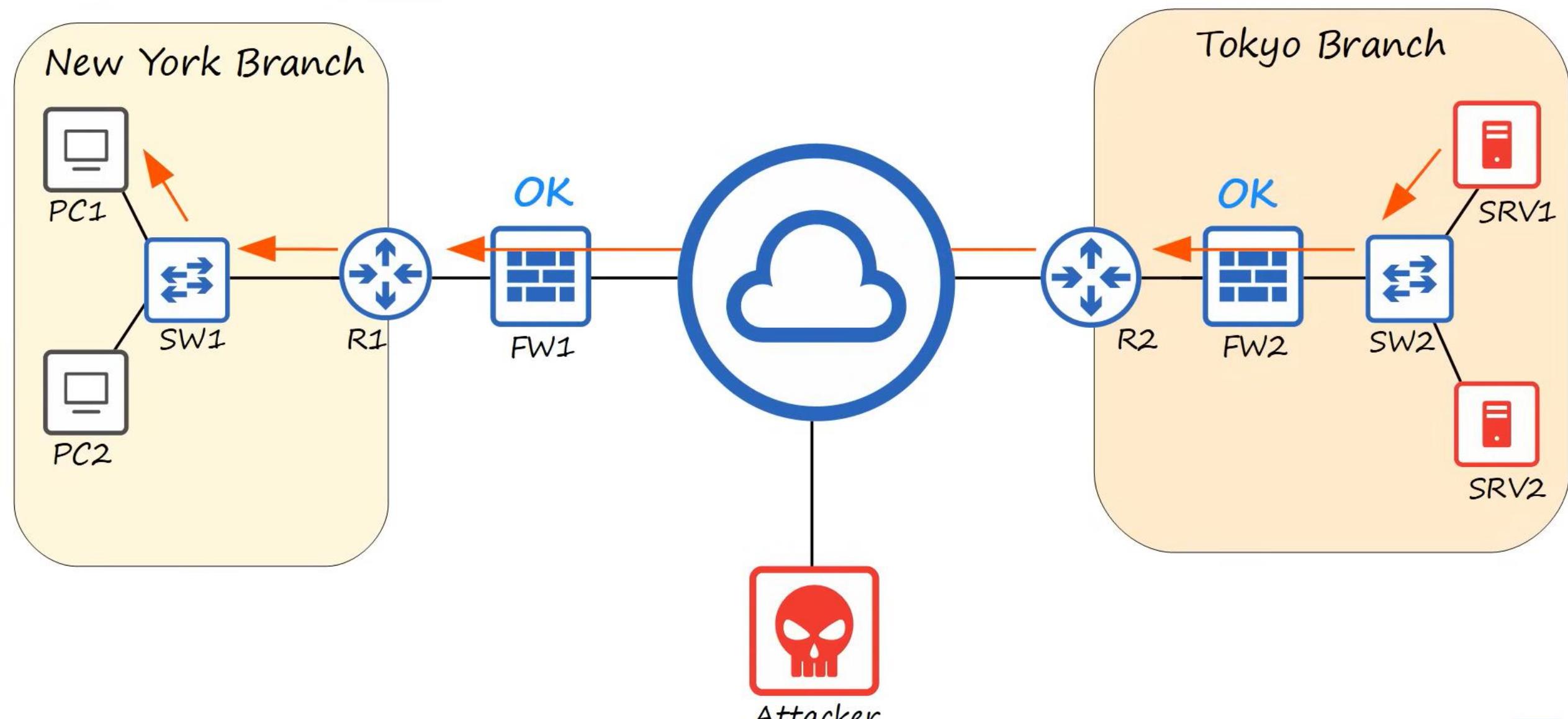
Routers..

- have fewer network interfaces than switches.
- are used to provide connectivity between LANs.
- are therefore used to send data over the Internet.

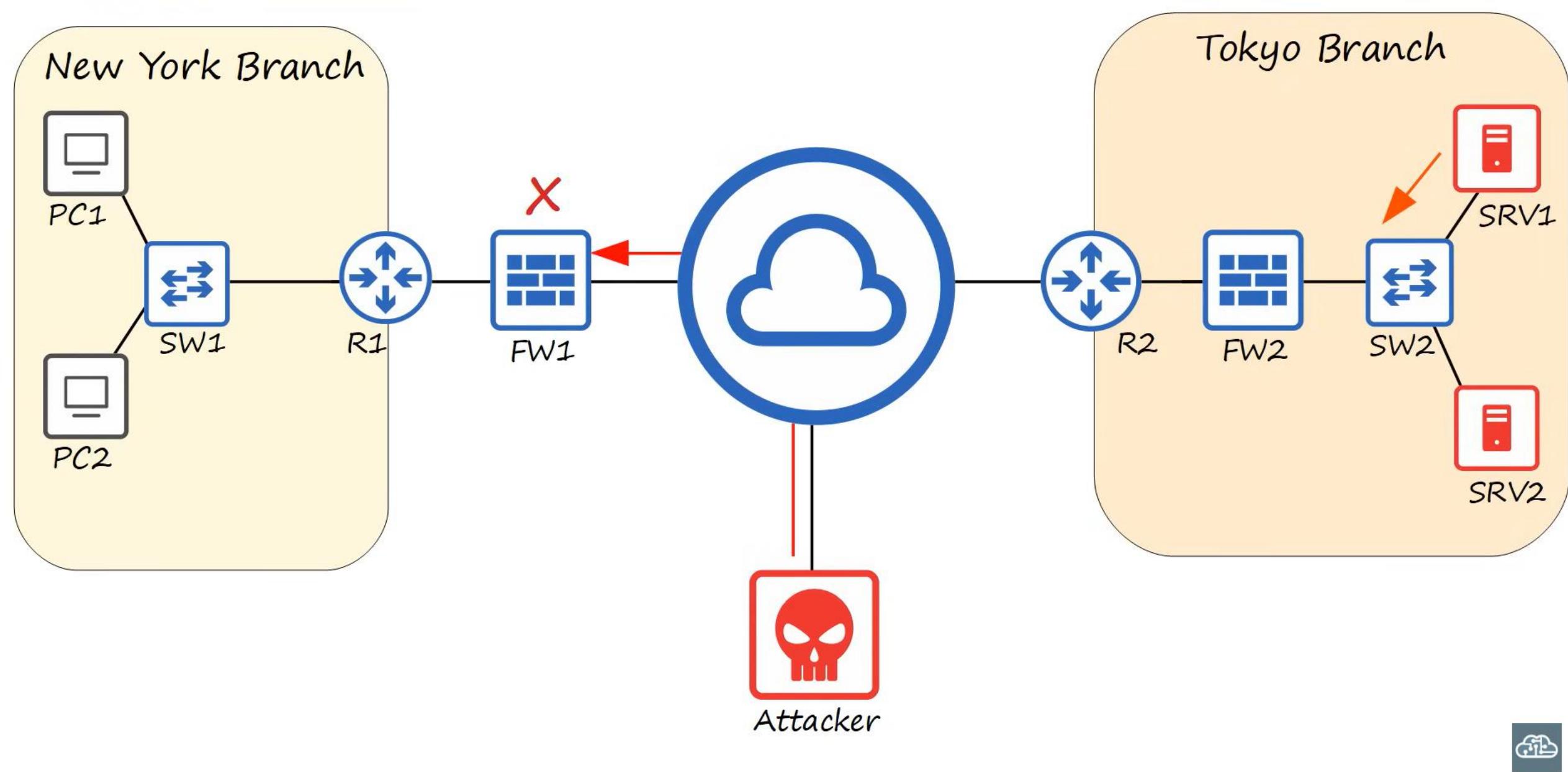
Firewalls



Firewalls



Firewalls



Firewalls



ASA5500-X



Firepower 2100

Firewalls...

- monitor and control network traffic based on configured rules.
- can be placed 'inside' the network, or 'outside the network'.
- are known as 'Next-Generation Firewalls' when they include more modern and advanced filtering capabilities.

...What about the firewall on your computer?



Firewalls

Network firewalls...

are hardware devices that filter traffic between networks.

Host-based firewalls...

are software applications that filter traffic entering and exiting a host machine, like a PC.



Quiz Question 1

Your company wants to purchase some network hardware to which they can plug the 30 PCs in your department. Which type of network device is appropriate?

- a) A router
- b) A firewall
- c) A switch
- d) A server



Quiz Question 2

You received a video file from your friend's Apple iPhone using AirDrop. What was his iPhone functioning as in that transaction?

- a) A server
- b) A client
- c) A local area network



Quiz Question 3

What is your computer or smartphone functioning as while you watch this video?

- a) A server
- b) An end host
- c) A client



Quiz Question 4

Your company wants to purchase some network hardware to connect its separate networks together. What kind of network device is appropriate?

- a) A firewall
- b) A host
- c) A LAN
- d) A router



Quiz Question 5

Your company wants to upgrade its old network firewall that has been in use for several years to one that provides more advanced functions. What kind of firewall should they purchase?

- a) A host-based firewall
- b) A next-level firewall
- c) A next-generation firewall
- d) A top-layer firewall

