

Ethernet Switching



Forwarding Table

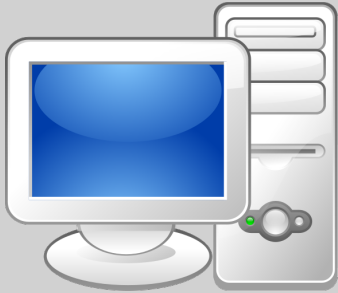
- NIC setiap komputer dalam jaringan memiliki alamat MAC (bersifat tetap, melekat ke NIC) dan alamat IP (yang dapat diubah oleh pengguna berdasarkan alamat subnet LAN tempat komputer terhubung)
- Setiap *host* dan perangkat jaringan lain memiliki *forwarding table* masing-masing yang berisi pemetaan alamat MAC terhadap *port*. Port adalah antarmuka tempat komputer terhubung.
- Contoh, jika *forwarding table* komputer A berisi informasi alamat MAC 12:34:56:78:90:12 dipetakan ke *port 1*, artinya jika A mengirimkan *frame* ke alamat MAC tersebut, *frame* akan dikirimkan melalui *port 1*.

Switching

- Asumsi, komputer A hendak mengirim data ke komputer B
- Jika A (pengirim) telah mengetahui alamat MAC dan alamat IP dari B (tujuan), A akan mengirimkan *frame* melalui *port* atau antarmukanya ke *switch* dan kemudian *switch* akan meneruskan *frame* tersebut ke *port* tempat komputer tujuan terhubung berdasarkan *forwarding table* yang terdapat di dalam *switch*.
- Proses ini disebut dengan *switching*

Ethernet Switching

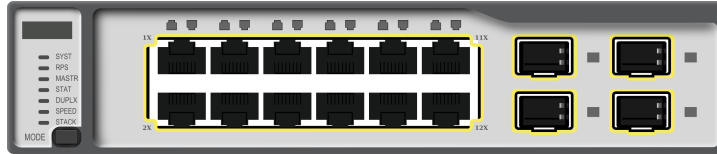
Host A
MAC Address: 54:20:bb:01:89:ef



A's Forwarding Table

Port	MAC Address

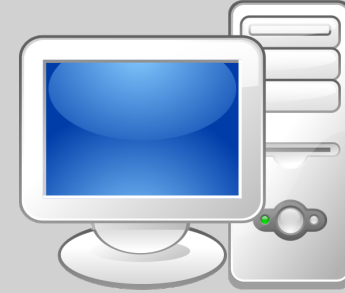
Switch
MAC Address: - (promiscuous mode)



Switch's Forwarding Table

Port	MAC Address

Host B
MAC Address: 00:72:99:ff:32:00

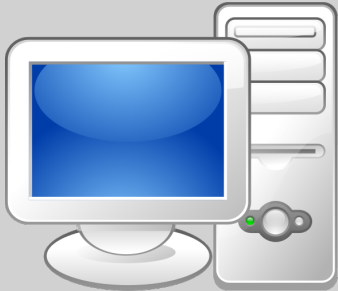


B's Forwarding Table

Port	MAC Address

Ethernet Switching

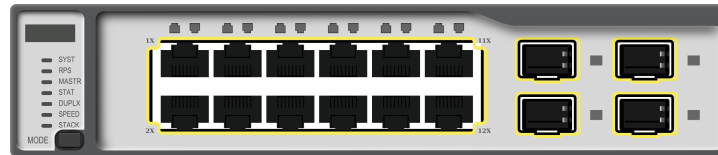
Host A
MAC Address: 54:20:bb:01:89:ef



A's Forwarding Table

Port	MAC Address
1	00:72:99:ff:32:00

Switch
MAC Address: - (promiscuous mode)



Switch's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef
6	00:72:99:ff:32:00

Host B
MAC Address: 00:72:99:ff:32:00

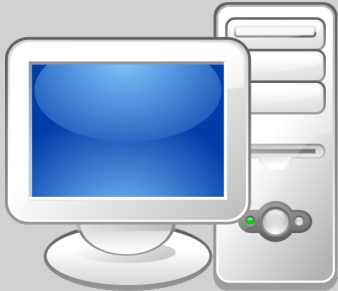


B's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

Ethernet Switching

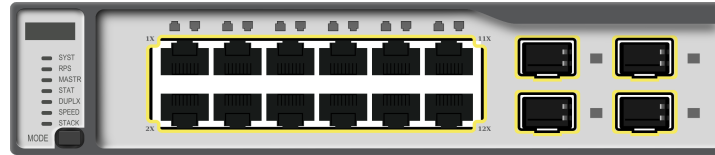
Host A
MAC Address: 54:20:bb:01:89:ef



A's Forwarding Table

Port	MAC Address
1	00:72:99:ff:32:00

Switch
MAC Address: -



Switch's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef
6	00:72:99:ff:32:00

Host B
MAC Address: 00:72:99:ff:32:00

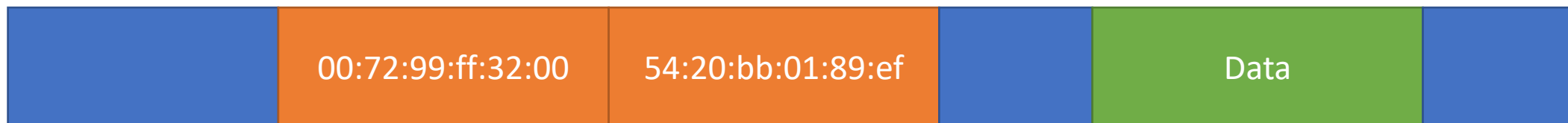


B's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

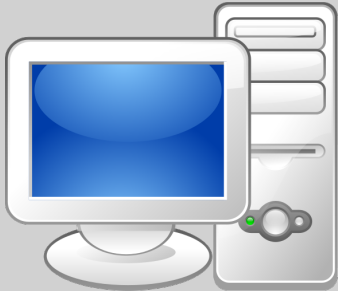
Destination MAC Address

Source MAC Address



Updating Forwarding Table

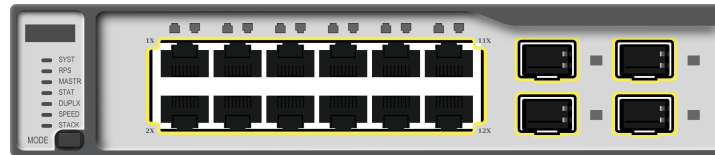
Host A
MAC Address: 54:20:bb:01:89:ef



A's Forwarding Table

Port	MAC Address
1	00:72:99:ff:32:00

Switch
MAC Address: -



Switch's Forwarding Table

Port	MAC Address

Host B
MAC Address: 00:72:99:ff:32:00



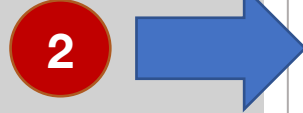
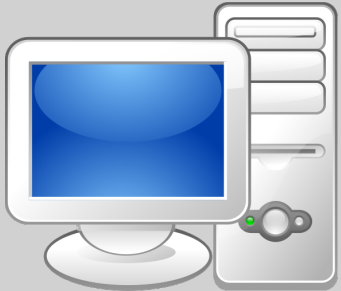
B's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

Bagaimana cara *switch* mengisi dan meng-*update* informasi pada *forwarding table*?

Updating Forwarding Table

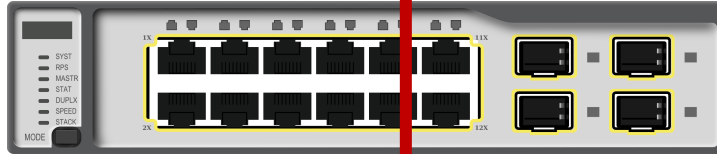
Host A
MAC Address: 54:20:bb:01:89:ef



A's Forwarding Table

Port	MAC Address
1	00:72:99:ff:32:00

3 Record source MAC address



Switch's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

Host B
MAC Address: 00:72:99:ff:32:00



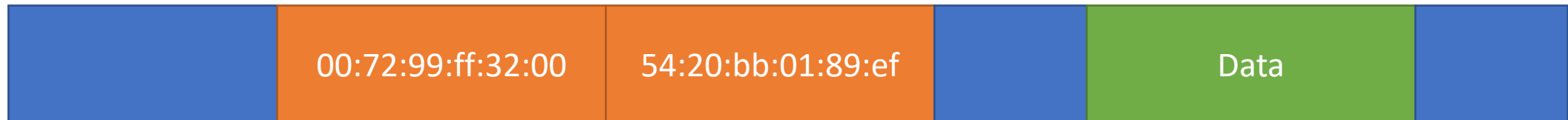
B's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

Destination Address

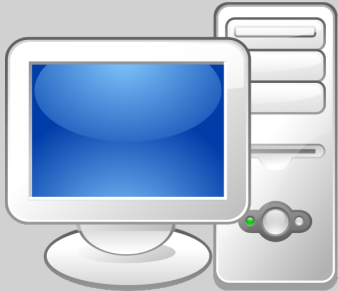
Source Address

1



Updating Forwarding Table

Host A
MAC Address: 54:20:bb:01:89:ef

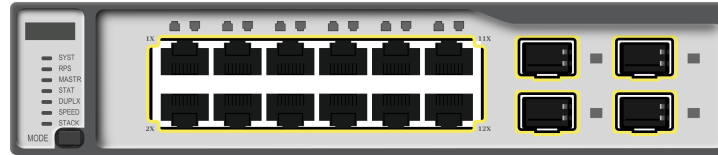


A's Forwarding Table

Port	MAC Address
1	00:72:99:ff:32:00

5

Flood the frame to all ports



Switch's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

6

Host B
MAC Address: 00:72:99:ff:32:00



B's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

Destination Address Source Address

4

00:72:99:ff:32:00

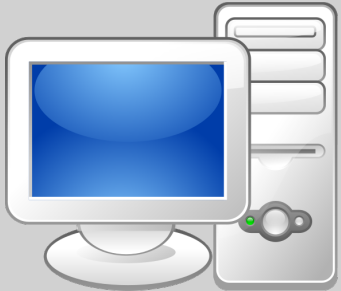
54:20:bb:01:89:ef

Data



Updating Forwarding Table

Host A
MAC Address: 54:20:bb:01:89:ef



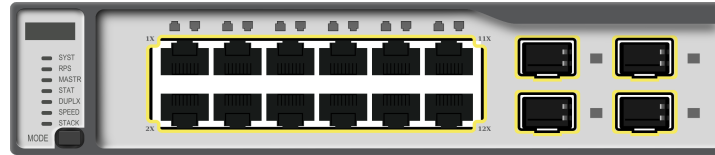
9

A's Forwarding Table

Port	MAC Address
1	00:72:99:ff:32:00

8

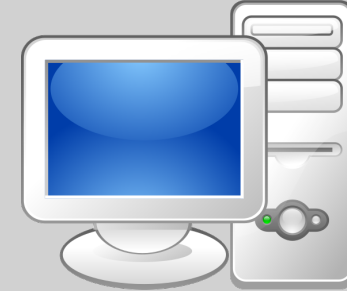
Record B's MAC address



Switch's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef
6	00:72:99:ff:32:00

Host B
MAC Address: 00:72:99:ff:32:00



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B's Forwarding Table

Port	MAC Address
1	54:20:bb:01:89:ef

Destination Address

Source Address

