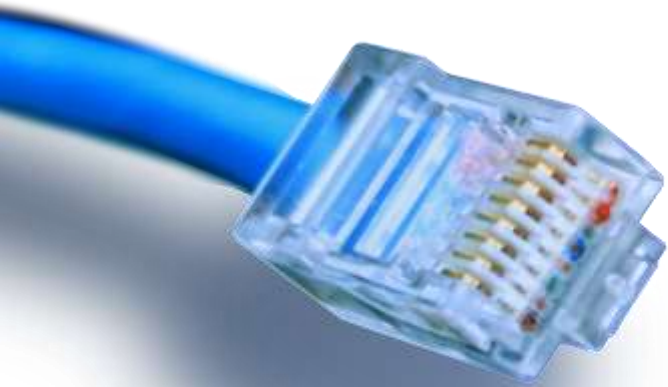


Ethernet



HOUSE OF
TECHNOLOGY



- en del af **mercantec**⁺

Grundlæggende netværk

Region Syd Grundlæggende netværk

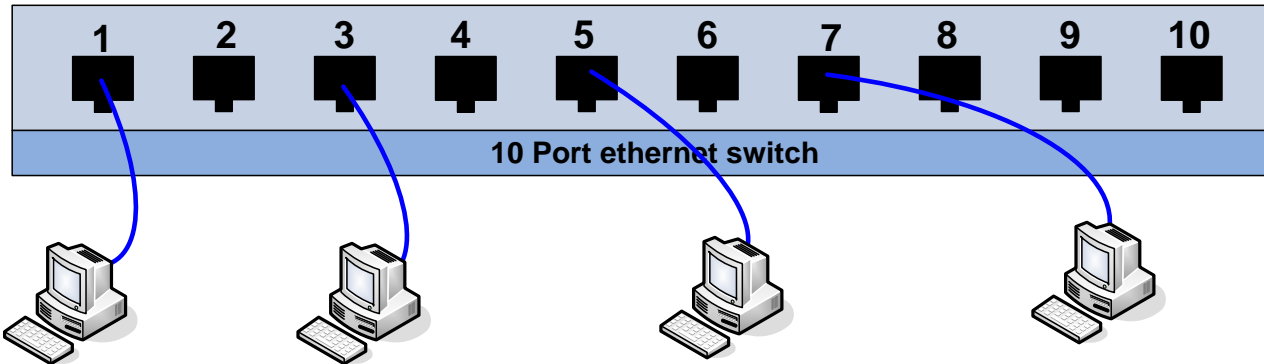


ETHERNET SWITCHES



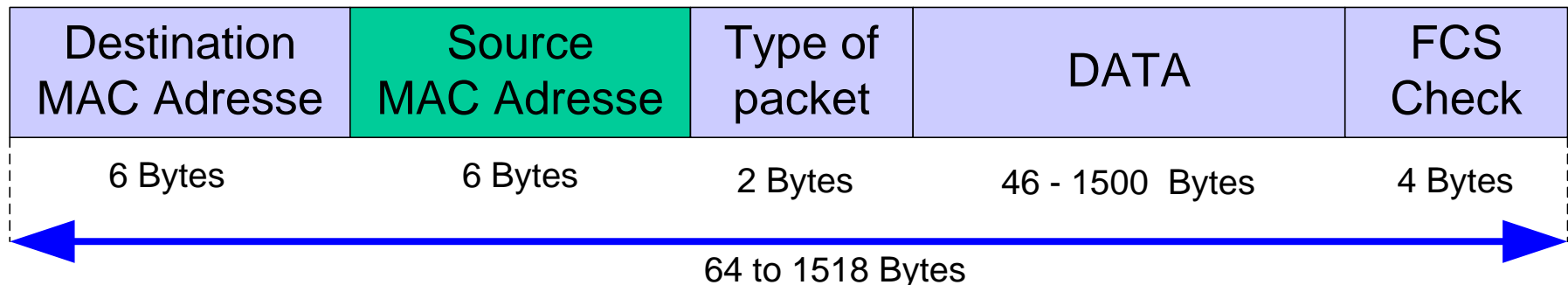


Ethernet switch



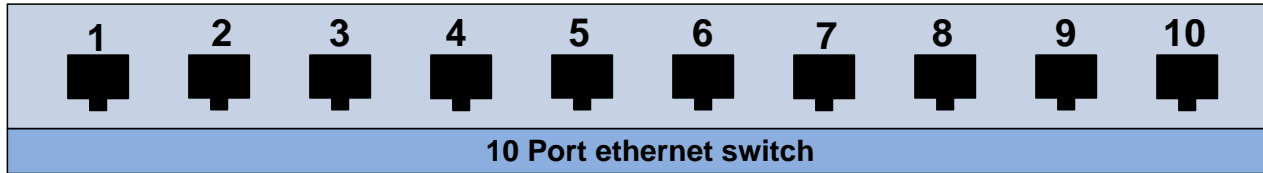
- The ethernet switch dynamically learns the connected stations MAC addresses.
 - By looking at the source MAC address in the ethernet frame of transmitted frames

Ethernet II Frame





MAC address table

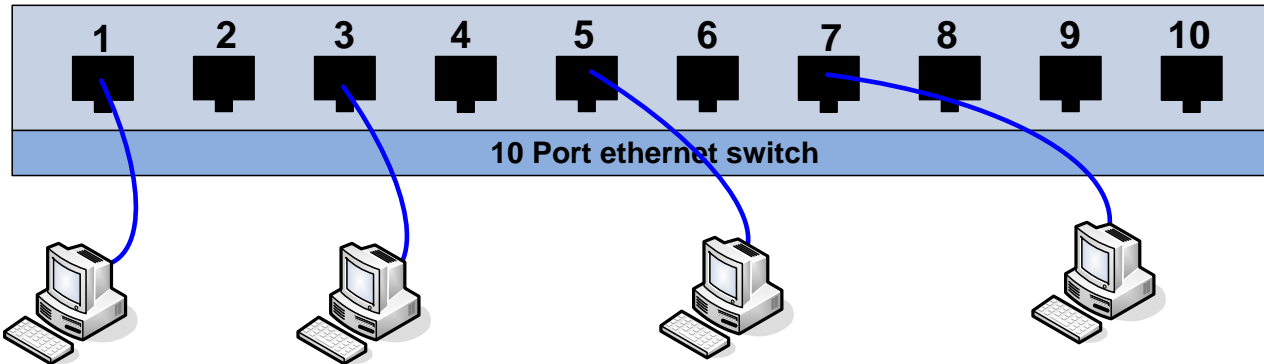


Assuming 10 connected hosts

```
mars.tekkom.dk - PuTTY  
Switch# show mac address-table  
  
-----  
Mac Address          Ports  
-----  
00-00-74-c2-56-08    Port 1  
00-0c-29-1c-b1-cd    Port 2  
00-13-e8-3d-32-7f    Port 3  
00-15-c5-45-3c-48    Port 4  
00-16-76-9f-fe-f6    Port 5  
00-18-18-1e-91-14    Port 6  
00-1a-6b-6a-a8-6a    Port 7  
00-1b-21-52-91-7d    Port 8  
00-1b-21-75-57-11    Port 9  
00-1c-bf-0e-79-a9    Port 10  
Switch#
```



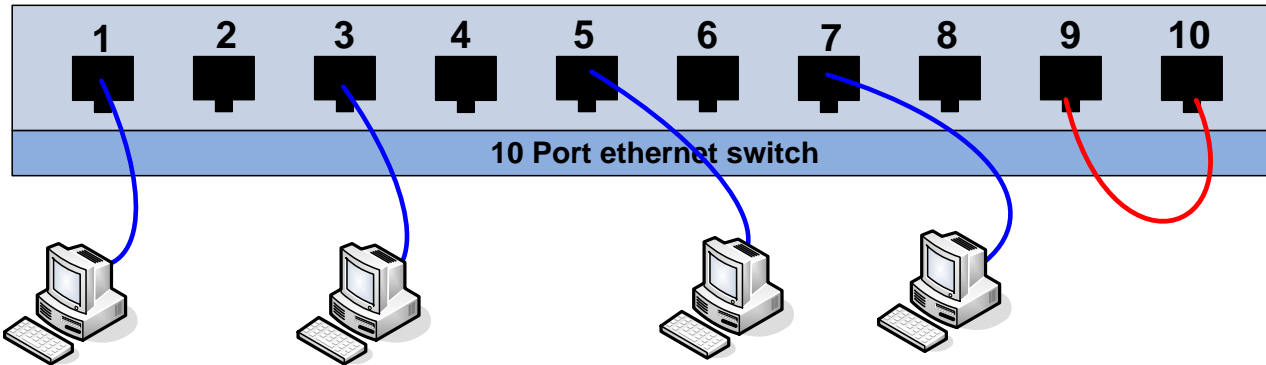
Switches and ARP



- If a switch receives a frame to the broadcast MAC address FF-FF-FF-FF-FF-FF
 - The switch will broadcast the frame to all ports except the one the frame was received on



Switches and ARP



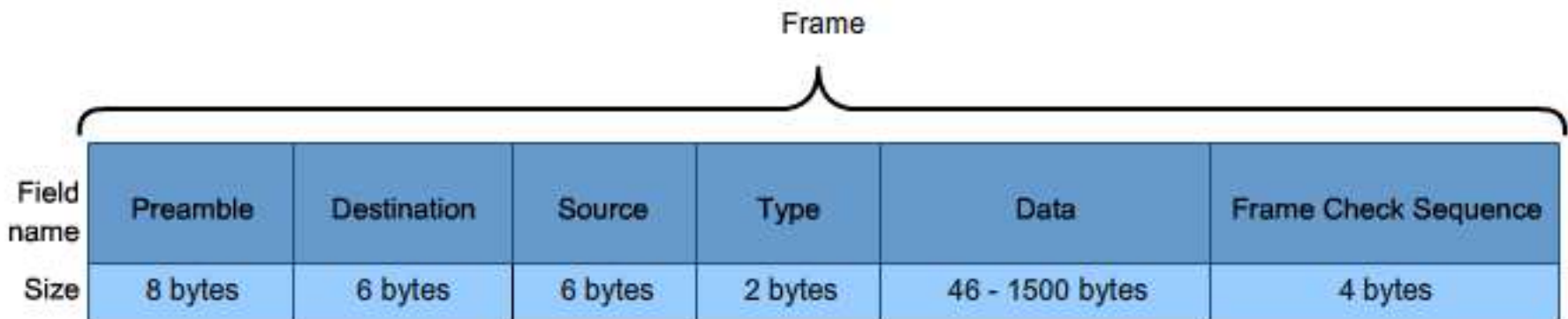
- What happens if we have a loop?



Preamble

- Ethernet uses preamble to indicate to the receiving station: Data is on its way

A Common Data Link Layer Protocol for LANs



Preamble - used for synchronization; also contains a delimiter to mark the end of the timing information.

Destination Address - 48 bit MAC address for the destination node.

Source Address- 48 bit MAC address for the source node.

Type - value to indicate which upper layer protocol will receive the data after the Ethernet process is complete.

Data or payload - this is the PDU, typically an IPv4 packet, that is to be transported over the media.

Frame Check Sequence (FCS) - A value used to check for damaged frames.