Exercise 2

Osamah Barakat
Osamah.barakat@cs.uni-goettingen.de

CRC checksums

Please calculate the CRC *R of*

D = 0101 1101 1010 0101 1110 0000.

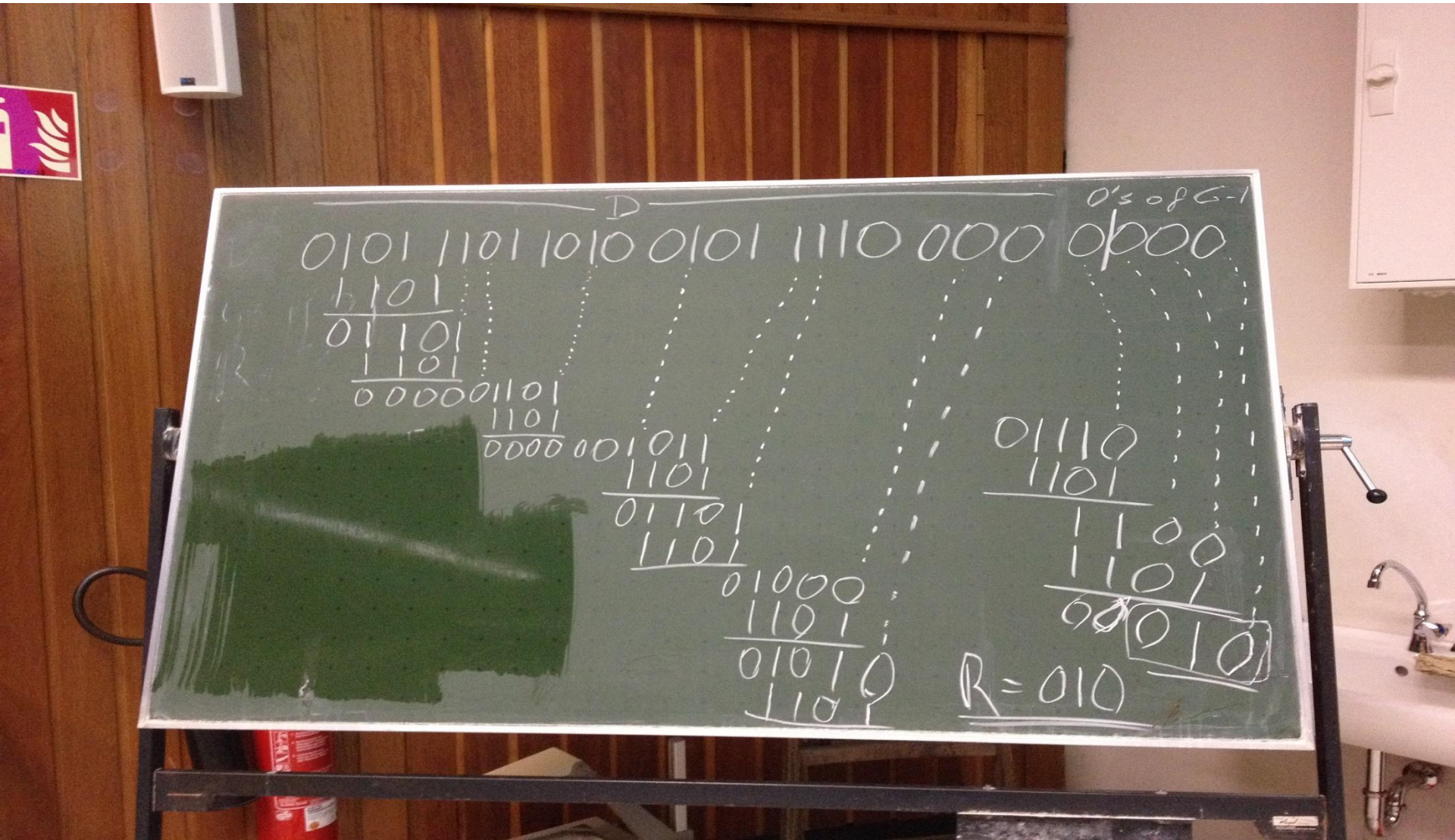
Use the 4 bit generator

G = 1101.

Note:

R is always of length |*G*|*-1*

CRC (Done by Vivien& Fabiola)



Purpose of the link layer

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Answer:

Hop-to-hop connection in one network
(NOT between networks)

ARP and inter-networking

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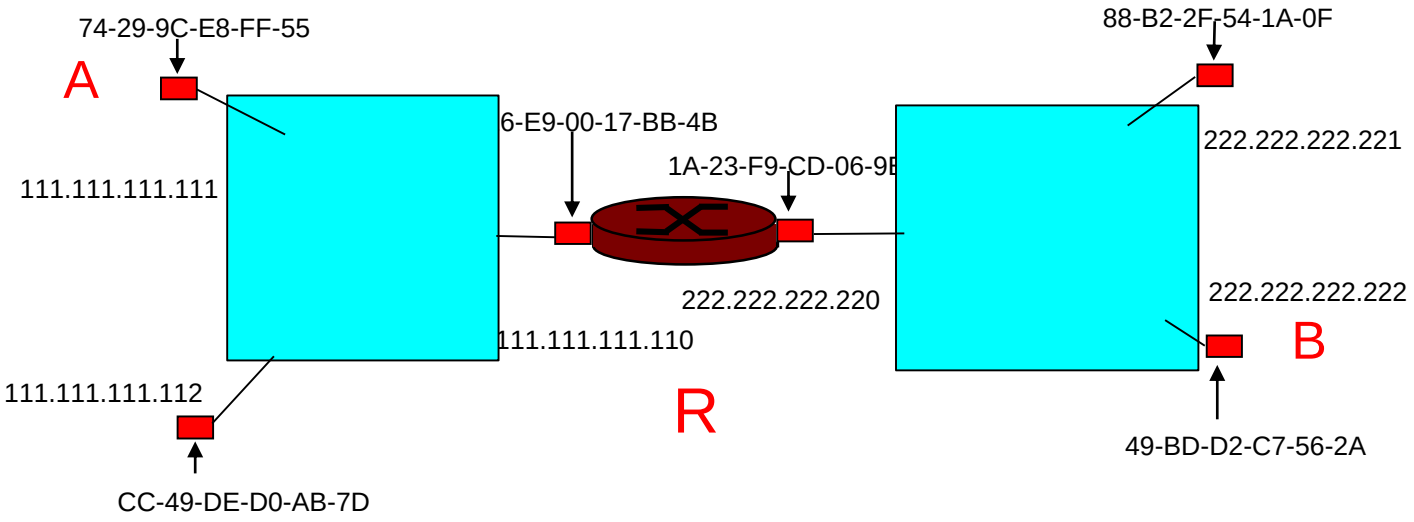
Answer:

Remember: ARP is layer 2, routers are layer 3.
Inter-networking is the job of the network layer.

ARP is serving in looking up the MAC of the router that connects to the network of the destination node.

1.A creates IP datagram with source A, destination B
2.A uses ARP to get R's MAC address for 111.111.111.110
3.A creates link-layer frame with R's MAC address as dest, frame contains A-to-B IP datagram
4.A's NIC sends frame
5.R's NIC receives frame
6.R removes IP datagram from Ethernet frame, sees destination B
7.R uses ARP to get B's MAC address
8.R creates frame containing A-to-B IP datagram sends to B



MAC and IP addresses

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Answer:

MAC addresses are unique identifiers for a specific device.

IP addresses for devices may change frequently

Exponential backoff

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Answer:

Exponential backoff is a simple way to quickly resolve a collision and to adapt to varying congestion states.

It does not require additional signalling among nodes.