Protocolo ARP

Address Resolution Protocol

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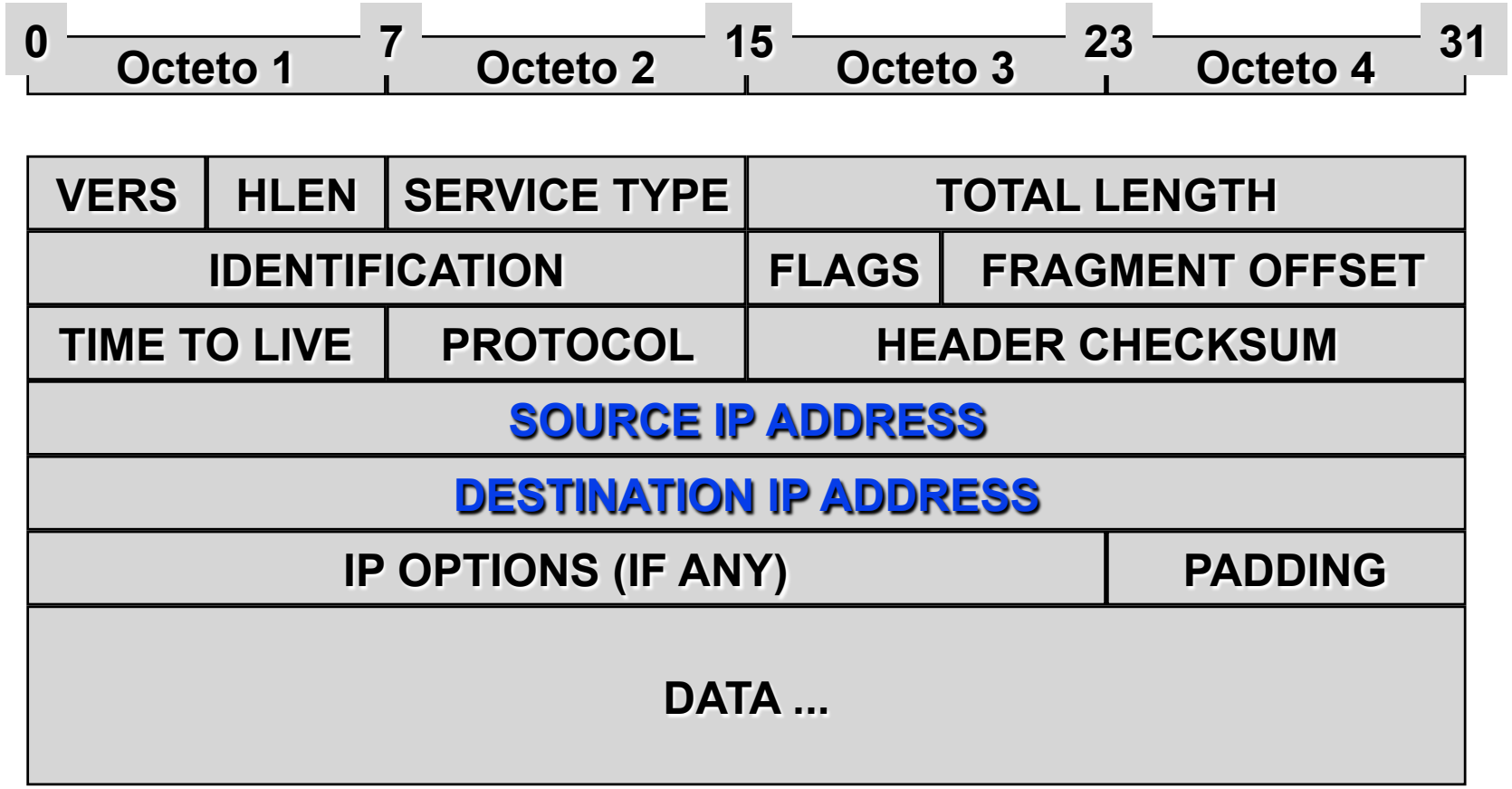
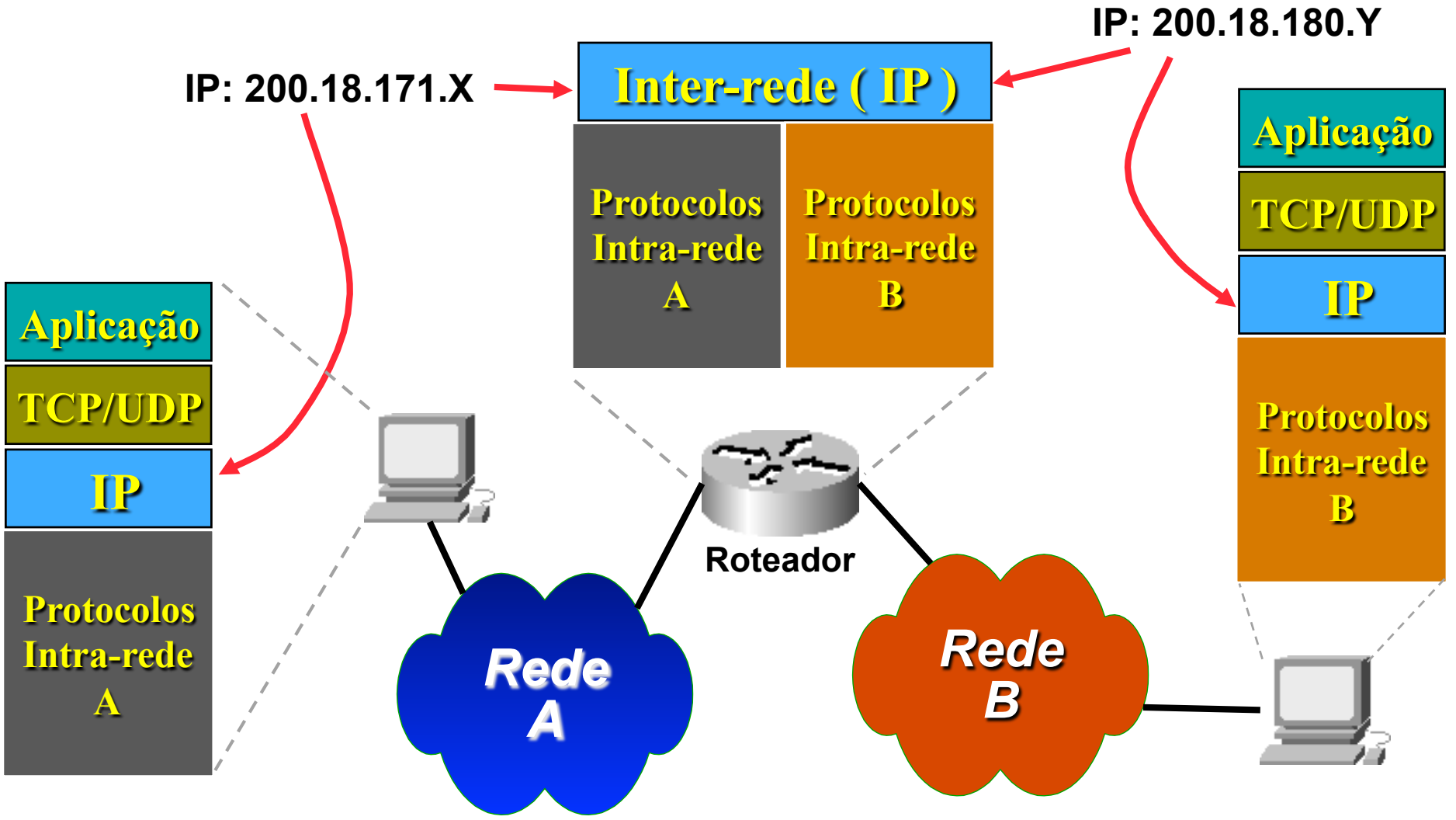
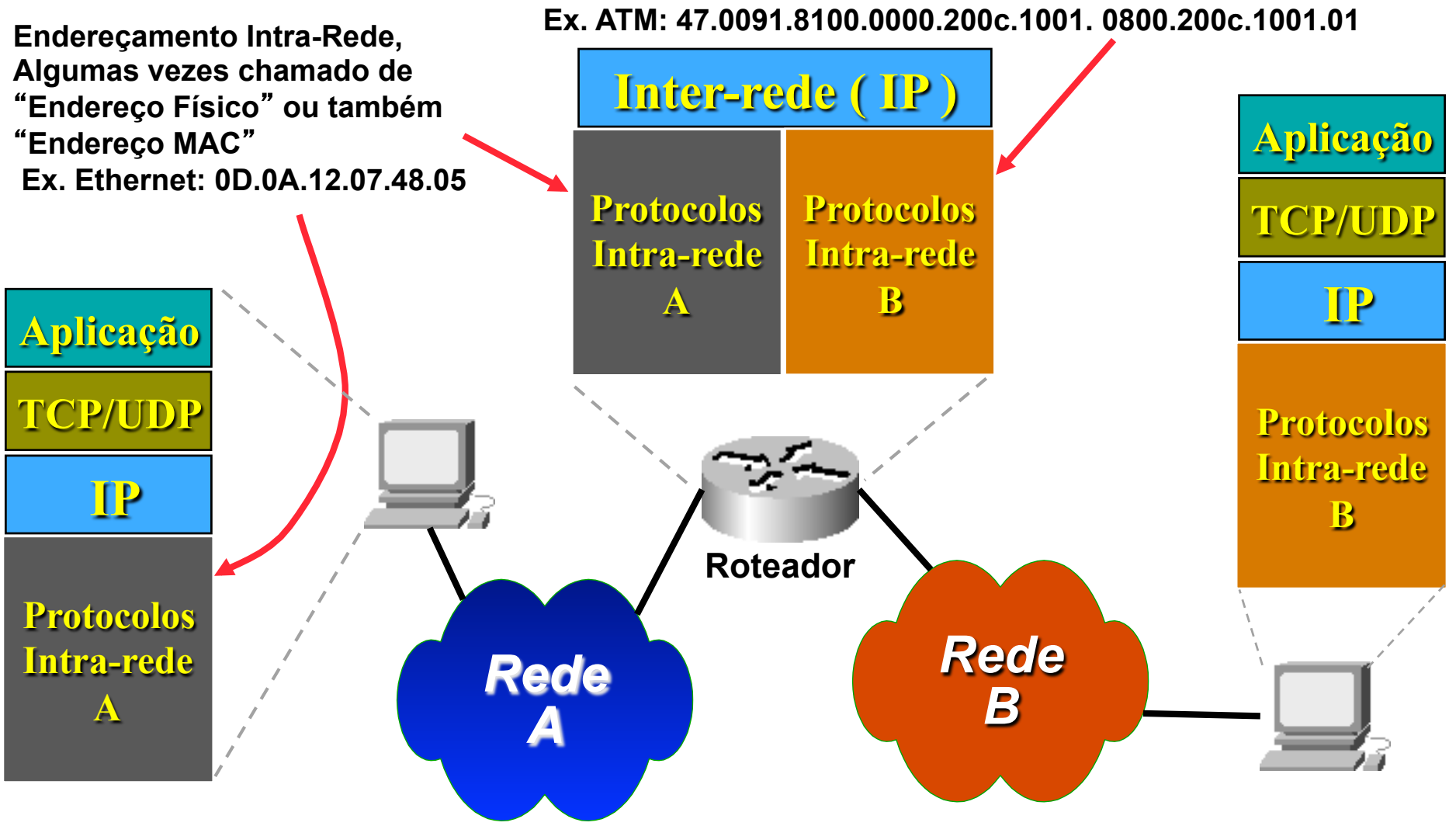
Campos do datagrama IP



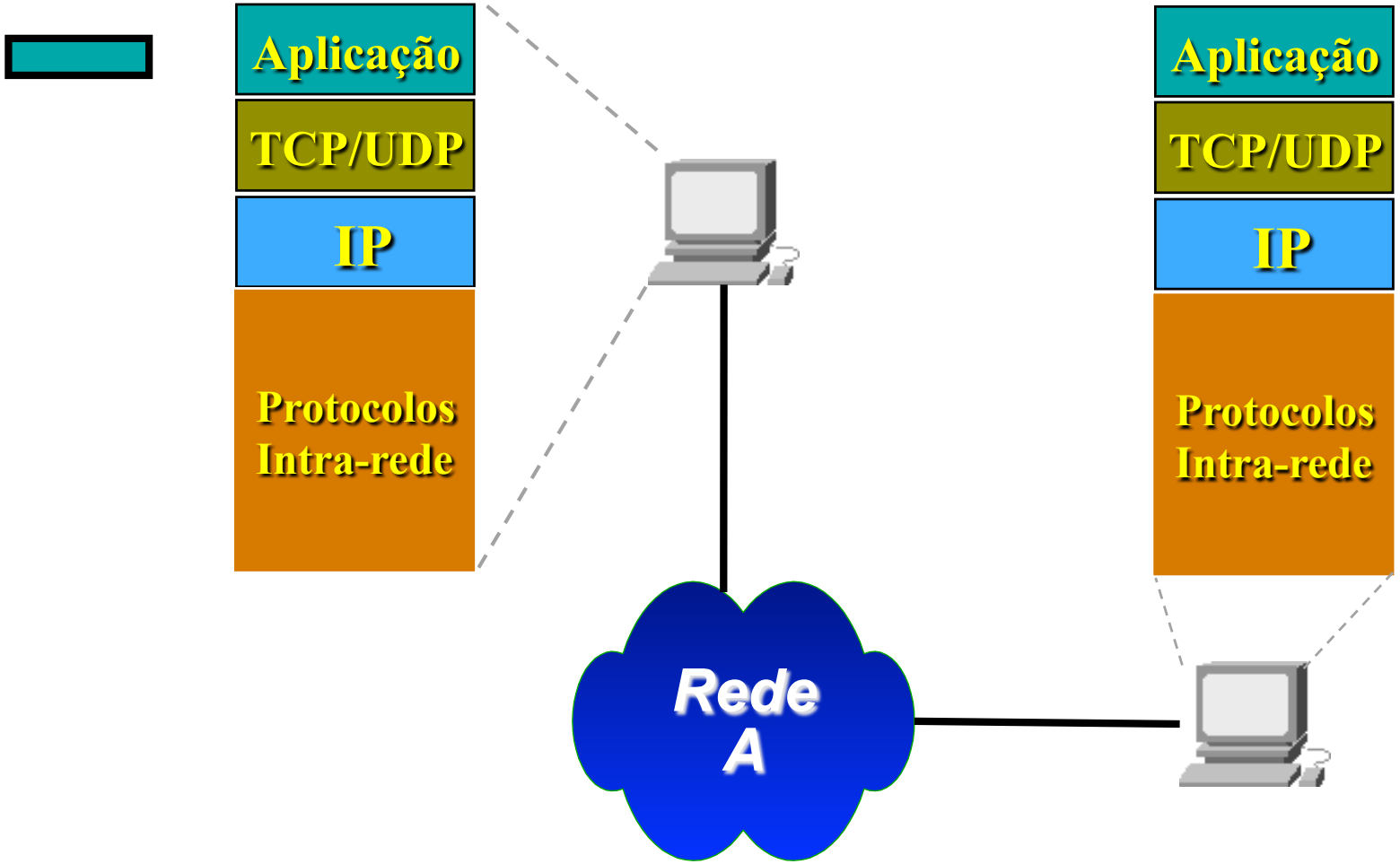
Entrega de Pacotes IP



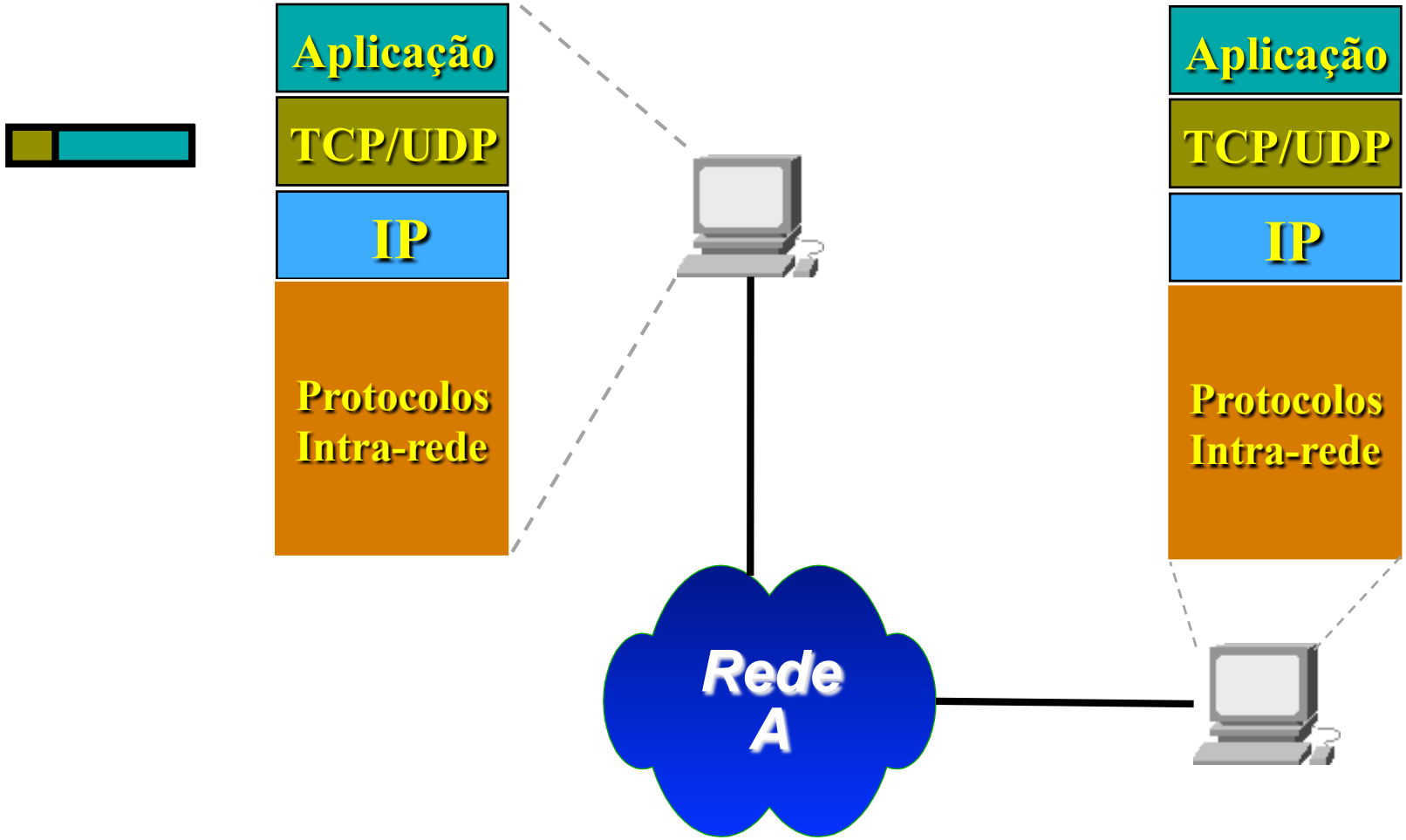
Entrega de Pacotes IP



Entrega de Pacotes IP



Entrega de Pacotes IP



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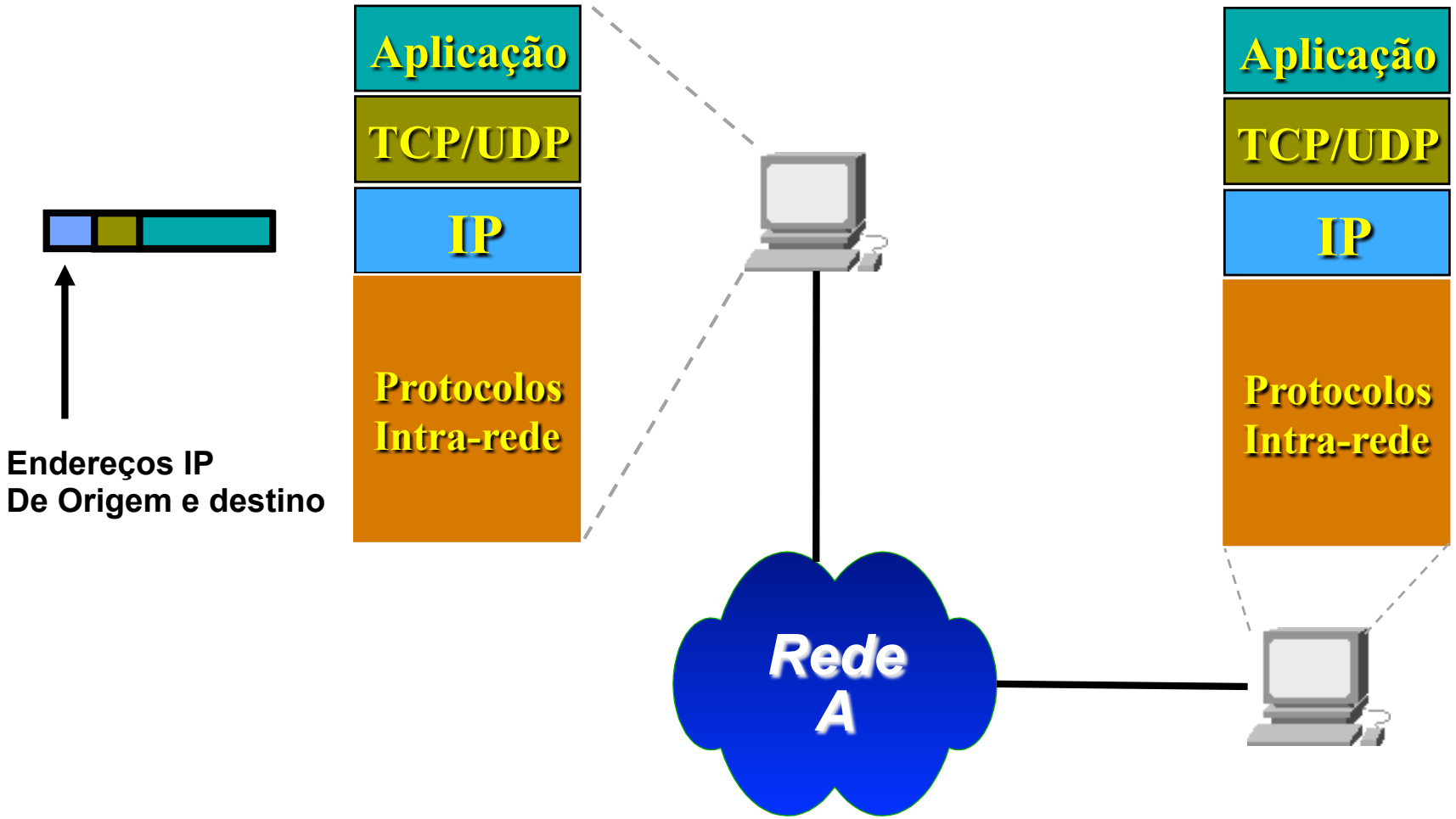

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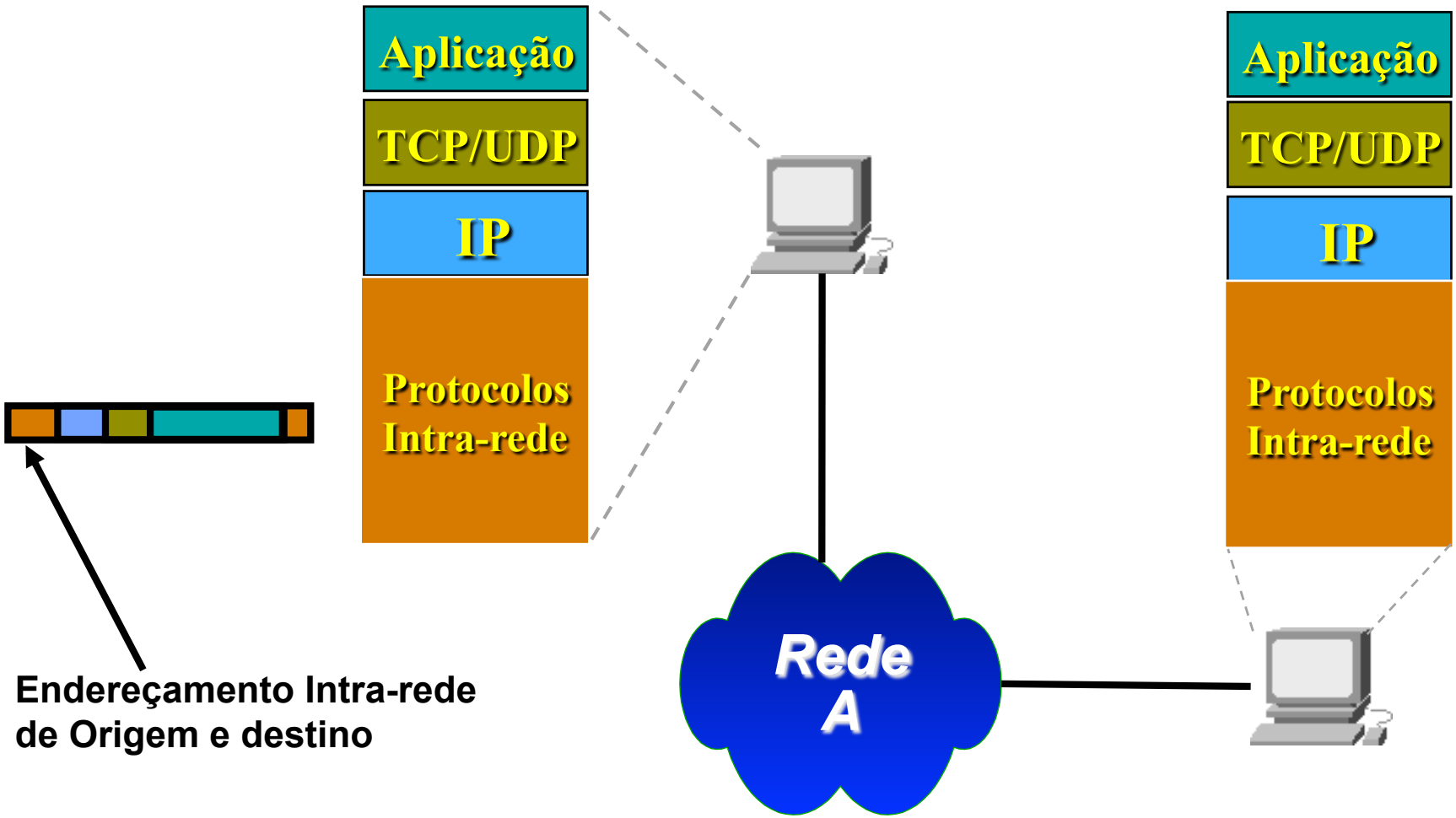

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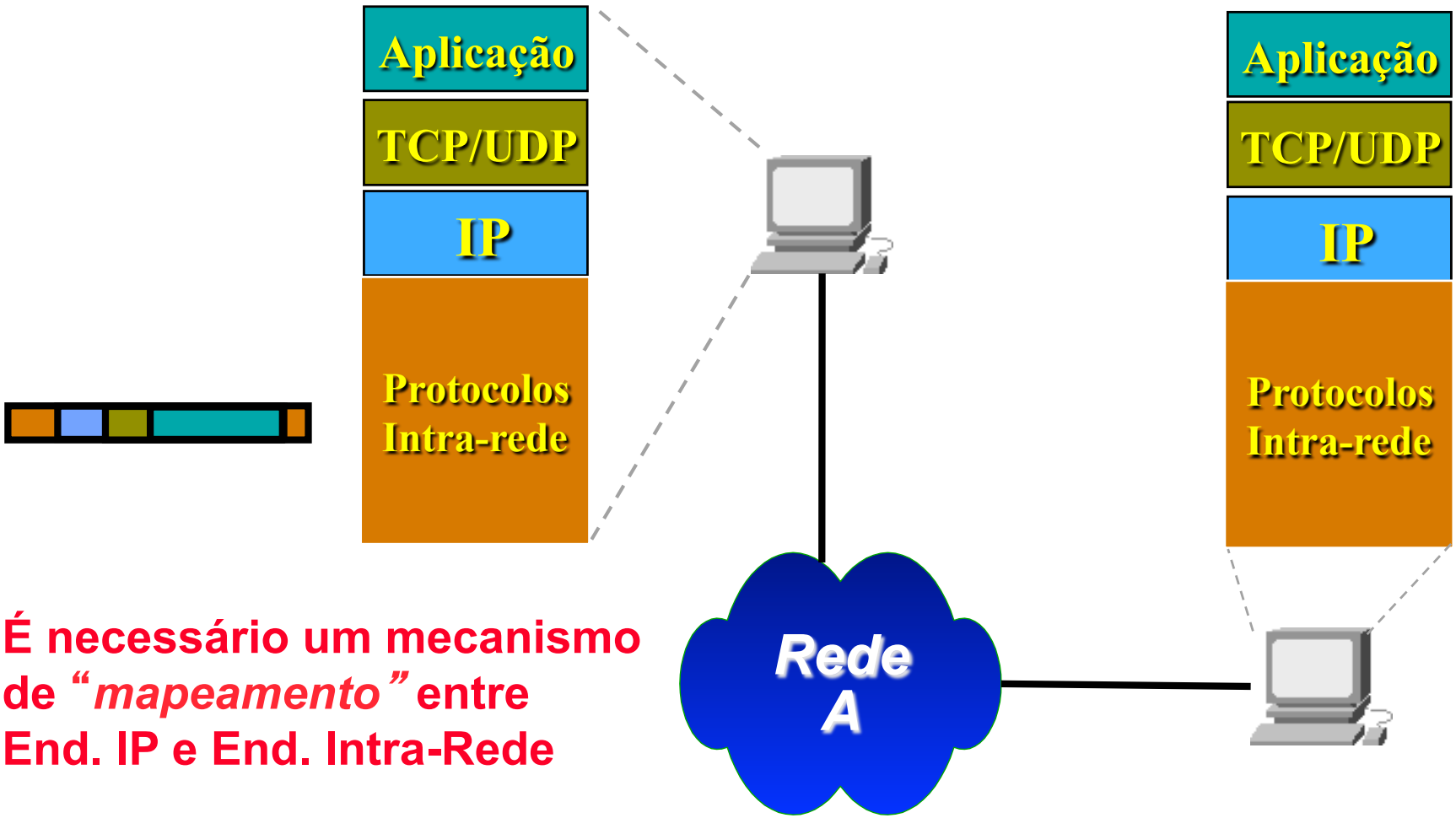
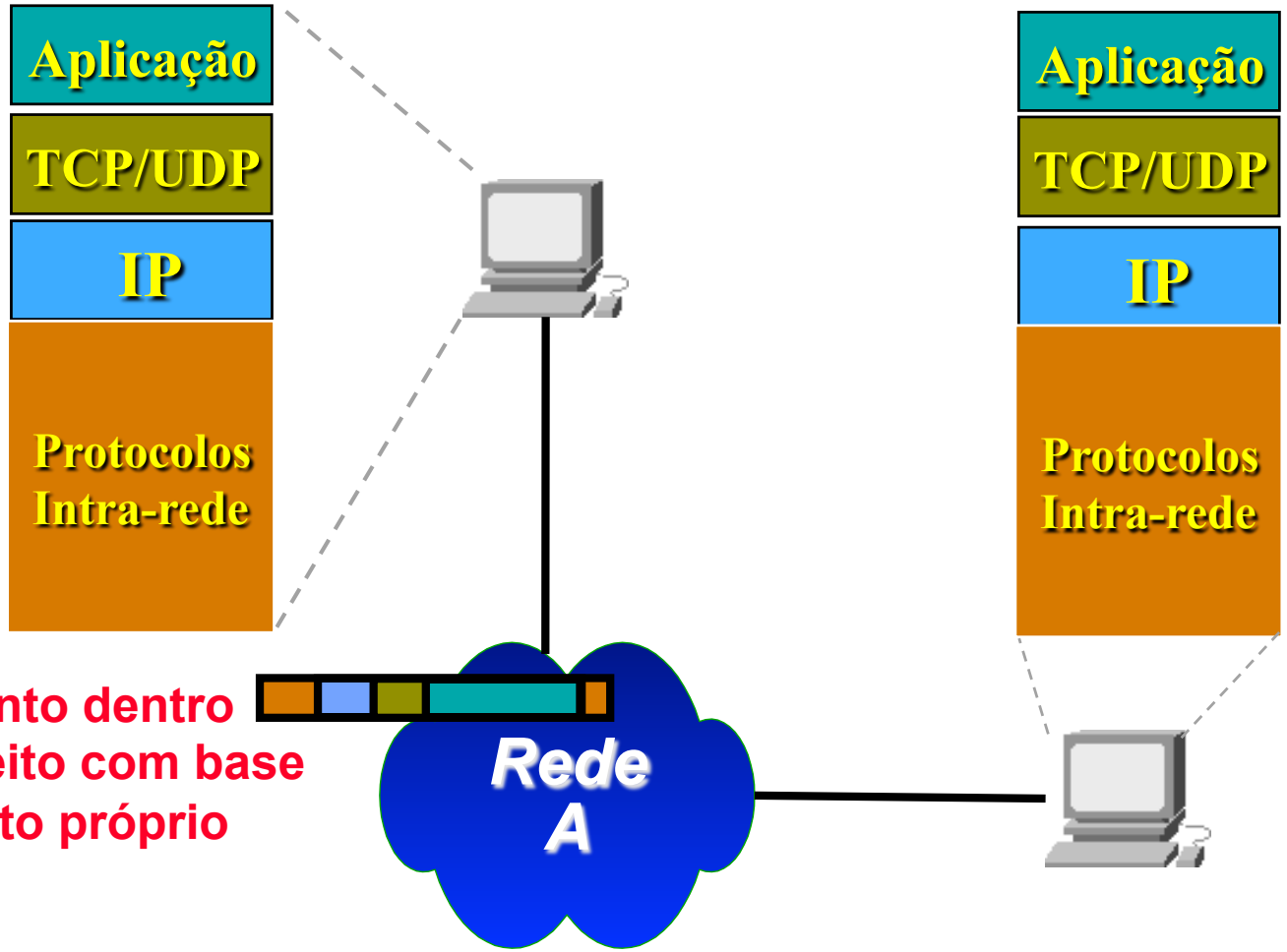


É necessário um mecanismo de "*mapeamento*" entre End. IP e End. Intra-Rede

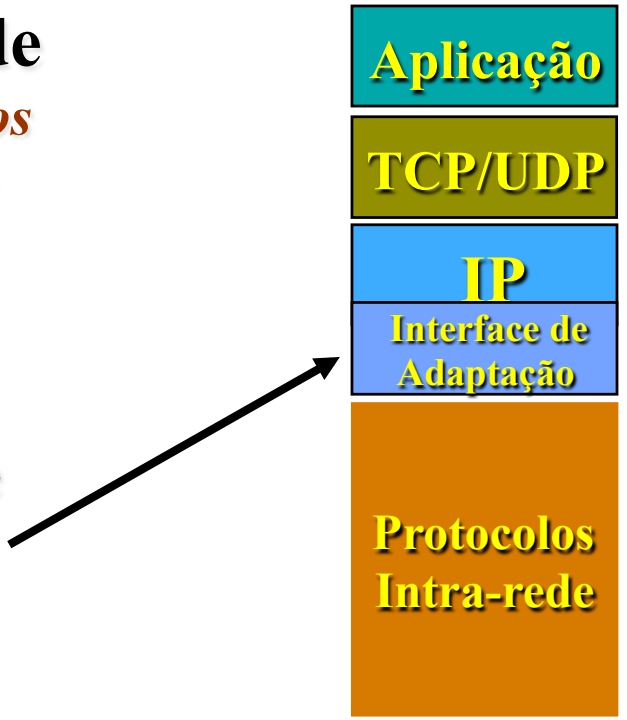
Entrega de Pacotes IP



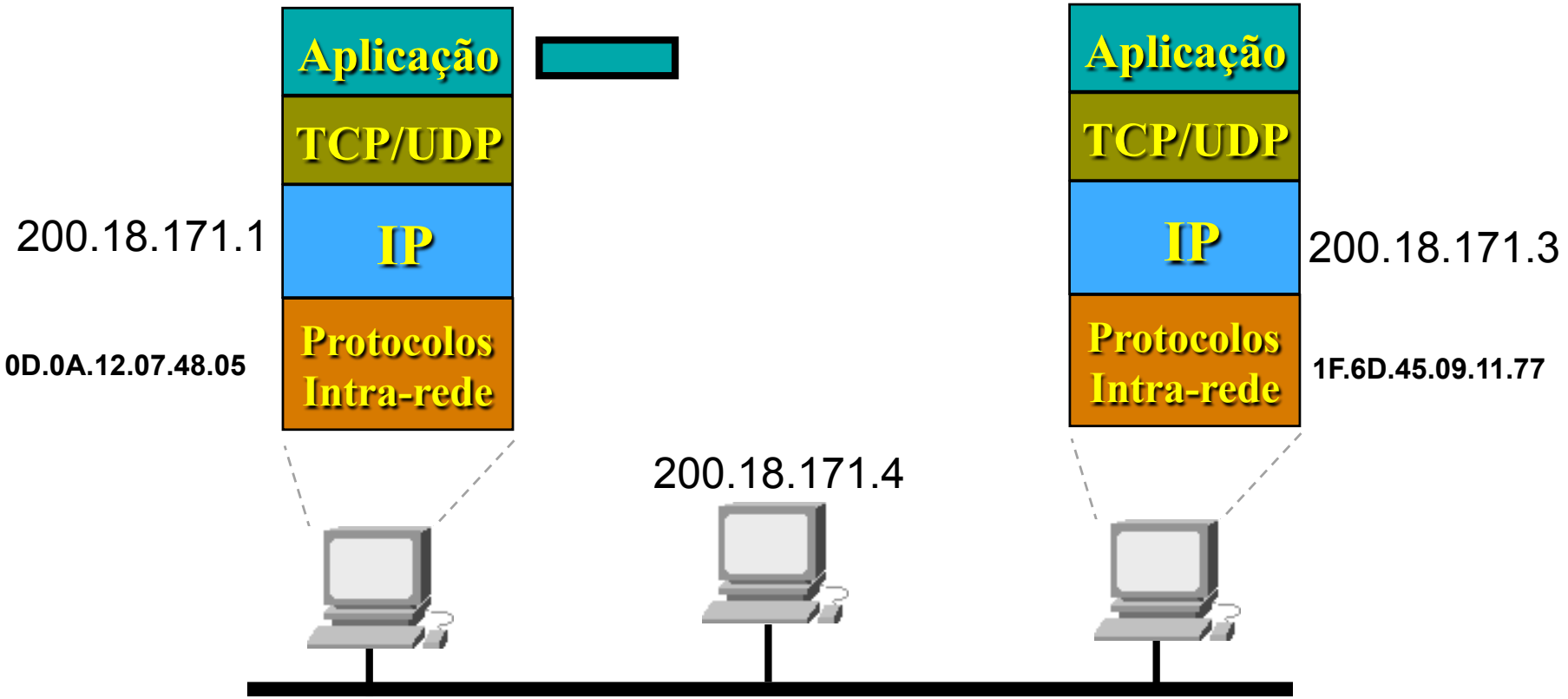
O Encaminhamento dentro de cada rede é feito com base no endereçamento próprio daquela rede.

ARP (Address Resolution Protocol)

- **Realiza o mapeamento entre Endereço IP e Endereço Intra-Rede**
  - ***Mapeamento de endereços IP em endereços MAC Ethernet, Token-Ring, FDDI, ATM, etc...***
  - ***Efetuado por meio de uma tabela ARP em cada máquina que é construída dinamicamente***
- **É um protocolo que faz a interface entre a camada Inter-Rede e a camada Intra-Rede**



ARP (Address Resolution Protocol)



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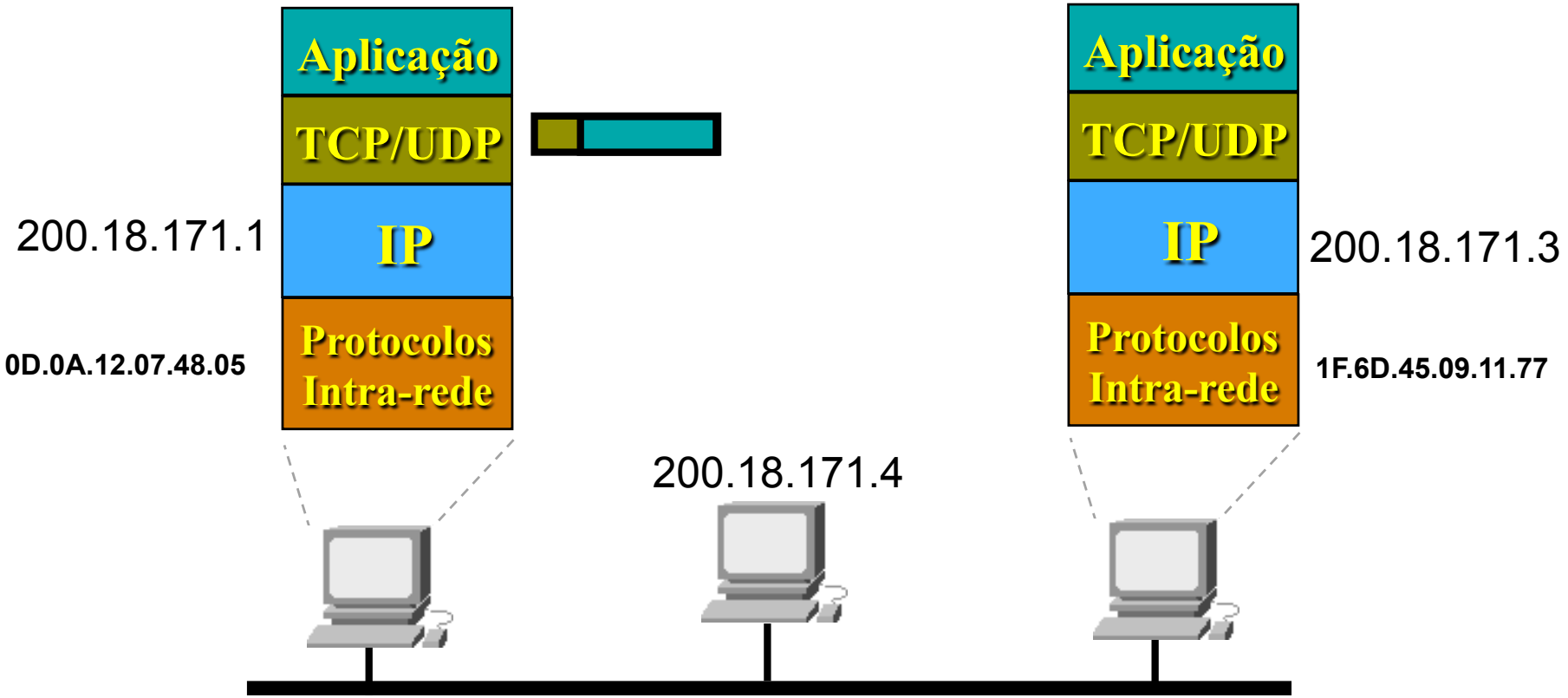

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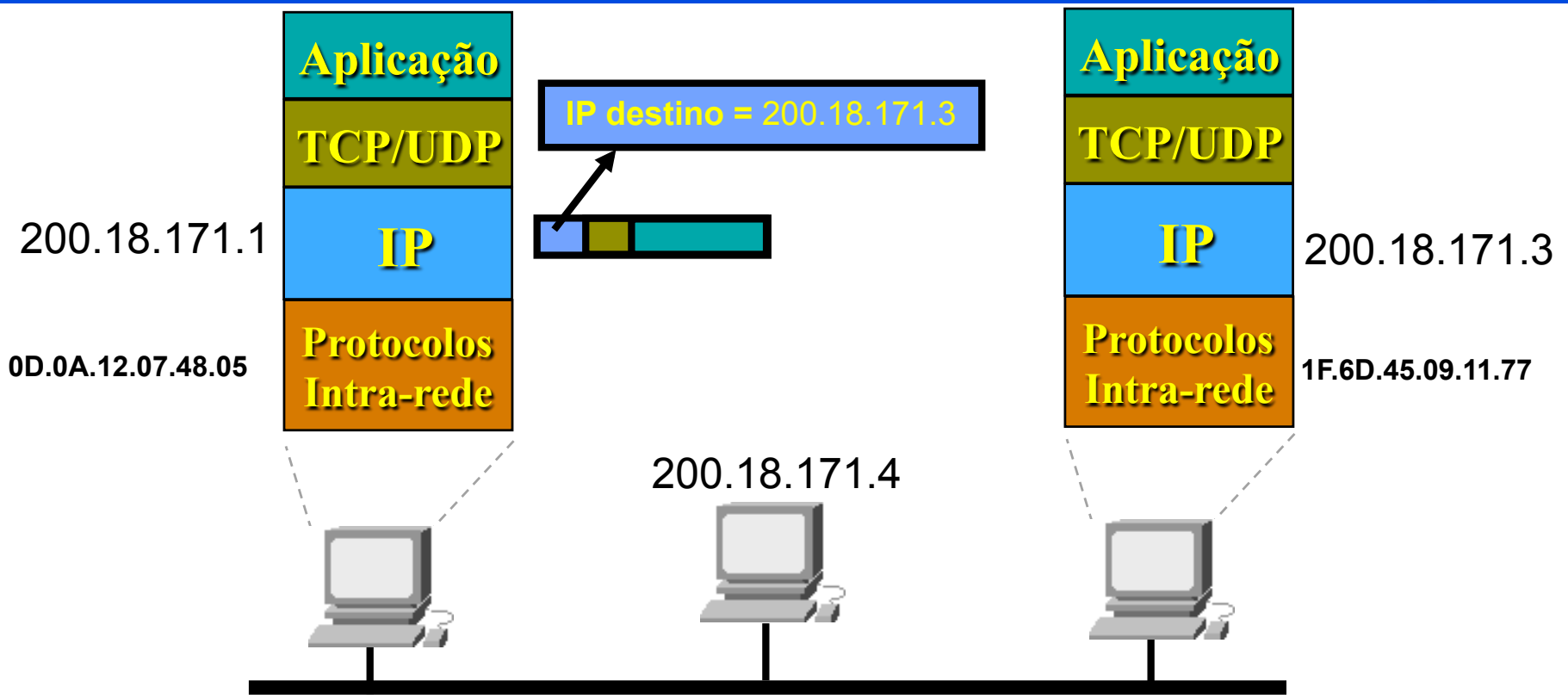

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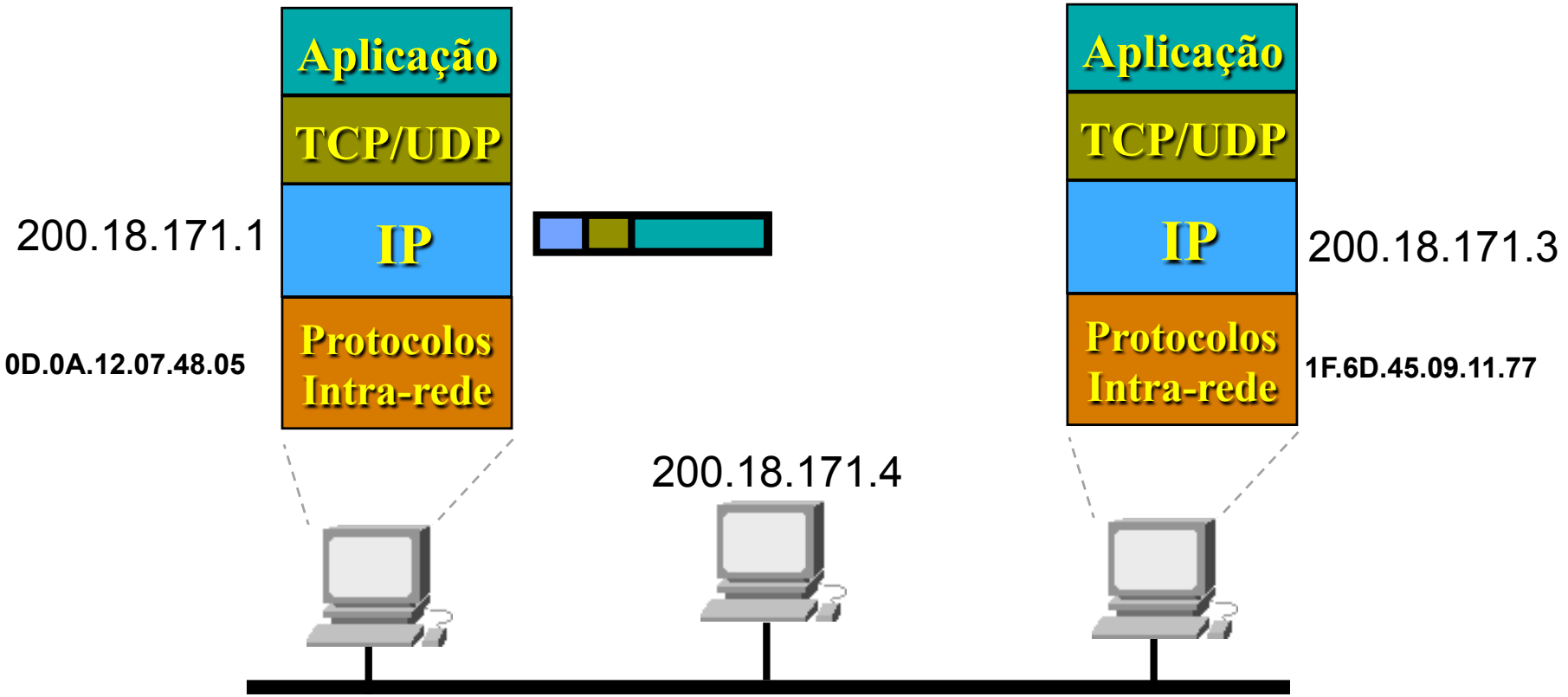
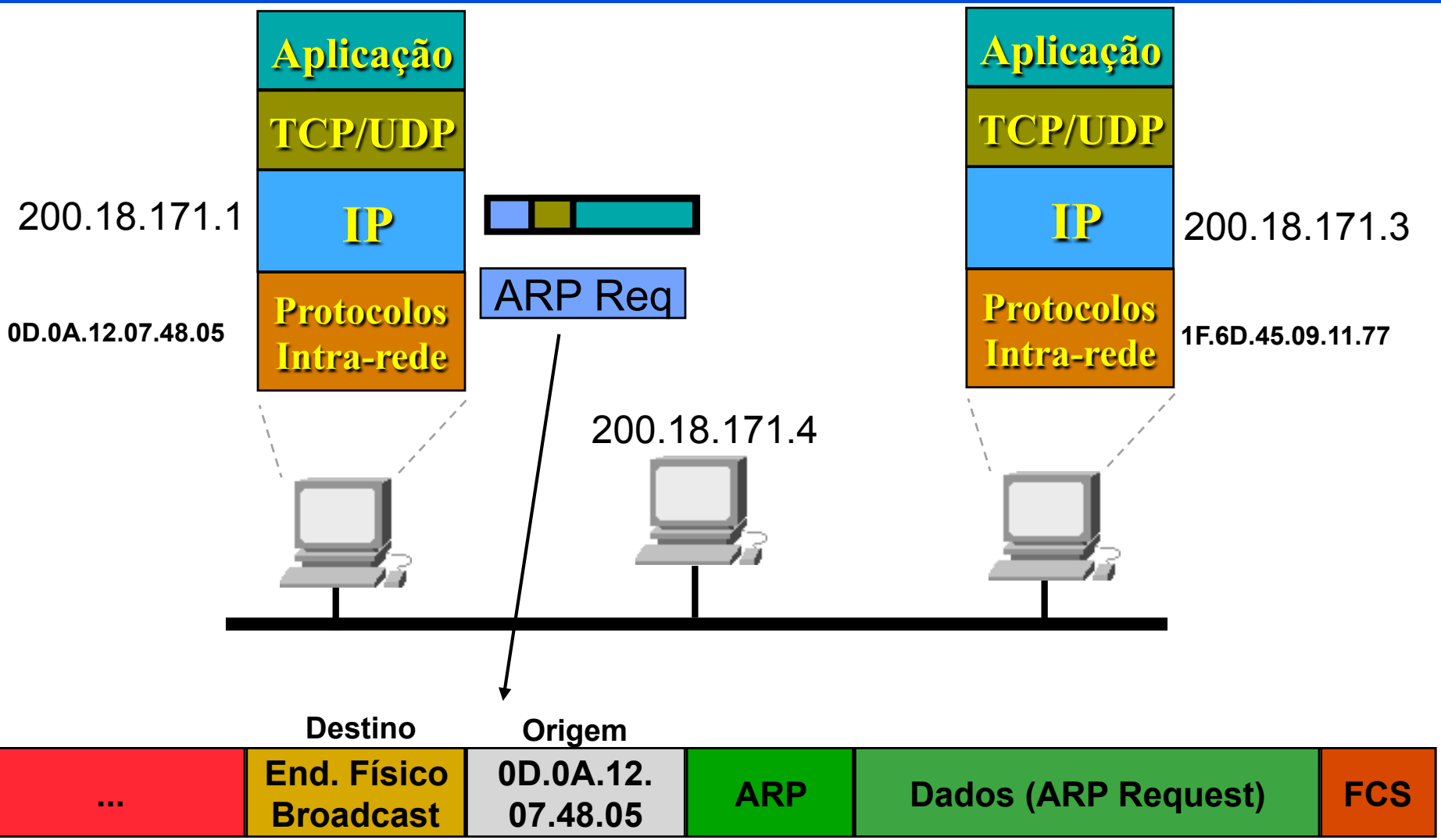


Destino está na mesma rede IP (200.18.171.0)
Como enviar para esta máquina ? Qual o MAC Destino ?
A mensagem fica esperando e o protocolo ARP é acionado.

ARP (Address Resolution Protocol)



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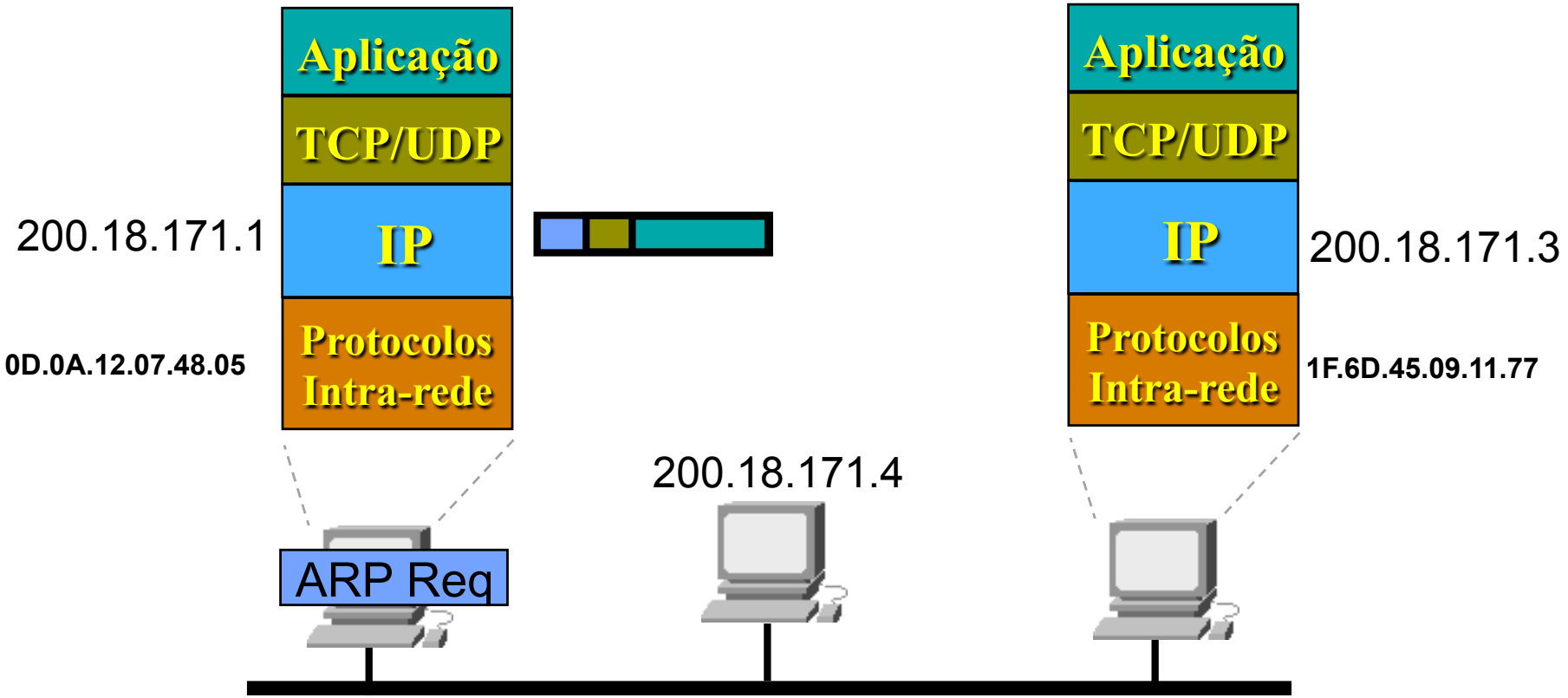

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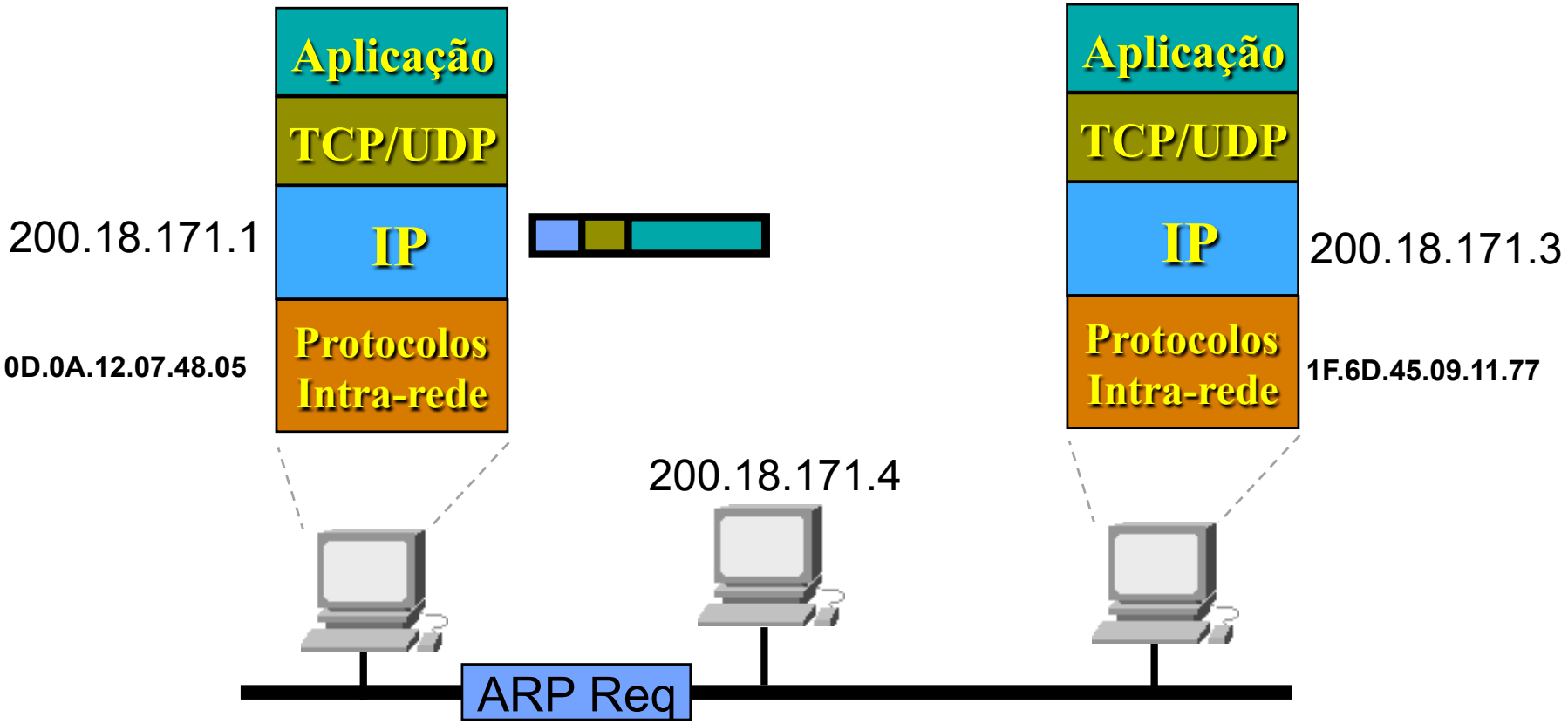

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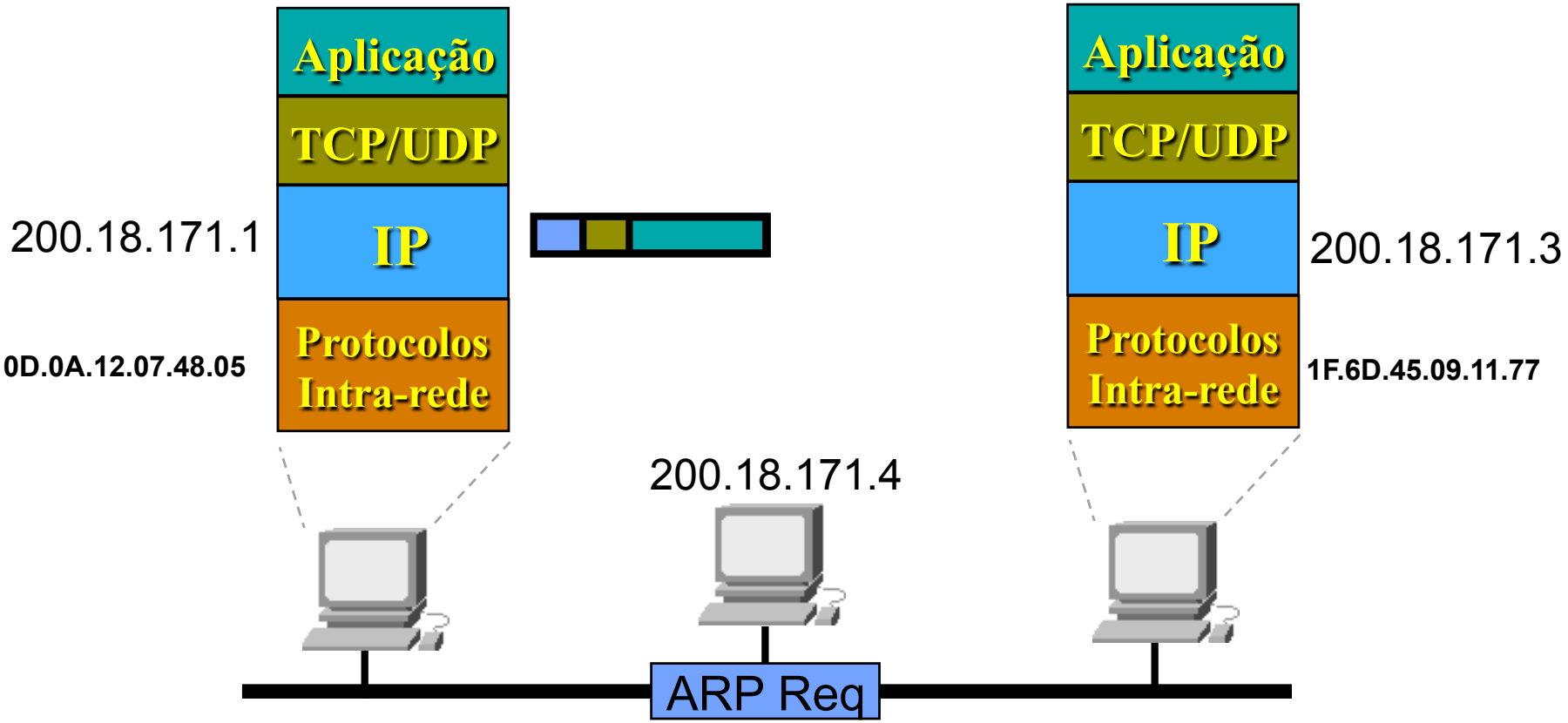

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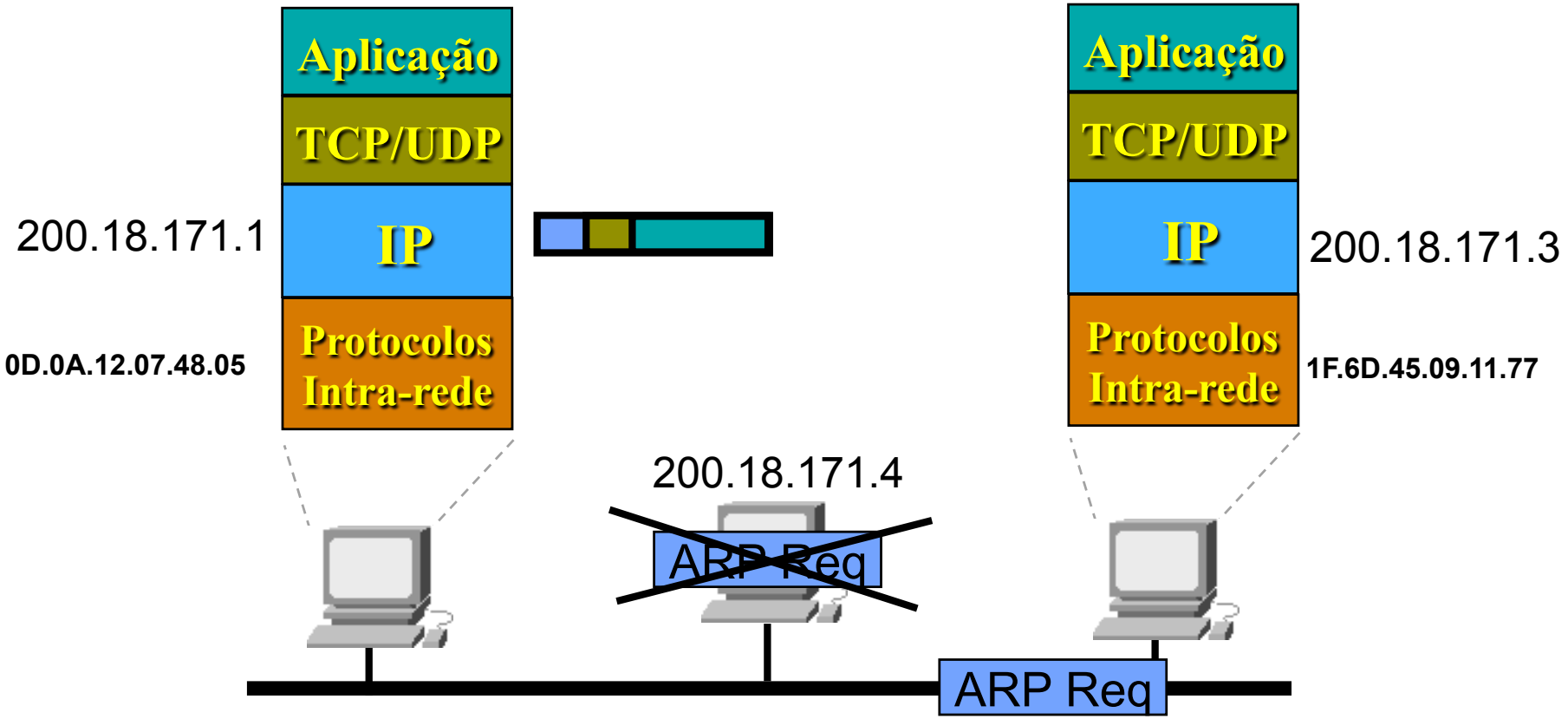

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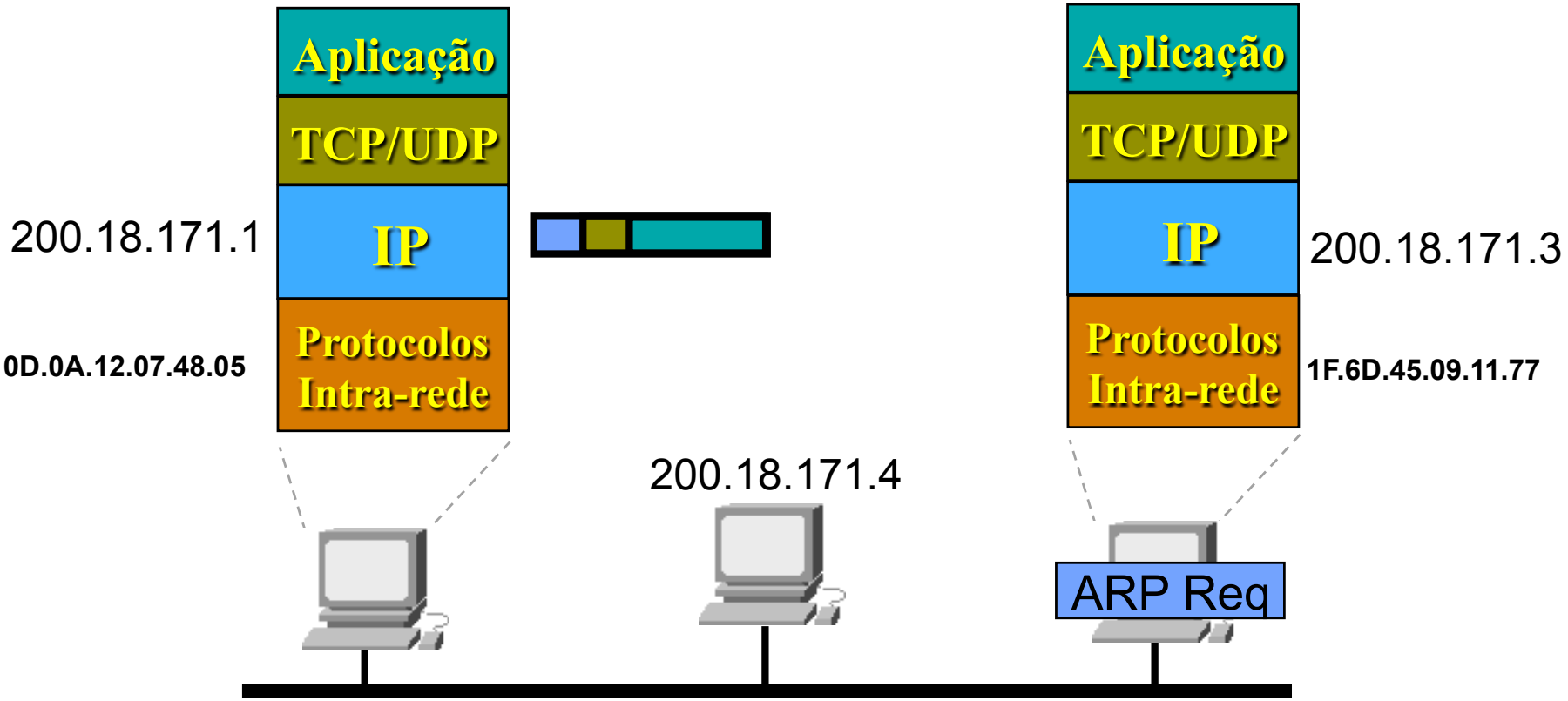

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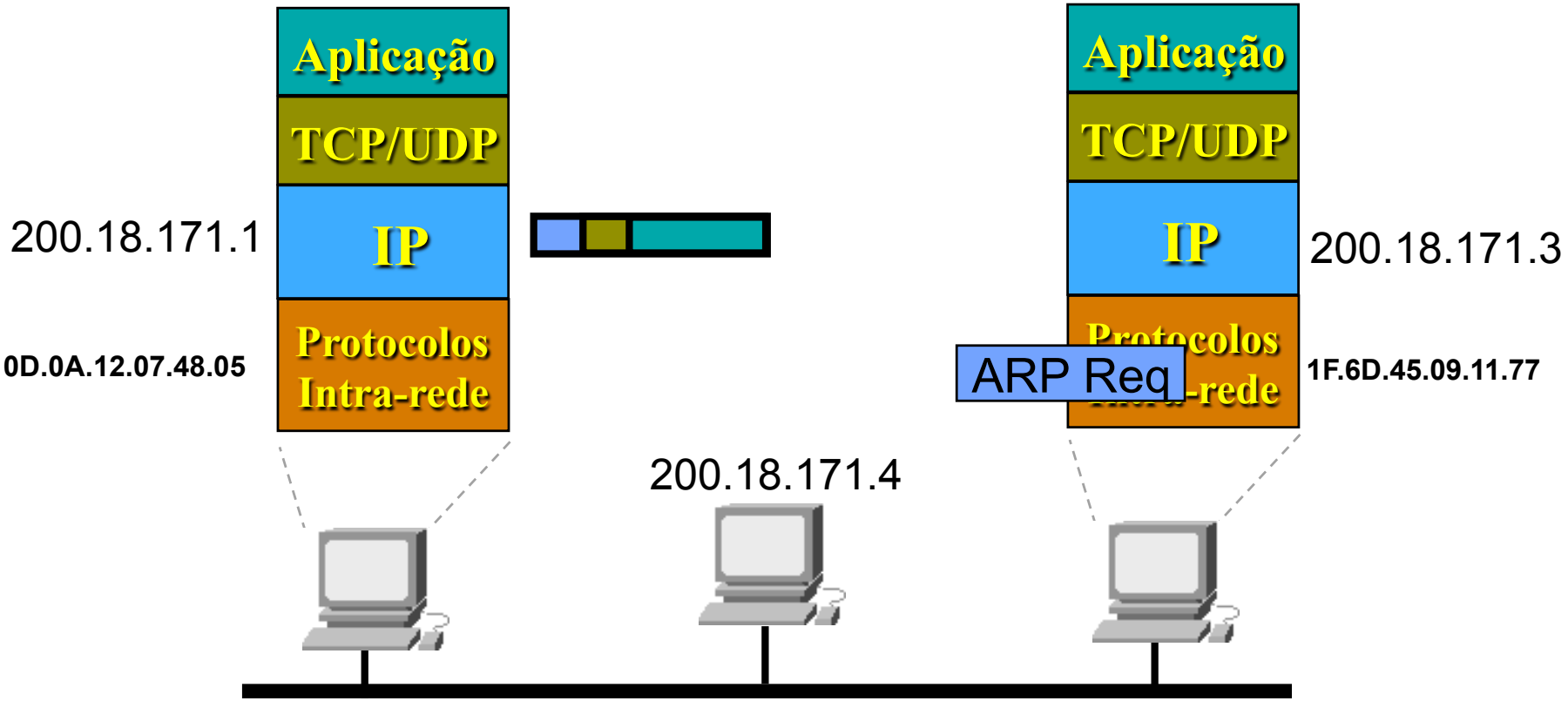

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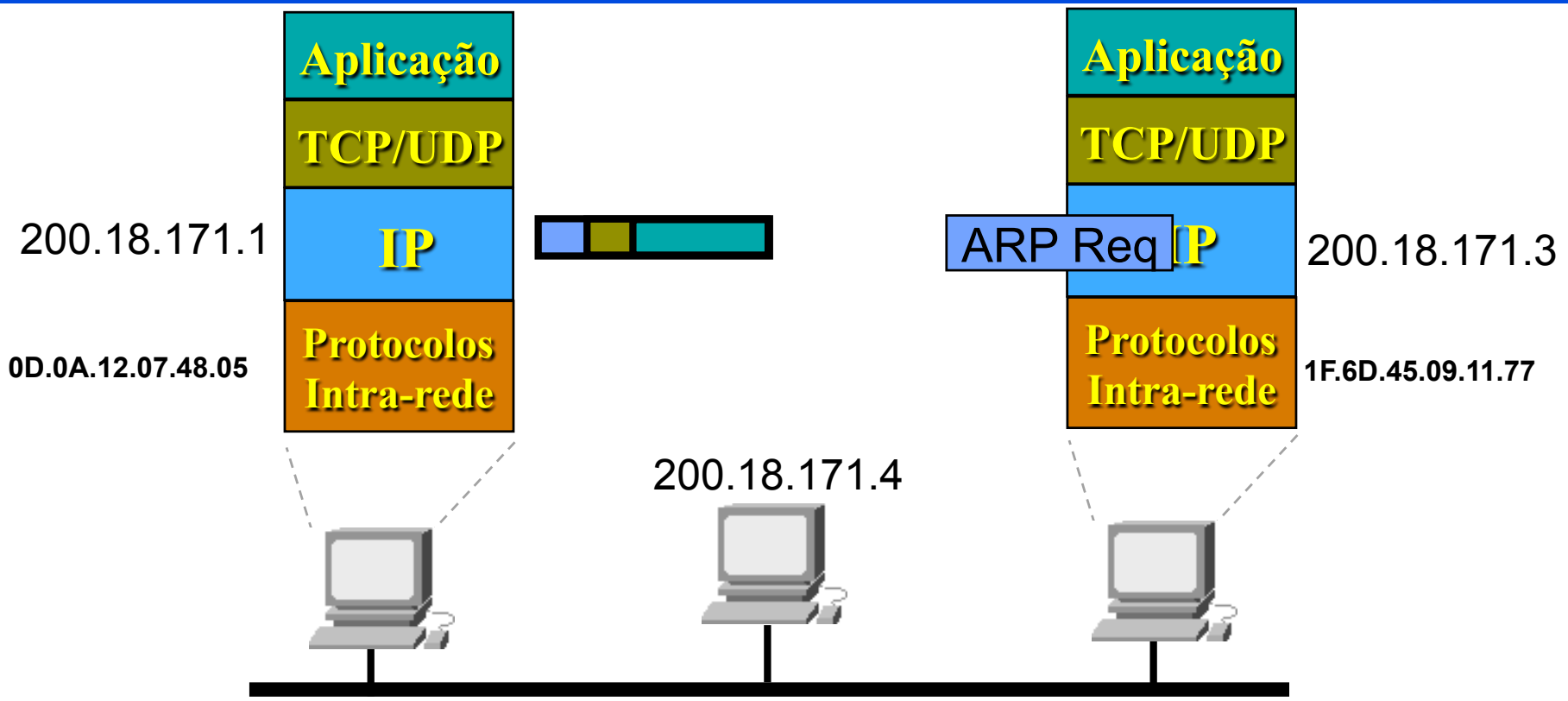

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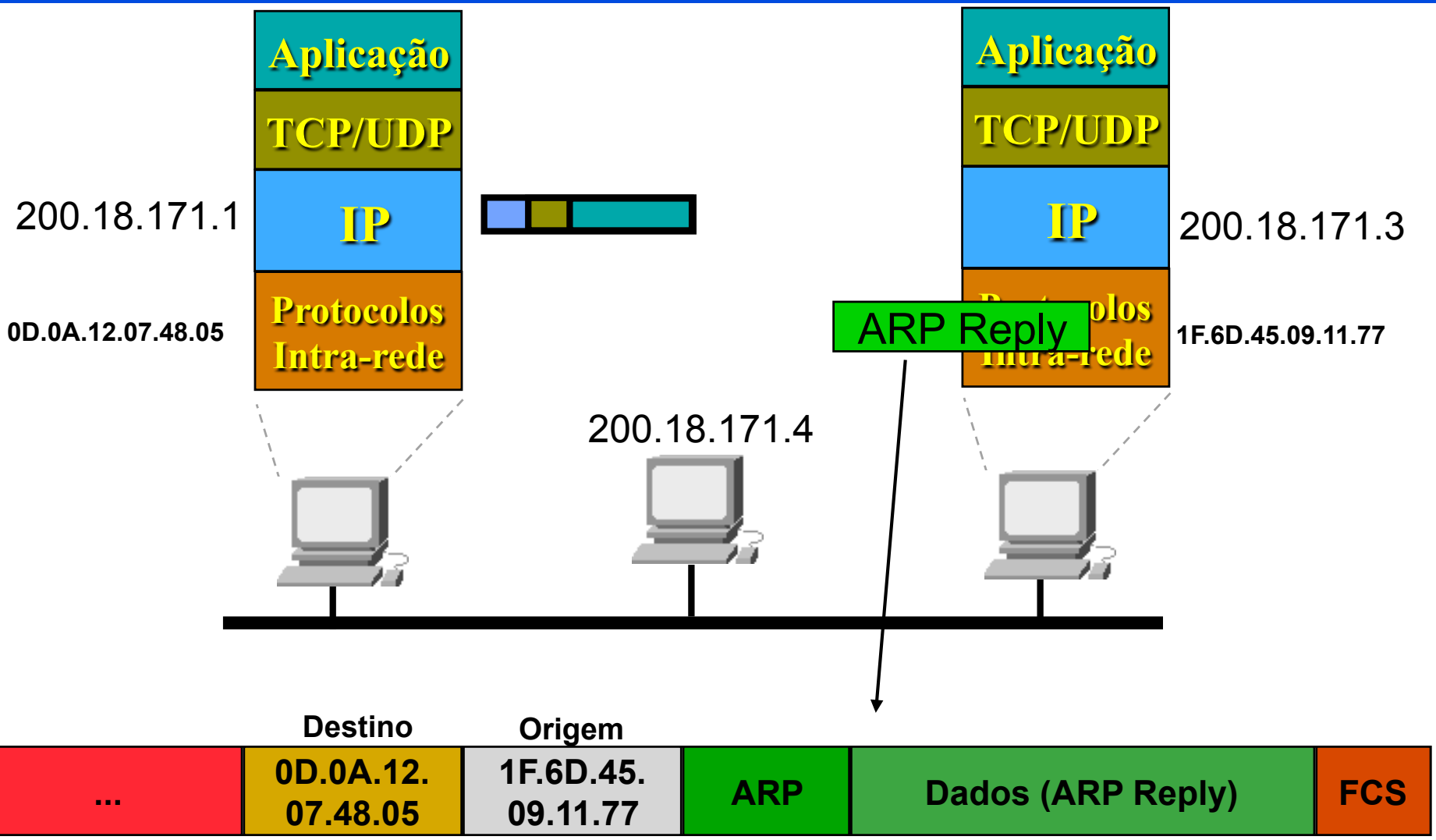
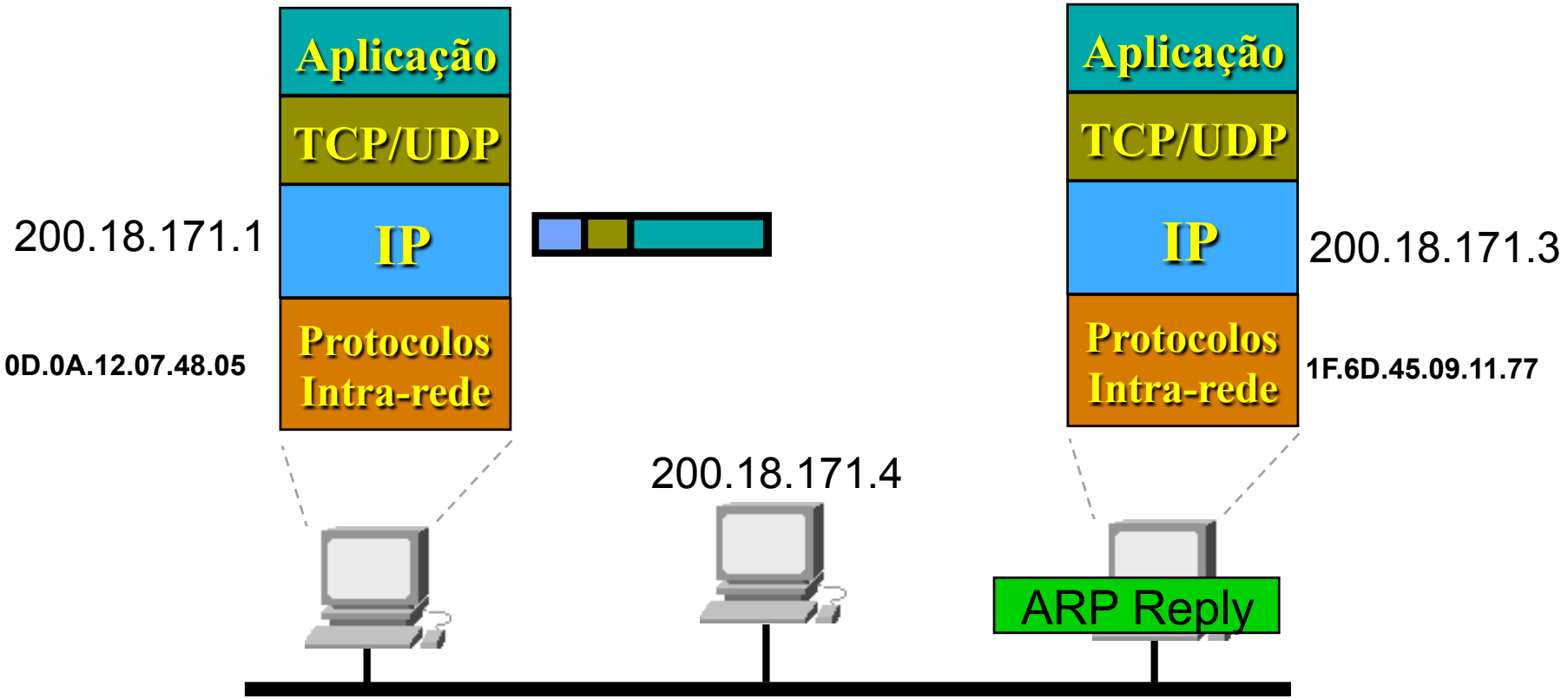


ARP (Address Resolution Protocol)



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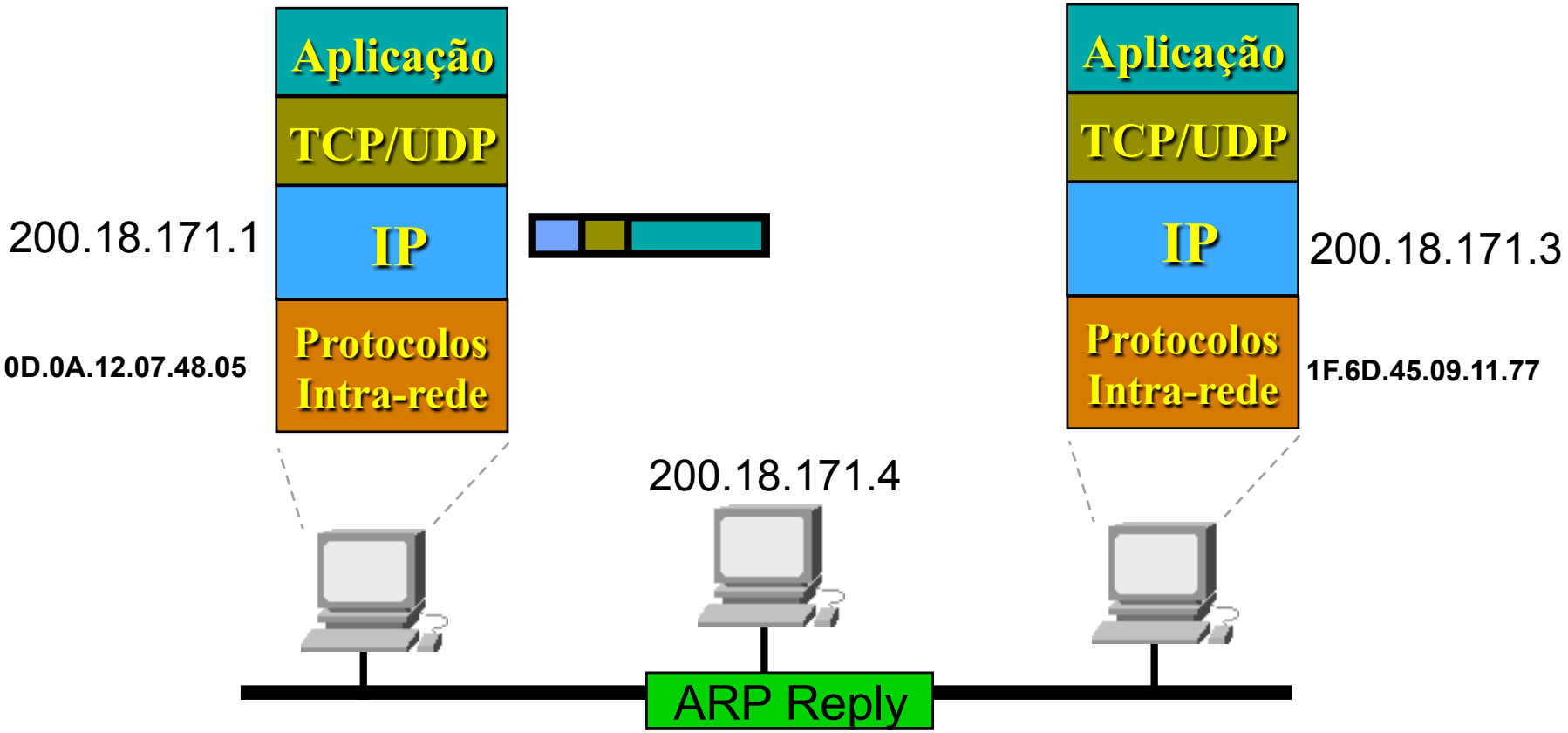

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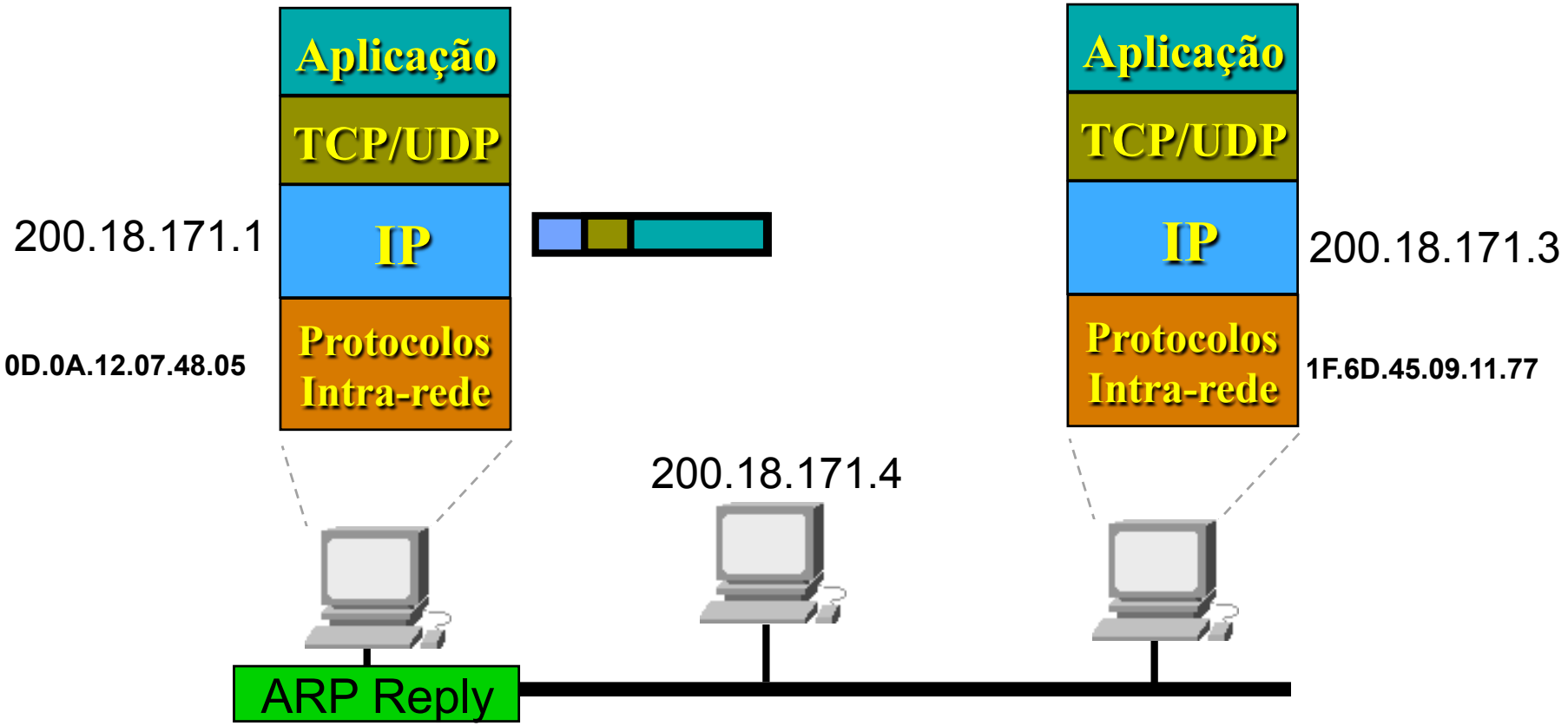

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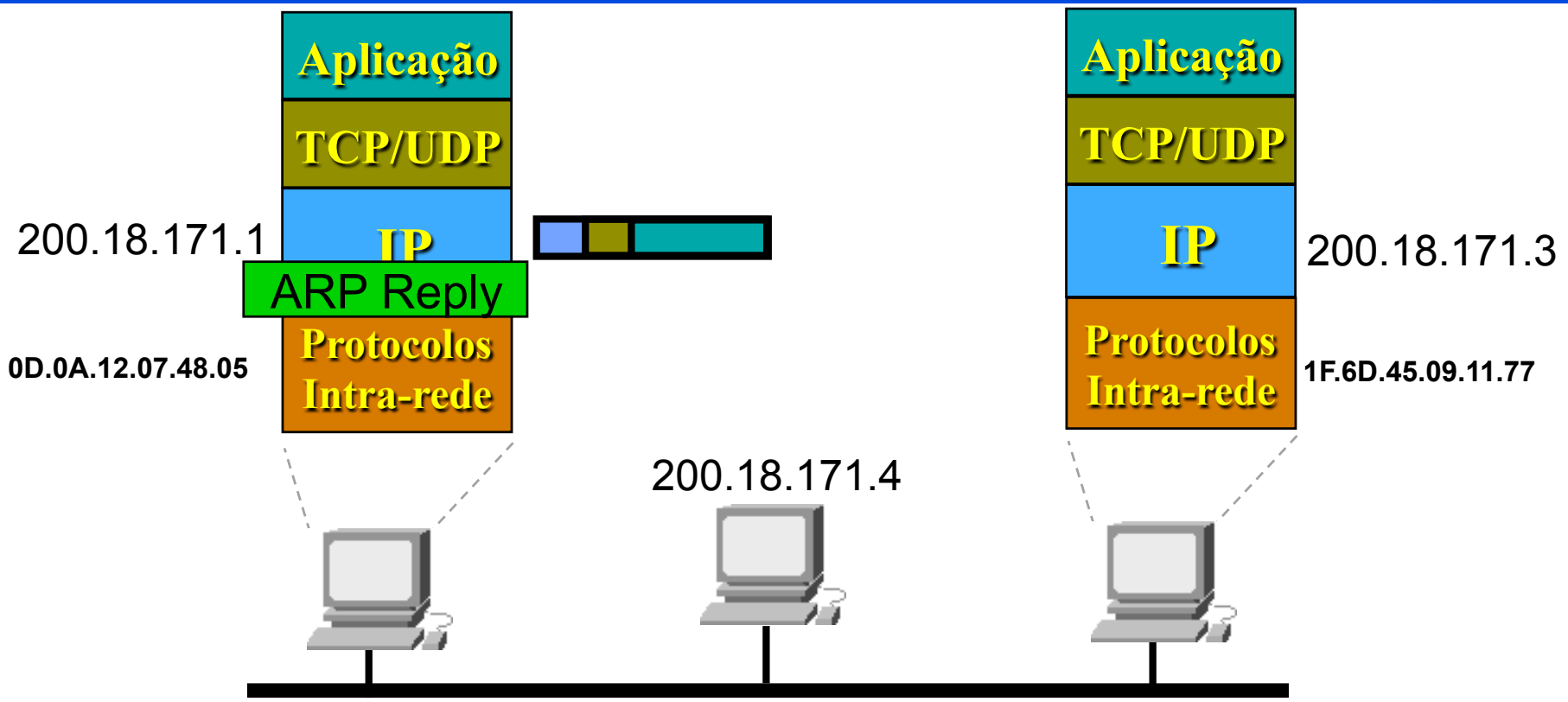

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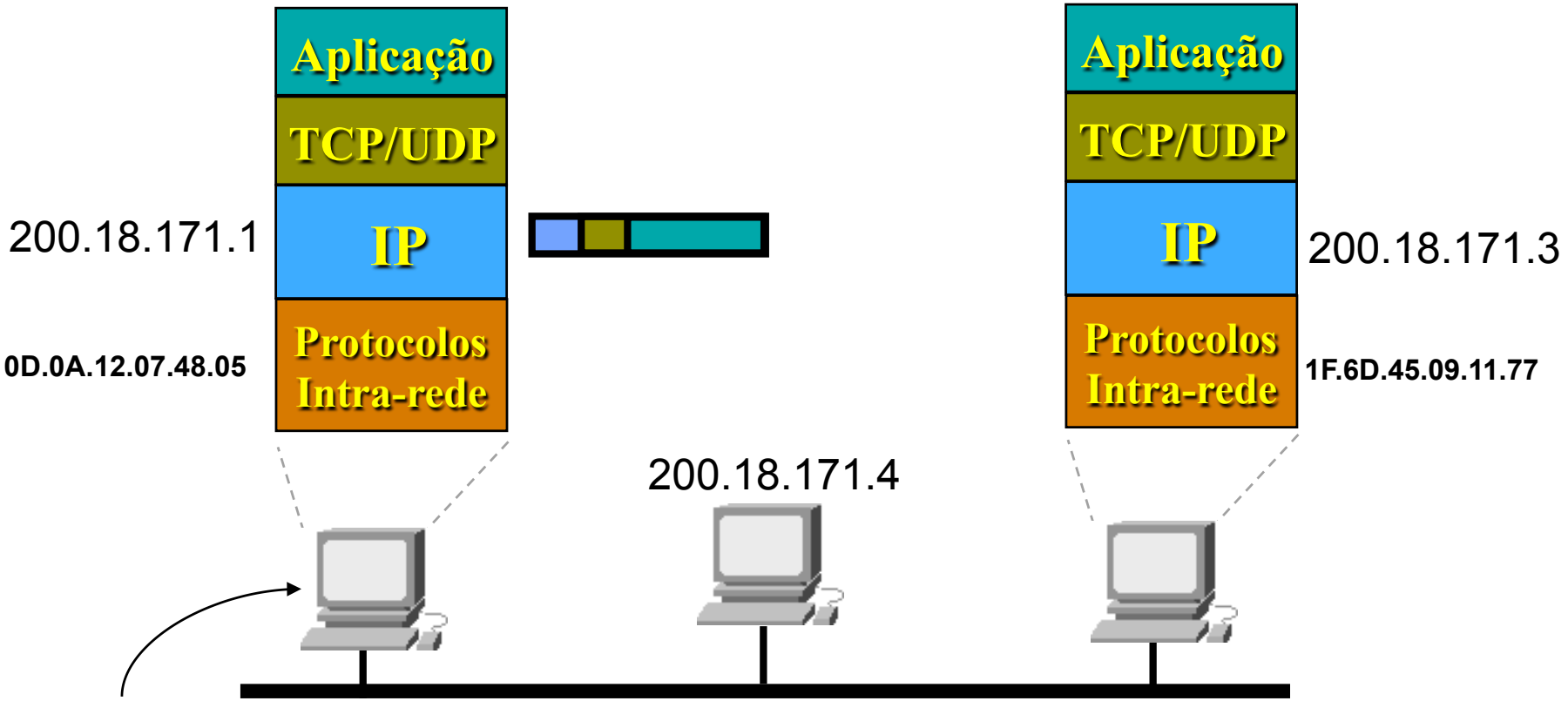
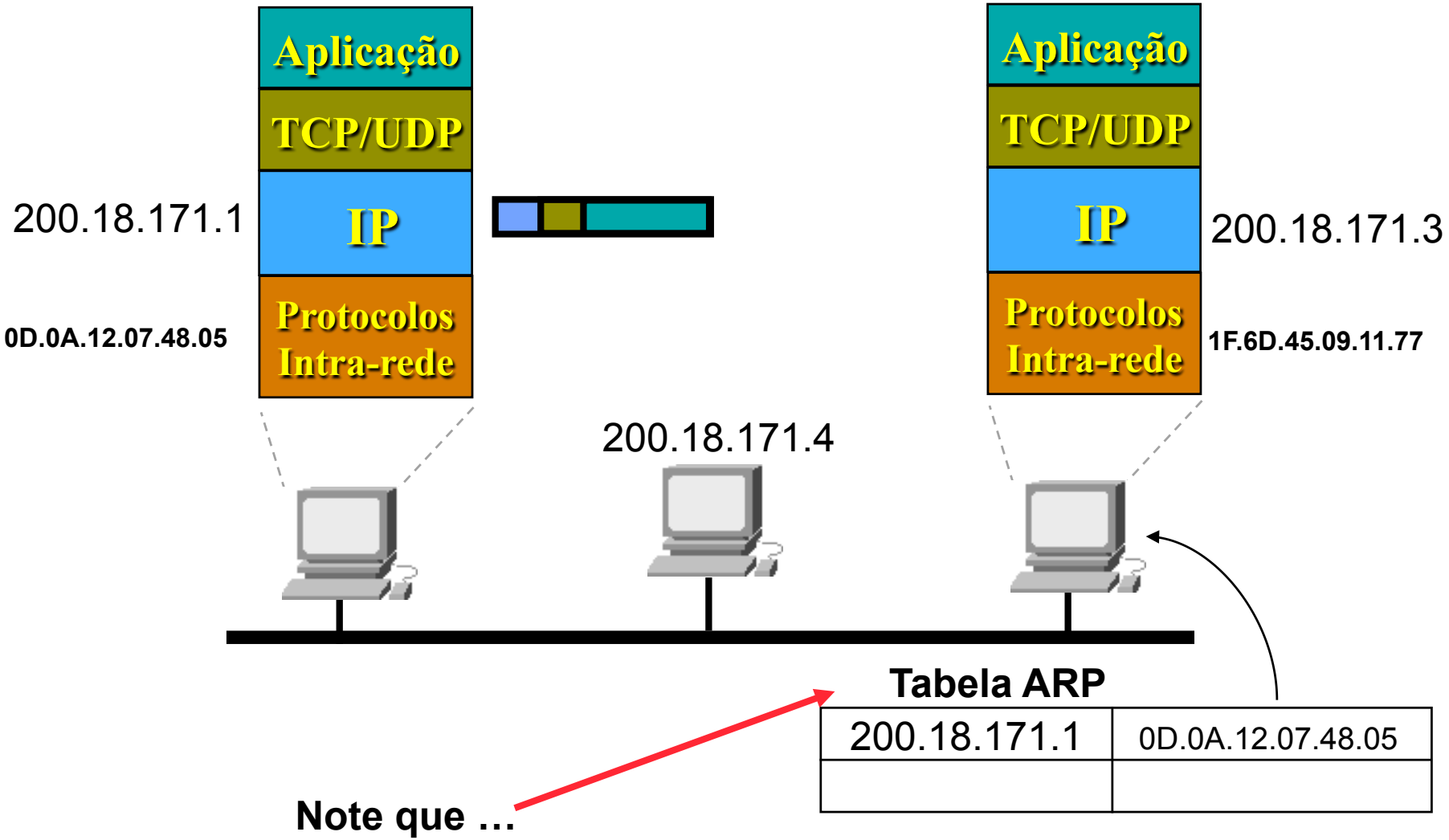


Tabela ARP

200.18.171.3	1F.6D. 45.09.11.77

ARP (Address Resolution Protocol)



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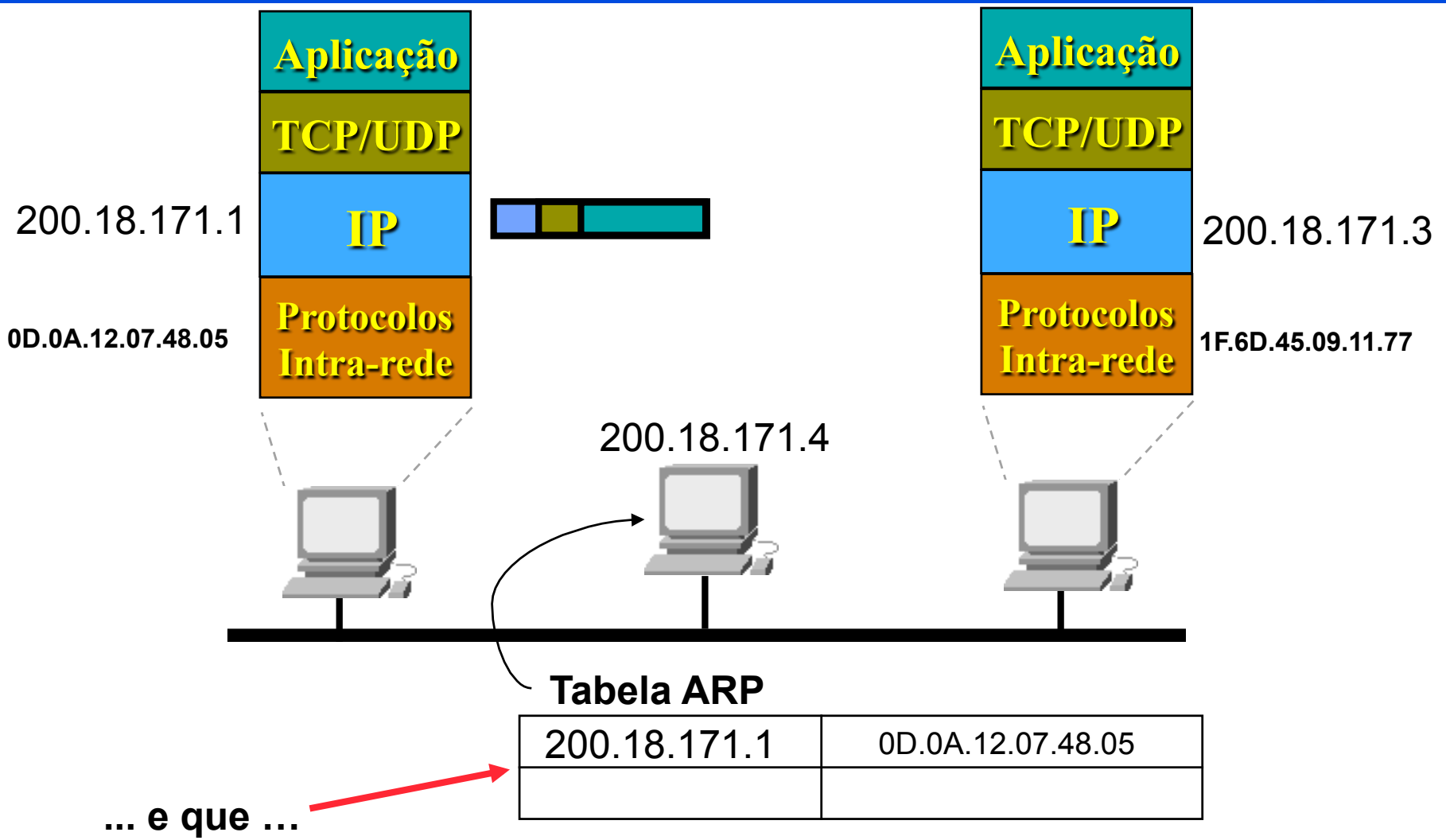

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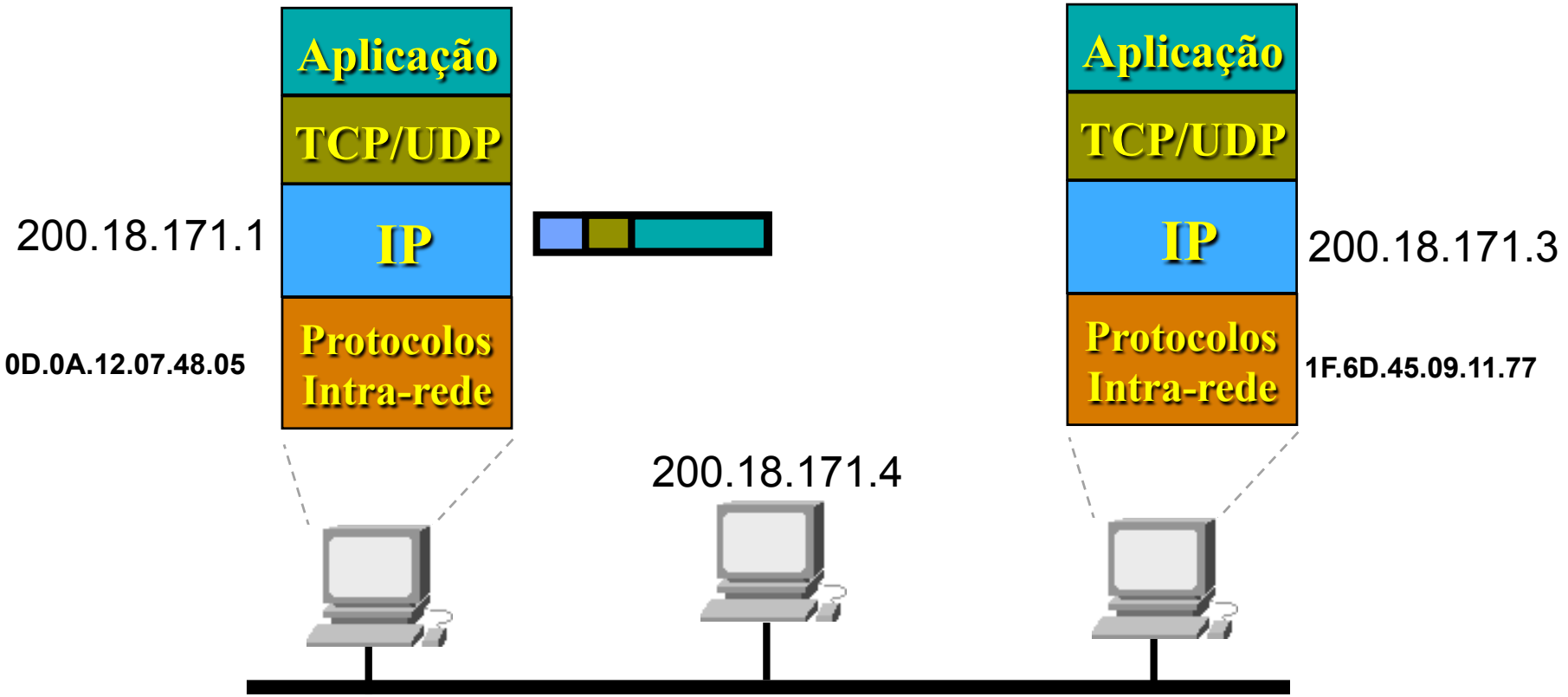
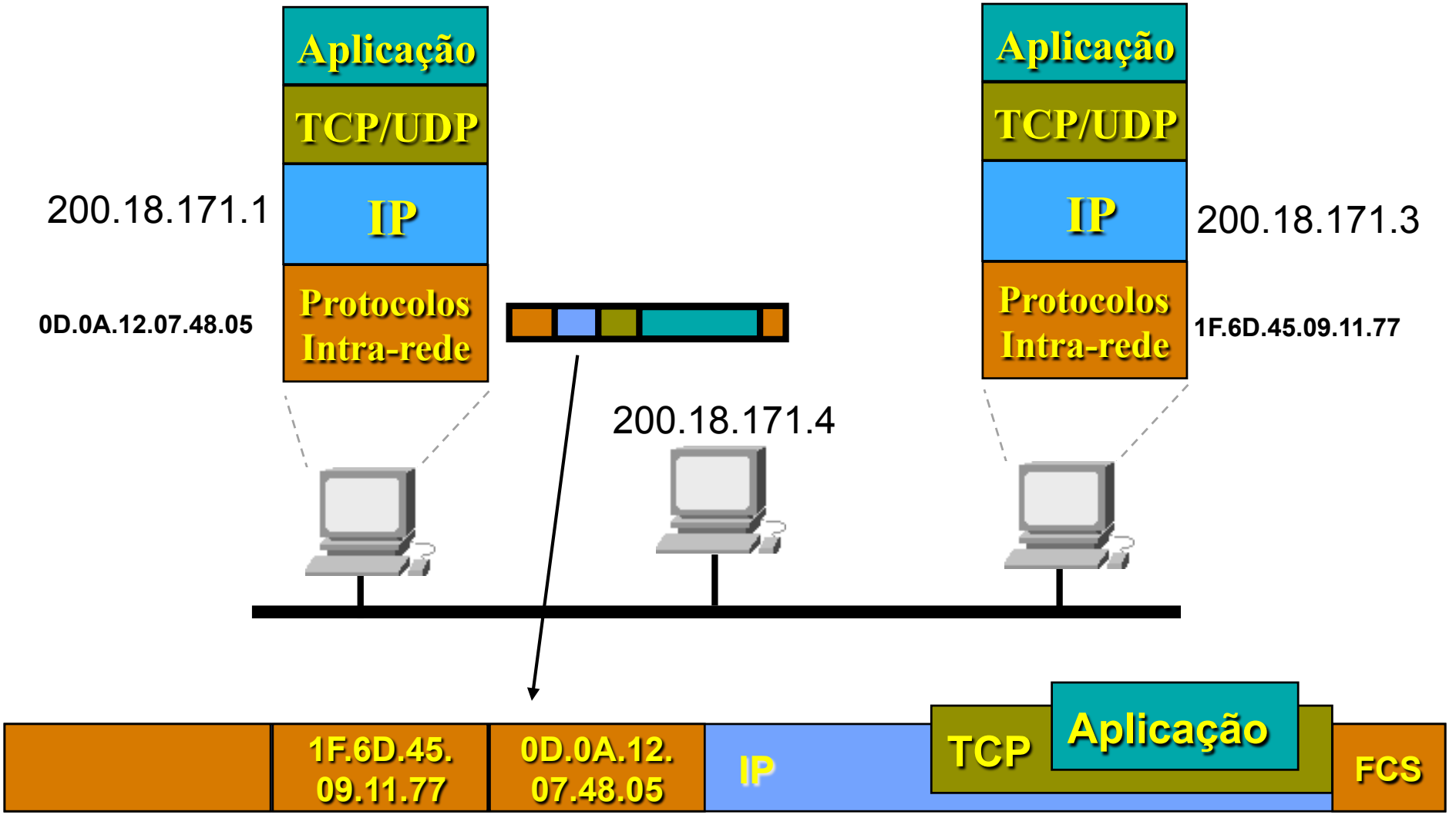
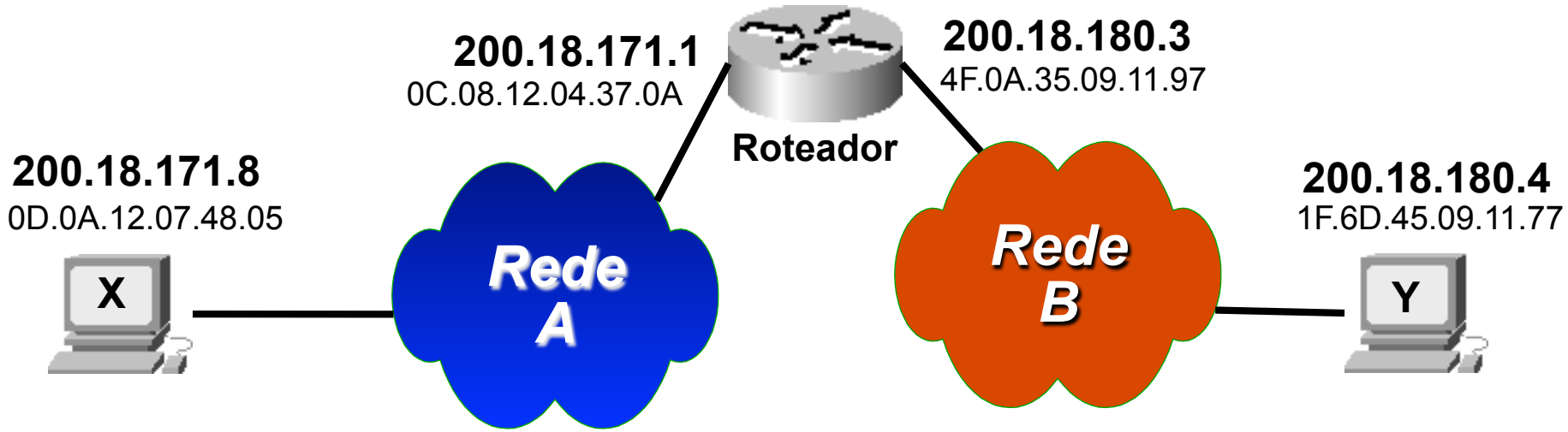


Finalmente aquele pacote IP pode ser transmitido carregando uma mensagem TCP que, por sua vez, carrega um comando da Aplicação

ARP (Address Resolution Protocol)

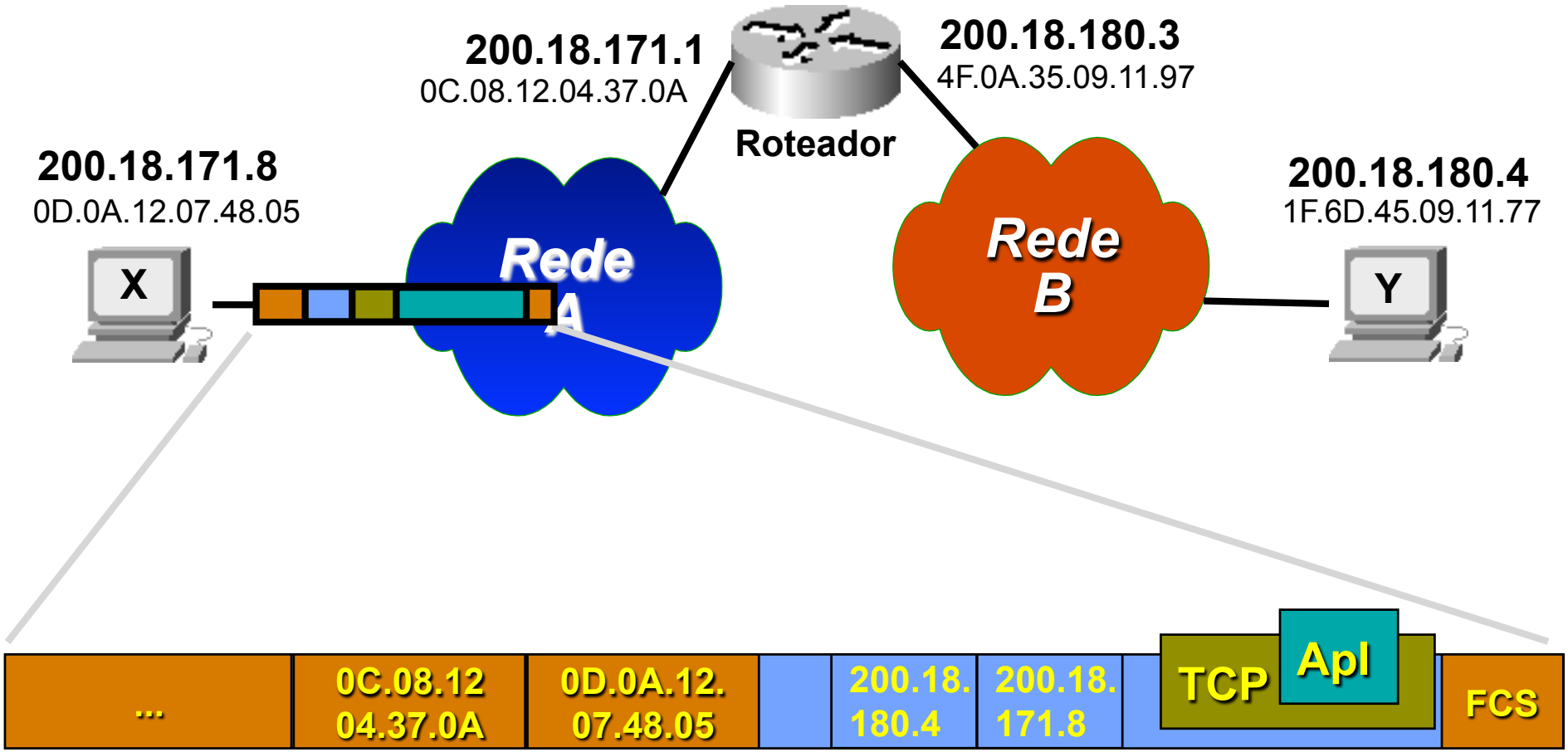


Roteamento

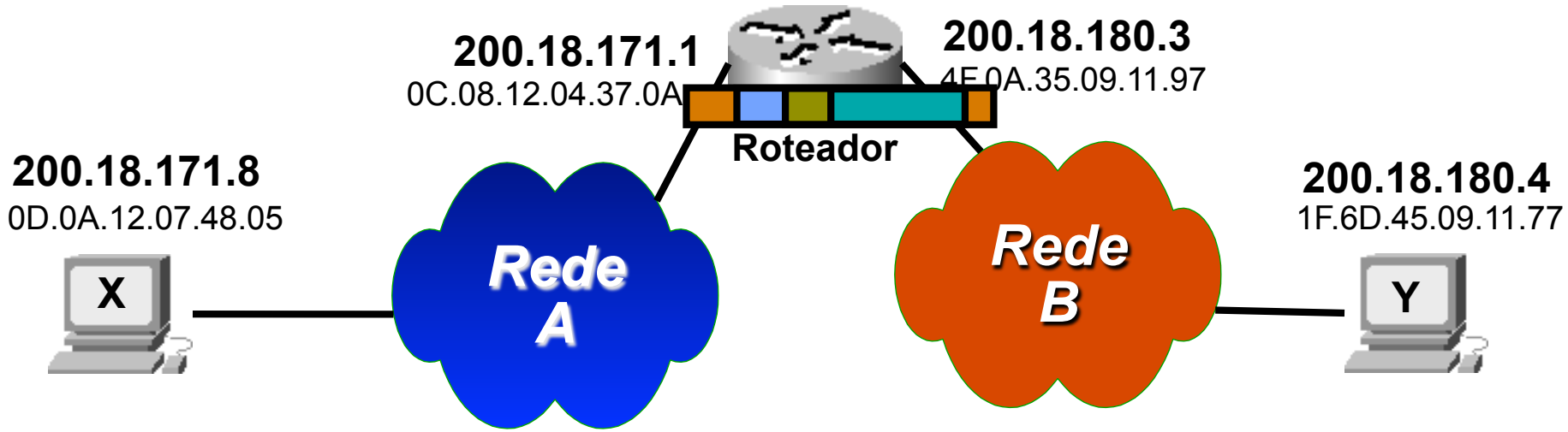


- X deseja enviar pacotes para Y
- O protocolo IP percebe que Y não pertence à mesma rede
- O host X consulta tabela de rotas
  - *Descobre rota: roteador 200.18.171.1*
- O IP do host X aciona ARP para resolver endereço do roteador
  - *Resultado: 0C.08.12.04.37.0A*

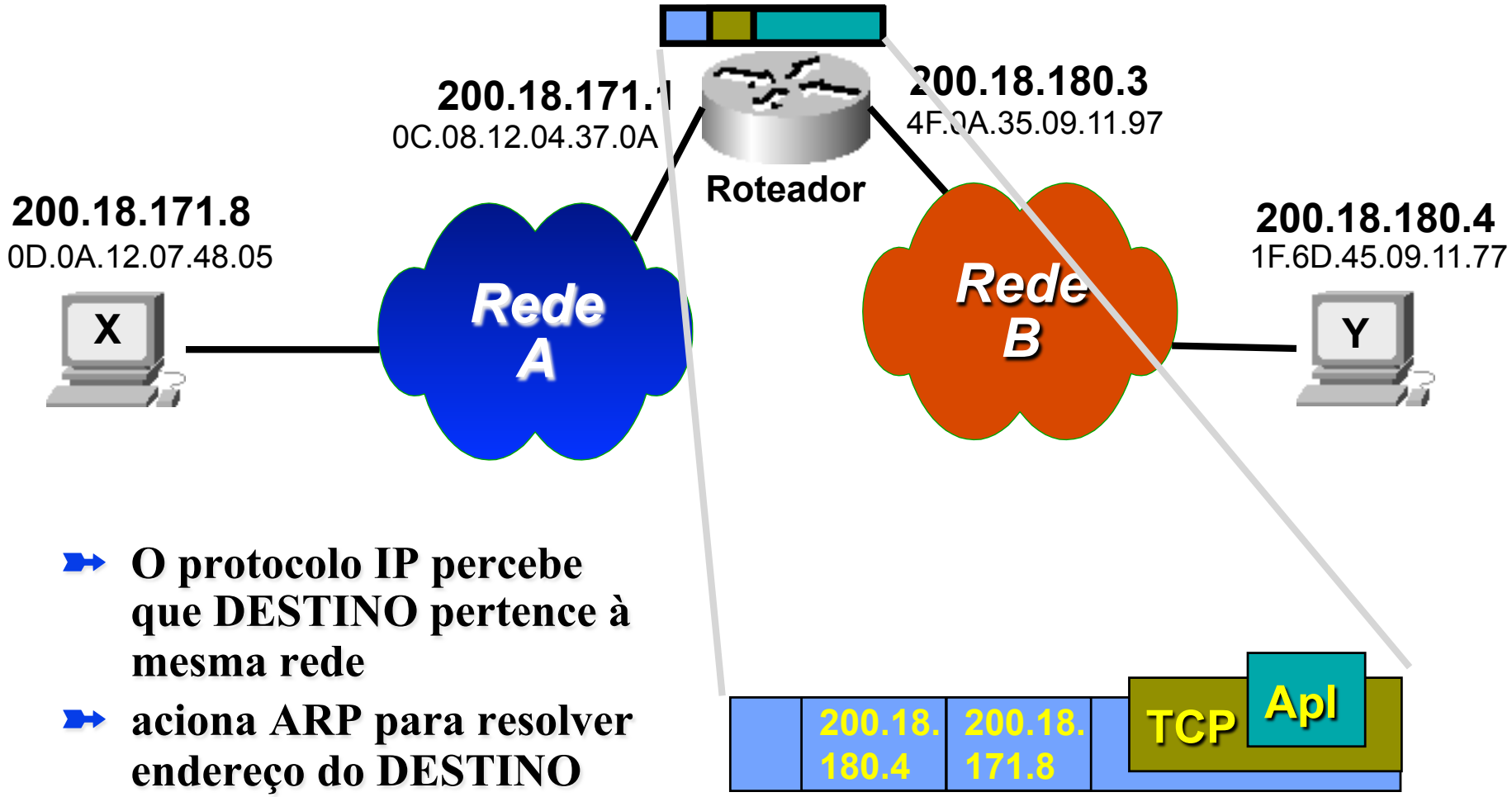
Roteamento


200.18.171.1
0C.08.12.04.37.0A
200.18.180.3
4F.0A.35.09.11.97
Roteador
200.18.171.8
0D.0A.12.07.48.05
200.18.180.4
1F.6D.45.09.11.77
X
Rede A
Rede B
Y
...
0C.08.12 04.37.0A
0D.0A.12. 07.48.05
200.18. 180.4
200.18. 171.8
TCP
Apl
FCS

Roteamento

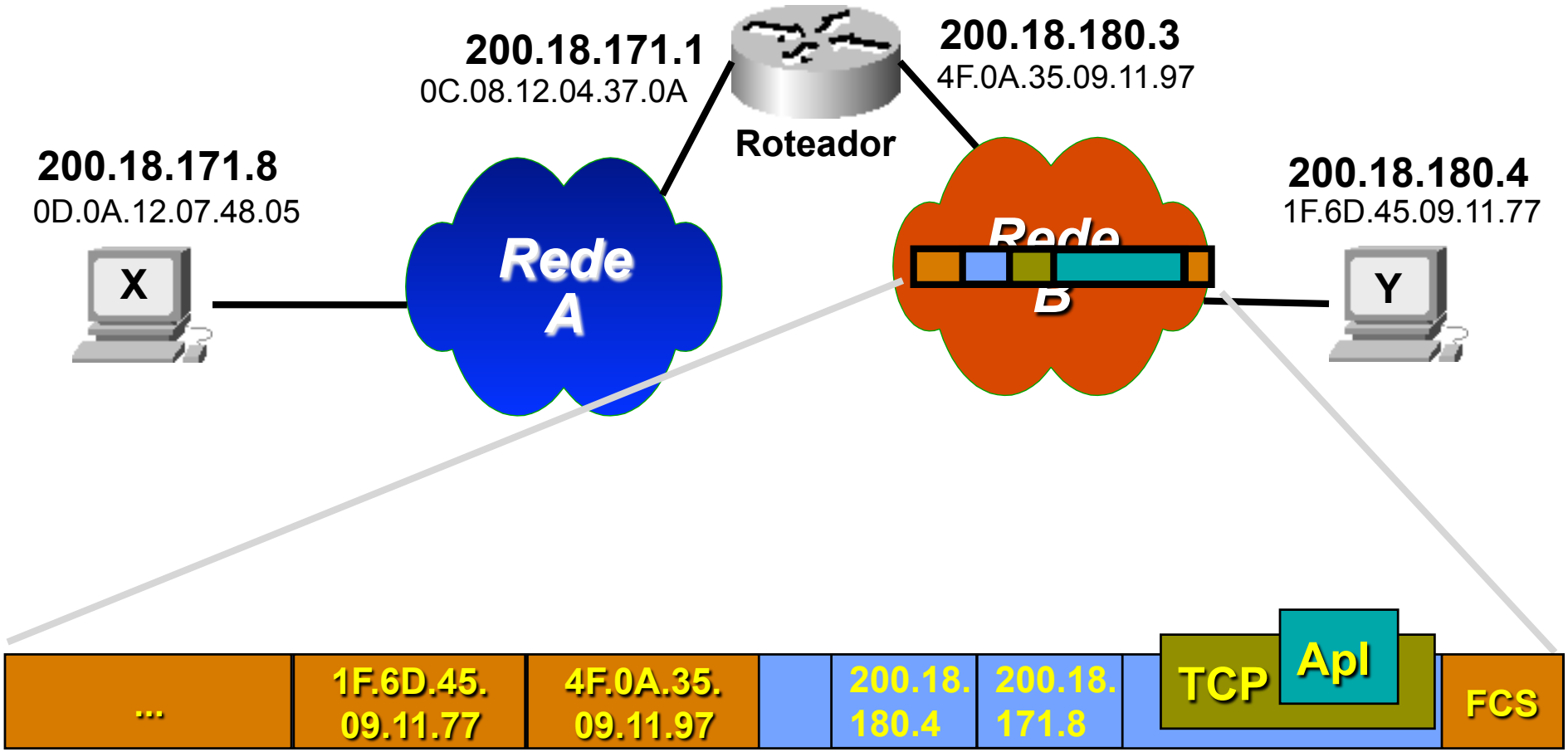

200.18.171.1
0C.08.12.04.37.0A
200.18.180.3
4F.0A.35.09.11.97
Roteador
200.18.171.8
0D.0A.12.07.48.05
200.18.180.4
1F.6D.45.09.11.77
X
Rede A
Rede B
Y

Roteamento



- O protocolo IP percebe que DESTINO pertence à mesma rede
- aciona ARP para resolver endereço do DESTINO
  - ***Resultado:*** 1F.6D.45.09.11.77

Roteamento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0C.08.12.04.37.0A
200.18.180.3
4F.0A.35.09.11.97
Roteador
200.18.171.8
0D.0A.12.07.48.05
200.18.180.4
1F.6D.45.09.11.77
X
Rede A
Rede B
Y
...
1F.6D.45. 09.11.77
4F.0A.35. 09.11.97
200.18. 180.4
200.18. 171.8
TCP
Apl
FCS