

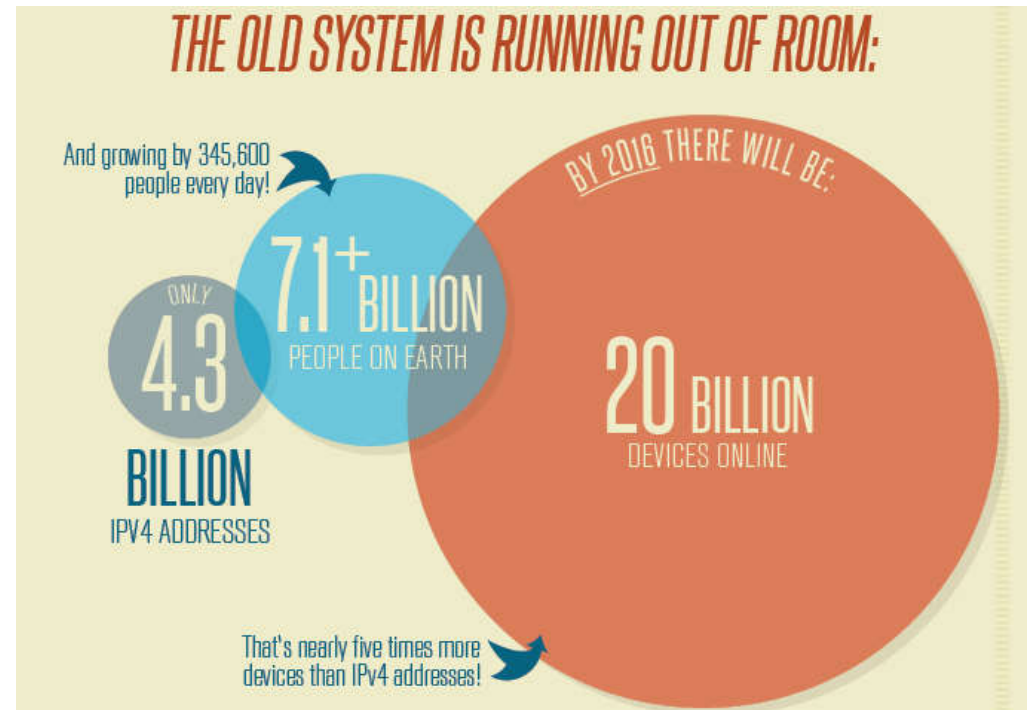
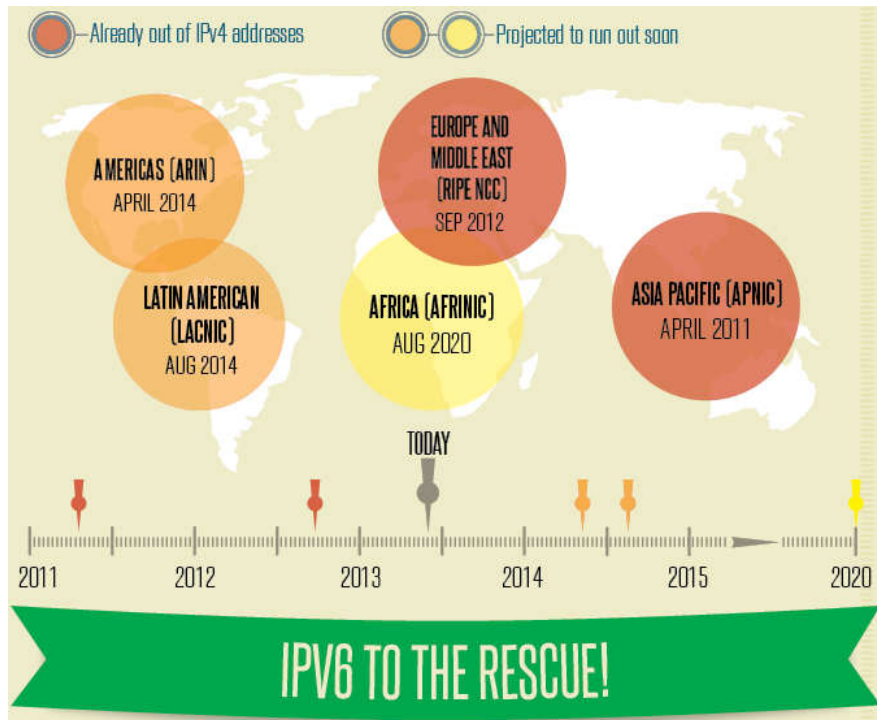
REDES DE COMPUTADORES

Mário Antunes

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Novembro de 2018

Tecnologia IPv6 - Motivação



<http://www.worldipv6launch.org/>

IPv6 versus IPv4

IPv4

Version	IHL	Type of Service	Total Length	
Identification			Flag	Fragment Offset
Time To Live	Protocol		Header Checksum	
Source Address				
Destination Address				
Options				Padding



Nome mantém



Campo desaparece



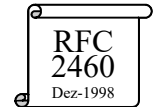
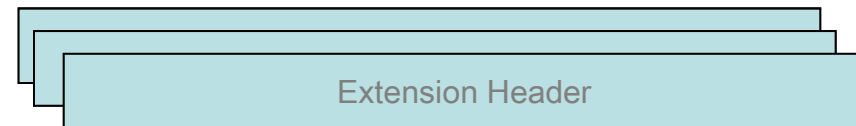
Nome/posição altera



Novo campo

IPv6

Version	Traffic Class	Flow Label		
Payload Length		Next Header	Hop Limit	
Source Address				
Destination Address				



Cabeçalhos de extensão



IPv6 header NextHeader=TCP	TCP Header and Data
---	----------------------------

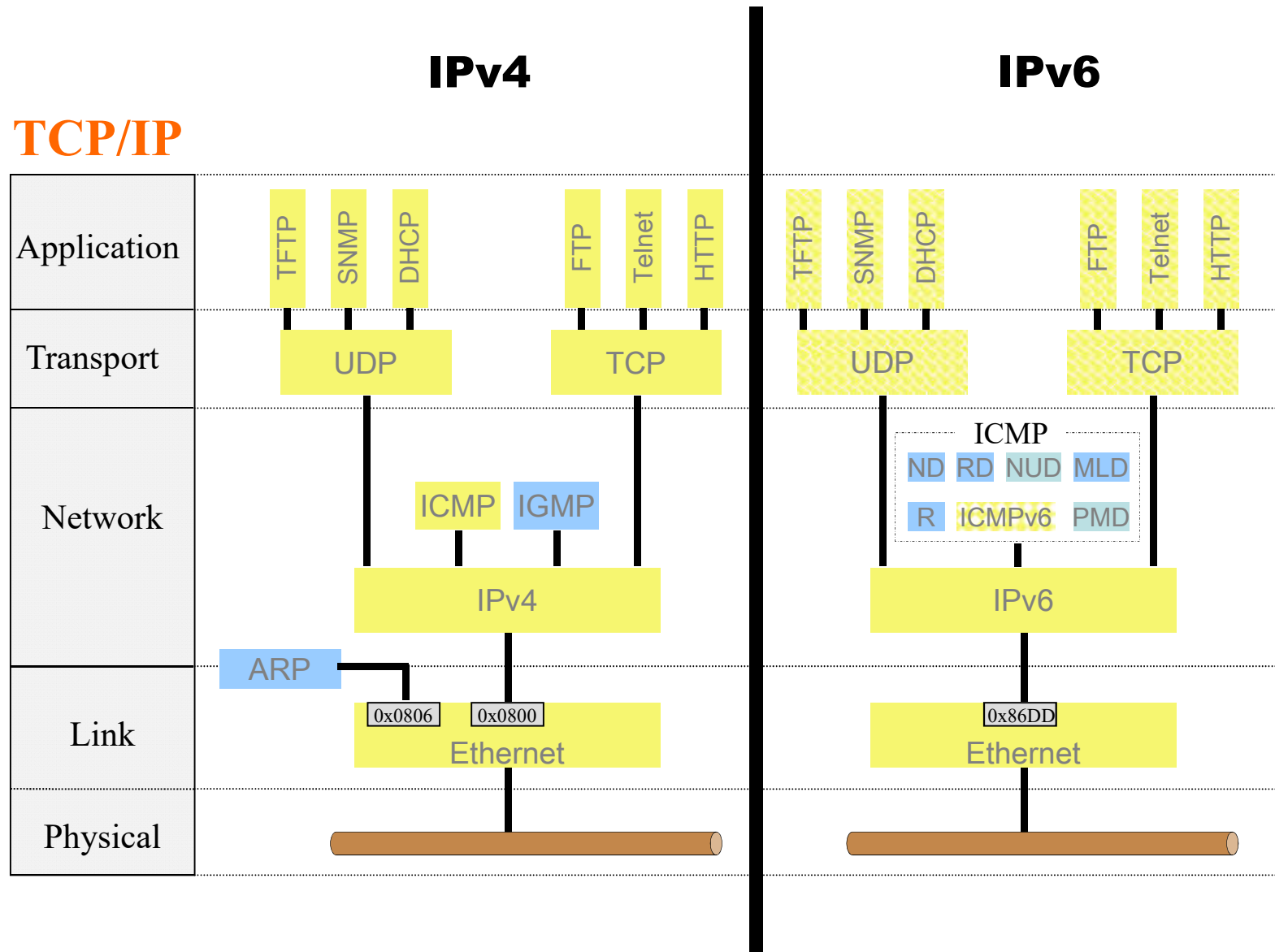
IPv6 header NextHeader=Routing	Routing header NextHeader=TCP	TCP Header and Data
---	--	----------------------------

IPv6 header NextHeader=Routing	Routing header NextHeader=Frag.	Fragment header NextHeader=TCP	TCP Header and Data
---	--	---	----------------------------

#	Tipo de Header	Next Header
1	Basic IPv6 Header	-
2	Hop-by-Hop Options	0
4	Routing Header	43
5	Fragment Header	44
6	Authentication Header	51
7	ESP Header	50
UL	TCP	6
UL	UDP	17
UL	ICMP	58

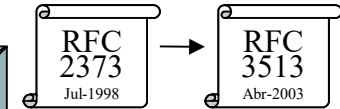
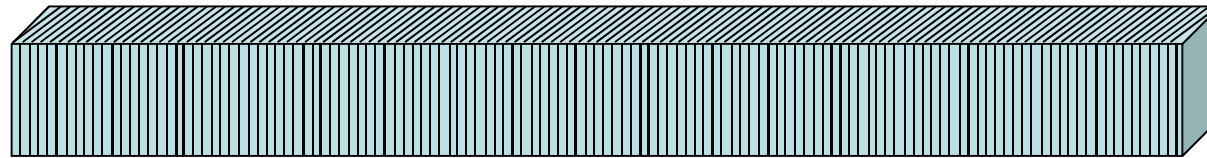
IPv6 versus IPv4

TCP/IP

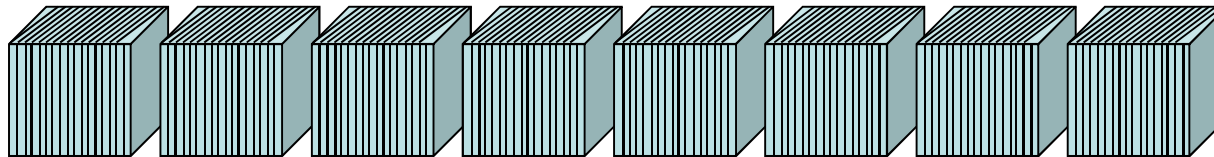


Representação dos endereços

A estrutura de 128 bits ...



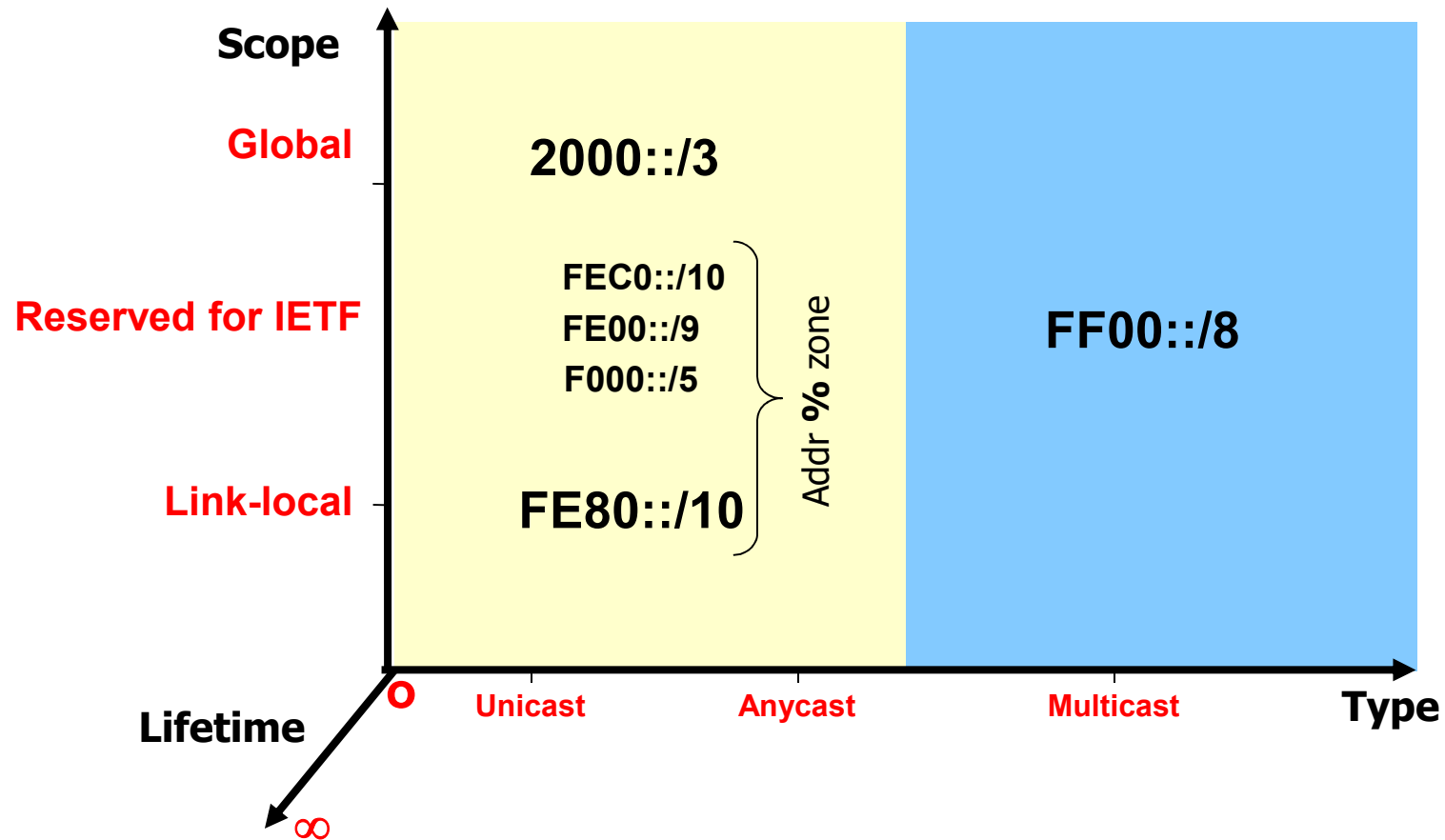
...é dividida em 8 blocos de 16 bits ...



... e apresentada na notação “column-hexadecimal”

FE80 : 34A6 : B67D : E431 : 903C : ABCD : 4592 : 2315

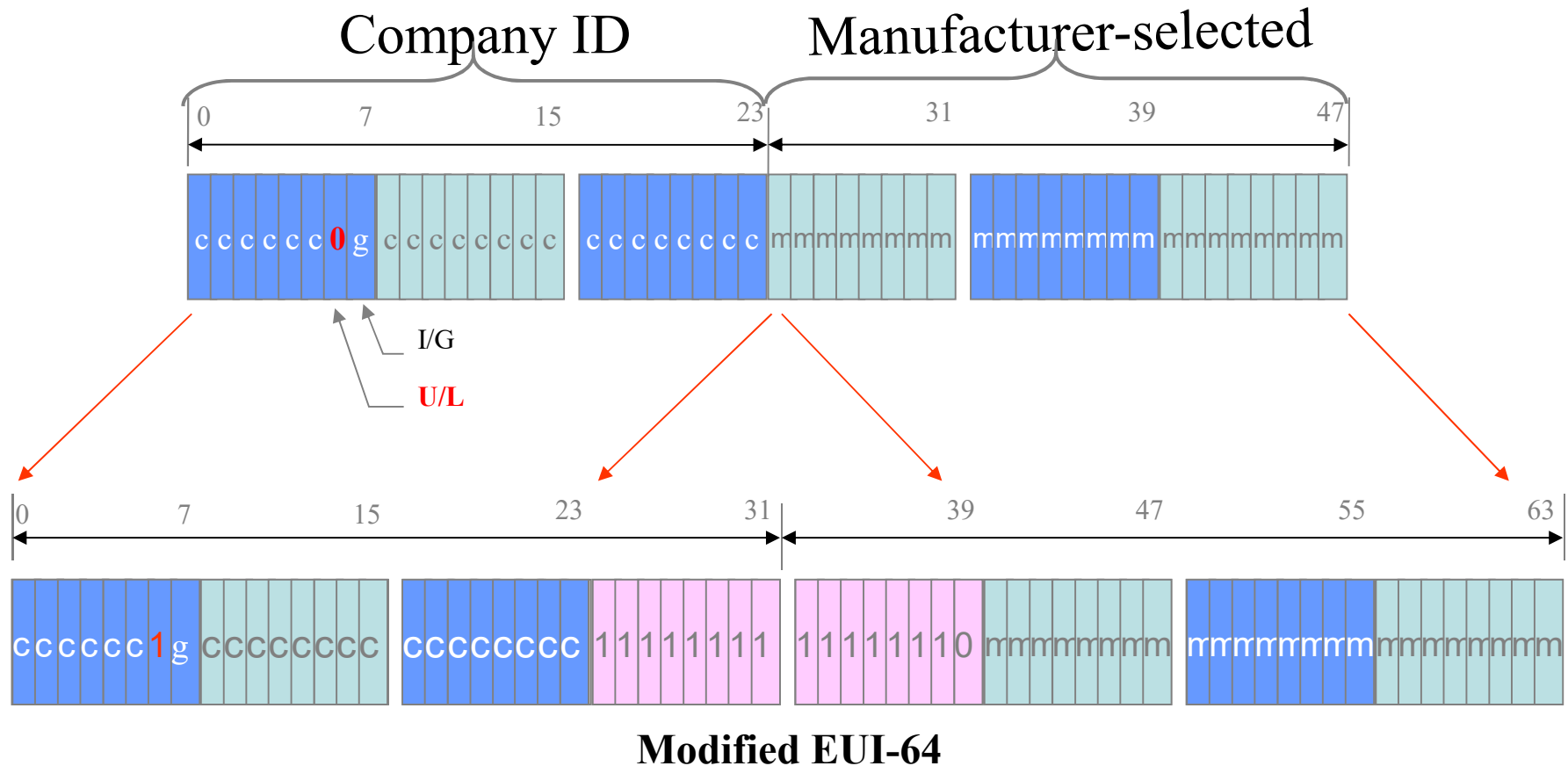
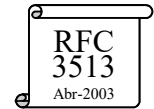
Espaço de endereçamento



Resumo em <http://www.iana.org/assignments/ipv6-address-space/ipv6-address-space.xhtml>

Endereçamento Link-local

Interface ID \equiv Modified EUI-64 (Extended Unique ID)
48 bit IEEE 802.2 address



Resolução de endereços

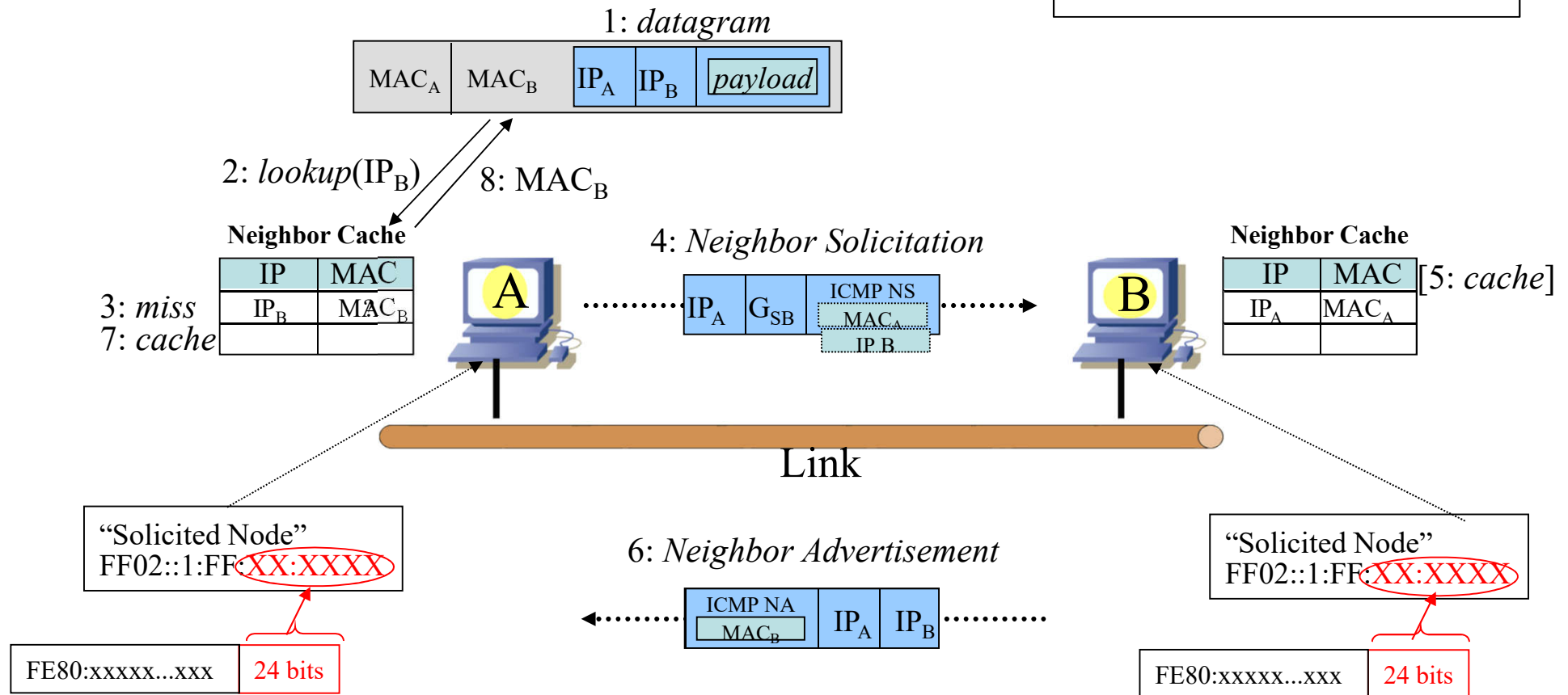
Conversão $IP_B \rightarrow MAC_B$?

- Neighbor Discovery (ND) protocol

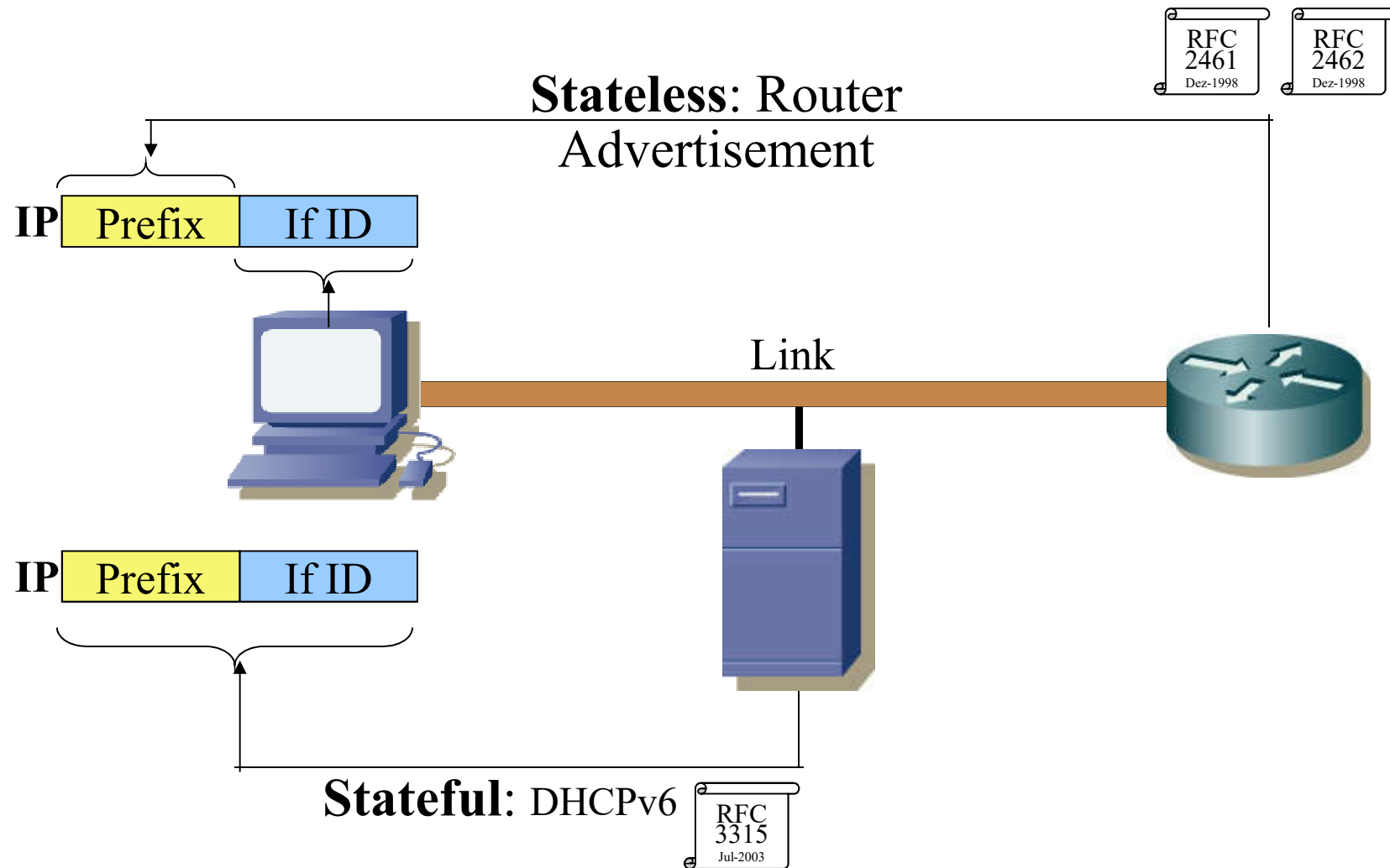
Multicast:

D_IP = FF02::1:FF:XX:XXXX

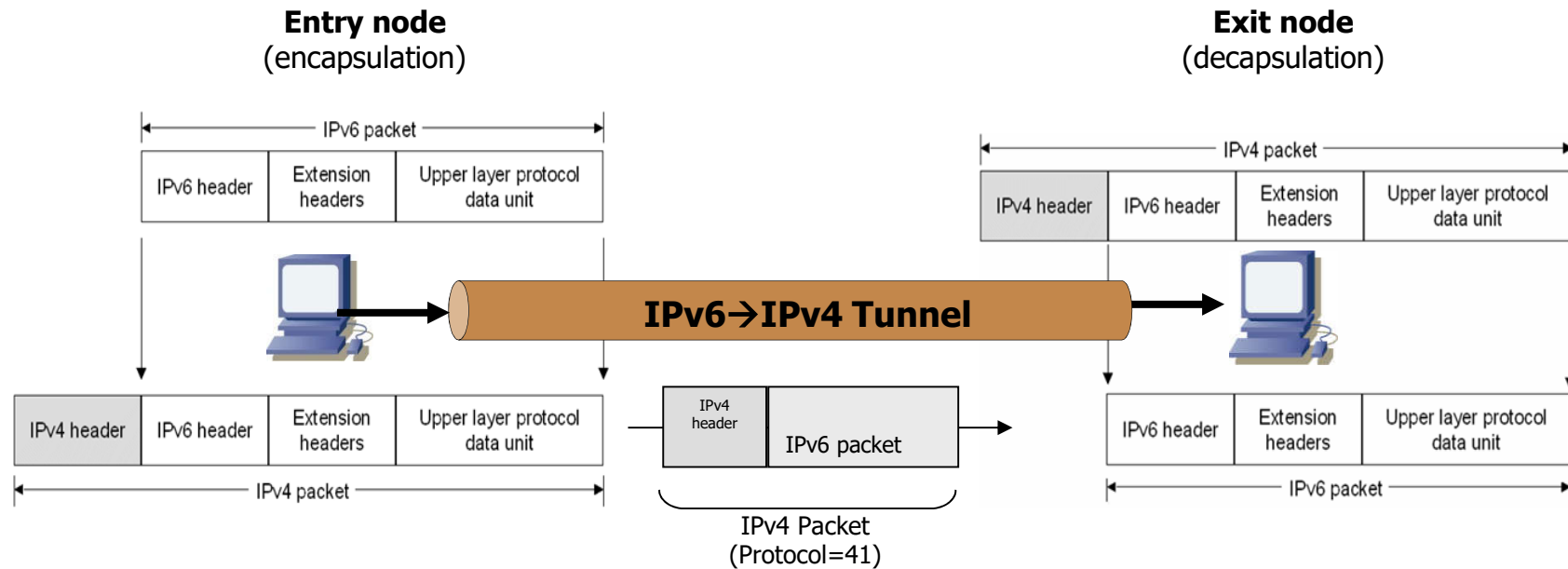
D_MAC = 33:33:FF:XX:XX:XX



Endereçamento automático

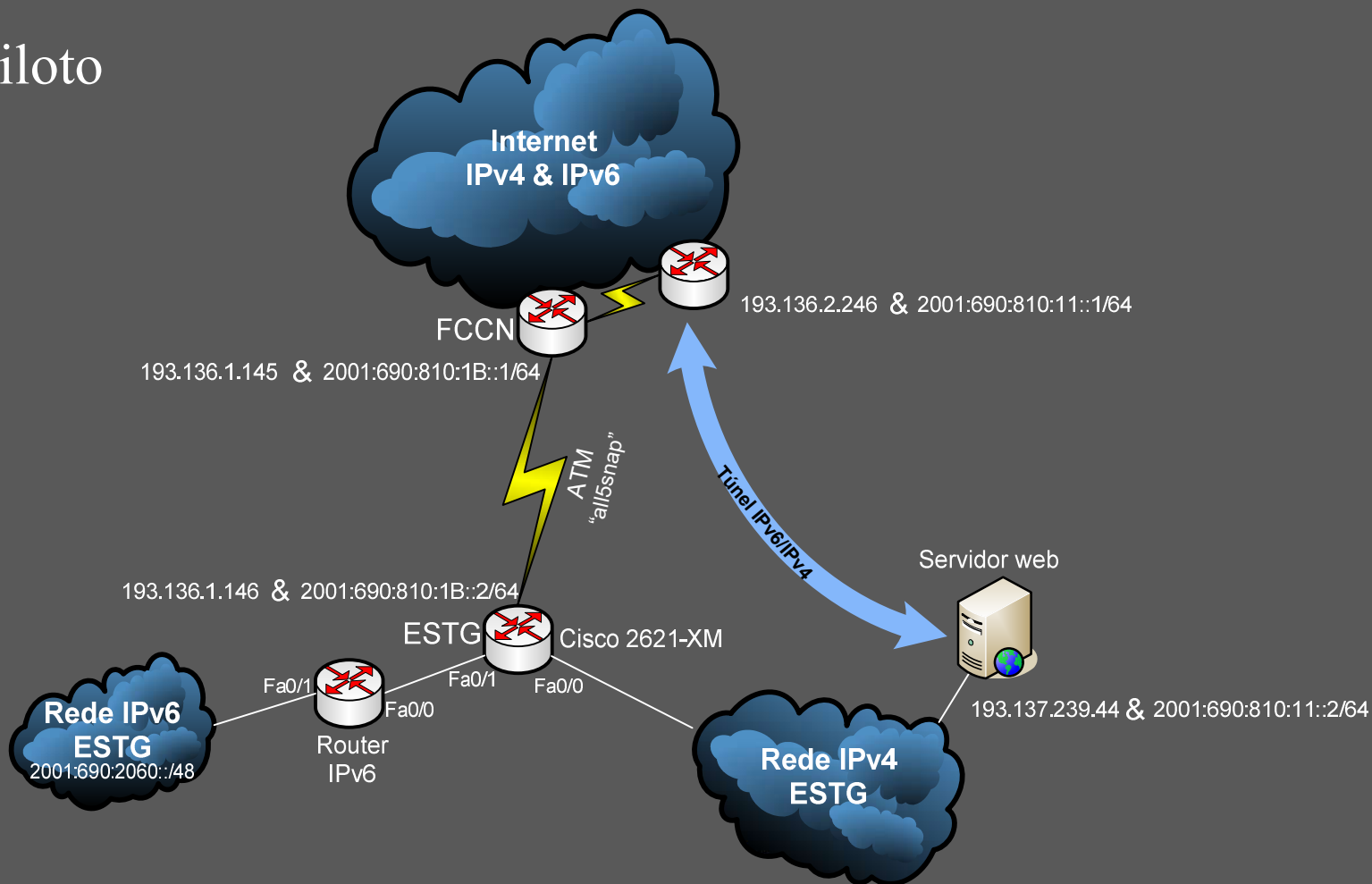


Noção de túnel IPv4-IPv6



IPv6@ESTG-Leiria

Rede Piloto

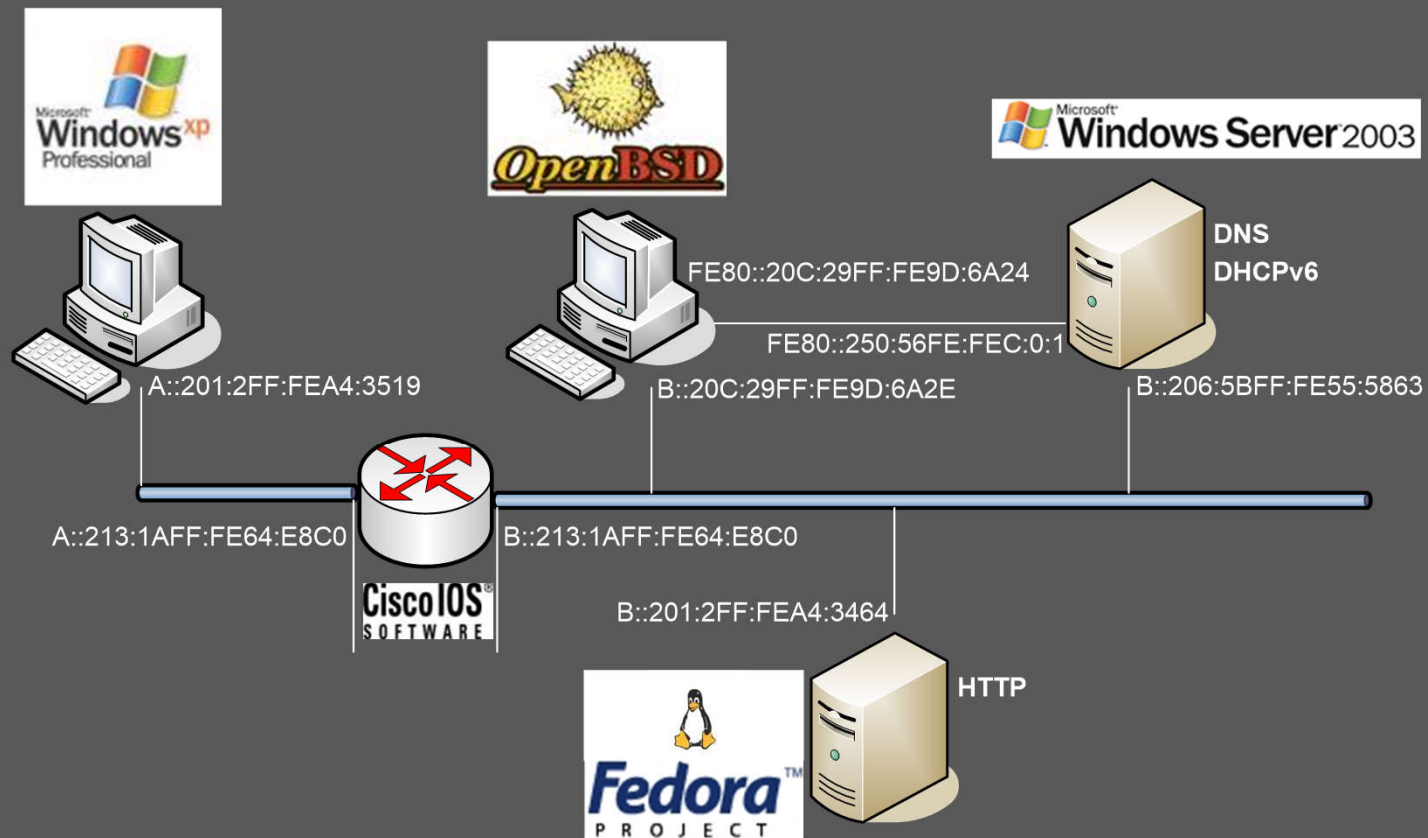


Victor Santos / David Serafim (c)

<http://dei.estg.ipleiria.pt/projetos/ipv6/>

IPv6@ESTG-Leiria

Rede de testes

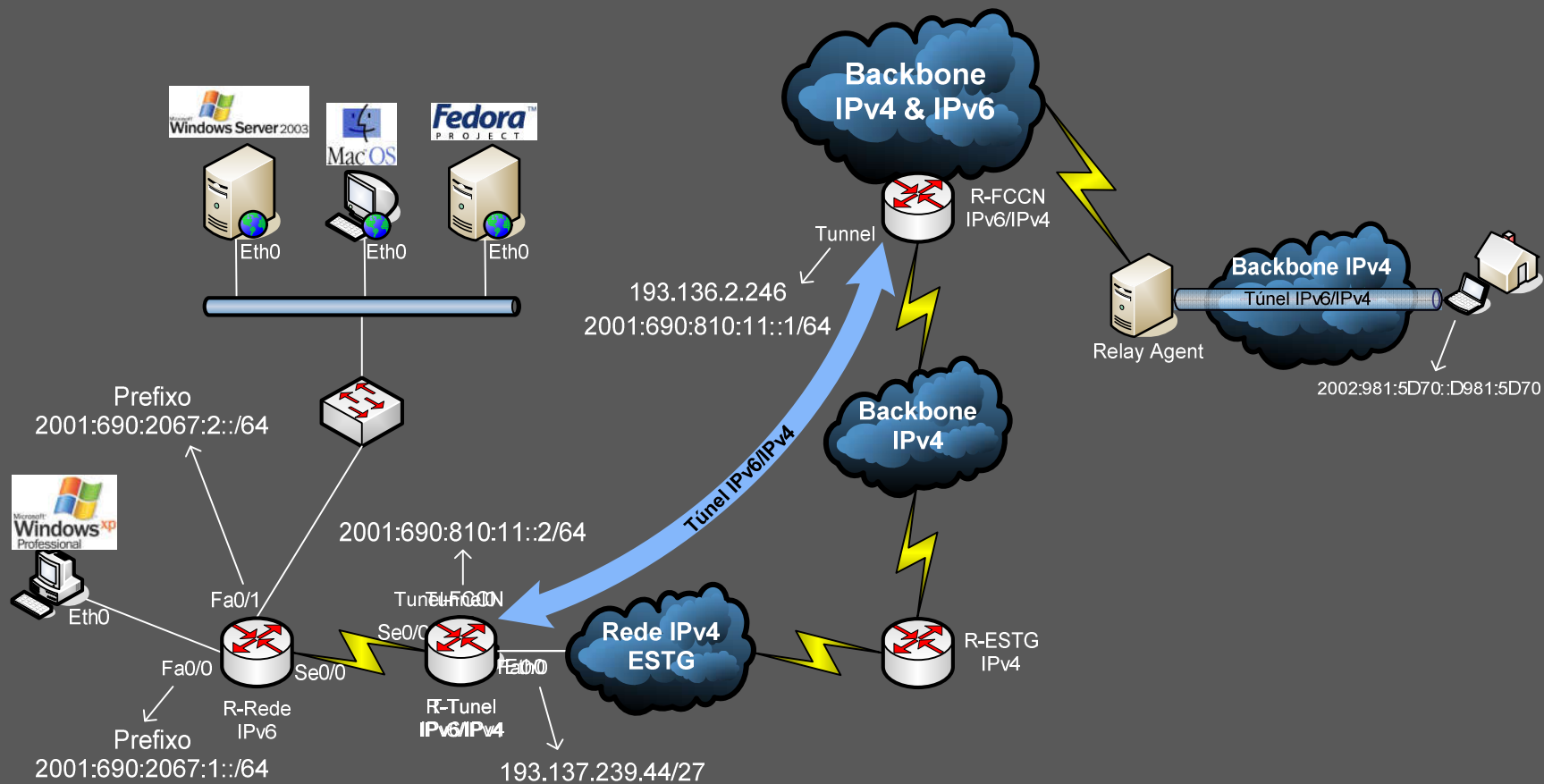


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<http://dei.estg.ipleiria.pt/projetos/ipv6/>

IPv6@ESTG-Leiria

Visão global



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