



**Evropski
Socialni
Sklad**

Izvedbo projekta je omogočilo sofinanciranje Evropskega socialnega sklada Evropske unije in Ministrstva za visoko šolstvo, znanost in tehnologijo.



Zakaj bo Šestka prehitela Štirko?

(resnična zgodba o srečanju dveh IP-protokolov)

Matjaž Straus, Arnes

Jan Žorž, go6.si



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Stari IP

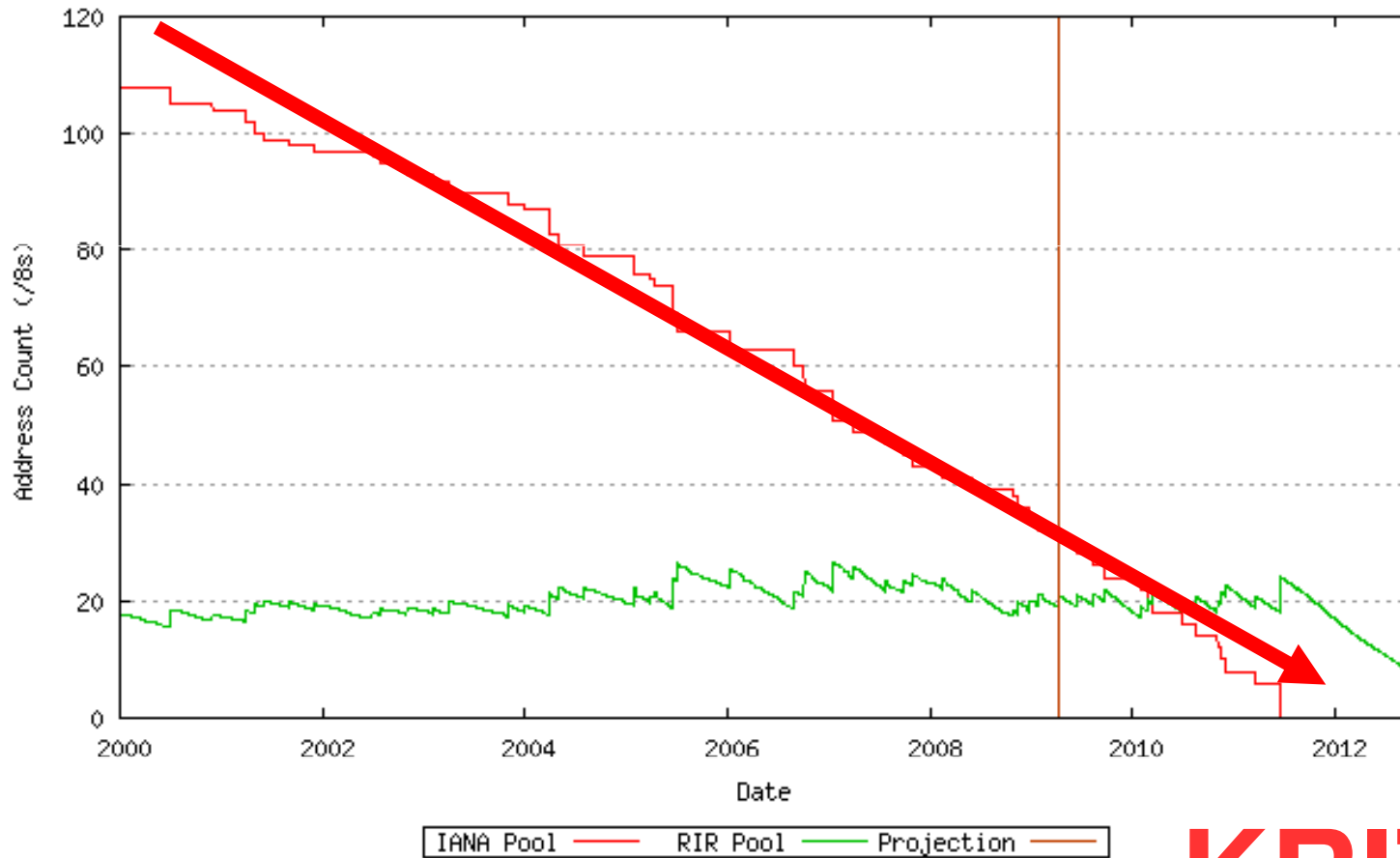


212.44.108.1

11010100001011000110110000000001

go6.si

IPv4-naslovov bo zmanjkalo



KRIZA!

Novi IP



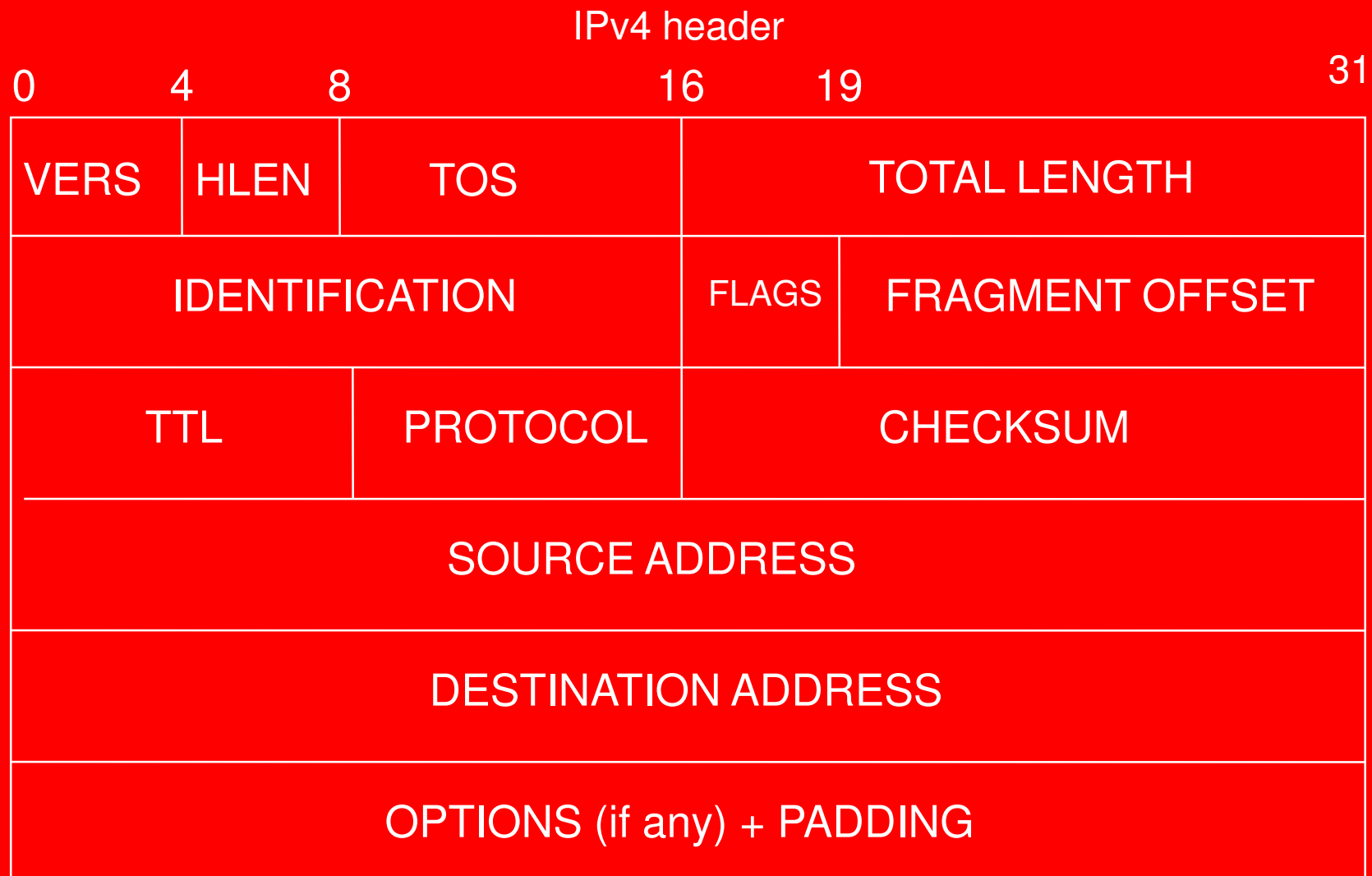
IPv6-naslovov je ogromno



IPv6-naslovov je ogromno



Štirikina glava

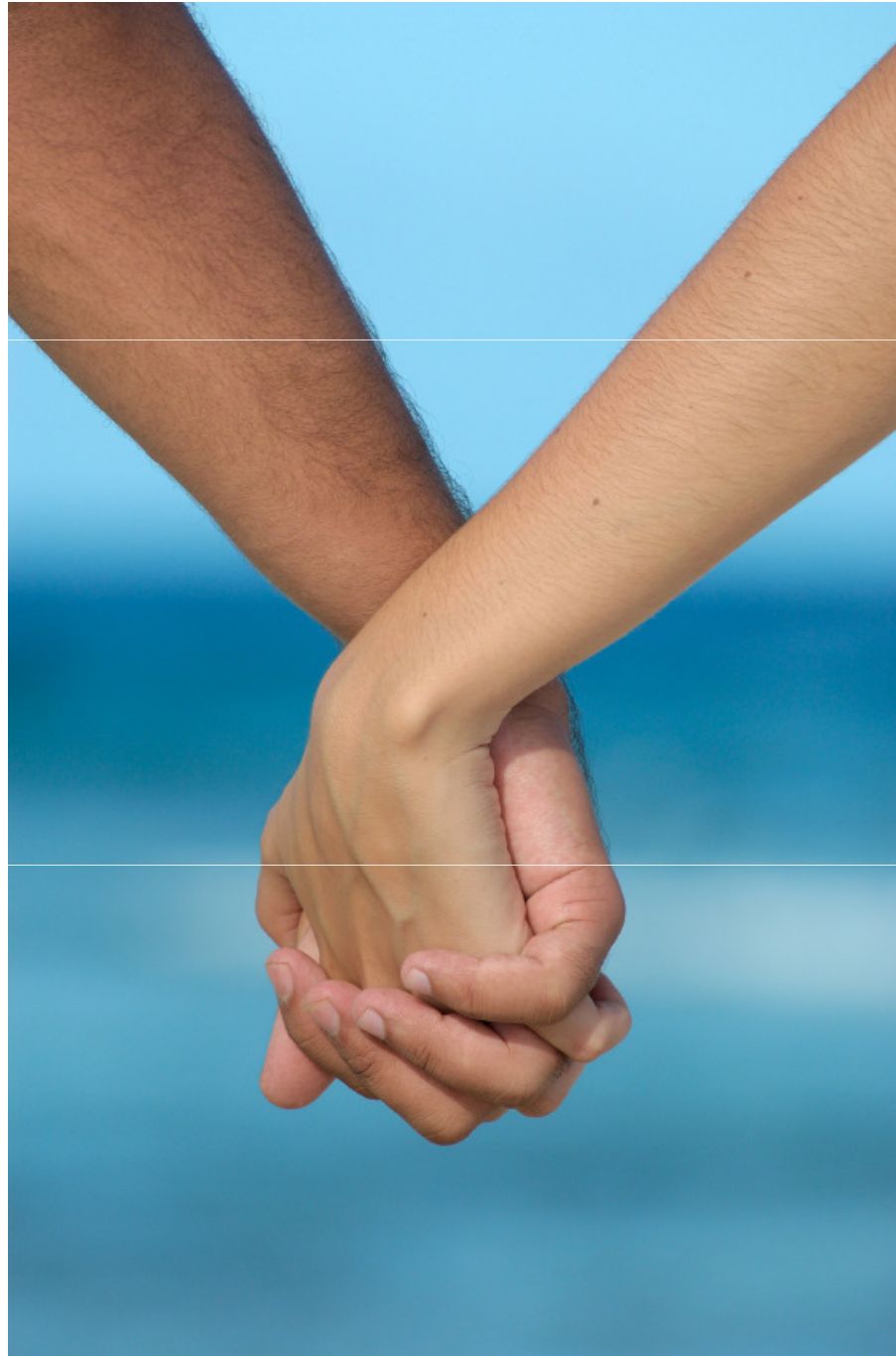




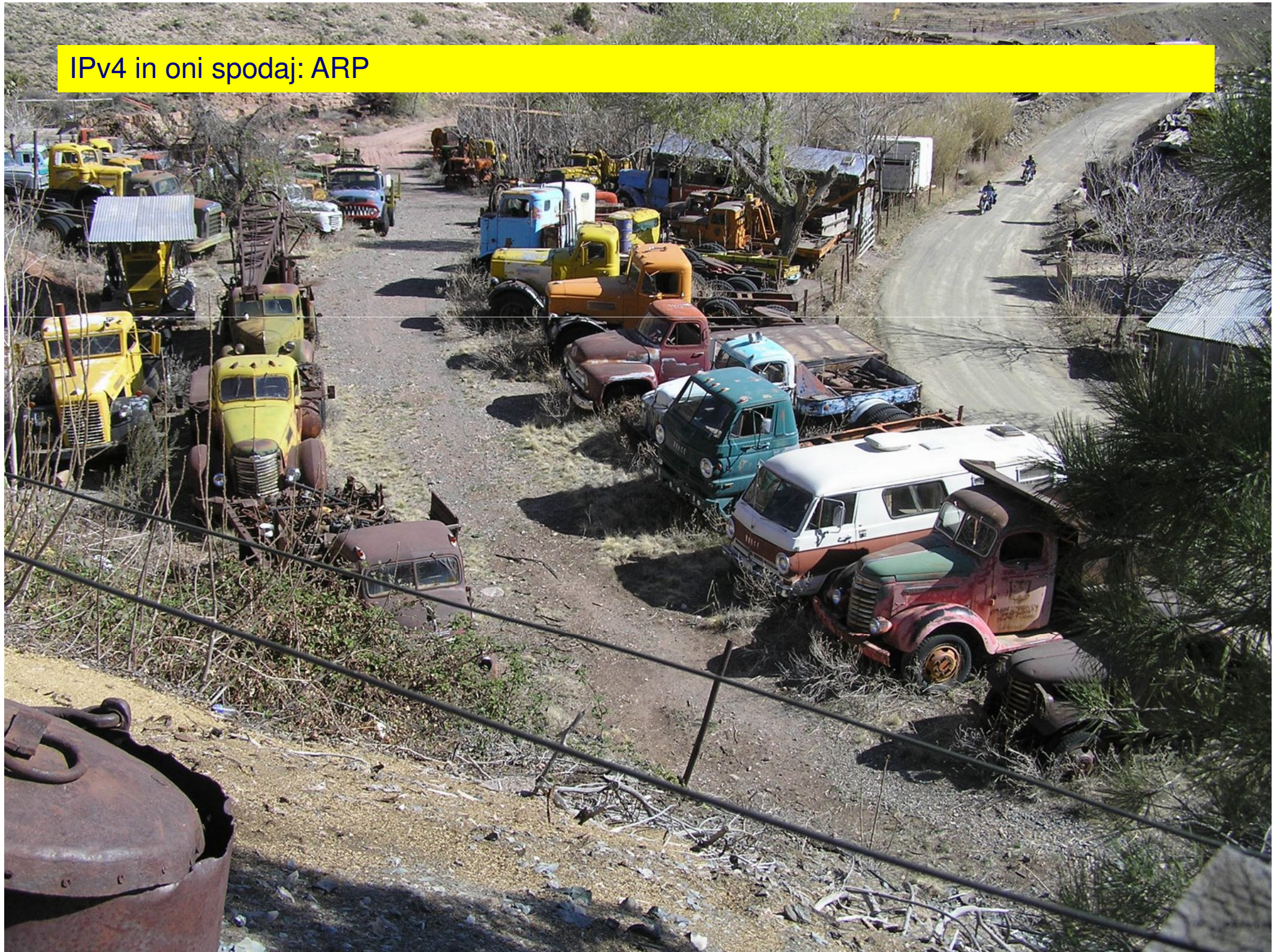
NAT



Neokrnjena povezljivost



IPv4 in oni spodaj: ARP



IPv6 in oni spodaj: ND, ICMPv6







MTU in fragmentacija



IPv6 in MTU

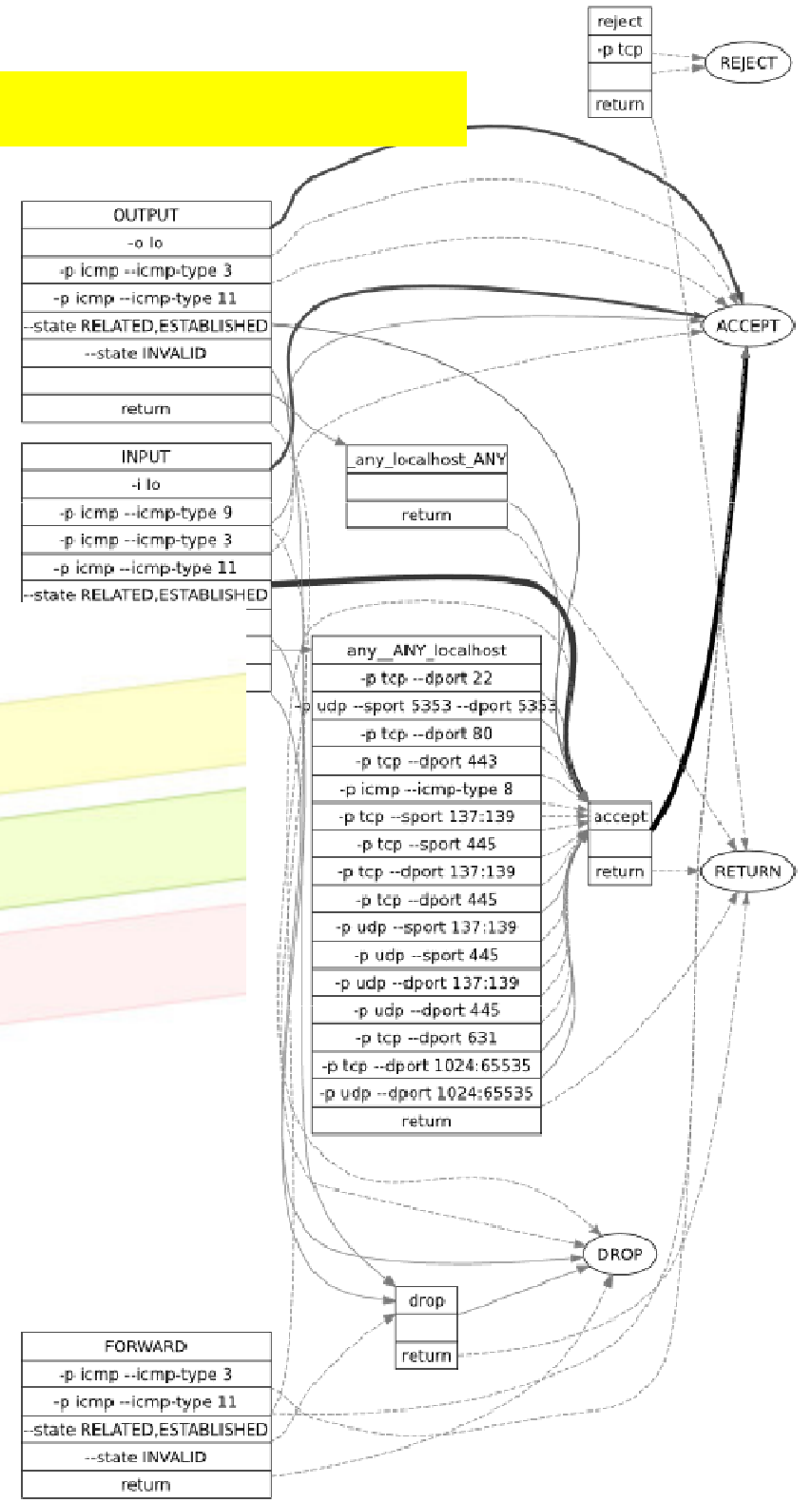


ICMP in protipožarne pregrade

i Pellentesque porta, orci sed fermentum commodo, bibendum nisi turpis magna

✓ Quisque non quam vel tellus elementum laoreet

! Phasellus non nisi volutpat risus sagittis venenatis



ICMPv6 in protipožarne pregrade





Arnesov strežnik NDT ndt.arnes.si

Omrežno diagnostično orodje na osnovi Web100 - "Network Diagnostic Tool (NDT)"

Z orodjem NDT lahko preverite zanesljivost delovanja in stanje omrežnih povezav med vašim osebnim računalnikom in hrbteničnim omrežjem ARNES. Test poteka približno **25 sekund**. Test poženete s klikom na gumb "START". Za delovanje mora biti na osebni računalnik nameščeno okolje [Java](#).

```
TCP/Web100 Network Diagnostic Tool v5.5.4a
click START to begin

** Starting test 1 of 1 **
Connected to: 193.2.254.242 -- Using IPv4 address
Another client is currently being served, your test will begin within 45 seconds
Checking for Middleboxes . . . . . Done
checking for firewalls . . . . . Done
running 10s outbound test (client-to-server [C2S]) . . . . . 9.49Mb/s
running 10s inbound test (server-to-client [S2C]) . . . . . 9.50Mb/s
The slowest link in the end-to-end path is a 45 Mbps T3/DS3 subnet
Information: Other network traffic is congesting the link
Information [S2C]: Packet queuing detected

click START to re-test
```

START Statistics More Details... Report Problem Options



Arnesov strežnik NDT ndt.arnes.si

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```
TCP/Web100 Network Diagnostic Tool v5.5.4a
click START to begin

** Starting test 1 of 1 **
Connected to: [2001:1470:8000:60a:0:1:fee1:600d] -- Using IPv6 address
Checking for Middleboxes . . . . . Done
checking for firewalls . . . . . Done
running 10s outbound test (client-to-server [C2S]) . . . . . 9.39Mb/s
running 10s inbound test (server-to-client [S2C]) . . . . . 9.23Mb/s
The slowest link in the end-to-end path is a 45 Mbps T3/DS3 subnet
Information: Other network traffic is congesting the link
Information [S2C]: Packet queuing detected

click START to re-test
```

START Statistics More Details... Report Problem Options

Zaupnost in varnost, kjer gre.



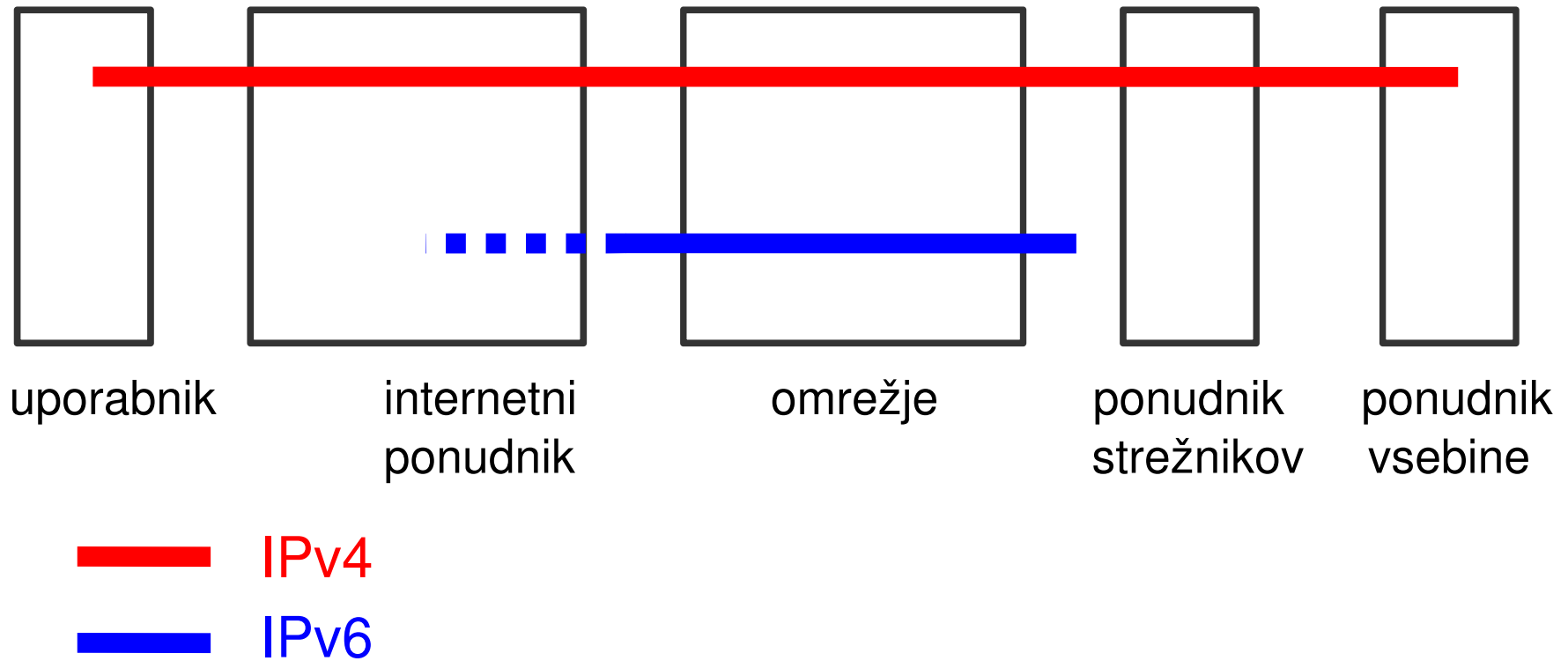


Prehod z IPv4 na IPv6



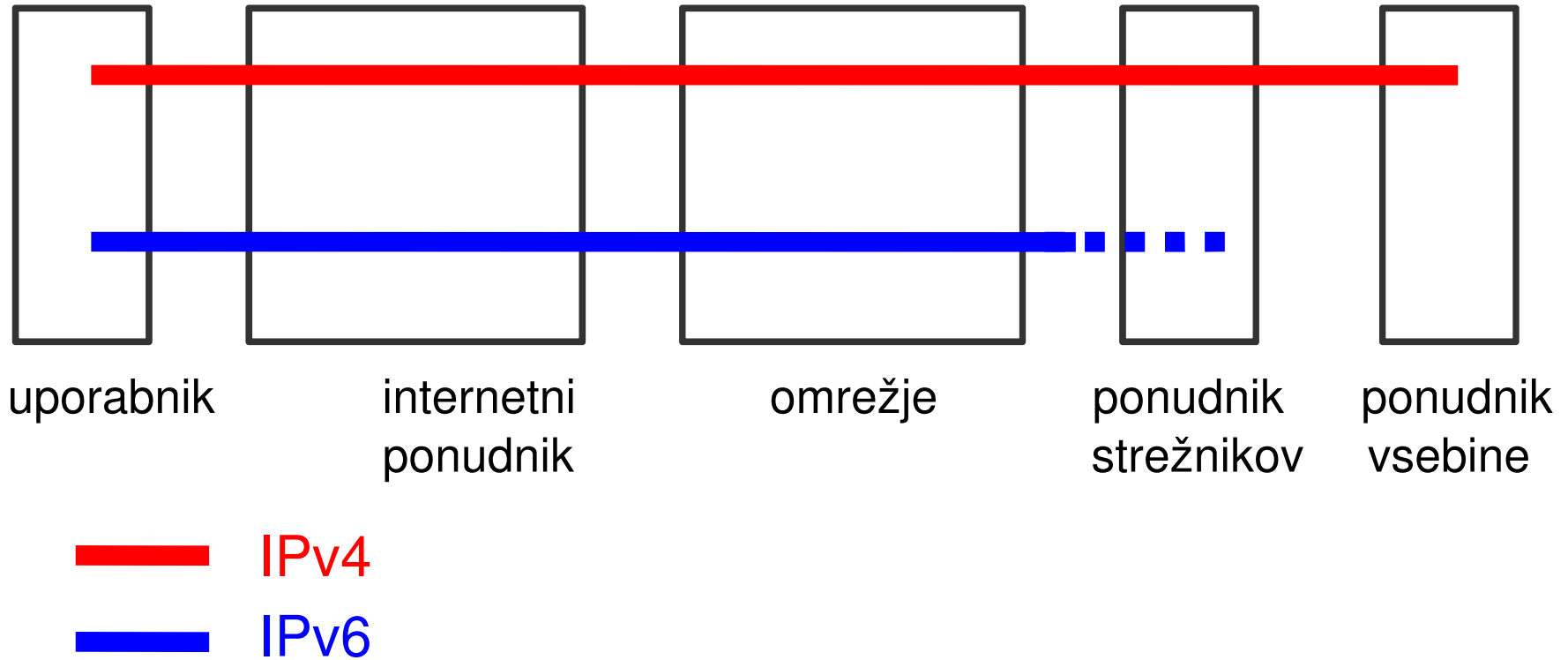
Internet danes

IPv4 povsod



Kako bo? Nespretna predaja.

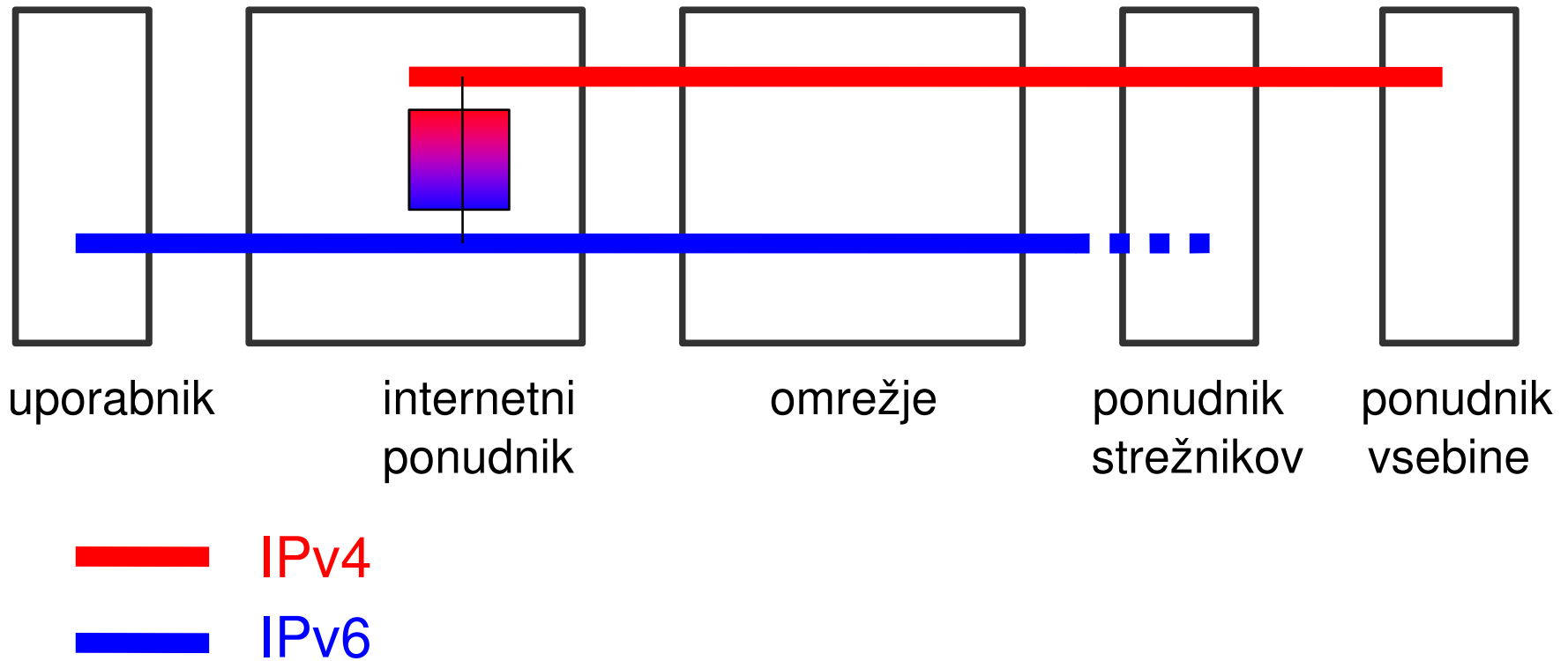
IPv4 povsod IPv6 do uporabnikov, ni vsebin!



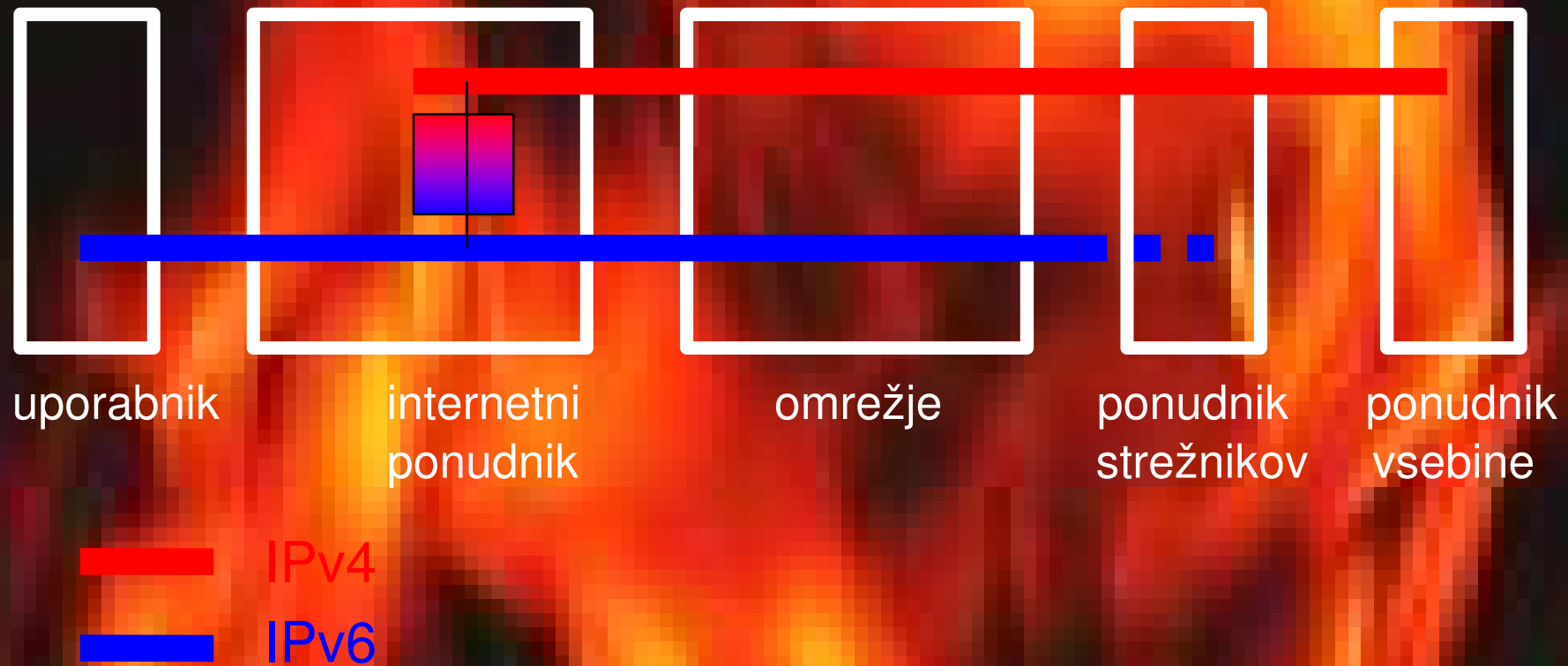
Nespretna predaja

Neuspešen prevzem

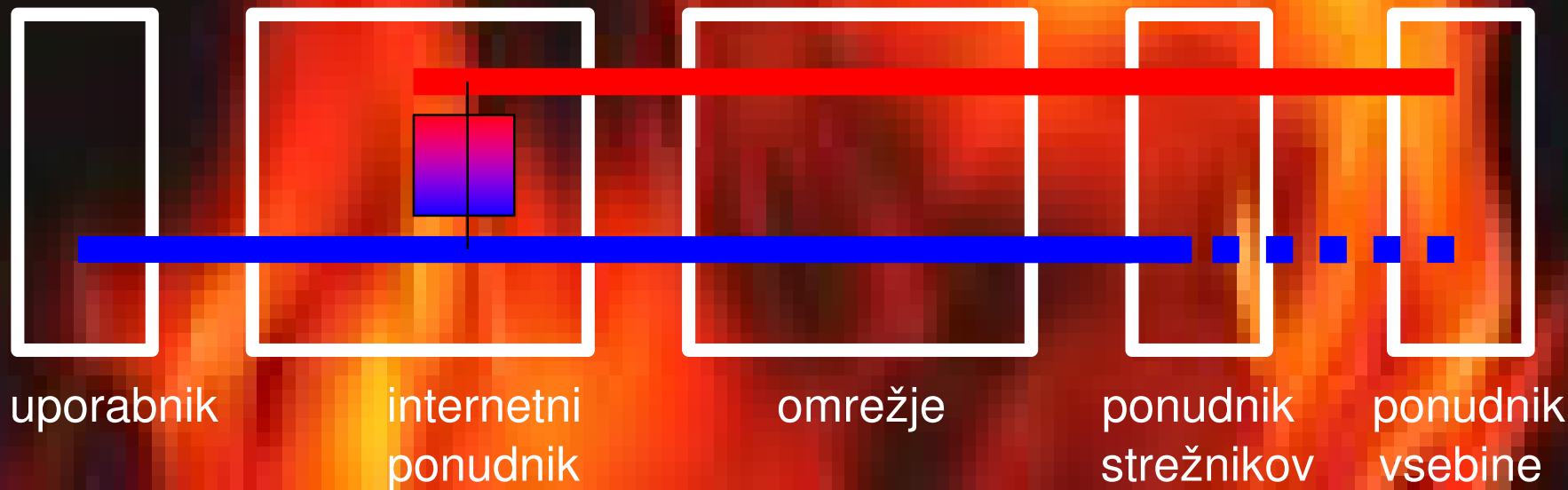
Uporabniki brez IPv4 translacija



KRIZA! Kdo je kriv?



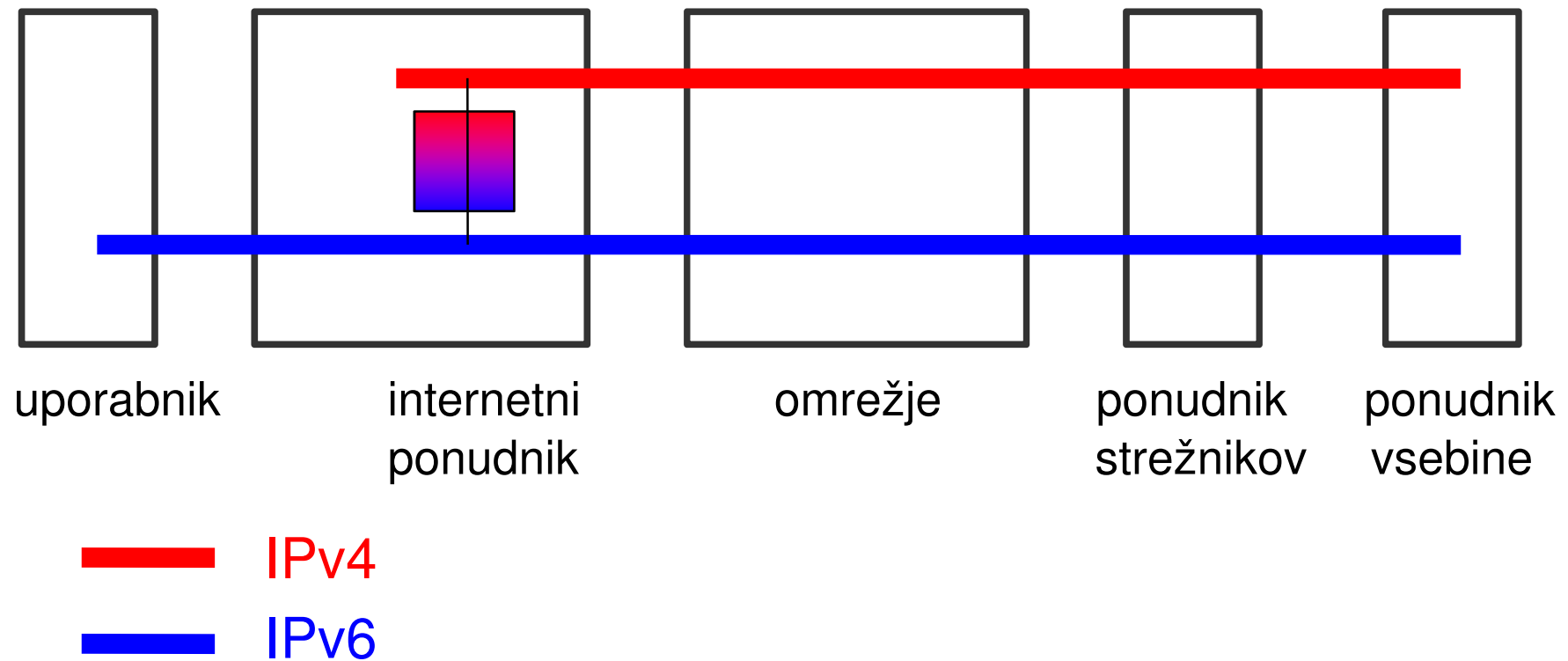
Gašenje požara!



— IPv4
— IPv6

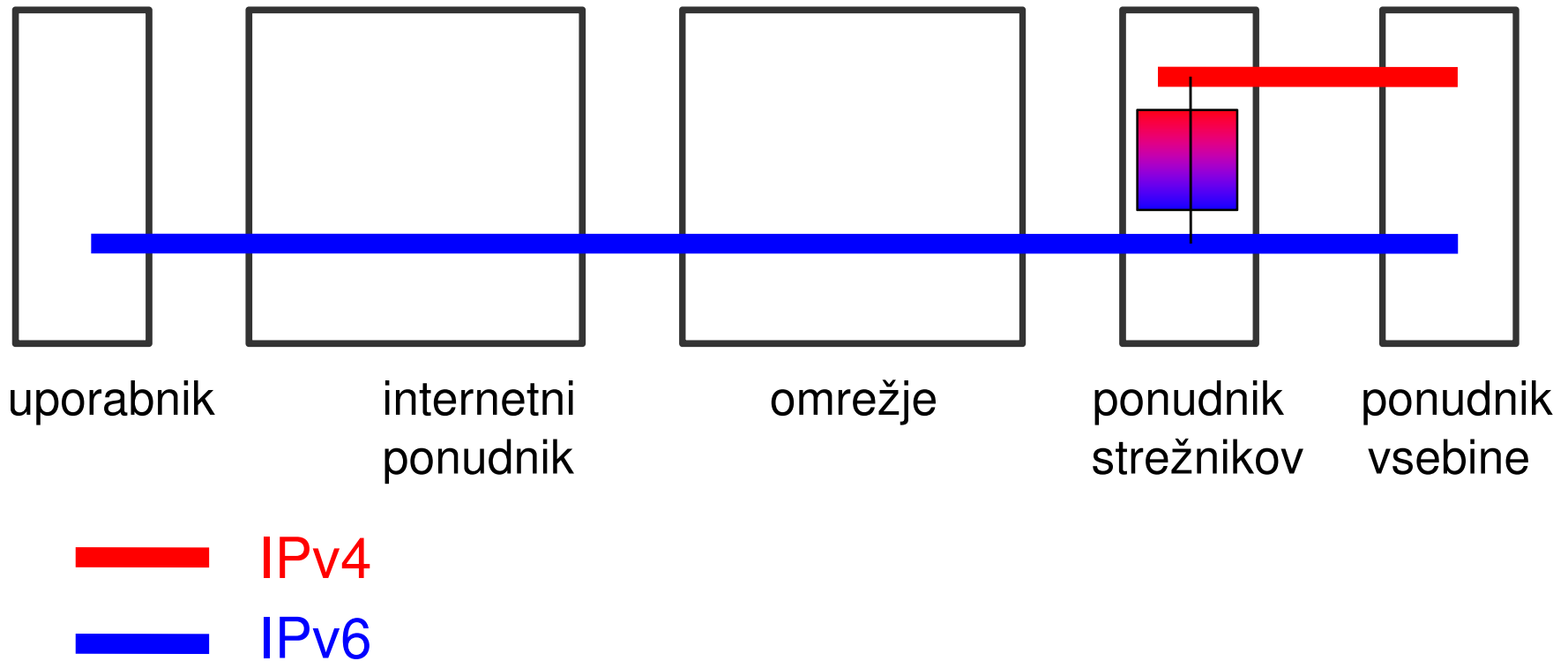
Kriza je mimo :-)

Uporabniki brez IPv4 translacija pri ISP-jih



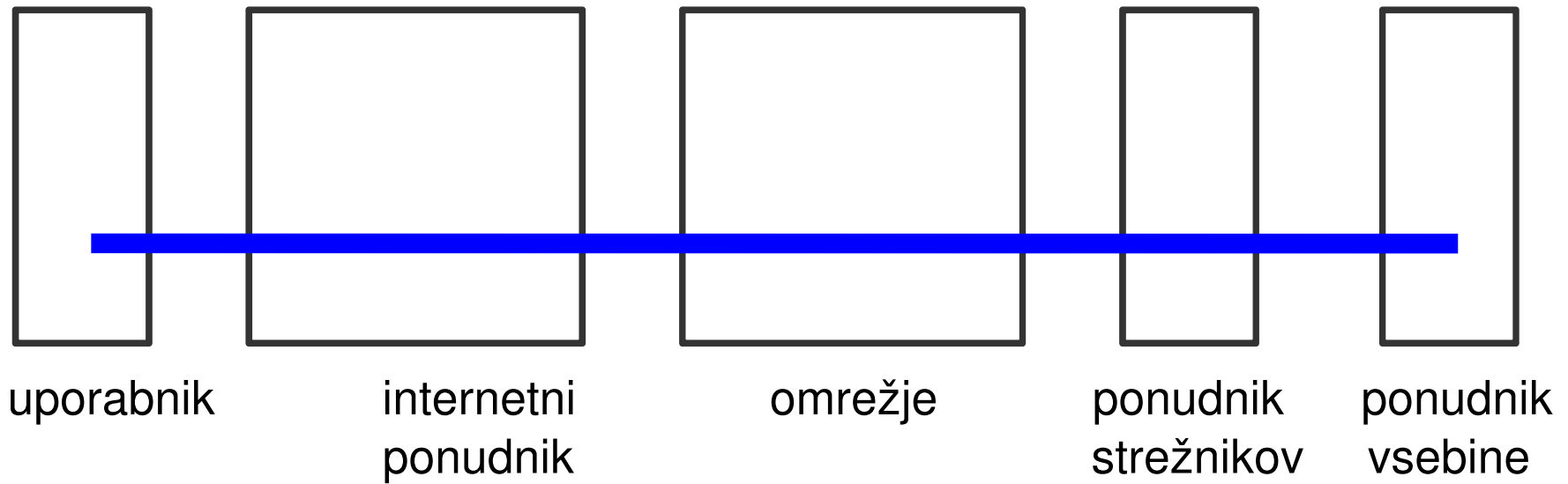
Prevzem

Omrežje brez IPv4 translacija pri ponudnikih strežnikov



Cilj!

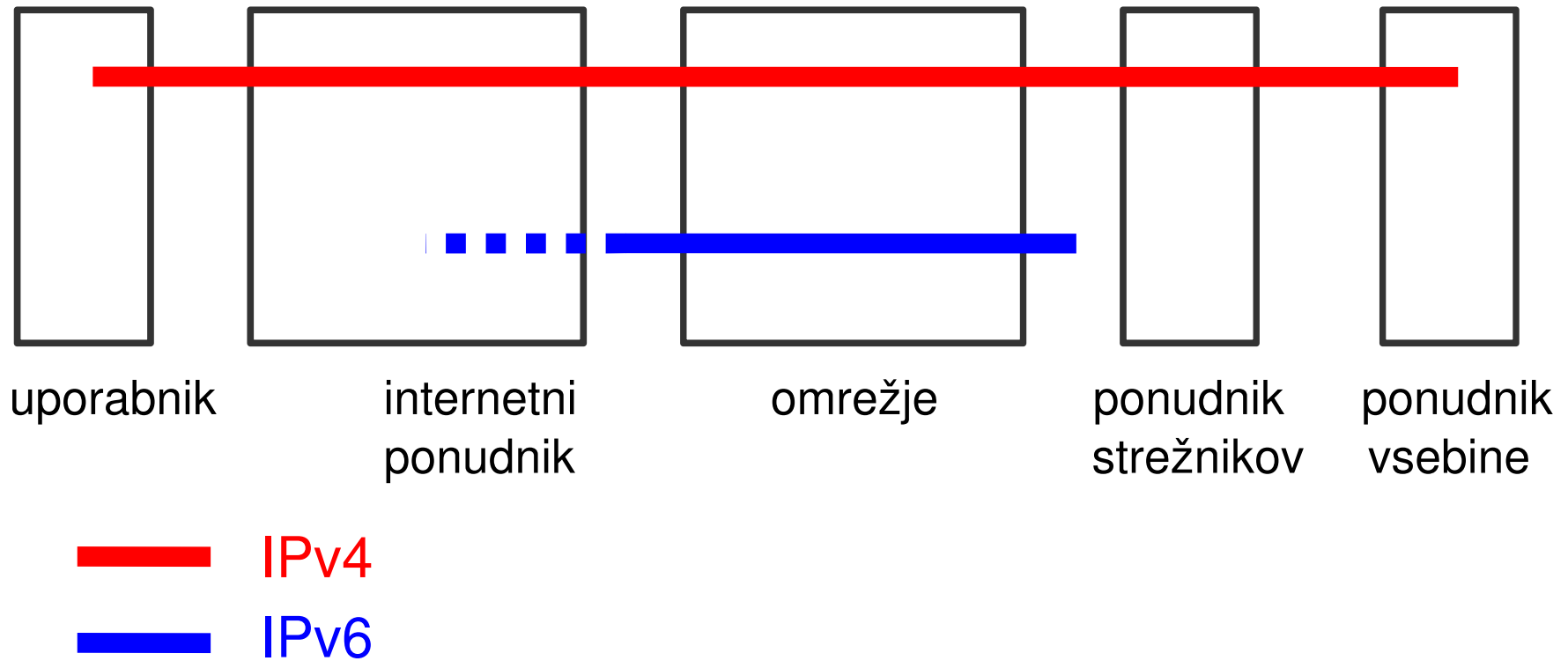
Ukinemo IPv4



— IPv6

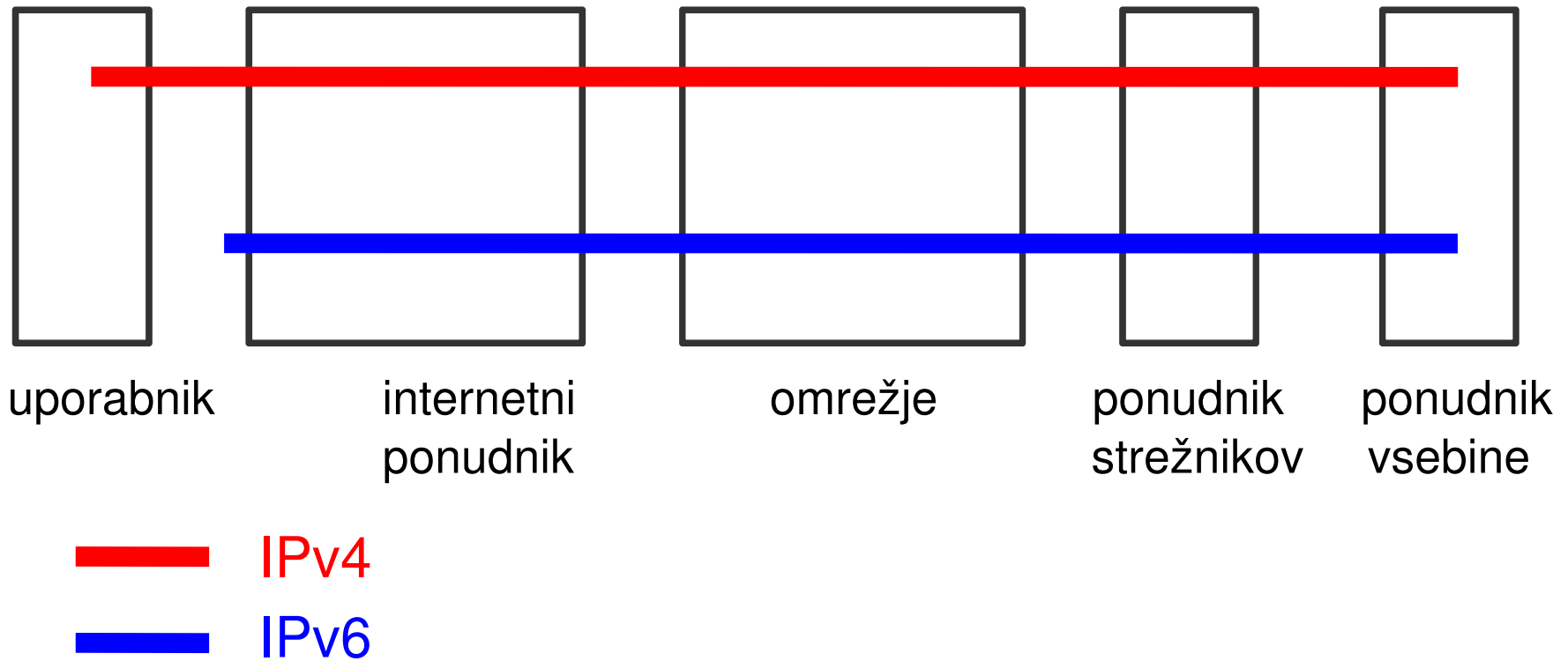
Internet danes

IPv4 povsod



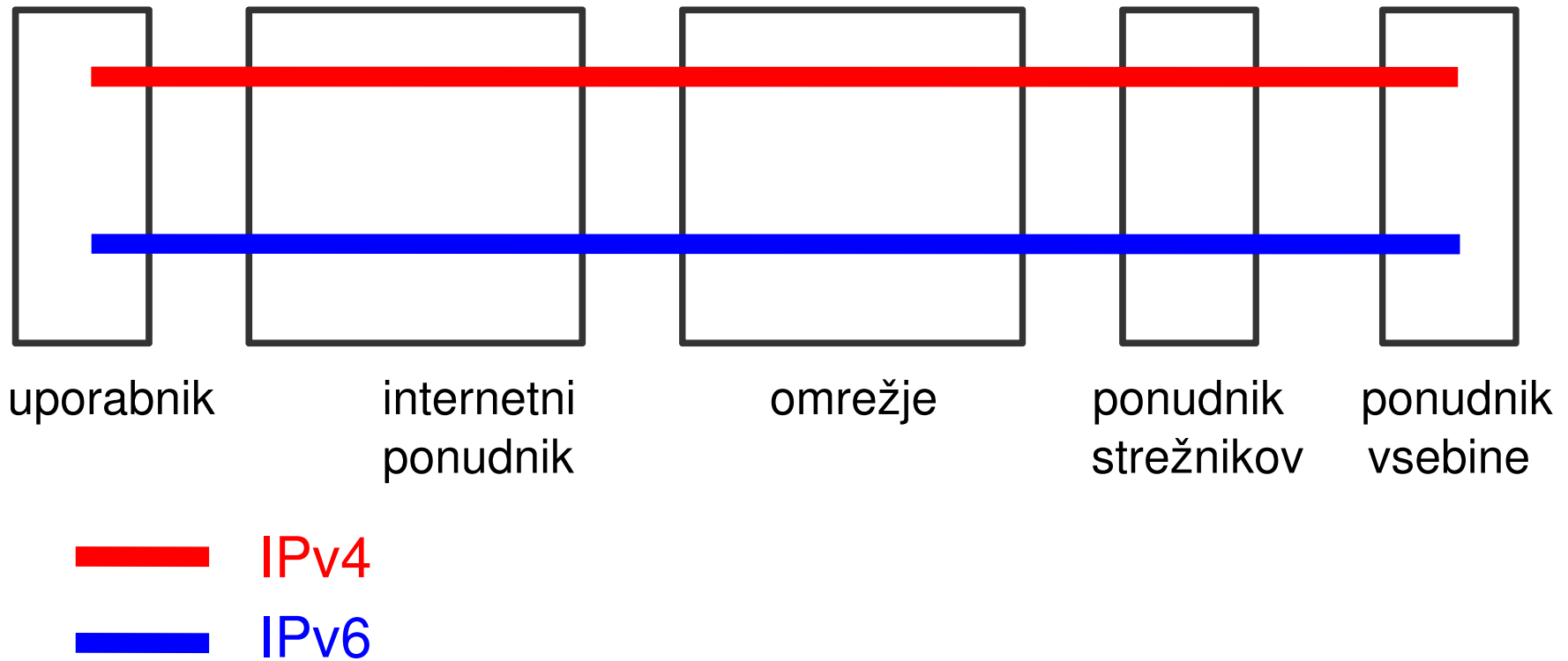
Predaja

IPv4 povsod IPv6 vsebine



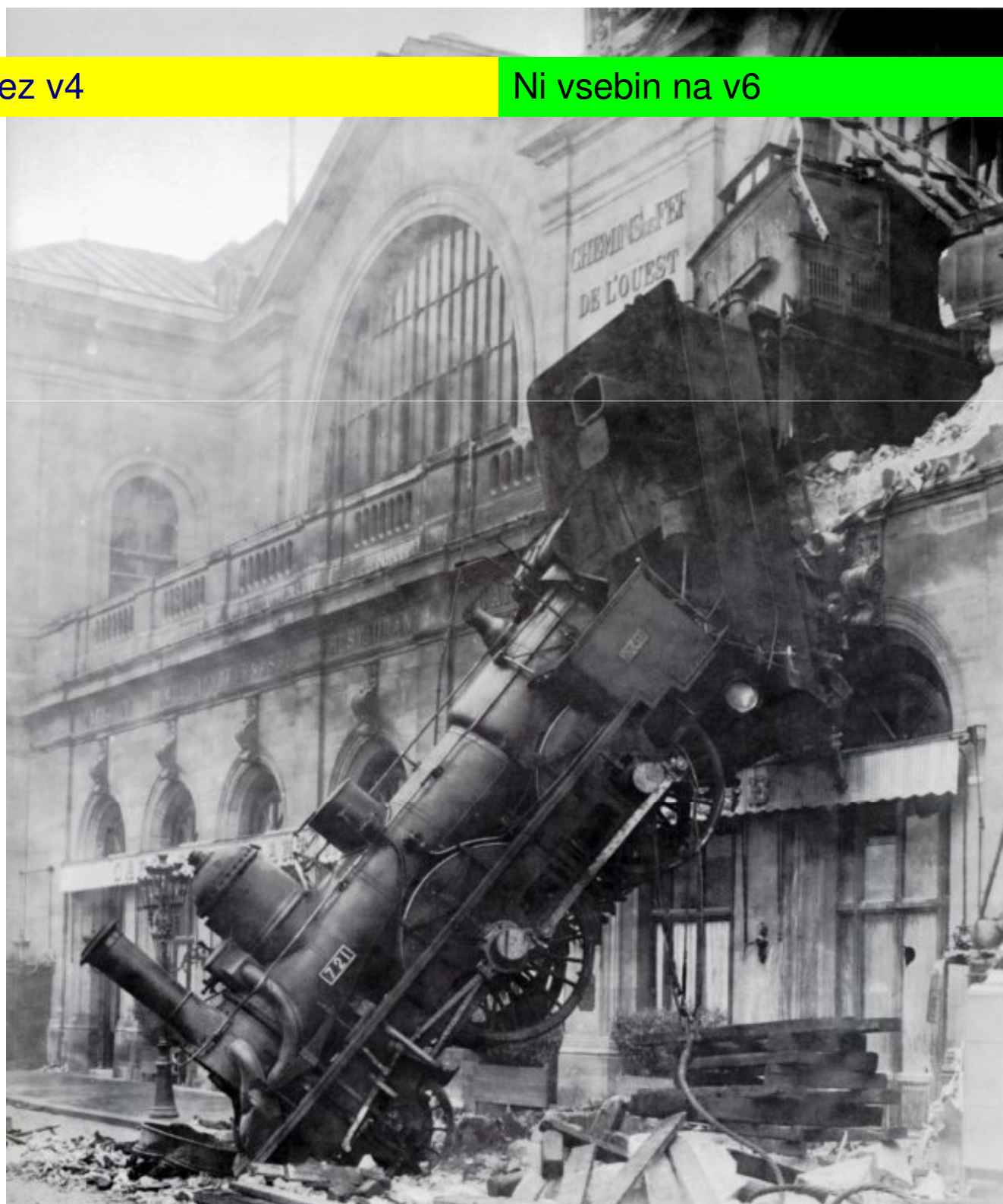
Prevzem

IPv4 povsod IPv6 povsod



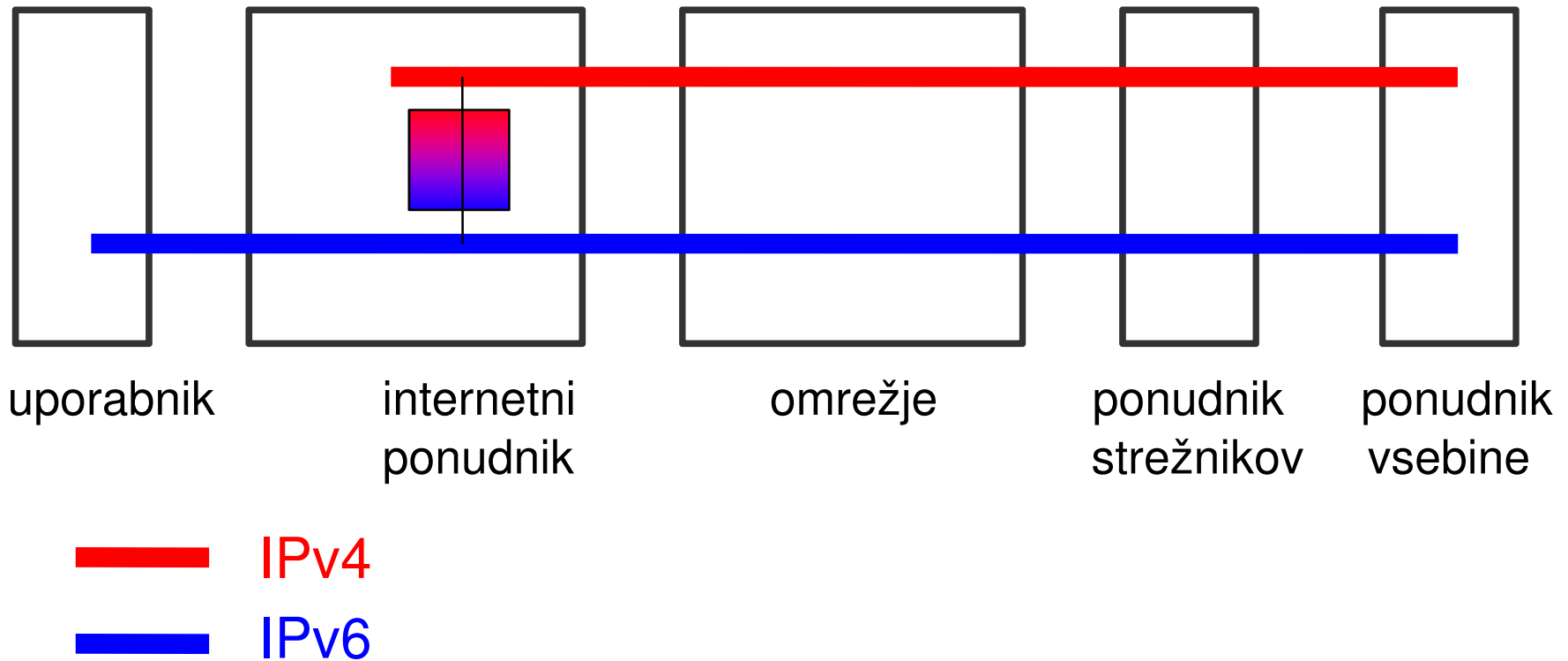
Uporabniki brez v4

Ni vsebin na v6



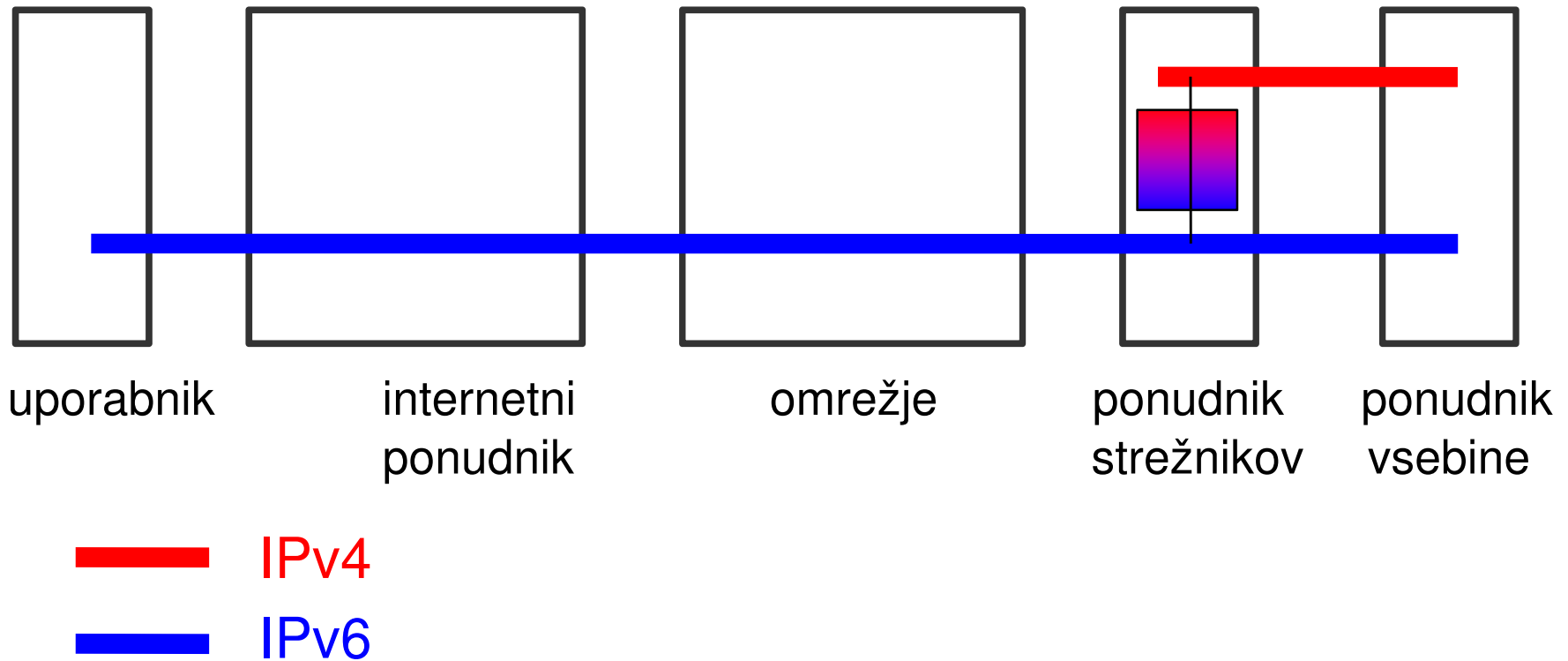
Prevzem

Uporabniki brez IPv4 translacija pri ISP-jih



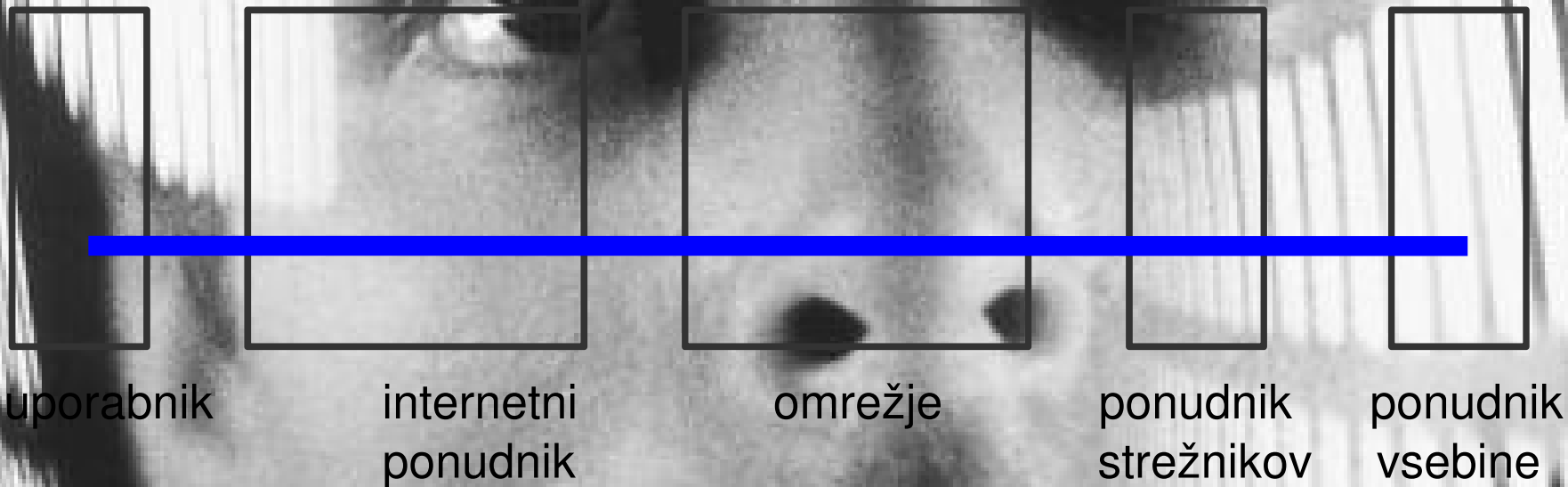
Prevzem

Omrežje brez IPv4 translacija pri ponudnikih strežnikov



Cilj!

Ukinemo IPv4














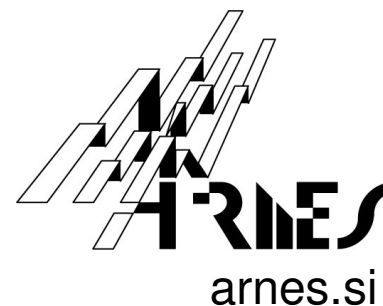
— IPv6



Pojdi onkraj - go beyond ::1

IPv6 v Sloveniji

LG	Prefix	tld	NetName	Owner	AS	S	Allocate
LG	2001:7f8:46::/48		ARNES-SIX-IPv6-NET-2...	Slovenian Internet Exchan...	2107	A	2008-10-
LG	2001:1470::/32		SI-ARNES-20030618	ARNES (Academic and Resea...	2107	A	2003-06-
LG	2001:15c0::/32		SI-MEDINET-20031002	Medinet d.o.o.	8591	A	2003-10-
LG	2001:1688::/32		SI-BONE-20031216	Triera Internet	3212	A	2003-12-
LG	2a00:ee0::/32		SI_TELEKOM-20081120	Telekom Slovenije d.d.		A	2008-11-
LG	2a00:fc0::/32		SI-VOLJA-20081210	voljatel	16016	A	2008-12-
LG	2a01:260::/32		SI-T-2-20061201	T-2 d.o.o.		A	2006-12-
LG	2a02:e8::/32		SI-DOMENCA-20080229	Domenca d.o.o.	43128	A	2008-02-
LG	2a02:7a8::/32		SI-RTVSLO-20080911	RTV Slovenija	47917	A	2008-09-
LG	2a02:800::/32		SI-SOFTNET-20081217	Softnet d.o.o.		A	2008-12-
LG	2a02:840::/32		SI-TUSMOBIL-20090105	TUSMOBIL D.O.O.		A	2009-01-



Srečno pot, Šestka!

21.4.2009, IPv6-srečanje <http://summit.go6.si/>

