

The Future of the IPv6 Enterprise

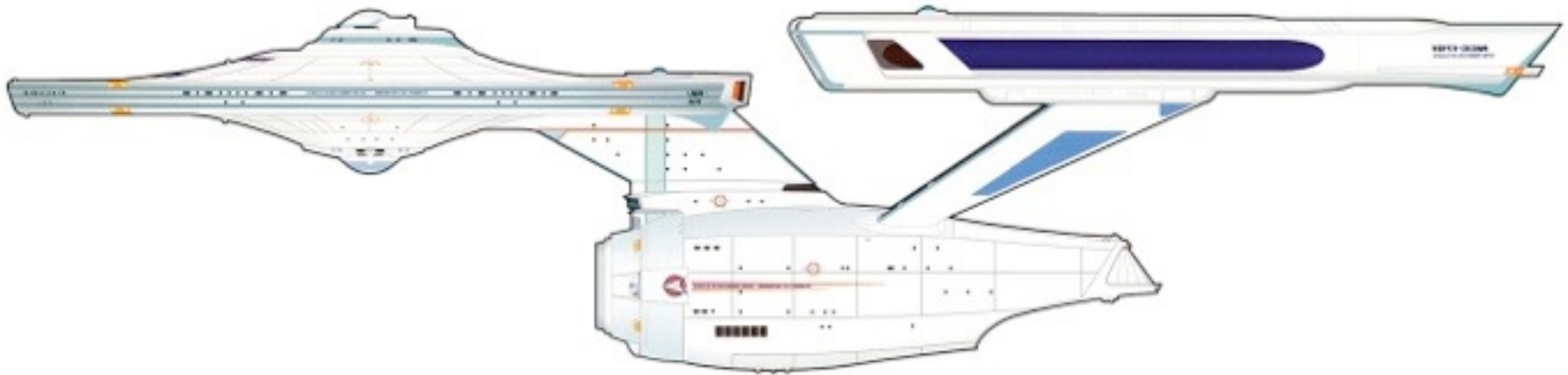
Tom Coffeen, IPv6 Evangelist

What might IPv6 adoption in the Enterprise look like?

(with apologies to Gene Roddenberry...)



**IANA IPv6 Allocation to UFP Starfleet, March 2063:
*3BB0:A511::/32***



**IPv6 Allocation for the Enterprise NCC-1701A
from Starfleet:
*3BB0:A511:1701::/48***

First nibble reserved for Enterprise departmental (location) assignments (16 total):

- 3BB0:A511:1701:[0-F]xxx::/52
- 3BB0:A511:1701:F000::/52 -- reserved for infrastructure
- 3BB0:A511:1701:[0-7]000::/52 -- reserved for Departments
- 3BB0:A511:1701:[8-E]000::/52 -- reserved for future use

Departmental assignments:



Command

3BB0:A511:1701:0000::/52



Science

3BB0:A511:1701:1000::/52



Medical

3BB0:A511:1701:2000::/52



Weapons and Defense

3BB0:A511:1701:3000::/52



Engineering

3BB0:A511:1701:4000::/52



Communications

3BB0:A511:1701:5000::/52



Environmental Engineering

3BB0:A511:1701:6000::/52



Shipboard Services

3BB0:A511:1701:7000::/52

Second nibble reserved for functional assignments (16 total) per department:



3BB0:A511:1701:0000::/52

3BB0:A511:1701:0100::/56 -- Wired

3BB0:A511:1701:0200::/56 -- Wireless

3BB0:A511:1701:0300::/56 -- VoIP

3BB0:A511:1701:0400::/56 -- Guest

3BB0:A511:1701:0500::/56 -- Control 1

3BB0:A511:1701:0600::/56 -- Control 2

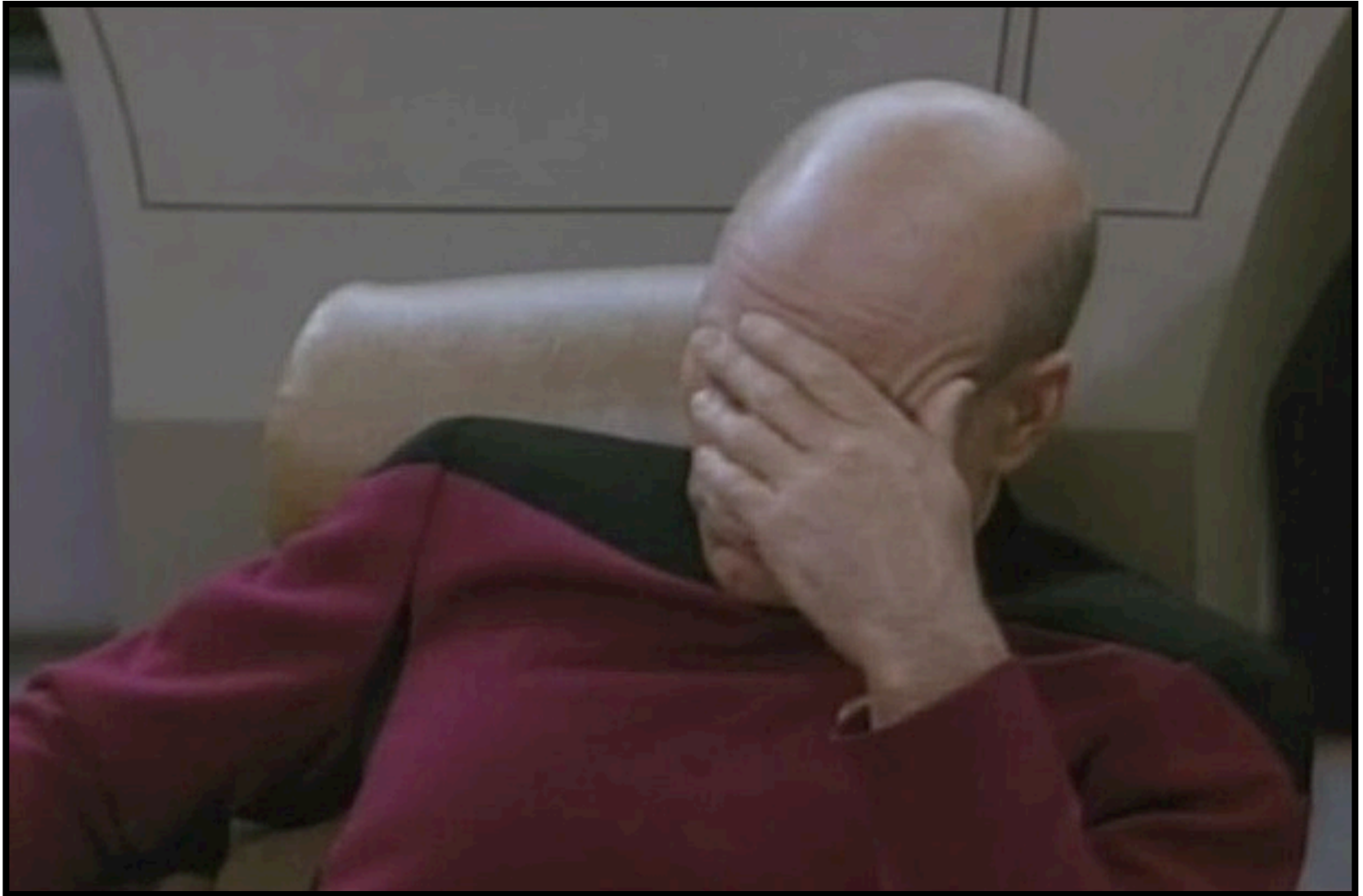
3BB0:A511:1701:0[7-F]00::/56 -- Future use

- Each functional allocation yields 256 /64s for interface assignments

Wait, someone forgot 3BB0:A511:1701:0000::/56...

It's reserved for Data!

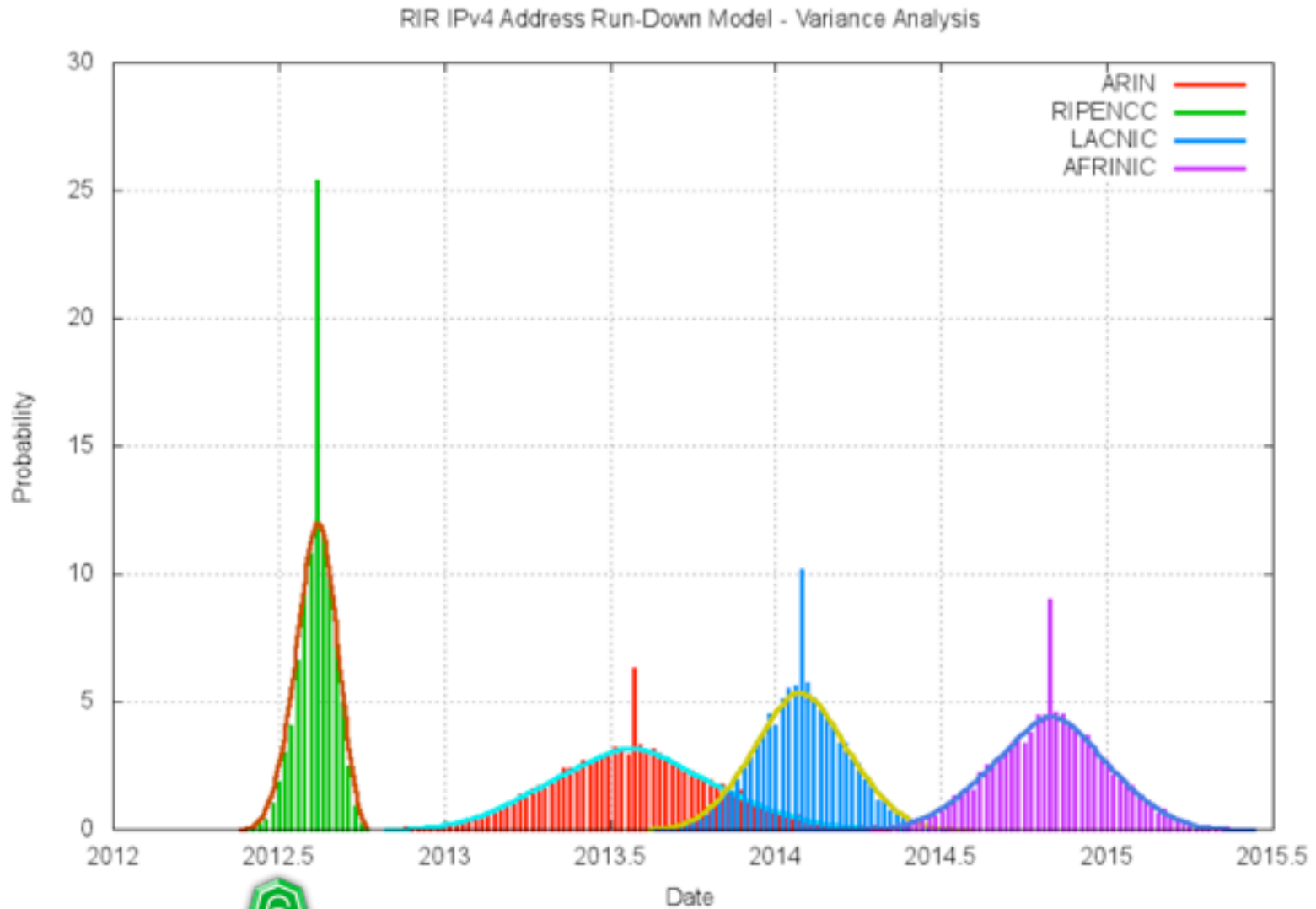




Meanwhile, back on Earth at the beginning of the 21st century...

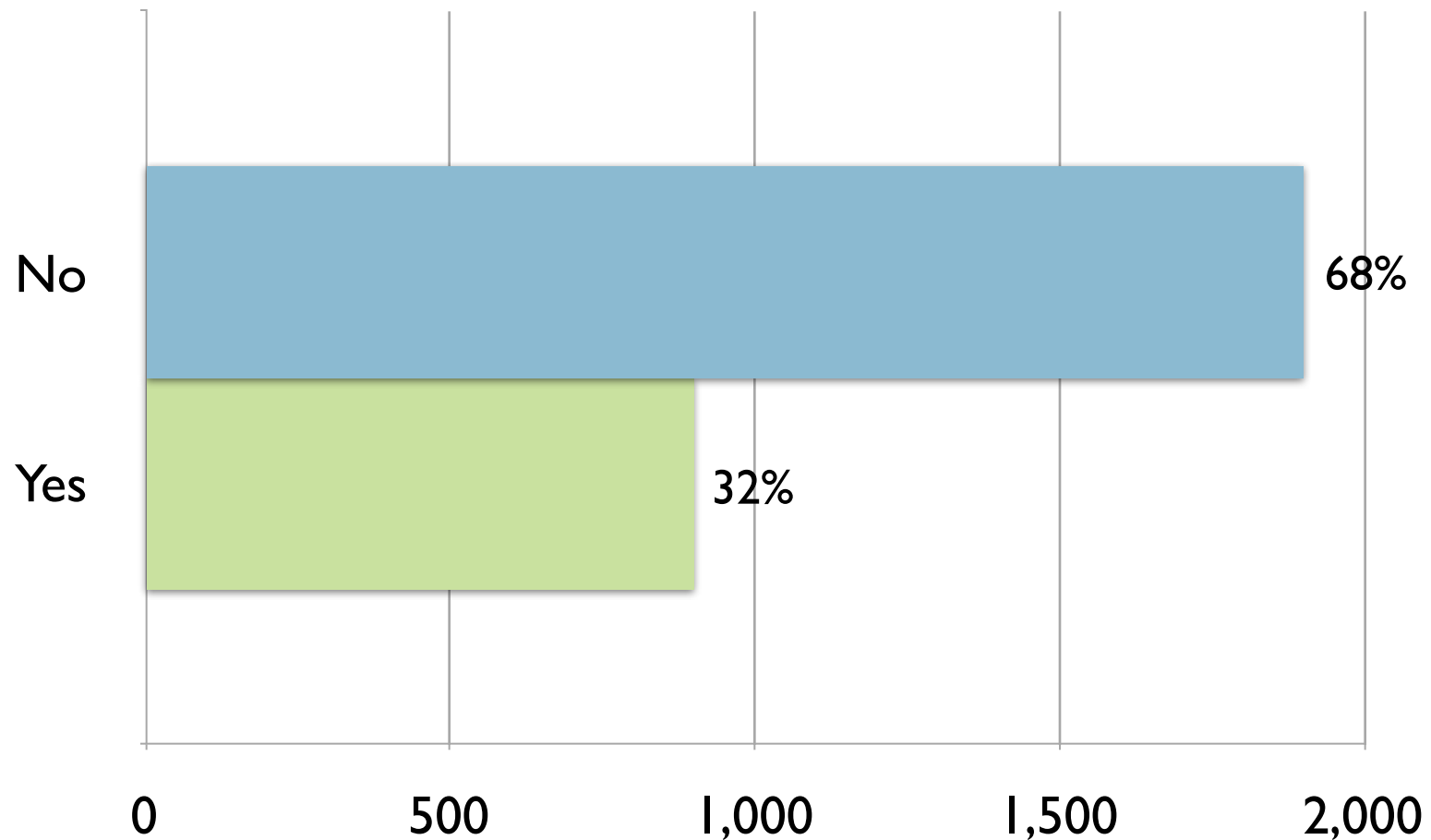


IPv6 in the Enterprise

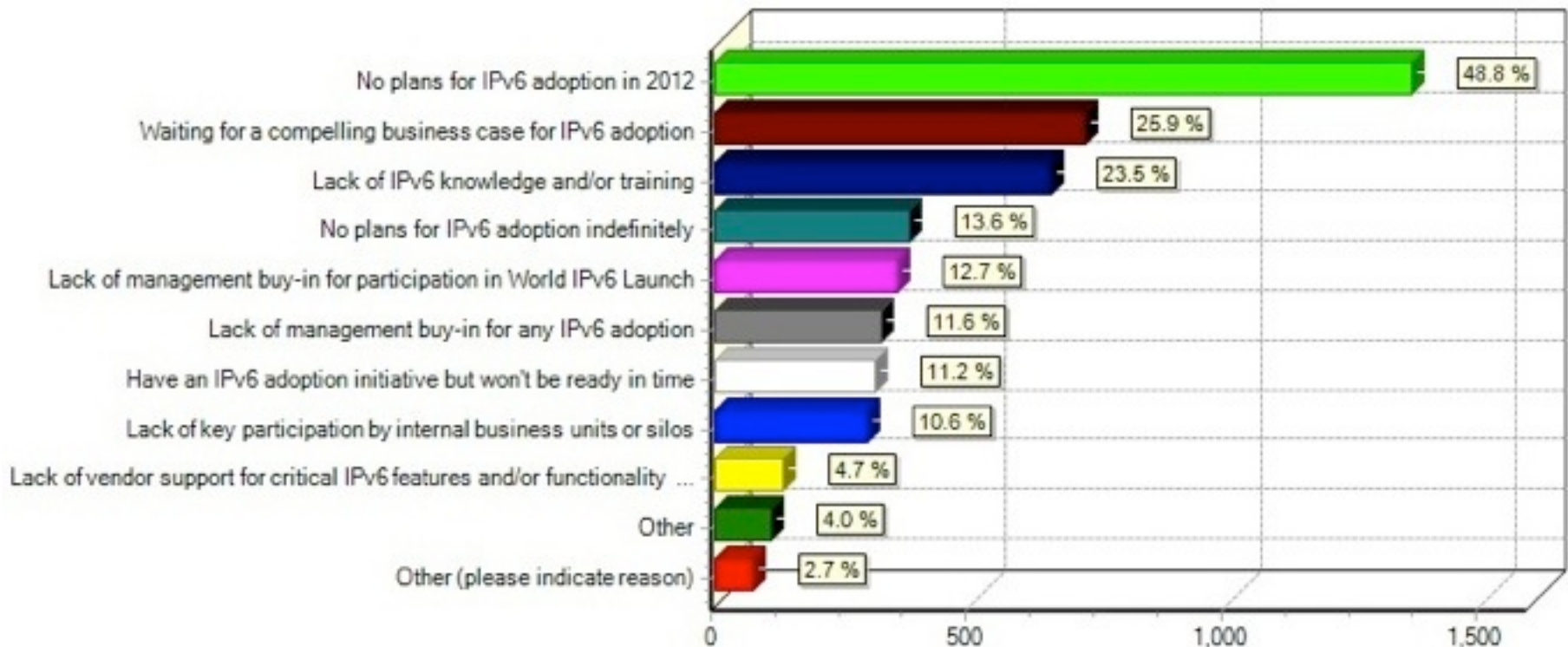


What is the state of IPv6 adoption in the “actual” enterprise?

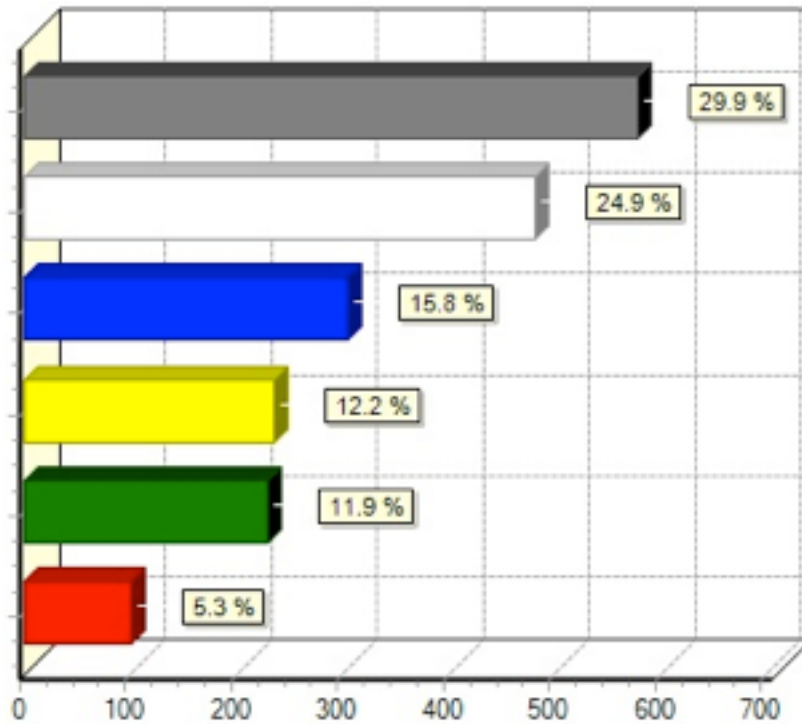
Are you planning on participating in World IPv6 Launch?



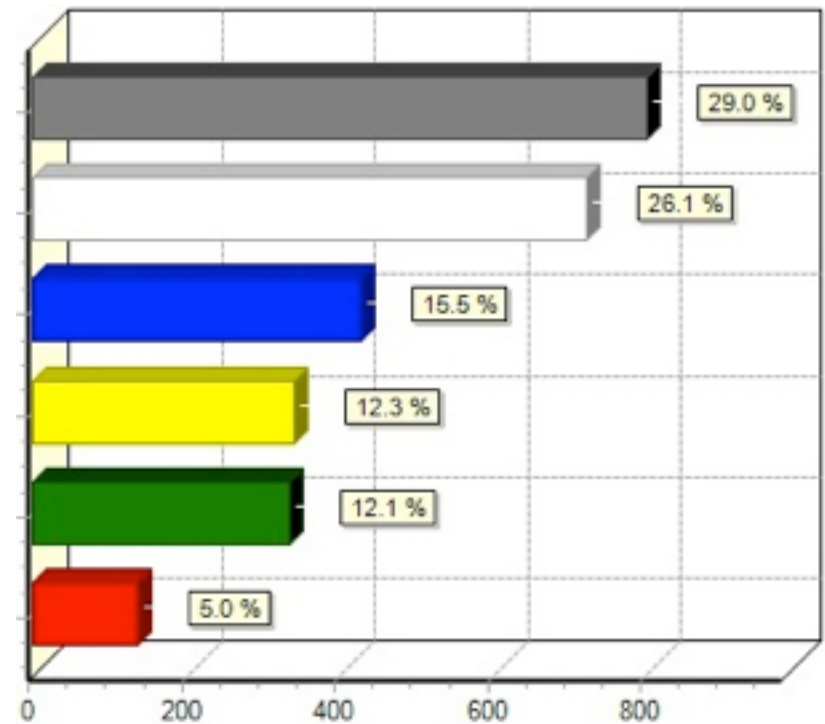
If your organization is **not** participating in World IPv6 Launch, please select the reasons.



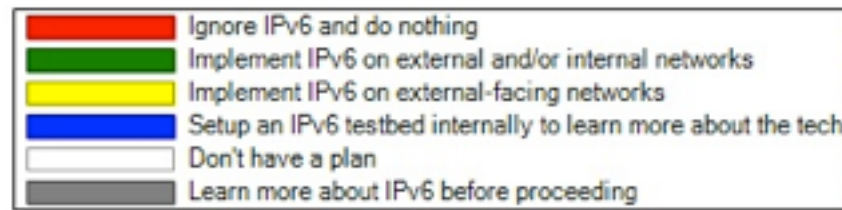
What is your organization's current plan for dealing with IPv6?



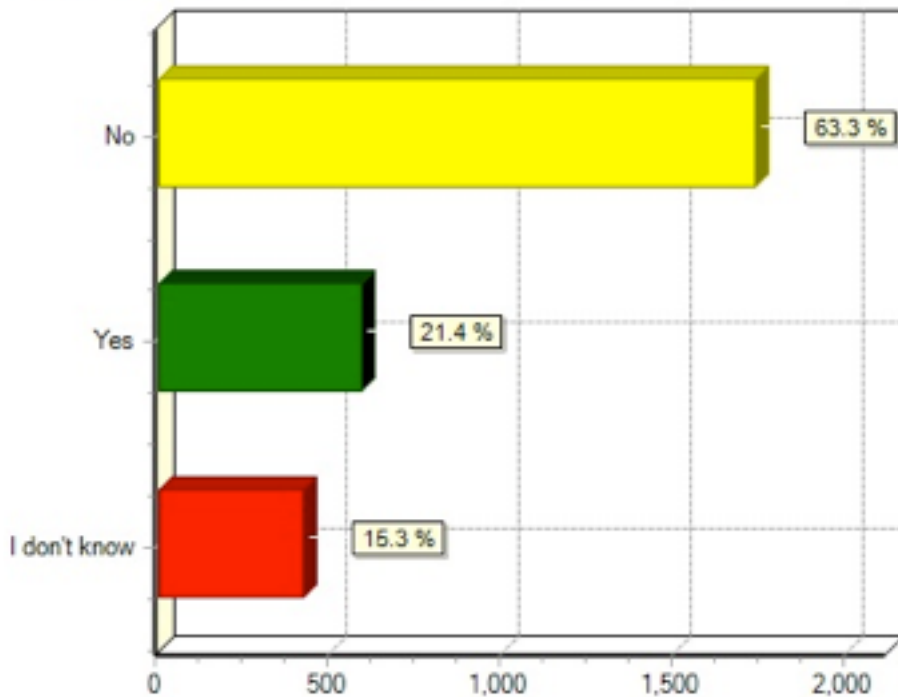
2011



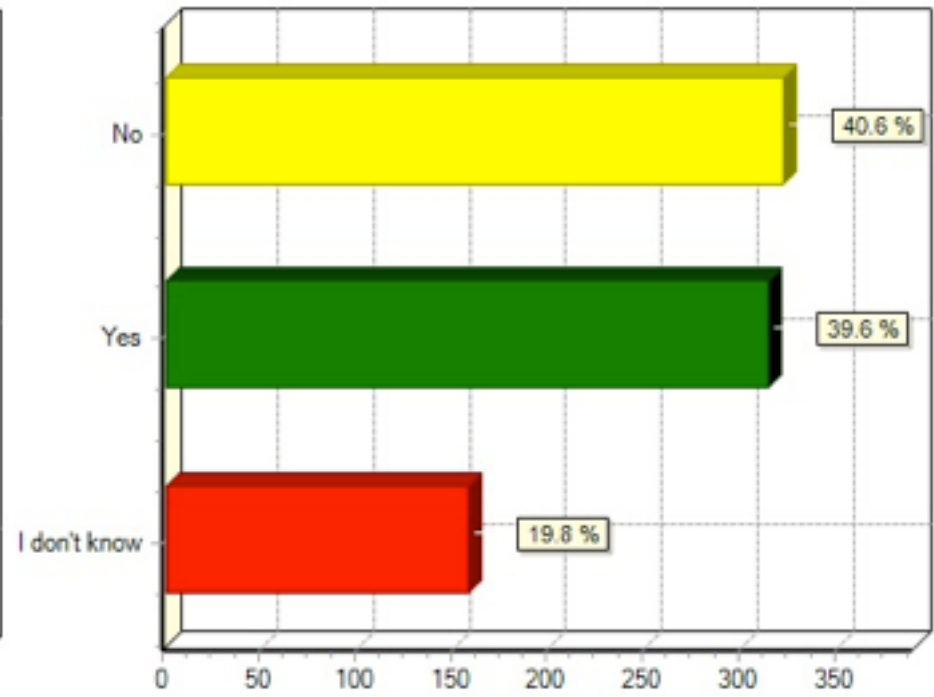
2012



Has your organization dedicated resources to adopt IPv6?

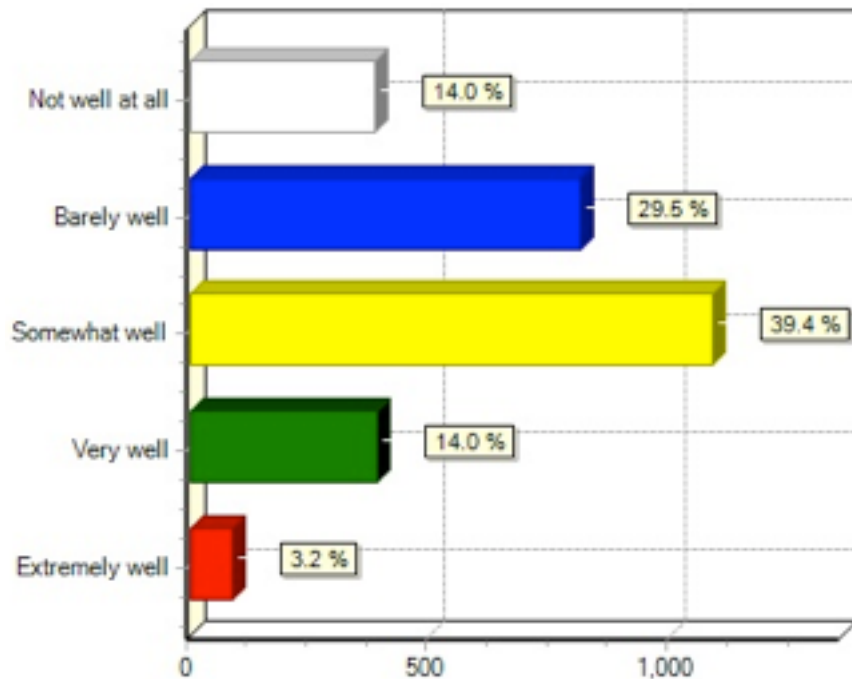


2012
Enterprise

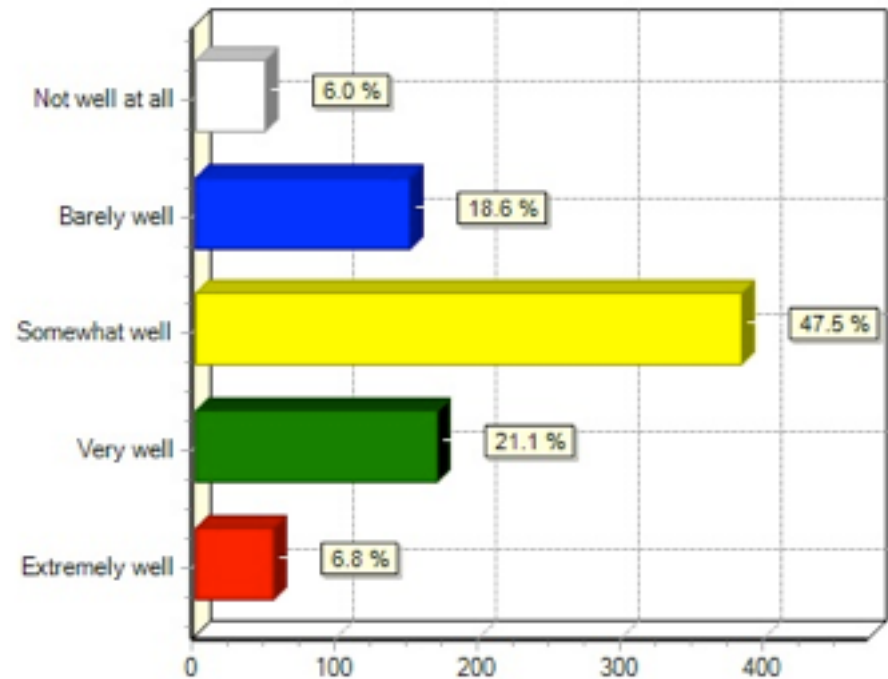


2012
Service Provider

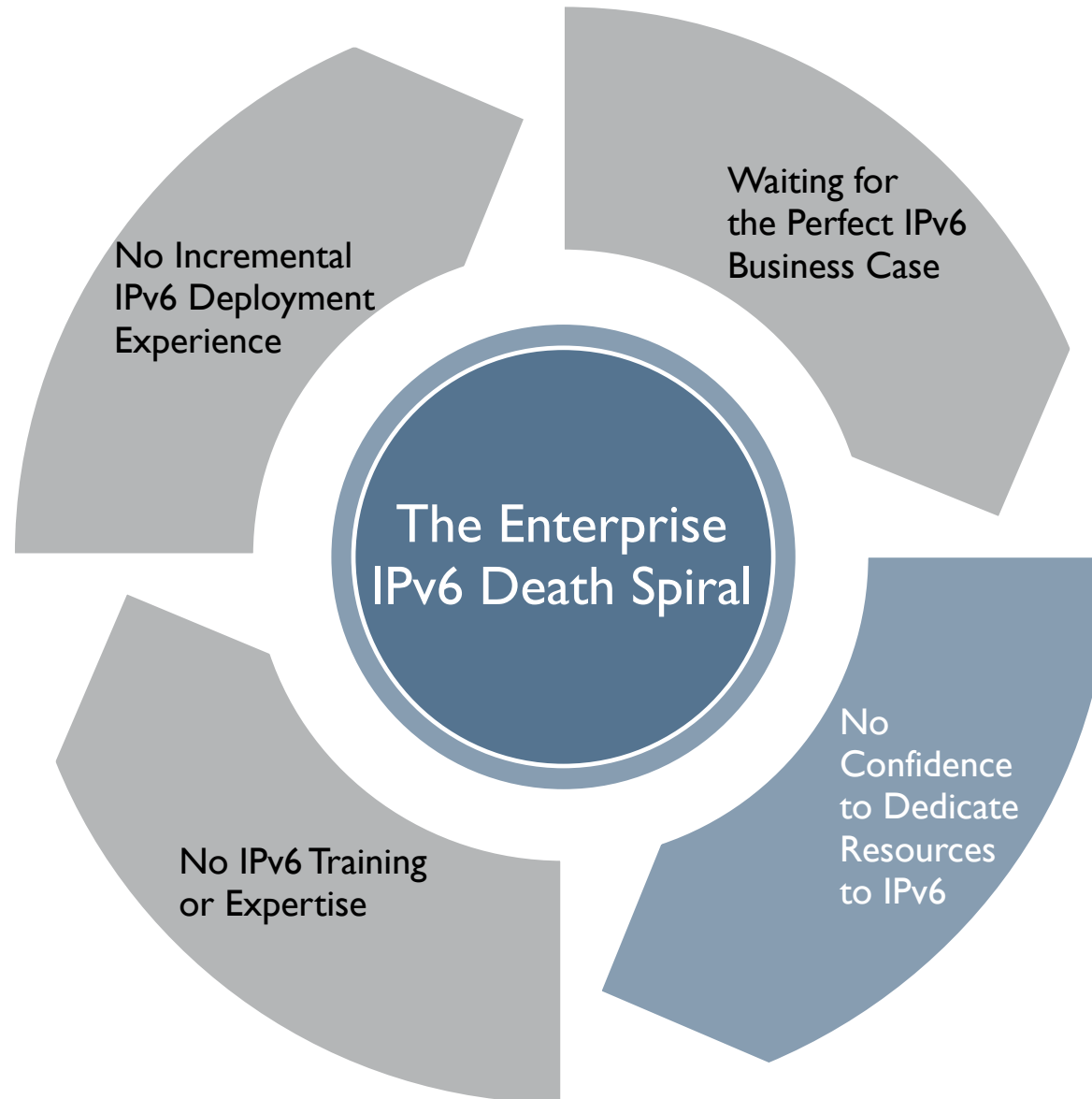
How well educated is your organization's IT staff on IPv6?



2012
Enterprise

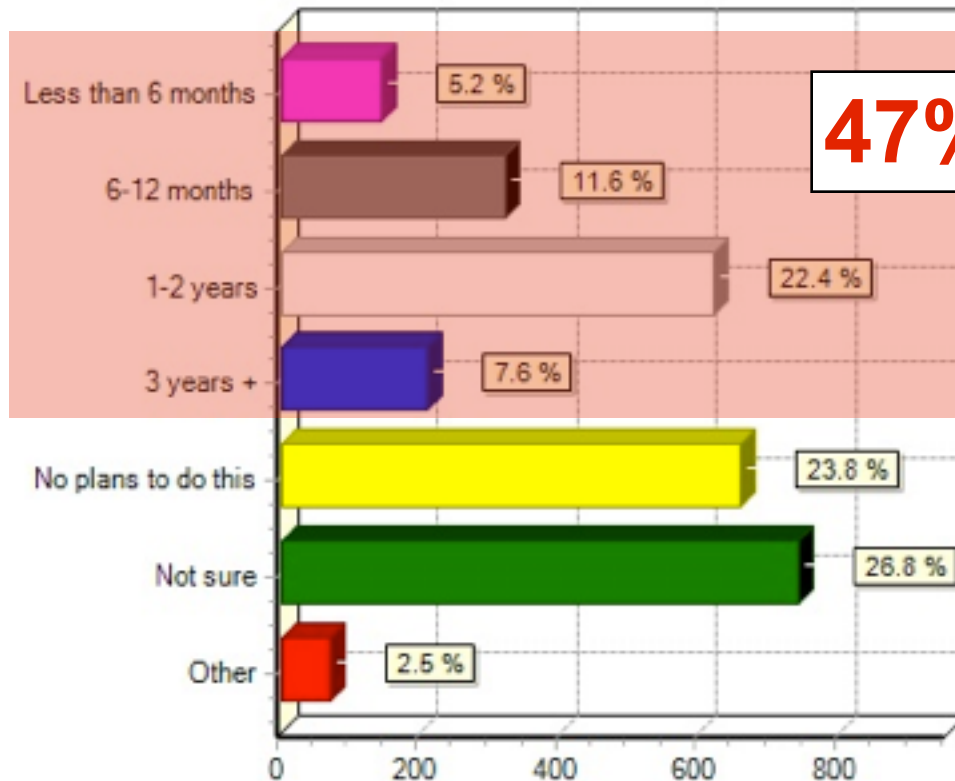


2012
Service Provider



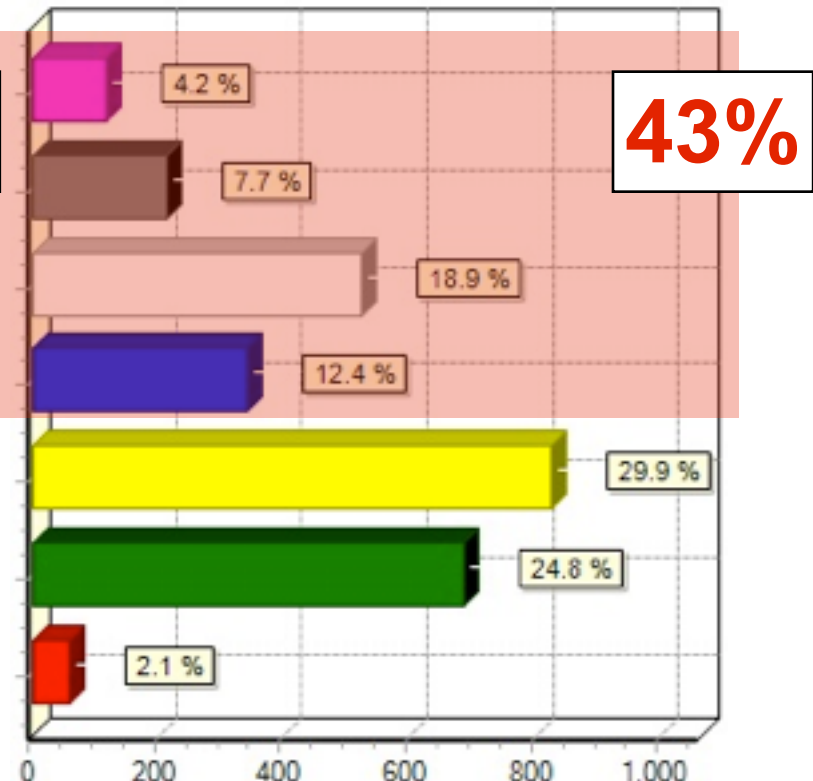


What is your time frame for enabling IPv6 on your...



...external facing websites?

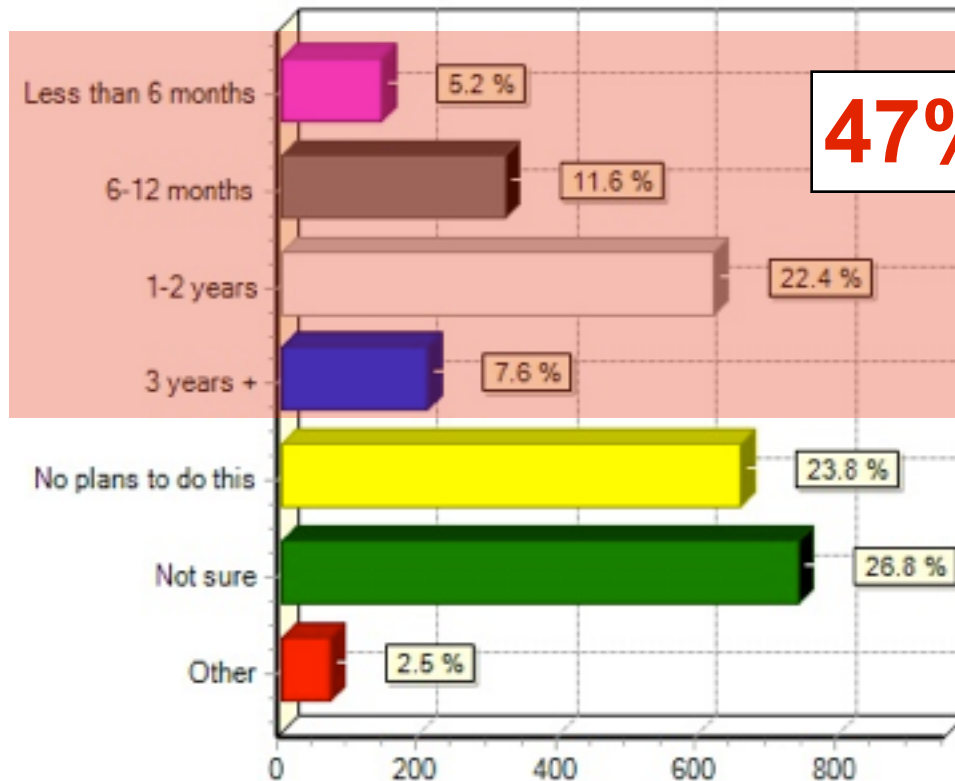
Enterprise



...internal network?

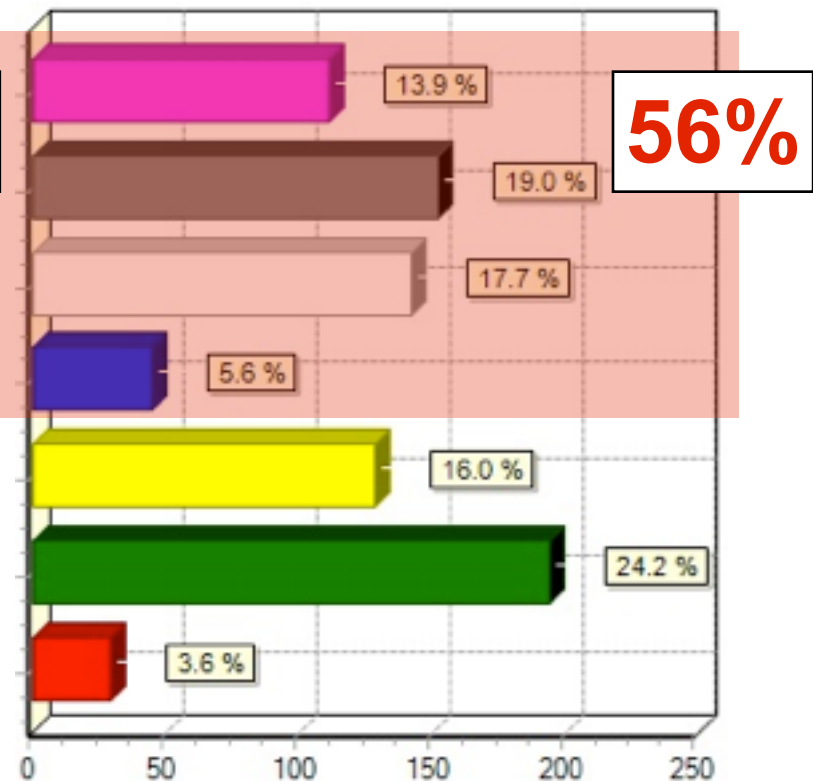
Enterprise

What is your time frame for enabling IPv6 on your...



...external facing websites?

Enterprise

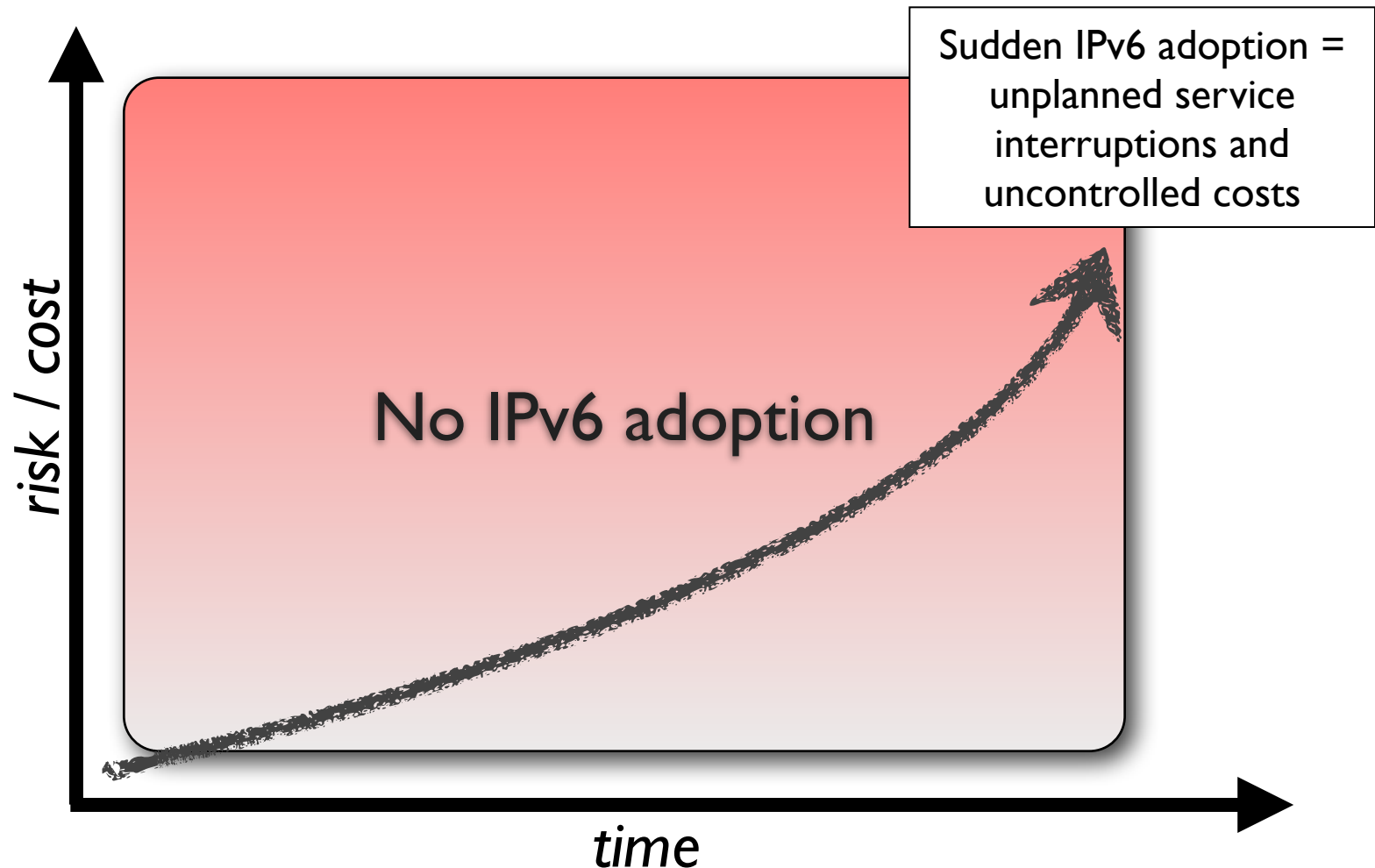


...external facing websites?

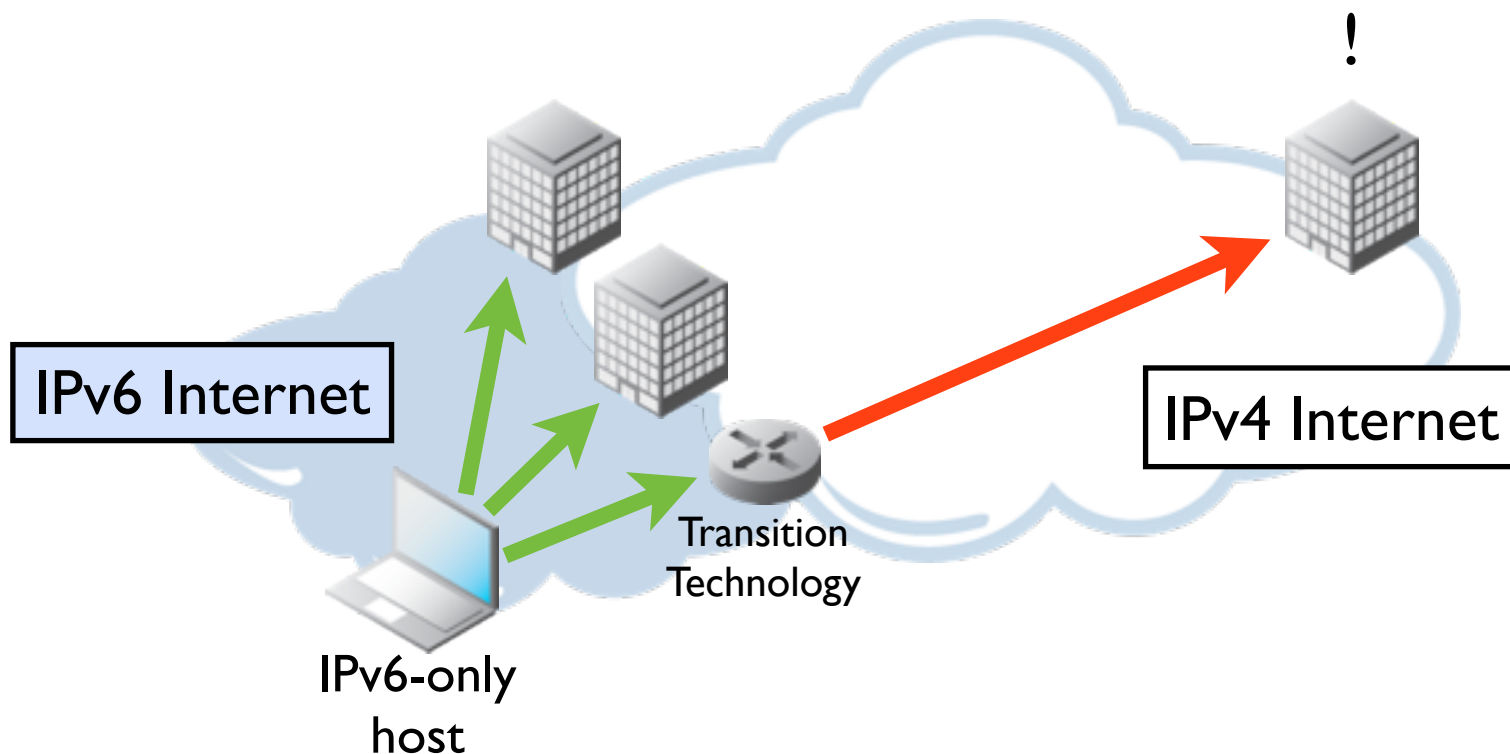
Service Provider

Why *enterprises* should care about IPv6 adoption...

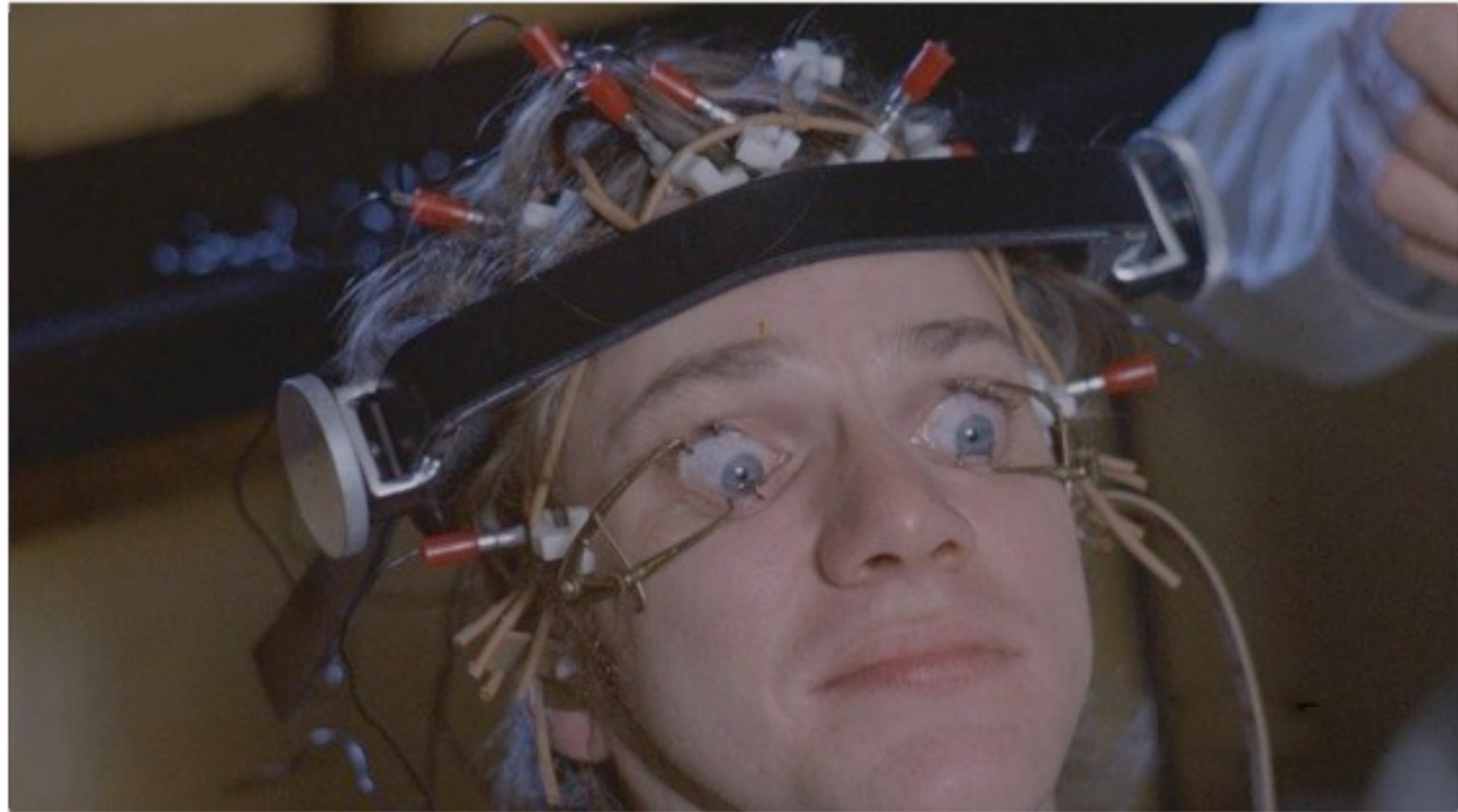
The threat to business agility and business continuity



The threat to competitive advantage

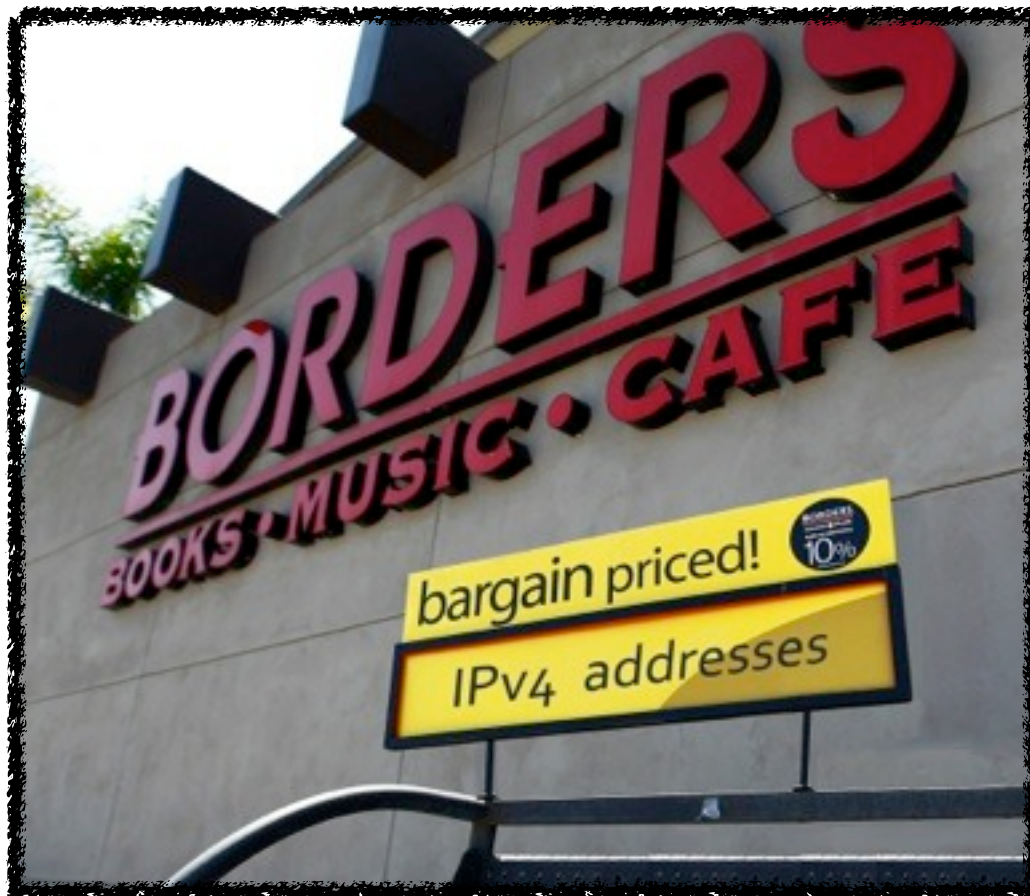


Don't blink! You'll lose customers...



$>250\text{ms}\Delta = \text{FAIL}$

/16 for sale!



\$12 per address \times 65,536 addresses
= \$786,432!

Why everyone else should care about IPv6
adoption in the enterprise...

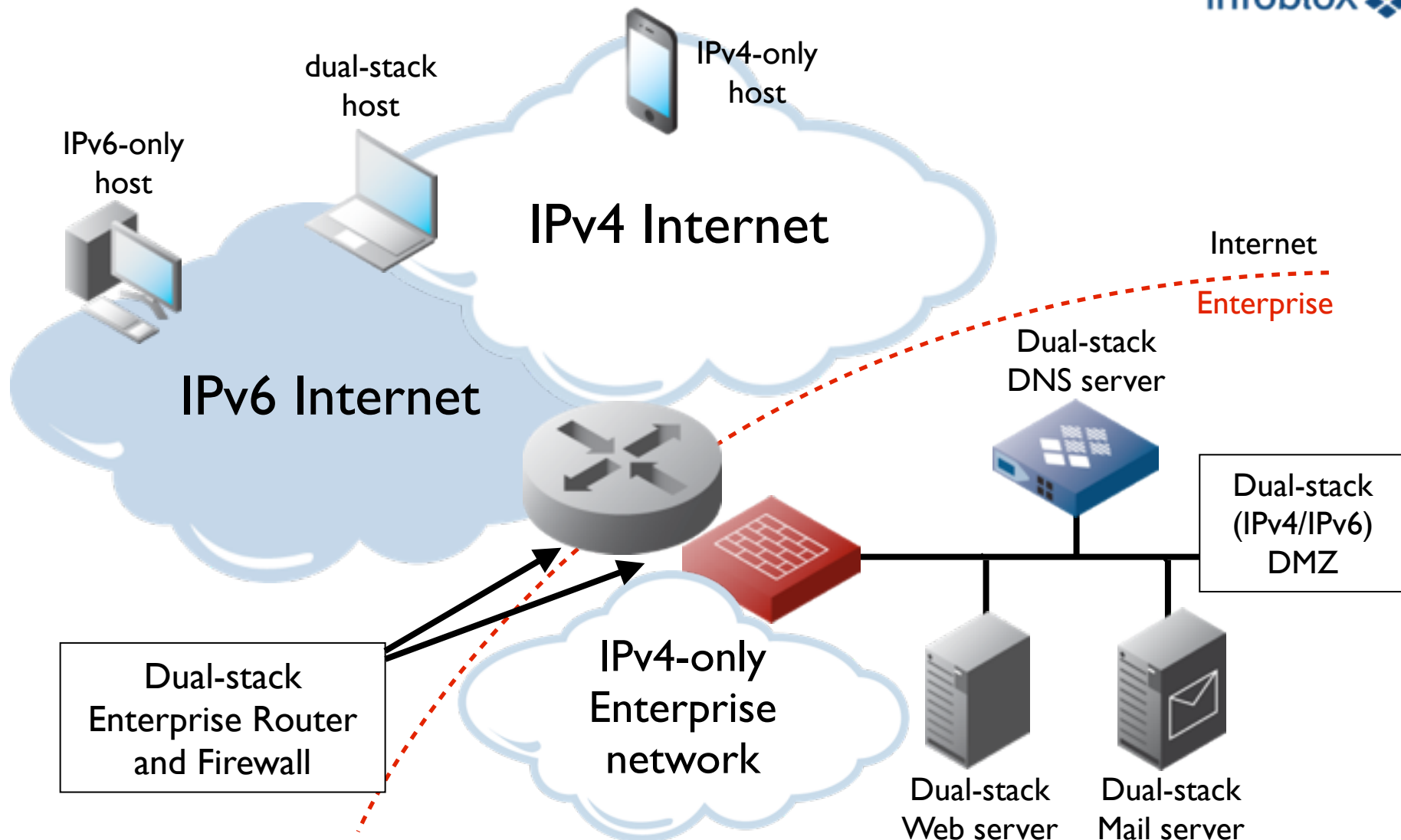
The evolution of the Internet: enterprises will continue to play a role...

- Deprecation of NAT
- Availability of enterprise content over IPv6
- Evolution of IP address management & network configuration and change management
 - opportunity for automation and network virtualization
- Unification of IP address space
 - deprecation of private addressing
- Better adoption of the end-to-end model
- Evolution of security practice
- IPv4/IPv6 feature parity from vendors

Deprecation of NAT at the enterprise edge

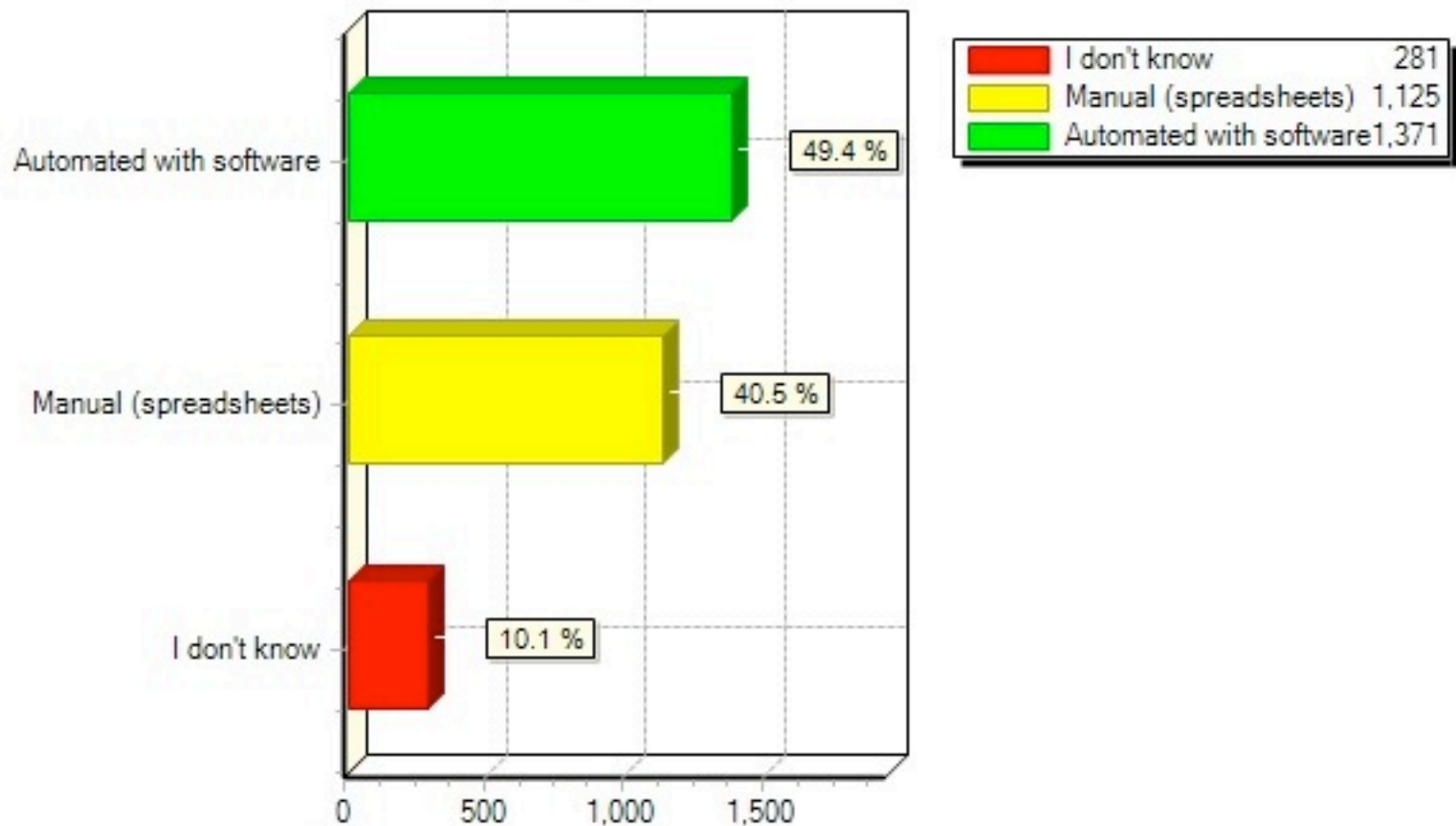


“They found a formula for translating network packets:
This formula for translating network packets paid.
Till in the end they could not change the tragic habits
This formula for translating network packets made.”
-With apologies to Robert Graves

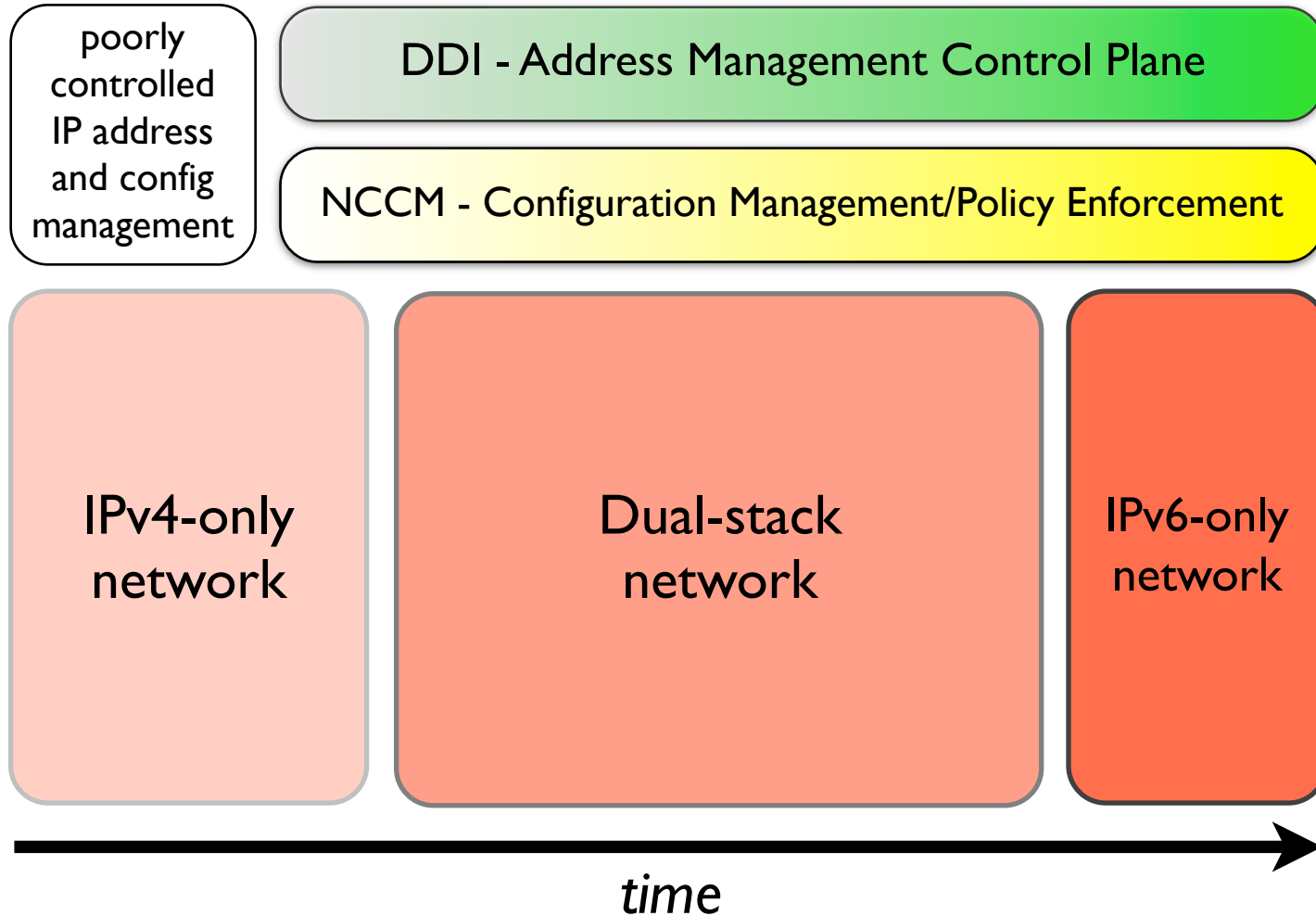


Availability of enterprise content over IPv6

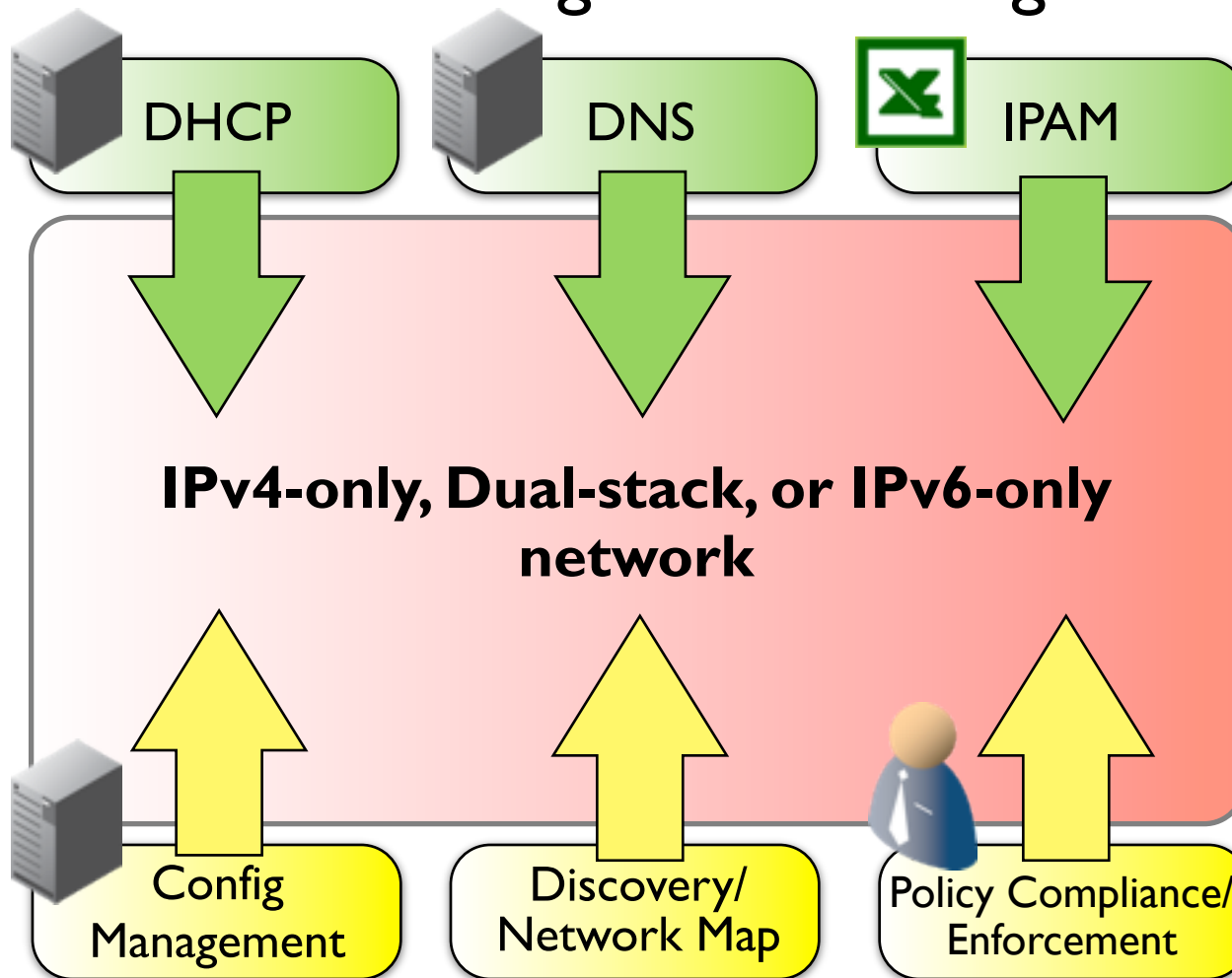
How does your organization currently track its IP addresses?



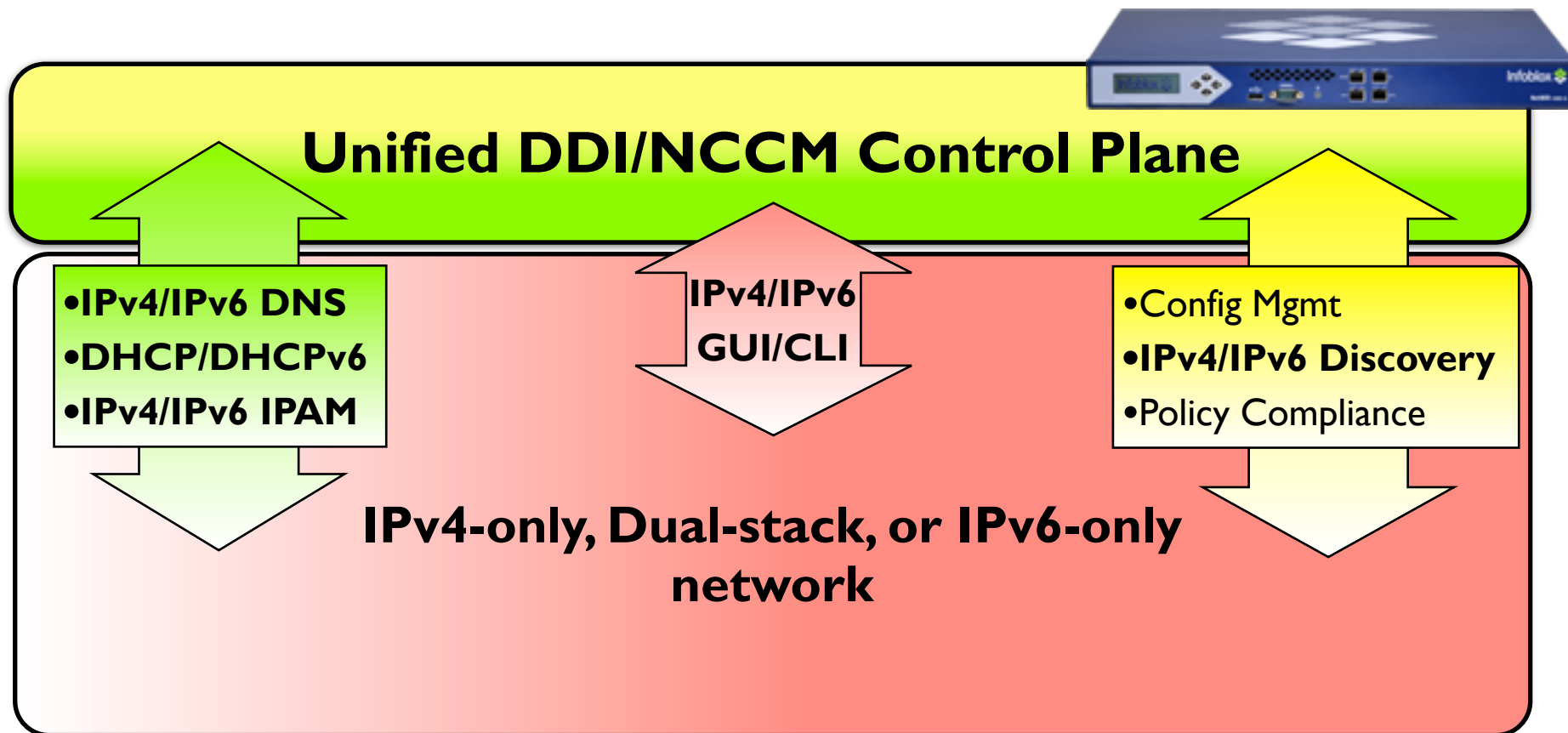
The evolution of IP address management



IPv6 compels the evolution of IP address management and network configuration management...



IP address management and network configuration management, evolved and IPv6 ready...





<http://www.infoblox.com/en/resources/ipv6-resource-center.html>

Continually updated resources for your
IPv6 adoption initiative

IPv6 in the Enterprise



What do you mean
there aren't any
available DHCP
leases?!





Questions?

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References

- Geoff Huston's IPv4 Address Report: <http://www.potaroo.net/tools/ipv4/>
- “For Impatient Web Users, an Eye Blink Is Just Too Long to Wait”: http://www.nytimes.com/2012/03/01/technology/impatient-web-users-flee-slow-loading-sites.html?_r=1
- Amazon and Google latency results: <http://glinden.blogspot.com/2006/11/marissa-mayer-at-web-20.html>
- Stanley Kubrick's “A Clockwork Orange”: <http://www.imdb.com/title/tt0066921/>
- “Bankrupt Borders flogs 65,536 IP addresses at \$12 a pop”: http://www.theregister.co.uk/2011/12/05/borders_flogs_ipv4_addys/
- Ridley Scott's “Alien”: <http://www.imdb.com/title/tt0078748/>