ERICSSON

It Supports IPv6

Tomás Lynch
Solutions Architect III
Ericsson

Does it support IPv6?

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

RFP Approach A

Company A
RFP for IP Backbone Network

Objective of the RFP

Company A is a leader in telecommunications and wants to update its IP Backbone Network with some routers. Indicate your answers in the RFP with "Compliant", "Partially Compliant" or "Not Compliant".

RFP Questions

[After a few questions of line cards, chassis, redundancy, etc]

23) Does it support IPv6?

[More questions about QoS, Multicast and SNMPv3]

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

RFP Approach B

Company B
RFP for IP Backbone Network

Objective of the RFP

Company B is the Big Brother in telecommunications and wants to update its IP Backbone Network with some routers. Indicate your answers in the RFP with "Compliant", "Partially Compliant" or "Not Compliant" taking into account that we like to ask a lot of questions.

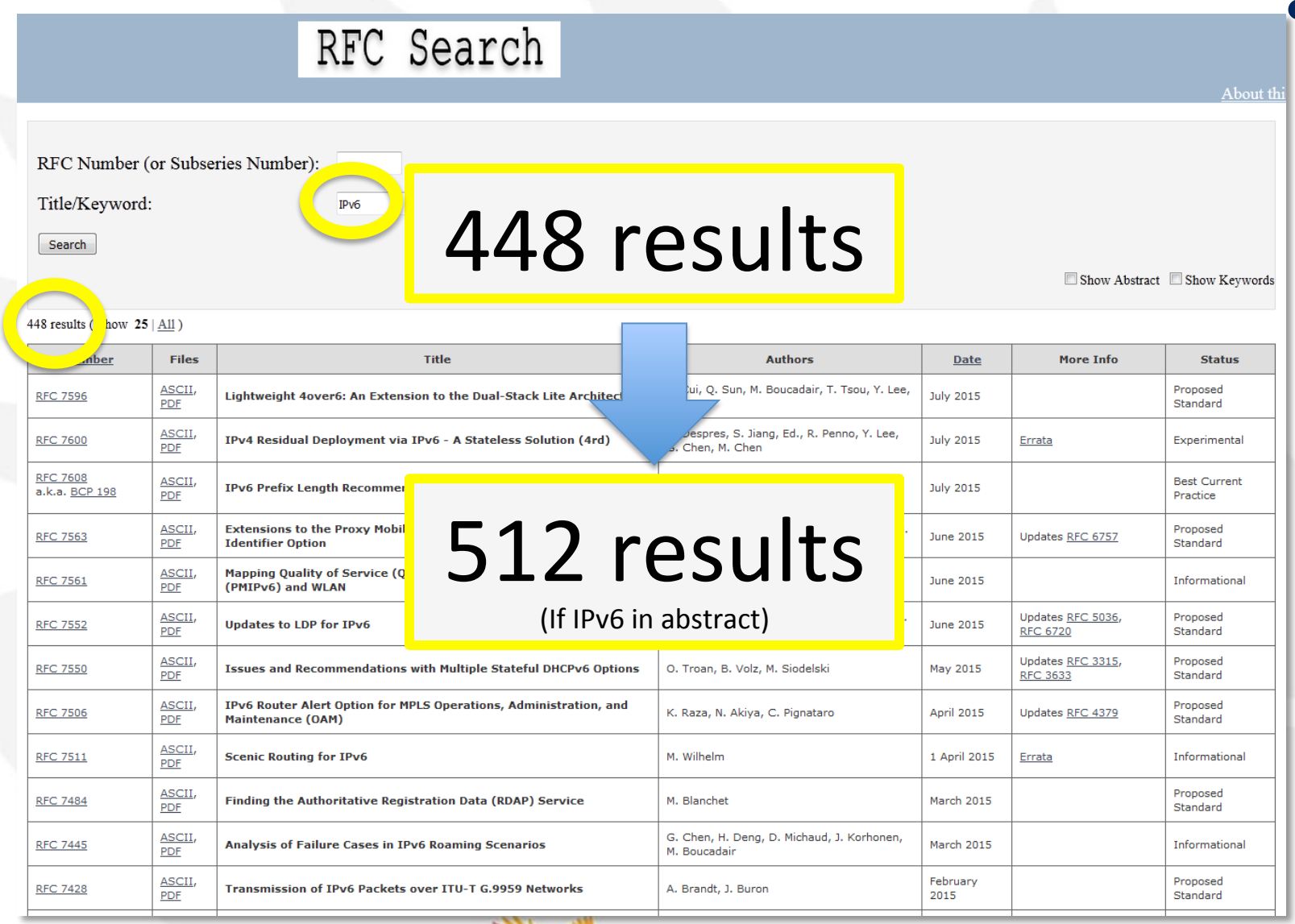
RFP Questions

[After thousands of questions of line cards, chassis, redundancy, X.25 and support for AppleTalk]

13092) Does it support IPv6 in dark rooms?
13093) Does it support IPv6 when the light is on?
13094) Does it support IPv6 in the morning with the light off?
13095) Does it support IPv6 encapsulated in IPv6 for transport over Avian Carriers?
13096) Does it support Scenic Routing for IPv6 packets?
13097) Please declassified your patents and tell us if you support RFC1 to RFC8000 including expired drafts.
[More questions about QoS, Multicast, SNMP, dwarf stars and cosmic voyages into the infinitum]

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

IETF RFCs about IPv6



RFC Search

About thi

RFC Number (or Subseries Number):

Title/Keyword: IPv6

Search

448 results

Show Abstract Show Keywords

448 results (how **25** | All)

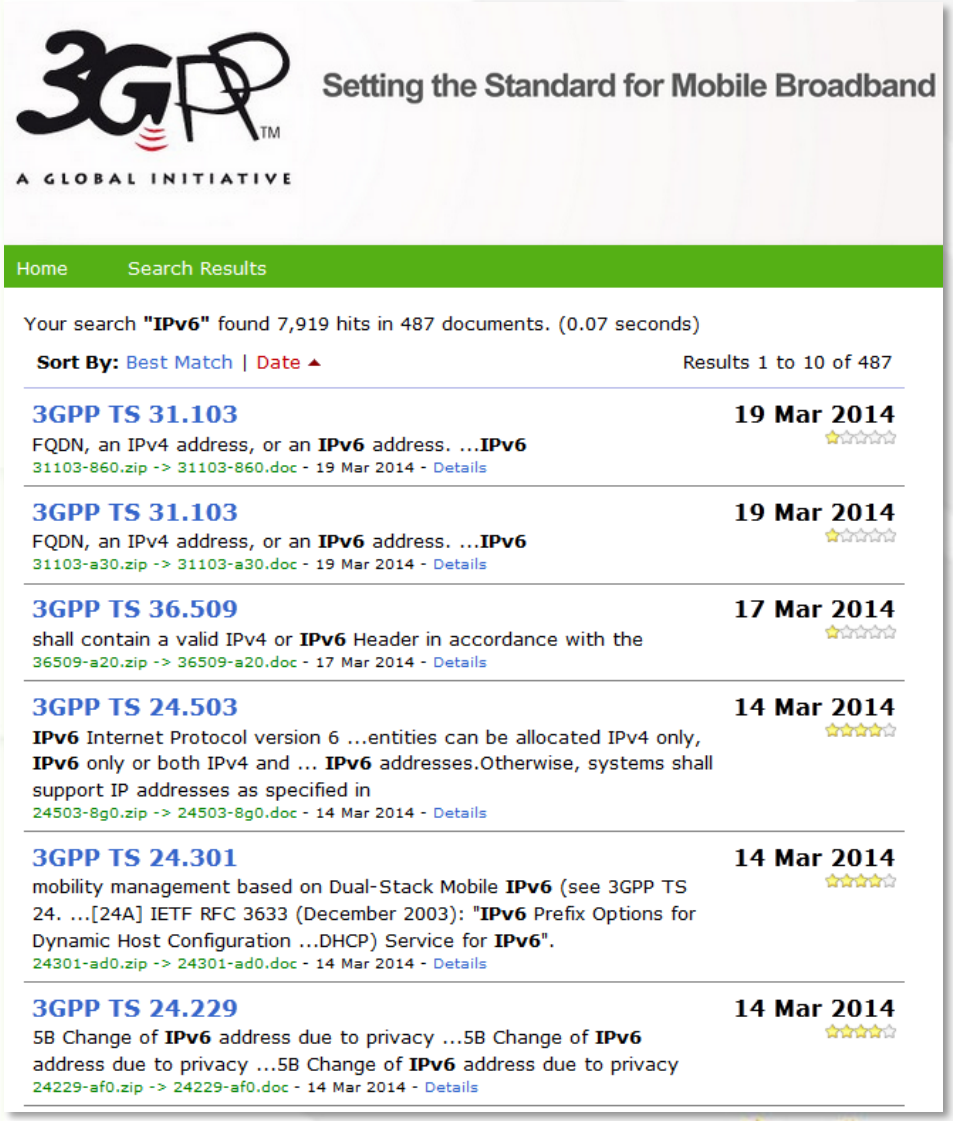
ber	Files	Title	Authors	Date	More Info	Status
RFC 7596	ASCII, PDF	**Lightweight 4over6: An Extension to the Dual-Stack Lite Architec**	ui, Q. Sun, M. Boucadair, T. Tsou, Y. Lee,	July 2015		Proposed Standard
RFC 7600	ASCII, PDF	**IPv4 Residual Deployment via IPv6 - A Stateless Solution (4rd)**	espres, S. Jiang, Ed., R. Penno, Y. Lee, . Chen, M. Chen	July 2015	Errata	Experimental
RFC 7608 a.k.a. BCP 198	ASCII, PDF	**IPv6 Prefix Length Recomme**		July 2015		Best Current Practice
RFC 7563	ASCII, PDF	**Extensions to the Proxy Mobi Identifier Option**		June 2015	Updates RFC 6757	Proposed Standard
RFC 7561	ASCII, PDF	**Mapping Quality of Service (Q (PMIPv6) and WLAN**		June 2015		Informational
RFC 7552	ASCII, PDF	**Updates to LDP for IPv6**		June 2015	Updates RFC 5036, RFC 6720	Proposed Standard
RFC 7550	ASCII, PDF	**Issues and Recommendations with Multiple Stateful DHCPv6 Options**	O. Troan, B. Volz, M. Siodelski	May 2015	Updates RFC 3315, RFC 3633	Proposed Standard
RFC 7506	ASCII, PDF	**IPv6 Router Alert Option for MPLS Operations, Administration, and Maintenance (OAM)**	K. Raza, N. Akiya, C. Pignataro	April 2015	Updates RFC 4379	Proposed Standard
RFC 7511	ASCII, PDF	**Scenic Routing for IPv6**	M. Wilhelm	1 April 2015	Errata	Informational
RFC 7484	ASCII, PDF	**Finding the Authoritative Registration Data (RDAP) Service**	M. Blanchet	March 2015		Proposed Standard
RFC 7445	ASCII, PDF	**Analysis of Failure Cases in IPv6 Roaming Scenarios**	G. Chen, H. Deng, D. Michaud, J. Korhonen, M. Boucadair	March 2015		Informational
RFC 7428	ASCII, PDF	**Transmission of IPv6 Packets over ITU-T G.9959 Networks**	A. Brandt, J. Buron	February 2015		Proposed Standard

512 results

(If IPv6 in abstract)

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

3GPP Specifications about IPv6



487 Specification documents

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

Requirements for IPv6 in ICT Equipment

- RIPE-554
- “It can serve as a template that can be used by governments, large enterprises and all other organisations when seeking IPv6 support in their tenders or equipment requirements and offer guidance on what specifications to ask for.”
- Publication date: 04 Jun 2012

- Jan Žorž, primary co-author, is here in LACNOG2015.
  - “Always happy to help community with this stuff ;)”

RIPE-554 Highlights

- How to specify requirements
- Proposed generic text for the tender initiator
- Lists of mandatory and optional RFC/3GPP technical specifications
  - Two categories, “mandatory” and “optional”
  - Seven functional groups: Host, Layer 2 switch, Router or Layer 3 switch, Network security equipment, CPE, Mobile device and Load balancer.
- Skill requirements of the systems integrator
  - Declaration of IPv6 competence

IPv6 Node Requirements

- RFC6434
- “This document defines a minimal level of requirement needed for a device to provide useful internet service and considers a broad range of device types and deployment scenarios.”
- Publication date: December 2011

RFC6434 Highlights

- Defines common functionality required from both IPv6 hosts and routers.
- Includes chapters for
  - Sub-IP Layers
  - IP Layer
  - DNS & DHCP
  - Transition mechanisms
  - Application Support
  - Mobility
  - Security
  - SNMP

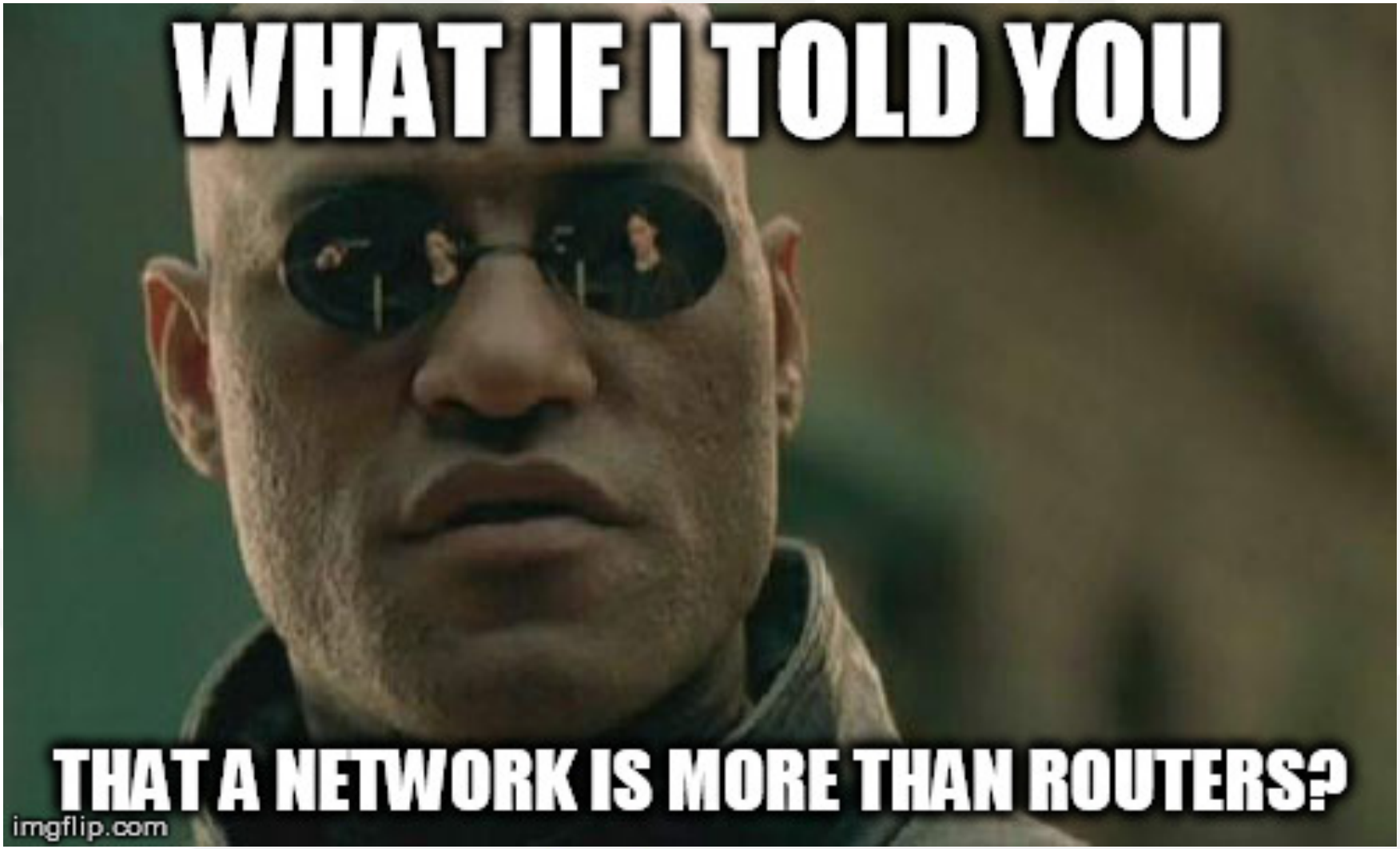
It Supports IPv6

- "…a simple check-box in an RFx isn't enough."
- "What you need 'IPv6 support' to mean is full feature parity with your existing […] products and services."
- "Once you find a product or service that meets your needs on paper, lab testing and limited launches […] will help ensure that you aren't bitten by this myth."

Source: http://www.internetsociety.org/deploy360/blog/2015/03/ipv6-security-myth-8-it-supports-ipv6/ by Chris Grundemann.

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

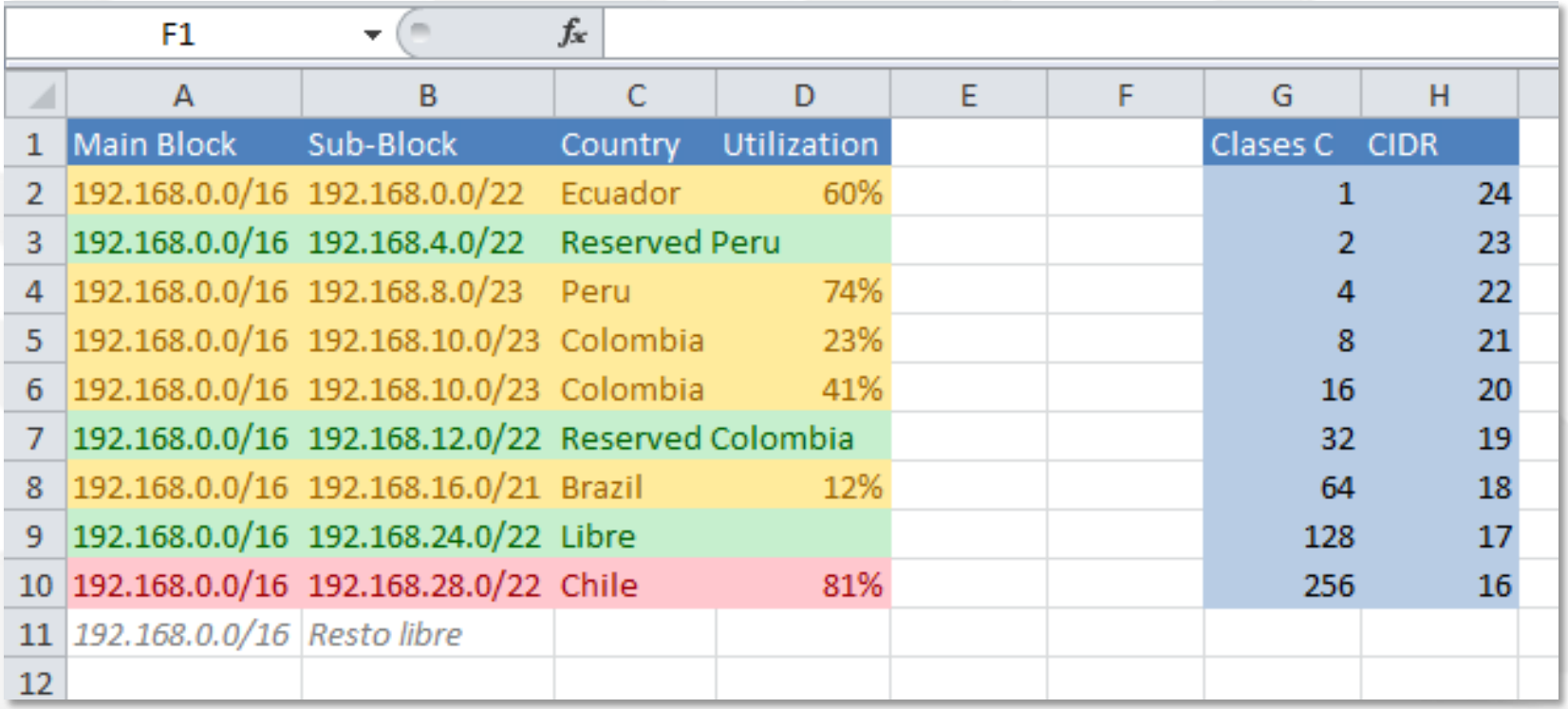
But ..


WHAT IF I TOLD YOU
THAT A NETWORK IS MORE THAN ROUTERS?
imgflip.com

IPv6 is not for an isolated device only

- Not only routers, switches, firewalls, etc.
- Other Systems are Affected:
  - Network management systems
  - Service delivery
  - Service fulfillment, including the network inventory, activation and provisioning
  - Service assurance
  - Customer care

Managing IPv4 Addresses – An Example



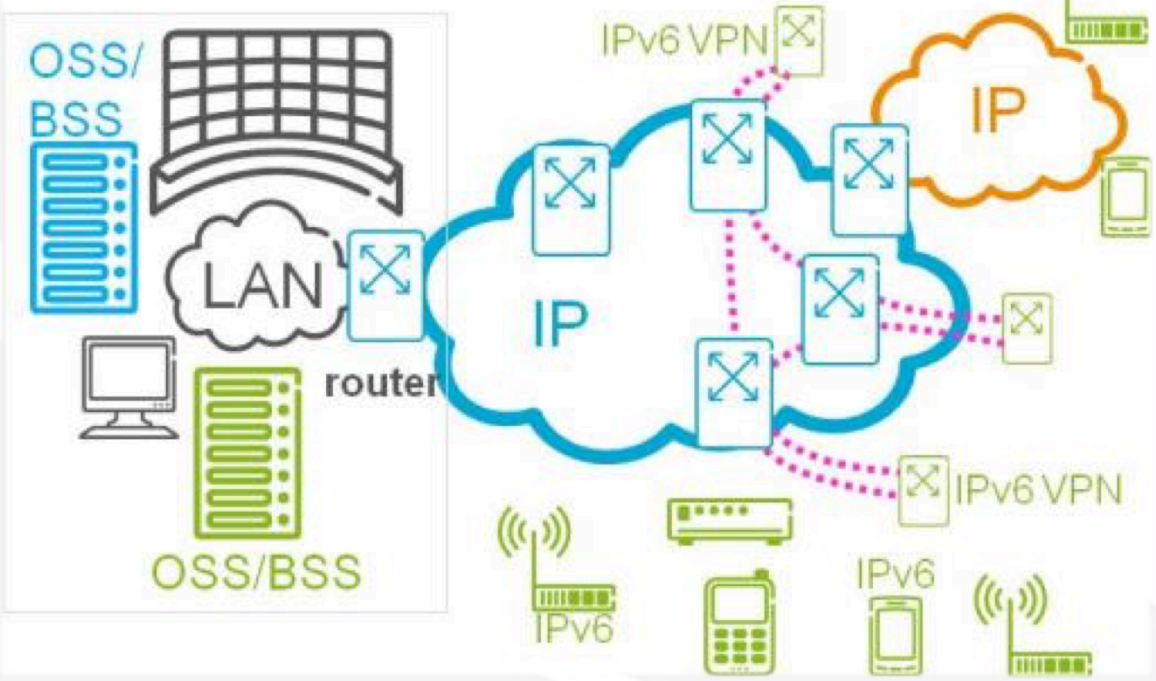
F1

	A	B	C	D	E	F	G	H
1	Main Block	Sub-Block	Country	Utilization			Clases C	CIDR
2	192.168.0.0/16	192.168.0.0/22	Ecuador	60%			1	24
3	192.168.0.0/16	192.168.4.0/22	Reserved Peru				2	23
4	192.168.0.0/16	192.168.8.0/23	Peru	74%			4	22
5	192.168.0.0/16	192.168.10.0/23	Colombia	23%			8	21
6	192.168.0.0/16	192.168.10.0/23	Colombia	41%			16	20
7	192.168.0.0/16	192.168.12.0/22	Reserved Colombia				32	19
8	192.168.0.0/16	192.168.16.0/21	Brazil	12%			64	18
9	192.168.0.0/16	192.168.24.0/22	Libre				128	17
10	192.168.0.0/16	192.168.28.0/22	Chile	81%			256	16
11	*192.168.0.0/16*	*Resto libre*						
12								

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

Operational Considerations for IPv6

- Operational process
- Training
- OSS/BSS
- DCN



Any function, process, OSS or BSS that utilizes IP addresses are potentially impacted by IPv6 and needs to get operational support for IPv6 in place prior to deployment to ensure smooth rollout and ramp up.

IPv6 Operations Potential Process Impacts

Fulfillment

- Service Configuration and Activation
- Resource Provisioning
- Inventory & Allocation to Service Instance (e.g., IP Address Management

Assurance

- Service Problem Mgt.
- Service Quality Analysis Action & Reporting
- Fault, Root Cause Analysis
- Resource Data Collection, Analysis & Control

Billing & Revenue Management

- Charging
- Service Guiding and Mediation
- Resource Mediation and Reporting

› Understand impact of IPv6 on key functions to ensure support and update process changes

› Understand need to operate both IPv4 and IPv6 for different devices and in different parts of network

› Configuration, diagnostic testing

lacnic24 lacnog
28/9 - 2/10 bogotá, colombia

Conclusions

- Analyze what you need from IPv6 in your network
- Follow guidelines to write RFP/RFI
- Remember that IPv6 is not only routers
- A simple check-box in an RFx isn't enough
  - Tests, proof of concepts, limited launches, etc.

QUESTIONS?

ERICSSON