RIR IPv4 Address Run-Down Model



about::myself

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2020-09-08

What's the business case of $\mathbb{N}67$

2020-09-08



IPv6 Business Case

Unless you have a solid case in which there are no to little real costs for new hardware and software while there are clear benefits (savings) when IPv6 is deployed, you can't follow the cost-based business case path.

IPv6 Business Case

Contrary to a popular view, IPv6 is not Just Another Network Team thing. IPv6 support on the network is just a tiny part of the end goal. IPv6 support in applications is perhaps even more important, so is the IPv6 knowledge and training materials for the support staff as well as good monitoring of the IPv6-enabled services.

Why IPv6: Benefit cases tor managers

Case #1: Because your competition does it



Armin @netzverweigerer

Replying to @isotopp @LaF0rge and @WiresharkNews

FWIW I recently moved my cloud-hosted repositories from Github to Gitlab because **#ipv6** (yes, seriously).

1:07 PM · Sep 7, 2020 · Twitter Web App

https://twitter.com/netzverweigerer/status/1302926451273068546?s=20

2020-09-08

Case #2: Because your business partners do it

Use of IPv6 for China (CN)



https://stats.labs.apnic.net/ipv6/CN

Case #3: Because extra IPv4s are expensive



/16	/17 and /18	/19, /20 and /21	/22	/23 and /24
\$22 USD per	\$20 USD per	\$22 USD per	\$25 USD per	\$30 USD per
IP	IP	IP	IP	IP

Source: IPv4 market group: address pricing

2020-09-08

Case #4: Avoid NAT costs increase



30 – 50 % of traffic may use IPv6

https://engineering.linkedin.com/blog/2017/07/linkedin-passes-ipv6-milestone

https://people.csail.mit.edu/richterp/pam17_43-pujol.pdf

Case #5: As a matter of business continuity Moving to IPv6 Is Becoming a Matter of Business Continuity, Says NASA Transition Manager

By CircleID Reporter

May 08, 2018, 10:21 am PDT Views: 10,644 Add Comment

US government agencies are accelerating the transition to IPv6 and ensuring their public websites are accessible via IPv6. "Agencies are also buying IPv6-compliant devices as older ones reach the end of their lifecycle," <u>reports</u> Alan Joch in FedTech. "For a long time, people have said, 'Why be bothered? We have plenty of IPv4 address space,'" says Kevin Jones, IPv6 transition manager at NASA and chairperson of the Federal IPv6 Task Force. "But now, moving to IPv6 is becoming a matter of business continuity. We don't have the luxury of kicking the can down the road anymore." Joch adds that NASA runs a dual-stack IPv4 and IPv6 network environment in parallel, but their goal is to eventually move to IPv6-only.

http://www.circleid.com/posts/20180508_moving_to_ipv6_is_becoming_a_matter_of_business_continuity/ 2020-09-08 Radek Zajíc, radek@zajic.v.pytli.cz, CSNOG:2020 12

Case #6: Dual-Stack First Hop Security

IPv4	IPv6	
DHCPv4 Snooping	DHCPv6 Snooping	
ARP protection/inspection	ND inspection	
IP source guard	IPv6 Source/Prefix Guard	
	RA Guard	
	ND multicast suppress	

Even if you don't operate IPv6 access network (yet), you should secure yourself against IPv6-enabled adversaries. This also applies in reverse, if you operate IPv6only network, you should secure yourself against IPv4-enabled adversaries

Starting early

2020-09-08

Benefits of Starting Early

There's no need for a Big Bang. Define a long-term IPv6 strategy

Make IPv6 features a mandatory part of your procurement process

Design, test and deploy IPv6 in your lab (or office, if that's your lab)

Perform incremental production deployments

One day you will find yourself with an IPv6 enabled service (Profit)

(Don't wait for a magic future Big Bang. It won't happen.)

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Why incremental deployment matters

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Incremental deployments: the toddler case

The whole infrastructure you run likely does not (yet) allow every part of it to be IPv6 enabled. A Big Bang is not real.

Be like a toddler: begin with small steps, then slowly start walking. Explore the corners you have not seen before.

Shortly you will find yourself running and then it all will just feel natural. No child knew how to walk, run, or ride a bike since day one. That's fine. Incremental deployment is about incremental learning, trials and failures.

But as with the toddlers, be careful not to get hurt too much.

(And learn from others' mistakes.)

Dual-Stack is not the goal. IPv6-only is

Conclusions Is there a clear business case to deploy IPv6?

Not really. But there are reasons you shouldn't wait anymore.

Are IPv6-only networks or services a thing?

Yes! The nets are in the wild and the services are just around the corner.

As network engineers, will we succeed in deploying IPv6? No, if you don't involve other departments. Get other teams on board.

Should we wait for others to solve all IPv6 problems?

Most of the problems were solved in the 10 past years. Go and deploy!

Shall we do a Big Bang and enable IPv6 everywhere at the same time? Please, don't. That's not feasible. Do deploy block by block.

Why incremental deployments matter?

Remember toddlers. One step at a time. Don't get hurt by hurrying.

Q&A Thank you

