

Thoughts on fragmentation of DNS infrastructure

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Questions

- How does the fragmented nature of the ISP landscape in LAC impact the deployment and management of critical DNS infrastructure?
- What role can DNSSEC and other security technologies play in strengthening the LAC DNS ecosystem?

Internet innovation relies on voluntary adoption

- Internet is a permissionless network
- As long as you follow the technical standards, you can connect
- Its your choice what aspects of the Internet you support
- This has allowed the Internet to explode over the decades in a way we benefit from today and want to continue to enable
- But it does present challenges when we identify critical new technologies that provide maximum benefit when it has broad adoption

Positive examples

- Web browser innovation
 - Generally, deploying new features to grow the platform
 - Specifically, security outcomes like phasing out HTTP
- DNSSEC
 - Root zone adoptions
 - Approaching universal adoption by top-level domains
- RPKI
 - Implementations by all five regional Internet registries

Less successful

- IPv6
 - Increasing adoption
 - Limited exclusive deployment (i.e. without IPv4)
- DNSSEC elsewhere in the DNS
 - By domain registrants
- DNSSEC validation

Fragmented Network

- Came from the ISP industry in Australia
 - Hundreds of operators with little cohesion
 - Can see the parallels with a fragmented industry
- Fundamentally, fragmentation does make adoption much harder
 - Lack enforcement mechanisms
 - Any individual contributor sees much less impact of their individual contribution

Where are we now

- We haven't been successful in making a compelling use case for some of these new technologies
- Permissionless network! Its working as intended and what made the Internet so successful?
- Broad adoption of technologies like DNSSEC and IPv6 benefits all
 - Implementations will be more robust if they are used day-to-day by everyone
 - One of the prime criticisms
- Contributors do their part
- Public policy makers can help
 - Even setting requirements for doing business with government can help promote desirable outcomes, without compelling private business
- Best practices and industry consortia can help

DNSSEC Adoption

- Of specific interest to this DNS forum
- Three areas:
 - Validation
 - Verify domains with DNSSEC support, both within your systems that systems customers rely on (ISPs, network operators, etc.)
 - Signing
 - Gives protection for your domains to people who have DNSSEC support
 - Getting out of the way
 - If you are a gateway to people using technologies (registrar, ISPs) don't inhibit your customers who want to use it
 - You may not be convinced but minimally provide the ability to utilize the technology for customers who do
- KSK rollovers
 - Relies upon network operators to coordinate, outreach needed
 - Industry support is essential for success

Thank you!

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