IPv6 updates from the IETF

UK IPv6 Council

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What's new?

- Many changes in how IPv6 deployments and operations work
- Last 5 years have seen significant increases in IPv6
- ~50% of global internet traffic is IPv6
- Serious work and progress in sunsetting legacy IP

What does that mean?

- Necessitates looking at IPv6 from new perspectives
- Removal of legacy IP means “no more safety net” of dual-stack
- Exercising code paths that may need more work
- Refreshing standards documentation to reflect the current (anf future) states of network operations

How do we do that?

Re-charter the IPv6 Operations Working Group to Focus on

- Changes in current operations
- Universal IPv6 deployment
- IPv6 advantages and performance details
- IPv6 node, application, and services requirements
- Creating and refreshing BCPs and operational guidance
- Strong collaboration with other WGs (SRv6OPS, 6man, HAPPY, etc.)

Leadership changes

- New(ish) changes to v6ops chairs
  - Nick Buraglio (me) - Chair
  - Xipeng Xiao - Chair
  - Ron Bonica - Advisor

What have we been working on?

- Publish Informational documents including:
  - Identifying obstacles to IPv6 deployment and IPv6 operational issues.
  - Perform and publish a study that compares the performance of existing IPv4 networks to the performance of existing IPv6 networks.
  - Identify any discrepancies and root causes of IPv6 performance limits, noting any and all differences

What have we been working on?

- Use cases where dual-stack hosts prefer IPv4 or fail to utilize available IPv6 connectivity.
- Advancing informational documents to proposed standard where warranted

Published documents in 2025

- RFC 9872 - Recommendations for Discovering IPv6 Prefix Used for IPv6 Address Synthesis
- RFC 9818 - DHCPv6 Prefix Delegation on IPv6 Customer Edge (CE) Routers in LANs
- RFC 9898 (in auth48 now) - Neighbor Discovery Considerations in IPv6 Deployments

Advancing well established documents

- Many RFCs detailing transition / translation are 10+ years old. They should be advanced to higher status.
  - RFC 7757 - Internet Standard
  - RFC 7755 - Proposed Standard
  - RFC 7756 - Proposed Standard

Terminology updates

- Defining terms like “IPv6-only” may seem trivial, but in practice it is quite complex
- Simplifies requirements
- Creates vendor clarity
- Allows for further use of the term in subsequent documents

Operational documents

- 464XLAT Customer-side Translator (CLAT): Node Recommendations
- IPv6-Mostly Networks: Deployment and Operations Considerations
- Updates to RFC 7084, IPv6 CPE Requirements
- Using Dummy IPv4 Address and Node Identification Extensions for IP/ICMP translators

Future milestones

- IPv4 Versus IPv6 Performance
- Deploying IPv6 in the WAN
- Deploying IPv6 in the Data Center
- Deploying IPv6 in the Enterprise
- Deploying IPv6 in the Access Network

Get involved!

- https://datatracker.ietf.org/wg/v6ops/about/
- https://mailarchive.ietf.org/arch/browse/v6ops/

Thanks!

Questions?