Measurement and Analysis for Protocols

Research Group (maprg)

19 Mar 2025, IETF122 in Bangkok

co-chairs <**maprg-chairs@ietf.org**>:

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David Plonka <plonka@wiscnet.net>

Note Well – Intellectual Property

- **The IRTF follows the IETF Intellectual Property Rights (IPR) disclosure rules**
- By participating in the IRTF, you agree to follow IRTF processes and policies:
  - If you are aware that any IRTF contribution is covered by patents or patent applications that are owned or controlled by you or your sponsor, you must disclose that fact, or not participate in the discussion
  - The IRTF expects that you file such IPR disclosures in a timely manner – in a period measured in days or weeks, not months
  - The IRTF prefers that the most liberal licensing terms possible are made available for IRTF Stream documents – see RFC 5743
  - Definitive information is in RFC 5378 (Copyright) and RFC 8179 (Patents, Participation), substituting IRTF for IETF, and at https://irtf.org/policies/ipr

Note Well – Audio and Video Recordings

IRTF

- The IRTF routinely makes recordings of online and in-person meetings, including audio, video and photographs, and publishes those recordings online
- If you participate in person and choose not to wear a red “do-not-photograph” lanyard, then you consent to appear in such recordings, and if you speak at a microphone, appear on a panel, or carry out an official duty as a member of IRTF leadership then you consent to appearing in recordings of you at that time
- If you participate online, and turn on your camera and/or microphone, then you consent to appear in such recordings

Note Well – Privacy & Code of Conduct

- As a participant in, or attendee to, any IRTF activity you acknowledge that written, audio, video, and photographic records of meetings may be made public
- Personal information that you provide to IRTF will be handled in accordance with the Privacy Policy at https://www.ietf.org/privacy-policy/
- As a participant or attendee, you agree to work respectfully with other participants; please contact the ombudsteam (https://www.ietf.org/contact/ombudsteam/) if you have questions or concerns about this
- See RFC 7154 (Code of Conduct) and RFC 7776 (Anti-Harassment Procedures), which also apply to IRTF

Goals of the IRTF

- The Internet Research Task Force (IRTF) focuses on longer term research issues related to the Internet while the parallel organisation, the IETF, focuses on shorter term issues of engineering and standards making

- **The IRTF conducts research; it is not a standards development organisation**

- While the IRTF can publish informational or experimental documents in the RFC series, its primary goal is to promote development of research collaboration and teamwork in exploring research issues related to Internet protocols, applications, architecture, and technology
- See “An IRTF Primer for IETF Participants” – RFC 7418

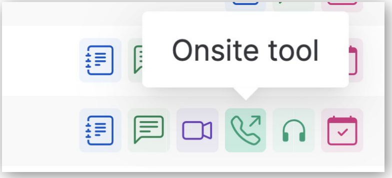
Administrativa

- Charter: https://datatracker.ietf.org/group/maprg/charter/
- Mailing List: maprg@irtf.org
  Subscriptions: https://www.irtf.org/mailman/listinfo/maprg
- Today's slides: https://datatracker.ietf.org/meeting/122/session/maprg/
- Meetecho: https://meetecho-sin.ietf.org/client/?session=33986
  - Please join Meetecho (lite or full version) from the room to sign in for the bluesheets (and enter the queue)!
  - Find this link under "..." next to MAPRG session in IETF agenda

Meeting Tips

In-person participants

- Make sure to sign into the session via Datatracker or the QR Code in this session.
- Use Meetecho (usually the "Meetecho lite") client to:
  - join the mic queue
  - participate in shows of hands
- *Keep audio and video off if not using the onsite version.*



Remote participants

- Make sure your audio and video are off unless you are chairing or presenting during a session.
- Use of a headset is strongly recommended.

This session is being recorded

Agenda

9:30 Overview and Status - *Mirja/Dave*
+ *Heads-up re:* Hackathon IPv6 Test Pod Open Testing *and* Call for HAPPY [WG] measurements

9:35 Progress Yet to Be Fulfilled: Measuring Collateral Damage in RPKI ROV - *Weitong Li* (remote; 15 min)

9:50 To Adopt or Not to Adopt L4S-Compatible Congestion Control? Understanding Performance in a Partial L4S Deployment - *Fatih Berkay Sarpkaya* (remote; 15 min)

10:05 A Deep Dive into LEO Satellite Topology Design Parameters - *Wenyi (Morty) Zhang* (remote; 15 min)

10:20 Characterizing Anycast Flipping: Prevalence and Impact - *Xiao (Shane) Zhang* (remote; 15 min)

10:35 Simulation study of Quality of Outcome scores in challenging network conditions - *Bjørn Ivar Teigen Monclair* (remote; 15 min)

~11:00 HTTP Conformance vs. Middleboxes: Identifying Where the Rules Actually Break Down - *Mahmoud Attia* (remote; 15 min)

Hackathon: IPv6 Test Pod Open Testing and Diagnosis

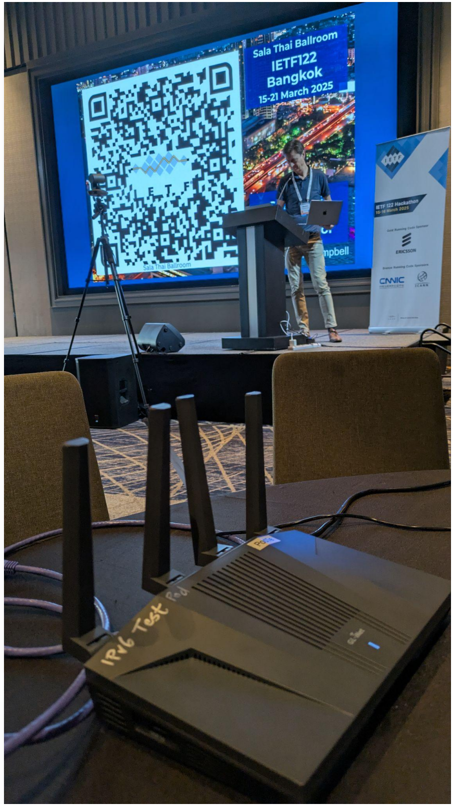
MAPRG IPv6 Test Pod Open Testing and Diagnosis

- **Champions**
  David Plonka dave@plonka.us (MAPRG co-chair, WiscNet's Principal Research Scientist)
- **Project Info**
  The Measurement & Analysis for Protocols Research Group (MAPRG) and WiscNet (AS2381) will provide an open testing environment for participants to determine how well equipment and applications work in a variety of IPv6 network environments.
  To accomplish this, we will provide access to the IPv6 Test Pod (https://ipv6-pod.info/): a wireless and wired access point specially configured for testing IPv6 compatibility and graciously provided by Internet2 and the ARIN Community Grant program.

> The IPv6 Test Pod provides a variety of IPv6 test networks via Wifi SSIDs and optionally over Wired Ethernet connections. All you have to do is provide a wired internet connection to the WAN interface (IPv4-only is OK), power, and it will provide a series of networks to test devices and software with:
>
> - Dual-Stack (IPv4 and IPv6)
> - IPv6-only
> - IPv6 only with NAT64+DNS64
> - IPv6-only with NAT64+PREF64
> - IPv6 only with NAT64+DNS64+PREF64

In addition to employing the IPv6 Test Pod, we'll do complementary testing with IPvFoo browser extension, the IETF network, etc.

- **Open Call for Participants**



Hackathon: IPv6 Test Pod Open Testing and Diagnosis

	A	B	C	D	E	F	G	H	I	J	K	L
1	YYYY-MM-DDTI	network	userEquipment	OS	app	appVersion	URL	IPvFoo	notes			
2	2025-03-15T10::	Pod1e-DualStack	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	facebook.com	6(6)				
3	2025-03-15T10:4	ietf-hotel	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	facebook.com	4(4)(6)				
4	2025-03-15T10:4	ietf-hotel	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	facebook.com	6(4)(6)				
5	2025-03-15T10:4	MarriottBonvoy	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	facebook.com	4(4)				
6	2025-03-15T10:5	Pod1e-DualStack	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	facebook.com	6(4)(6)	edge-chat.facebook.com is the only thing that's v4			
7	2025-03-15T11:5	VLAN601(Hackathon)	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	facebook.com	6(6)	at this point the \	so the MacBook en7 interface had only a v6 addres		
8	2025-03-15T15:(	Pod1e-IPv6Only-D64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	github.com	4(4)(6)	note that githubu	but github.com is on Microsoft v4 addresses		
9	2025-03-15T15:(	Pod1e-IPv6Only	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	github.com	?	failure: ERR_ADDRESS_UNREACHABLE			
10	2025-03-15T15:(	Pod1e-IPv6Only	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	?	failure: ERR_ADDRESS_UNREACHABLE			
11	2025-03-15T15:1	Pod1e-IPv6Only-D64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	4(4)(6)				
12	# "This [little box] you have is pretty useful."											
13	2025-03-15T15::	Pod1e-IPv6Only-DP64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	4(4)(6)	ads are on v6 (d	etc.) see screenshot		
14	2025-03-15T15::	Pod1e-IPv6Only-P64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	4(4)(6)	ads are on v6 (d	etc.)		
15	2025-03-15T15::	Pod1e-IPv6Mostly-P64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	4(4)(6)	ads are on v6 (d	etc.)		
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17	2025-03-15T15:4	Pod1e-IPv6Mostly-DP64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	netsuite.com	4(4)(6)	goes 4(4) after lo	etc.)		
18	2025-03-15T15:4	Pod1e-IPv6Only	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	netsuite.com	?	failure: ERR_ADDRESS_UNREACHABLE			
19	2025-03-15T17::	Pod1e-IPv6Only	Google Pixel 8a	Android 15	Grab	version 5.348.0		failed	Unable to Load (also see saved screenshot)			
20	2025-03-15T17::	Pod1e-IPv6Only	Google Pixel 8a	Android 15	Chrome	version 134.0.69	test-ipv6.com	10/10				
21	2025-03-15T17:4	Pod1e-IPv6Mostly-P64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0		success				
22	2025-03-15T17:4	Pod1e-IPv6Only-D64	Google Pixel 8a	Android 15	Grab	version 5.348.0		success				
23	2025-03-15T17:4	Pod1e-IPv6Only-D64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0		success				
24	2025-03-15T17:4	Pod1e-IPv6Only	Google Pixel 8a	Android 15	Bank of America	version 25.03.0		failure	Your activity is temporarily unavailable. We're working to restore serv			
25	2025-03-15T17:5	Pod1e-IPv6Only-P64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0		success				
26	2025-03-15T17:5	Pod1e-IPv6Only-P64	Google Pixel 8a	Android 15	Grab	version 5.348.0		success				
27	2025-03-15T17:5	Pod1e-IPv6Only-DP64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0		success				

Hackathon: IPv6 Test Pod Open Testing and Diagnosis

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6	2025-03-15T10:!	Pod1e-DualStack	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	facebook.com	6(4)(6)	edge-chat.facebook.com is the only thing that's v4			
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8	2025-03-15T15:(	Pod1e-IPv6Only-D64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	github.com	4(4)(6)	note that githubu but github.com is on Microsoft v4 addresses			
9	2025-03-15T15:(	Pod1e-IPv6Only	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	github.com	?	failure: ERR_ADDRESS_UNREACHABLE			
10	2025-03-15T15:(	Pod1e-IPv6Only	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	?	failure: ERR_ADDRESS_UNREACHABLE			
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14	2025-03-15T15::	Pod1e-IPv6Only-P64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	4(4)(6)	ads are on v6 (d etc.)			
15	2025-03-15T15::	Pod1e-IPv6Mostly-P64	MacBook Pro	macOS Sequoia	Chrome	Version 128.0.66	slack.com	4(4)(6)	ads are on v6 (d etc.)			
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19	2025-03-15T17::	Pod1e-IPv6Only	Google Pixel 8a	Android 15	Grab	version 5.348.0						
20	2025-03-15T17::	Pod1e-IPv6Only	Google Pixel 8a	Android 15	Chrome	version 134.0.69	test-					
21	2025-03-15T17:4	Pod1e-IPv6Mostly-P64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0						
22	2025-03-15T17:4	Pod1e-IPv6Only-D64	Google Pixel 8a	Android 15	Grab	version 5.348.0						
23	2025-03-15T17:4	Pod1e-IPv6Only-D64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0						
24	2025-03-15T17:4	Pod1e-IPv6Only	Google Pixel 8a	Android 15	Bank of America	version 25.03.0						
25	2025-03-15T17:!	Pod1e-IPv6Only-P64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0		success				
26	2025-03-15T17:!	Pod1e-IPv6Only-P64	Google Pixel 8a	Android 15	Grab	version 5.348.0		success				
27	2025-03-15T17:!	Pod1e-IPv6Only-DP64	Google Pixel 8a	Android 15	Bank of America	version 25.03.0		success				

Hackathon: IPv6 Test Pod Open Testing and Diagnosis

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1	YYYY-MM-DDTI	network										
2	2025-03-15T10::	Pod1e-DualStack										
3	2025-03-15T10:4	ietf-hotel										
4	2025-03-15T10:4	ietf-hotel										
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24	2025-03-15T17:4	Pod1e-IPv6Only										
25	2025-03-15T17:!	Pod1e-IPv6Only-P64										
26	2025-03-15T17:!	Pod1e-IPv6Only-P64	Google Pixel 8a	Android 15	Grab	version 5.348.0		success				
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