IETF Meeting Reports

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Contents

1 IPv6 over Networks of Resource-constrained Nodes (6lo)

1.1 Attendees Overview

1.1.1 Participants

The 6lo working group session was attended by 19 participants, including representatives from prominent institutions such as Universitat Politecnica de Catalunya, Ribbon Communications, ETRI, NEC Platforms, Ltd., Cisco, Futurewei, Huawei Technologies France, and Meta. The session was chaired by Shwetha Bhandari and Carles Gomez, with Éric Vyncke serving as the responsible Area Director.

1.2 Meeting Discussions

1.2.1 Introduction and Draft Status

The session commenced with agenda bashing and administrative tasks, including the distribution of blue sheets and the assignment of scribes. The chairs provided an overview of the current draft status, highlighting the need for updates to RFC 8928 due to overlapping flags in the Extended Address Registration Option (EARO) as identified by Adnan Rashid. Éric Vyncke will investigate the procedure for updating the flag position beyond an erratum, considering the recent deployment status of RFC 9685. Meeting materials are available here.

1.2.2 IPv6 Neighbor Discovery Prefix Registration

Luigi Iannone, standing in for Pascal Thubert, discussed the main changes in the draft, focusing on energy-saving motivations and the limitations of relying on RIO. Carles Gomez confirmed the completion of the Working Group Last Call (WGLC) and shepherd write-up, with Éric Vyncke advising to request publication, anticipating IESG evaluation by the end of May. The draft can be accessed here.

1.2.3 Path-Aware Semantic Addressing for LLNs

Luigi Iannone acknowledged the contributions of Brian Carpenter and Carles Gomez in refining the draft. A decision was made to hold the document in the working group until the Generic Address Assignment Option (GAAO) draft reaches a similar state, allowing for simultaneous submission. The draft is available here.

1.2.4 Generic Address Assignment Option for 6LoWPAN ND

The discussion centered on the motivations for GAAO compared to DHCPv6/SLAAC. Carles Gomez indicated the need for additional reviews before initiating the WGLC, with plans to request early reviews. The draft can be found here.

1.2.5 Transmission of SCHC-compressed Packets over IEEE 802.15.4

Carles Gomez outlined the main changes aligning with the SCHC architecture and proposed next steps, including protocol stack elaboration and appendix completion. The draft is accessible here.

1.2.6 Transmission of IPv6 Packets over Short-Range OWC

Younghwan Choi addressed feedback from IEEE802.15 and IANA, with plans to update the security section in future revisions. Éric Vyncke advised revising normative versus informative references. The draft is available here.

1.2.7 Conclusion

The session concluded with no additional business, and Carles Gomez thanked participants, expressing anticipation for the next meeting in Madrid. The session adjourned at 13:51.

2 6MAN Working Group (6MAN)

2.1 Attendees

2.1.1 Overview

The meeting was attended by 82 participants, including representatives from prominent companies and institutions such as The Boeing Company, Microsoft, Juniper Networks, Ericsson, NOKIA, Check Point Software, ZTE, Cisco, Google, SAP SE, and Deutsche Telekom.

2.2 Meeting Discussions

2.2.1 Internet Control Message Protocol (ICMPv6) Reflection

Ron Bonica presented the draft-ietf-6man-icmpv6-reflection, discussing the implementation status and seeking a working group last call. The discussion highlighted the need for a description of alternative methods currently used for debugging purposes, such as sending a copy of the invoking packet back to the sender. The potential security implications of sending back packet content were also debated. The chairs decided to initiate a working group last call.

2.2.2 Improving the Robustness of Stateless Address Autoconfiguration (SLAAC) to Flash Renumbering Event

Fernando Gont discussed the draft-ietf-6man-slaac-renum, focusing on the new default parameters to enhance loss resilience. The discussion emphasized the importance of updating these parameters to prevent device disconnection under packet loss conditions. The group agreed to proceed with a working group last call to gather further feedback.

2.2.3 IPv6 Node Requirements

Tim Winters presented the draft-ietf-6man-rfc8504-bis, addressing the inclusion of informational extension header limits. The discussion centered on whether to mention these limits in the document, with some members expressing concerns about setting hard limits. The group decided to review the current text and consider potential updates.

2.2.4 Clarifying SRv6 SID List Processing

Adrian Farrel introduced the draft-farrel-6man-sidlist-clarification, aiming to clarify the processing of SRv6 SID lists. The discussion acknowledged the need for updates to ensure consistency with existing standards. The chairs will coordinate with SPRING chairs and ADs to determine the appropriate ownership and status of the document.

2.2.5 Using Prefix-Specific Link-Local Addresses to Improve SLAAC Robustness

Jen Linkova discussed the draft-link-6man-gulla, which proposes using prefix-specific link-local addresses to enhance SLAAC robustness. The conversation explored the implications for multi-prefix, multi-homing environments and the potential need for DNS and other option invalidation upon renumbering events.

2.2.6 Send/CGA for OMNI Links

Fred L. Templin presented the draft-templin-6man-omni3, advocating for the reinstatement of SEND in IPv6 Node Requirements. The group expressed concerns about the practicality and necessity of this inclusion, emphasizing the need for operational experience and implementation feedback.

2.2.7 Deterministic Routing Header

Shaofu Peng introduced the draft-pb-6man-deterministic-crh, proposing a deterministic routing header. The discussion highlighted the need for alignment with existing experimental work and the importance of feedback from the detnet group.

2.2.8 Problem Statement with Aggregate Header Limit

Yao Liu presented the draft-liu-6man-aggregate-header-limit-problem, focusing on the security considerations of AHL collection methods. The group agreed on the necessity of refining the draft to address potential reconnaissance risks.

2.2.9 Extending ICMPv6 for SRv6-related Information Validation

Yao Liu discussed the draft-liu-6man-icmp-verification, which aims to extend ICMPv6 for SRv6 information validation. The group noted the importance of SPRING's input on the necessity of this extension.

2.2.10 Terminal Identity Authentication Based on Address Label

Kexian Liu's presentation on the draft-guan-6man-ipv6-id-authentication was not conducted as the presenter was unavailable.

Meeting materials are available at Meeting Materials.

3 Authentication and Authorization for Constrained Environments (ACE)

3.1 Attendees Overview

The ACE working group meeting at IETF 122 was attended by 25 participants, including representatives from prominent organizations such as Aiven, TU Dresden, Ericsson, Siemens AG, and RISE Research Institutes of Sweden. The diverse attendance underscored the collaborative effort across academia, industry, and research institutions to advance the group's objectives.

3.2 Meeting Discussions

3.2.1 Message from Chairs

The meeting commenced with a brief introduction by the chairs, setting the stage for the discussions. The presentation slides are available here.

3.2.2 draft-ace-est-oscore (Mališa Vučinić)

Mališa Vučinić presented updates on the draft-ace-est-oscore, focusing on addressing interoperability issues and certificate handling by reference. The discussion highlighted the need for a media type review to ensure clarity in certificate references, with a preference for cleaner options that enhance protocol efficiency.

3.2.3 draft-ietf-ace-workflow-and-params (Marco Tiloca)

Marco Tiloca discussed the draft-ietf-ace-workflow-and-params, emphasizing improvements in credential handling and deadlock avoidance. The presentation underscored the importance of aligning with client capabilities to optimize authentication workflows.

3.2.4 draft-ietf-ace-authcred-dtls-profile (Marco Tiloca)

The session on the draft-ietf-ace-authcred-dtls-profile covered updates to the DTLS profile, focusing on new options and pending registrations. The discussion reinforced the draft's role in enhancing security credential formats.

3.2.5 draft-ietf-ace-edhoc-oscore-profile (Rikard Höglund)

Rikard Höglund presented the draft-ietf-ace-edhoc-oscore-profile, detailing alignment with workflows and credential validation requirements. The draft's approach to EDHOC message flows and trust anchor support was discussed, with next steps including codepoint allocations and proof-of-possession enhancements.

3.2.6 draft-ietf-ace-group-oscore-profile (Rikard Höglund)

The draft-ietf-ace-group-oscore-profile presentation focused on token request structures and the use of multiple profiles. Discussions explored the complexity of managing multiple security groups and the potential for optimization through token handling.

3.2.7 draft-ietf-ace-pubsub-profile (Francesca Palombini)

Francesca Palombini addressed the draft-ietf-ace-pubsub-profile, proposing the removal of MQTT content to streamline the draft for CoAP. The session concluded with a consensus on the draft's focus and a proposed new title reflecting its scope.

3.2.8 AOB

The meeting concluded with an open floor for any other business, allowing participants to raise additional topics or concerns.

Meeting materials are available here.

4 ACME Working Group (ACME)

4.1 Attendees

The ACME Working Group meeting at IETF 122 was attended by 45 participants, including representatives from prominent organizations such as ISRG/Let's Encrypt, NSA-CCSS, Dell Technologies, Google, Nokia, and Huawei. The diverse attendance underscored the broad interest and collaborative effort in advancing ACME protocols.

4.2 Meeting Discussions

4.2.1 ACME Renewal Info / Profiles (Gable)

The discussion on ACME Renewal Info highlighted the progress made since IETF 121, with the document now in the RFC Editor's queue. The ACME Profiles, fully implemented by Let's Encrypt and several clients, are poised for a call-for-adoption, emphasizing the utility of shared account information. This marks a significant step towards standardizing ACME profiles, potentially streamlining certificate management processes.

4.2.2 DTN Node ID Validation (Sipos)

The DTN Node ID Validation draft, now ready for Working Group Last Call (WGLC), was discussed with a focus on its readiness following the publication of its dependency, RFC 9713. This advancement is crucial for enhancing secure communications in Delay-Tolerant Networks, reflecting a strategic alignment with broader IETF goals.

4.2.3 ACME DNS Update (Li)

Li presented on deploying ACME in 5G core networks, proposing best practices for securely updating DNS records using DNS Update with TSIG or SIG(0). The discussion, which included considerations of security and operational efficiency, highlighted the potential for these methods to reduce barriers in domain management. The dialogue also touched on the implications of CA/B Forum ballots and the utility of standardized APIs.

4.2.4 ACME-RATS (Liu)

The ACME-RATS presentation focused on obtaining TLSClientAuth certificates through device attestation. The discussion explored potential design overhauls to accommodate more general attributes in attestations, with plans for a monthly design call to refine these ideas. This initiative aims to enhance mutual TLS security by enforcing client policies.

4.2.5 JWTClaimConstraints (Wendt)

Wendt introduced a new identifier type, JWTClaimConstraint, seeking adoption for a draft that extends RFC 8226. This proposal, already presented in the STIR WG, aims to streamline the process of token issuance and challenge fulfillment, potentially impacting how ACME clients interact with token authorities.

4.2.6 ACME PK Challenges (Wu)

Wu's presentation on ACME PK Challenges addressed security concerns where ACME Clients might replace public keys. The proposed mechanisms, including WebAuthn and NIZK, aim to ensure key integrity across the ACME flow. This discussion is pivotal for environments where client trust is variable, prompting considerations of broader PKI applications.

4.2.7 Any Other Business

AutoDiscovery (Ounsworth): The session concluded with a discussion on autodiscovery drafts, highlighting their relevance in the context of shorter certificate lifetimes considered by the CA/B Forum. The potential for these drafts to mitigate single points of failure in certificate renewal processes was noted, with an invitation for interested parties to continue their development.

Meeting materials are available at IETF 122 Meeting Materials.

5 AIPREF Working Group (AIPREF)

5.1 Attendees Overview

5.1.1 Attendance and Representation

The AIPREF Working Group meeting at IETF 122 was attended by 98 participants, representing a diverse array of prominent organizations including Google, Apple, Cisco, Cloudflare, Ericsson, and Nokia. Academic institutions such as Saveetha University and Keio University were also present, alongside representatives from regulatory bodies like Ofcom and the UK NCSC.

5.2 Meeting Discussions

5.2.1 Questions for the Group

The session opened with a discussion on the scope of vocabulary and attachment mechanisms. Jonathan Hoyland raised concerns about the exclusion of authentication and authorization from the scope, while Mirja Kühlewind and Lucas Pardue emphasized the importance of defining trust separately from hints, as seen in other protocols like HTTP. The group agreed that a simple vocabulary scope is crucial for timely delivery, with Suresh Krishnan advocating for a straightforward approach to vocabulary complexity.

5.2.2 Attachment by Location

Gary Illyes highlighted scalability issues with using `robots.txt` for large media sites, suggesting HTTP headers as a more viable alternative. Martin Thomson acknowledged the limitations of `robots.txt` and supported exploring HTTP headers for better scalability and efficiency.

5.2.3 Opt-In/Out Mechanisms

The discussion on opt-in/out mechanisms revealed differing views on default states and the implications of preference expressions. Richard Barnes argued that the default state should remain the status quo, while David Schinazi and others debated the interpretation of opt-in and opt-out signals. The group recognized the need for clear definitions to avoid ambiguity in preference signaling.

5.2.4 Attachment Mechanisms

Various attachment mechanisms were considered, including HTTP header fields and JSON formats. Thomas McCarthy-Howe suggested leveraging the vCon WG for describing consent in virtual communications. The group acknowledged the potential complexity of cryptographic binding but agreed to focus on mechanisms with immediate impact.

5.2.5 Combining Preferences

Suresh Krishnan identified the reconciliation of multiple preference expressions as a complex task, with a delivery timeline set for August. The group discussed the importance of defining a clear vocabulary to facilitate this process, with Martin Thomson emphasizing the need for detailed discussions on vocabulary specifics.

5.2.6 Licensing Schemes and Policy Matters

Licensing schemes were deemed out of scope for initial work, with Suresh Krishnan stressing the importance of communicating the group's focus to policymakers. Farzaneh highlighted the relevance of robots.txt in policy documents, underscoring the need for ongoing dialogue with policymakers.

5.3 Candidate Drafts

Martin Thomson presented his draft, which proposes a simple HTTP header and extensions to `robots.txt`, focusing on usage and training without distinguishing between them. Gary Illyes discussed his draft, which redefines existing headers to accommodate structured fields. The group was encouraged to review Thom Vaughan's draft for additional insights.

5.4   Open Mic

Lucas Pardue raised the issue of data posting, suggesting that the design should support bidirectional data flow. Martin Thomson noted that the proposed header field could accommodate this use case. The group debated the utility of expiration times in preference expressions, with Alissa Cooper cautioning against complexity unless justified by compelling use cases.

Meeting materials are available at slides-122-aipref-chair-slides-00.pdf.

6 Audio/Video Transport Core Maintenance (avtcore)

6.1 Attendees Overview

The meeting was attended by representatives from prominent companies and institutions such as Nokia, Samsung, Google, Cisco, and Apple, with a total attendance of 26 participants. Notable attendees included Jonathan Lennox from 8x8/Jitsi, Youngkwon Lim from Samsung, and Harald Alvestrand from Google.

6.2 Meeting Discussions

6.2.1 Preliminaries

The session began with Jonathan Lennox presenting the Note Well, emphasizing IPR disclosure and meeting conduct. Marius Kleidl was introduced as the new co-chair. The status of various drafts was discussed, with Magnus Westerlund commenting on the RTP payload format registry work. Richard Barnes expressed interest in the draft-ietf-avtcore-sframe, which will be parked for future work.

6.2.2 RTP Payload for V3C

Lauri Ilola presented the draft-ietf-avtcore-rtp-v3c, noting that the second WGLC is ongoing until March 27, with all previous issues resolved except for a new IANA feedback issue.

6.2.3 RTP over QUIC

Mathis Engelbart discussed the draft-ietf-avtcore-rtp-over-quic, highlighting ongoing interop tests and a pending IANA review issue. The group considered proceeding to WGLC in parallel with SDP work.

6.2.4 SDP Offer/Answer for RTP over QUIC

Spencer Dawkins presented updates on the draft-dawkins-avtcore-sdp-roq, including security considerations and open questions. Feedback from Harald Alvestrand and Jonathan Lennox was discussed, with plans for a -01 version before the next interim meeting.

6.2.5 RTP Payload for Haptics

Hyunsik Yang updated on the draft-ietf-avtcore-rtp-haptics, stating it is ready for WGLC with updates in the SDP sections.

6.2.6 RTP Payload for V-DMC

Hyunsik Yang also presented the draft-hsyang-avtcore-rtp-vdmc, inviting reviews and participation, though not yet ready for WG adoption.

6.2.7 RTP Payload for APV

Youngkwon Lim discussed the draft-lim-rtp-apv, explaining the new bitstream structure and clarifying questions about marker bits and fragment counters.

6.2.8 Automatic Corruption Detection

Erik Språng presented the draft-sprang-avtcore-corruption-detection, proposing an RTP header extension for error detection, with implementation in Chromium M132+.

6.2.9 LTR Feedback

Erik Språng also discussed the draft-sprang-avtcore-frame-acknowledgement, proposing a header extension for RTCP feedback on video frame decoding status.

6.2.10 Wrapup and Next Steps

Jonathan Lennox and Marius Kleidl outlined action items, including parking the sframe draft, initiating WGLC for the RTP over QUIC draft, and starting WGLC for the RTP Haptics draft. The potential for an interim meeting was noted.

Meeting materials are available here.

7 BGP Enabled Services (BESS)

7.1 Attendees Overview

7.1.1 Attendance

The BESS working group session was attended by 69 participants, including representatives from prominent companies and institutions such as Juniper Networks, Verizon, Nokia, Ericsson, Cisco, and Huawei. The diverse attendance underscores the broad interest and collaborative effort in advancing BGP-enabled services.

7.2 Meeting Discussions

7.2.1 Working Group Update

The session commenced with an update from the chairs, highlighting the publication of RFC 9746 and RFC 9744 since the last IETF meeting. Six drafts are currently in the RFC editor queue, and the draft-ietf-bess-bgp-srv6-args is under telechat review. Discussions emphasized the need for active participation to prevent drafts from expiring and the importance of addressing feedback for the bess-mvpn-ipv6-infras draft, which requires a new solution approach.

7.2.2 Process: draft-hares-bess-idr-tea-templates

Susan Hares presented the draft-hares-bess-idr-tea-templates, focusing on the use of extended communities for tunnel attributes. The discussion centered around the necessity of adhering to established formats for sub-TLVs, with the aim of streamlining the review process and reducing review time.

7.2.3 Charter Update

The chairs discussed the ongoing efforts to update the BESS charter, which has raised questions regarding its scope. The update aims to clarify whether new VPN services fall under BESS's purview, with flexibility being a key consideration. The rechartering process is ongoing, with input from the working group and the AD.

7.2.4 Working Group Draft Updates

Linda Dunbar presented the draft-ietf-bess-bgp-sdwan-usage, noting that all comments have been addressed and another Working Group Last Call (WGLC) is needed. Ali Sajassi's draft-ietf-bess-rfc7432bis introduced new text based on feedback, with a request for WGLC. Jorge Rabadan's drafts, evpn-ip-aliasing and evpn-dpath, are ready for WGLC, with significant community support.

7.2.5 Individual Rev 0 bis Drafts

Mankamana Mishra introduced the draft-zzhang-bess-rfc6514bis, emphasizing the need for further discussion and potential surveys to gauge vendor usage. The drafts-sajassi-bess-rfc9251bis was also presented for the first time, with expectations for more list discussions.

7.2.6 Individual Drafts

Jorge Rabadan's draft-sr-bess-evpn-vpws-gateway and draft-rabnic-bess-evpn-mcast-eeg both have existing implementations and are seeking adoption. Jeffery Valley's draft-zzhang-bess-dynamic-overlay-lb sparked debate on its practical application, with feedback requested to address concerns about load balancing in multi-point connections.

7.2.7 Future Directions

The session concluded with discussions on the draft-kriswamy-bess-evpn-perflow-df and draft-wang-bess-l3-accessible-evpn, focusing on efficient load balancing and the validity of problem statements. The need for offline discussions and further list engagement was emphasized to refine these drafts.

Meeting materials are available at IETF 122 BESS Meeting Materials.

8 BIER Working Group (BIER)

8.1 Attendees

8.1.1 Overview

The BIER session was attended by 19 participants, including representatives from prominent companies and institutions such as Nokia, Cisco Systems, Juniper, Ericsson, and Huawei Technologies. Notable attendees included Greg Mirsky from Ericsson, Hooman Bidgoli from Nokia, and Toerless Eckert from Futurewei USA.

8.2 Meeting Discussions

8.2.1 WG Status

The session began with a status update from the chairs, emphasizing the importance of the OAM requirements draft for BIER Ping, BIER BFD, BIER performance measurements, and BIER MTU discovery drafts. These drafts are ready for the next step, and the shepherd work for OAM requirements and related drafts is anticipated.

8.2.2 BIER Overlay

Hooman Bidgoli presented on BIER Overlay, discussing the draft-ietf-bier-pim-signaling and draft-ietf-bier-mldp-signaling-over-bier. Key points included the challenges of using JP attributes and the security implications of BIER header information. The discussion highlighted the complexity of implementation and the need for further discussions on mailing lists to resolve open questions.

8.2.3 EANTC Interop

The EANTC interoperability testing was reviewed, focusing on the use of ingress replication versus P router replication. The session explored the implications of upstream and downstream label assignments, with a consensus to continue discussions in the MPLS session and mailing lists. The potential for using global labels instead of specific upstream or downstream labels was also considered.

8.2.4 BIER FRR Discussion

Toerless Eckert led a discussion on BIER Fast Reroute (FRR), addressing the feasibility and implementation challenges. The dialogue underscored the importance of FRR in multicast scenarios and the potential benefits of TI-LFA for multicast tunneling. The session concluded with a call for further exploration of the draft's experimental or standard track potential.

Meeting materials are available at IETF 122 BIER Session Materials.

9 Benchmarking Methodology Working Group (bmwg)

9.1 Attendees Overview

The meeting was attended by 24 participants, including representatives from prominent organizations such as Huawei Technologies, Cisco Systems, Google, and Telefonica Innovacion Digital. The diverse attendance underscores the broad interest and collaborative effort in advancing benchmarking methodologies.

9.2 Meeting Discussions

9.2.1 Multiple Loss Ratio Search

Maciek Konstantynowicz and Vratko Polak presented the draft-ietf-bmwg-mlrsearch. The draft has successfully passed the Working Group Last Call (WGLC), with acknowledgments for its valuable contributions to the field. The authors confirmed addressing all idnits in the latest version.

9.2.2 A YANG Data Model for Network Tester Management

Vladimir Vassilev discussed the draft-ietf-bmwg-network-tester-cfg, emphasizing the importance of YANG data models in automating benchmarking tests. The draft serves as a foundational model that can be extended for comprehensive testing.

9.2.3 Considerations for Benchmarking Network Performance in Containerized Infrastructures

Minh-Ngoc Tran presented the draft-ietf-bmwg-containerized-infra, highlighting the relevance of eBPF in industry practices. The draft has garnered interest and feedback from the community, indicating its alignment with current technological trends.

9.2.4 Benchmarking Methodology for Segment Routing

Paolo Volpato introduced the draft-ietf-bmwg-sr-bench-meth, which is being cross-posted to SPRING and SRV6OPS working groups. The draft addresses the inclusion of more SIDs, reflecting its comprehensive approach to segment routing benchmarking.

9.2.5 Characterization and Benchmarking Methodology for Power in Networking Devices

Qin Wu presented the draft-cprjgf-bmwg-powerbench, focusing on methodologies for measuring power consumption in networking devices. Discussions included the feasibility of using 1pps as a baseline for idle traffic, with suggestions for considering higher values.

9.2.6 Calibration of Measured Time Values between Network Elements

Luis M. Contreras discussed the draft-contreras-bmwg-calibration, emphasizing the need for precise terminology in timestamping mechanisms. The draft aims to standardize calibration methods, enhancing accuracy and precision in network measurements.

9.2.7 Benchmarking Methodology for Source Address Validation

Libin Liu's draft-chen-bmwg-savnet-sav-benchmarking was reviewed by Giuseppe due to scheduling conflicts. The draft proposes methodologies for validating source addresses, contributing to improved network security practices.

Meeting materials can be accessed via this link.

10 Computing-Aware Traffic Steering (CATS) WG

10.1 Attendees Overview

The CATS Working Group meeting at IETF 122 was attended by 66 participants, including representatives from prominent companies and institutions such as Ericsson, Huawei, Cisco, Nokia, and China Mobile. The diverse attendance highlighted the broad interest and collaborative efforts in advancing computing-aware traffic steering technologies.

10.2 Meeting Discussions

10.2.1 Agenda Bashing, Introduction, & WG Status

The session commenced with an agenda bashing led by the chairs, Adrian Farrel, Mohamed Boucadair, and Peng Liu. The group acknowledged the contributions of Med as a co-chair over the past year. An interim meeting focused on metric discussions was noted for its achievements, setting the stage for further deliberations.

10.2.2 CATS Framework

Cheng Li presented the CATS Framework, emphasizing key design issues and the publication plan, targeting submission to the IESG by November 2025. Discussions revolved around encrypted traffic handling, with Med urging deeper exploration of packet handling for encrypted packets. Adrian Farrel encouraged referencing the PCE WG's manageability considerations for guidance. The group agreed not to proceed with WGLC until all issues are resolved, underscoring the priority of document accuracy over meeting aspirational milestones.

10.2.3 CATS Use Cases & Requirements

Kehan Yao provided updates on use case consolidations since IETF 121, with Adrian Farrel highlighting the importance of ensuring no critical requirements are omitted. The discussion included potential overlaps and new requirements from Integrated Sensing and Communications (ISAC) use cases, presented by Carlos J. Bernardos. The group debated the relevance of time synchronization as a CATS-related requirement, with consensus leaning towards refining the use case to better align with CATS objectives.

10.2.4 CATS Metrics Discussion

The session on CATS metrics, led by Kehan Yao, reviewed updates since the last interim meeting. The group discussed the classification and aggregation of metrics, with Adrian Farrel suggesting these be incorporated into the framework rather than the metric definition draft. The need for a problem statement to justify the three-level metric classification was also highlighted.

10.2.5 Open Discussion & Next Steps

Time constraints limited the open discussion, but the group acknowledged the need for continued dialogue on unresolved issues and the importance of prioritizing requirements to ensure a robust and actionable framework.

Meeting materials and further details can be accessed at CATS Meeting Materials.

11 Concise Binary Object Representation (CBOR) Working Group

11.1 Attendees

The CBOR Working Group meeting was attended by 38 participants, including representatives from prominent organizations such as NASA, Microsoft, Cisco Systems, and RISE Research Institutes of Sweden. Notable attendees included Barry Leiba from Futurewei Technologies, Carsten Bormann from the University of Bremen, and Thomas Fossati from Linaro.

11.2 Meeting Discussions

11.2.1 Agenda Overview

The meeting commenced with an agenda overview by the chairs, Barry Leiba and Christian Amsüss. The primary focus was on the progression of CBOR-related drafts and the exploration of new proposals.

11.2.2 Packed CBOR

Carsten Bormann presented on draft-ietf-cbor-packed, emphasizing that Packed CBOR is not a data compression method but rather a way to create succinct data structures. The discussion highlighted the allocation of tag numbers and the proposal to use a radical approach that minimizes tag usage, which could significantly streamline data encoding processes.

11.2.3 dns-cbor

Martine Lenders introduced the draft-ietf-cbor-dns-cbor, which aims to reduce the size of DNS messages using CBOR. The presentation demonstrated a potential 50

11.2.4 EDN / Application-Oriented Literals

The session on EDN and application-oriented literals, led by Carsten Bormann and Rohan Mahy, focused on the need for a humane representation of data that extends beyond JSON capabilities. The discussion revolved around ensuring compatibility with existing JSON structures while allowing for flexible extensions. The group reached a consensus on several key points, including the handling of Unicode and ASCII representations.

11.3 Meeting Materials

Meeting materials, including slides and detailed notes, are available at IETF 122 CBOR Meeting Materials.

11.3.1 Outcomes and Next Steps

The meeting concluded with a consensus to adopt the dns-cbor draft and further explore the radical approach for Packed CBOR. The group agreed to continue discussions on the mailing list to refine the EDN draft, with a focus on ensuring robust and flexible data representation. The outcomes of these discussions are expected to influence future CBOR implementations, potentially leading to more efficient data handling in constrained environments.

12 Congestion Control Working Group (CCWG)

12.1 Attendees

12.1.1 Overview

The meeting was attended by 78 participants, including representatives from prominent organizations such as Google, Apple, Ericsson, Cloudflare, and Meta. Academic institutions like the National Institute of Technology Karnataka and the University of Oslo were also represented.

12.2 Meeting Discussions

12.2.1 Chair Slides

The session began with a brief overview by the chairs, setting the stage for the discussions on congestion control advancements and the agenda for the meeting.

12.2.2 New Tools for Testing Congestion Control and Queue Management Algorithms

Rati Preethi S and colleagues presented new tools for testing congestion control algorithms. The discussion highlighted the potential integration with QUIC, despite current limitations in ns-3 support. The tools aim to enhance testing diversity, particularly for video delivery and L4S support, which are crucial for compliance with draft-ietf-ccwg-new-tools.

12.2.3 BBRv3

Ian Swett presented updates on BBRv3, focusing on evolving the draft to meet experimental standards. The dialogue centered on the challenges of coexistence with Reno/Cubic and the potential for ECN integration. The group emphasized the need for comprehensive testing and community feedback to refine the draft, as outlined in draft-ietf-ccwg-bbr.

12.2.4 Rate-limited Senders

Mohit P. Tahiliani discussed the challenges faced by rate-limited senders, particularly in pacing and fairness. The group acknowledged the need for further research and collaboration to address these issues, as detailed in draft-ietf-ccwg-ratelimited-increase.

12.2.5 SEARCH

Mark Claypool introduced the SEARCH proposal, which aims to optimize congestion control in variable network conditions. The discussion revealed concerns about initial RTT measurements and their impact on performance, especially in WiFi environments. The proposal is documented in draft-chung-ccwg-search.

Meeting materials, including slides and notes, are available at Meeting Materials.

13 Content Delivery Networks Interconnection (CDNI)

13.1 Attendees

The CDNI working group meeting was attended by 27 participants, including representatives from prominent companies and institutions such as Qwilt, Verizon, Streaming Video Technology Alliance (SVTA), Comcast, China Unicom, Rakuten Group Inc, Ericsson, Huawei Technologies Co., Ltd., and Google. The diverse attendance underscores the broad interest and collaborative effort in advancing CDNI standards.

13.2 Meeting Discussions

13.2.1 Introductory Remarks

Chairs Kevin J. Ma, Chris Lemmons, and Sanjay Mishra opened the meeting with a welcome to the new CDNI Area Director, Gorry Fairhurst, and outlined the agenda. A call for volunteers to assist with document reviews was emphasized, highlighting the collaborative nature of the group's work.

13.2.2 Charter Updates

Chris Lemmons presented the status of proposed charter updates, focusing on the introduction of new work items such as the draft-ietf-cdni-metadata-expression-language. The updates aim to enhance the flexibility and applicability of CDNI interfaces, particularly through a new templating language for metadata expression.

13.2.3 Metadata Model Drafts

Glenn Goldstein provided a comprehensive overview of the evolution of CDNI's Metadata interface, now aligning with the SVTA Configuration Interface. Key drafts discussed included draft-power-metadata-expression-language-03 and draft-ietf-cdni-client-access-control-metadata-01, which propose extensions for HTTP2 and HTTP3 support.

13.2.4 Private Features Metadata

Arnon Warshavsky led a discussion on the draft-warshavsky-private-features-metadata-02, debating the necessity of standardizing private features. The group reached no consensus, suggesting further iteration as a personal draft or registration through SVTA.

13.2.5 Protected Secrets and Logging

Ben Rosenblum discussed updates to the draft-ietf-cdni-protected-secrets-metadata-04, emphasizing the need for additional reviews before the next Working Group Last Call (WGLC). The draft clarifies encoding practices and seeks broader community input.

13.2.6 CDNI CI/T v2 and Named Footprints

Alan Arolovitch presented updates on draft-ietf-cdni-ci-triggers-rfc8007bis-16, focusing on modernizing language and refining trigger collections. The session concluded with a discussion on draft-ietf-cdni-named-footprints-01, revisiting interface integration decisions.

13.2.7 Closing Remarks

The meeting concluded with a call for document shepherds to assist authors in navigating the publishing workflow, emphasizing the importance of community involvement in the standardization process.

Meeting materials are available at CDNI Meeting Recordings.

14 Crypto Forum Research Group (CFRG)

14.1 Attendees Overview

The CFRG session at IETF 122 in Bangkok saw participation from 146 attendees, including representatives from prominent organizations such as Cisco Systems, Cloudflare, Google, and Microsoft. The diverse attendance underscored the broad interest in cryptographic research and its applications.

14.2 Meeting Discussions

14.2.1 Chairs' Update

Stanislav Smyshlyaev provided an update on the group's activities, including a review of the agenda, the CFRG review panel, and document status updates. The session emphasized the importance of community engagement in reviewing ongoing work and addressing errata.

14.2.2 KEM Combiners Design Team: Current Status

Nick Sullivan presented the current status of the KEM Combiners Design Team. The discussion highlighted the complexities of hybrid KEMs compared to PAKE, with a focus on the draft draft-ietf-cfrg-hybrid-kems. Attendees debated the draft's progress and the need for continued collaboration to refine the design.

14.2.3 Blind BBS and BBS Pseudonyms

Vasilis Kalos and Greg Bernstein discussed the development of Blind BBS and BBS Pseudonyms, referencing three drafts and their alignment with existing cryptographic standards. The session addressed implementation concerns and the foundational work from Crypto 2022/23 papers.

14.2.4 Anonymous Rate-Limited Credentials

Chris Wood introduced a new draft on Anonymous Rate-Limited Credentials, motivated by the limitations of client-based rate-limiting in Privacy Pass. The proposal aims to streamline existing work and was met with suggestions for incorporating post-quantum considerations.

14.2.5 Sigma Protocols and Fiat-Shamir

Michele Orru presented on Sigma protocols and the Fiat-Shamir transformation, emphasizing the practical utility of Mauer proofs for the industry. The session encouraged further exploration of the protocol's applications.

14.2.6 FrodoKEM

Patrick Longa provided an update on FrodoKEM, a NIST round 3 alternative, and its inclusion in ISO work alongside ML-KEM and Classic McEliece. The discussion focused on the draft's potential as a viable alternative to ML-KEM.

14.2.7 Hybrid PQ/T Key Encapsulation Mechanisms

Deirdre Connolly reviewed the timeline and current state of the Hybrid PQ/T Key Encapsulation Mechanisms document. The session debated the performance implications and the need for consensus on protocol options.

14.2.8 ECDH-PSI

Yuchen Wang presented on ECDH-PSI, a protocol for Private Set Intersection. The draft, based on the draft-ietf-cfrg-ecdh-psi, was updated following feedback from CFRG and PPM-WG members.

14.2.9 MIMI Franking Mechanism

Rohan Mahy discussed the MIMI franking mechanism, designed to facilitate abuse reporting across messaging platforms. The session sought input from cryptographic experts to enhance the protocol's interoperability.

14.2.10 Advantages of NTRU Compared to ML-KEM

Haruhisa Kosuge compared NTRU and ML-KEM, highlighting trade-offs and industry adoption. The session called for collaboration and further discussion on the list, particularly regarding the potential of NTRU-prime.

Meeting materials and further details are available at IETF 122 CFRG Session.

15 Constrained RESTful Environments (CoRE) WG

15.1 Attendees

15.1.1 Overview

The CoRE Working Group meeting was attended by 20 participants, including representatives from prominent organizations such as RISE Research Institutes of Sweden, Ericsson, Microsoft, and Akamai. The meeting materials are available at IETF 122 CoRE Session.

15.2 Meeting Discussions

15.2.1 CoAP Corrections, Clarifications, and Gaps

Carsten Bormann presented updates on the draft-ietf-core-corr-clar, focusing on addressing questions and issues identified in CoAP documents. The discussion highlighted the need for an incubator approach to address gaps, suggesting a separate document for specific topics. This approach aims to streamline the process of incorporating necessary changes into the CoAP protocol, potentially leading to more robust implementations.

15.2.2 CORECONF: YANG CBOR and YANG SIDs

The session on RFC 9254 and RFC 9595 covered the generation of SID files for YANG models, emphasizing the importance of coordination and tool development. This work is crucial for ensuring consistent and efficient management of YANG models across different implementations, which could significantly enhance interoperability.

15.2.3 Constrained Resource Identifiers

The draft-ietf-core-href has reached a significant milestone with the completion of the Working Group Last Call (WGLC). The document aims to make URIs more useful for constrained devices, potentially impacting high-performance environments. The next steps involve deciding whether to submit to the IESG or conduct another WGLC, with a focus on addressing any remaining terminology issues.

15.2.4 Conditional Attributes for Constrained RESTful Environments

Jaime Jiménez discussed the draft-ietf-core-conditional-attributes, which is nearing completion. The document addresses complex data structures and mixing query parameters, with a focus on providing a robust toolbox for other specifications. This work could lead to more flexible and powerful RESTful environments for constrained devices.

15.2.5 DNS over CoAP "Bundle"

Martine Lenders presented the draft-ietf-core-dns-over-coap and related documents, which have passed WGLC. The discussion emphasized the need for editorial revisions and synchronization with related work, aiming to enhance DNS functionality over CoAP, which could improve network efficiency and reliability in constrained environments.

15.2.6 A Publish-Subscribe Architecture for CoAP

Jaime Jiménez introduced the draft-ietf-core-coap-pubsub, highlighting recent updates and open points for discussion. The architecture aims to streamline communication in constrained networks, with potential applications in IoT systems where efficient data distribution is critical.

15.2.7 CoAP Transport Indication

Christian Amsüss discussed the draft-ietf-core-transport-indication, focusing on enabling discovery of alternative transports and planning for new CoAP transports. The document seeks to provide a flexible framework for transport indication, which could facilitate the adoption of CoAP in diverse network environments.

15.2.8 Observe Notifications as CoAP Multicast Responses

Marco Tiloca presented updates on the draft-ietf-core-observe-multicast-notifications, which enables multicast notifications for observe requests. The discussion included potential simplifications and the importance of ensuring compatibility with proxy scenarios, which could enhance the scalability and efficiency of CoAP-based systems.

15.2.9 Key Update for OSCORE (KUDOS)

Rikard Höglund introduced a redesigned draft-ietf-core-oscore-key-update, which decouples key updates from client/server roles. This simplification could lead to more flexible and secure key management in OSCORE, enhancing the overall security posture of constrained networks.

15.2.10 CoAP in Space and Over Bundle Protocol (BP)

Carles Gomez presented the draft-gomez-core-coap-space and draft-gomez-core-coap-bp, focusing on message aggregation and proxy use in space communication scenarios. The work aims to optimize CoAP for challenging environments, potentially extending its applicability to space communications and other delay-tolerant networks.

16 COSE Working Group (COSE)

16.1 Attendees

The COSE Working Group meeting was attended by 49 participants, including representatives from prominent organizations such as Okta, Yubico, Google, Microsoft, and the NSA. The diverse group of attendees contributed to a rich exchange of ideas and expertise.

16.2 Meeting Discussions

16.2.1 Opening Remarks

The meeting commenced with opening remarks from the chairs, summarizing the current status of various documents and setting the stage for the discussions to follow.

16.2.2 Post-Quantum Cryptography Drafts

Brent Zundel presented on draft-ietf-cose-sphincs-plus and draft-ietf-cose-falcon. The discussion highlighted the need for flexibility in algorithm definitions, with a focus on not limiting to SHA2, and considering SHAKE as well. The group debated the future of Falcon and Dilithium, with consensus leaning towards waiting for final NIST publications before further action.

16.2.3 GMAC in COSE

Brian Sipos introduced draft-sipos-cose-gmac-00, emphasizing its potential for hardware acceleration. The draft seeks registry allocations, and volunteers from the group committed to reviewing the document to facilitate its adoption.

16.2.4 CBOR Encoded Certificates

John Mattsson discussed draft-ietf-cose-cbor-encoded-cert-12, noting the accumulation of features over time. The group agreed on the necessity of refining the draft to focus on essential components, with a call for further input on the mailing list.

16.2.5 Hybrid Public Key Encryption

Hannes Tschofenig presented draft-ietf-cose-hpke, seeking reviewers post-alignment. The presentation underscored the importance of packaging cryptographic elements effectively, with commitments from attendees to provide feedback.

16.2.6 Two-Party Signing Algorithms

Mike Jones and Emil Lundberg co-presented draft-lundberg-cose-two-party-signing-algs. The discussion revolved around the integration with WebAuthn and FIDO2, with concerns about the implications for verifier responsibilities. The group acknowledged the need for broader coordination and input.

16.2.7 Hash Envelope

Steve Lasker presented draft-ietf-cose-hash-envelope, declaring it ready for Working Group Last Call (WGLC) once outstanding issues are resolved. The group expressed support for moving forward, recognizing its potential impact on secure data handling.

16.3 Meeting Materials

All meeting materials, including presentation slides, are available at IETF COSE Meeting Materials.

17 Delegation Extensions Working Group (DELEG)

17.1 Attendees

17.1.1 Overview

The DELEG working group meeting was attended by 97 participants, representing a diverse array of prominent organizations such as Fastly, Verisign, NLnet Labs, Microsoft, and Google. The attendance highlighted the broad interest and engagement from both industry leaders and academic institutions.

17.2 Meeting Discussions

17.2.1 Incrementally Deployable Extensible Delegation for DNS

Tim Wicinski presented the draft on incremental delegation, focusing on the transition from SVCB to the new DELEG type. The discussion centered on addressing the zone cut problem, with underscore labels being proposed as a best practice for applications and services. The working group debated the long-term implications, questioning the future compatibility of authoritative software. The presentation underscored the need for further testing and refinement, particularly in handling legacy delegation information.

17.2.2 Extensible Delegation for DNS

The authors presented their draft on extensible delegation, emphasizing adherence to current DNS semantics to facilitate debugging and implementation. The draft proposes optional QNAME minimalization for performance-sensitive scenarios and introduces an EDNS(0) signal to optimize packet size. The discussion highlighted the challenges of balancing complexity between authoritative and recursive resolvers, with a consensus on the necessity of simplifying deployment for long-term sustainability.

17.2.3 Working Group Discussion on Drafts

The working group engaged in a robust discussion on the technical merits and deployment strategies of the proposed drafts. Key questions addressed the incremental deployability of DELEG-aware and non-DELEG-aware servers, and the technical protocol concerns of each draft. The dialogue reflected a strategic focus on designing solutions that are both forward-compatible and understandable to newcomers in the DNS ecosystem. The consensus leaned towards prioritizing simplicity and clarity in the final implementation.

Meeting materials are available at ideleg.net, providing resources for testing and further exploration of the discussed protocols.

18   Deterministic Networking (DetNet)

18.1   Attendees Overview

18.1.1   Participants

The DetNet session at IETF 122 saw participation from 60 attendees, including representatives from prominent organizations such as New H3C Technologies, LabN Consulting, University of Oxford, Huawei, Ericsson, Juniper Networks, Cisco, and Google LLC.

18.2   Meeting Discussions

18.2.1   Intro, WG Status, Draft Status

The session commenced with an introduction by the chairs, providing updates on the working group and draft statuses. Discussions emphasized the need for collaboration with the TSN community to address outstanding questions and align efforts. The chairs encouraged participants to present their experiences and insights at upcoming workshops, aiming to foster a comprehensive understanding of DetNet's integration with TSN.

18.2.2   Dataplane Enhancement Taxonomy

Jinoo Joung presented the draft-ietf-detnet-dataplane-taxonomy, which categorizes dataplane enhancements. The taxonomy aims to streamline solutions and identify overlaps. An interim meeting is proposed to consolidate solutions and refine the taxonomy, potentially influencing future DetNet strategies.

18.2.3   Latency Guarantee with Stateless Fair Queuing

Jinoo Joung also discussed the draft-joung-detnet-stateless-fair-queuing, which proposes a method for ensuring latency guarantees. The presentation did not elicit comments, suggesting consensus or the need for further review.

18.2.4   Deadline Based Deterministic Forwarding

Peng Liu presented the draft-peng-detnet-deadline-based-forwarding, focusing on deadline-based forwarding mechanisms. The draft was well-received, with no immediate feedback, indicating alignment with current DetNet objectives.

18.2.5   Flow Aggregation for Enhanced DetNet

Tianji Jiang and Quan Xiong introduced the draft-xiong-detnet-flow-aggregation, which addresses flow aggregation in multi-domain environments. The chairs highlighted the need for alignment with existing YANG models and RFCs, emphasizing the importance of defining single-domain aggregation before multi-domain considerations.

18.2.6   Enhanced Use Cases for Scaling Deterministic Networks

Junfeng Zhao's draft-zhao-detnet-enhanced-use-cases was discussed, focusing on real-world scenarios and requirements. The draft's value was acknowledged, but further clarification on data derivation was requested to enhance its applicability.

18.2.7   DetNet Multidomain Extensions

Carlos Bernardos presented the draft-bernardos-detnet-raw-multidomain, exploring extensions for multi-domain DetNet. The discussion centered on defining domains and the implications of different control and data plane technologies. The draft's evolution from a framework to a solution document was considered, with contributions invited to refine its scope.

18.3   Conclusion

The DetNet session at IETF 122 highlighted significant advancements and collaborative efforts in deterministic networking. The discussions underscored the importance of taxonomy alignment, multi-domain considerations, and real-world applicability, setting the stage for future developments in the field. Meeting materials are available at DetNet Session Materials.

19 Dynamic Host Configuration Working Group (DHC)

19.1 Attendees

19.1.1 Overview

The meeting was attended by 20 participants, including representatives from prominent companies and institutions such as Cisco, Ericsson, Google, and Akamai Technologies. Notable attendees included Suresh Krishnan from Cisco, Lorenzo Colitti from Google, and Fernando Gont from SI6 Networks.

19.2 Meeting Discussions

19.2.1 Welcome, Agenda Review, and Status Update

The session commenced with a welcome and agenda review led by Timothy Winters. Discussions included updates on the relay draft, with plans to progress to Working Group Last Call (WLGC) shortly. The draft-ietf-dhc-relay was highlighted, and updates on the 8415bis draft were discussed, with a minor typo pending correction.

19.2.2 DHCP Option Concatenation Considerations

Tommy Jensen presented on DHCP Option Concatenation, focusing on DHCPv4. The presentation was well-received, with strong support for adoption from David Lamparter. The need for further reviews was emphasized, with commitments from David Lamparter, Tom Hill, and Sheng Jiang to provide feedback. The draft can be accessed at draft-tojens-dhcp-option-concat-considerations.

19.2.3 Generating Semantically Opaque IPv6 Interface Identifiers

Fernando Gont discussed a method for generating semantically opaque IPv6 Interface Identifiers using DHCPv6. The presentation sparked a debate on scalability and statelessness, particularly concerning large pool sizes and DECLINE scenarios. The discussion referenced draft-gont-dhcwg-dhcpv6-iids-00, with considerations for its application to Prefix Delegation (PD).

19.2.4 Virtual DHCPv6 (8415) Plugfest Results

Spencer Couture and Ben Patton presented the results of the Virtual DHCPv6 Plugfest, highlighting interoperability achievements and areas for improvement.

19.2.5 Next Steps and Wrap Up

The meeting concluded with a discussion on next steps, emphasizing the importance of addressing timezone challenges in future meetings. The working group aims to refine the discussed drafts and prepare for subsequent IETF submissions.

Meeting materials and further details are available at IETF 122 DHC WG Meeting Materials.

20 Decentralized Internet Infrastructure Research Group (DINRG)

20.1 Attendees Overview

20.1.1 Attendance and Key Institutions

The DINRG meeting at IETF 122 saw participation from 88 attendees, including representatives from prominent institutions such as UCLA, Verisign, Cisco, Huawei, and the Internet Society. Notable attendees included Dirk Kutscher from HKUST, Lixia Zhang from UCLA, and Gareth Tyson from Hong Kong University of Science and Technology.

20.2 Meeting Discussions

20.2.1 CoNEXT DIN Workshop Summary

Dirk Kutscher presented a summary of the CoNEXT'24 DIN Workshop, highlighting discussions on decentralizing communications, naming, and distributed computing. The workshop featured insights from Cory Doctorow on Internet challenges and Michael Karanicolas on legal perspectives. Technical sessions focused on decentralized systems and technologies, emphasizing the need for consensus on the current Internet. For more details, refer to the workshop report.

20.2.2 DIN Review Since Re-chartering

Lixia Zhang led a discussion on the re-chartering of DINRG, focusing on structuring discussions around Internet decentralization. Key points included the pros and cons of decentralization, engagement with other communities, and the importance of economic models. The group explored how decentralization impacts society and networks, with references to draft-ietf-dinrg-measurements.

20.2.3 A Closer Look into IPFS: Accessibility, Content, and Performance

Ruizhe Shi's presentation examined IPFS, discussing its accessibility, content governance, and performance. The session addressed economic artifacts and the integration of centralized components in decentralized solutions. The discussion raised concerns about content governance, particularly regarding illegal content, and proposed the implementation of blocklists. Presentation slides are available here.

20.2.4 Looking at the Blue Skies of Bluesky

Gareth Tyson explored the multifaceted nature of Bluesky, encompassing architecture, company, and protocol aspects. Discussions highlighted user control over content and the potential for users to create alternatives. Technical debates covered user control over sockets, the decline of XMPP, and trust mechanisms. Presentation slides can be accessed here.

20.2.5 Comparison of App Implementations over TCP/IP and NDN

The session by Tianyuan Yu was suspended due to time constraints, but it aimed to compare application implementations over TCP/IP and NDN, focusing on performance and architectural differences.

Meeting materials and further resources are available here.

21 DKIM Working Group (DKIM)

21.1 Attendees

The DKIM Working Group meeting at IETF 122 was attended by 36 participants, including representatives from prominent companies and institutions such as Fastmail, Google, Meta Platforms, Inc., ICANN, and Yahoo. Notable attendees included Bron Gondwana from Fastmail, Murray Kucherawy from Meta Platforms, Inc., and Pete Resnick from Episteme Technology Consulting LLC.

21.2 Meeting Discussions

21.2.1 Chair Welcome and Overview

The meeting commenced with a review of the Note Well slides and an agenda presentation. The chairs emphasized maintaining good conduct and minimizing distractions, while ensuring that the working group's efforts do not disrupt the existing deployed base. The goal is to develop a new protocol, with a preference for incremental improvements where feasible.

21.2.2 Charter Review

The chairs reviewed the charter, highlighting the issues and goals that prompted the reconstitution of the working group. Discussions centered around the importance of abuse-resistant techniques and the potential for fragmentation of the email infrastructure. The group acknowledged the need to balance innovation with compatibility, ensuring that any new developments do not inadvertently exclude smaller operators.

21.2.3 Proposed Documents

Bron Gondwana presented three proposed documents for adoption: the Motivations document, the Header document, and the Modifications document. The discussion highlighted the need for crypto agility and the potential impact of DKIM2 on existing email flows. The group considered the implications of single-recipient transactions and the necessity of addressing interoperability with existing DKIM implementations.

21.2.4 Open Questions and Next Steps

The meeting concluded with a discussion on open questions, including the interaction between DKIM2 and existing DKIM protocols, and the need for a capability mechanism to ensure compatibility. The group agreed to conduct calls for adoption for the proposed documents, recognizing that adoption signifies a starting point for further development. The potential for interim meetings before the next IETF meeting in Madrid was also discussed, with a suggestion to initiate discussions on the mailing list to determine their frequency and timing.

Meeting materials can be accessed at IETF 122 DKIM Meeting Materials.

22 DMM Working Group (DMM)

22.1 Attendees

The DMM Working Group meeting was attended by 49 participants, including representatives from prominent companies and institutions such as Cisco Systems, Rakuten Group Inc, Vodafone, Futurewei, Verizon, Nvidia, SoftBank Corp., and Telefonica Innovacion Digital. The diverse attendance underscores the broad interest and collaborative effort in advancing mobile network technologies.

22.2 Meeting Discussions

22.2.1 Mobility Aware Transport Network Slicing for 5G

John Kaippallimalil presented the draft-ietf-dmm-tn-aware-mobility, discussing whether it should be classified as an informational or standard document. The consensus leaned towards keeping it informational, pending confirmation by the chairs. Discussions highlighted the need for clarity on the relationship between S-NSSAI and EP_Transport, with suggestions to elaborate on data structures in the draft. Further reviews were deemed necessary to proceed to the last call.

22.2.2 Architecture Discussion on SRv6 Mobile User Plane

Teppei Kamata led the discussion on draft-ietf-dmm-srv6mob-arch, focusing on session aspects beyond routing, such as charging and QoS. While some participants suggested these could be referenced, the general agreement was to keep the draft focused on its core objectives.

22.2.3 Mobile Traffic Steering

Marco Liebsch's draft-liebsch-dmm-mts prompted discussions on the need to generalize terminology beyond 3GPP specifics. The draft's framework was noted to apply to 3GPP, but the steering concept should be clarified to differentiate it from routing.

22.2.4 SRH Reduction for SRv6 End.M.GTP6.E Behavior

Yuya Kawakami presented the draft-kawakami-dmm-srv6-gtp6e-reduced, which sparked debate on whether it should be a standalone draft or integrated with other SRv6 MUP drafts. The draft's focus on SRv6 behavior without altering BGP was emphasized, with calls for further review before adoption.

22.2.5 MUP Architecture

Satoru Matsushima's draft-mhkk-dmm-mup-architecture was considered for adoption, with strong support due to existing implementations. The need for working group participation and reviews was highlighted to ensure progress aligns with the charter.

22.2.6 Computing Aware Traffic Steering Consideration for MUP

Minh Ngoc Tran discussed the draft-dcn-dmm-cats-mup, exploring its applicability across mobile architectures. The draft's potential to benefit from feedback from the CATS community was noted, with volunteers stepping forward for review.

22.2.7 DMM Centric Summary of 3GPP Workshop on 6G

Lionel Morand summarized key takeaways from the 3GPP Workshop on 6G, highlighting new services like private networks and V2X, and the complexity of current slicing solutions. The discussions pointed to a need for network simplification and the potential role of AI in network services. The session concluded with reflections on the necessity for a unified data plane approach.

Meeting materials are available at Meetecho and Notes.

23 DNS Operations (DNSOP) Working Group

23.1 Attendees Overview

23.1.1 Attendance

The DNSOP Working Group session was attended by 108 participants, including representatives from prominent organizations such as Verisign, NLnet Labs, ICANN, and Apple. The diverse attendance underscored the broad interest and collaborative effort in addressing DNS operational challenges.

23.2 Meeting Discussions

23.2.1 Clarifications on CDS/CDNSKEY and CSYNC Consistency

Peter Thomassen presented the draft-ietf-dnsop-cds-consistency, which is nearing readiness for Working Group Last Call. The discussion highlighted the importance of ensuring consistency in DNSSEC key management, with a focus on operational clarity and potential adoption timelines.

23.2.2 Domain Verification Techniques using DNS

Shumon Huque discussed the draft-ietf-dnsop-domain-verification-techniques, emphasizing the need for clear distinctions between domain control validation and domain authorization. Concerns were raised about security implications and the potential for user confusion, prompting suggestions for further refinement of the draft.

23.2.3 DNS Filtering Details for Applications

Mark Nottingham introduced the draft-nottingham-public-resolver-errors, sparking a debate on the role of DNS filtering in application behavior. The session underscored the necessity of establishing a trust model for DNS error handling and the potential policy implications, with suggestions to engage broader community discussions.

23.2.4 Collision Free Keytags for DNSSEC

Shumon Huque's draft-huque-dnsop-keytags was discussed, focusing on the operational challenges of key-tag collisions in DNSSEC. The group debated the balance between complexity and operational reliability, with consensus on the need for a standardized approach to prevent validation issues.

23.2.5 A Top-level Domain for Private Use

Warren Kumari presented the draft-davies-internal-tld, advocating for a reserved TLD for private use. The discussion highlighted the potential benefits for network management and security, with calls for further exploration of the technical and policy implications.

Meeting materials, including slides and detailed minutes, are available at IETF Notes.

The discussions in this session reflect a strategic focus on enhancing DNS security and operational efficiency, with several drafts poised for further development and potential adoption. The outcomes suggest a proactive approach to addressing emerging challenges in DNS operations, with a commitment to collaborative problem-solving and innovation.

24   Extensions for Scalable DNS Service Discovery (dnssd)]

24.1   Attendees Overview

The dnssd working group meeting at IETF 122 was attended by 39 participants, including representatives from prominent organizations such as Apple, Cisco, Google, Microsoft, and ISC. This diverse attendance underscores the broad interest and collaborative effort in advancing DNS service discovery technologies.

24.2   Meeting Discussions

24.2.1   RFCs-to-be SRP and Update Lease

Presenter: Stuart Cheshire

The session focused on significant textual changes in the draft-ietf-dnssd-srp and draft-ietf-dnssd-update-lease. Key discussions revolved around improving readability and clarity, particularly in sections dealing with failure recovery and security considerations. The group agreed on the necessity of plain language to enhance understanding, with specific changes proposed to align with industry best practices on security, especially concerning flooding attacks. These updates are expected to streamline implementation and foster broader adoption.

24.2.2   Multiple QTYPEs

Presenter: Ray Bellis

Ray Bellis reported on the hackathon implementations related to draft-ietf-dnssd-multi-qtypes. The hackathon revealed minor issues, which have since been addressed in the draft. The group discussed the readiness of the draft for Working Group Last Call (WGLC), highlighting the importance of having running code as a positive indicator of maturity.

24.2.3   Use Cases for Time Since Received

Presenter: Esko Dijk

Esko Dijk presented various use cases for the Time Since Received (TSR) mechanism, emphasizing its role in conflict resolution and SRP replication. The discussion highlighted the need for further exploration of corner cases, particularly in scenarios involving mobile clients and advertising proxies. The group recognized the potential of TSR to enhance DNS-SD reliability and agreed to continue refining the draft.

24.2.4   MDNS Conflict Resolution Using TSR

Presenter: Ted Lemon

Ted Lemon discussed the draft-tllq-tsr, focusing on its application in mDNS conflict resolution. The presentation underscored the importance of version compatibility and the need for robust implementation strategies to ensure seamless operation across different network environments.

24.2.5   Advertising Proxy

Presenter: Ted Lemon

The draft-ietf-dnssd-advertising-proxy was reviewed, with discussions centering on the necessity of implementation to progress the draft. The group acknowledged the challenges but remained optimistic about the draft's potential to significantly enhance DNS-SD capabilities.

24.2.6   SRP Replication

Presenter: Ted Lemon

Ted Lemon presented on draft-ietf-dnssd-srp-replication, focusing on ensuring version compatibility and the replication of TSR values. The discussion highlighted the draft's role in improving DNS-SD scalability and reliability.

24.2.7 Using SVCB with DNSSD

Presenter: Gautam Akiwate

Gautam Akiwate introduced the draft-gakiwate-dnssd-use-svcb, which aims to enable services to share ALPN information. The group discussed potential improvements, including the use of Multiple QTYPEs to optimize query efficiency. The draft's potential to streamline service discovery processes was acknowledged, with further refinements anticipated.

Meeting materials are available at IETF 122 Meeting Materials.

25 Delay/Disruption Tolerant Networking (DTN) Working Group

25.1 Attendees

The DTN Working Group meeting at IETF 122 in Bangkok was attended by 47 participants, including representatives from prominent organizations such as Spacely Packets, LLC, King's College London, SAIC/NASA, China Mobile, JHU/APL, and ESA/ESOC. The diverse attendance highlighted the global interest and collaborative efforts in advancing DTN technologies.

25.2 Meeting Discussions

25.2.1 CoAP over BP

Carles Gomez presented updates on draft-gomez-core-coap-bp-03, focusing on a new CoAP option for message aggregation and proxying. Discussions centered around namespace translation and the concurrent use of OSCORE and BPSec, with considerations for deployment scenarios.

25.2.2 DTN Reference Scenarios

Camillo Malnati and Felix Flentge discussed the development of reference scenarios for BP and its extensions, targeting Earth, Lunar, and Mars environments. The scenarios aim to standardize data formats and will be published as a Yellow Book in CCSDS.

25.2.3 BPv7 Custody Transfer and Compressed Status Reporting

Felix Flentge provided insights into opportunistic custody transfer and compressed status reporting. The discussion emphasized the need for efficient bundle sequence IDs and the potential for IETF documentation on signaling and sequencing.

25.2.4 Interplanetary DNS

Scott Johnson introduced draft-johnson-dtn-interplanetary-dns-03, proposing a coherent naming structure for IP networks on extraterrestrial bodies. The debate highlighted DNSSEC compatibility and the necessity for a robust naming framework.

25.2.5 Status of DTNMA

Jenny Cao updated on multiple drafts, including draft-ietf-dtn-amm-03 and draft-ietf-dtn-adm-yang-03, with a focus on YANG model reviews and the integration of ARI drafts.

25.2.6 Status of WG & Personal Drafts

Brian Sipos reviewed several drafts, such as draft-ietf-dtn-bpsec-cose-06 and draft-ietf-dtn-udpcl-00, discussing the stability of BPSec COSE Context and the evolution of UDPCLv2 features.

25.2.7 Bundle Transfer Protocol - Unidirectional

Rick Taylor presented draft-taylor-dtn-btpu-00, highlighting the potential for a common CL protocol for unidirectional, frame-based link layers, emphasizing simplicity and efficiency.

25.2.8 RFC4838bis

Ed Birrane discussed the need for updating RFC4838, focusing on DTN and IP integration, QoS, and fragmentation. Community input was encouraged for shaping the BIS document.

25.2.9 Key Establishment in the Space Environment

Benjamin Dowling, on behalf of Britta Hale, explored secure key refresh mechanisms in space environments, referencing this paper. The discussion considered the applicability of MLS for BPSec.

25.2.10 BP QoS Extensions

Teresa Algarra proposed a QoS block for user-level applications, with discussions on standardizing network QoS blocks for administrative flexibility.

25.2.11 Open Mic

The session concluded with an open mic segment, inviting further community engagement and feedback on the discussed topics.

Meeting materials are available at IETF 122 DTN Meeting Materials.

26 EMAILCORE Working Group (EMAILCORE)

26.1 Attendees

The EMAILCORE working group meeting at IETF 122 in Bangkok was attended by 27 participants, including representatives from prominent companies and institutions such as Apple Inc., Fastmail, ICANN, and Meta Platforms, Inc. Notable attendees included Alexey Melnikov from Isode Limited, Todd Herr, and John Klensin. The complete list of attendees is available in the meeting notes.

26.2 Meeting Discussions

26.2.1 Applicability Statement for IETF Core Email Protocols

The session began with a detailed review of the draft-ietf-emailcore-as-15, focusing on issues raised during the Working Group Last Call (WGLC). Key discussions revolved around the requirement of STARTTLS for legacy systems, with John Klensin questioning its necessity and Bron Gondwana advocating for a broader approach to confidentiality. Pete Resnick agreed to revise the text to emphasize the opportunistic use of STARTTLS. Further, Ken Murchison was tasked with incorporating DANE and requireTLS into the document, while Barry Leiba will verify the need for additional clarifications. The dialogue underscored the importance of balancing security with practical deployment considerations.

26.2.2 Status of RFC5321bis-41 and SMTP IANA Cleanup

Alexey Melnikov and John Klensin provided updates on draft-ietf-emailcore-rfc5321bis-41 and draft-melnikov-smtp-iana-cleanup-00. The former will undergo a targeted IETF Last Call focused on security considerations, bypassing further IESG review if successful. The SMTP IANA cleanup was deemed out of scope for EMAILCORE and will be addressed by the MAILMAINT working group. These updates reflect ongoing efforts to refine and secure email protocols, with implications for future interoperability and security enhancements.

Meeting materials, including the agenda and notes, are available at this link.

27 EMU Working Group (EMU)

27.1 Attendees Overview

The EMU Working Group meeting at IETF 122 was attended by 38 participants, including representatives from prominent organizations such as Cisco, NSA, Google, and Nokia. Notable institutions like the University of Murcia and the University of Oviedo were also present, contributing to a diverse and knowledgeable assembly.

27.2 Meeting Discussions

27.2.1 7170bis

Alan DeKok presented on the draft-ietf-emu-rfc7170bis. The discussion highlighted interoperability issues with the current specification. It was proposed to publish 7170bis as TEAPv1 with existing behavior and to develop a TEAPv2 with clearer specifications and pre-publication interoperability testing. This approach aims to streamline the specification by removing non-functional elements, potentially improving security and implementation clarity.

27.2.2 EAP-EDHOC

Dan Garcia-Carrillo discussed the draft-ietf-emu-eap-edhoc, focusing on its applicability to IoT environments. The need for fast reconnect capabilities was debated, with suggestions to solicit further input from the mailing list. The primary use case revolves around IoT, aligning with EAP method requirements outlined in RFC4017.

27.2.3 EAP-FIDO

Janfred Rieckers presented updates on the draft-ietf-emu-eap-fido. The presentation covered ongoing interoperability testing and discussions on cryptographic binding. The group debated the implications of moving away from FIDO standards, particularly concerning the use of binary formats and hash algorithms. The potential for collaboration with W3C and FIDO Alliance was also explored.

27.2.4 EAP-PPT Charter Update

Joe Salowey, as WG Chair, introduced the draft-sawant-eap-ppt. The adoption of this draft is contingent upon rechartering, which would allow immediate integration into the working group's agenda. Discussions included broadening the scope to encompass various protocols and potential provisioning enhancements.

27.2.5 PQC in EAP-AKA'

Tiru Reddy presented on the integration of post-quantum cryptography in EAP-AKA', referencing Draft 1 and Draft 2. The work was well-received, with support expressed for its necessity in enhancing security. The potential for implementation in wpa_supplicant was discussed, highlighting the importance of practical adoption.

Meeting materials are available at IETF 122 EMU Meeting Materials.

28 GREEN (GREEN)

28.1 Attendees Overview

28.1.1 Attendance and Representation

The GREEN working group session at IETF 122 was attended by 82 participants, representing a diverse array of prominent organizations including Cisco, Nokia, Deutsche Telekom, Telefonica, and Huawei. The session facilitated a robust exchange of ideas among industry leaders and academic institutions, underscoring the collaborative spirit of the IETF community.

28.2 Meeting Discussions

28.2.1 Use Cases and Requirements

The session commenced with a discussion on the Integrated Sensing and Communications (ISAC) use case for GREEN, presented by Carlos J. Bernardos. The dialogue highlighted the complexity of integrating ISAC within urban environments, emphasizing the need for energy-efficient models. Participants debated the scope of requirements, with a consensus on the necessity for further refinement to align with GREEN's objectives. The Use Cases for Energy Efficiency Management draft, presented by Luis Contreras, prompted discussions on the categorization of use cases and their alignment with the working group's charter.

28.2.2 Terminology and Metrics Definitions

Qin Wu presented the Terminology for Energy Efficiency Network Management draft, which aims to standardize terms across the field. The session underscored the importance of distinguishing between energy savings and efficiency, with plans to incorporate feedback from the W3C to ensure comprehensive coverage.

28.2.3 Architectural Components

Jing Wang introduced the Framework for Getting Ready for Energy-Efficient Networking (GREEN), which was critiqued for its preliminary nature. Participants called for more detailed content to establish a robust framework. The Philatelist framework, presented by Jan Lindblad, sparked interest due to its potential to integrate telemetry data and time series databases. Discussions focused on its applicability within the GREEN scope, with suggestions to refine its focus to align with the working group's charter.

28.2.4 Data Models

The second session featured presentations on data models, including the Power and Energy Efficiency draft by Jan Lindblad and the YANG Data Model for Energy Measurements in Streaming Devices by Christoph Neumann. These models aim to provide foundational structures for energy management in networking, with discussions emphasizing the need for a common base model that can be extended for specific use cases.

28.2.5 Future Planning

The sessions concluded with a wrap-up by the chairs, highlighting the need for continued collaboration and refinement of the presented drafts. The working group plans to focus on developing a common model that can serve as a foundation for future work, with interim meetings proposed to maintain momentum.

Meeting materials and additional resources are available at Meeting Minutes.

29 Global Routing Operations Working Group (GROW)

29.1 Attendees

29.1.1 Overview

The GROW session at IETF 122 was attended by 50 participants, including representatives from prominent organizations such as RIPE NCC, Red Hat, Cisco, Huawei, and NLnet Labs. The diverse attendance underscored the broad interest and engagement in the ongoing developments within the working group.

29.2 Meeting Discussions

29.2.1 Rechartering Effort

Mohamed Boucadair presented the ongoing rechartering effort, highlighting the need to update the scope and milestones of the working group. The draft of the new charter is available for review and feedback at charter-ietf-grow/04-01. The discussion emphasized the importance of community input and collaboration with Area Directors to refine the charter.

29.2.2 BMP TLV Extensions

Paolo Lucente discussed several drafts related to BMP TLV extensions, including draft-ietf-grow-bmp-tlv, draft-ietf-grow-bmp-rel, and draft-ietf-grow-bmp-tlv-ebit. Key points included the need for IANA code point assignments and the potential for simplifying Stateless Parsing TLV by removing AFI/SAFI. The discussions also touched on timestamping requirements and editorial improvements.

29.2.3 BMP BGP RIB Statistics

Mukul Srivastava presented draft-ietf-grow-bmp-bgp-rib-stats, focusing on the collection of BGP RIB statistics via BMP. The session highlighted the importance of aligning assignments with the Standards Action of the registry. A Working Group Last Call (WGLC) was suggested as a next step.

29.2.4 BMP Common Updates and Purge Mechanisms

Prasad Narasimha introduced drafts on BMP common updates and purge mechanisms, including draft-patki-grow-bmp-common-updates and draft-spd-grow-bmp-purge. Discussions revolved around optimizing flag usage and exploring alternative mechanisms such as TLVs. The feedback will inform future revisions and potential Working Group adoption calls.

29.2.5 BMP Location Peer

Maxence Younsi presented draft-ietf-grow-bmp-loc-peer, which aims to enhance BMP's ability to monitor peer locations. The presentation underscored the draft's potential to improve network visibility and operational efficiency.

Meeting materials and presentations are available at IETF 122 Meeting Materials.

30 HAPPY Working Group (HAPPY)

30.1 Attendees Overview

30.1.1 Attendees

The HAPPY Working Group session was attended by 67 participants, including representatives from prominent organizations such as Apple, Google, Cloudflare, Cisco Systems, and Mozilla. The diverse attendance underscored the broad interest and collaborative efforts in advancing the group's objectives.

30.2 Meeting Discussions

30.2.1 Chair's Introduction

The session commenced with an introduction by Eric Kinnear (Apple) and Tim Chown (Jisc), who outlined the group's primary focus on updating the core happy eyeballs algorithm. The chairs emphasized the importance of a secondary document on reporting connectivity issues and confirmed the use of GitHub for collaborative work, ensuring transparency and community involvement.

30.2.2 HEv3 Draft Discussion

Tommy Pauly and Nidhi Jaju presented the draft-ietf-happy-happyeyeballs-v3, highlighting the need for updates due to advancements in DNS and transport technologies like QUIC and SVCB. The discussion centered on refining the client-side algorithm for connection establishment and addressing open issues such as SVCB integration and prioritization strategies. The group debated the implications of server versus client preferences, particularly in security contexts, and considered the potential for interim meetings to resolve outstanding technical challenges.

30.2.3 Chromium Implementation Status Update

Kenichi Ishibashi provided an update on Chromium's implementation of HEv3, noting improvements in connection logic and DNS resolution sharing between TCP and QUIC. An early field experiment is planned to assess these changes, with a focus on supporting non-default target names in future updates.

30.2.4 Reporting Network Errors to Origins

Nic Jansma and Utkarsh Goel discussed the potential for a draft on network error logging (NEL), aiming to improve feedback mechanisms for network issues masked by happy eyeballs. The conversation touched on privacy concerns and the need for a balanced approach to reporting metrics, with suggestions for collaboration with other IETF groups to refine the proposal.

30.2.5 Summary and Areas for Coordination

The session concluded with a call for draft adoption and considerations for virtual interim meetings to address specific topics such as DNS server selection and IPv6 network strategies. The chairs highlighted the importance of coordination with related IETF groups, including v6ops, 6man, and dnsop, to ensure comprehensive and cohesive progress.

Meeting materials, including slides and minutes, are available at Meeting Materials.

31 HTTPAPI (HTTPAPI)

31.1 Attendees

31.1.1 Overview

The HTTPAPI working group meeting at IETF 122 was attended by 35 participants, including representatives from prominent companies and institutions such as Cloudflare, Microsoft, Akamai, Ericsson, Google LLC, and Apple. The meeting was chaired by Rich, with Francesca Palombini and Mike Bishop serving as Area Directors.

31.2 Meeting Discussions

31.2.1 Document Updates

The session began with brief updates on documents currently in the RPC queue, including *api-catalog* and *deprecation-header*. The link-hint document was highlighted for review and feedback, while rest-api-mediatypes is nearing readiness for a Working Group Last Call (WGLC) pending resolution of two open issues. The ratelimit-headers document received substantial feedback, leading to the introduction of new problem types to clarify client rate-limiting issues. Darrel Miller's GitHub implementation was noted as a practical check for feasibility, and further feedback was solicited to potentially advance to WGLC by IETF 123.

31.2.2 New JSON Schema

A significant discussion centered around the proposal for a "New JSON Schema," aimed at addressing tooling challenges and enhancing data-binding capabilities compared to existing JSON Schema implementations. The proposal suggests a refactoring approach, introducing additional data types and serialization rules. Concerns were raised about the naming and venue for this initiative, with Clemens Vasters open to leveraging existing drafts for broader acceptance. The chairs and ADs are tasked with determining a strategic path forward.

31.2.3 Documents Ready for WGLC

The httpapi-privacy document requires further work before proceeding to WGLC. For digest-fields-problem-types, an early SECDIR review was requested, with discussions on whether to integrate Message Signature problem types, ultimately deciding to keep them separate due to complexity.

31.2.4 Expired Documents

The group briefly addressed expired documents, *patch-byterange* and *authentication-link*, inviting interested parties to contact the chairs for potential revival efforts.

Meeting materials are available at IETF 122 HTTPAPI Meeting Materials.

32 HTTP Working Group (HTTPBIS)

32.1 Attendees Overview

32.1.1 Attendance

The HTTP Working Group session at IETF 122 saw participation from 71 attendees, including representatives from prominent companies and institutions such as Meta, Google, Cloudflare, Microsoft, and Ericsson. Key participants included Julian Reschke, Ben Schwartz, and Marius Kleidl, among others.

32.2 Meeting Discussions

32.2.1 QUERY Method

The discussion on the QUERY Method draft, presented by Julian Reschke, focused on resolving editorial issues and preparing for Working Group Last Call (WGLC). The debate centered around the use of GET parameters for stored queries, with consensus leaning towards treating the entire URL as the resource identity.

32.2.2 CONNECT-TCP

Ben Schwartz presented updates on the CONNECT-TCP draft, highlighting the alignment with the Capsule protocol. Discussions explored signaling FIN vs RST, with a preference for maintaining the status quo in HTTP/2 and HTTP/3, while considering future-proofing through Capsules.

32.2.3 Security Considerations for Optimistic Protocol Transitions

The Security Considerations for Optimistic Protocol Transitions draft was discussed, emphasizing the need for clients to wait for 2xx responses before forwarding TCP payloads. The group leaned towards using MUST language to enforce connection closure upon rejection, balancing performance and security.

32.2.4 Resumable Uploads

Marius Kleidl's presentation on Resumable Uploads focused on recent editorial overhauls and normative changes. The group discussed the method for appending data, with a consensus to retain the current PATCH method approach, moving towards WGLC.

32.2.5 Secondary Certificate Authentication

Eric Gorbaty addressed the Secondary Certificate Authentication draft, exploring solutions for large exported authenticators in HTTP/2. The group considered using a new stream type, with further investigation needed before finalizing the approach.

32.2.6 No-Vary-Search

Domenic Denicola presented the No-Vary-Search draft, noting its implementation in Chrome and Google Search. The group discussed marking the draft as updating RFC9111, with plans for a Working Group Last Call.

32.2.7 Incremental HTTP Messages

Kazuho Oku's presentation on Incremental HTTP Messages focused on signaling mechanisms for incremental delivery. The group favored a simple boolean preference, with further refinement needed for hard fail scenarios.

32.2.8 HTTP Unencoded Digest

Lucas Pardue discussed the HTTP Unencoded Digest draft, addressing concerns about adding a third digest header. The group agreed to continue discussions on the mailing list.

32.2.9 Delete-Cookie and _HttpOnly Prefix

Yoav Weiss presented drafts on Delete-Cookie and _HttpOnly Prefix, with discussions on integrating these into the broader cookies draft. The group supported merging these proposals into a unified effort.

32.2.10 Cookies: HTTP State Management Mechanism

Johann Hofmann's presentation on the Cookies: HTTP State Management Mechanism draft highlighted the need for adoption and integration of related proposals. The group planned to initiate an adoption call.

32.2.11 Critical CH and Accept-CH Frame

Victor Tan discussed the Critical CH and Accept-CH Frame drafts, with debates on the implications for privacy and performance. The group emphasized the need for concrete use cases to guide further discussions.

Meeting materials are available here.

33 ICCRG (Internet Congestion Control Research Group)

33.1 Attendees Overview

The ICCRG meeting at IETF 122 was attended by representatives from prominent companies and institutions such as Apple, Google, Ericsson, Huawei, and the University of Oslo, totaling 101 participants. This diverse group brought together experts from academia and industry to discuss advancements and challenges in congestion control.

33.2 Meeting Discussions

33.2.1 LEDBAT++

The discussion on draft-irtf-iccrg-ledbat-plus-plus-02 focused on its readiness for Research Group Last Call. Participants were encouraged to review the document and provide feedback. The consensus was that the draft is mature and ready for broader community input.

33.2.2 Pacing in Transport Protocols

Michael Welzl presented updates to draft-welzl-iccrg-pacing, incorporating feedback on SYN/ACK and RTTs. The discussion highlighted the importance of pacing in real-time protocols and its impact on network performance. The group agreed that the draft is ready for adoption, with further refinements to address application-specific pacing deviations.

33.2.3 LEO Mobility and Congestion Control

Zeqi Lai's presentation on the effects of LEO satellite mobility on congestion control sparked a debate on bandwidth and delay estimations. The discussion underscored the need for accurate modeling of LEO networks and the challenges in adapting congestion control algorithms to these environments. The group recognized the potential for significant impact on future satellite network designs.

33.2.4 Improving Cloud Gaming QoS

Thibault Cholez compared class-based queuing policies with L4S for cloud gaming traffic. The analysis revealed that L4S can enhance QoS, though further testing with alternative AQM targets was suggested. The discussion emphasized the importance of optimizing network policies to support emerging gaming technologies.

33.2.5 Adapting Home Routers for Low Latency

Zili Meng presented draft-zhang-iccrg-confucius, focusing on adapting home routers to congestion control reactions. The discussion highlighted the complexity of managing multiple flows and the need for more research on congestion control algorithms to maintain low latency in home networks.

33.2.6 Networking for AIML Clusters

Costin Raiciu explored the challenges of networking in AI/ML clusters, emphasizing the need for efficient multipath transport protocols. The presentation introduced the Ultra Ethernet Consortium's efforts to standardize transport for AIML networks. The group acknowledged the potential for these advancements to significantly enhance AI/ML training efficiency.

Meeting materials are available at ICCRG Meeting Materials.

34 Information-Centric Networking Research Group (ICNRG)

34.1 Attendees Overview

34.1.1 Attendance

The ICNRG meeting was attended by 38 participants, including representatives from prominent institutions such as WiscNet, University of Kentucky, intERLab/AIT, NICT, and Huawei. Notable attendees included Marc Mosko, Ken Calvert, and Lixia Zhang.

34.2 Meeting Discussions

34.2.1 Offline Content Access with NDN and D2D Communication

Preechai Mekbungwan from intERLab/AIT presented on leveraging Named Data Networking (NDN) for offline content delivery in remote areas using Device-to-Device (D2D) communication. The prototype, built with Google Nearby Connections API, demonstrated a coverage of up to 150 meters. The discussion highlighted the integration of NDN for content discovery and retrieval in multi-hop environments, addressing D2D limitations with proposed NDN modifications. Future plans include real-world deployment in virtual classrooms and file exchange applications. The presentation underscored the importance of ICN in content delivery management, with a research grant from THNICF supporting the initiative.

34.2.2 FLIC Update

Marc Mosko provided updates on the draft-ietf-icnrg-flic, focusing on non-tree FLICs, security enhancements, and implementation status. The draft is nearing final review, with significant savings demonstrated in de-duplication experiments. A Research Group last call is anticipated soon.

34.2.3 CCNx Content Object Chunking

The draft-ietf-icnrg-ccnxchunking was discussed by Marc Mosko, emphasizing the use of preamble chunks for improved control in identifying the last chunk. The draft is technically complete but requires minor refinements.

34.2.4 CCNx Versioning

Marc Mosko also covered the draft-asaeda-icnrg-ccnxcversioning, introducing a T_version name segment type for querying current content versions. The draft aims to facilitate version discovery and response, with feedback encouraged for further refinement.

34.2.5 Reflexive Forwarding Update

Hitoshi Asaeda presented on reflexive forwarding, addressing use cases like IoT sensor polling and peer state synchronization. The draft-irtf-icnrg-reflexive-forwarding explores multi-way handshakes and reflexive interest exchanges, seeking broader reviews and implementations.

34.2.6 Distributed Micro Service Communication Progress Report

Aijun Wang discussed the progress of Distributed Micro Service Communication (DMSC), aiming to address service mesh performance overheads. The draft-bofreq-wang-distributed-micro-services-communicationdmsc outlines plans for a symposium in Beijing and potential Working Group establishment.

34.2.7 Wrap Up and Next Steps

The meeting concluded with announcements for upcoming events, including an NDN community meeting in April 2025 and the next ICNRG meeting in Madrid, July 2025.

Meeting materials are available at ICNRG Meeting Materials.

35 Inter-Domain Routing (IDR) Working Group

35.1 Attendees Overview

The IDR sessions at IETF 122 were attended by representatives from prominent organizations such as Cisco Systems, Juniper Networks, Huawei Technologies, and Deutsche Telekom, among others. The total attendance was 74 participants, reflecting a diverse mix of industry leaders and academic institutions.

35.2 Meeting Discussions

35.2.1 Guidance for Authors on BGP Tunnel Encapsulation Attribute

Susan Hares presented the draft-hares-idr-bess-tea-templates-00, emphasizing the importance of early collaboration in drafting sections to avoid late-stage reviews. This guidance aims to streamline the process of writing text for BGP Tunnel Encapsulation Attributes, ensuring clarity and consistency across implementations.

35.2.2 BGP Link Bandwidth Extended Community

Reshma Das discussed the draft-ietf-idr-link-bandwidth-11, highlighting its significance for network operations. The discussion focused on the transitivity of link bandwidth communities and the implications for interoperability. The draft proposes a singleton approach to manage bandwidth across AS boundaries, with further discussions planned to refine the transitivity controls.

35.2.3 BGP SR Policy Extensions for Path Scheduling

Li Zhang introduced the draft-zzd-idr-sr-policy-scheduling-08, which proposes extensions for path scheduling within BGP SR policies. The draft addresses the need for frequent updates without overloading the control plane, suggesting BGP as a viable mechanism for real-time path adjustments. The proposal will undergo further review to align with TVR requirements and SPRING architecture discussions.

35.2.4 SRv6 Policy SID List Optimization Advertisement

Zafar Ali presented the draft-ali-idr-srv6-policy-sl-opt-distribution-00, which aims to optimize SID list advertisements in SRv6 policies. The discussion underscored the need for consistency across BGP, PCEP, and YANG extensions, with plans to coordinate with SPRING to ensure alignment.

35.2.5 Dynamic Capability for BGP-4

Srihari Sangli discussed the draft-ietf-idr-dynamic-cap-16, focusing on the introduction of dynamic capabilities in BGP-4. The draft proposes enhancements to manage capability negotiations more effectively, with feedback sought from vendors to ensure backward compatibility and interoperability.

35.2.6 BGP-Link State Advertisement of Flow Queue

Jinming Li presented the draft-li-idr-bgpls-flow-queue-00, which proposes using BGP-LS for advertising flow queue information. The discussion highlighted the challenges of dynamic queueing and the potential need for alternative approaches like gRPC or netconf for timely updates.

Meeting materials are available at IDR Meeting Materials.

36 IntArea Working Group (IntArea WG)

36.1 Attendees Overview

36.1.1 Prominent Attendees and Total Attendance

The IntArea WG meeting was attended by 96 participants, including representatives from major companies and institutions such as Cisco, Ericsson, Apple Inc., Microsoft, Google, and Huawei. Notable attendees included Juan Carlos Zuniga from Cisco, Wassim Haddad from Ericsson, and Tommy Pauly from Apple.

36.2 Meeting Discussions

36.2.1 Agenda Bashing, WG & Document Status Updates

The meeting commenced with Juan Carlos Zuniga and Wassim Haddad providing updates on the working group's document status. A call for review was made for the draft-ietf-intarea-tunnels, as the authors have requested a Working Group Last Call (WGLC).

36.2.2 Communicating Proxy Configurations in Provisioning Domains

Tommy Pauly, Dragana Damjanovic, and Yaroslav Rosomakho presented updates on draft-ietf-intarea-proxy-config-04. The discussion highlighted the addition of a new co-author and upcoming interoperability testing. A WGLC is anticipated before the Madrid IETF meeting.

36.2.3 Adding Extensions to ICMP Errors for Originating Node Identification

Bill Fenner and R. Thomas discussed draft-ietf-intarea-extended-icmp-nodeid-01. Despite interest in adding new data types, the recommendation was to proceed with the current document and extend it as needed. A WGLC was suggested and received positive feedback.

36.2.4 PROBE: A Utility for Probing Interfaces

The presentation on draft-ietf-intarea-rfc8335bis-00 by Bill Fenner and colleagues addressed interoperability issues with existing RFC 8335 implementations. The document includes warnings about specific design mechanisms. A WGLC will be discussed on the mailing list.

36.2.5 The Multicast Application Port

Nathan Karstens and team presented draft-karstens-intarea-multicast-application-port-00, discussing interactions with the IANA ports team and the implications of using multicast over unicast. The discussion emphasized the need for recommendations to avoid port exhaustion.

36.2.6 IPv4 Routes with an IPv6 Next Hop

Warren Kumari and others discussed draft-chroboczek-intarea-v4-via-v6-03, focusing on adoption and implementation on hosts. The draft received support and suggestions for further guidance on routing differences based on nexthop.

36.2.7 Safe(r) Limited Domains

The presentation on draft-wkumari-intarea-safe-limited-domains-04 by Warren Kumari and colleagues emphasized its role as guidance for protocol designers rather than protocol changes.

36.2.8 EVN6: Mapping of Ethernet Virtual Network to IPv6 Underlay

Chongfeng Xie and team discussed draft-xls-intarea-evn6-03, with questions about its fit within the IntArea WG versus other groups like NVO3. The document's adoption was considered, with suggestions for additional references.

36.2.9 Enhancing ICMPv6 Error Message Authentication

K. Xu and colleagues presented draft-xu-intarea-challenge-icmpv6-00, addressing challenges such as packet loss and state management. The discussion highlighted the need to address potential DoS/amplification issues.

36.2.10 Proposal for Updates to Guidance on Packet Reordering

Greg White and team discussed draft-white-intarea-reordering-00, exploring interest in contributions and the suitability of IntArea as the right group. The conversation touched on balancing packet holding versus loss and the implications for different traffic types.

Meeting materials are available at IETF 122 IntArea WG Meeting Materials.

37 Internet of Things Operations (IOTOPS)

37.1 Attendees Overview

37.1.1 Attendees

The IOTOPS meeting was attended by 23 participants, including representatives from prominent companies and institutions such as Isode Limited, Sandelman Software Works Inc, Uni Bremen, Orange, Check Point Software, SECOM CO., LTD., RISE Research Institutes of Sweden, Tohoku University, CORE Association, Ericsson, IMT Atlantique, Anatel, TU Dresden, and University of Applied Sciences Bonn-Rhein-Sieg.

37.2 Meeting Discussions

37.2.1 Administrivia

The meeting commenced with a brief administrative session led by the chairs, Alexey Melnikov and Henk Birkholz. The primary focus was on the draft-ietf-iotops-security-summary-03, which summarizes security-enabling technologies for IoT devices. Discussions highlighted the stalled progress of the cTLS document, with participants debating the nature of references to cTLS within the draft. The chairs committed to consulting the TLS Working Group to determine the future of cTLS.

37.2.2 Recharter Discussion

The main agenda item was the recharter discussion, which spanned 40 minutes. The conversation centered around refining the working group's scope and ensuring alignment with other groups like SUIT and OPSAWG. Med suggested removing "discovery" from "MUD discovery solutions" and verifying potential overlaps with the SUIT WG. The inclusion of "Terminology" in the charter was proposed to encompass RFC7228bis. Gaetan Feige raised concerns about overlaps with external entities such as CSA/MATTER, prompting a call for additional milestones. MCR proposed transferring certain MUD documents to the IOTOPS WG, indicating a strategic shift in document management.

37.2.3 Additional Business

The session concluded with a discussion on the readiness of RFC7228bis for Working Group Last Call (WGLC). MCR confirmed no outstanding issues, while Alexey emphasized the need for authors to address recent review feedback.

Meeting materials are available at Meetecho and Notes.

38 IP Performance Measurement (IPPM)

38.1 Attendees

38.1.1 Overview

The IPPM working group meeting was attended by 54 participants, including representatives from prominent organizations such as Cisco, Huawei, Apple, and Comcast. Notable attendees included Thomas Graf from Swisscom, Tanzeela Altaf from the University of Technology Sydney, and Greg Mirsky from Ericsson.

38.2 Meeting Discussions

38.2.1 Agenda Bashing & Introduction

The meeting commenced with a brief introduction and agenda review by the chairs, Marcus Ihlar, Tommy Pauly, and Thomas Graf.

38.2.2 draft-ietf-ippm-ioam-data-integrity

Presenter: J. Iurman / Chairs

The discussion centered around the proposal for integrity protection of IOAM data fields, focusing on pre-allocated and incremental option-type header fields. Feedback was solicited on the trade-off between versioning and defining header fields in the IANA registry. The document excludes direct export option-type, emphasizing protection for edge-to-edge and proof of transit option-types. For more details, refer to the draft-ietf-ippm-ioam-data-integrity.

38.2.3 draft-ietf-ippm-asymmetrical-pkts

Presenter: G. Mirsky

The request for Working Group Last Call (WG LC) was considered, with emphasis on gathering more feedback from the group to facilitate the process.

38.2.4 draft-ietf-ippm-stamp-ext-hdr

Presenter: R. Gandhi

The discussion highlighted the inclusion of MPLS in the document, with suggestions to split the work if IPv6 progresses more quickly. The consensus was to maintain MPLS, anticipating timely progress from the MPLS working group.

38.2.5 draft-ietf-ippm-qoo

Presenter: B. Tiegen

The presentation addressed the adequacy of sample sizes for accurate measurement results. The discussion explored the variability of latency distributions and the potential need for statistical methods to determine sufficient data points. The document's classification as informational was debated, with security considerations suggested before WG LC.

38.2.6 draft-ietf-ippm-responsiveness

Presenter: J. Iurman / Chairs

The need for outreach to application communities for feedback was emphasized. The discussion also touched on default values and source buffer management, with suggestions to engage with BMWG and other relevant groups.

38.2.7 draft-ietf-ippm-alt-mark-deployment

Presenter: G. Fioccola

The work received support, with discussions on deployment scenarios and potential enhancements.

38.2.8   draft-ietf-ippm-alt-mark-yang

Presenter: G. Fioccola

The presentation focused on the YANG data model for alternate marking, with discussions on potential augmentations and operational metrics.

38.3   Proposed Work

38.3.1   draft-white-ippm-stamp-ecn

Presenter: G. White

The proposal for STAMP ECN extensions was discussed, with emphasis on ensuring compatibility with existing standards and involving the transport area for feedback. The potential for IPPM adoption was considered, contingent on TSVWG approval.

38.3.2   draft-iuzh-ippm-ioam-integrity-yang

Presenter: J. Iurman

The presentation covered the YANG model for IOAM integrity, with suggestions for feature statements and conditional leaf additions.

38.3.3   draft-fioccola-ippm-on-path-active-measurements

Presenter: G. Fioccola

The work on on-path active measurements was discussed, with considerations for splitting IPv6 and MPLS data planes into separate drafts.

38.3.4   draft-fz-ippm-on-path-telemetry-yang

Presenter: G. Fioccola

The discussion focused on the YANG data model for on-path telemetry, with suggestions to explore existing models and potential augmentations.

Meeting materials can be accessed via IETF 122 Meeting Materials.

39 IP Security Maintenance and Extensions (IPsecME) WG

39.1 Attendees

The IPsecME working group meeting was attended by 47 participants, including representatives from prominent organizations such as NSA-CCSS, Dell Technologies, secunet Security Networks AG, Huawei, Cisco Systems, and Microsoft. The diverse group of attendees reflects the broad interest and expertise in the field of IP security.

39.2 Meeting Discussions

39.2.1 EESP – Steffen Klassert

The presentation on Enhanced Encapsulation Security Payload (EESP) by Steffen Klassert, detailed in draft-klassert-ipsecme-eesp, sparked a robust discussion on the necessity of sequence numbers and the potential for hardware acceleration. Participants debated the balance between flexibility and complexity, with consensus leaning towards adopting EESP as a working group item. The discussion highlighted the need for a modernized protocol that addresses both hardware and software performance improvements.

39.2.2 IKEv2 Negotiation for EESP – Valery Smyslov

Valery Smyslov's presentation on IKEv2 negotiation for EESP, as per draft-klassert-ipsecme-eesp-ikev2, focused on key derivation functions (KDFs) and their reliance on SHA-2. The group considered the potential inclusion of SHA-3, reflecting ongoing discussions about cryptographic agility. The proposal was well-received, with plans for parallel adoption calls alongside EESP.

39.2.3 Use of Variable-Length Output PRFs in IKEv2 – Valery Smyslov

The introduction of variable-length output pseudorandom functions (PRFs) in IKEv2, as discussed in draft-smyslov-ipsecme-ikev2-prf-plus, was supported for its potential to simplify implementations. The working group expressed interest in adopting this approach, recognizing its minimal complexity increase and potential benefits.

39.2.4 SA&TS Payloads Optional – Wei PAN

Wei PAN's presentation on optimizing rekeys in IKEv2, detailed in draft-ietf-ipsecme-ikev2-sa-ts-payloads-opt, explored various strategies for payload optimization. The group discussed the feasibility of different options, with a focus on achieving interoperability and simplicity.

39.2.5 Post-quantum Hybrid Key Exchange in the IKEv2 with FrodoKEM – Wang Guilin

Wang Guilin's work on post-quantum hybrid key exchange using FrodoKEM, as outlined in draft-wang-ipsecme-hybrid-kem-ikev2-frodo, was met with interest, particularly regarding the number of code points required. The consensus was to streamline the options to facilitate adoption, with recognition of FrodoKEM's relevance in European cryptographic strategies.

39.2.6 Lightweight Authentication Methods for Encapsulation Headers – Linda Dunbar

Linda Dunbar's proposal for lightweight authentication methods, as per draft-dunbar-ipsecme-ligthtweight-authenticate, emphasized the need for efficient security in encapsulation headers. The discussion centered on the appropriate HMAC size, balancing security with performance, and leveraging existing IPsec mechanisms for key exportation.

Meeting materials are available at IETF 122 IPsecME Meeting Materials.

40 IVY Working Group (IVY)

40.1 Attendees

40.1.1 Overview

The IVY Working Group session at IETF 122 was attended by 36 participants, including representatives from prominent organizations such as Huawei, Cisco, Nokia, Ericsson, and Telefonica. The diverse attendance underscored the collaborative effort to advance network inventory management standards.

40.2 Meeting Discussions

40.2.1 Introduction

The session commenced with an introduction and status update of the working group, setting the stage for detailed discussions on network inventory models.

40.2.2 A YANG Data Model for Network Inventory

The discussion, led by Aihua Guo, focused on refining the draft-ietf-ivy-network-inventory-yang-05. Key points included the simplification of the base model and the need for clear guidelines on model augmentation. Participants debated the terminology and structure, emphasizing the importance of a straightforward model that accommodates complex inventory scenarios.

40.2.3 A Network Data Model for Inventory Topology Mapping

Bo Wu presented the draft-ietf-ivy-network-inventory-topology-01, highlighting the integration of physical infrastructure mapping. The discussion explored the alignment with existing TE topology frameworks, with consensus on the need for further refinement to ensure comprehensive inventory representation.

40.2.4 A YANG Module for Entitlement Inventory

Diego Lopez introduced the draft-mcd-ivy-entitlement-inventory-00, sparking a debate on the model's scope and its applicability to network and device capabilities. The group discussed the balance between read-only and read-write elements, with a focus on real-world applicability and the potential for future enhancements.

40.2.5 A YANG Data Model for Passive Network Inventory

Aihua Guo led the discussion on the draft-ygb-ivy-passive-network-inventory-00, which aims to standardize the representation of passive network components. The session highlighted the need for a generalized approach to encompass various passive devices, ensuring the model's flexibility and utility.

Meeting materials, including slides and notes, are available at IVY Session Materials.

41 JMAP/CALEXT Working Group (JMAP/CALEXT)

41.1 Attendees Overview

The JMAP/CALEXT session at IETF122 in Bangkok was attended by 20 participants, including representatives from prominent organizations such as Fastmail, Apple Inc., and ICANN. Notable attendees included Jim Fenton from Altmode Networks, Bron Gondwana from Fastmail, and Kenneth Murchison from Fastmail.

41.2 Meeting Discussions

41.2.1 JMAP WG Overview

The JMAP Working Group focused on several key areas, including the status of documents with the IESG and ongoing work on various drafts. The webpush-vapid draft has been published, while the calendars draft is with the RFC editor. Discussions highlighted concerns about notification handling and the integration of iMIP with email and calendar systems. Action items included further exploration of JMAP Calendars and spam handling.

41.2.2 Work in Progress

The session covered ongoing work on drafts such as filenode, essential, and portability. Discussions emphasized the need for reference implementations and collaboration with external systems. The group also addressed the potential for new editors to contribute to the progress of these drafts.

41.2.3 CALEXT WG Overview

The CALEXT Working Group discussed several drafts, including JSCalendar, iTip using PARTICIPANT only, and VPOLL. The focus was on implementation status and interop testing, with actions assigned to ensure progress.

41.2.4 Future Directions

The meeting concluded with discussions on potential shifts in strategy, including the adoption of Support for Series in iCalendar and the exploration of jscontact profiles. The group considered renaming the working group to better reflect its scope, emphasizing the integration of calendar and contact extensions.

Meeting materials are available at JMAP/CALEXT Meeting Materials.

42 JOSE Working Group (JOSE)

42.1 Attendees

The JOSE Working Group meeting at IETF 122 was attended by 24 participants, including representatives from prominent organizations such as NSA-CCSS, Ericsson, Yubico, Google LLC, Microsoft, and Cisco Systems. Notable attendees included Michael Jenkins from NSA-CCSS, John Preuß Mattsson from Ericsson, and John Bradley from Yubico.

42.2 Meeting Discussions

42.2.1 WG Documents @ IESG

The discussion on draft-ietf-jose-fully-specified-algorithms highlighted the completion of addressing comments from the Security AD and the removal of the appendix on fully-specified ECDH. The draft now clarifies that HSS/LMS is not fully specified. A telechat date is being requested, marking progress towards finalization.

42.2.2 Use of HPKE with JOSE

The draft-ietf-jose-hpke-encrypt was presented by Tiru Reddy, focusing on updates since IETF 121. Discussions centered around the creation of a header parameter for HPKE Setup info value and the suitability of using "enc":"dir". The group debated the need for updating base specifications and considered forming a new HPKE working group to streamline efforts.

42.2.3 JSON Web Proof Drafts

Mike Jones presented on the JSON Web Proofs and related drafts. Key points included defining CBOR representation for JSON Proof Token (JPT) and addressing cryptographic review comments. Open issues such as the potential abandonment of JSON serialization in favor of JWE compact serialization were discussed, with feedback sought from the working group.

42.2.4 Deprecation of 'none' and 'RSA1_5'

The draft draft-ietf-jose-deprecate-none-rsa15 was briefly discussed, with consensus leaning towards deprecation. The chairs called for additional reviews to ensure readiness for WGLC, with volunteers stepping forward to contribute.

42.2.5 Enhanced JWE Security with Detached AAD

Tiru Reddy introduced the draft-reddy-jose-detached-aad, proposing a new security mechanism involving detached Additional Authenticated Data (AAD). While the concept was intriguing, concerns were raised about its necessity and potential impact, prompting a cautious approach to further development.

42.2.6 Other Presentations

Filip Skokan remotely presented on modern algorithms in the Web Cryptography API, emphasizing the integration of PQ algorithms and the use of JWKs. The presentation underscored the need for feedback on draft specifications to ensure alignment with evolving cryptographic standards.

42.3 Meeting Materials

Meeting notes and materials are available at notes.ietf.org/notes-ietf-122-jose.

43 Key Transparency Working Group (KEYTRANS)

43.1 Attendees Overview

43.1.1 Participants

The meeting was attended by 22 individuals, including representatives from notable organizations such as Graz University of Technology, Beyond Identity, AKAYLA, Okta, Transforming Information Security LLC, DHS/CISA, GMO Cybersecurity by Ierae, Inc., ETH Zurich, CISPA Helmholtz Center for Information Security, Cloudflare, and Cisco.

43.2 Meeting Discussions

43.2.1 Changes to the Protocol Document

Brendan presented significant updates to the protocol document, emphasizing the introduction of a clock label to address the absence of time in the initial draft. This change aims to enhance transparency by mapping tree size to time, thus preventing potential split view attacks. The updated protocol now includes timestamps in log entries, enabling features like maximum lifetime and distinguished log entries for efficient monitoring. The discussion highlighted the need for out-of-band communication to detect discrepancies in timestamps, ensuring clients can identify forked views. For further details, refer to the draft-ietf-keytrans-protocol.

43.2.2 Self-Balancing Prefix Tree

The session explored the implications of using a self-balancing prefix tree, which stores key-value pairs and addresses the inefficiencies of using a VRF for non-privacy-sensitive applications. Brendan explained the structural changes that allow users to navigate the tree more efficiently, despite potential complexities. The discussion also touched on the applicability of these changes to DNS domains and the need for a comprehensive list of use cases.

43.2.3 Formal Analysis of KEYTRANS

Jonathan Hoyland and Felix Linker presented their formal analysis, conducted in collaboration with Cory Myers and Linard Arquint. The analysis focused on ensuring client agreement on log views, independent of server communication. The team utilized hyper-properties to validate the protocol's commitment scheme and prefix tree. The presentation underscored the challenge of maintaining the document's readability while enhancing its precision. The extensibility of the protocol, particularly for witness configuration, was also discussed. The analysis has been instrumental in refining the draft, as acknowledged by Brendan.

43.2.4 Next Steps

The working group plans to incorporate feedback from the formal analysis to further refine the protocol document. Future efforts will focus on enhancing the document's clarity and addressing any remaining protocol issues. Meeting materials can be accessed here for the protocol changes and here for the formal analysis presentation.

44 Lightweight Authenticated Key Exchange (LAKE)

44.1 Attendees

The LAKE working group meeting was attended by 51 participants, including representatives from prominent organizations such as Ericsson, Inria, and Nokia. The diverse attendance underscored the broad interest in advancing secure communication protocols.

44.2 Meeting Discussions

44.2.1 Administrivia

The session commenced with an overview by the chairs, Mališa Vučinić and Renzo Navas, highlighting the adoption of four new documents since the previous meeting. The chairs noted that the milestones would be updated to reflect these developments, with one being deemed obsolete and thus removed. Meeting materials are available here.

44.2.2 Draft-ietf-lake-authz

Geovane Fedrecheski presented updates on the draft-ietf-lake-authz, focusing on editorial improvements and the introduction of a reverse flow mechanism to accommodate heterogeneous networks. Discussions during the Hackathon revealed issues with stateless operations, prompting a need for explicit inclusion of EDHOC message_1. The draft aims to resolve open issues towards a final version.

44.2.3 Draft-ietf-lake-app-profiles

Marco Tiloca discussed the draft-ietf-lake-app-profiles, which facilitates configuration agreement through application profiles. Recent updates include editorial fixes and technical changes such as the introduction of new venues for advertising EDHOC capabilities. The draft is progressing towards adding examples and refining security considerations.

44.2.4 Draft-ietf-lake-edhoc-impl-cons

Tiloca also covered the draft-ietf-lake-edhoc-impl-cons, which addresses implementation considerations for EDHOC. The document has been updated for consistency and alignment with related drafts, with future steps including the addition of security considerations and example certificates.

44.2.5 Draft-ietf-lake-edhoc-grease

Christian Amsüss presented on the draft-ietf-lake-edhoc-grease, which explores the use of GREASE techniques to ensure the availability of codepoints. The discussion centered on the feasibility of greasing COSE headers and the need for further interoperation testing.

44.2.6 Draft-ietf-lake-ra

Yuxuan Song introduced the draft-ietf-lake-ra, focusing on remote attestation over EDHOC. The draft has incorporated feedback and added clarifications on evidence types and continuous attestation. Future work will address error handling and the integration of attestation, authentication, and authorization.

44.2.7 Draft-ietf-lake-edhoc-psk

Elsa López Pérez discussed the draft-ietf-lake-edhoc-psk, which involves PSK authentication for EDHOC. Key updates include structural changes to prevent reflection attacks and the introduction of session resumption mechanisms. The draft is moving towards formal analysis and further refinement.

44.2.8 Quantum Resistance Discussion

John Mattsson led a discussion on quantum resistance, emphasizing the need for EDHOC to adapt to post-quantum cryptography challenges. The conversation highlighted the absence of standardized quantum-resistant key exchange algorithms and the potential for integrating symmetric PSKs. The group agreed to continue discussions while awaiting further developments in COSE.

44.2.9 EDHOC-Bundle Protocol DTN WG Discussion

Brian Sipos presented on embedding EDHOC within the Bundle Protocol for delay-tolerant networks. The approach aims to leverage EDHOC for initial authentication, enhancing security without reinventing existing protocols. The group plans to draft a proposal and seek further feedback.

44.2.10 AOB

The session concluded with a proposal for an interim meeting before IETF 123 in Madrid, and an update on IEEE's efforts to incorporate EDHOC into 802.15.9. Participants were encouraged to engage with ongoing discussions and contribute to the evolving drafts.

45 LAMPS Working Group (LAMPS)

45.1 Attendees

45.1.1 Overview

The LAMPS Working Group meeting at IETF 122 was attended by 62 participants, representing a diverse array of prominent organizations including Cisco Systems, NSA - CCSS, Nokia, Red Hat, and Huawei. The gathering facilitated a robust exchange of ideas and technical insights among experts from these leading institutions.

45.2 Meeting Discussions

45.2.1 Recently Published RFCs

The group reviewed several recently published RFCs, including draft-ietf-lamps-rfc5990bis (RFC 9690) and draft-ietf-lamps-cms-sha3-hash (RFC 9688). These documents reflect advancements in cryptographic message syntax and hash functions, underscoring the group's ongoing commitment to enhancing security protocols.

45.2.2 RFC Editor Updates

Discussions included updates on drafts such as draft-ietf-lamps-e2e-mail-guidance and draft-ietf-lamps-rfc5019bis. The focus was on refining end-to-end email security guidance and certificate management protocols, with an emphasis on aligning with emerging security standards.

45.2.3 Active PKIX-related Documents

The group explored active PKIX-related drafts, notably draft-ietf-lamps-dilithium-certificates and draft-ietf-lamps-kyber-certificates. Discussions centered on the integration of post-quantum cryptography into existing frameworks, addressing challenges such as key derivation and algorithm selection. The dialogue highlighted the need for flexibility in security level alignment and the potential impact on future cryptographic standards.

45.2.4 Active S/MIME-related Documents

Key discussions on S/MIME-related drafts, including draft-ietf-lamps-cms-kyber, focused on the adoption of post-quantum algorithms in secure email communications. The group debated the necessity of aligning security levels across different cryptographic methods, with a consensus on the importance of maintaining robust security postures in light of evolving threats.

45.2.5 Under Consideration for Adoption

The meeting also considered new drafts for adoption, such as draft-birglee-lamps-caa-security, which addresses domain control validation vulnerabilities. The proposal aims to enhance security by leveraging DNSSEC and introducing new CAA security tags, potentially influencing future CA/B forum standards.

Meeting materials are available at LAMPS WG Meeting Materials.

46 Locator/ID Separation Protocol (LISP) Working Group

46.1 Attendees

46.1.1 Overview

The meeting was attended by 17 participants, including representatives from prominent organizations such as Amazon, Huawei Technologies, Cisco, and the China Academy of Information and Communications Technology (CAICT). Notable attendees included Padma Pillay-Esnault from Amazon, Luigi Iannone from Huawei Technologies France, and Stig Venaas from Cisco.

46.2 Meeting Discussions

46.2.1 Experiences with LISP Multicast Deployments

Vengada Prasad Govindan presented on the deployment experiences of LISP Multicast, referencing the draft-vgovindan-lisp-multicast-deploy. The discussion centered on the appropriate working group for this document, with consensus leaning towards the LISP WG, while acknowledging potential contributions from PIM and MBONED WGs.

46.2.2 LISP DDT 8111bis

Damien Saucez discussed the draft-saucez-8111bis, focusing on the absence of priority and weight in Map-Referral messages. Luigi Iannone clarified that these are not used due to the unicast nature of DDT. The need for a description of error handling was highlighted, and WG adoption was supported, pending further discussion on the mailing list.

46.2.3 LISP NAT Traversal

The draft-ermagan-lisp-nat-traversal was presented by Damien Saucez, with discussions on backward compatibility of the proposed changes. It was agreed that documenting compatibility issues is necessary. The draft received support for WG adoption, with further deliberations to occur on the mailing list.

46.2.4 LISP LCAF (8060bis)

The chairs briefly introduced the draft-retana-lisp-rfc8060bis, noting that due to time constraints, the prepared slides by Alvaro Retana were not presented. A work plan and call for adoption will be initiated on the mailing list.

Meeting materials and further details can be accessed via the meeting agenda.

47 Link State Routing (LSR) Working Group

47.1 Attendees Overview

The LSR Working Group session was attended by 66 participants, including representatives from prominent companies and institutions such as Juniper Networks, Cisco Systems, Huawei Technologies, Nokia, and Deutsche Telekom AG. The diverse attendance highlighted the broad industry interest and collaboration in advancing link state routing technologies.

47.2 Meeting Discussions

47.2.1 Flooding Reduction Algorithms Framework

Shraddha Hegde presented the Flooding Reduction Algorithms Framework, focusing on the separation of connected components based on algorithm and version differences. The discussion emphasized the need for clear differentiation between versions and algorithms to ensure compatibility and operational efficiency. Tony Li and Tony Przygienda highlighted concerns about version compatibility and suggested treating different versions as separate algorithms to avoid operational complexities.

47.2.2 Optimized Flooding Leader/Leaderless Discussion

Les Ginsberg led a discussion on the merits of leader-based versus leaderless flooding algorithms. The consensus leaned towards exploring leaderless approaches due to operational flexibility and reduced complexity. Tony Li and other participants stressed the importance of incremental algorithm transitions to minimize operational risks, with a focus on testing and deployment strategies that accommodate real-world network dynamics.

47.2.3 IGP Reverse Prefix Metric

Changwang Lin introduced the IGP Reverse Prefix Metric, which aims to enhance reverse path calculations outside of Flex Algo environments. The discussion with Peter Psenak and Libin Liu explored the applicability of this metric in various network scenarios, including strict reverse path forwarding and traffic engineering.

47.2.4 IS-IS Extensions for Load Balancing Alternates

Jie Dong presented the IS-IS Extensions for Load Balancing Alternates, addressing the need for dynamic load balancing to mitigate congestion. Tony Li raised concerns about frequent metric updates and their impact on network stability, suggesting alternative approaches such as tactical traffic engineering.

47.2.5 LSR YANG Models Update

Yingzhen Qu provided updates on LSR YANG models, discussing potential splits in the OSPF Augmentation YANG model to enhance modularity and manageability. Bruno Decraene and Acee Lindem highlighted ongoing efforts to align YANG model developments with emerging network requirements.

47.2.6 Flexible Algorithms for Energy Efficiency

Jinming Li discussed the Flexible Algorithms for Energy Efficiency, proposing the use of Flex Algo to optimize energy consumption in networks. The session explored the balance between static and dynamic metrics, with a call for more detailed use cases to guide future developments.

Meeting materials are available at IETF 122 LSR Session Materials.

48 Link State Vector Routing (LSVR) Working Group

48.1 Attendees Overview

The LSVR meeting at IETF 122 was attended by 19 participants, including representatives from prominent companies and institutions such as ZTE Corporation, LabN Consulting, Huawei, Cisco, Arrcus, CZ.NIC, Ericsson, Futurewei Technologies, Charter Communications, Deutsche Telekom, Vigil Security, and IIJ Research. The diverse attendance underscored the broad interest and collaborative effort in advancing LSVR technologies.

48.2 Meeting Discussions

48.2.1 Agenda Bashing and Chairs' Slides

Chairs Acee Lindem and Jie Dong initiated the session by discussing the recent rechartering of the working group, which now includes a Layer-3 discovery and liveness monitoring protocol. The BGP-SPF base and applicability documents have been forwarded to the RFC Editor Queue, marking significant progress in the group's deliverables.

48.2.2 Discussion about the Liaison from IEEE 802.1

The session addressed the liaison from IEEE 802.1, emphasizing the need for collaborative discussions between IETF and IEEE. Janos Farkas highlighted the potential for a joint meeting, suggesting the use of IEEE Webex for interim discussions. The group considered extending LLDP for LSVR needs, referencing draft-congdon-lsvr-lldp-tlvs. The dialogue underscored the importance of backward compatibility and the need for further meetings to align on protocol requirements.

48.2.3 Layer-3 Discovery and Liveness

Randy Bush presented the draft-ietf-lsvr-l3dl-14, focusing on the protocol's ability to announce overlay prefixes, simplifying MAC move scenarios. The discussion explored the distinction between overlay and underlay services, with suggestions to enhance the draft's explanations. The group agreed on the necessity of further updates and concurrent liaison discussions.

48.2.4 Applying BGP-LS Segment Routing over IPv6 (SRv6) Extensions to BGP-LS-SPF

Li Zhang introduced draft-li-lsvr-bgp-spf-srv6-01, proposing the integration of SRv6 extensions into BGP-SPF. The conversation revolved around the reuse of existing TLVs and the potential for flex-algo support. Participants emphasized the need for detailed guidance on TLV usage within BGP-SPF, advocating for a more comprehensive draft before proceeding with an adoption call.

Meeting materials are available at IETF 122 LSVR Session Materials.

49 MAILMAINT Working Group (MAILMAINT)

49.1 Attendees

49.1.1 Overview

The MAILMAINT working group meeting was attended by 33 participants, including representatives from prominent companies and institutions such as Fastmail, Apple Inc., ICANN, Meta Platforms, Inc., and Google. The diverse attendance underscored the broad interest in the group's work on email maintenance and interoperability.

49.2 Meeting Discussions

49.2.1 Active Drafts

The meeting began with discussions on several active drafts. Ken Murchison presented on the Wrong Recipient URL and IMAP/JMAP Keywords. The group considered enhancing security considerations with privacy warnings, as suggested by Lisa Dusseault, to prevent phishing risks. The IMAP UIDBATCHES Extension was also discussed, with Daniel Eggert and Ken Murchison noting its readiness for Working Group Last Call (WGLC), supported by implementations at Fastmail and Apple.

John Levine's presentation on the Expires Message Header Field sparked debate about its implications for email deletion and user consent. The consensus was to proceed with standardization, emphasizing user control over message handling.

49.2.2 Proposed Work

Simon Gougeon introduced the IMAP WEBPUSH Extension, which aims to enhance push notification efficiency. The group recognized its potential to improve battery life by filtering unwanted notifications. Hans-Joerg Happel's Personal Data Portability Archive proposal was also well-received, highlighting its utility in data migration scenarios.

49.2.3 Topics of Interest

Alex Brotman and John Levine discussed Email Feedback Reports for DKIM Signers, focusing on balancing transparency with security. The group agreed on the importance of feedback mechanisms for improving email authentication.

49.2.4 OAuth Profile for Open Public Clients

Neil Jenkins presented the OAuth Profile for Open Public Clients, addressing concerns about OAuth's complexity and the need for alternative authentication mechanisms. The group acknowledged the necessity of OAuth for current use cases while remaining open to future innovations.

49.2.5 Mail Autoconfig

Ben Bucksch's Mail Autoconfig draft was discussed, with emphasis on simplifying user setup processes. The group debated the balance between ease of use and accommodating diverse email configurations.

49.3 Meeting Materials

The complete meeting materials are available at IETF 122 MAILMAINT Materials.

49.4 Outcomes and Next Steps

The meeting concluded with several key actions: John Levine will incorporate additional considerations into the Wrong Recipient draft, and Alexey Melnikov will implement UIDBATCHES for WGLC. The group will further explore interest in the WEBPUSH extension and data portability archive, while also considering experimental drafts for feedback mechanisms. These steps are anticipated to significantly advance the group's contributions to email technology and interoperability.

50 Mobile Ad-hoc Networks (MANET)

50.1 Attendees Overview

50.1.1 Participants

The MANET working group meeting was attended by 26 participants, including representatives from prominent organizations such as TNO, LabN Consulting LLC, SECOM CO., LTD., Aalyria, City, University of London, BIRD — CZ.NIC, The Boeing Company, Ericsson, NICT, and Cisco. The diverse attendance highlighted the broad interest and expertise in the field of mobile ad-hoc networks.

50.2 Meeting Discussions

50.2.1 NS-3 Model of AODVv2, Charlie Perkins

Charlie Perkins presented the NS-3 model of AODVv2, emphasizing its potential to address the lack of implementations for AODVv2, which has been a barrier to its adoption as a Proposed Standard. The presentation highlighted the ongoing work by teams in Italy and India, with a focus on comparing AODVv1 and AODVv2. The discussion underscored the importance of AODVv2 in both research and practical applications, such as military operations, and the need for further community feedback to advance this work. More details can be found in the draft-perkins-manet-aodvv2.

50.2.2 MANET Internetworking, Fred Templin

Fred Templin discussed MANET internetworking using AERO/OMNI technologies, which enable MANET nodes to communicate with Internet nodes and use the Internet as a transit network. The presentation detailed the use of IPv6 encapsulation and the OMNI link overlay to provide globally unique addresses for MANET nodes. The discussion raised questions about the integration of MANETs with existing Internet infrastructure and the potential limitations of the current approach. The drafts draft-templin-6man-aero3 and draft-templin-6man-omni3 provide further insights.

50.2.3 New MANET Charter Discussions

The chairs led a discussion on the new MANET charter, focusing on potential additions related to DLEP management and router state interfaces. Concerns were raised about the appropriateness of these topics within the MANET working group, suggesting possible collaboration with other IETF areas. The discussion also touched on the inclusion of address autoconfiguration work, which may require coordination with the Internet Area. The proposed charter text is available for review here.

Meeting materials and slides are available at MANET IETF 122 Meeting Materials.

50.2.4 Wrap-up and Next Steps

The meeting concluded with a call for increased activity on the mailing list to ensure that important topics receive the necessary attention and feedback. The chairs emphasized the need for community engagement to drive the working group's efforts forward. The next meeting will be held in Madrid, where further discussions on the charter and ongoing projects are anticipated.

51 Measurement and Analysis for Protocol Research Group (MAPRG)

51.1 Attendees

51.1.1 Overview

The session was attended by 96 participants, including representatives from prominent organizations such as New York University, KAUST, Cisco, Broadcom, Apple, and Deutsche Telekom. The diverse attendance highlighted the broad interest and collaborative efforts in advancing protocol research.

51.2 Meeting Discussions

51.2.1 Overview and Status

The session began with an overview by Mirja and Dave, who provided updates on the ongoing Hackathon IPv6 Test Pod Open Testing and the call for HAPPY WG measurements. This initiative aims to enhance IPv6 testing methodologies and foster collaboration with the HAPPY Working Group.

51.2.2 Measuring Collateral Damage in RPKI ROV

Weitong Li presented a study on the collateral damage in RPKI Route Origin Validation (ROV), revealing that 85.6

51.2.3 L4S-Compatible Congestion Control

Fatih Berkay Sarpkaya explored the performance of L4S-compatible congestion control in partial deployments. The discussion highlighted challenges in coexistence with traditional congestion controls and the potential benefits of adopting L4S protocols. Recommendations for network providers were debated, focusing on safe deployment strategies. The session underscored the importance of understanding network dynamics in mixed environments. More information can be found in the draft-ietf-maprg-l4s-congestion-control.

51.2.4 LEO Satellite Topology Design

Wenyi Zhang's presentation on LEO satellite networks examined the impact of design parameters on network performance. The analysis revealed that certain configurations could significantly affect latency, prompting discussions on optimizing satellite orbits and inclinations. The insights gained are expected to inform future satellite network designs, enhancing global connectivity.

51.2.5 Anycast Flipping: Prevalence and Impact

Xiao Zhang addressed the increasing prevalence of anycast flipping and its impact on web performance. The study's findings indicated a notable increase in flipping incidents, affecting latency and user experience. The session concluded with suggestions for mitigating these effects, including potential labeling of anycast routes.

51.2.6 Quality of Outcome Scores in Challenging Networks

Bjørn Ivar Teigen Monclair presented a simulation study on Quality of Outcome (QoO) scores under adverse network conditions. The research emphasized the importance of accurate measurements and appropriate sampling rates to ensure reliable QoO assessments. The discussion highlighted the potential for QoO metrics to guide performance improvements in diverse network environments.

51.2.7 HTTP Conformance vs. Middleboxes

Mahmoud Attia's study on HTTP conformance revealed significant deviations from standards due to middlebox interference. The session explored the implications of these findings for protocol compliance and security, advocating for clearer guidelines in RFCs to address middlebox behaviors.

Meeting materials and further details are available at Meetecho Client.

52 MASQUE Working Group (MASQUE)

52.1 Attendees Overview

The MASQUE Working Group session at IETF 122 was attended by 72 participants, including representatives from prominent companies and institutions such as Google, Apple, Cisco, Meta Platforms, Inc., and Ericsson. The diverse attendance underscored the broad interest and collaborative effort in advancing MASQUE-related technologies.

52.2 Meeting Discussions

52.2.1 Proxying Listener UDP in HTTP

The session began with a discussion on the draft-ietf-masque-connect-udp-listen, led by Abhijit Singh. The group explored the status of implementations, with Christian Huitema from Private Octopus, Inc. indicating progress on his implementation. Eric Kinnear suggested initiating a Working Group Last Call (WGLC) once interoperability is confirmed among multiple implementations.

52.2.2 QUIC-Aware Proxying Using HTTP

Eric Rosenberg presented the draft-ietf-masque-quic-proxy, sparking a debate on server behavior and the necessity of SCONE. The discussion highlighted the need for further interoperability testing, with plans to address remaining issues before the next IETF meeting in Madrid. Participants agreed on the importance of filing issues on GitHub to refine the draft.

52.2.3 Proxying Ethernet in HTTP

Alejandro Sedeño's presentation on draft-ietf-masque-connect-ethernet focused on seeking interoperability feedback. The group discussed the potential for a WGLC, with a consensus to involve IEEE for a comprehensive review. Craig Taylor raised concerns about MTU, which will be addressed in subsequent discussions.

52.2.4 DNS Configuration for Proxying IP in HTTP

Yaroslav Rosomakho led the discussion on draft-ietf-masque-connect-ip-dns, where Ben Schwartz questioned the necessity of DNS request capsules. The dialogue emphasized the need for clarity on DNS configurations, with plans to file issues for further exploration. The group recognized the significance of this draft for site-to-site connectivity.

52.2.5 The MASQUE Proxy

David Schinazi presented the draft-schinazi-masque-proxy, prompting discussions on privacy and the broader implications of MASQUE. The group considered the potential for collaboration with the Privacy Enhancements and Assessments Research Group (PEARG) and the need for a document clarifying MASQUE's scope and principles. The session concluded with a poll indicating strong interest in further discussions on MASQUE's future direction.

Meeting materials, including notes and minutes, are available at Notes and Minutes.

53 Media Type Maintenance (MediaMan)

53.1 Attendees

53.1.1 Overview

The meeting was attended by 16 participants, including representatives from prominent organizations such as Google, Huawei Technologies Co., Ltd., Ericsson, and Meta Platforms, Inc. Notable attendees included Harald Alvestrand from Google, Magnus Westerlund from Ericsson, and Murray Kucherawy from Meta Platforms, Inc.

53.2 Meeting Discussions

53.2.1 Introduction and Agenda Review

The session commenced with a brief introduction and agenda review. An additional item on more extensive negotiation mechanisms was added to the agenda.

53.2.2 Status of WG Documents

The working group discussed the current status of their documents, focusing on the draft-ietf-mediaman-6838bis. Key updates included the merging of pull requests related to standards-tree and toplevel issues. Discussions highlighted the need for a more streamlined process for early allocation of media types, referencing RFC 7120, and the potential involvement of the ianabis WG for broader procedural updates.

53.2.3 RTP Related Information in the Registry

Magnus Westerlund proposed the inclusion of RTP-related information in the registration template. The group debated the necessity and format of such an inclusion, considering the historical context and potential implications for other top-level types. The discussion concluded with a decision to further explore the idea and develop a concrete proposal.

53.2.4 Follow-up on Registration Templates

Rahul Gupta raised concerns about the completeness and accuracy of existing registration templates. The group agreed on the need for a draft to standardize template values and discussed the potential for updates to be reflected in the draft-ietf-mediaman-6838bis. Alexey Melnikov volunteered to lead this effort, with support from additional volunteers.

53.2.5 More Extensive Negotiation Mechanisms

The discussion on negotiation mechanisms centered around the use of suffixes for media types. Rahul Gupta suggested exploring alternatives to structured suffixes, referencing RFC 2912 for potential arithmetic approaches. The group acknowledged the complexity of suffix usage and agreed to continue the conversation on the mailing list.

53.2.6 Wrap Up and Action Items

The meeting concluded with a summary of action items, including further discussions on the mailing list and coordination with the ianabis WG for procedural improvements.

Meeting materials are available at Meeting Materials.

54 More Instant Messaging Interoperability (MIMI)

54.1 Attendees

The MIMI working group meeting was attended by 36 participants, including representatives from prominent organizations such as Cisco, Ericsson, Nokia, and the ACLU. Notable attendees included Richard Barnes from Cisco, Alissa Cooper from Knight-Georgetown Institute, and Rohan Mahy from Rohan Mahy Consulting Services.

54.2 Meeting Discussions

54.2.1 MIMI Protocol Overview

Rohan Mahy and Richard Barnes presented the MIMI Protocol, focusing on its current state and future directions. Discussions highlighted the need for a streamlined approach to options and the introduction of an authentication mechanism to manage quotas. Concerns were raised about the complexity of recommendations, with a consensus to refine the protocol's clarity.

54.2.2 Minimal Metadata in MIMI Protocol

Raphael Robert discussed the Minimal Metadata aspect, emphasizing the importance of balancing privacy with functionality. The dialogue underscored the necessity for a well-defined concept of "Connection" and the synchronization of decryption keys, pointing towards potential enhancements in the protocol's security framework.

54.2.3 Content Format and Room Policy

Rohan Mahy led the session on Content Format and Room Policy, addressing recent updates and unresolved issues. The group agreed on the urgency of starting a Working Group Last Call and the need for further review of delivery reports. The discussions indicated a strategic shift towards more robust content handling and policy implementation.

54.2.4 Identity and MLS Subgroups

The Identity draft was critiqued for its current state as a survey rather than a solution, prompting a call for a reboot. Brendan McMillion's presentation on MLS Subgroups sparked a debate on identity management and subgroup functionality, with a decision to further explore these issues within the MLS Working Group.

54.2.5 Next Steps

The meeting concluded with a consensus on the need for increased implementation efforts and collaboration with students or hackathon participants to accelerate progress. The group emphasized the importance of aligning MIMI's development with MLS standards to ensure interoperability and security.

Meeting materials are available at IETF 122 MIMI Session.

55 Machine Learning for Audio Coding (mlcodec)

55.1 Attendees Overview

The meeting was attended by representatives from prominent organizations such as Xiph.Org, Cisco, Google, Huawei Technologies, Meta, and Ericsson, with a total attendance of 17 participants. Notable attendees included Timothy Terriberry from Xiph.Org, Jean-Marc Valin from Google, and Kyriakos Zarifis from Meta.

55.2 Meeting Discussions

55.2.1 Opus Extension Mechanism

Timothy Terriberry presented the draft-ietf-mlcodec-opus-extension, focusing on the complexities of extension numbering and the need for clarity in the documentation. The group discussed potential improvements in wording and the necessity of defining use cases for extensions. The consensus was to proceed with a Working Group Last Call (WGLC) after incorporating editorial changes, aiming for submission by mid-April.

55.2.2 Deep REDundancy

Jean-Marc Valin discussed the draft-ietf-mlcodec-opus-dred, highlighting the importance of documenting training procedures within the draft. The group debated the necessity of including binary weights and test vectors as normative parts of the specification. The decision was to ensure both are included, with further experiments on quantization effects planned before the next meeting.

55.2.3 Speech Coding Enhancements

The draft-ietf-mlcodec-opus-speech-coding-enhancement was briefly discussed. Although no presentation was made due to the author's absence, it was noted that ongoing work is expected to be included in the next draft iteration.

55.2.4 Scalable Quality Extension

Jean-Marc Valin introduced the draft-valin-opus-scalable-quality-extension, which proposes a scalable quality extension for Opus. The group considered the psychoacoustic rationale for band encoding and the potential for WG adoption. A call for adoption will be initiated, pending no objections from the working group.

Meeting materials are available at this link.

56 Messaging Layer Security (MLS) Working Group

56.1 Attendees

The MLS WG session at IETF 122 was attended by 47 participants, including representatives from prominent organizations such as Apple, Cisco, Cloudflare, Google, and the US Naval Postgraduate School. The session provided a platform for discussing advancements and challenges in secure group messaging protocols.

56.2 Meeting Discussions

56.2.1 Mitigations for Insider Replays

Akshaya Kumar presented on the topic of mitigating insider replay attacks within MLS. The discussion highlighted the need for enhanced integrity and authenticity mechanisms to protect against insider threats. The proposed solutions include MLS-level mitigations such as signing generation numbers and application-level countermeasures. The presentation emphasized the importance of digital signatures and symmetric signcryption models to safeguard against vulnerabilities. For further details, refer to the draft-ietf-mls-architecture.

56.2.2 Call for Input on Combiner Draft

Britta Hale called for input on the MLS Combiner draft, which proposes hybrid combiner models to enhance security considerations. The draft aims to separate post-quantum and traditional cryptographic schedules. Participants were encouraged to review the draft and provide feedback to facilitate progress towards a working group last call. More information can be found in the draft-ietf-mls-combiner.

56.2.3 Extensions and Application API

Rohan Mahy discussed the integration of safe application APIs within MLS extensions. The session explored the challenges of aligning extensions with existing frameworks and proposed a cleaner separation between application logic and MLS behavior. The discussion underscored the need for a structured approach to manage application data and ensure seamless integration with MLS functionalities. The draft-ietf-mls-extensions provides additional insights.

56.2.4 Non-Working Group Drafts

Rohan Mahy presented on the open issues with ML-KEM cipher suites, emphasizing the need for new ciphersuites to accommodate both plain and hybrid models. The session also covered selective disclosure JWTs and CWTs, highlighting their potential to enhance privacy in web token credentials. Discussions on the draft-mahy-mls-pq and draft-mahy-mls-sd-cwt-credential were pivotal in addressing these advancements.

56.2.5 Proposed Adoption of MLS Light

Richard Barnes introduced the MLS Light draft, aimed at optimizing MLS for large groups by reducing download and memory requirements. The draft proposes a model where light clients can join groups with minimal overhead, enhancing scalability and performance. The session debated the trade-offs between authenticity and confidentiality, with a consensus on the potential benefits for large-scale applications. The draft-kiefer-mls-light is under consideration for adoption.

56.2.6 Distributed and Decentralized MLS

Mark Xue and Konrad Kohbrok presented on distributed and decentralized MLS approaches, respectively. These discussions focused on enhancing MLS's adaptability to various network conditions and ensuring robust cryptographic state management across distributed systems. The draft-xue-distributed-mls and draft-kohbrok-mls-dmls provide comprehensive frameworks for these innovative approaches.

56.2.7 Defining End-to-End Encryption (E2EE)

Mallory Knodel led a discussion on the definition of E2EE, emphasizing the need for a clear, IETF-wide standard. The session explored the challenges and gaps in current E2EE implementations, with a focus on maintaining privacy and security. The draft-knodel-e2ee-definition seeks to establish foundational principles for E2EE across various applications.

Meeting materials and further details are available at Notes IETF 122 MLS.

57 MOPS (Media OPS)

57.1 Attendees Overview

The MOPS session at IETF 122 in Bangkok saw participation from 22 attendees, including representatives from prominent companies and institutions such as Akamai Technologies, Cisco, Comcast, Google, Huawei, and Verizon. The session provided a platform for discussing ongoing work and future directions in media operations.

57.2 Meeting Discussions

57.2.1 Network Overlay Impacts (Sanjay Mishra)

The presentation on draft-ietf-mops-network-overlay-impacts highlighted the need for ultra-low latency support in live streaming and addressed issues arising from changed network policies affecting commercial applications. The discussion emphasized the importance of capturing potential issues and soliciting specific examples to enhance the document's robustness. The dialogue also explored the challenges of decoupling applications from protocol dependencies and the necessity of documenting current operational realities to inform future strategies.

57.2.2 TIPTOP WG – Taking IP to Other Planets (Padma Pillay-Esnault)

The TIPTOP WG focuses on adapting IP networking for high-latency environments, such as space. The group aims to leverage existing architectures without creating new ones, addressing energy consumption and computing power limitations in satellites. The work involves adapting QUIC for long-delay networking and coordinating with other working groups to ensure comprehensive solutions.

57.2.3 SCONE WG – Standard Communication with Network Elements (Qin Wu)

SCONE WG's efforts are directed towards establishing a protocol for communication between network elements and endpoints. The discussion covered proposals for MASQUE and QUIC, with an emphasis on narrowing the scope to a single protocol proposal. The group is exploring use cases like mobile networks and throttling policies, with plans to engage with 3GPP for further collaboration.

57.2.4 SVTA Update (Glenn Deen)

The SVTA update compared the organization to NANOG, highlighting its role as an inclusive industry body. New working groups on encoding, packaging, and edge computing were introduced, with a focus on achieving streaming latency comparable to broadcast. The update also mentioned upcoming SVTA meetings coinciding with IETF events and the release of a whitepaper on QUIC vs TCP for media delivery.

Meeting materials are available at Meeting Materials.

58   Media over QUIC Working Group (MoQ WG)

58.1   Attendees Overview

58.1.1   Attendance and Representation

The MoQ WG meeting was attended by 81 participants, representing a diverse array of prominent companies and institutions. Notable attendees included representatives from Google, Cisco, Akamai, Apple, Ericsson, and China Mobile, among others. The meeting underscored the collaborative efforts of industry leaders and academic institutions in advancing the MoQ standards.

58.2   Meeting Discussions

58.2.1   Administrivia and Agenda Overview

The meeting commenced with administrivia, where the WG chairs reminded participants of the Note Well and presented the agenda. The session included a review of changes since IETF 121, focusing on the MoQT draft and the Warp draft. The call for adoption of the LOC draft was also highlighted.

58.2.2   Changes Since IETF 121

Ian Swett presented the significant updates incorporated into the MoQT draft since version -07. The restructuring of sections and the introduction of new components were discussed, with slides available here.

58.2.3   Publish and Subscribe Tracks

Ian Swett and Cullen Jennings proposed enhancements for handling initial media tracks, including a new PUBLISH verb and a wildcard subscribe feature. The discussion concluded with a plan to submit two pull requests addressing these proposals.

58.2.4   Track Alias

Alan Frindell discussed the Track Alias proposal, noting that further changes are anticipated following the previous discussions. A proposal pull request will be awaited before proceeding.

58.2.5   MoQT QLog

Lucas Pardue presented the progress on MoQ QLog, highlighting the development of a scheme proposal and the groundwork for future adoption. The draft outlines the current state and future directions.

58.2.6   LOC Update and Adoption Call

The LOC draft's call for adoption was discussed, with a strong show of support from attendees. The chairs will declare the result post-feedback period. Issues regarding metadata location and potential encryption challenges were raised, with action items assigned for further exploration.

58.2.7   AUTH for MoQT

Will Law introduced the initial draft for AUTH in MoQT, proposing a new CWT claim type. The discussion addressed concerns about token management and revocation processes, with a consensus to further refine the proposal before adoption.

58.3   Meeting Materials

All meeting materials, including slides and detailed notes, are available here.

58.4   Conclusion and Next Steps

The meeting concluded with a strategic discussion on the future direction of MoQ WG, emphasizing the need for continued collaboration and refinement of proposals. Alan Frindell's transition from chair to co-editor was announced, marking a shift in leadership roles to support ongoing developments.

59 MPLS Working Group (MPLS WG)

59.1 Attendees Overview

The MPLS Working Group meeting was attended by 62 participants, including representatives from prominent companies and institutions such as Ericsson, Juniper Networks, Nokia, Huawei Technologies, and ZTE Corporation. The diverse attendance underscored the broad interest and collaborative effort in advancing MPLS technologies.

59.2 Meeting Discussions

59.2.1 WG Status Update

The session commenced with a status update from the WG Chairs, Tarek Saad, Nicolai Leymann, and Tony Li. The update included a review of resolved errata and set the stage for the day's discussions.

59.2.2 LSP Ping/Traceroute for Enabled In-situ OAM Capabilities

Xiao Min presented on the draft-xiao-mpls-lsp-ping-ioam-conf-state, focusing on mechanisms to maintain LSP paths without allowing changes. Discussions highlighted the importance of scalability and the potential for using management planes to discover node capabilities.

59.2.3 Simple Two-way Active Measurement Protocol (STAMP) for MPLS LSPs

Greg Mirsky introduced the draft-mirsky-mpls-stamp, which proposes a protocol for active measurement in MPLS networks. The dialogue centered on the benefits of stateful versus stateless approaches, with considerations for scalability and security.

59.2.4 Supporting In Situ Operations, Administration and Maintenance Using MPLS Network Actions

Greg Mirsky also discussed the draft-ietf-mpls-mna-ioam, which aims to enhance OAM capabilities in MPLS networks. Key points included encoding challenges and the need for updates to address node inspection limits.

59.2.5 MPLS Label Assignments

Jeffrey Zhang's presentation on MPLS label assignments sparked a robust debate on label space management and the implications of using global versus context-specific labels. The discussion emphasized the need for clarity in label assignment practices to avoid confusion and ensure efficient network operations. Meeting materials, including slides and notes, are available at IETF 122 MPLS WG Meeting Materials.

60 Network Configuration Working Group (NETCONF)

60.1 Attendees

60.1.1 Overview

The NETCONF session was attended by 60 participants, including representatives from notable organizations such as Cisco Systems, Huawei, Nokia, Ericsson, and the National Institute of Technology Karnataka. The session was chaired by Kent Watsen and Per Andersson.

60.2 Meeting Discussions

60.2.1 Introduction

The session began with an introduction by the chairs, providing an overview of the working group's status and objectives. The focus was on advancing the current drafts and addressing any outstanding issues.

60.2.2 NETCONF over QUIC

David Dai led the discussion on draft-ietf-netconf-over-quic-02. The conversation highlighted the need for more detailed specifications to ensure implementability. Participants were encouraged to bring discussions to the mailing list to foster broader engagement.

60.2.3 YANG Groupings for QUIC Clients and Servers

Per Andersson presented the draft-ietf-netconf-quic-client-server-01, emphasizing the integration of QUIC as a transport layer. The discussion underscored the importance of aligning with existing protocols to avoid unnecessary updates.

60.2.4 List Pagination for YANG-driven Protocols

Qin Wu discussed the draft-ietf-netconf-list-pagination-06 and related drafts. The group concluded that all comments had been addressed, and the draft was ready to move forward without further working group last call (WGLC).

60.2.5 Augmented-by Addition into the IETF-YANG-Library

Zhuoyau Lin led the discussion on draft-ietf-netconf-yang-library-augmentedby-01. The debate focused on simplifying the module by removing unnecessary revision dates, aligning with implementation practices.

60.2.6 External Trace ID for Configuration Tracing

Jean Quilbeuf presented draft-ietf-netconf-configuration-tracing-03. The group agreed to update the security considerations in line with the latest templates, preparing the draft for WGLC.

60.2.7 Adaptive Subscription to YANG Notification

Quifang Ma discussed draft-ietf-netconf-adaptive-subscription-07. The chairs decided to move the draft into WGLC, acknowledging its readiness for further review.

60.2.8 UDP-based Transport for Configured Subscriptions

Alex Huang Feng led the discussion on draft-ietf-netconf-udp-notif-19. The session explored the implications of lossy data transport and the need for best practices to guide subscribers.

60.2.9 YANG Groupings for UDP Clients and Servers

The draft-ietf-netconf-udp-client-server-06 was discussed with a focus on server port configurations. The consensus was to maintain the current model, with plans to publish the draft.

60.2.10 Subscription to Distributed Notifications

Thomas Graf presented draft-ietf-netconf-distributed-notif-13. The draft was deemed ready for publication, with the chairs tasked with finding a shepherd.

60.2.11 Non-Chartered Items

The session also covered non-chartered items, including the YANG Notification Transport Capabilities and Extensible YANG model for YANG-Push Notifications. These discussions emphasized the importance of implementation and real-world testing to accelerate document progression.

60.2.12 Meeting Materials

All meeting materials, including notes and slides, are available at NETCONF 122 Meeting Materials.

61 Network Modeling (NETMOD) Working Group

61.1 Attendees Overview

61.1.1 Attendance Summary

The NETMOD Working Group session was attended by 51 participants, representing prominent organizations such as Cisco Systems, Ericsson, Nokia, Huawei, and Deutsche Telekom. The session was chaired by Lou Berger and Kent Watsen, with James Cumming serving as the WG Secretary.

61.2 Meeting Discussions

61.2.1 Session Intro & WG Status

The session began with an introduction and status update by the WG Chairs. Key document updates were discussed, highlighting issues with validation tools. Scott Mansfield raised concerns about discrepancies in YANG model warnings, prompting a discussion on tool updates and potential liaison with IEEE.

61.2.2 RFC 6991 Post Last Call Update

Mahesh Jethanandani led a discussion on the post last call updates for draft-ietf-netmod-rfc6991-bis. Key issues included the mac-address typedef regex and URI percent encoding. The group agreed to clarify the mac-address description and considered removing unnecessary encoding text, pending further discussion.

61.2.3 YANG Versioning – Packages Update

Rob Wilton presented updates on YANG packages, emphasizing the need for example packages and a package compiler. The group discussed potential collaborations and the importance of validating packages using standard tooling.

61.2.4 Report on Template Interims

Kent Watsen reported on YANG template interims, noting collected requirements and ongoing discussions. The group debated the necessity of further interims and the direction of template solutions.

61.2.5 Populating a List of YANG Data Nodes Using Templates

Deepak Rajaram presented a framework for using templates in YANG data nodes, emphasizing its informational nature. The group decided not to adopt the draft, focusing instead on a unified template solution.

61.2.6 Adding Errata to IETF YANG Modules

Balazs Lengyel discussed the process for updating YANG modules with errata. The group considered mechanisms for WG consensus and the role of IANA in handling complete YANG files.

61.2.7 DTNMA Application Data Model (ADM) YANG Syntax

Brian Sipos presented on DTNMA-YANG, sparking a discussion on the potential for a YANG language fork. The group emphasized the need to identify unsolvable problems with current YANG capabilities before considering new approaches.

Meeting materials, including notes and slides, are available at NETMOD Session Materials.

62 Network Management Operations (nmop) WG Minutes

62.1 Attendees

62.1.1 Overview

The meeting was attended by 73 participants, including representatives from prominent companies and institutions such as Huawei, Cisco, Deutsche Telekom, Orange, and Swisscom. The diverse attendance underscored the broad interest and collaborative effort in advancing network management operations.

62.2 Meeting Discussions

62.2.1 Agenda Bashing & Introduction

The session began with updates from the BBF Spring Meeting on the WT-508/YANG-Push Message Broker liaison. Discussions focused on timestamping and its integration with draft-ietf-nmop-yang-message-broker-integration. A team was formed to review data collection protocol requirements.

62.2.2 Updates from the Terminology Fairy

Adrian Farrel presented updates on terminology, with a focus on refining definitions to align with current network management practices. The draft document can be accessed at draft-ietf-nmop-terminology.

62.2.3 SIMAP

Olga Havel discussed the SIMAP project, addressing issues such as network instance partitioning and the optional nature of certain requirements. The discussion highlighted the importance of linking passive and active network elements, with consensus to keep these requirements optional. Relevant documentation is available at draft-ietf-nmop-digital-map-concept.

62.2.4 Message Broker: Extensible YANG Model for Network Telemetry Notifications

Ahmed Elhassany presented on the need for metadata in data collection, emphasizing its role in differentiating collectors during software upgrades. The session underscored the intent to standardize message formats, with interest from BBF in session metadata for IPFIX. More details can be found in draft-ietf-nmop-yang-message-broker-integration-07.

62.2.5 Anomaly Detection & Incident Management

Qin Wu introduced the Incident Management YANG Module, sparking a debate on terminology, particularly the use of "root cause" versus "probable cause." The session concluded with a consensus to refine terminology to better reflect operational realities. The draft is available at draft-ietf-nmop-network-incident-yang.

62.2.6 Bring Your Own Outage

Holger Keller and Thomas Graf shared insights from Deutsche Telekom and Swisscom network incidents, respectively. Discussions focused on the challenges of verifying maintenance windows and the potential of IPFIX and ForwardingStatus for passive measurement. The session highlighted the need for improved incident detection and response strategies.

62.2.7 Wrap-up

The session concluded with a proposal to organize a dedicated interim meeting on knowledge graphs, recognizing their potential to enhance incident management and network design. The meeting materials can be accessed at Network Analytics Implementations.

62.3 Session 2: Hackathon-focused

62.3.1 Validate Configured Subscription YANG-Push Publisher Implementations

Thomas Graf discussed the validation of YANG-Push implementations, with plans to extend support for message broker telemetry messages. The session emphasized the goal of covering the entire architecture, with open-source implementations available at Network Analytics Implementations.

62.3.2 SIMAP for SRv6 and Linking Topology to External Data

Sherif Mostafa presented on linking SRv6 topology to external data, with discussions on potential improvements and future directions.

62.3.3 Anomaly Detection Integration Update

Vincenzo Riccobene provided updates on anomaly detection integration, highlighting the importance of validating internal processes and considering a global confidence score in future iterations.

62.3.4 YANG Configuration Instance Data to Knowledge Graph

Michael Mackey explored the use of RDF Mapping Language for converting YANG configuration data to knowledge graphs, discussing challenges and potential collaborations with W3C.

62.3.5 HTTPS-Notif-Draft Kafka Integration and Bandwidth Analysis for Different Encodings

The session concluded with a presentation on integrating HTTPS notifications with Kafka, emphasizing the potential for open-source contributions to enhance library support.