Reliable and Available Wireless

Co-chairs: Eve M. Schooler & Rick Taylor
IETF 110 – Thursday, March 11th, 2021
What is RAW?

• Sister WG to DetNet – launched a year ago
  • Extend DetNet to comprehend wireless L2 technologies
    • Enable deterministic properties across L2 and L3 routed segments
  • Seamless support for heterogeneous DetNets (wired and wireless)
    • at scale (across subnets), within single admin domain or coordinated domains

• Enable highly reliable, available scheduled wireless
  • IEEE 802.11ax/be (Wi-Fi)
  • IEEE 802.15.4 timeslotted channel hopping (TSCH)
  • 3GPP 5G ultra-reliable low latency communications (URLLC)
  • L-band Digital Aeronautical Communications System (LDACS)

• Close interaction between RAW and DetNet WGs
  • Co-chairs, participants, documents
# DetNet / RAW Relationship

<table>
<thead>
<tr>
<th>DetNet</th>
<th>RAW</th>
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<tbody>
<tr>
<td>IP, MPLS, SR, ...</td>
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<table>
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<tr>
<th>Non-TSN Wired L2/L1</th>
<th>IEEE 802.1 TSN</th>
<th>5G</th>
<th>IEEE 802.11</th>
<th>IEEE 802.15.4</th>
<th>6TiSCH</th>
<th>IEEE 802.15.4</th>
<th>LDACS</th>
<th>???</th>
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Wired / Radio
## Proposed Milestones

*4 Foundational Informational Documents in 18 months*

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
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<tbody>
<tr>
<td>Sep 2020</td>
<td>Working Group Adoption of <strong>Use Cases</strong> Document</td>
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<tr>
<td>Sep 2020</td>
<td>Working Group Adoption of <strong>Requirements</strong> Document</td>
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<tr>
<td>Nov 2020</td>
<td>Use Cases Document submit to IESG</td>
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<tr>
<td>Nov 2020</td>
<td>Working Group Adoption of <strong>Architecture/Framework</strong> Aspects for a Wireless Network Document</td>
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<tr>
<td>Dec 2020</td>
<td>Requirements Document submit to IESG</td>
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<tr>
<td>Dec 2020</td>
<td>Working Group Adoption of <strong>Evaluation of Existing IETF Technologies and Gap Analysis</strong> Document</td>
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<tr>
<td>Apr 2021</td>
<td>Architecture/Framework Aspects for a Wireless Network Document submit to IESG</td>
</tr>
<tr>
<td>Jun 2021</td>
<td>Evaluation of Existing IETF Technologies and Gap Analysis Document submit to IESG</td>
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*Underestimated interest and activity...*
Foundational Docs

• DetNet Foundational RFCs - informational and proposed stds
  • Problem Statement, Use Cases, Architecture

• RAW Foundational I-Ds - so far
  • Use Cases, Technologies, Architecture/Framework

• Notable developments
  • Use Cases – *nearing WGLC* - high-level vs detailed Requirements
  • Technologies – *nearing WGLC*
  • Problem Statement – requested, likely to be extracted from multiple docs
  • Separate Architecture from Framework - generic vs specific aspects
Additional Active WG Topics

- **DLEP** – Dynamic Link Exchange Protocol (**RFC 8175**)  
  - Efficiently monitor L2 link characteristics, expose/share with L3  
  - Coordinate between layers  
  - *Seed I-D on Evaluation of IETF Technologies & Gaps Analysis*
- **OAM** – Ops, Administration, Maintenance – **nearing WG adoption**  
  - 2 separate but unified docs – across DetNet and RAW
- **LDACS** – L-Band Digital Aeronautical Comms System - **WGLC**  
  - Air-to-Ground and Air-to-Air plane communication

New I-Ds:
- **Requirements for Reliable Wireless Industrial Services**  
  - Next level of requirements detail  
- **MEC drafts** – embryonic, but important translation to ETSI mobile edge computing framework  
  - Extensions to enable wireless reliability and availability in multi- access edge deployments  
  - Terminal-based joint selection and configuration of MEC host and RAW network
- **Segment-Routing-inspired TSN**
Document Status

• WGLC
  • https://datatracker.ietf.org/doc/draft-ietf-raw-ldacs/

• WG Adopted – Nearing WGLC
  • https://datatracker.ietf.org/doc/draft-ietf-raw-use-cases/
  • https://datatracker.ietf.org/doc/draft-ietf-raw-technologies/

• Nearing WG Adoption
  • https://datatracker.ietf.org/doc/draft-theoleyre-raw-oam-support/
  • https://datatracker.ietf.org/doc/draft-pthubert-raw-architecture/

• Under Consideration
  • https://datatracker.ietf.org/doc/draft-bernardos-raw-mec/
  • https://datatracker.ietf.org/doc/draft-sofia-raw-industrialreq
  • https://datatracker.ietf.org/doc/draftstein-srtsn
Resources

• RAW WG: https://datatracker.ietf.org/wg/raw/about/
• Documents: https://datatracker.ietf.org/wg/raw/documents/
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