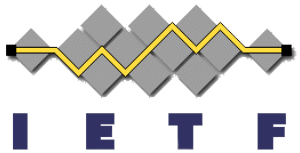
DetNet WG

IETF #101, London

Use Cases Draft

Friday, March 23rd, 2018

Ethan Grossman, editor



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Current Status

- Updated Use Case draft
  - draft-ietf-detnet-use-cases-14
  - Changes from draft 13:
    - Move all 20 authors to new Contributors section
    - Fix a few typos
- Ready for WG Last Call
  - New ‘Slicing’ text – deferred to last call
  - Topic: Explicit statement about IPv4 ?
- Remaining slides are left for reference only

Use Case Draft Goals

- Provide industry context for DetNet goals
  - What are the use cases?
  - How are they addressed today?
  - What do we want to do differently in the future?
  - What do we want the IETF to deliver?
- Highlight commonalities between use cases
- Yardstick for functionality of any proposed design
  - To what extent does it enable these use cases?
- This DetNet use case draft explicitly **does not**
  - State specific requirements for DetNet
  - Suggest specific design, architecture, or protocols

Use Case Draft Future Plans

- Continue to review the ongoing architecture and design drafts to identify cases in which they may not support user needs (as described in the Use Cases draft)

Common Themes (1/2)

- Unified, standards-based network
  - Extensions to Ethernet (not a ”new” network)
  - Centrally administered (some distributed, plug-and-play)
  - Standardized data flow information models
  - Integrate L2 (bridged) and L3 (routed)
  - Guaranteed end-to-end delivery
  - Replace multiple proprietary determinstic networks
  - Mix of deterministic and best-effort traffic
  - Unused deterministic BW available to best-effort traffic
  - Lower cost, multi-vendor solutions

Common Themes (2/2)

- Scalable size
  - Long distances (many km)
  - Many hops (radio repeaters, microwave links, fiber links...)
- Scalable timing parameters and accuracy
  - Bounded latency, guaranteed worst case maximum, minimum
  - Low latency (low enough for e.g. control loops, may be < 1ms)
  - Ability to create symmetrical path delays
- High availability (up to 99.9999% up time, even 12 nines)
  - Reliability, redundancy (lives at stake)
- Security
  - From failures, attackers, misbehaving devices
  - Sensitive to both packet content and arrival time
- Deterministic flows
  - Isolated from each other
  - Immune from best-effort traffic congestion