

# DetNet BoF

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Online Agenda and Slides at:

<https://datatracker.ietf.org/meeting/93/materials.html#detnet>

BoF Information: <http://trac.tools.ietf.org/bof/trac/wiki/DetNet>

# IETF Note Well

This summary is only meant to point you in the right direction, and doesn't have all the nuances. The IETF's IPR Policy is set forth in BCP 79; please read it carefully.

## **The brief summary:**

- ❖ **By participating with the IETF, you agree to follow IETF processes.**
- ❖ **If you are aware that a contribution of yours (something you write, say, or discuss in any IETF context) is covered by patents or patent applications, you need to disclose that fact.**
- ❖ **You understand that meetings might be recorded, broadcast, and publicly archived.**

For further information, talk to a chair, ask an Area Director, or review the following:

BCP 9 (on the Internet Standards Process)

BCP 25 (on the BoF processes)

BCP 78 (on the IETF Trust)

BCP 79 (on Intellectual Property Rights in the IETF)

Also see: <http://www.ietf.org/about/note-well.html>:

# Administrative

- Audio Streaming/Recording
  - Please speak only using the microphones
  - Please state your name before speaking
- Minute takers & Etherpad
  - <http://etherpad.tools.ietf.org:9000/p/notes-ietf-93-detnet>
- Blue sheets
- Online Agenda and Slides at:
  - <https://www.ietf.org/proceedings/93/agenda/agenda-93-detnet>

# BoF Objectives

1. Gauge interest in forming a DetNet WG
  - Is there a problem that needs to be solved?
  - Is this a problem within the scope of the IETF?
  - Is there an engineering solution possible, i.e., is not a research project?
  - Do we have sufficient contributors to get the work done in reasonable time?
2. Provide input to the AD and the IESG

# What is DetNet

*Guaranteed\* delivery of a data packet within a guaranteed time window – over routers*

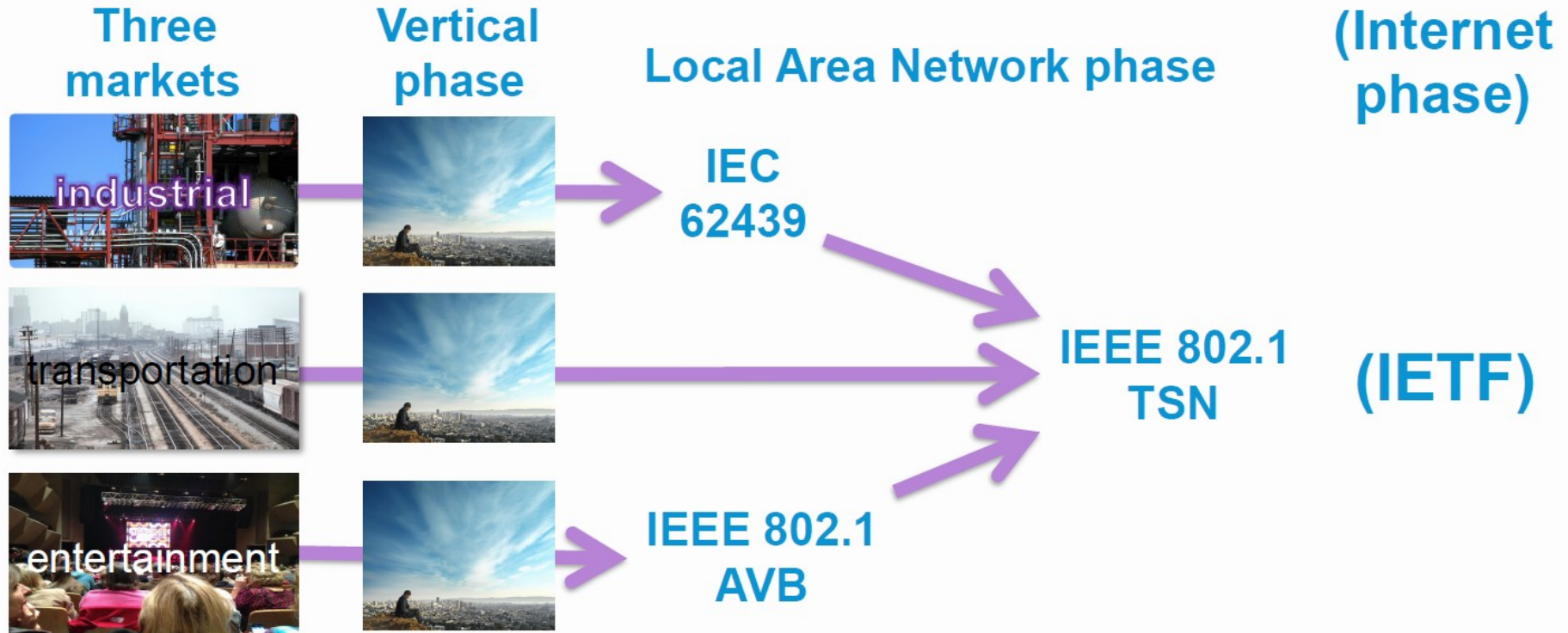
Guaranteed  $\sim$  zero loss or delay due to congestion

For good background see:

- Kudos to Norm Finn (nfinn@cisco.com)
  - <http://www.ietf.org/proceedings/91/slides/slides-91-detnet-9.pdf>
  - <http://www.ieee802.org/1/files/public/docs2013/tsn-nfinn-uspto-deterministic-0713-v1.pdf>
- Kudos to Michael D. Johas Teener (mikejt@broadcom.com)
  - [https://drive.google.com/file/d/0B6Xurc4m\\_PVsSi1INnIQTTBWNFk/edit](https://drive.google.com/file/d/0B6Xurc4m_PVsSi1INnIQTTBWNFk/edit)

# DetNet Origins

(1)

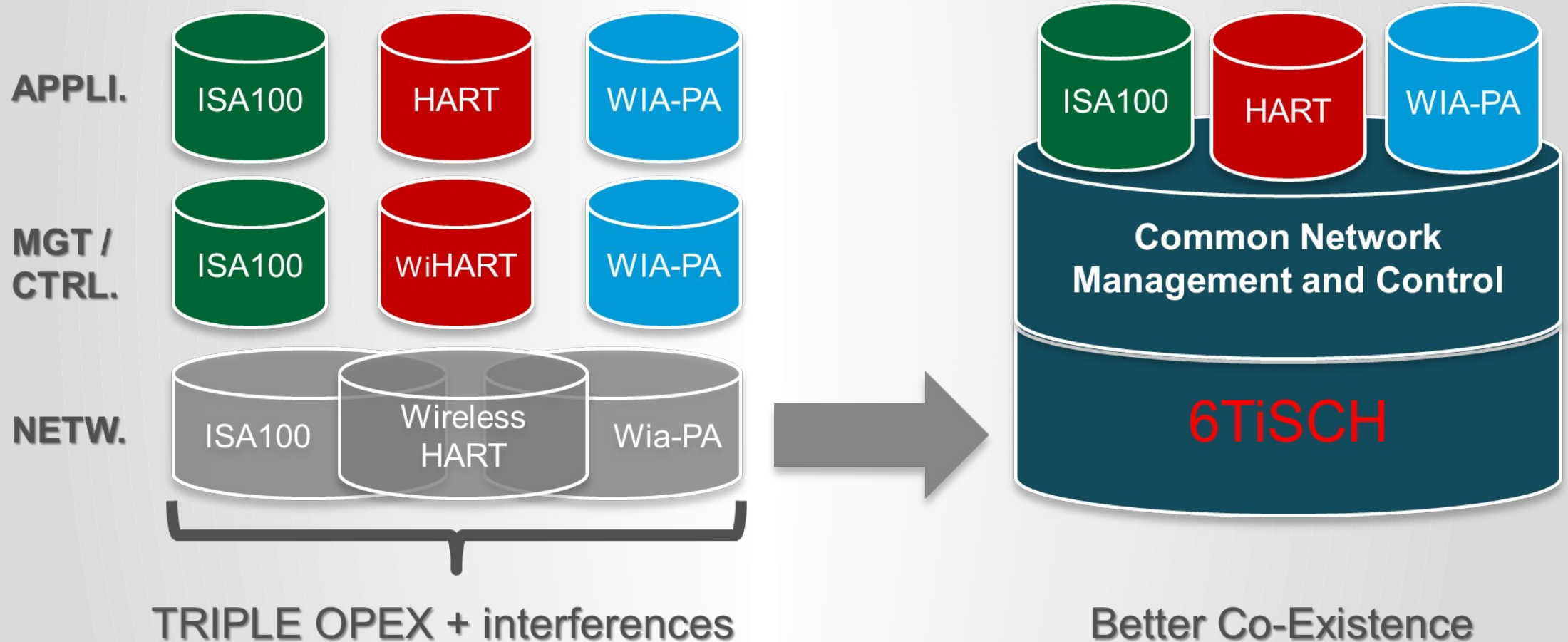


- From individual market needs – **in the past**
- To vertical standards – **now in use**
- To Local Area Network standards – **now being developed**
- To Internet standards – **before too long**



# Sub-net Technology Intendent

- E.g, 802.1TSN for wired and 6TiSCH for wireless



# IEEE 802.1 TSN Status

- [P802.1AS-Revision](#): Timing and Synchronization for Time-Sensitive Applications in Bridged Local Area Networks
  - Status: PAR approved, technical development in process, task group ballots
- [P802.1Qbu](#): Frame Preemption
  - Status: PAR approved, technical development in process, working group ballots
- [P802.1Qbv](#): Enhancements for Scheduled Traffic
  - Status: PAR approved, technical development in process, working group ballots
- [P802.1Qcc](#): Stream Reservation Protocol (SRP) Enhancements and Performance Improvements
  - Status: PAR approved, technical development in process, task group ballots
- [P802.1CB](#): Standard for Local and Metropolitan Area Networks-Frame Replication and Elimination for Reliability
  - Status: PAR approved, technical development in process, task group ballots
- [P802.1Qch](#): Cyclic Queuing and Forwarding
  - Status: PAR approved, technical development in process, no drafts
- [P802.1Qci](#): Bridges and Bridged Networks Amendment: Per-Stream Filtering and Policing
  - Status: PAR approved, technical development in process, no drafts

Source: <http://www.ieee802.org/1/pages/tsn.html>



# Related IETF Technologies

*WG will identify which to leverage*

- DiffServ
  - Control plane: RSVP, RSVP-TE
  - Data plane: DSCP, MPLS
- IntServ
  - Control plane: RSVP
  - Data plane: TCP, UDP, IPsec
- Traffic Engineering
  - Control plane: MPLS, GMPLS, PCE
    - RSVP-TE, OSPF-TE, ISIS-TE, PCEP
  - Data plane: MPLS
- Encapsulations/SubNet
  - L2VPN (Pseudowires, MPLS, IP tunnels)
  - 6TiSCH

# Proposed WG Objectives

- Define operation of deterministic network flows over Layer-2 bridged and Layer-3 routed segments
- Define an overall architecture
  - For data plane, OAM, management, control, and security
- Define DetNet data plane
  - Expected to define which existing mechanisms are used *not new* encapsulations or L2/L3 formats
- Define parameters for control and management
  - E.g., for use by existing control mechanisms (e.g., PCEP, GMPLS)
- Define management models
  - Augmentations as needed

# Agenda

Duration		Information	
0	20	Title:	Administrivia & Intro
		Presenter:	Chairs
1	40	Title:	User's view
		Presenter:	Jouni Korhonen, Pascal Thubert, Craig Gunther, Patrick Wetterwald, Subir Das
2	20	Title:	DetNet Problem Statement (including example possible/plausible solutions)
		Presenter:	Norman Finn
3	30	Title:	Working group scope and deliverables discussion
		Presenter:	Chair moderated
4	10	Title:	Concluding discussion & polling
		Presenter:	Chairs

Why is this work important?

What's problem ?  
Is it solvable?

How is the work organized?

Who is willing to do the work?

# Related Drafts

- Deterministic Networking Professional Audio Requirements
  - <http://tools.ietf.org/html/draft-gunther-detnet-proaudio-req-01>
- Deterministic networking for radio access networks
  - <http://tools.ietf.org/html/draft-korhonen-detnet-telreq-00>
- 6TiSCH requirements for DetNet
  - <http://tools.ietf.org/html/draft-thubert-6tisch-4detnet-01>
- Deterministic Networking Utilities requirements
  - <http://tools.ietf.org/html/draft-wetterwald-detnet-utilities-reqs-02>
- Deterministic Networking Use Case in Mobile Network
  - <http://tools.ietf.org/html/draft-zha-detnet-use-case-00>
- Deterministic Networking Problem Statement
  - <http://tools.ietf.org/html/draft-finn-detnet-problem-statement-03>
- Deterministic Networks Gap Analysis
  - <http://tools.ietf.org/html/draft-dujovne-detnet-gap-analysis-00>
- Deterministic Networking Architecture
  - <http://tools.ietf.org/html/draft-finn-detnet-architecture-01>