ETR-RT Speakers

(In Alphabetical Order)

- Eric Bauer – Reliability Eng. Mgr, Alcatel-Lucent, USA
- John Govert – Office of the CTO, JDSU
- Steve Hunter – IBM Fellow and Adjunct Professor, NCSU
- David Lu – VP, Business Network & Corp. Solution IT, AT&T
- Spilios Makris – Chair, IEEE SRPSDVE Study Group
- Marcus Scholler – Chair, ETSI NFV REL Working Group
- Warren Volk – Senior-Network Support (GNOC), AT&T
- Bruce Wong – Technology Leader, ex-Netflix, USA
- Gengui Xie – Huawei (VP of R&D Competence Center, China)

ETR-RT Advisory Board

- Chi-Ming Chen – Principal MTS, AT&T
- Tzyh-Jong (TJ) Wang – System Engineer, AT&T

HUAWEI

ETR-RT Scope

- Identify the RAS (Reliability, Availability, and Serviceability) challenges, requirements, and methodologies in emerging technologies like:
  - ➢ Wireless/Mobility
  - ➢ Cloud Computing
  - ➢ NFV (Network Functions Virtualization)
  - ➢ SDN (Software Defined Networking)
  - ➢ High Availability for Mission-critical Industries (e.g., Airborne Systems)
- Discuss the RAS requirements and technologies, with the goal to promote the inter-industry sharing of related ideas and experiences
- Identify potential directions for resolving identified issues and propose possible solutions

HUAWEI

ETR-RT Agenda

7:30 – 8:30 am	Breakfast
8:30 – 8:40 am	Welcome by Chair
8:40 – 10:15 am	Talks & Discussion

> TBD (xxx, yyy)
> TBD (xxx, yyy)

10:15 – 10:30 am	Coffee Break
10:30 – 12 noon	Talks & Discussion

> TBD (xxx, yyy)

12 noon – 1:00 pm	Lunch
1:00 – 3:00 pm	Talks & Discussion

> SDN/NFV Standards (Scholler, Makris)
> TBD (xxx, yyy)

3:00 – 3:15 pm	Coffee Break
3:15 – 4:30 pm	Identify potential directions for resolving identified issues and propose possible solutions (All)
4:30 – 5:00 pm	Wrap –up (All)

EVENING EVENT

6:00 – 9:00 pm	CQR Welcome Reception & Dinner (at 7 pm) (All are invited)

C Q R

HUAWEI

2014 ETR-RT Conclusions

- Identified key issues that need to be addressed:
  - Lack of SDN/NVF Standardization in many areas including:
    - Reliability Framework
    - Reliability Metrics
    - Reliability/Availability SLAs
  - Potential overlap of Standards activities in different organizations (e.g., ETSI NFV, ONF, 3GPP, ATIS, IETF, etc.)
- Consider the end-user experience (who will care about it?)

Maintain momentum on Emerging Technologies (SDN, NFV, Cloud Computing, etc.)

by avoiding a <u>protracted</u> Reliability Standards effort <u>fragmented</u> in different SDOs

HUAWEI

2014 ETR-RT Conclusions

- Lack of industry consistency for reliability analysis or benchmarks of Emerging Technologies-based networks
- Need for network providers to know if what they are building with Emerging Technologies will deliver the service availability/performance required by end-users
- New fault modes for the SDN/NFV virtualization layer (e.g. total platform failure)
- New SDN/NFV self-healing capabilities need to be evaluated
- Be realistic about the "x-nine" availability claims
  - Examples:

PSTN Network	=	99.94% (not even 4-nines!)
SONET/SDH Ring	=	99.9992% (5-nines)
SDN/NFV-based networks	=	???? (some talk about 6-nines!)

HUAWEI

2014 ETR-RT Proposed Next Steps

- Potential directions for resolving identified issues
  - Review (gap analysis) efforts in different Standards Development Organizations – SDOs (e.g., ATIS, ITU-T, IEEE, ETSI, IETF/IRTF, 3GPP, OMG, ONF, OMA-DM) and government-sponsored organizations/councils (e.g., NIST, CSRIC)
  - Support IEEE ComSoc Standardization efforts
    - Study Group on Security, Reliability, & Performance for Software Defined and Virtualized Ecosystems
      - Need to identify overlaps
      - Need to perform gap analysis for reliability-related issues
      - Prioritize potential tasks based on the gap analysis
    - Align with the requirements provided by ETSI NVF and WG Reliability/Availability
    - Liaise with ETSI TSC to agree on-going relationships
  - Organize more CQR roundtables!

HUAWEI