



**SECOND MEETING OF  
THE COMMUNICATIONS SECURITY, RELIABILITY, AND  
INTEROPERABILITY COUNCIL IX**

**SEPTEMBER 27, 2024**

Communications Security, Reliability and Interoperability Council



COMMENCE MEETING

Suzon Cameron, DFO

Communications Security, Reliability and Interoperability Council



OPENING REMARKS

BILLY BOB BROWN, JR.,  
CISA

**CSRIC IX, Co-CHAIR**

Communications Security, Reliability and Interoperability Council



ROLL CALL

BILLY BOB BROWN, JR.,  
CISA

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## PRESENTATION

WG1: HARNESSING ARTIFICIAL  
INTELLIGENCE/MACHINE LEARNING TO  
ENSURE THE SECURITY, RELIABILITY, AND  
INTEGRITY OF THE NATION'S  
COMMUNICATIONS NETWORKS

VIJAY GURBANI, VAIL SYSTEMS

JASON HOGG, MICROSOFT

**Co-Chairs**  
**Working Group 1**



# **Working Group 1: Harnessing Artificial Intelligence/Machine Learning to Ensure the Security, Reliability, and Integrity of the Nation's Communications Networks**

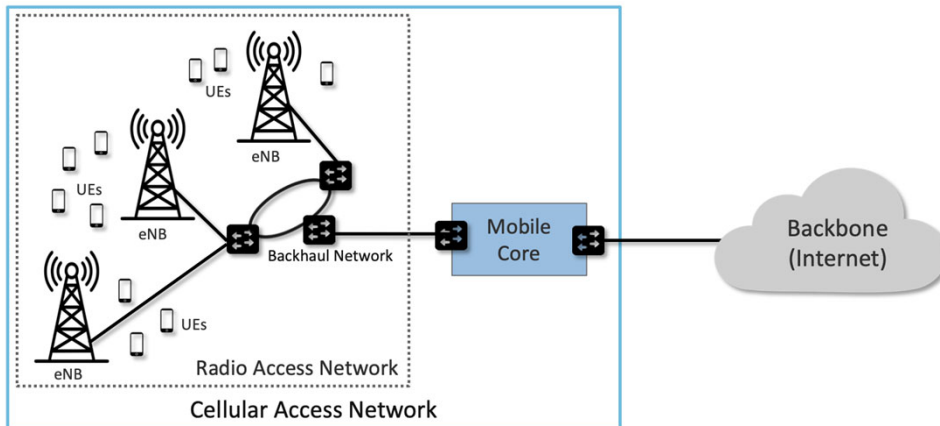
September 27, 2024

Co-Chairs: Vijay K. Gurbani, Vail Systems  
Jason Hogg, Microsoft

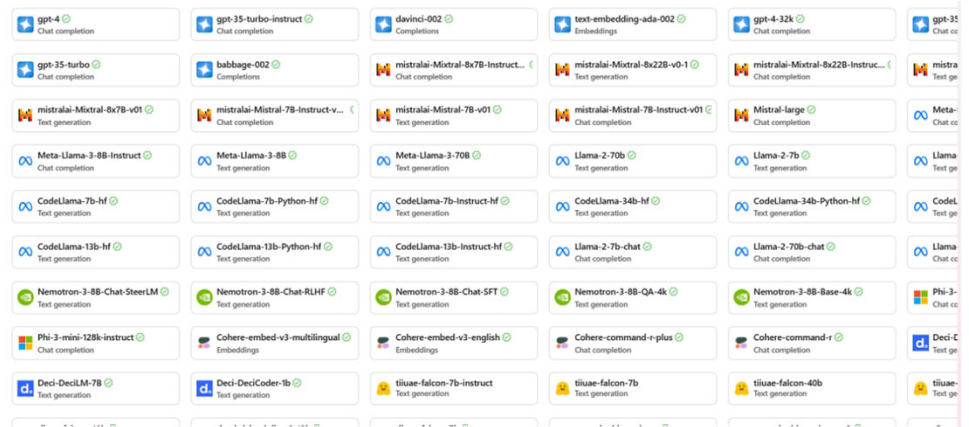
FCC Liaison: Zenji Nakazawa

# Working Group 1 : Background

**Fundamental question:** How does AI/ML affect the security and reliability of communications networks and how to mitigate the challenges that the technology poses?



Source: <https://5g.systemsapproach.org/>



## The Challenge(s)

- Communications networks are complex
- AI / ML are being applied across the network
- Different types of AI / ML models
- Rapid rate of development
- How to identify and prioritize relevant threats?
- ... without boiling the ocean!

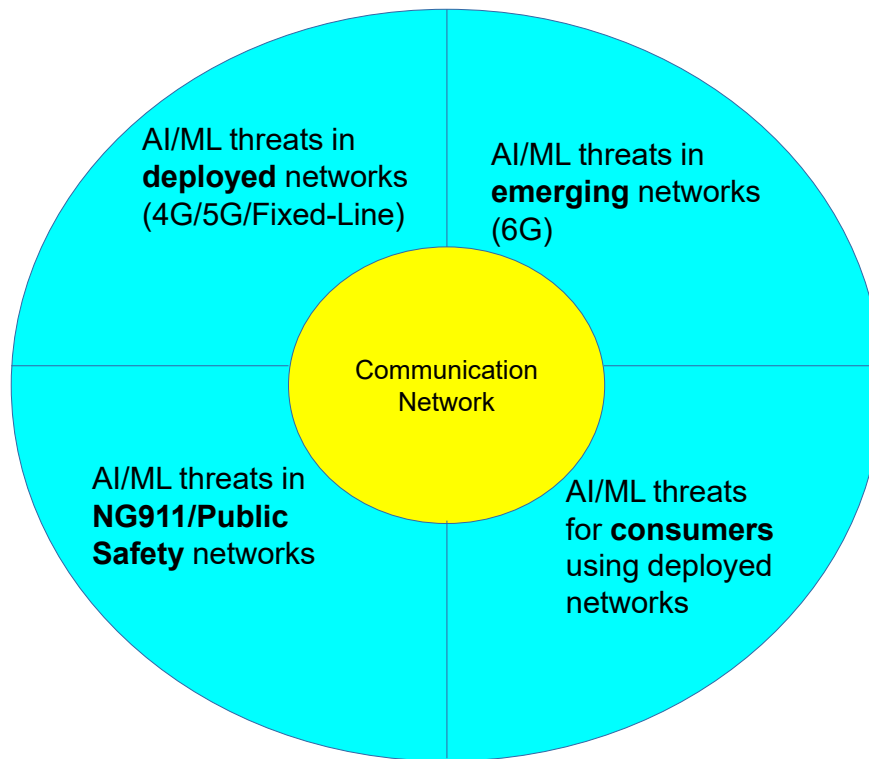
# Working Group 1: Objectives

1. Report on the Threats Posed by Artificial Intelligence/Machine Learning Systems to the Security, Reliability and Integrity of Networks and Recommendations on How to Overcome Them, **March 2025**
2. Report on Recommended Best Practices for the FCC and Industry on the Ethical and Practical Use of Artificial Intelligence/Machine Learning, **September 2025**
3. Report on Best Practices for the Use of Artificial Intelligence/Machine Learning Systems Specifically Intended for Public Safety Network, **March 2026**





# Working Group 1 : Background



# Working Group 1 : Background

- 33 members
- 11 alternates
- Inaugural meeting: Wed Sep 11, 2024
  - Introduction and welcome
  - Discussed charter deliverables, and understanding problem space
  - Established meeting cadence
- Bi-weekly meetings starting Thu Oct 03, 2024



# Working Group 1: Members

## Co-chairs:

Vijay Gurbani, *Vail Systems*

Jason Hogg, *Microsoft*

Mark D Annas, *City of Riverside, CA*

Praveen Atreya, *Verizon*

Mike Barnes, *Mavenir Systems*

Richard Barron, *The MITRE Corporation*

Chris Bennett, *Motorola Solutions*

Craig Bowman, *Futuri*

Matt Carothers, *Cox Communications*

Christina Chaccour, *Ericsson*

Andrew L Drozd, *ANDRO Computational Solutions*

Luiz Eduardo, *Hewlett-Packard Enterprise*

Bob Everson, *Cisco Systems*

Ben Goldsmith, *DOJ*

Mark Grubb, *CISA*

Ankur Kapoor, *T-Mobile*

Yong Kim, *VeriSign*

Lauren Kravetz, *Intrado Life & Safety*

Salman Marvasti, *Advanced Computer Concepts*

Tim May, *NTIA*

Martin McGrath, *Nokia*

Brian Murray, *Harris County, TX*

Jonathan Petit, *Qualcomm*

Abir Ray, *Expression Networks*

Travis Reutter, *ACA Connects*

Travis Russell, *Oracle Communications*

Peter Santhanam, *IBM*

Narothum Saxena, *UScellular*

Peter Scott, *Public Broadcasting Service*

Rikin Thakker, *NCTA*

David Valdez, *CTIA*

Henry Young, *BSA | The Software Alliance*

Dongsong Zeng, *U.S. Department of Commerce*



# Working Group 1: Alternates\*

Robert Cantu  
Mike Dienhart  
Sean Donelan  
Fred Frantz  
John Hunter  
Olga Medina  
Jennifer Oberhausen  
Jim Reno  
John Roznovsky  
Joseph Smetana  
Bill Tortoriello

NCTA – The Internet & Television Association  
USCellular  
VeriSign, Inc.  
ANDRO Computational Solutions, LLC  
T-Mobile  
BSA | The Software Alliance  
Microsoft  
Ericsson  
Mavenir Systems, Inc.  
Vail Systems, Inc.  
ACA Connects

\* Alternates are not a member of the Working Group and may not vote.



# Principles and Approach

## Large complex space requiring analysis of

- AI/ML security in general (including mitigation)
- AI/ML security as it pertains to communication networks
- AI/ML security as it pertains to public safety networks

## Operating principles

- Identify and leverage existing resources (eg NIST) where possible
- Partner with peer WGs to ensure relevance

## Approach

- Start with the first paper “Threats Posed by AI/ML Systems to the Security, Reliability and Integrity of Networks and Recommendations on How to Overcome Them”
- Build high-level taxonomy for scenarios and threats
- Solicit input from WG on key scenarios and top threats
- Look for patterns in scenarios or threat vectors to create focus; Scope to broad to cover entirely



# Deliverables/Schedule

	Goals
September	Goals: WG introductions <ul style="list-style-type: none"><li>• 9/11: WG introductions and initial overview</li><li>• 9/23: CSRIC IX meeting</li></ul>
October	Goals: Agree on scope and approach <ul style="list-style-type: none"><li>• Identify volunteers to work with partner teams</li><li>• Information sharing; identify scenarios and threats for focus</li><li>• First WG meeting scheduled for 10/3</li></ul>
November	Goals: Agree on structure of the report <ul style="list-style-type: none"><li>• Agree on structure of the report</li><li>• Identify editors</li></ul>
December	Goals: Develop initial outline of report w/ key bullet points
Jan – Mar	Goals: Solidify report



# Discussion / Feedback

Thank you!



Communications Security, Reliability and Interoperability Council



## DISCUSSION

WG1: HARNESSING ARTIFICIAL INTELLIGENCE/MACHINE LEARNING TO ENSURE THE SECURITY, RELIABILITY, AND INTEGRITY OF THE NATION'S COMMUNICATIONS NETWORKS

VIJAY GURBANI, VAIL SYSTEMS,  
JASON HOGG, MICROSOFT

**Co-chairs**  
**Working Group 1**



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## PRESENTATION

WG2:ENSURING CONSUMER ACCESS TO  
911 ON ALL AVAILABLE NETWORKS AS  
TECHNOLOGY EVOLVES

BRANDON ABLEY, NENA,  
STEPHEN HAYES, ERICSSON

**Co-chairs**  
**Working Group 2**



# **Working Group # 2: Ensuring Consumer Access to 911 on All Available Networks As Technology Evolves**

September 27, 2024

Co-Chairs: Brandon Abley, NENA  
Stephen Hayes, Ericsson

FCC Liaison: Gerald English, Ryan Hedgpeth

# Working Group #2 : Background

- The group is chartered to investigate availability for 911 on alternate networks from primary telephone service provider
- We are asked to answer the following questions:
  - How should consumer devices prioritize the potential back-up network options for connecting to 911?
  - What connection latency may be introduced by this alternative network “search” process? If the latency is extreme (more than 20 seconds), what measures can be taken to reduce the latency? Should device manufacturers or service providers develop “user prompts” to advise callers who experience significant latency that the phone is in the process of connecting to 911?
  - What information will the PSAP, and the relevant functional elements associated with Next Generation Core Services, receive from a back-up, alternative network sources (e.g., dispatchable location, coordinate-based location, call-back number)? If the back-up network options degrade the information flow from the originating call to the PSAP, what can be done to ensure that actionable caller location and other essential data reliably reaches the PSAP to dispatch aid?
  - Will there be relevant classes of service developed to identify the source type of the call for PSAPs? If not, what information can the PSAPs realistically expect to receive to help them quickly and accurately identify the source (WiFi, satellite, etc.) of the call?
  - Are there any limitations to any of these back-up network sources (i.e. less granular location information, lack of automatic number identification (ANI)/automatic location identification (ALI), inability to perform location based routing)?
  - What, if any, impact do the issues identified with alternative network options for connecting to 911 have on NG911 services and capabilities?
  - Will the use of any of these alternative options impact the capabilities of, or information delivered to, PSAPs by NG911?



# Working Group 2 : Members

Brandon Abley: NENA (Co-chair)

Stephen Hayes: Ericsson (Co-chair)

- Rob Alderfer: Charter Communications
- Jeffrey Bratcher: FirstNet
- Wade Buckner: International Association of Fire Chiefs
- Kirk Burroughs: Apple Inc.
- Victor Burton: Comtech Telecommunications Corp.
- Douglas Campbell: Metropolitan Washington Airports Authority
- Stephen Devine: APCO International
- Stephen Edge: Qualcomm Incorporated
- Craig Fugate: America's Public Television Stations (APTS)
- Mike Gerber: National Weather Service
- Natnael Habtesion: Lumen
- Michael Hayes: Texas 9-1-1 Alliance
- Jeremy Hill: NTIA
- Karima Holmes: CISA
- Mike Hooker: T-Mobile USA

- George Kelemen: (iCERT)
- Lisa Madden: Motorola Solutions
- Christian Militeau: Bandwidth
- Leah Missildine: NASNA
- Peter Musgrove: AT&T
- Jared Owen: NTCA
- Chintan Patel: Verizon
- Tim Schram: NARUC
- Sean Scott: SecuLore
- Christiaan Segura: CTIA
- Dave Sehnert: RapidSOS
- John Snapp: Intrado
- Kelly Springer: AT&T
- Ashley Strickland: Tipton County Emergency Communications District
- Brian Tegtmeyer: U.S. Department of Transportation
- Fabricio Velez: INdigital
- Steve Watkins: Cox Communications
- Christy Williams: NCT911



## Working Group 2 : Alternates\*

- Terri Brooks: T-Mobile USA
- John Chiaramonte: (iCERT)
- Katherine Elkins: U.S. Department of Transportation
- April Heinze: NENA
- James Ramsay: NARUC
- Praveen Srivastava: Charter Communications

\* Alternates are not a member of the Working Group and may not vote.



# Deliverables/Schedule

- We have the following milestones:
  1. Report on Recommendations and Best Practices for Connecting Stalled 911 Calls Through Alternative Network Options, **June 2025**
    - Identifying, prioritizing and quickly connecting 911 calls via alternative network options;
    - Reducing latency when utilizing alternative network options and for ameliorating the impact of any significant latency that cannot be avoided;
    - Reducing, or eliminating, any technical limitations currently in place for any, or all, alternate network options.
  2. Report on Recommendations for Preventing Adverse Impacts on PSAPs and NG911 from 911 Calls Made Through Alternative Network Options, **March 2026**
    - Providing PSAPs with actionable, accurate, information, including caller location and source (call type) of call when alternative network options are selected and utilized; and
    - Addressing any impacts, positive or negative, that these alternative network options might have on NG911.



# Work Plan (TBD)

- Report 1 (June 2025)
  - Executive Overview
  - Technical Background and Introduction
  - Back-up Networks Available for 9-1-1
  - Latency Issues
  - Limitations in Use of Backup Networks



# Work Plan (TBD)

- Report 2 (March 2026)
  - Executive Overview
  - Technical Background and Introduction
  - Information Received at the PSAP
  - Recommendations for Future Work





# Next Steps

- Finalize work plan
- Much of the research is front-loaded in Report 1
  - Assign subgroups and complete Report 1
  - Esp. re: supplemental coverage and satellite access
- Complete Report 2
  - Will need more operational input
  - Recruit potential non-member SMEs





## DISCUSSION

WG2:ENSURING CONSUMER ACCESS TO  
911 ON ALL AVAILABLE NETWORKS AS  
TECHNOLOGY EVOLVES

BRANDON ABLEY, NENA,  
STEPHEN HAYES, ERICSSON

**Co-chairs**  
**Working Group 2**

Communications Security, Reliability and Interoperability Council



## PRESENTATION

WG3: PREPARING FOR 6G  
SECURITY AND RELIABILITY

BRIAN DALY, AT&T,  
GEORGE WOODWARD, RWA

**Co-chairs**  
**Working Group 3**



# **Working Group #3 : Preparing for 6G Security and Reliability**

September 27, 2024

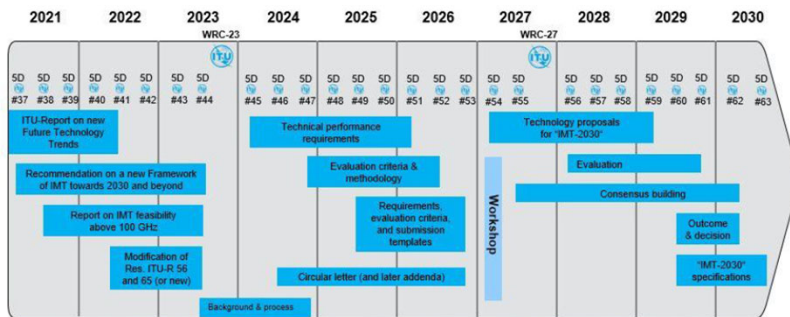
Co-Chairs: Brian Daly, AT&T

George Woodward, Rural Wireless Association, Inc.

FCC Liaison: Jeffrey Goldthorp

# Working Group #3 : Background

ITU-R timeline for IMT-2030

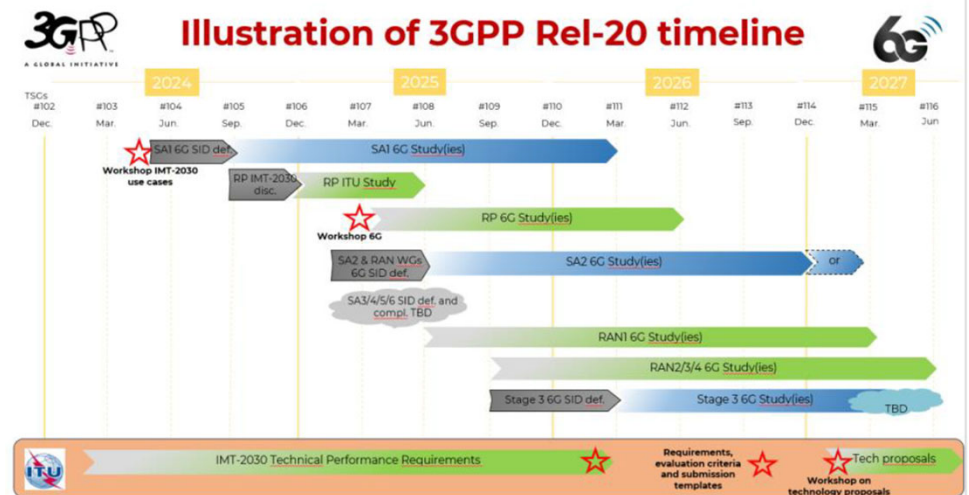


Note 1: WP SD #59 will additionally organize a workshop involving the Proponents and registered Independent Evaluation Groups (IEGs) to support the evaluation process

Note 2: While not expected to change, details may be adjusted if warranted. Content of deliverables to be defined by responsible WP SD groups

Note by the ITU-R Radiocommunication Bureaux: This document is taken from Attachment 2.12 to Chapter 2 of Document 5D/1361 (Meeting report WP SD #41, June 2022) and adjustments could be made in the future. ITU holds copyright in the information – when used, reference to the source shall be done.

Illustration of 3GPP Rel-20 timeline

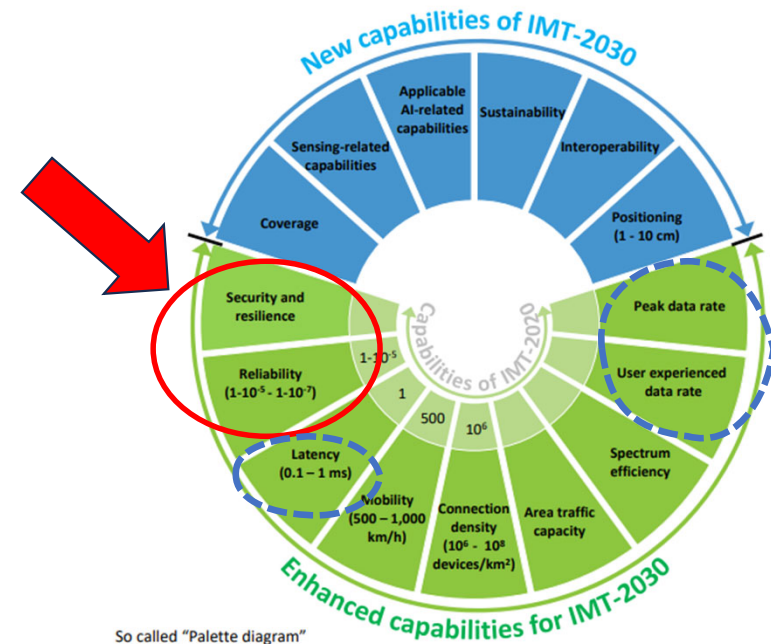


6G networks are at least seven years from commercial deployment, but wireless technology moves at such a brisk pace that the Commission is compelled to seek early recommendations from stakeholders that will lead to more secure and reliable 6G networks and services.

# Working Group #3 : Background

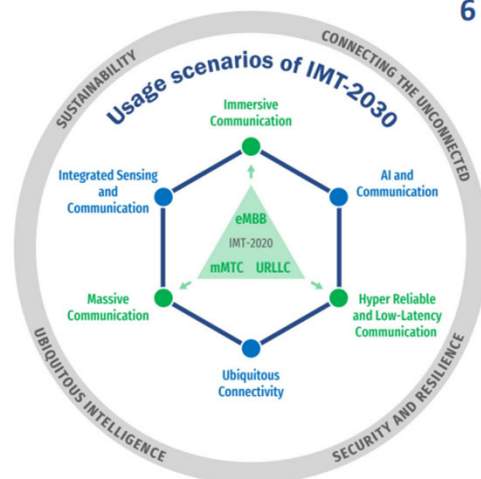
6G is expected to result in orders of magnitude improvements in network speed and latency, enabling capabilities that cause distinctions between the physical and cyber worlds to fade.

## Capabilities of IMT-2030



# Working Group #3: Objectives

Examine and address security and reliability risks unique to emerging 6G networks and services.



So called "Wheel diagram"  
Source: Document 5/131 and edited in SG 5

## 6 Usage scenarios

Extension from IMT-2020 (5G)

- eMBB → Immersive Communication
- mMTC → Massive Communication
- URLLC → HRLLC (Hyper Reliable & Low-Latency Communication)

New

- Ubiquitous Connectivity
- AI and Communication
- Integrated Sensing and Communication

4 Overarching aspects:

*act as design principles commonly applicable to all usage scenarios*

Sustainability, Connecting the unconnected,  
Ubiquitous intelligence, Security/resilience



Make an early foray into examining and addressing potential security and reliability risks in emerging 6G networks and service.

# Working Group #3 Members

**Alexandra Blasgen**

**Leonid Burakovsky**

**Afeite Dadja**

**Robert Dew**

**Paul Eisler**

**Robert Gazda**

**Puneet Jain**

**Virendra Kumar**

**Michael Lijenstram**

**Jason Livingood**

**Martin McGrath**

**Susan Miller**

**Douglas Montgomery**

**Harish Negalaguli**

**Anthony Petrovich**

**Abir Ray**

**Michael Regan**

**Travis Russell**

**Yousif Targali**

**Peter Thermos**

**Jean C. Trakinat**

**Douglas Varney**

Consumer Technology Association

Palo Alto Networks

CTIA

Cybersecurity and Infrastructure Security Agency

USTelecom – The Broadband Association

InterDigital

Intel

Qualcomm

Ericsson

Comcast

Nokia

ATIS

NIST

Motorola Solutions

Mavenir Systems, Inc.

Expression Networks LLC

Telecommunications Industry Association

Oracle Communications

Verizon

Palindrome Technologies

T-Mobile USA

USCellular

## Co-Chairs:

**Brian Daly**

**George Woodward**

**Jeffrey Goldthorp**

AT&T

Rural Wireless Association, Inc.

FCC Liaison





# Working Group # Alternates\*

<b>Colin Andrews</b>	Telecommunications Industry Association
<b>Thomas Goode</b>	ATIS
<b>J. David Grossman</b>	Consumer Technology Association
<b>Abhijeet Kolekar</b>	Intel Corporation
<b>Kathleen Thompson</b>	USTelecom – The Broadband Association

\* Alternates are not a member of the Working Group and may not vote.



# Initial Meeting of Working Group #3

- An initial virtual meeting was held on 17 September
  - Introduce Working Group members
  - Present the Working Group objectives, deliverable and schedule
- Presentation on 6G Security and Resiliency - some early ideas\*:
  - Define the 6G Threat Landscape
  - Physical layer security (i.e., spectrum sharing attacks, jamming)
  - Signaling/User-plane security and privacy
  - 6G sensing and security implications
  - Hetnets (e.g., Wi-Fi/5G/6G) security concerns
  - Zero trust adoption for RAN and 6G Core components
  - Etc.
- GSMA - RAN Threats



\*Presented for initial discussions within the working group

# Deliverables/Schedule

- Virtual meetings scheduled on a bi-weekly basis.
  - Anticipate inviting subject matter expert presentations on specific topics or research areas.
  - ATIS workspace set up for document management and collaboration
- Will develop a plan for the development and deployment of reliable and security 6G networks and services that minimize privacy risks.
- **Deliverable**: Report on Potential Security and Reliability Risks in 6G and Recommendations for Mitigation.
- **Deliverable Schedule**: December 2025.



**Thank you!**



Communications Security, Reliability and Interoperability Council



## DISCUSSION

WG3: PREPARING FOR 6G  
SECURITY AND RELIABILITY

BRIAN DALY, AT&T,  
GEORGE WOODWARD, RWA

**Co-chairs**  
**Working Group 3**

Communications Security, Reliability and Interoperability Council



CLOSING REMARKS

TODD PIETT, MOTOROLA

**CSRIC IX, Co-CHAIR**

Communications Security, Reliability and Interoperability Council



ADJOURN MEETING

**Suzon Cameron, DFO**

Communications Security, Reliability and Interoperability Council



NEXT CSRIC IX MEETING  
IS

WEDNESDAY  
DECEMBER 18, 2024