SWS_240010

Next Generation of Access

Wireless Broadband Alliance

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3GPP Stage 1 Workshop on IMT2030 Use Cases

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SCOPE OF WIRELESS BROADBAND ALLIANCE

Wireless Broadband Alliance

Leading the development of
Seamless and interoperable services experience on Wi-Fi within the global wireless ecosystem

CONNECT WIRELESS ECOSYSTEM
Enable collaboration among service providers, technology companies and enterprises

ENABLE SECURE & SEAMLESS WIRELESS EXPERIENCE
Accelerate Next Generation Wi-Fi Networks

CREATING INTEROPERABILITY BETWEEN TECHNOLOGIES
Convergence and Coexistence of Wi-Fi and Cellular Networks

MAXIMISE COMMERICAL & BUSINESS OPPORTUNITIES
Drive activities & programs to address business and technical issues and opportunities

BRIDGE THE DIGITAL DIVIDE
Advocate connectivity as a human right to help connecting the unconnected

5G Work Group	**IoT** Work Group	**NextGen** Work Group
Roaming Work Group	**Testing & Interoperability** Work Group	**Policy & Regulatory Affairs** Work Group
Market Work Group	**OpenRoaming™** Task Group	**WBA Certification** Task Group

Wireless Broadband Alliance
OPENROAMING™ WIRELESS BROADBAND ALLIANCE
CONNECTED COMMUNITIES Forum
WBA INDUSTRY AWARDS
Wireless Global Congress Wireless Broadband Alliance
WORLD™ Wi-Fi Day
INNOVATION FORUM POWERED BY WBA CTO GROUP
CARRIER WIRELESS Services Certification

Established **in 2003**	220+ MEMBERSHIP **COMMUNITY**	PROJECTS & **PROGRAMS**	3 ANNUAL **EVENTS**	END-TO-END SYSTEM **SPECIFICATIONS**	THOUGHT LEADERSHIP & **MARKET RESEARCH**

MEMBERS OF WIRELESS BROADBAND ALLIANCE

Wireless Broadband Alliance

Board Members

airties
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boingo wireless
boldyn NETWORKS
BROADCOM
BT Group
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View the full latest list of WBA members

CLICK HERE

WBA TECHNICAL ROADMAP EVOLUTION

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5/6G
Work Group

Leading WiFi and cellular RAN Convergence

IoT
Work Group

Effectively expanding and complementing role in IoT

NextGen WiFi
Work Group

Fast-tracking deployments for service providers

Roaming
Work Group

Incubating new scalable roaming opportunities

Testing & Interop
Work Group

Achieving interoperable services

WBA WORK GROUPS

WBA OpenRoaming™
Work Group

Development of standards, federation governance and trials

Policy & Regulatory Affairs
Work Group

Industry liaison and advocacy of wireless public policies

Market
Work Group

Marketing activities and industry dissemination

Certification
Task Group

Addressing interoperability to foster adoption

TODAY'S REALITY – INDUSTRY DATA

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Network Share

Average (mean) proportion of time spent connected to Wi-Fi (%)

Source: UK Ofcom, Mobile Matters, 2023

10 Gbps & FTTR Live Deployments

Source: Operators public website, 2024

Wireless Broadband

Traffic Trends

ITU

Facts and Figures 2023

Fixed broadband accounts for 83% of all traffic

analysys mason

Fixed data traffic accounts for 85% of data traffic on telecoms networks

Holistic "Superfast" Broadband

Coverage of high-speed fixed networks at 97% in the UK

Source: UK Ofcom, Connected Nations Report, 2023

SPECTRUM: LIGHT LICENSED AND LICENSE-EXEMPT

6 GHz Allocation for License-Exempt

54 countries have adopted the spectrum allocation

source: Wi-Fi Alliance Regulations Enabling 6 GHz Wi-Fi

Private 5G – Current Bands*

Countries/Region	*Target Private 5G Spectrum*	*Band*	*Power Limits*
United States	*3.55 – 3.7 GHz (CBRS)*	*n48, n78*	*Cat A: 24 dBm, Cat B: 30 dBm*
Germany	*3.7 - 3.8 GHz*	*n78*	*28dBm TRP*
Sweden	*3.76 – 3.8 GHz*	*n78*	*38 dBm TRP per cell*
UK	*1781.70-1785 MHz* *2.39 to 2.40 GHz* *3.8 - 4.2 GHz*	*n3* *n40* *n77*	*Lower Power: 24 dBm.* *Medium Power: 42 dBm*
France	*2.57-2.62 GHz* *3.8 – 4.0 GHz*	*n38* *n77*	*field limit value of 30 dBµV/m/5 MHz at edge of coverage*
Japan	*4.6 – 4.9 GHz*	*n79*	
Taiwan	*4.8 – 4.9 GHz*	*n79*	

*continuous assessment

source: Wireless Broadband Alliance: Private 5G and Wi-Fi Convergence Key use cases and Requirements, 2013

SPECTRUM: 6GHZ BAND REQUIREMENTS & LEARNINGS

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Band Operation & AFC

Automated Frequency Coordination (AFC) platform processing incumbent's links and permitted power levels for each country

6 GHz Standard Power Deployment Planning

ACCESS NETWORKS: UNIQUE CHALLENGES

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1 Onboarding users onto the network

2 Offer services without backhaul connectivity

3 Keeping users safe from cyber attacks

7 Have location references > Global emergency services

4

Manage roaming policies, inbound and outbound

5

Plan AP/Cell handover on multi-access context

6

Apply regulatory policies per region

REFERENCE ARCHITECTURE EXPECTATION …

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… COMPLEX COEXISTENCE OF POLICIES

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Apple

Samsung

Google

Source: OS screenshots from devices

Large number of policy stakeholders, App, Device OEM, Users, Service Provider, Enterprise IT …

ITU IMT-2020 <> 5G & WI-FI 6/7 TRACK RECORD

Business rationale

- Accelerates time to market for cellular generations 5G
- Leverages free, global and widely available Spectrum
- Improves Return of Investment (ROI) for 5G
- Lower cost/bit & complement other 5G tech
- Enhanced Carrier Grade & Cellular Integration

INDUSTRY/ENTERPRISE – EMERGING USE CASES

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Technical requirements (typ.)

- **Latency: <1ms**
- Reliability: ultra high (safety)

USE CASES UNIQUE ENVIRONMENTS

Transforming Factories Operation & Maintenance: Data collected via sensors to network, low latency, real time information

CAMPUS/VENUES – EMERGING USE CASES

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Range of Use Cases

Live Video Streaming

Live 8K video feeds from client devices (connected monitors and cameras) to broadcast platform

Immersive Applications

AR-VR applications, using wireless clients for immersive classroom experience / remote surgery

Indoor/ Outdoor

Roaming / handover, testing persistent connectivity and signal consistency, across indoor & outdoor

High Density Usage

Massive cloud access, using clients for file download / broadcast to multiple students / patients

OPENROAMING WIFI + CELULLAR – AUTOMATION & SCALE

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Leverage an abstraction to scale and facilitate all business models efficiently

WBA is building a consortium of identity & network providers to enable seamless roaming & onboarding

WBA VISION SEAMLESS ACCESS CONNECTIVITY

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STAGE 1

Buy the flight ticket a link to install the Passpoint profile

STAGE 2

Connect automatically and securely to Wi-Fi

STAGE 3

Roam holistically across airports, planes, hotels, convention centers, restaurants, etc. with OpenRoaming

NEUTRAL HOST PATH (AGNOSTIC ACCESS)

Some of the leading use-cases for Wi-Fi 7 & Private 5G across Manufacturing, Mining, Venues, Utilities, Healthcare, and other market verticals, benefit from Neutral Host …

- WBA published standard on IETF: OpenRoaming Wireless Federation
- 3GPP R19: Use case on Scalable SNPN Interconnect with dynamic connections

ISOLATED PRIVATE CELLULAR DEPLOYMENT – SHORTCOMINGS

Isolated
P5G/NPN Deployment

Isolated
P5G/NPN Deployment

Isolated
P5G/NPN Deployment

Isolated
P5G/NPN Deployment

PRIVATE CELLULAR DEPLOYMENT – FEDERATION APPROACH

PRIVATE CELLULAR & WI-FI NEXT STEPS FOR 6G

Objective: Enable convergence between Cellular & Wi-Fi in private / enterprise environment for spectrum efficiency, networks optimization, identity management, IP preservation, fast transition, security and QoS

Interest areas within the context of 6G requirements:

- **Unified Identity and Policy Management**: Seamlessly integrating authentication and policy functions across both networks.
- **Service Integration and Optimization**: Enabling endpoints to recognize service names across different access systems
- **Mobility and Quality of Service (QoS):** Optimizing signaling by sharing device connectivity status between access networks to ensure QoS
- **Security and Cryptography**: Extending singular authentication and implementing cryptographies for device identification

Deployment models allow flexibility

Core Network & Application Services, User Plane either:
1) On-Prem, 2) in the Cloud, or 3) an Hybrid model

Hybrid model example

DELIVERING NEXT GENERATION OF ACCESS …

Source: ITU

WBA Work Areas

1. Attain cost-effective densification through the convergence of access (interoperability with RLAN)
2. Establish a federated approach to streamline policy control and facilitate service delivery
3. Harness an AI engine, shared real-time metrics, and a data repository for access steering
4. Ensure fundamental security and the delivery of emergency services across access
5. Employ location and sensing algorithms utilizing aggregate data

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Thank you

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