

5G USE CASES

A 5G Americas White Paper

November 2023



Presentation Slides

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"5G technology is still evolving to meet diverse needs. Customers are benefiting from faster mobile broadband on 5G phones, and future business potential will stem from tailored solutions. Supportive regulations for additional spectrum and closing the digital divide are crucial for tapping into 5G's possibilities."

Chris Pearson, President, 5G Americas





"The 5G ecosystem is maturing and new, groundbreaking use cases are beginning to emerge. With standalone networks growing, 5G continues to be at the forefront of innovation and bringing new applications and solutions to life."

Paul Bongaarts, Senior Member of Technical Staff, T-Mobile US



"The increasing adoption of Standalone (SA) 5G networks, we are witnessing a shift in the industry that is leading the way to a significant transformation. SA deployments can simplify networks by eliminating 4G dependency and accelerating 5G expansion in industrial applications, FWA, and private networks. As a result, we expect to experience the full potential of 5G in these domains."

Prashanth Devaraj, Director of Technology, Networks Business, Samsung Electronics America



Santosh Kumar, Staff Engineer, Technical Solutions for the Networks Business at Samsung Electronics America was also a part of the 5G Americas working group where he played a pivotal role as a co-leader on this project.

Supply & Demand Framework for 5G Use Case Evaluation

Supply & Demand Framework for 5G Use Case Evaluation

HIGHER PERCIEVED UTILITY

i.e., Recognized and percieved need(s); Important "Jobs-to-be-Done"

"DEMAND" SIDE

(Consumer/Business/End-User)

LOWER PERCIEVED UTILITY

i.e., Existing solution meets needs; or, Limited applicability; or, Unknown need? [2.] UNMET pain points (Innovation spark)





[1.] SUCCESSFUL Case Studies (Commercial realization of 5G capabilities)





[3.] UNCERTAIN Future (Differentiation/Value Prop is unclear)





[4.] LATENT Potential (Gap exists between expectation and results)





EMERGING DEVELOMENT

Solutions that cannot yet be delivered; Or have fallen short of expectations?

MATURING DEVELOMENT

Solutions that are commercialized; or have a potential roadmap to commercialization

"SUPPLY" SIDE

(OEM Vendors and Network Operators)

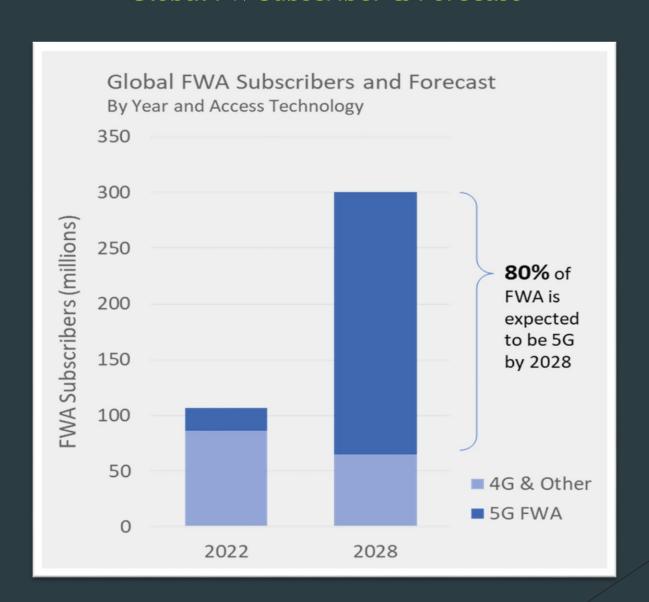


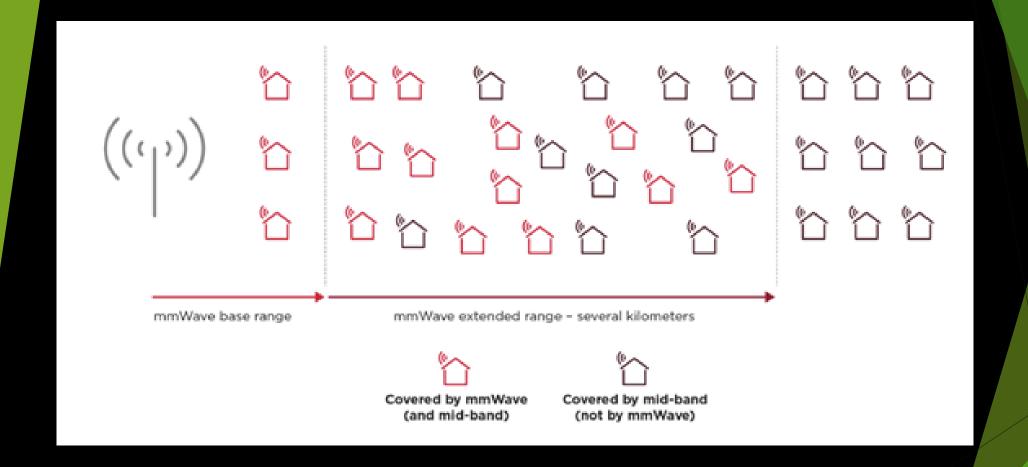
5G Technology readiness by Standalone and Non-Standalone 5G networks (Ericsson Mobility Report, June 2023

SA SA/NSA					
	Legacy	2023 H1	2023 H2	2024	2025
Architecture	NR-DC (including mmWave)				
Carrier DL aggregation	2CC FDD, TDD, FDD+TDD				
	2-3CC FDD+TDD	SDL	4CC FDD+TDD, 5CC FDD+TDD	6CC FDD+TDD	
	3CC FDD		4CC FDD		
	2CC TDD	3CC TDD		4CC TDD	
UL			2CC FDD+TDE)	
VoNR	VoNR (selected markets)				
mmWave			SA (mmWave only) Fixed Wireless Access		
			256 QAM DL		
RedCap				RedCap	
Note: The graph illustrates the availability of network functionality, as well as support in devices.					



Global FW Subscriber & Forecast





mmWave extended range can be used to provide FWA across several Km (Source: GSMA 5G mmWave coverage extension solution whitepaper)



P5G related 3GPP capabilities (Samsung)

Rel.17 expanded services





5G positioning



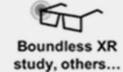
expansion





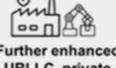
Non-terrestrial networks

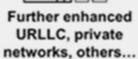






NR-Light (RedCap) enhanced mloT







Rel.16 vertical services







5G industrial IoT



NR-V2X



IAB (Integrated Access and Backhaul)



2-step RACH

Enable latency reduction & channel access benefit

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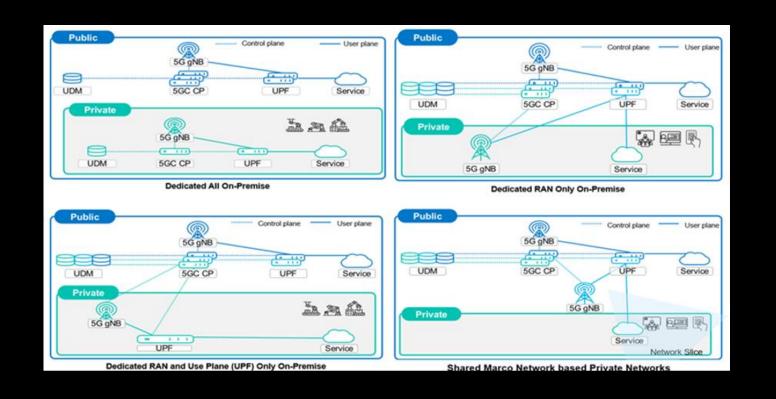


URLLC enhancement

Higher reliability (up to 10-6) with a latency of 0.5 ~ 1 ms

Rel.15 eMBB services





P5G Deployment Models (Samsung, 5G Americas)

