

NGFI State-of-the-art Overview

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IEEE 1914
Next Generation Fronthaul Interface
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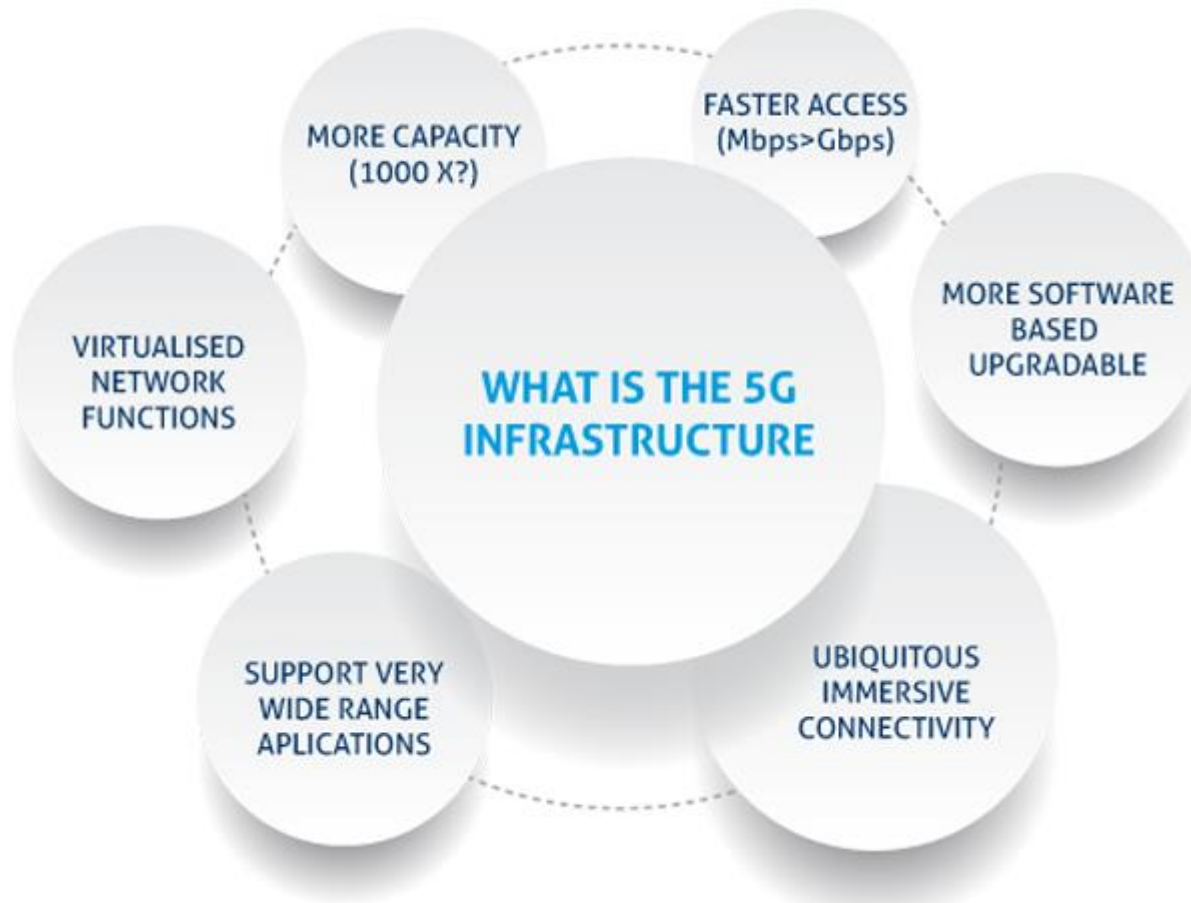
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5G era and future

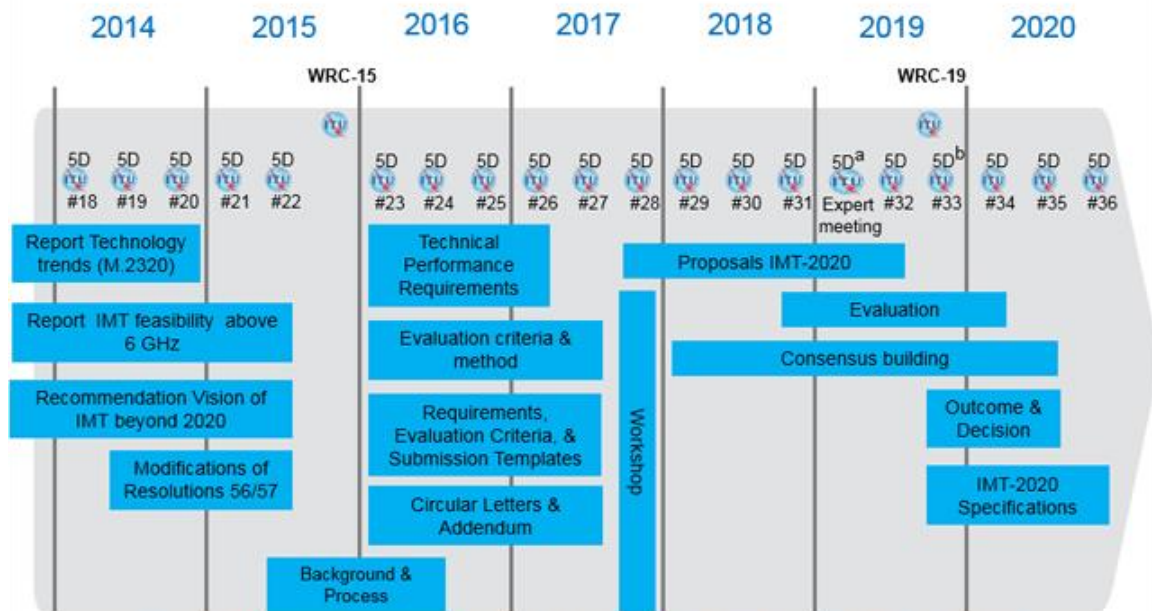


source: <https://5g-ppp.eu/about-us/>

IMT-2020

- ITU defines vision and roadmap for 5G mobile development
- Timeline & Process: <http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/imt-2020/Pages/default.aspx>

Detailed Timeline & Process for IMT-2020 in ITU-R



(a) – if needed focus meeting towards WRC-19 (non-Technology), (b) – focus meeting on Evaluation (Technology)

Note: While not expected to change, details may be adjusted if warranted.

3GPP

- Release 15 in 2017 - the first Phase of 5G deployments:
http://www.3gpp.org/ftp/Information/WORK_PLAN/
- Full compliance with the ITU's IMT-2020 requirements is anticipated with the completion of 3GPP Release 16 at the end of 2019 - In Phase 2 of the 3GPP 5G effort.

5GPPP

- Projects in 3 phases
- Phase 1 projects: <https://5g-ppp.eu/5g-ppp-phase-1-projects/>

	Name	M1= July 2015																																			
		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
CSA	EURO 5G	Euro-5G																																			
R&I	5G-NORMA	5G Novel Radio Multiservice adaptive network Architecture																																			
R&I	5G-Xhaul	Dynamically Reconfigurable Optical-Wireless Backhaul/Fronthaul with Cognitive Control Plane for Small Cells and Cloud-RANs																																			
R&I	5G-CrossHaul	Developing an integrated 5G backhaul and fronthaul transport network																																			
R&I	5G-Ensure	5G Enablers for Network and System Security and Resilience																																			
R&I	CHARISMA	Converged Heterogeneous Advanced 5G Cloud-RAN Architecture for Intelligent and Secure Media Access																																			
R&I	COGNET	Building an Intelligent System of Insights and Action for 5G Network Management																																			
R&I	COHERENT	Coordinated control and spectrum management for 5G heterogeneous radio access networks																																			
R&I	FANTASTIC 5G	Flexible Air Interface for Scalable service delivery within wireless Communication networks of the 5th Generation																																			
R&I	Flex5Gware	Flexible and efficient hardware/software platforms for 5G network elements and devices																																			
R&I	METIS II	Mobile and wireless communications Enablers for Twenty-twenty (2020) Information Society-II																																			
R&I	mmMAGIC	Millimetre-Wave Based Mobile Radio Access Network for Fifth Generation Integrated Communications																																			
R&I	SELFNET	SELFNET - FRAMEWORK FOR SELF-ORGANIZED NETWORK MANAGEMENT IN VIRTUALIZED AND SOFTWARE DEFINED NETWORKS																																			
R&I	SESAME	Small cells coordination for Multi-tenancy and Edge services																																			
R&I	SPEED-5G	quality of Service Provision and capacity Expansion through Extended-DSA for 5G																																			
R&I	SUPERFLUIDITY	Superfluidity: a super-fluid, cloud-native, converged edge system																																			
I	5GEx	5G Exchange																																			
I	SONATA	Service Programming and Orchestration for Virtualized Software Networks																																			
I	VirtuWind	Virtual and programmable industrial network prototype deployed in operational Wind park																																			

P1914.1 - Standard for Packet-based Fronthaul Transport Networks

- Scope:
 - ❑ Architecture for the transport of mobile fronthaul traffic (e.g., Ethernet-based), including user data traffic, and management and control plane traffic.
 - ❑ Requirements and definitions for the fronthaul networks, including data rates, timing and synchronization, and quality of service. The standard also analyzes functional partitioning schemes between Remote Radio Units (RRUs) and Base-Band Units (BBUs) that improve fronthaul link efficiency and interoperability on the transport level, and that facilitate the realization of cooperative radio functions, such as massive Multiple-Input-Multiple-Output (massive MIMO) operational modes, Coordinated Multi-Point (CoMP) transmission and reception.
- Radio technology agnostic
- Related standards: IEEE 1588v2, 802.1cm, P1914.3

Other Standards

- CCSA : China Communication Standard Association
- Others: NGMN, ETSI, 4G Americas, FCC, Small Cell Forum, GSMA