



SCWS: O-RAN/SCF Workshop

June 4, 2025

- Andrei Radulescu (FAPI Rapporteur, Qualcomm)

5G FAPI: Ecosystem & Use Cases

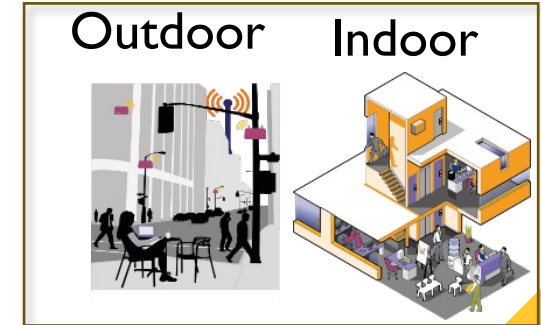
- **Functional & Factual API For L1/L2 PHY :**

- Full range of RAN base station classes: from small to macro
- Responsive to industry mMIMO needs, bands and deployments



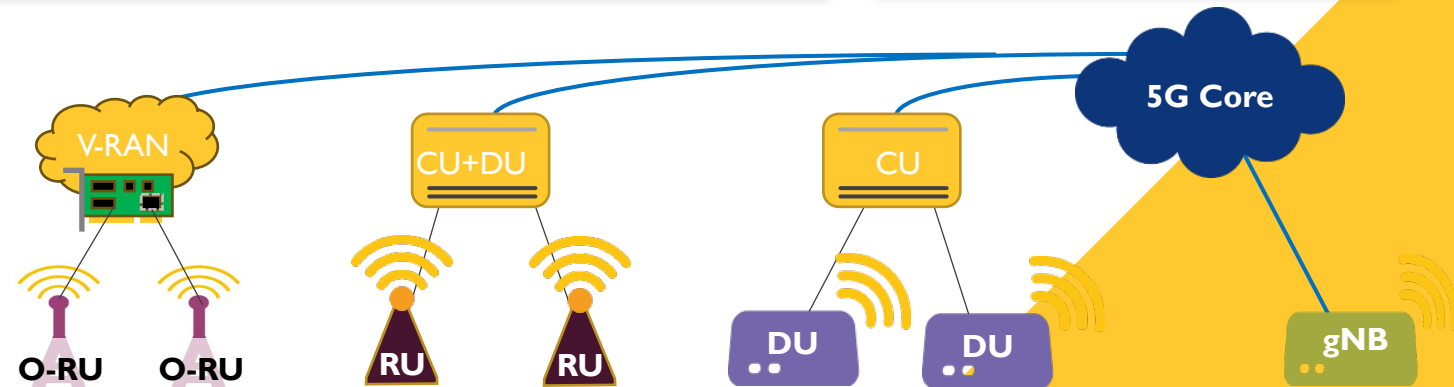
- **Goals:**

- lower barrier to entry
- modern 3GPP & O-RAN features
- supports innovation



- **Diverse Open RAN Contributors:**

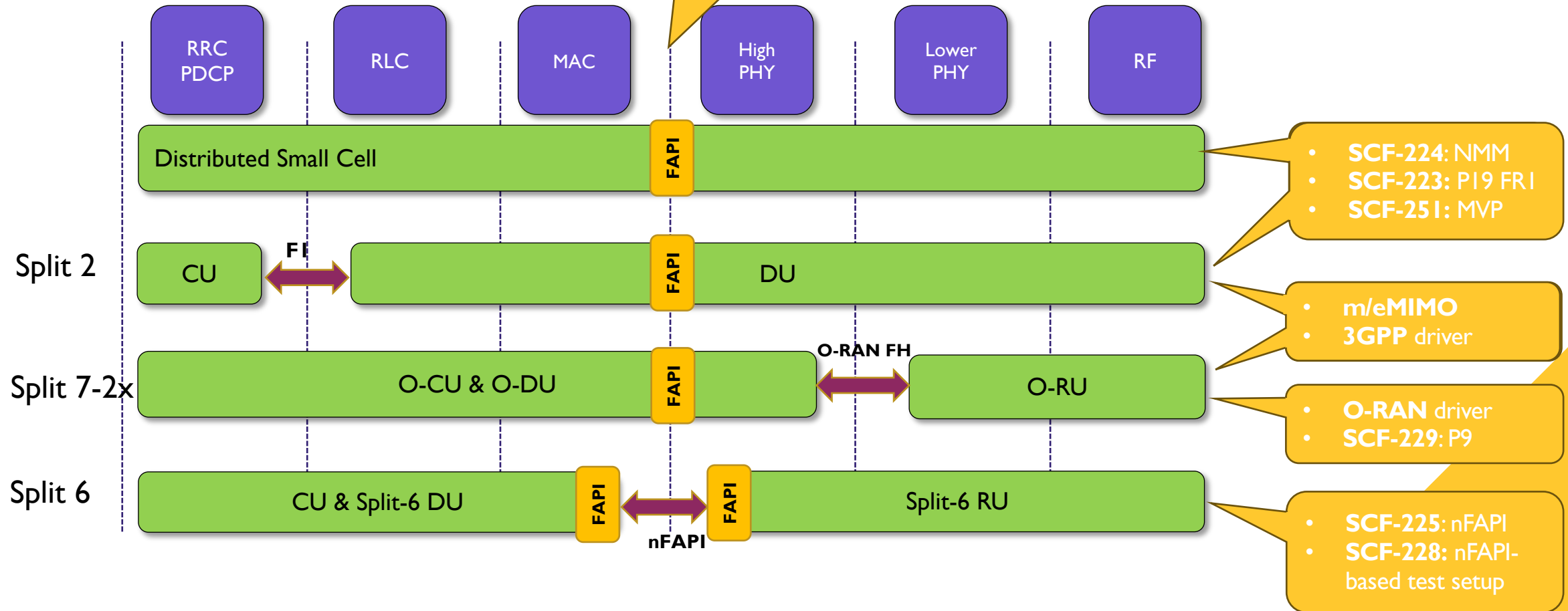
- Qualcomm, RANsemi, Picocom, Mavenir, Marvell, Radysis, Jio, BT, Open Air Interface, Small Cell Forum, Etc.



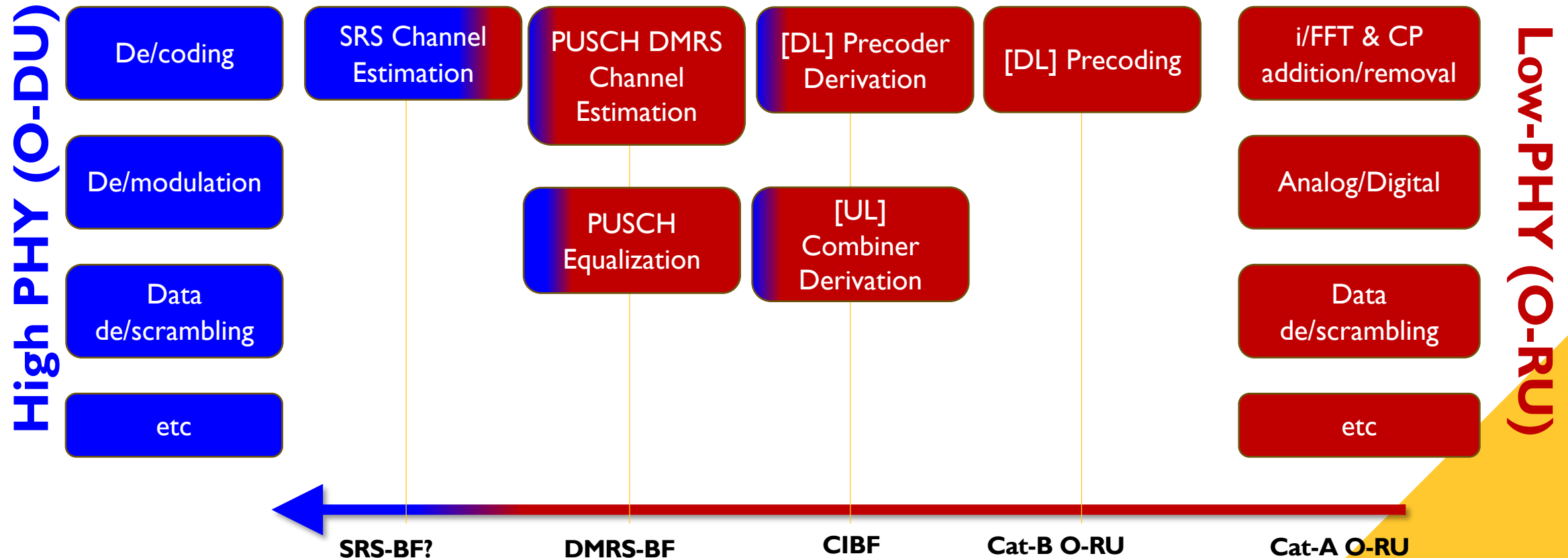
Disaggregation supporting... Diverse Architectures



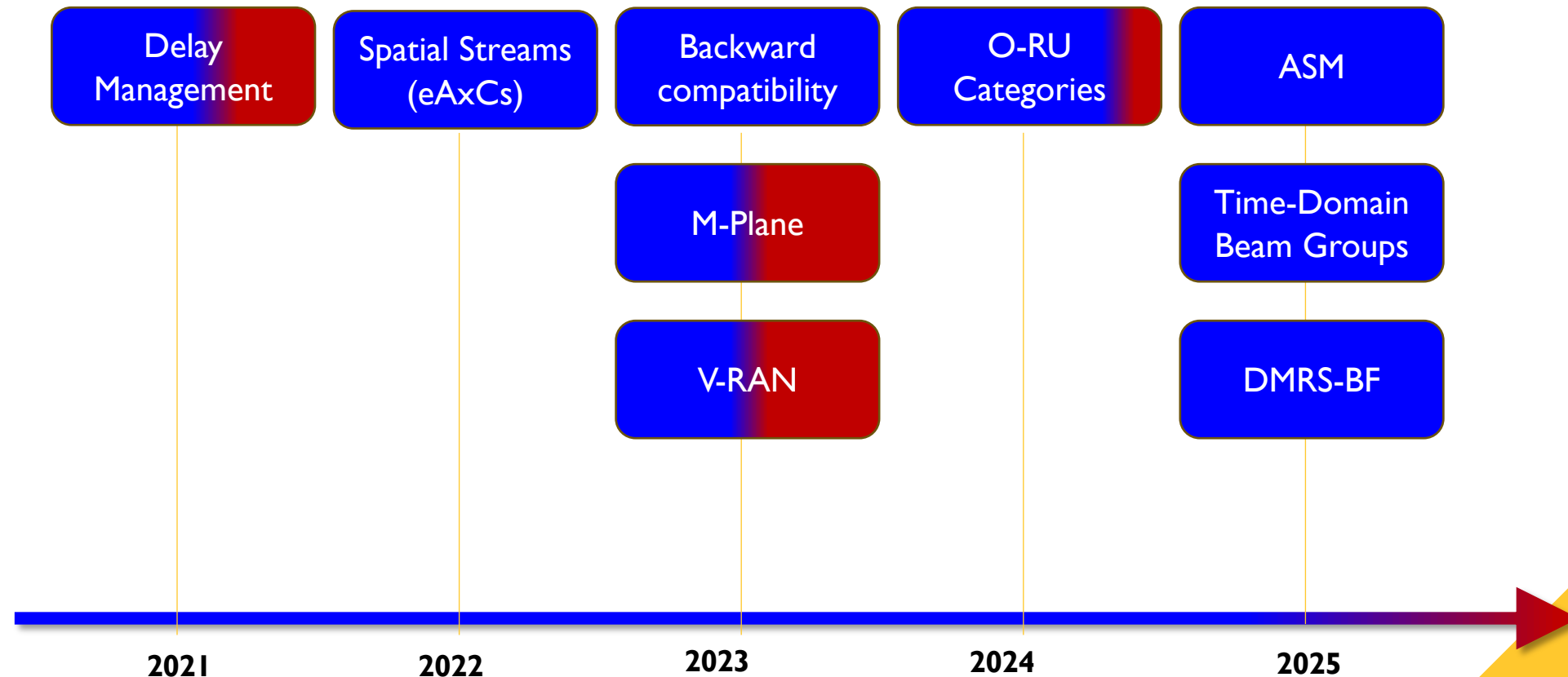
SCF-222: HiPHY
Baseline Support



RAN Split boundary migration: Previously **High-PHY** functions, now recognized in **Low-PHY** (high-level, non-exhaustive)



Progression of **FAPI** alignment with **Open Fronthaul**



Overlaps between O-RAN and SCF




- Common Members, with focus on PHY-specific discussions
 - Almost all SCF FAPI WG members are also O-RAN Members
- SCF FAPI serves as reference for various O-RAN WGs:
 - WG6 Inline AAL, WG7 Picocell & Macrocell Hardware Architectures, WG8 Software Architecture, etc.
- SCF nFAPI (network transport for FAPI): supported over IP and eCPRI.
- SCF FAPI WG follows best ETSI practices for Standard Development
 - Content, process, etc



Thank you!

Questions?

SCF FAPI Evolution



FAPI PHY (P5/P7)	Rel-15, Small Cell, Semi-static MIMO Basic beamforming	Rel-15 Macro; R16 mTRP/eMIMO, DSS, Delay Mgmt, LI mMIMO,	R16 2step RACH & Positioning, L2-based mMIMO O-RAN FH,	Backward compatibility V-RAN Support	R16 RIM, OCNG, N+I Rep, Baseband Pooling O-RAN FH+	R17 RedCap, CovExt mTRP+ ULPI,ASM, Hybrid BF
FAPI FEU (P19)	FrontEnd Unit DFE, RF, ABF Basic State Machines	PHY Alignment, Delay Mgmt	Maintenance & Protocol	Phase Compensation Time Offsets		Maintenance
FAPI NMM (P4)	2G/3G/4G/5G Monitoring PHY & Bcast & SysInfo			Maintenance, Capabilities, Prot. Simplification	Maintenance, FAPI Protocol Alignment	
FAPI OAM (P9)				YANG Client/Server, FH M-Plane align, LI KPI, mTRP	Maintenance	Maintenance
	2020	2021	2022	2023	2024	2025