

IEEE 1914 NGFI (XHAUL): building the transport foundation for 5G

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Introduction to IEEE 1914 WG – NGFI (XHAUL)

- NGFI: Next Generation Fronthaul Interface
- Open standards effort approved by IEEE Feb. 2016
- Target: efficient & scalable fronthaul transport for 5G
- Website: <http://sites.ieee.org/sagroups-1914/>
- Extensive awareness with ~160 subscribers
- ~20 voting members, ~90 members



IEEE 1914 WG

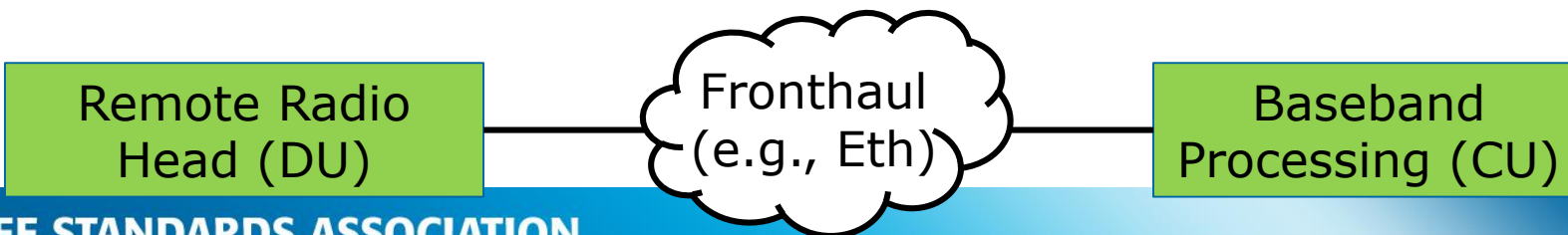
P1914.1

- Standard for Packet-based Fronthaul Transport Networks
 - Use cases and scenarios
 - Architecture
 - Requirements
 - ✓ Functional split analysis
 - ✗ CU_DU functional split definition



P1914.3 (ex P1904.3)

- Standard for Radio Over Ethernet Encapsulations and Mappings (RoE)
 - IQ (CPRI/native RoE) encapsulations and mapping
 - IQ in time and frequency domain



NGFI fundamentals



High scalability

- Enables C-RAN/V-RAN deployments
- Traffic dependent

High resource utilization

- On air interface: Support of cooperative functions: CoMP, MIMO
- On transport interface: Support for **statistical multiplexing**

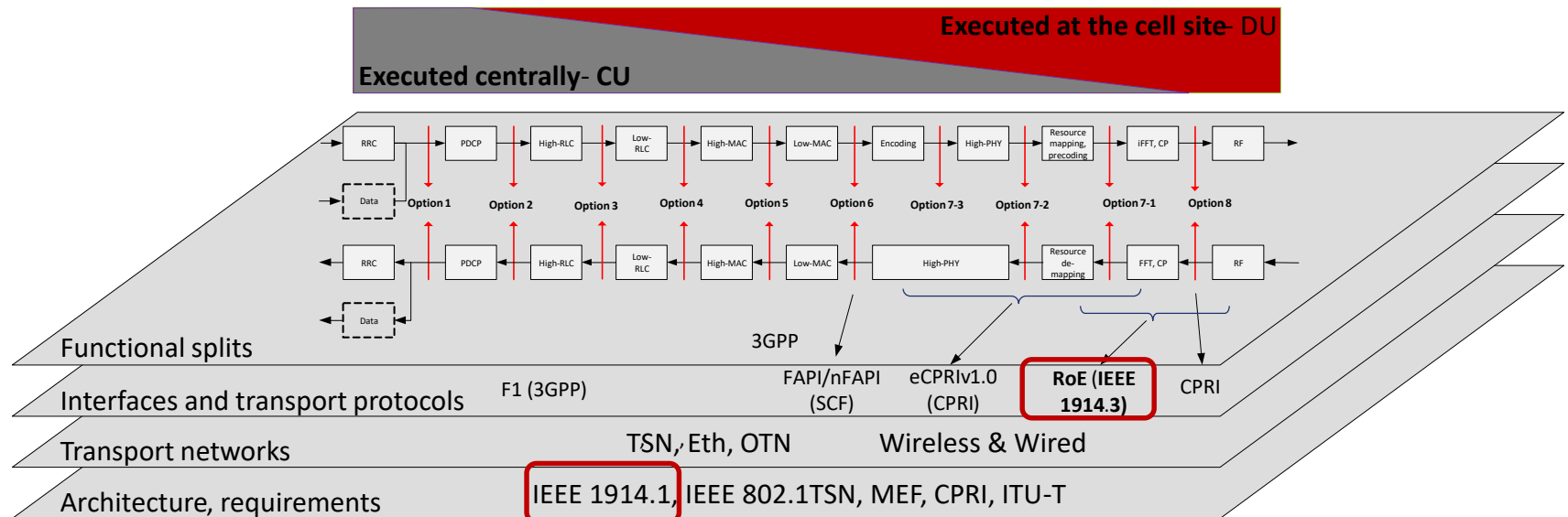
High flexibility

- Radio interface technological neutrality
- Enabling SW upgrades of mobile nodes

Low costs

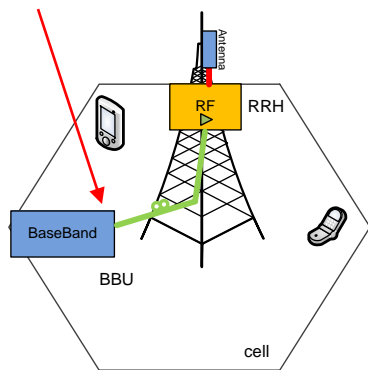
- Leveraging mature **standard** transport solutions, e.g. **Ethernet-based**, IEEE 1588, SyncE, TSN
- Unified management and control solution, common networking protocols, and universal network elements

Standardization and industry solutions for 4.5G/5G base stations and XHAUL



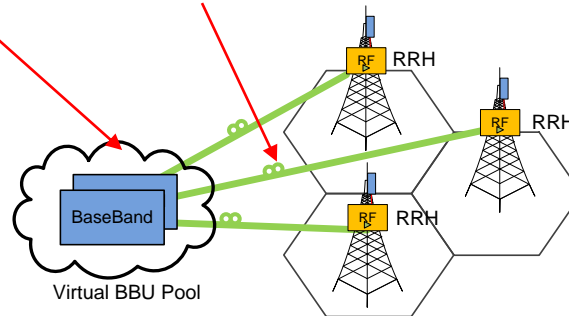
Where does 1914 fit?

1914.3 structure aware mapping of legacy CPRI to/from individually switchable component flows in an eNB for Ethernet-based eNBs



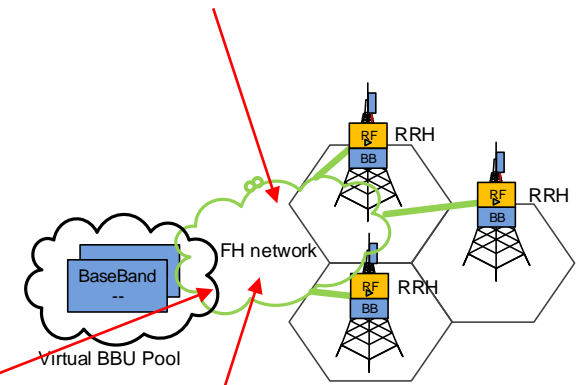
b) BS with RRH

1914.3 structure agnostic mapping and aggregation of legacy CPRI flows over Ethernet transport network to non-ethernet eNBs.



c) C-RAN with RRHs

1914.3 native RoE mapping utilizing e.g., Option 7.x splits and transport over Ethernet transport network.



d) C-RAN with new function split between BBU and RRH

1914.1 Node requirements

- Latency
- Synchronization
- OAM

1914.1 Network requirements

- Transport CoS – latency is a key factor
- Throughput (informative)
- Transport network slicing
- Jitter
- Synchronization
- OAM
- Security

Thank you..