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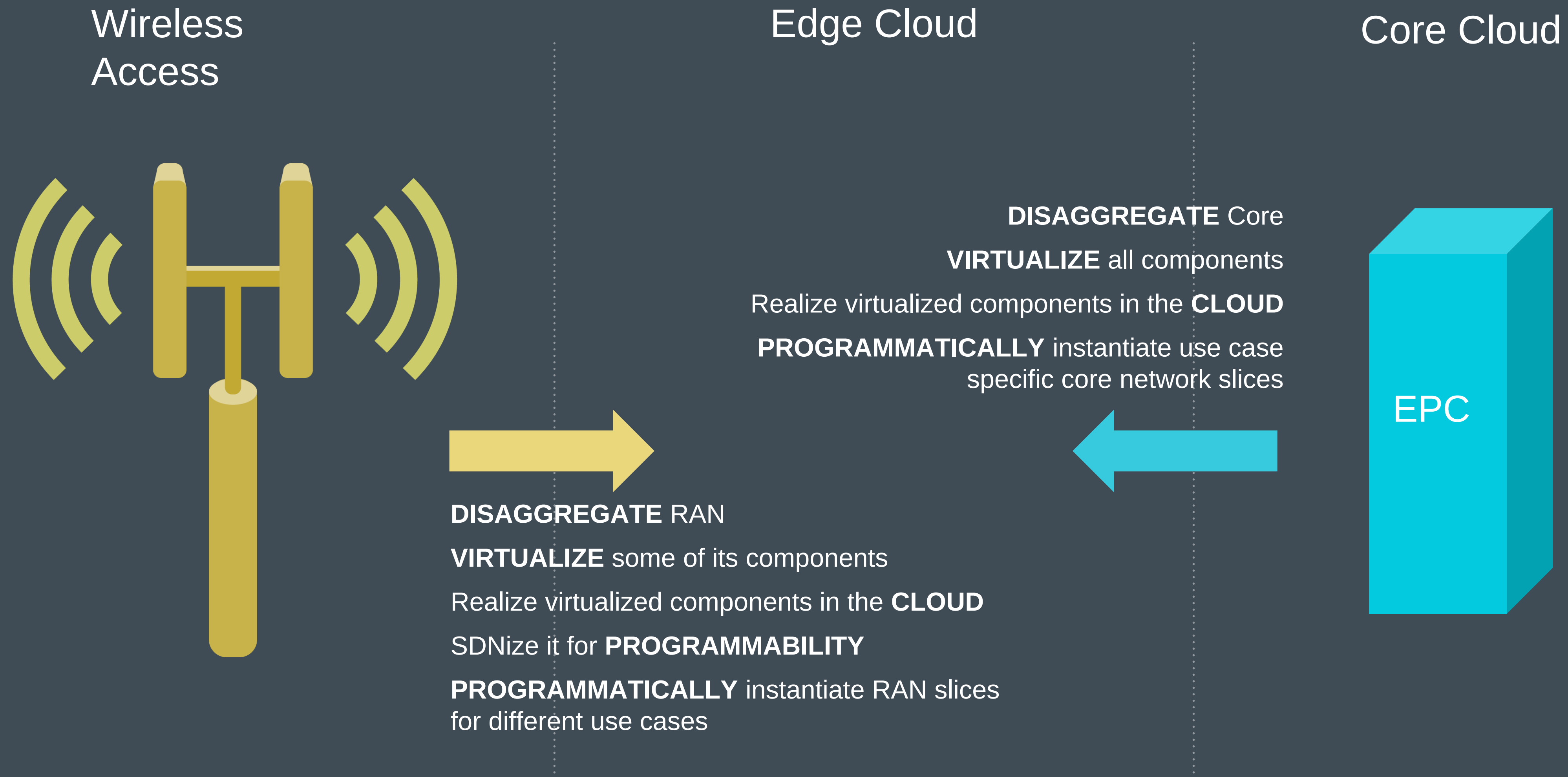
MultiAcces-CORD

≡ M-CORD: Enabling the Programmable 5G Edge Cloud

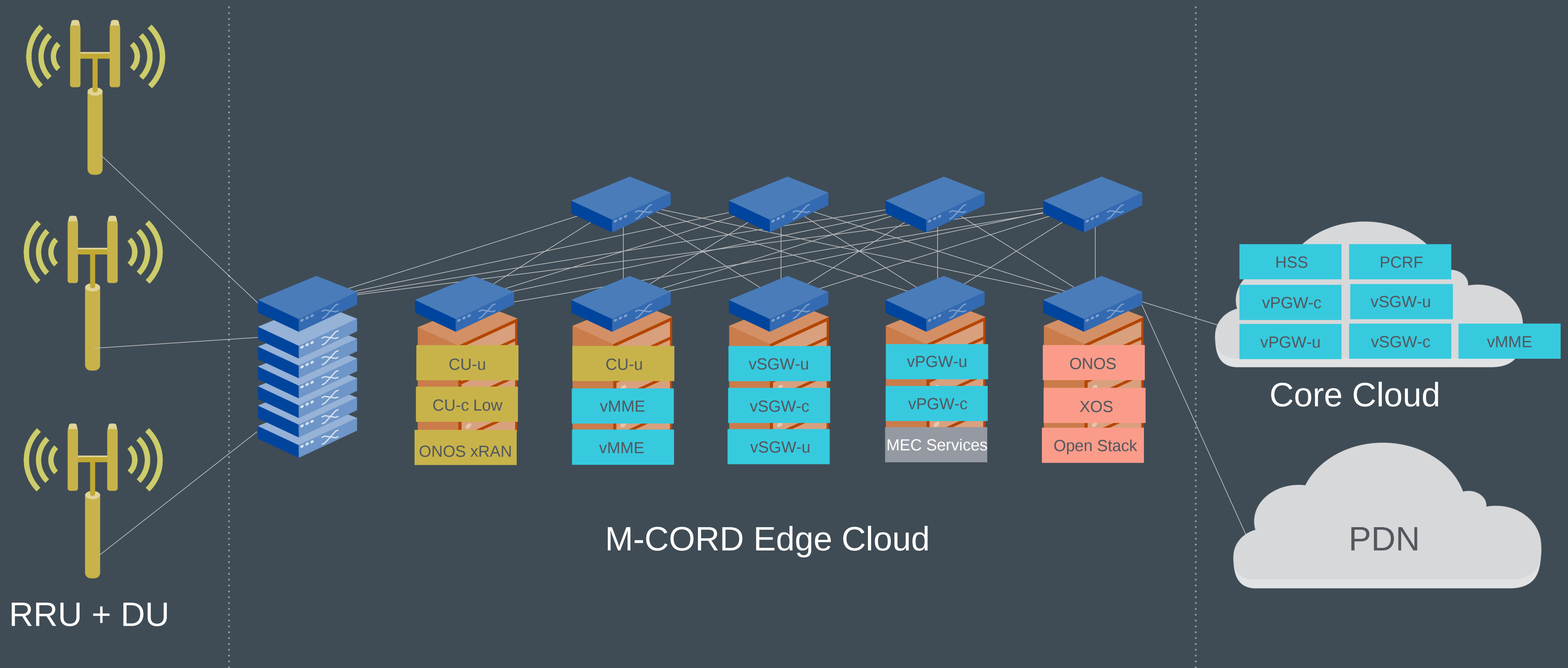


PROGRAMMABLE 5G EDGE CLOUD

≡ Edge Cloud



≡ M-CORD as the Edge Cloud



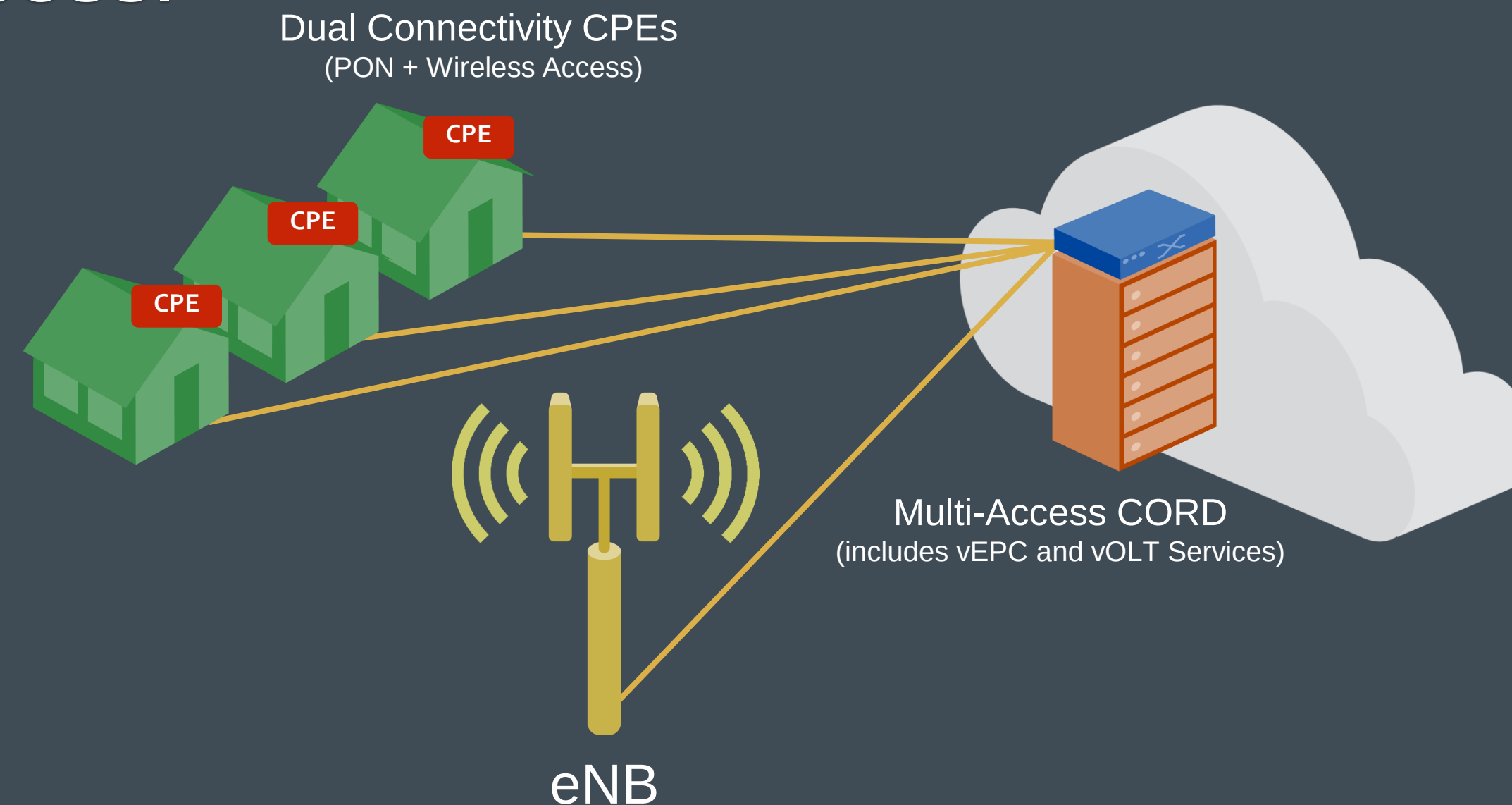
MultiAccess CORD

Demo Collaborators



≡ Multi-Access CORD

Multi –Access CORD allows combining wireline access and wireless access paths to provide hybrid access.



More Bandwidth for User Applications: By using hybrid access through a Residential Gateway (CPE), any connected user device (e.g. smartphone, tablet) can use more capacity for bandwidth-hungry applications.

Managed Connectivity: The path selection behavior can be managed to allow selecting different paths per application and to load-balance traffic across different paths allowing a best-fit per application.

Extensibility: The Multi-Access CORD POD provides a flexible and extensible environment for the hybrid aggregation point.



Demo Setup

Multi-Access CORD



CORD-Connected Dual Access CPE

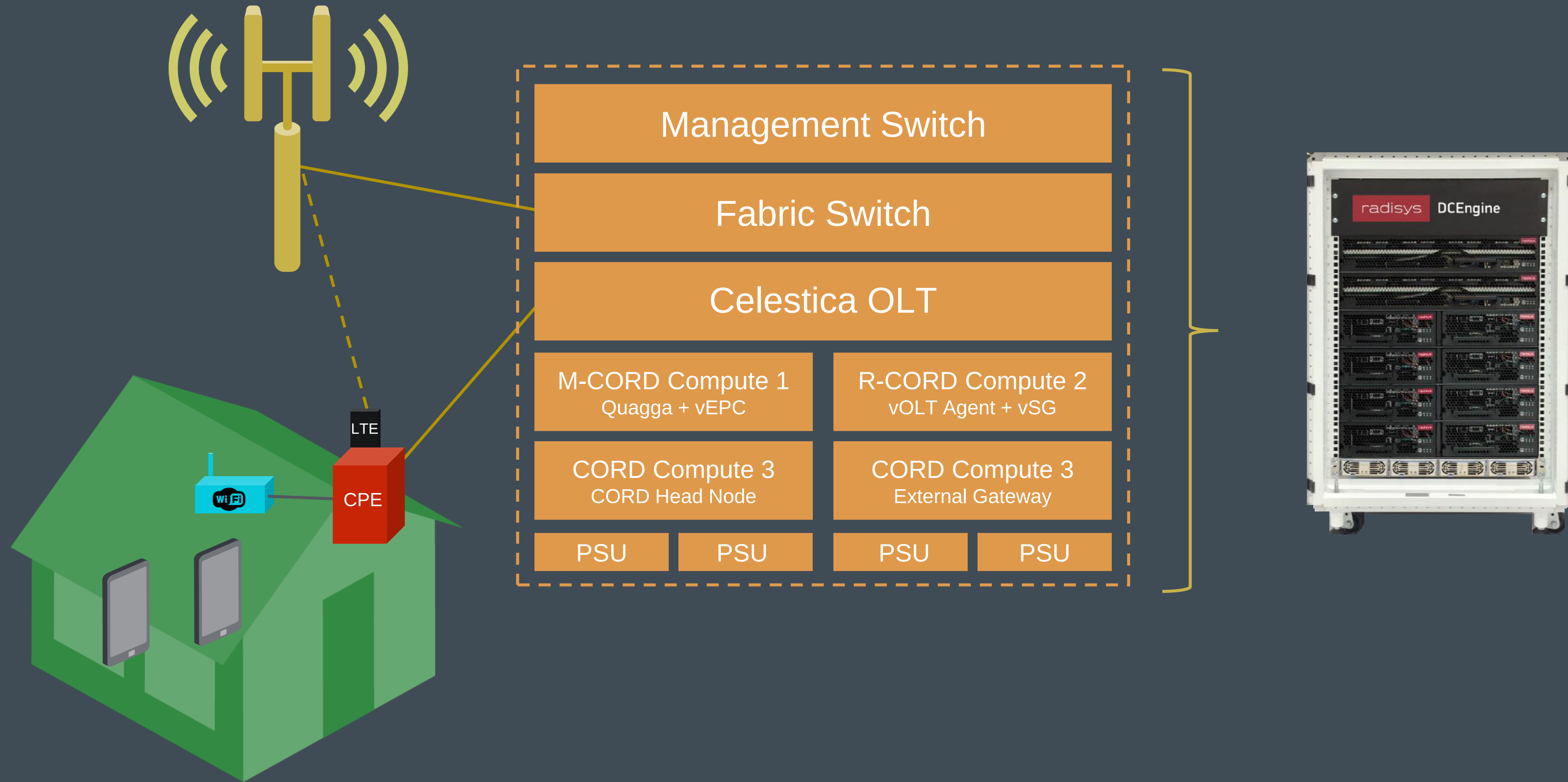
A home gateway device (RG/CPE) is connected to the CORD POD via fixed (PON) and cellular (LTE) access links. A client device (smart phone) is connected via WiFi to the CPE device.



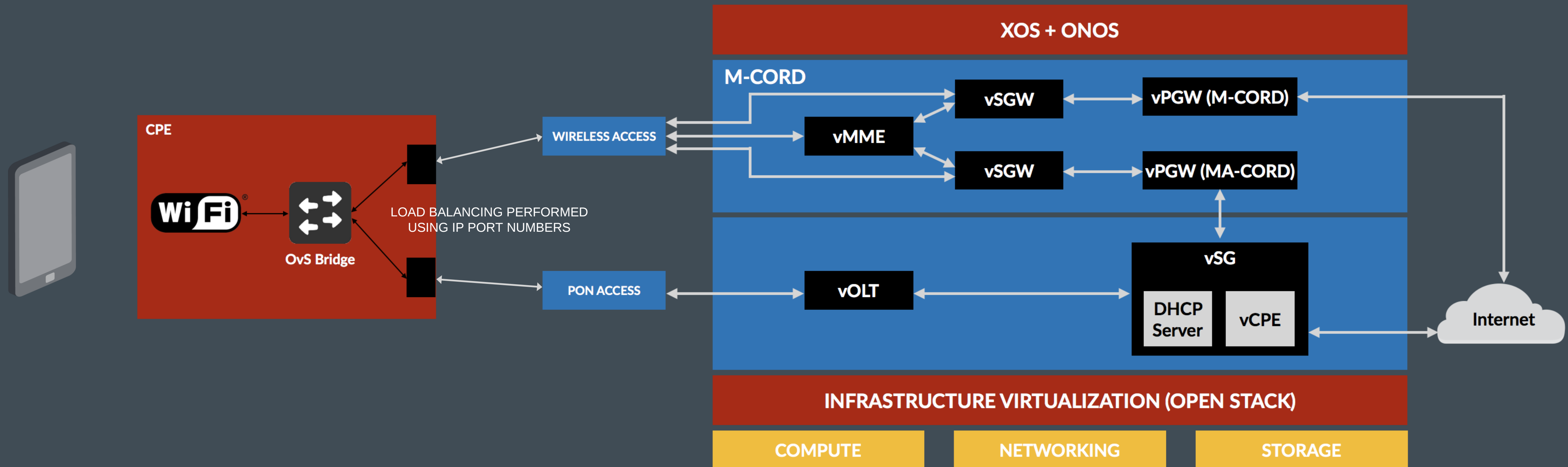
Load Balancing Among Hybrid Access

Traffic of the client applications will be load balanced, i.e. routed via fixed, or cellular access links between the CPE and the Multi-Access CORD aggregation point based on the source ports the applications are using

≡ Platform



≡ Multi-Access CORD: Convergence of M-CORD and R-CORD



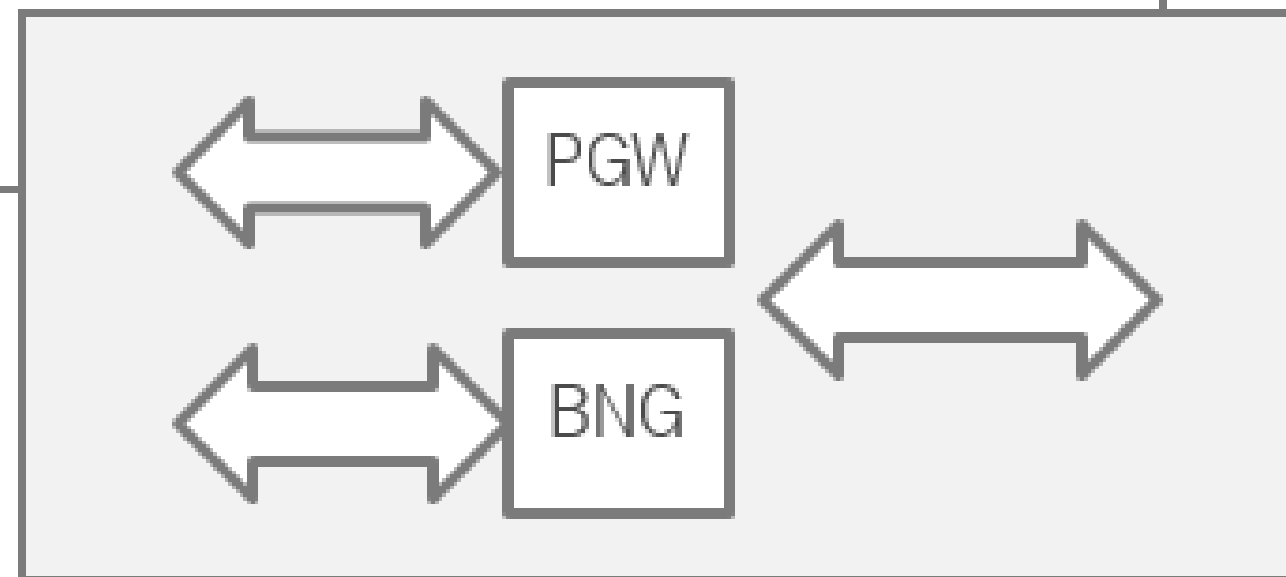
TOWARDS CONVERGENCE (A4 + 5G = ?)

STRUCTURAL CONVERGENCE

Location consolidation

Traffic grooming, local coupling

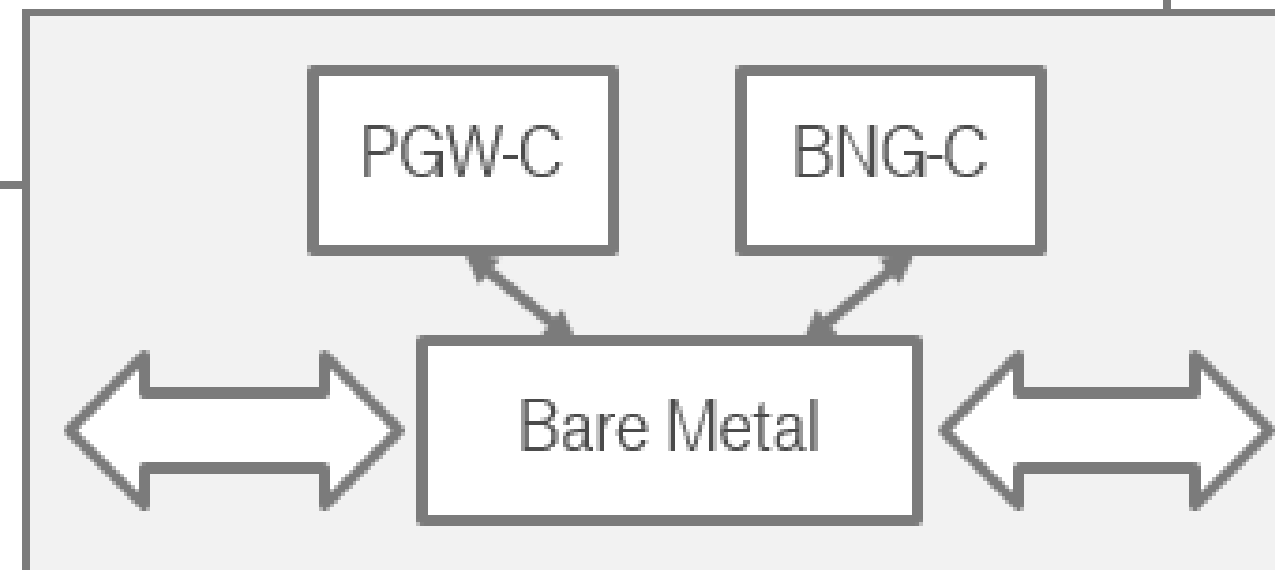
- Multi-Access CORD
- Edge Cloud
- Low Latency



User Plane consolidation

Same data path for fixed and mobile user plane (UP)

- Bare Metal-based UP,
- virtualized CP

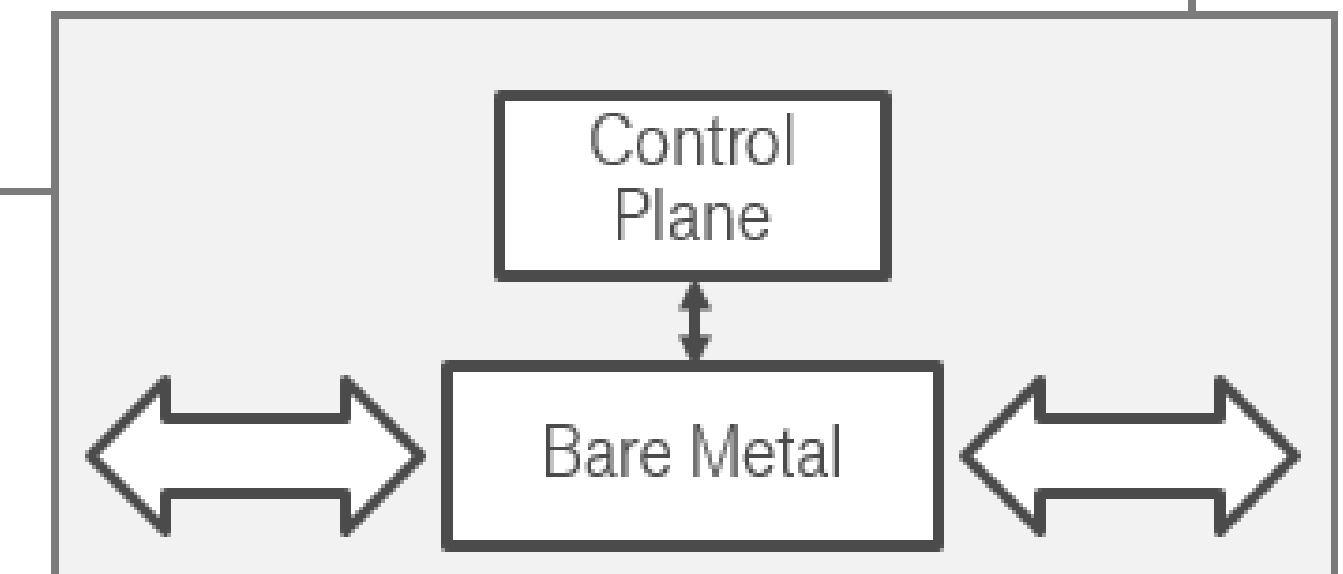


FUNCTIONAL CONVERGENCE

Control Plane consolidation

converged control plane

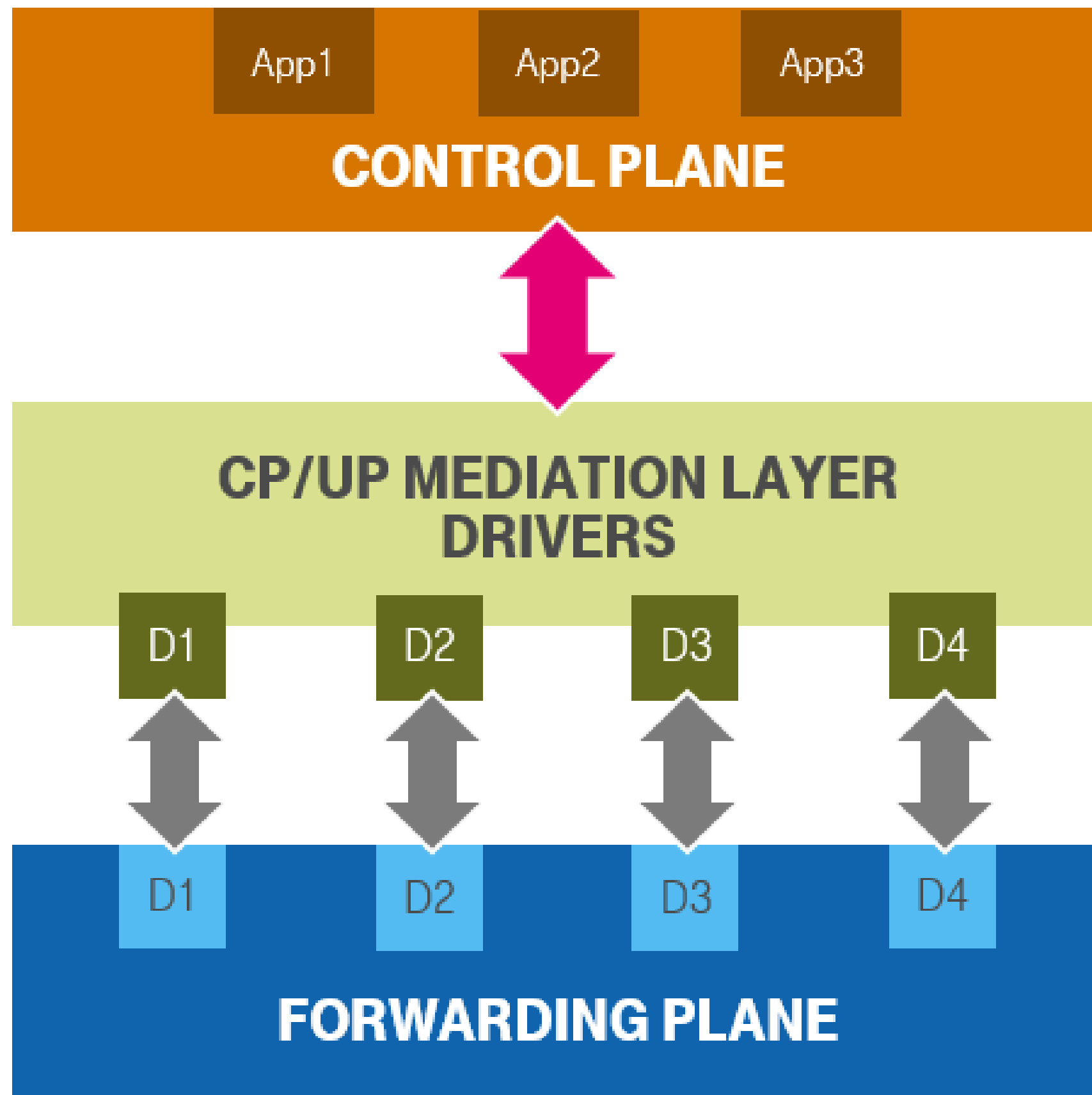
- includes slicing
- Following 3GPP+BBF work



LIFE IS FOR SHARING.

CONTROL PLANE / USER PLANE SPLIT

NO FRAGMENTATION, PLEASE...



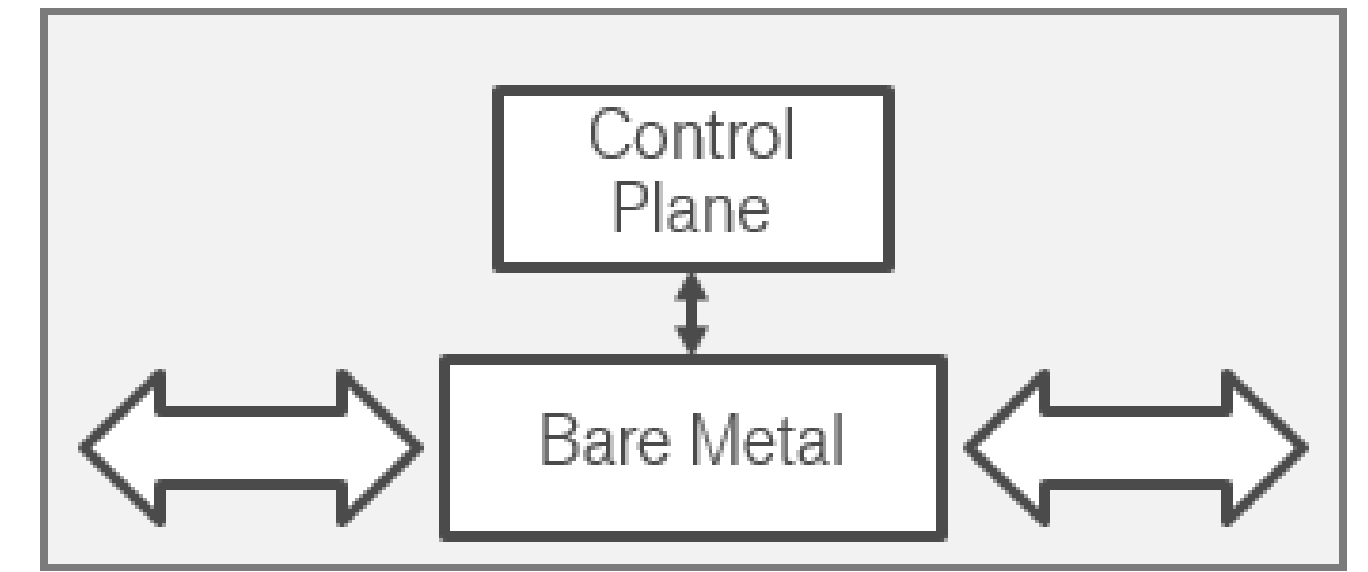
Fixed / mobile or converged CP application
(usually on x86)

A common protocol and data model for forwarding
(avoid having multiple standards...)

Conflict resolution
Host for any kind of drivers

Open vs. proprietary interfaces

Programmable hardware on bare metal
(Differentiate through performance & exposed feature sets)

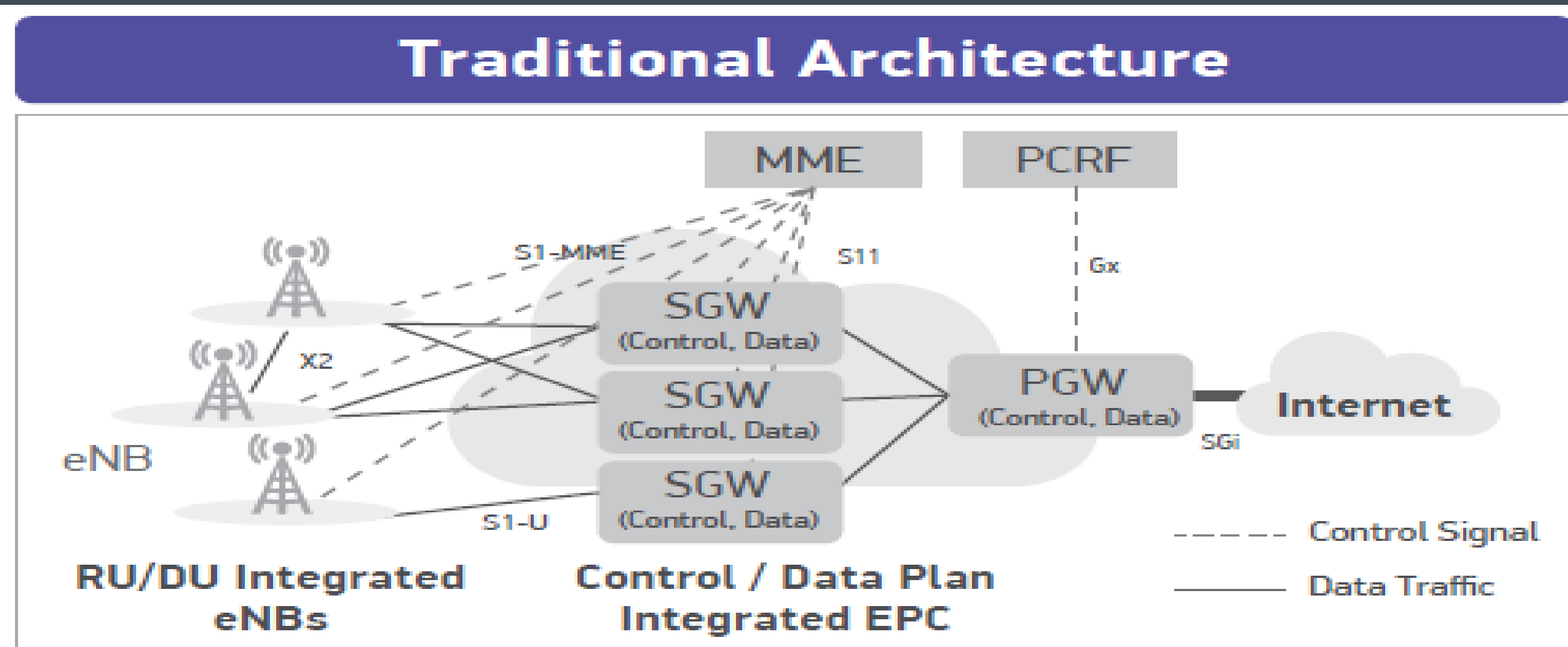


**COMMUNITY
WORK NEEDED**

≡ THANK YOU

M-CORD (Disaggregation, IoT, Slicing)

≡ Mobility Network (Traditional)



With Proprietary Boxes & Solutions

RU/DU

Integrated RAN

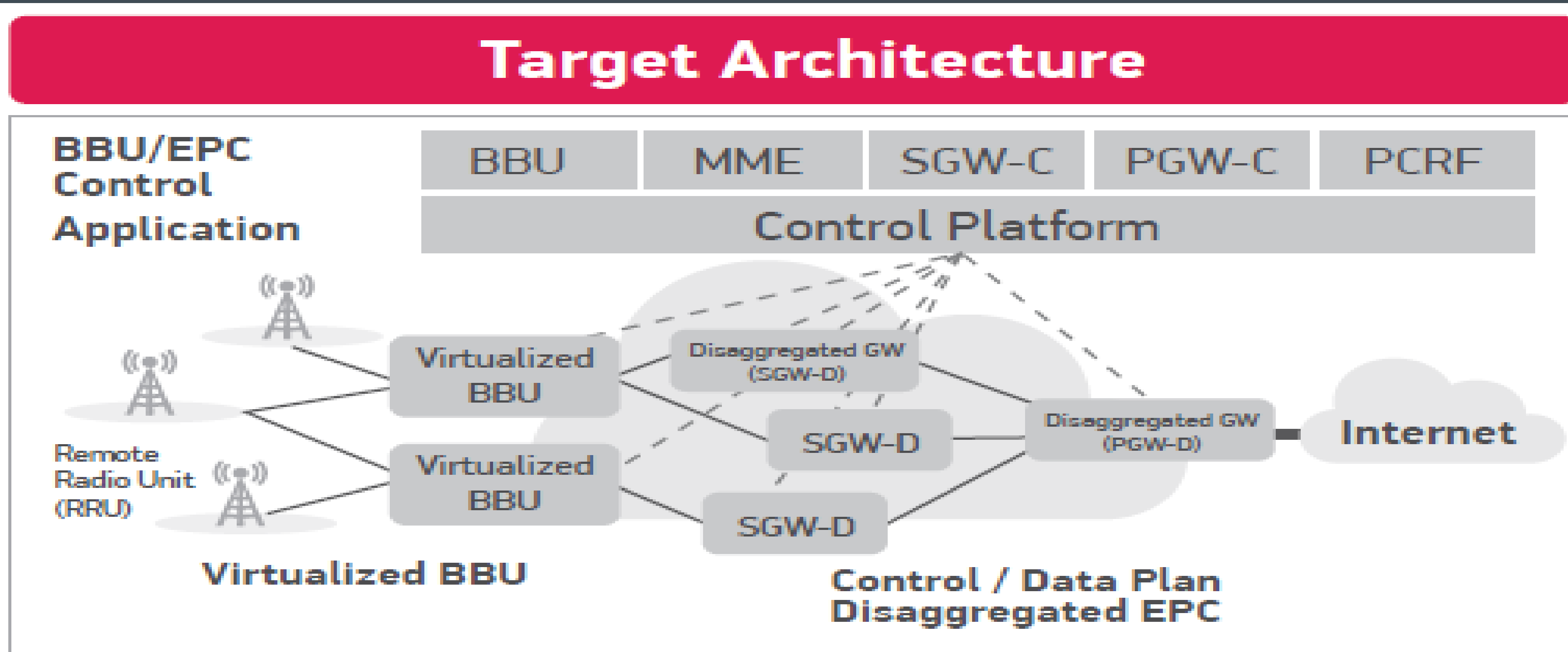
- Limited Scalability
- Inefficient Coordination
- Sub-optimal Spectrum Usage
- High Cost

Control/Data Plane

Integrated EPC

- Limited Scalability
- Discrete Control
- Proprietary H/W for All-purpose
- High Cost

≡ M-CORD (Disaggregated Architecture)



With Commodity H/W & Open Sources/Open API

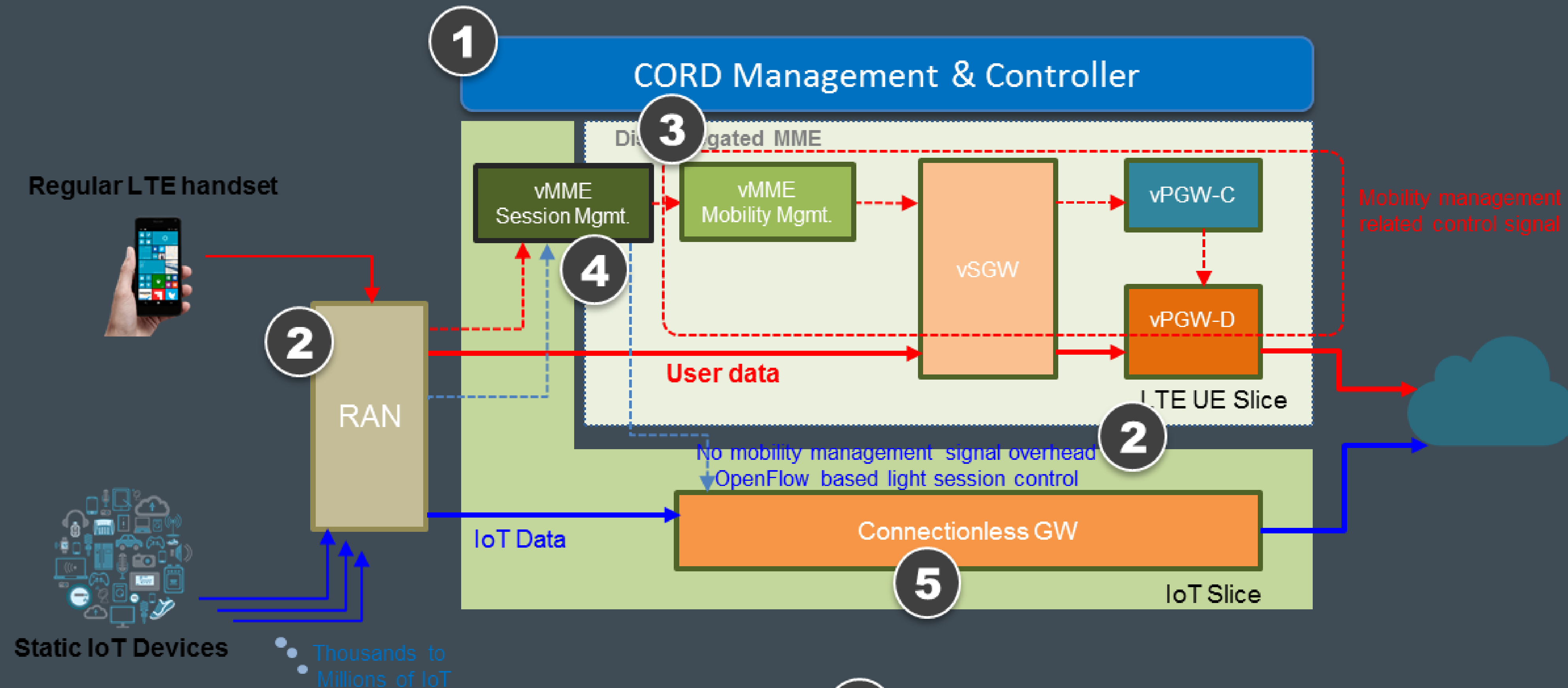
Disaggregated & Virtualized RAN

- High Flexibility & Scalability
- Centralized Coordination
- Spectrum Usage Optimization
- Reduced Cost
- Enable New Innovative Services

Disaggregated & Virtualized EPC

- Independent Scalability
- Centralized Control
- Choice of Solutions
- Reduced Cost
- Enable New Innovative Services

≡ M-CORD (IoT Optimized Core)



1 CORD Open Software Platform

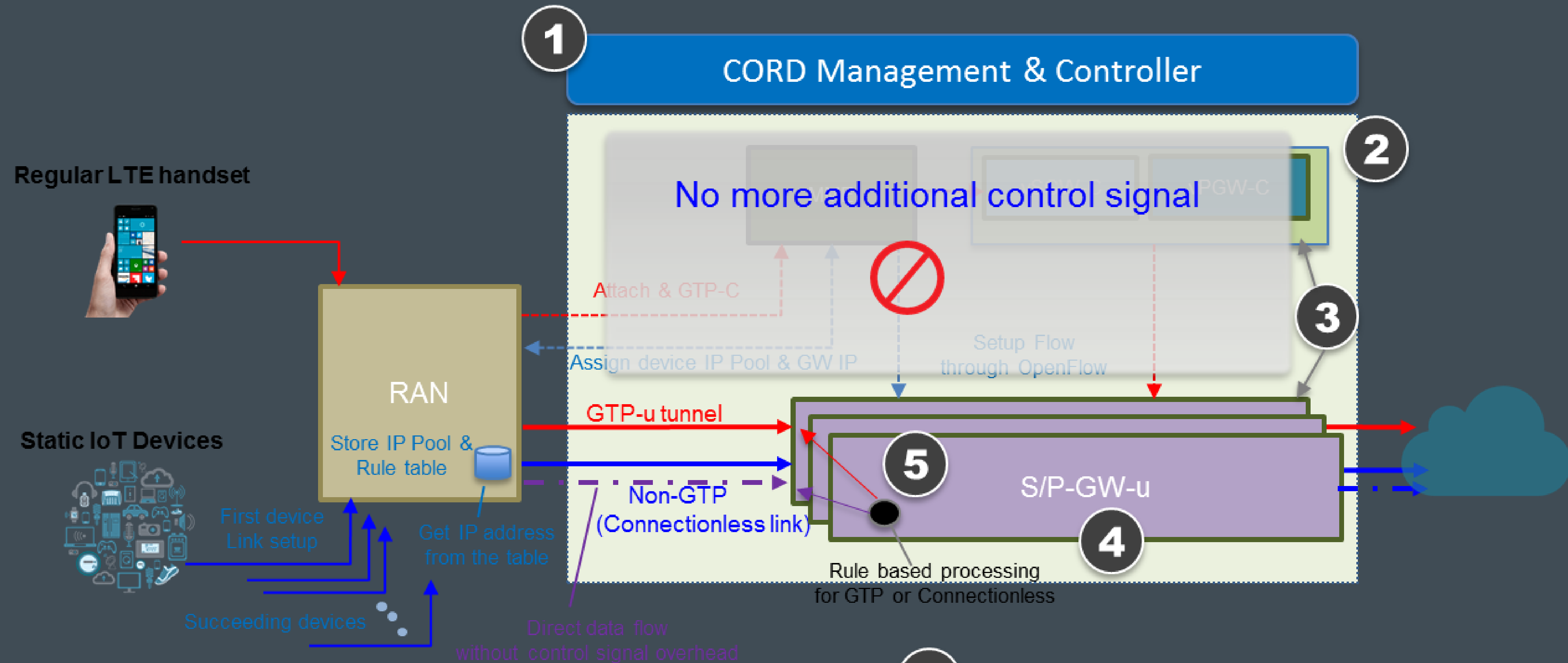
2 Open source RAN and EPC

3 Disaggregation of MME functions

4 Slice selection service/function

5 "Connectionless" data plane (Non-GTP)

≡ M-CORD (IoT Optimized Core)



① CORD Open Software Platform

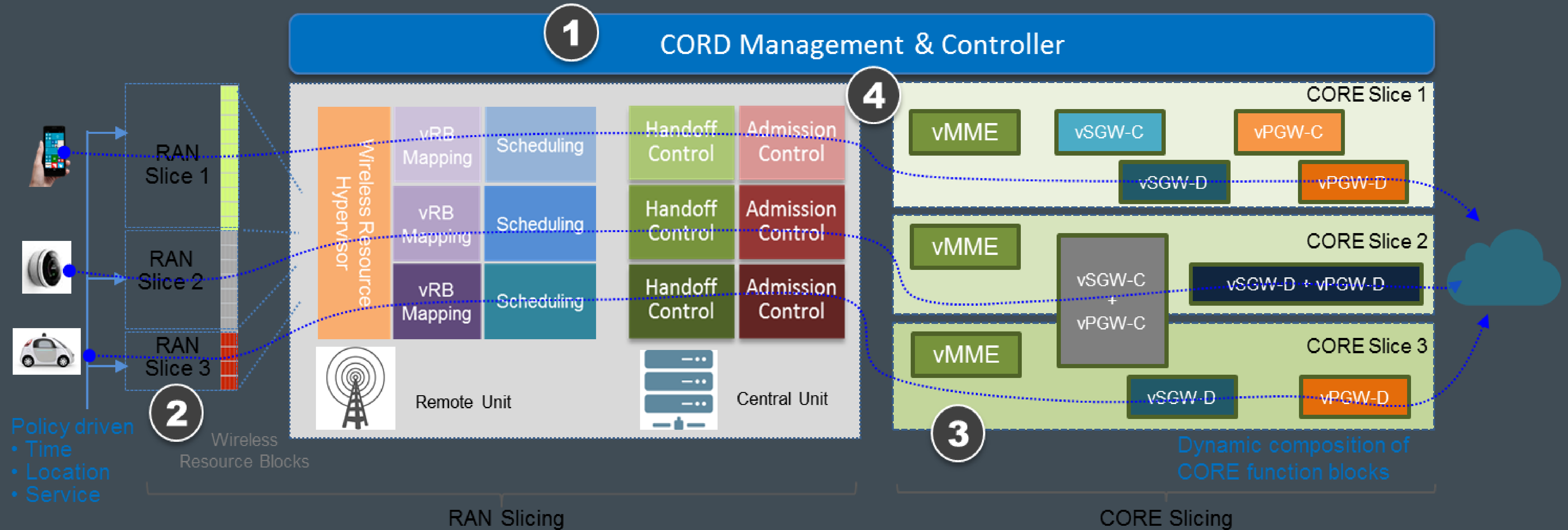
② Open source CORE

③ Disaggregation of control and data

④ DPDK-based scalable data plane

⑤ “Connectionless” data plane (Non-GTP)

≡ M-CORD (End to End Slicing)



1 CORD Open Software Platform

2 RAN Slicing

3 CORE Slicing

4 End to End Slicing Orchestration