Workshop 2: O-RAN Slicing
Introduction

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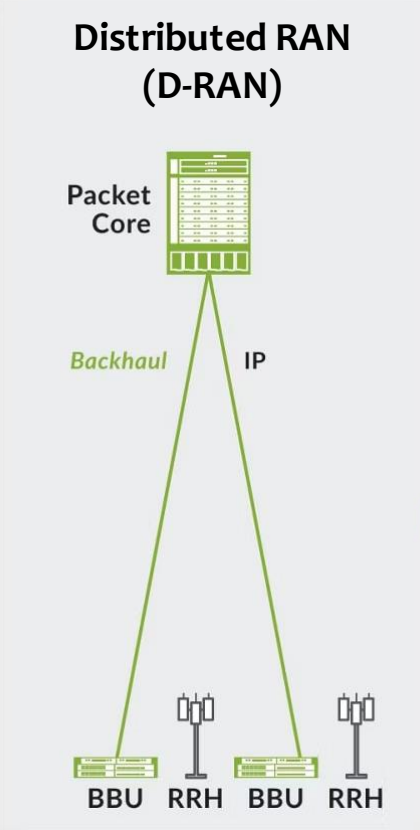
Outline

- Open RAN: a Primer
- Workshop Overview
- Workshop Agenda

O-RAN: A PRIMER

RAN Evolution



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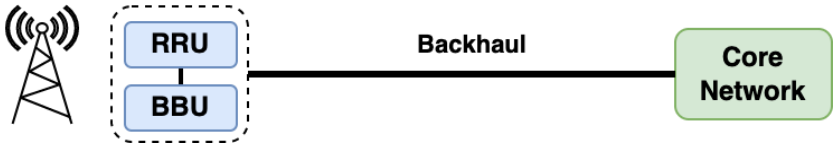
RAN Evolution

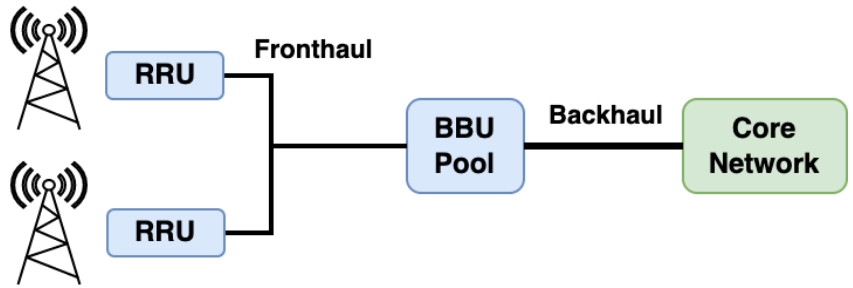
- Distributed RAN (D-RAN): BBU and RRU are coupled

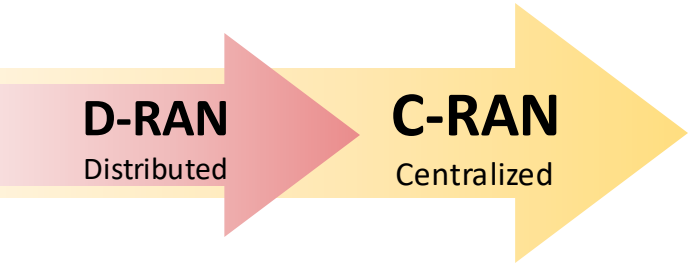


D-RAN
Distributed

RAN Evolution

- Distributed RAN (D-RAN): BBU and RRU are coupled
- Centralized (or Cloud) RAN (C-RAN): BBUs are co-located in a central entity





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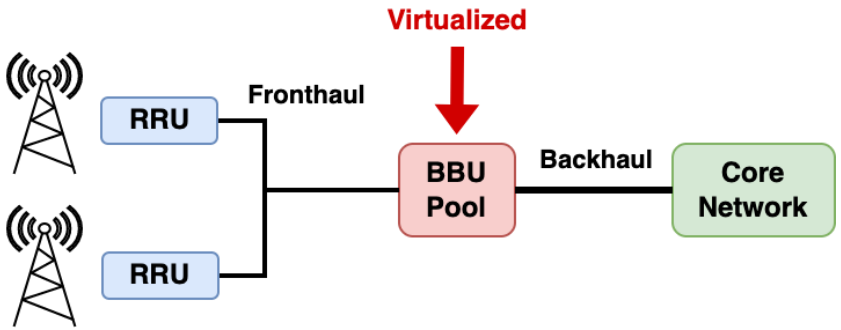
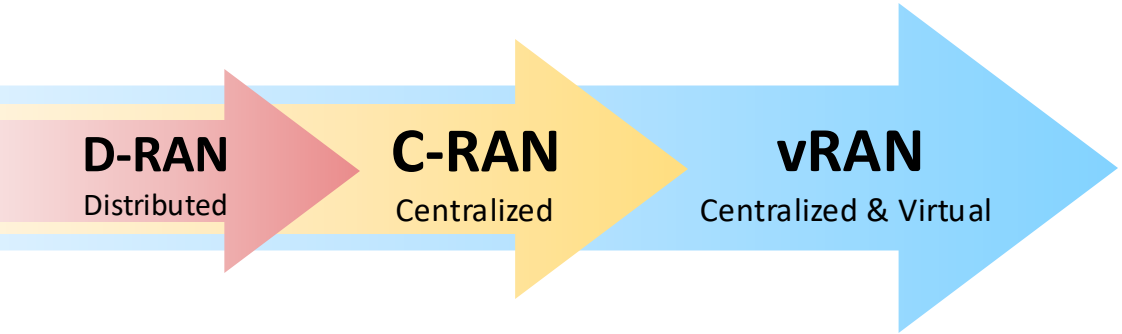
RAN Evolution

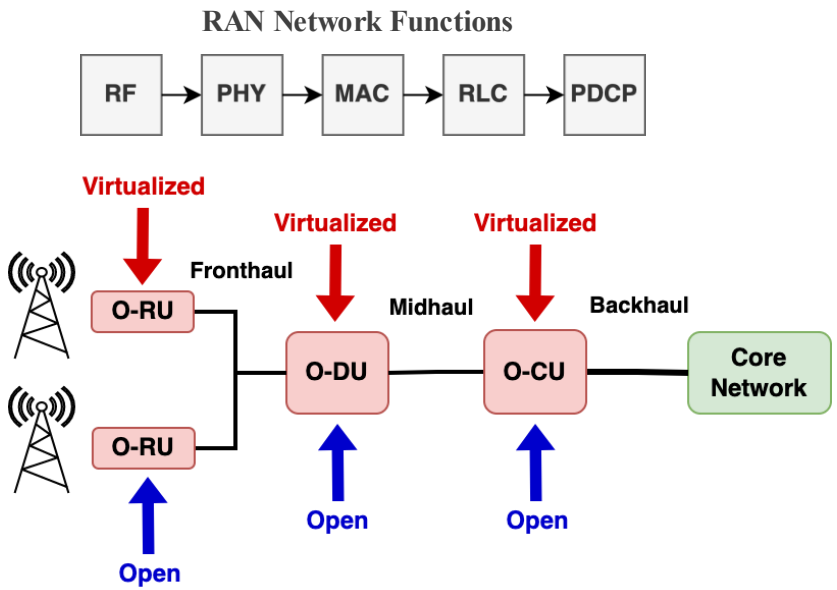
- Distributed RAN (D-RAN): BBU and RRU are coupled
- Centralized (or Cloud) RAN (C-RAN): BBUs are co-located in a central entity
- Virtual RAN (vRAN): Virtualized BBU

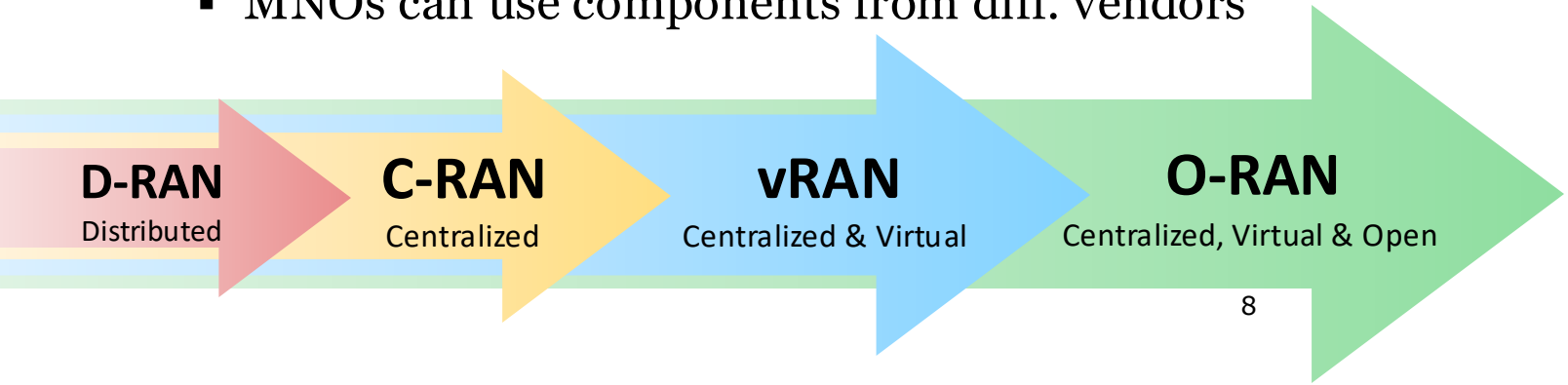




RAN Evolution

- Distributed RAN (D-RAN): BBU and RRU are coupled
- Centralized (or Cloud) RAN (C-RAN): BBUs are co-located in a central entity
- Virtual RAN (vRAN): Virtualized BBU
- Open RAN (O-RAN): Disaggregated and virtualized RAN (RU/DU/CU) components with open and standard interfaces
  - RAN NFs can be hosted on RU/CU/DU
  - MNOs can use components from diff. vendors





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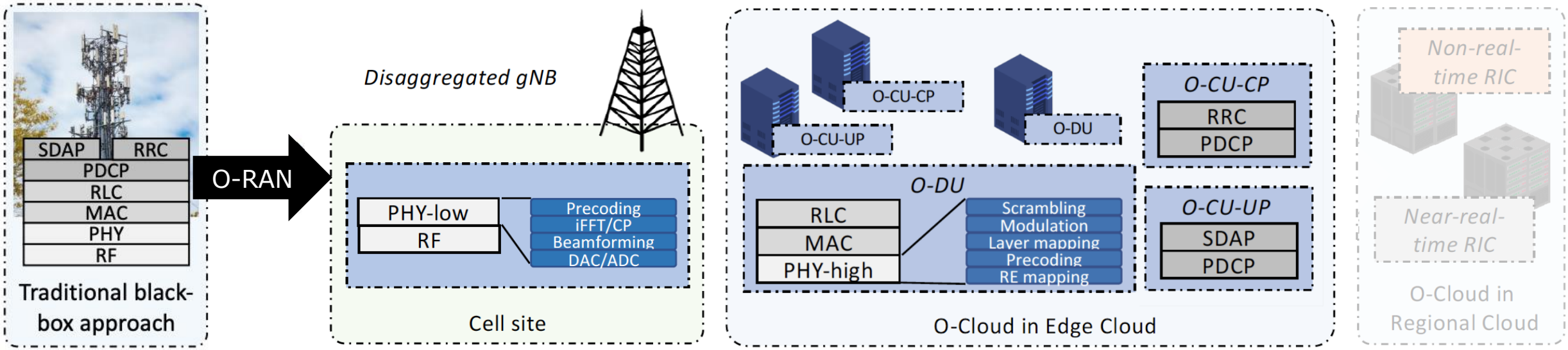
O-RAN Disaggregation



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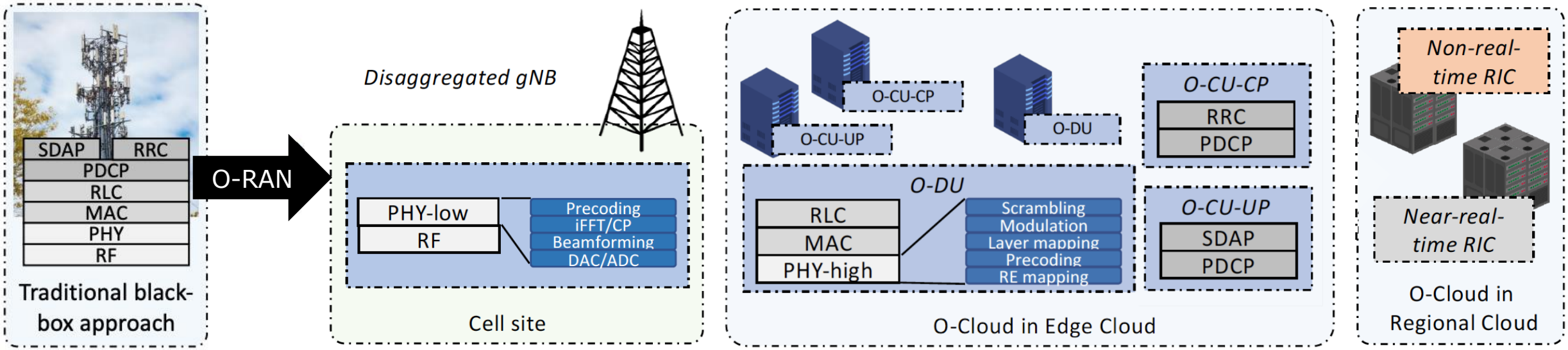

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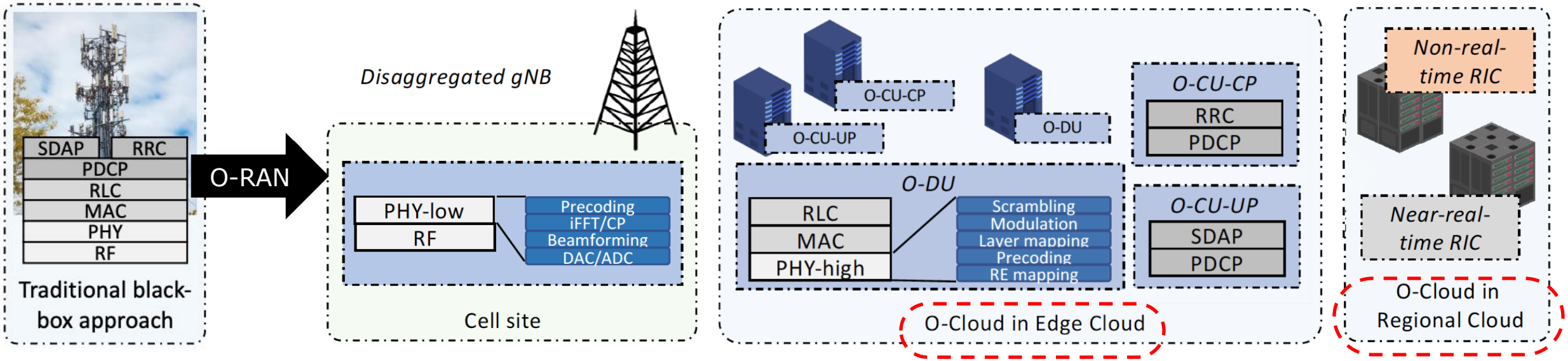

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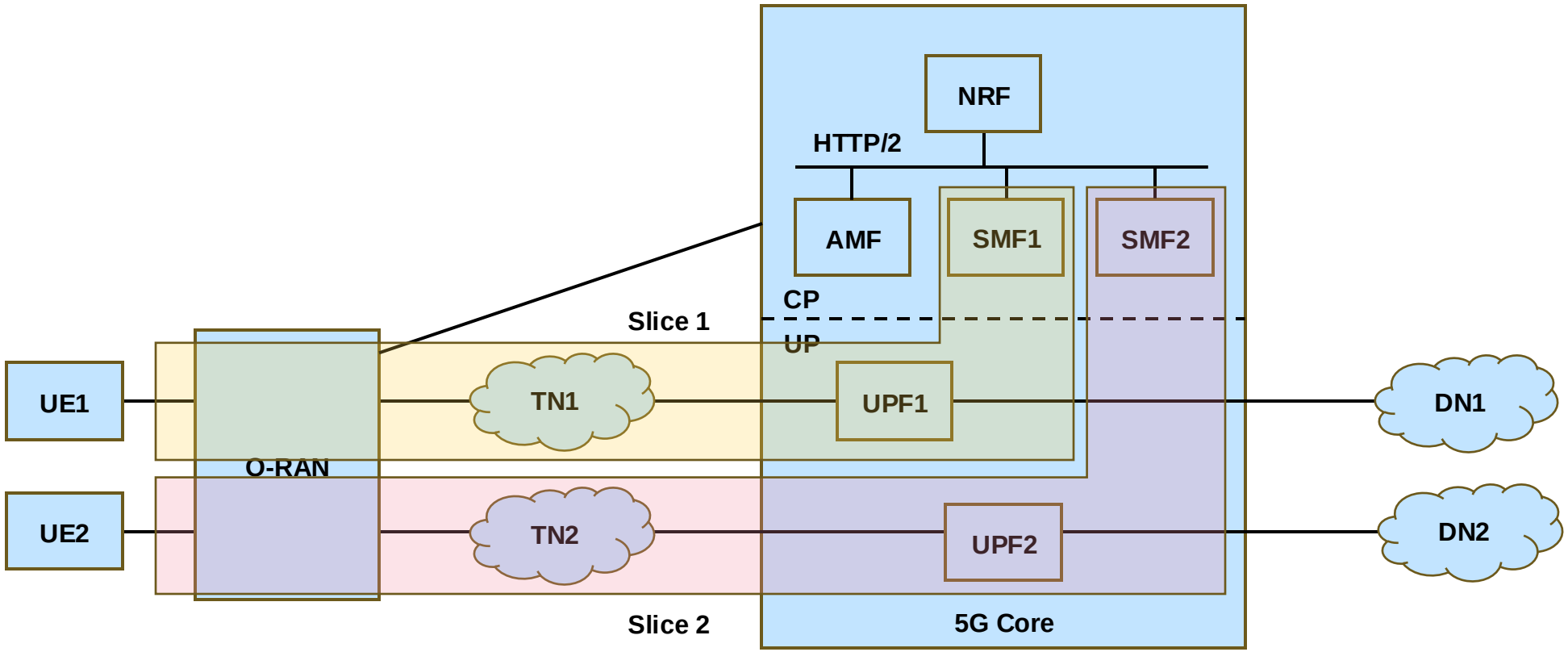
WORKSHOP OVERVIEW

End-to-End Network Slicing



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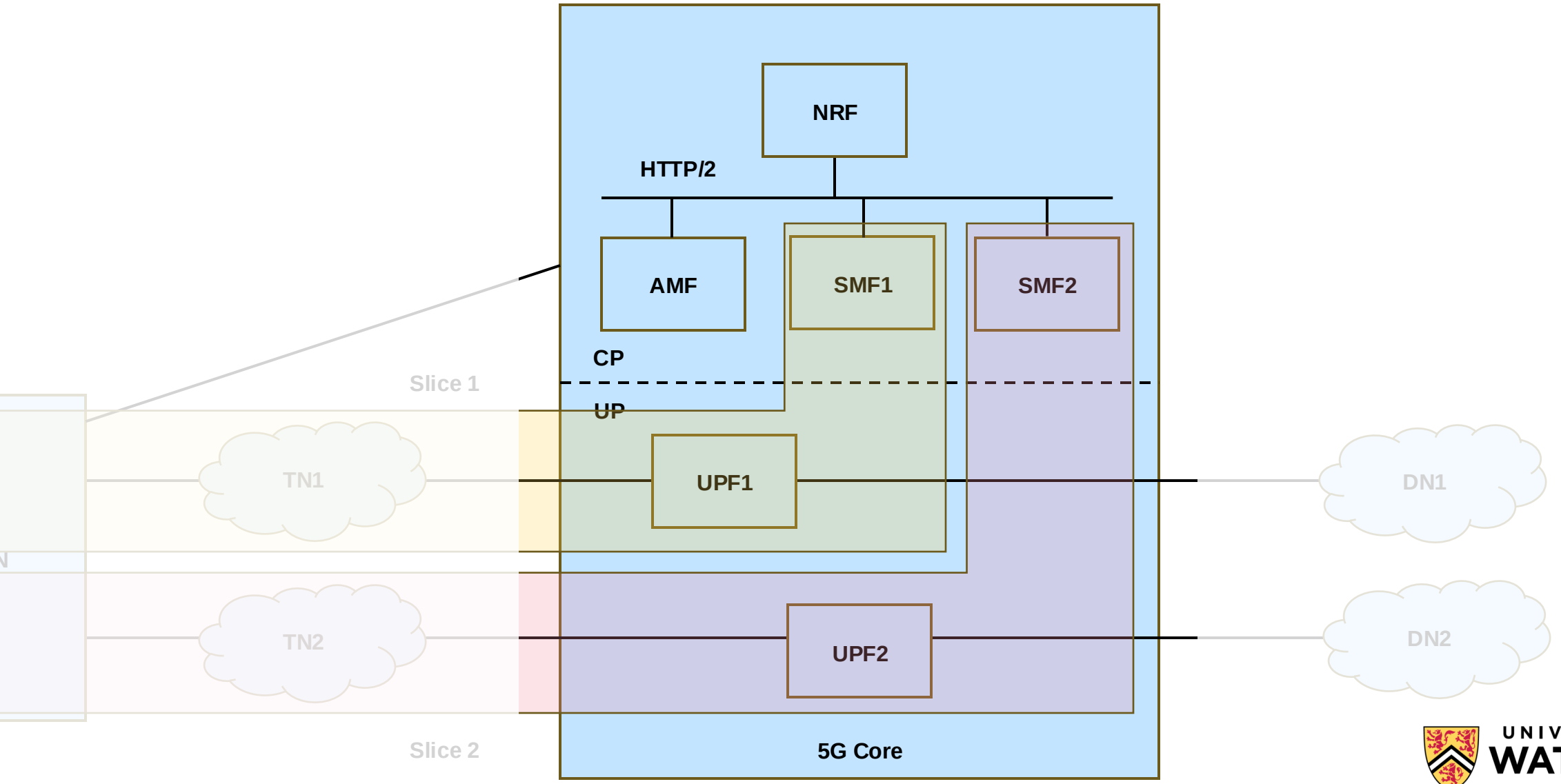

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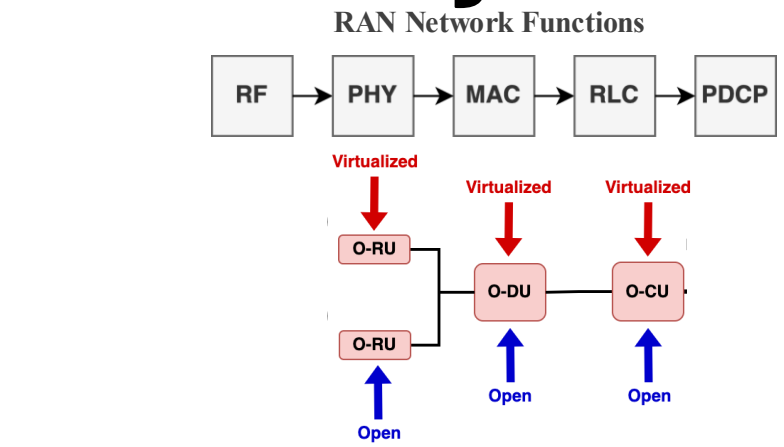

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Workshop 2: Overview

- Deploy and configure an open-source simulated 5G RAN testbed
- Deploy and configure an open-source O-RAN -compliant 5G RAN testbed
- Experiment with different deployment topologies and analyze their performance
- Deploy and configure an open-source Near-RT RAN Intelligent Controller (RIC)
- Monitor RAN KPIs from the RIC
- Experiment with RAN slicing xApp
- Leverage RIC-monitored metrics to train an ML model for UE traffic classification

WORKSHOP AGENDA

Day 1: Deploying a 5G O-RAN Testbed

Morning Session: UERANSIM: Deployment and configuration of a simulated 5G RAN

- Configure and deploy an open-source simulated 5G RAN testbed
- Test the RAN environment

Afternoon Session: OpenAirInterface: Deployment and configuration of a 5G O-RAN testbed

- Configure and deploy an O-RAN compliant 5G RAN testbed using OpenAirInterface
- Investigate different deployment topologies and scenarios

Day 2: RAN Monitoring and Control with Near-RT RIC

Morning Session:

- Overview of near-RT RIC and its deployment
- Introduction to E2 interface and E2 application Protocol (E2AP) and E2 Service Models (E2SM)
- Deployment of RAN monitoring xApp

Afternoon session:

- Overview of RAN Slicing and deployment of slicing xApp
- AI/ML classification of UE traffics into slice types

Day 1 (April 8)

	Session
9:15 AM - 10:00 AM	Introduction to 5G O-RAN
10:00 AM - 10:45 AM	UERANSIM: Deployment and configuration of a simulated 5G RAN
Coffee Break	
11:00 AM - 12:00 PM	UERANSIM: Deployment and configuration of a simulated 5G RAN
Lunch Break	
1:00 PM - 2:30 PM	OpenAirInterface: Deployment and configuration of a 5G O-RAN testbed
Coffee Break	
02:45 PM - 3:30 PM	Evaluation: Deployment and configuration of Hybrid multi-RAN topology

Day 2 (April 9)

	Session
9:00 AM - 9:30 AM	Introduction to O-RAN and Near-Real-Time Radio Intelligent Controller (Near-RT RIC)
9:30 AM - 10:15 AM	Hands-on: FlexRIC and E2 Interface
Coffee Break	
10:30 AM - 12:00 PM	Hands-on: RAN monitoring with E2 KPM and xApps
Lunch Break	
1:00 PM - 2:00 PM	Introduction to RAN slicing Hands-on: RAN slicing xApp
Coffee Break	
2:15 PM - 3:30 PM	Hands-on: ML-based UE traffic classification in Near-RT RIC

QUESTIONS ?

Get started here