

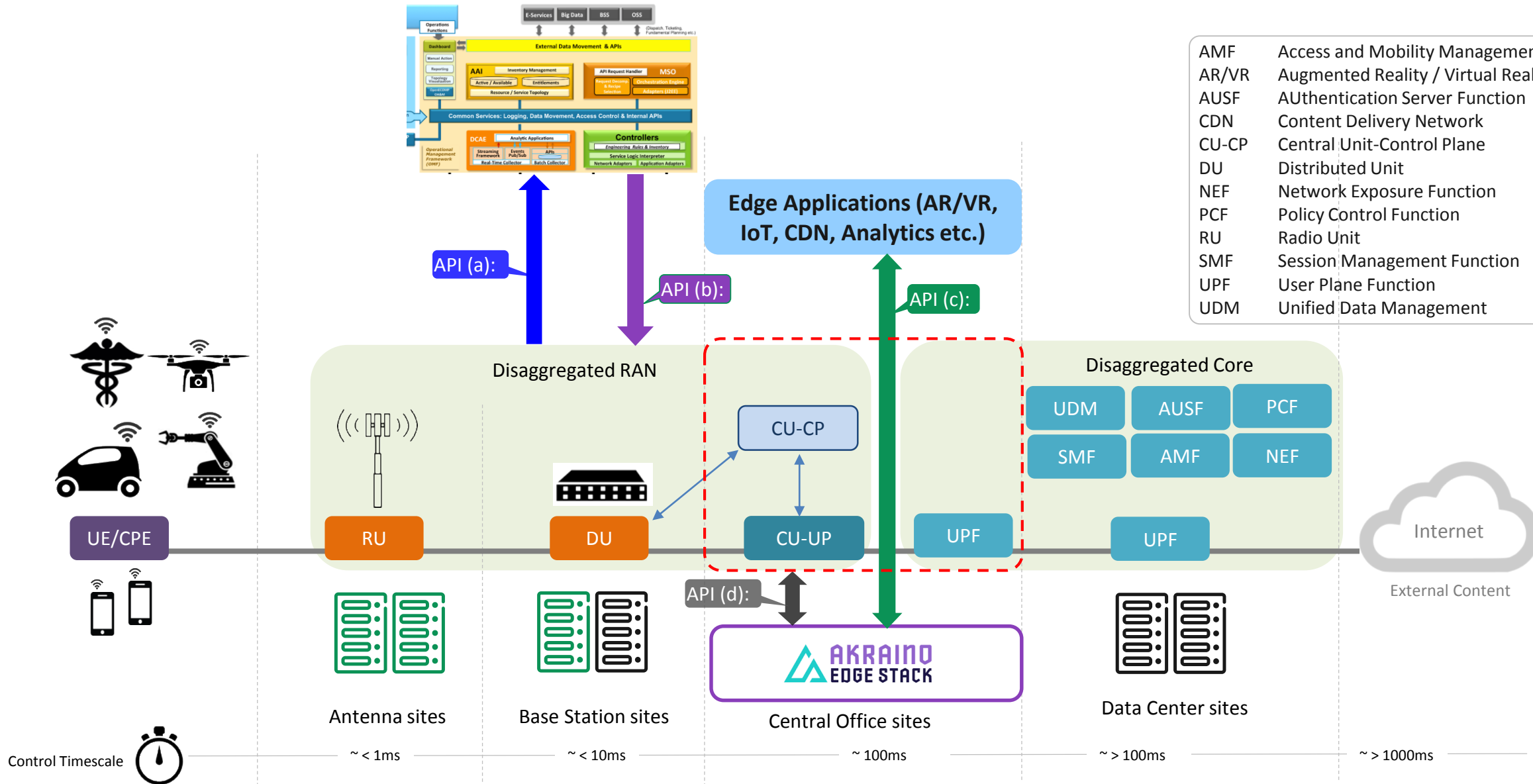
Realization of Infrastructure and Network APIs at the Edge

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2:45 PM – 2:55 PM, November 15, 2018

5G Based Edge Architecture



AMF	Access and Mobility Management Function
AR/VR	Augmented Reality / Virtual Reality
AUSF	AUthentication Server Function
CDN	Content Delivery Network
CU-CP	Central Unit-Control Plane
DU	Distributed Unit
NEF	Network Exposure Function
PCF	Policy Control Function
RU	Radio Unit
SMF	Session Management Function
UPF	User Plane Function
UDM	Unified Data Management

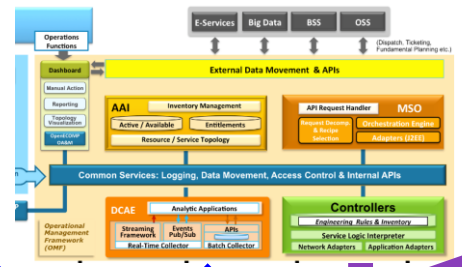
5G Based Edge Architecture



- API (a):
 - User information (e.g., devices, profile)
 - Application and Service characteristics (e.g., bandwidth, latency sensitivity)
 - Network characteristics (e.g., congestion, latency)
 - RAN state information (e.g., mobility, RF environment)

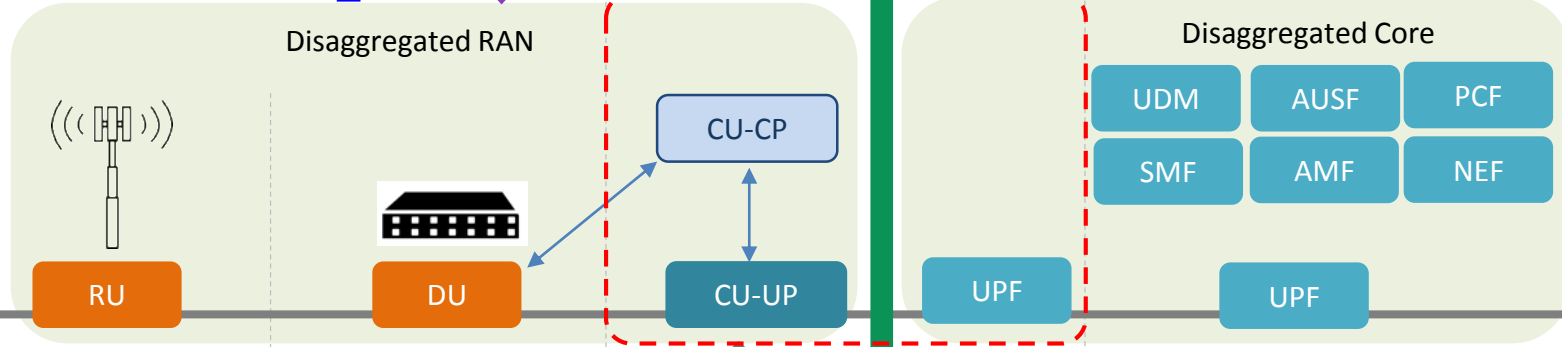
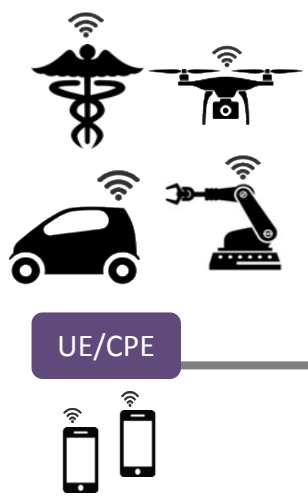
- API (b):
 - UE specific policy injection (e.g., premium users, handoff steering)
 - RAN policy injection (e.g., neighbor relations, traffic prediction)
 - Data enrichment (e.g., transport feedback, cross domain control)

- API (c):
 - Edge application placement (e.g., latency, regulatory)
 - Compute (e.g., PODs, CPUs etc.) requirements
 - Networking (e.g., IPv6, OVS-DPDK, SR-IOV) requirements
 - Storage (e.g., on/off board, ephemeral) requirements
 - Workload characteristics (e.g., VM, container, bare metal etc.)



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Edge Applications (AR/VR, IoT, CDN, Analytics etc.)



Antenna sites Base Station sites

Control Timescale ~ < 10ms ~ 100ms ~ > 100ms ~ > 1000ms

- API (d):
 - 5G application (e.g., CU, UPF) placement
 - Compute (e.g., PODs, affinity) requirements
 - Networking (e.g., SDN overlay, OVS-DPDK, SR-IOV) requirements
 - Storage (e.g., on/off board, ephemeral) requirements
 - Workload characteristics (e.g., VM, container, bare metal etc.)

Akraino APIs

