Towards AI-RAN:
Lessons Learned From the Rise and Challenges of Open RAN

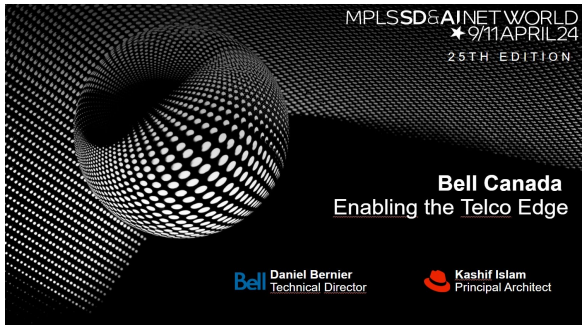
Kashif Islam
Principal Architect

Syed Hassan
Principal Architect

UPPERSIDE WORLD PARIS 2026

palais des congrès de paris

Our Intelligent Edge Story at MPLS WC So Far..



2023: Edge Cloud

- Compute at the edge
- Kubernetes part of the network
- Cloud converged transport

2024: Bell Canada Enabling the Telco Edge

- Real life Edge cloud deployment
- GitOps, Infrastructure as code

2025: Agentic Edge

- Intelligent edge
- AI Serving models at the edge
- Multipurpose Agentic Edge

Red Hat: Bringing Telco Cloud, Cloud-Native Apps and Provider Networks together!!

Approaching The Next RAN Evolution

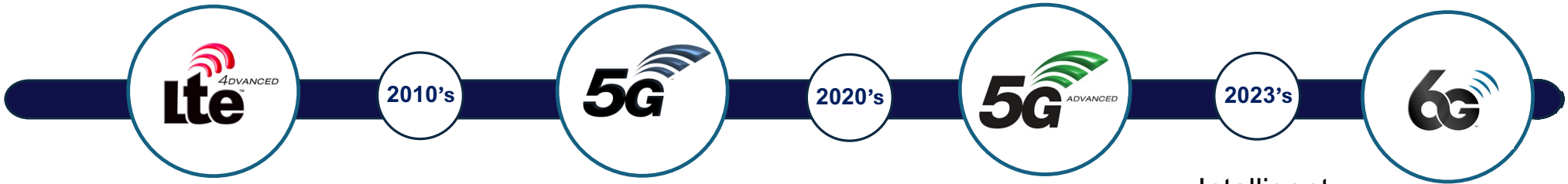
C-RAN Alliance

O-RAN ALLIANCE

AI-RAN ALLIANCE

xRAN

3GPP



Reliably Available Digital Voice and Data

Cloud Native, Interoperable, Open

Intelligent, Autonomous, Non-Terrestrial

Current State of a few Open RAN Champions

MAVENIR

Exited RAN segment, focus on cloud-native Mobile Core [1]

ECHOSTAR

dish

Aimed to be 4th largest US telco, sold off spectrum to AT&T and SpaceX in 2025.

ALTIOSTAR

Leading Network Transformation

Bought by Rakuten, results of recent partnership with AirSpan remains to be seen

KYOCERA

Exited RAN segment due to weak profit prospects [2]

NEC

Sixth largest RAN vendor in 2024, exited RAN at the end of 2025 [3]

1. https://www.lightreading.com/open-ran/mavenir-boss-regrets-open-ran-bet-in-u-turn-after-financial-rescue
2. https://asia.nikkei.com/business/telecommunication/kyocera-exits-5g-base-station-development-in-setback-for-japan
3. https://www.lightreading.com/5g/nec-retreat-from-5g-looks-like-another-big-blow-to-open-ran

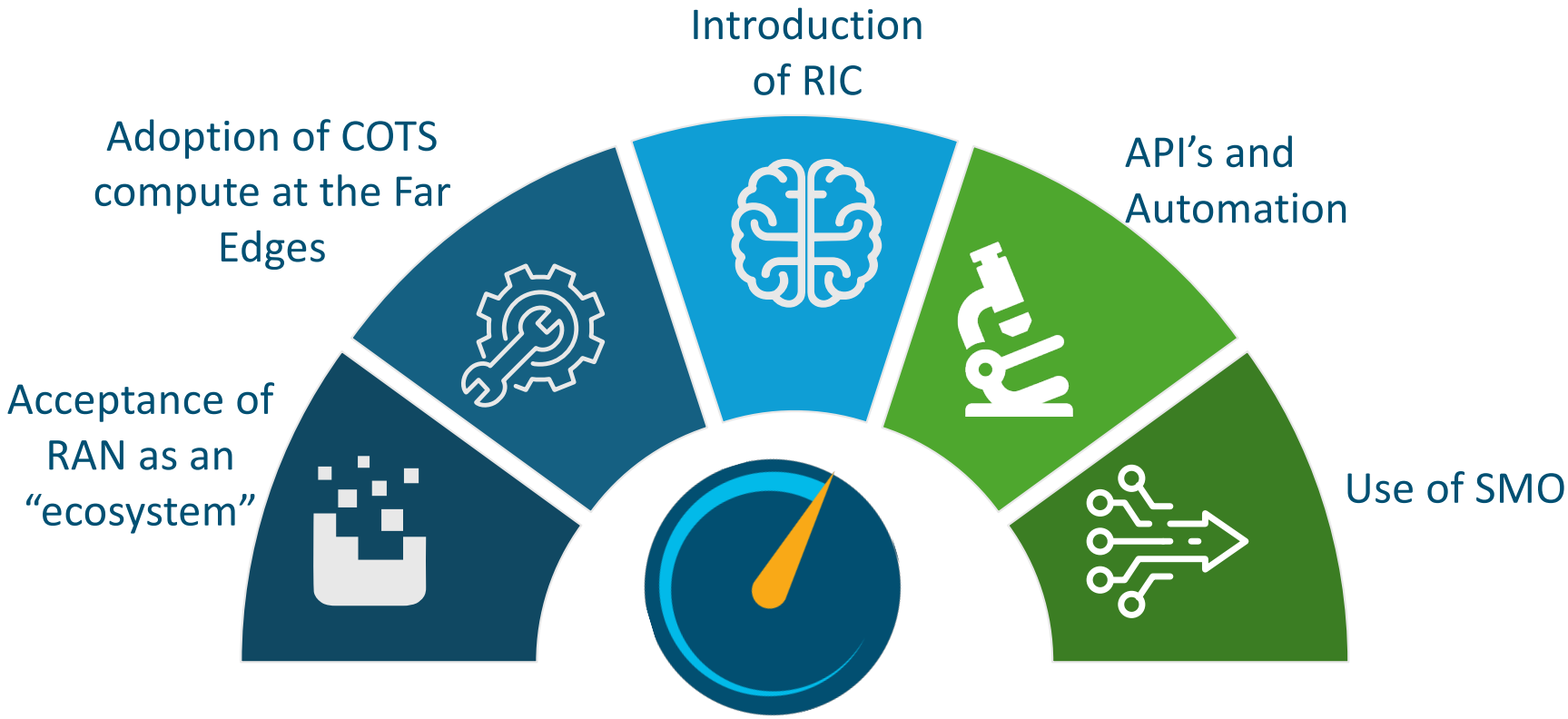
AI RAN: Learnings From the O-RAN Experiment !

AI-RAN

Driven By RAN Vendors (and others) (Nokia, Ericsson, Samsung, Nvidia, T-Mobile, Softbank, ….)	Driven by Telcos/Service Providers (AT&T, China Mobile, DT, NTT DOCOMO, Orange)
Leverages the strength of incumbents	Challenges the status quo
Driven by market demand	Creating new market demands
Business north star	Technical north star
Way to enhance/optimize the RAN revenue + more	An effort to lower the cost of RAN buildout
Benefits from the Open RAN experiment	Breaking new grounds

O-RAN

Beyond Open FH: O-RAN Have Already Moved the Needle !!



AI RAN Fundamentals

AI for RAN

Use of AI to improve RAN

Focus on spectral efficiency, power usage

Lowest hanging fruit

Already in production at many large telcos

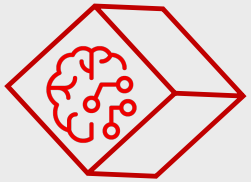
AI and RAN

Run AI workloads on same hardware as RAN

Shared compute hardware for AI ***and*** RAN)

Possibility of compute monetization

Benefits from the mindshare capture of COTS HW usage and disaggregation in Open/Cloud RAN



AI on RAN

Use air interface (RAN) for AI transport

Provides edge processing for 3rd party AI apps

Cell site(s) becomes the brain for a distributed AI Grid

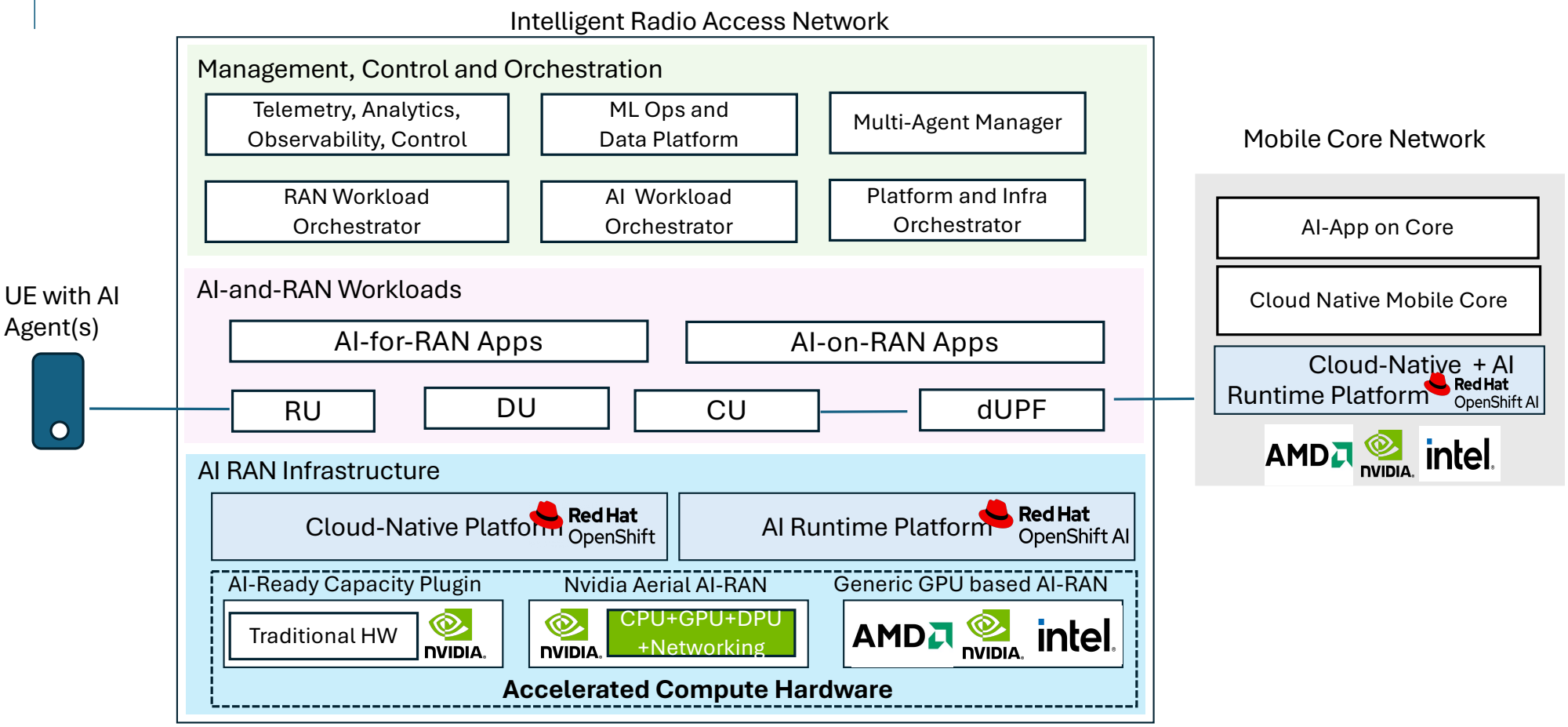
Enormous potential of growth and usecases

Consistent Policy and Governance

Platform

NVIDIA. Red Hat OpenShift AMD Red Hat OpenShift AI intel

AI-RAN Stack


Intelligent Radio Access Network
Management, Control and Orchestration
Telemetry, Analytics, Observability, Control
ML Ops and Data Platform
Multi-Agent Manager
RAN Workload Orchestrator
AI Workload Orchestrator
Platform and Infra Orchestrator
AI-and-RAN Workloads
AI-for-RAN Apps
AI-on-RAN Apps
RU
DU
CU
dUPF
AI RAN Infrastructure
Cloud-Native Platform
Red Hat OpenShift
AI Runtime Platform
Red Hat OpenShift AI
AI-Ready Capacity Plugin
Traditional HW
NVIDIA
Nvidia Aerial AI-RAN
NVIDIA
CPU+GPU+DPU +Networking
Generic GPU based AI-RAN
AMD
NVIDIA
intel
Accelerated Compute Hardware
UE with AI Agent(s)
Mobile Core Network
AI-App on Core
Cloud Native Mobile Core
Cloud-Native + AI Runtime Platform
Red Hat OpenShift AI
AMD
NVIDIA
intel

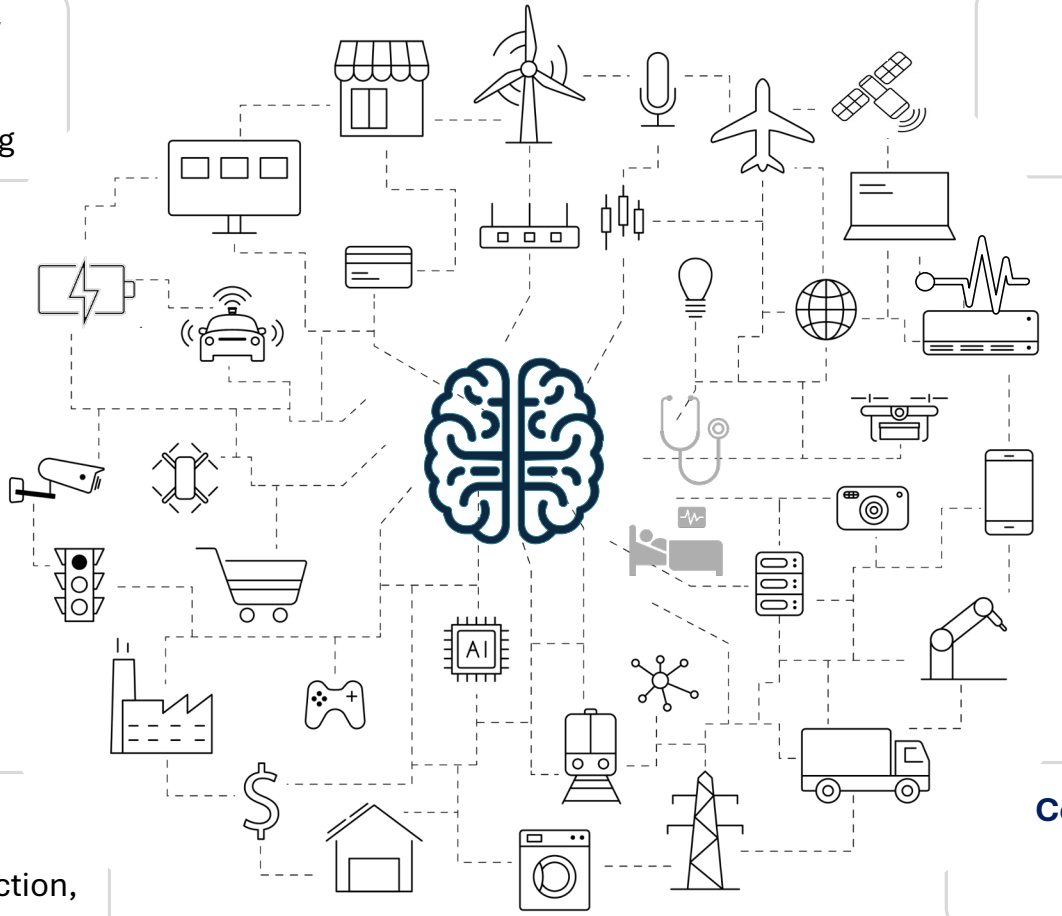
(Some) AI-RAN Usecases

Spectral Efficiency
(AI for RAN)
Smart RF Utilization
Neural Beam Forming

Predictive Energy Mgmt
(AI for RAN)
Predict quiet periods for micro sleep and deep sleep of RAN Infra

Physical AI offloading
(AI on RAN)
Offload processing for physical AI devices and robotics

Vision AI
(AI on RAN)
Public safety, incident detection, and response



Autonomous Fleet Mgmt
(AI on RAN)
Distributed brain for drone, automobile and other fleet

Infrastructure Inspections
(AI on RAN)
Visual and atmospheric anomaly detection with Edge processing

RT Language Processing
(AI on RAN)
Seamless, realtime, native audio and video processing

Compute Monetization
(AI and RAN)
GPU as a Service

Typical Telco's AI-RAN Approach

- No more following the "if you build it, they will come" approach
- Business case first, start with RAN efficiency and savings (e.g. Bell[1])
- Both Classical and Cloud RAN are AI-RAN candidates
- Couple AI RAN with telco's Autonomous Networking (AN) journey
- Cell Sites as part of the distributed AI Grid for real world physical AI's nervous system [2]
- While not hyper focused on Open RAN interfaces, telcos still want an *open* architecture

1. https://www.ericsson.com/en/press-releases/6/2025/ericsson-and-bell-canada-successfully-test-ai-native-link-adaptation-to-boost-network-speed-and-efficiency
2. https://worldbusinessoutlook.com/nvidia-and-t-mobile-deploy-ai-ran-for-physical-ai-apps/

While Open RAN had mixed success w.r.t to the bold vision it laid out, it has heavily influenced the industry shift towards an intelligent edge and open interfaces (e.g. O2 IMS *).

Open RAN was a necessary beta test that has undoubtedly laid the foundation for what comes next: AI RAN

* https://www.ericsson.com/en/news/2025/2/ericsson-reconfirms-open-ran-leadership-by-advancing-o2-interface-industrialization-with-dell-technologies-and-red-hat