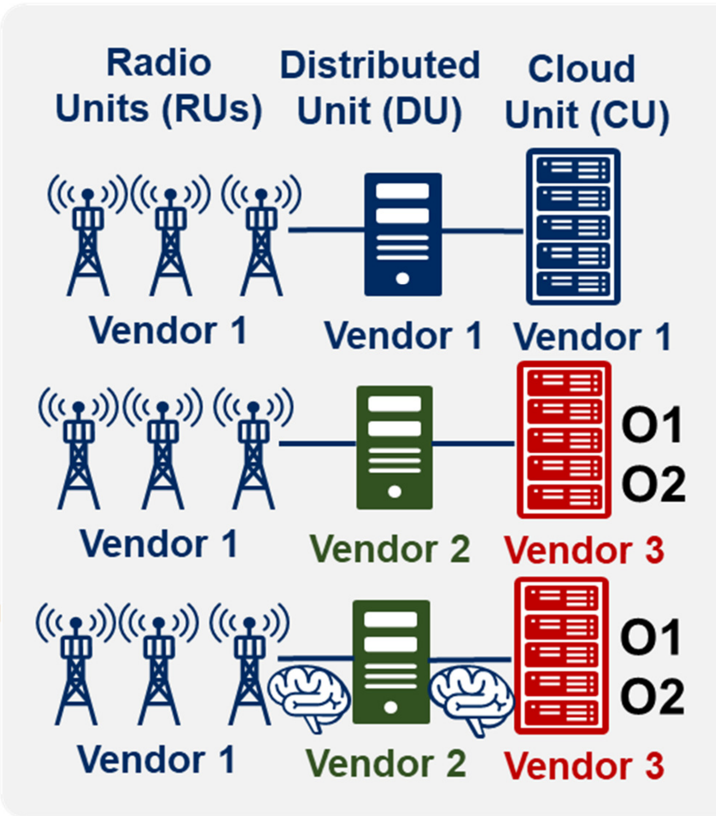
vrAIn: A Deep Learning Approach for Virtualized RANs

J. A. Ayala-Romero*Ψ, A. Garcia-Saavedra*, M. Gramagliaω,
X. Costa-Perez*, A. Banchsω⊝, J. J. AlcarazΨ
NEC Laboratories Europe, Technical University of CartagenaΨ,*
Universidad Carlos III de Madridω, IMDEA Networks Institute⊝

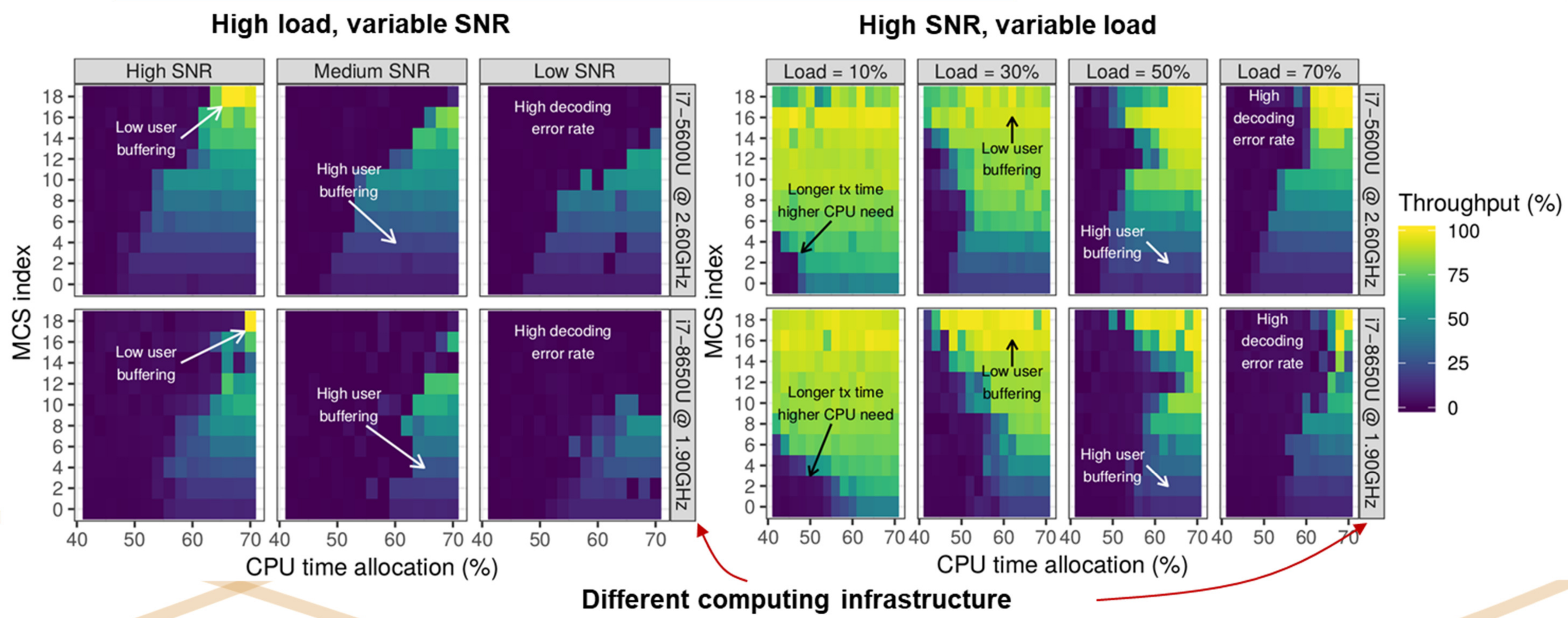
Dynamic Control of Virtualized RANs

- Native support for HW/SW upgrades
- Continuous Gradual Optimization
- AI derives optimal control policies tailored per-operator



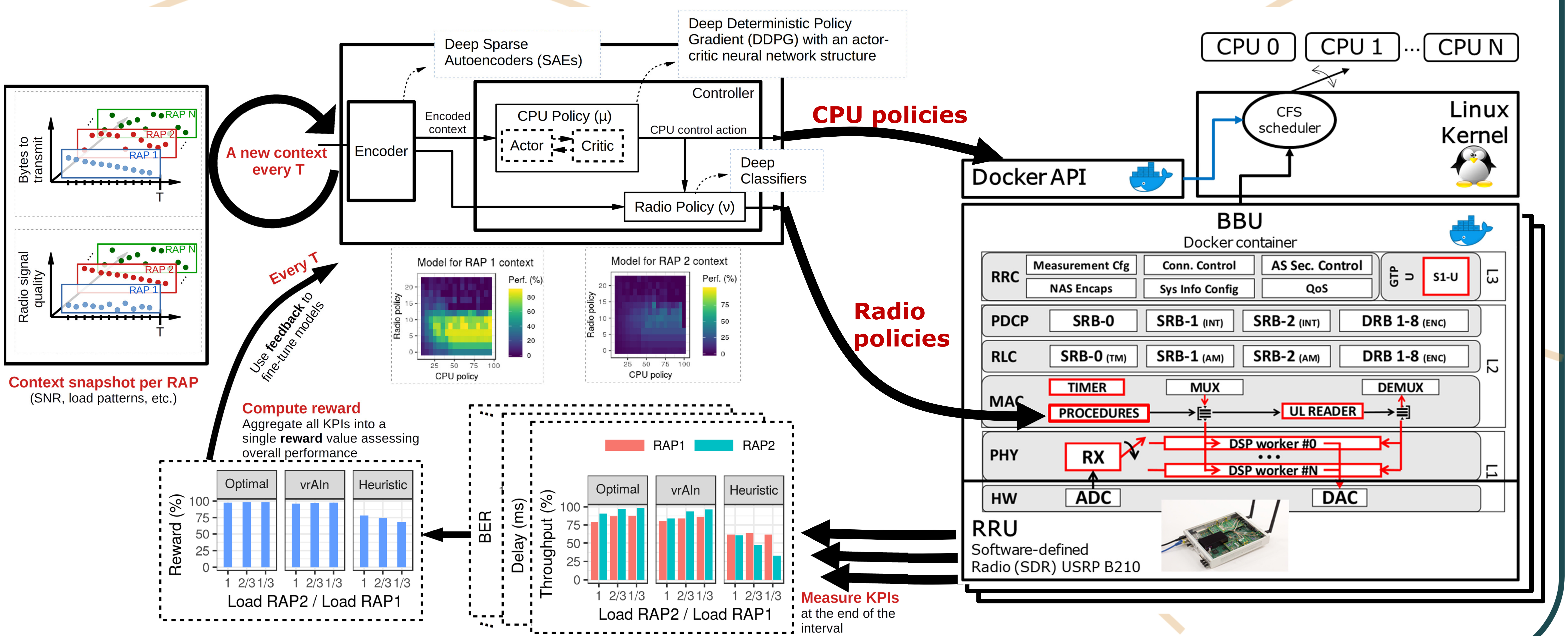
	CAPEX	OPEX	Performance	Flexibility
Conventional RAN				
vRAN				
vRAN + vrAIn				

O1:NW Operator 1, O2:NW Operator 2

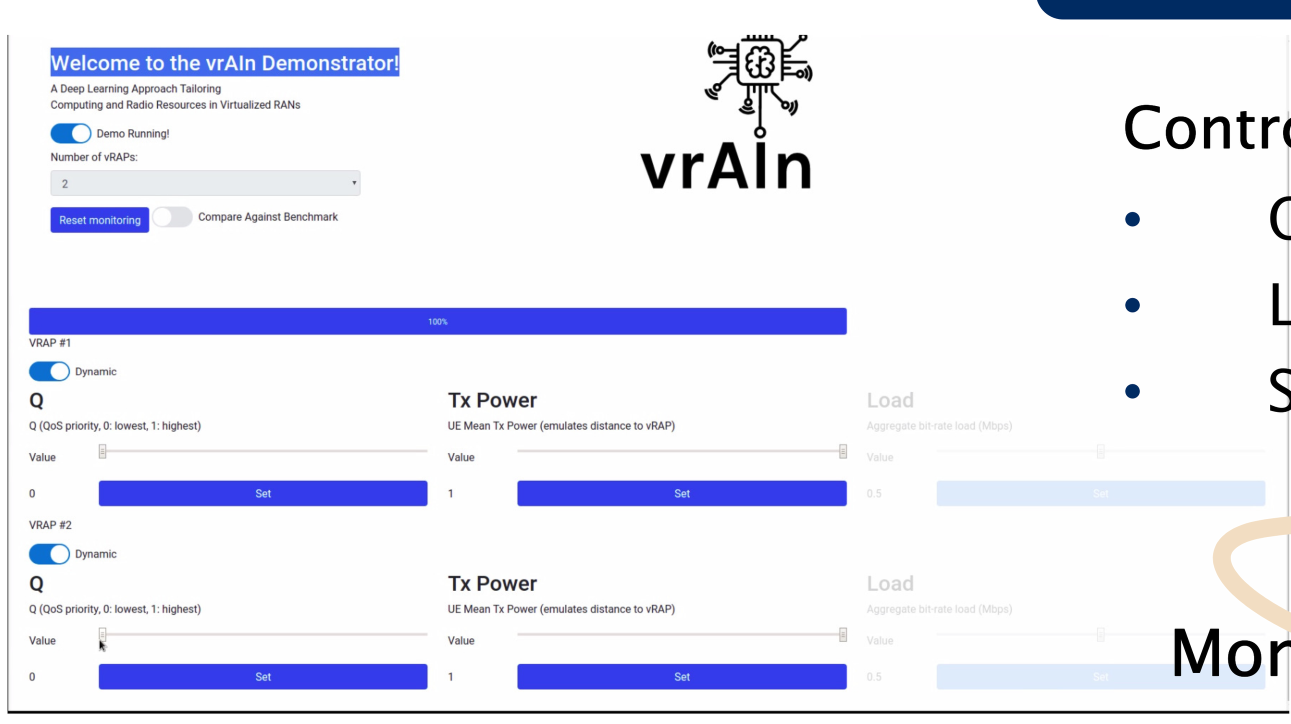


- Resource control depends on context (SNR conditions, computing platform and load) and is highly non-linear
- We need AI/ML to learn the underlying model relating radio/compute resource decisions, contexts and performance!

vrAIn Design



Proof-of-Concept



Control Frontend

- QoS Criteria
- Load patterns
- Signal quality patterns

Monitoring Dashboard

System reward and system cost
Network load and SNR
CPU and radio policies
Throughput, BER and CPU usage

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