Automated Service Delivery and Optimal Placement for Cloud Radio Access Networks

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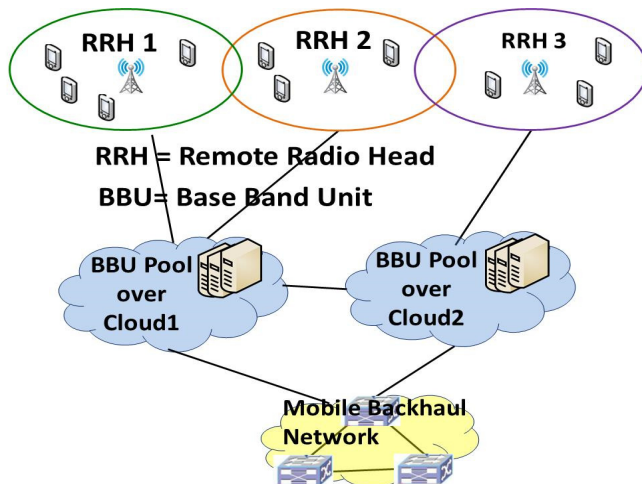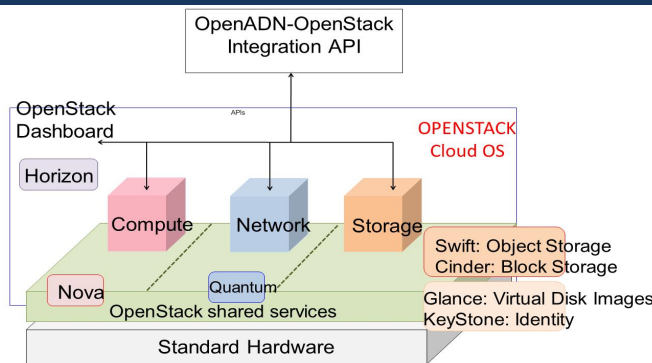
PROBLEM

- Inefficient resource allocation in Radio Access Networks (RANs)
- Ad-hoc deployment of resources
- High CAPEX and OPEX to ASPs
- Error-prone manual deployments
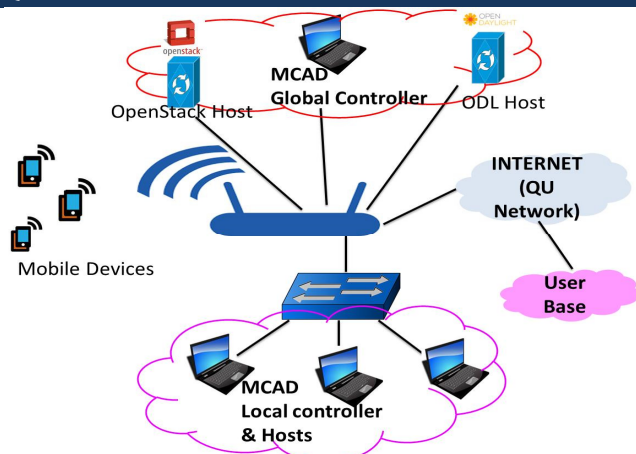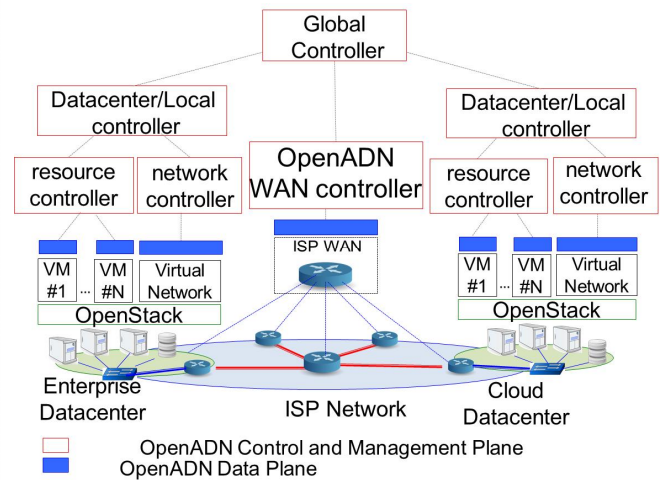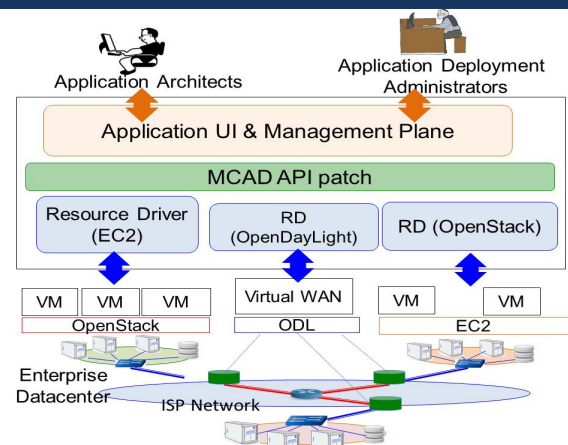- Need for Automation platform with centralized resource pool architecture

SOLUTION

- Cloud-RANs is a solution
- Baseband unit (BBU) functionality of RANs deployed at Clouds
- Multiplexing of resources at Clouds
- Automation platform for resource allocation
- MCAD (Multi-cloud Application Delivery Platform): extension of OpenADN

CRAN ARCHITECTURE

RRH = Remote Radio Head
BBU= Base Band Unit

OPENADN ARCHITECTURE

OPENSTACK INTEGRATION

MCAD ARCHITECTURE

QU SETUP

RESOURCE ALLOCATION - COMPARISON

- Branch and Bound - Sorted Ascending
- Branch and Bound - Sorted Descending
- Simulated Annealing - Shorter
- Simulated Annealing - Longer
- Branch and Bound - Normal

SA-shorter performs the Worst with maximum total delays

BnB-SD performs the best with minimum total delays

Delays in Milliseconds

X-Axis: No of requests. Form 200 till 10000.