Multi-tenant data center experiment on PRAGMA-ENT

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1. Motivation

Requirements for the Multi-Tenant Data Center (MTDC) network

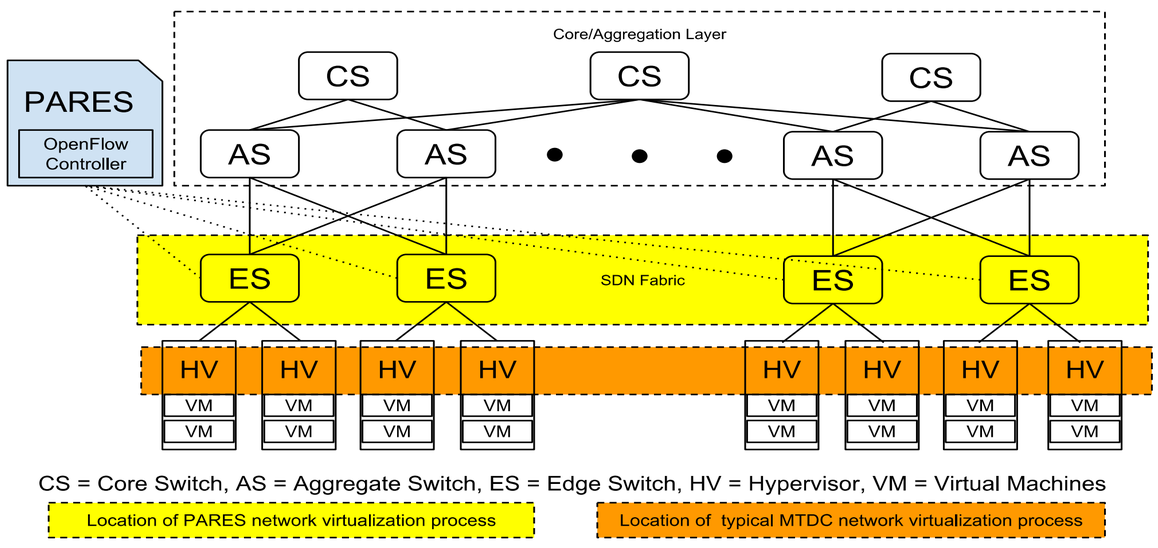
- Multiple isolated address spaces, managed by tenants
- Managing and isolating overlapping address spaces
- Support for VM migration for flexible provisioning
- Decoupling of large number of virtual network topologies from physical network topology
- Ability to scale to large numbers of topologies

Current trend in MTDC designs

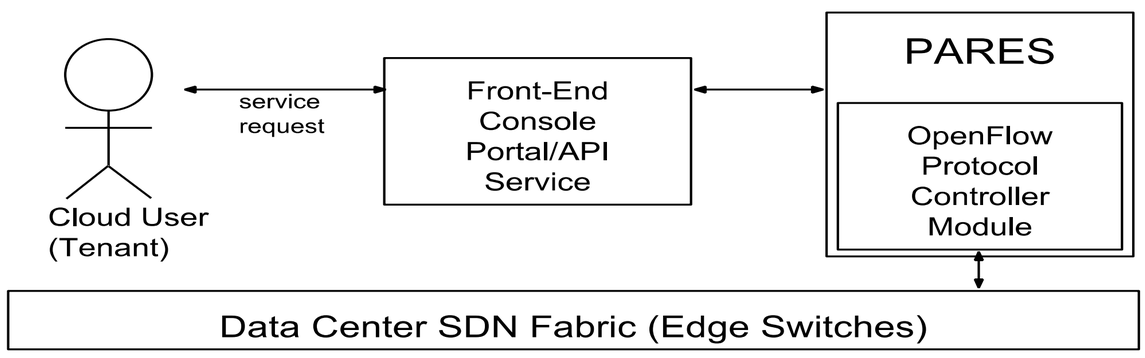
- Multi-root fat tree and bidirectional longest prefix
- Simple routing protocol at IP core/aggregation layer
- Proxy at hypervisor, Top of Rack or inside O/S network stack
- Leverages various encapsulation protocols or custom encapsulation techniques (VXLAN, GRE, NVGRE, IPinIP)

→ **Current MTDC architectures incur computation overhead (due to encapsulation) at edge edge servers**

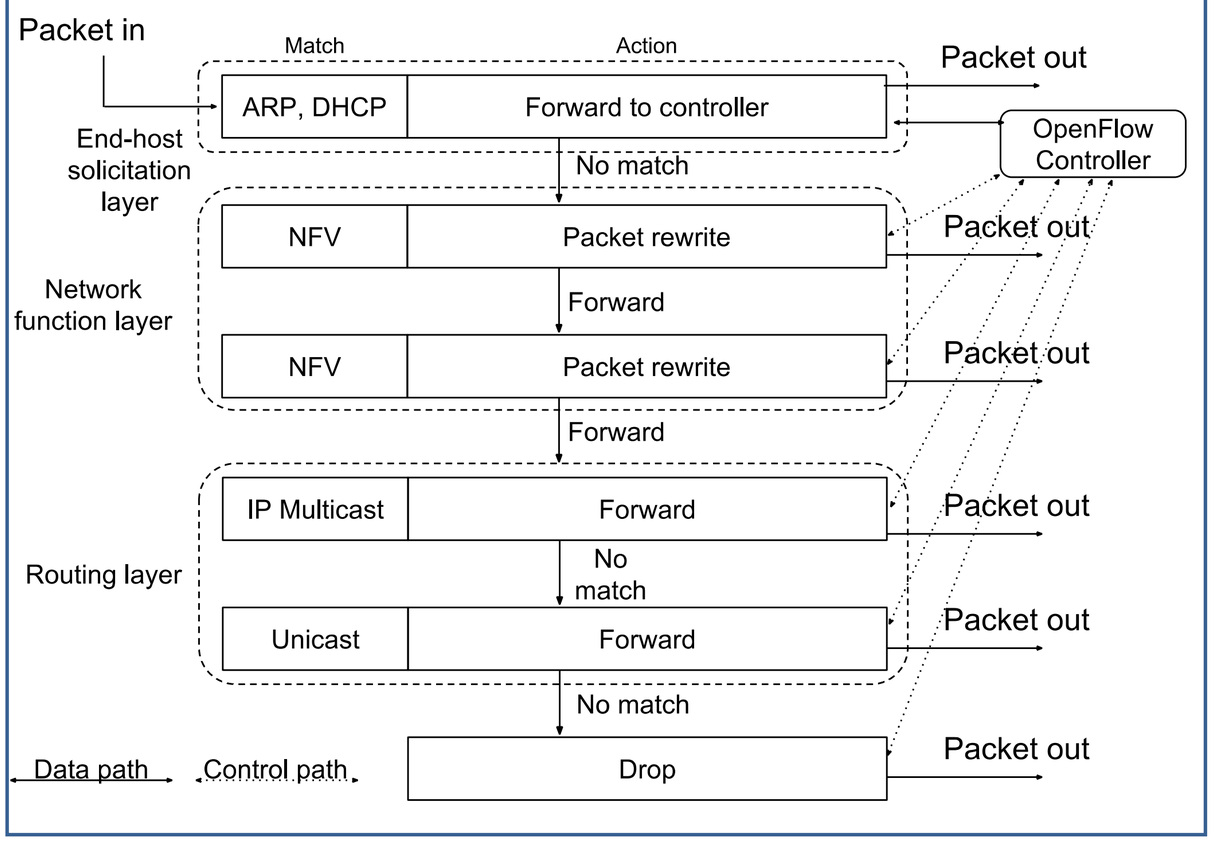
→ **PARES offloads these overheads from edge servers (hypervisors, O/Ss) to the "edge" SDN devices, using packet rewriting**



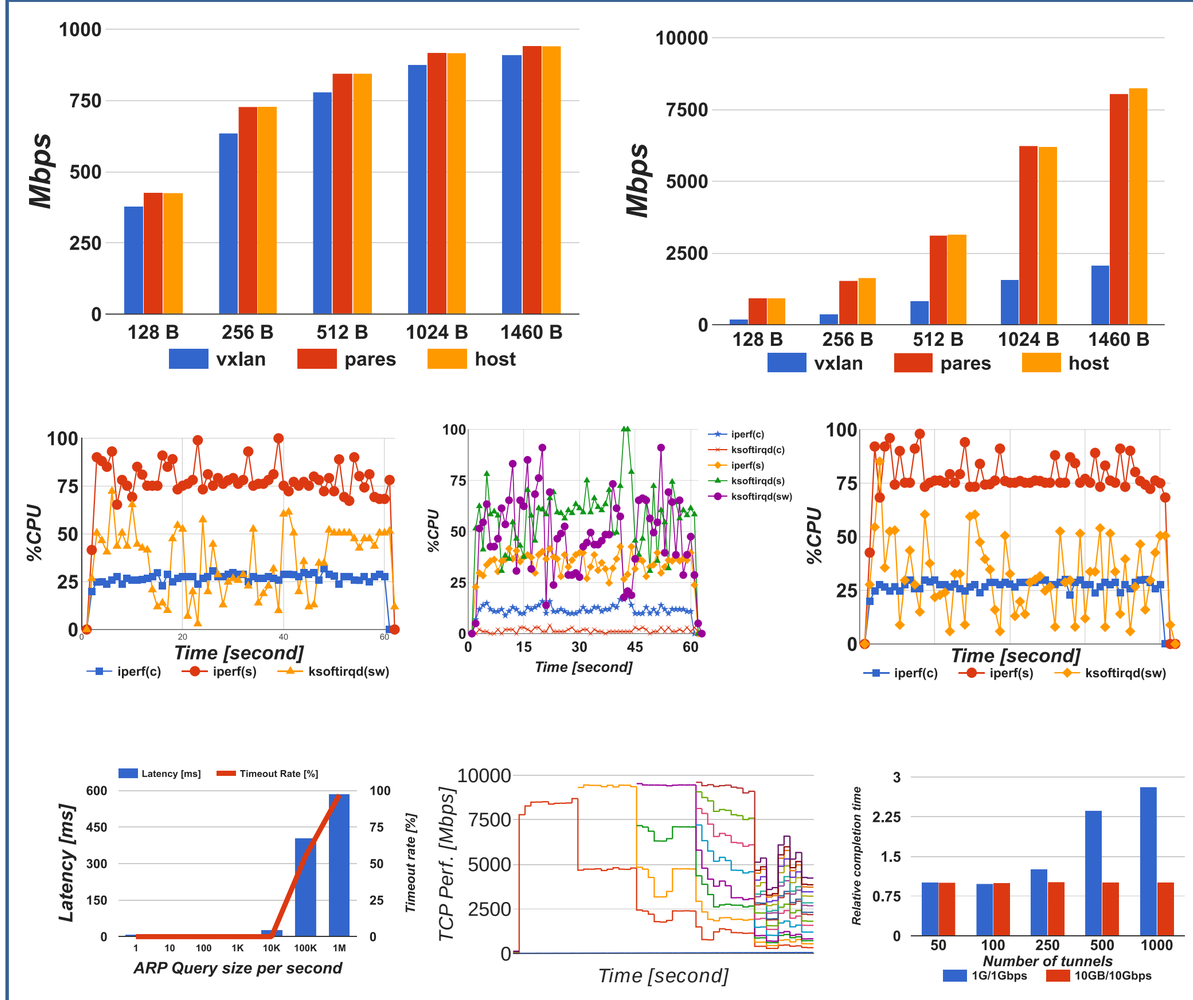
2. Architecture / Mission statement



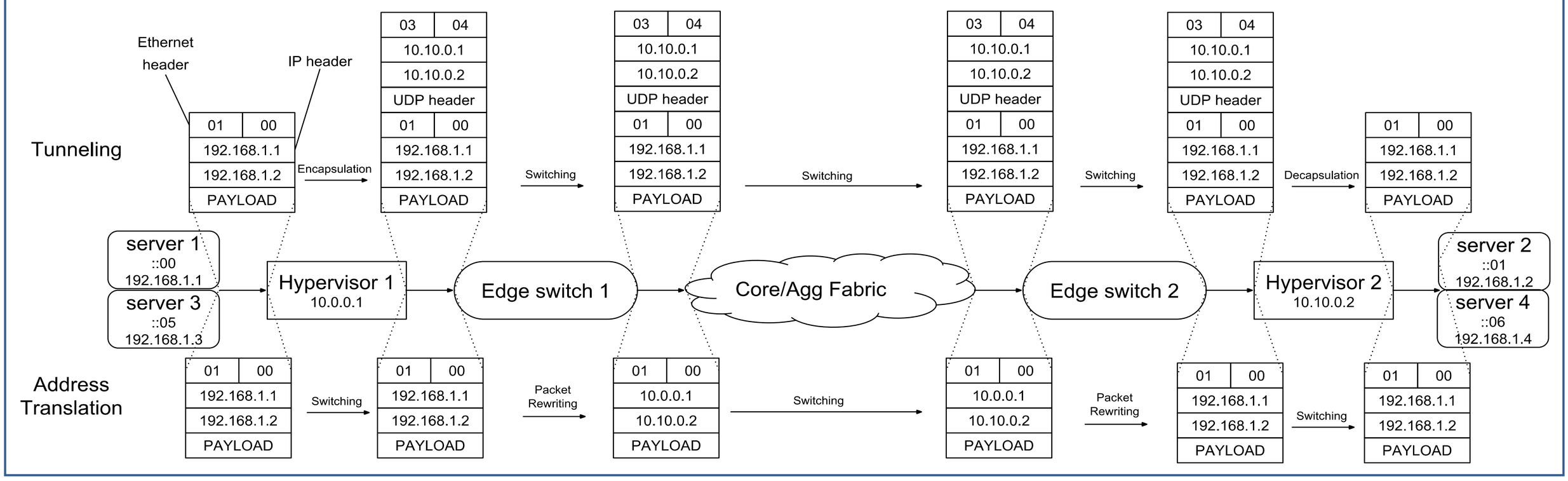
3. Network layers of PARES



4. Evaluation



4. Datapath Comparison



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