



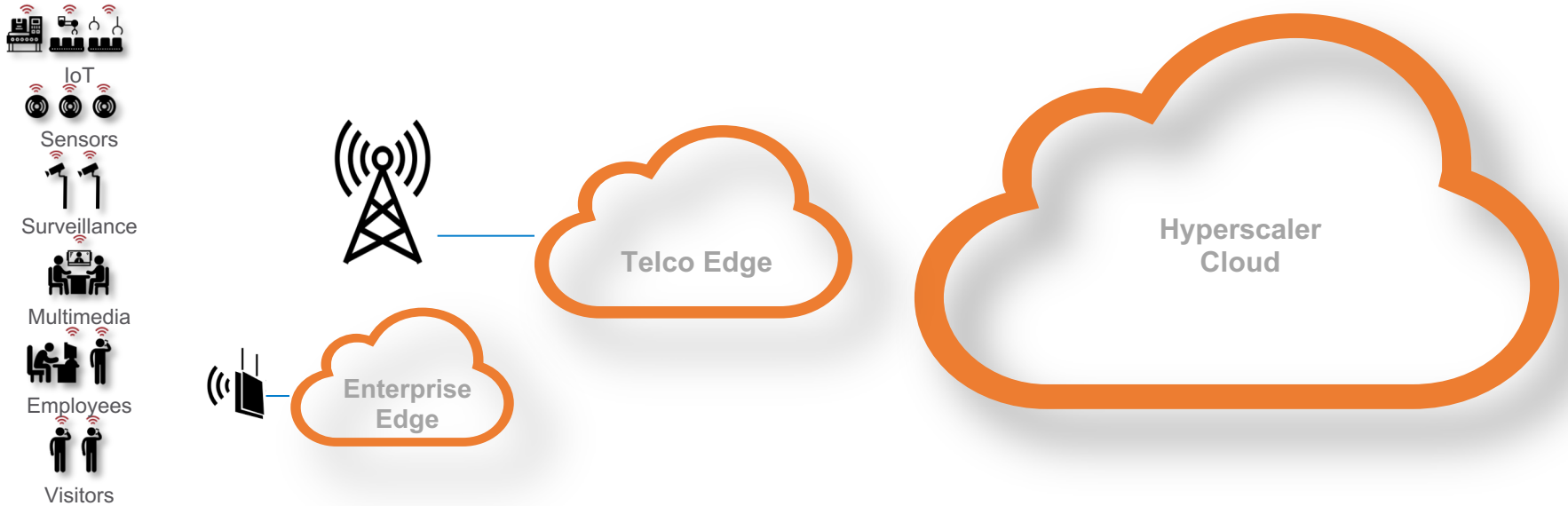
SD-Fabric

Programmable Fabric for Datacenters

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Open Networking Foundation

Era of the Multi-Cloud Connected Edge



Era of the Multi-Cloud Connected Edge

What Needs to be Supported

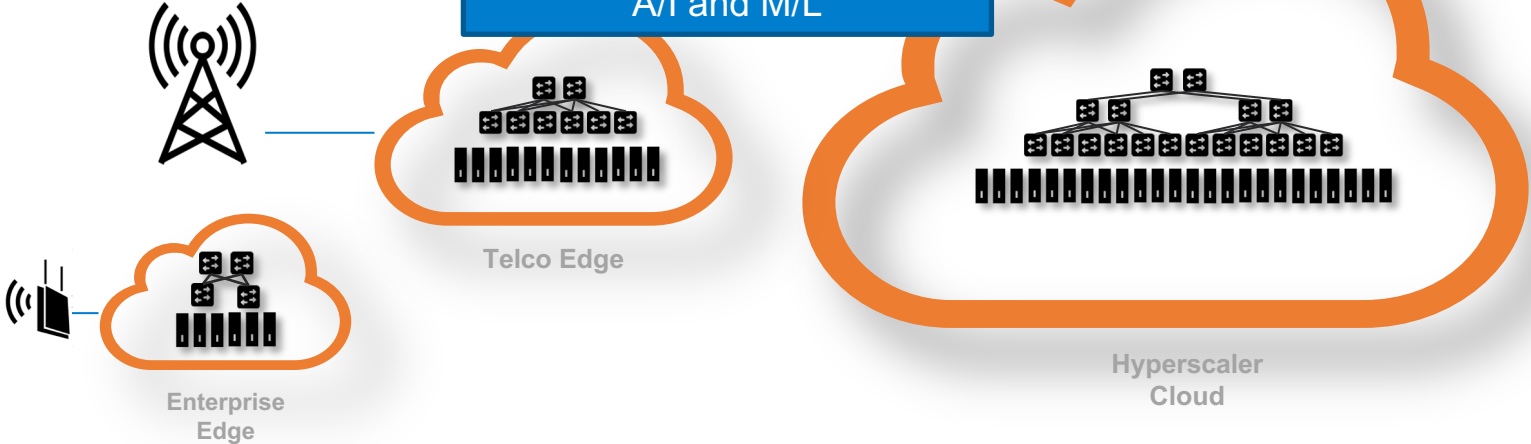
Multi-Cloud Applications

IoT and 1000x Endpoints

5G & Connected Devices

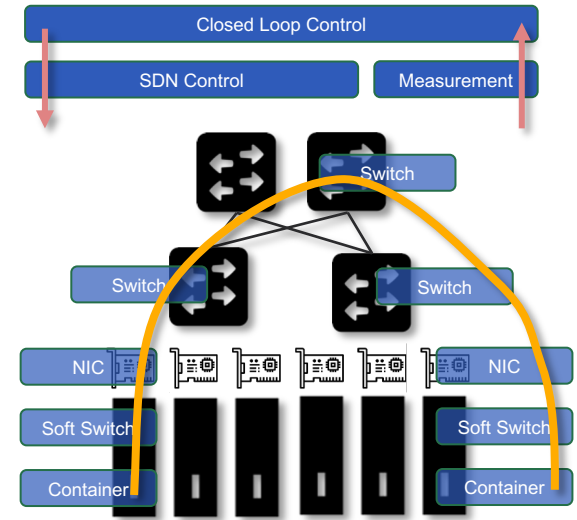
AI and M/L

- IoT
- Sensors
- Surveillance
- Multimedia
- Employees
- Visitors

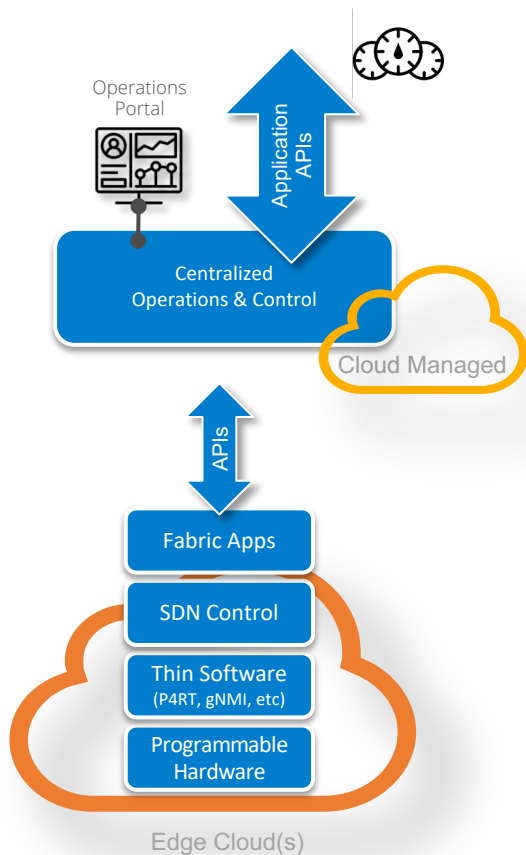


What we need of the new datacenter

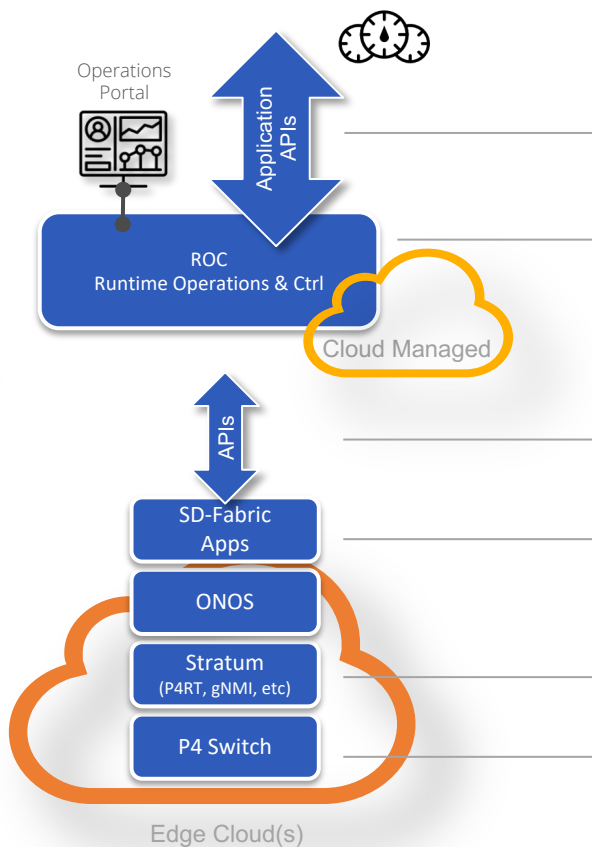
- Lines Between Servers and Networking are Blurring
 - Combating the Stall in Moore's Law
 - Programmable Cluster of Computing
- Developer Optimized
 - Deeply Programmable
 - Distribute workloads on CPU, GPU, NIC or Switch
 - Enable the developer with APIs
- Needs to be Cloud Managed
 - Deployed and managed from the cloud
 - Easy to use gauges and dials for application visibility and control
- Need to Orchestrate all these components
 - Opportunity to build more resilient, secure and self-healing solutions



What Would This Stack Look Like?



What We Have SD-Fabric



What's to Come

Expanded APIs for 3rd party edge app developers

Multi-tenancy

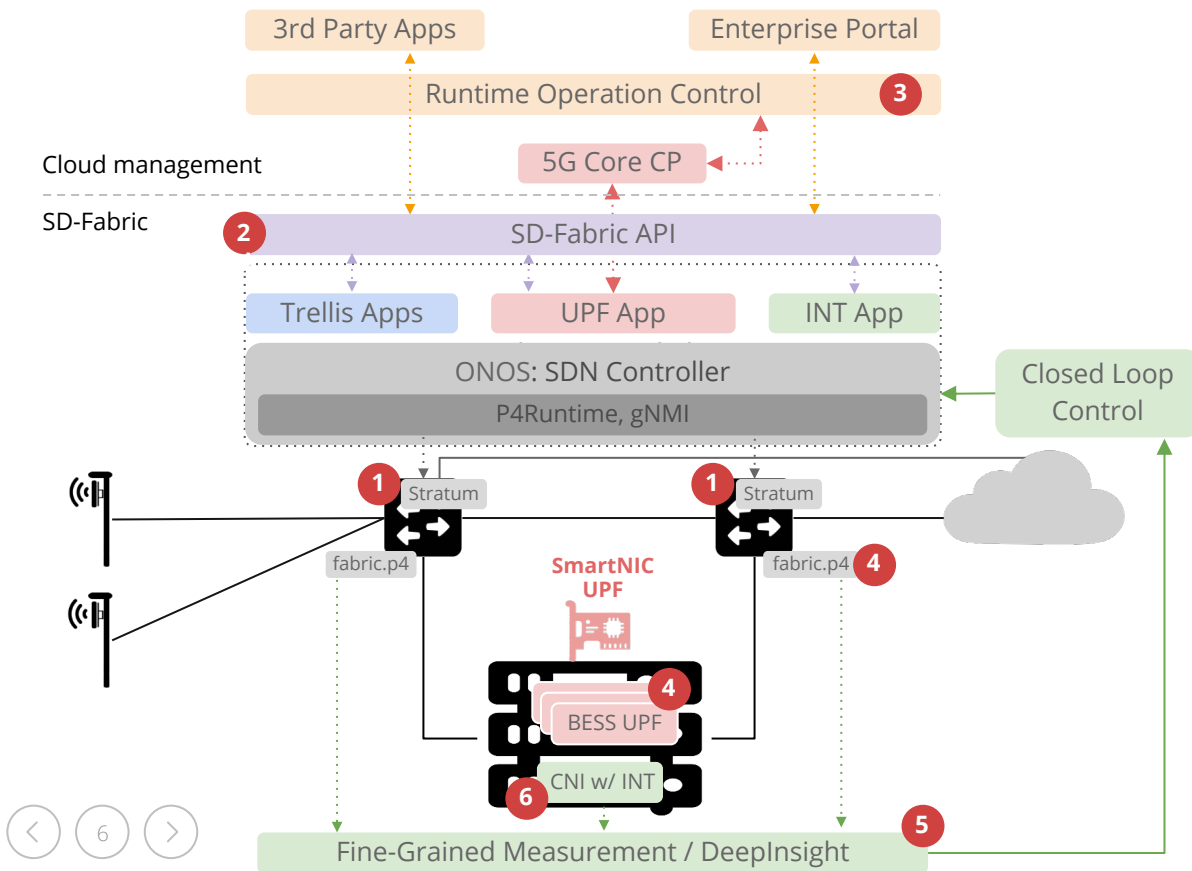
CNI Optimizations

Overlay Support

SONiC Integration (PINS)

NIC and Soft Switch Support

SD-Fabric Platform Overview



- 1 Enterprise first:** focus on smallest HA setup - paired leaves and dual homed servers. Possible to scale into a full leaf-spine fabric as edge grows
- 2 5G first & developer first:** programmable API with slicing as primary construct. Initially focus on **slicing, QoS and telemetry** and more to come
- 3 Fully integrated and configured by Aether**
- 4 Fabric wide 5G UPF with slicing and QoS**
 - Tofino + BESS UPF scalable on demand
 - Smart NIC + BESS UPF for deployments without Tofino
- 5 Visibility** throughout the entire network. Enable closed loop control
- 6 Integration** with K8s CNI and overlay. Enable true **end-to-end programmability and visibility**

Summary

Network fabric as a cloud service

- **Cloud managed**
 - Integrated with Kubernetes
 - Optimized for CNI and overlay
 - Managed by Aether (or any other edge cloud solution)
- **Optimized for developers**
 - Created APIs for 3rd party edge apps
 - Built platform for P4 developer to implement innovative services like UPF and INT
- **End-to-end deep programmability and visibility**
 - Workload potentially be distributed onto various target (e.g. CPU, FPGA, smart NIC or switch)
- **Initially focus on 5G enterprise edge**
 - Built-in network slicing and QoS
 - Can also be scaled and adopted in other types of datacenters

What's Next ?

- Roadmap of 2021
 - SD-Fabric API release
 - Support more P4 targets (smart NIC, eBPF)
 - QoS and networking slicing remain our focus throughout the rest of the year

- Keynote by Oguz and Carmelo **May 20th, 8:00am PDT**
 - Learn more about our **P4-based UPF** implementation



Thank You

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