



One Size does not Fit All

Tungsten Fabric as an Enabler of Intent-Based Security in Diverse Multicloud Architectures

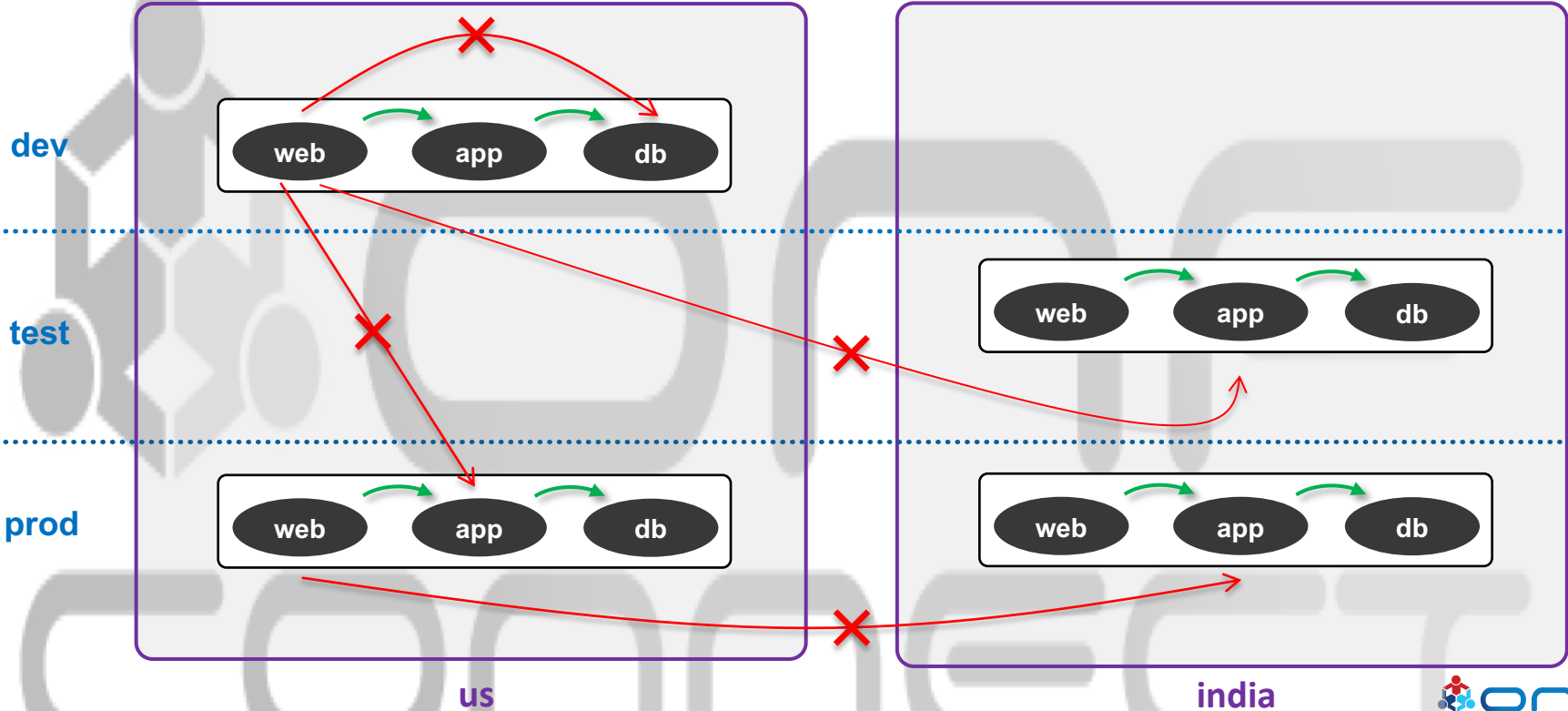
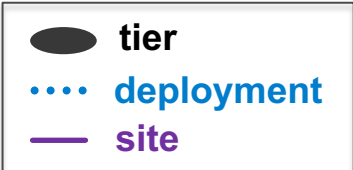
Richard Roberts & Ato Sánchez-Monge
Juniper Networks

Enterprise

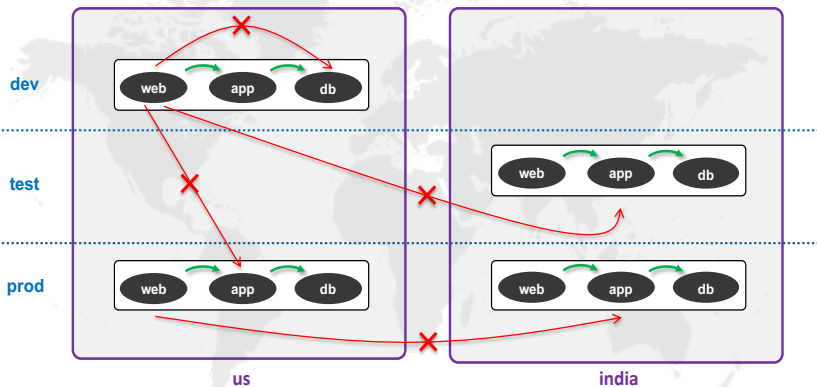
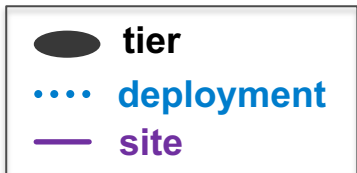
Networking Vendors in the Public Cloud Era

- Is Adding Value on top of a Public Cloud Offering...
 - ... challenging?
 - ... possible?

One Classical Security Challenge



Classical Solution to the Challenge



Security Groups:

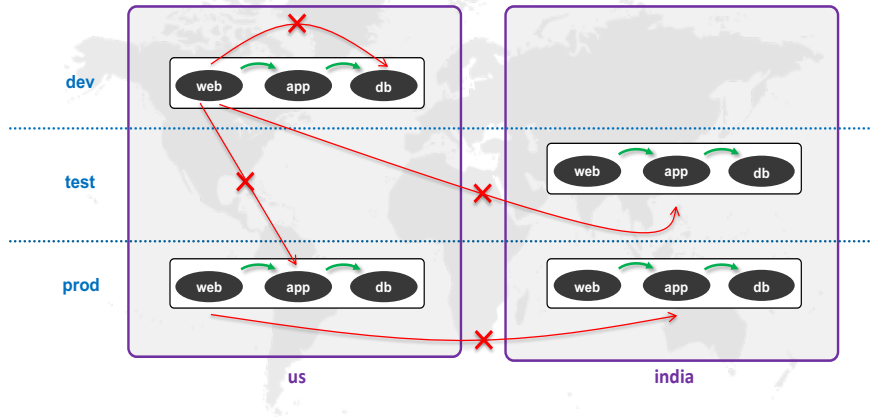
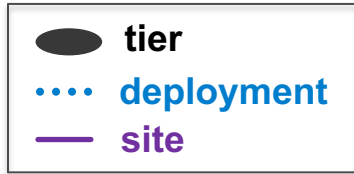
dev_us_web → dev_us_app
dev_us_app → dev_us_db

test_india_web → test_india_app
test_india_app → test_india_db

prod_us_web → prod_us_app
prod_us_app → prod_us_db

prod_india_web → prod_india_app
prod_india_app → prod_india_db

Innovative Solution to the Challenge



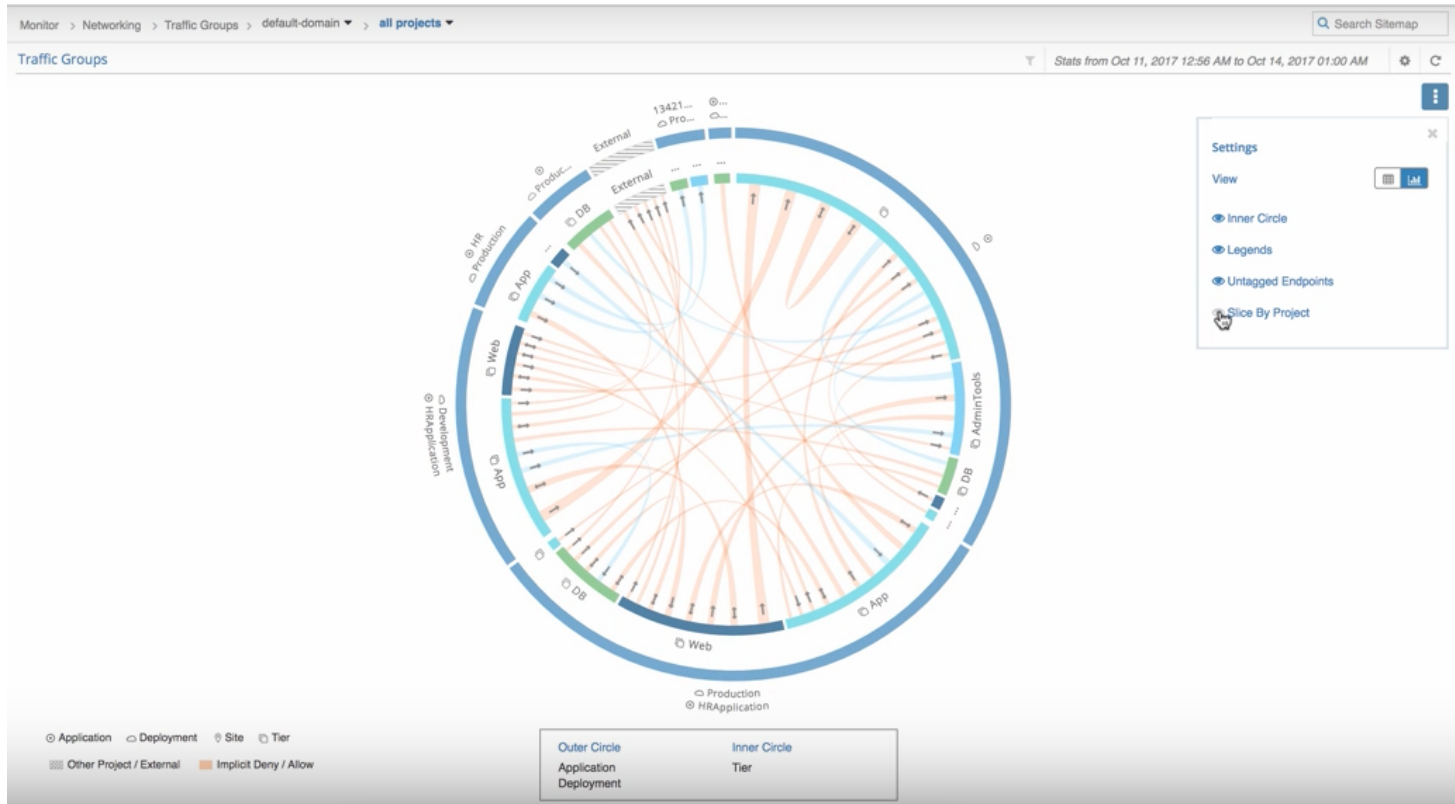
Firewall Policies:

[web → app] && match **deployment**, **site**
[app → db] && match **deployment**, **site**

Multi-Dimensional Security
by Prasad Miriyala



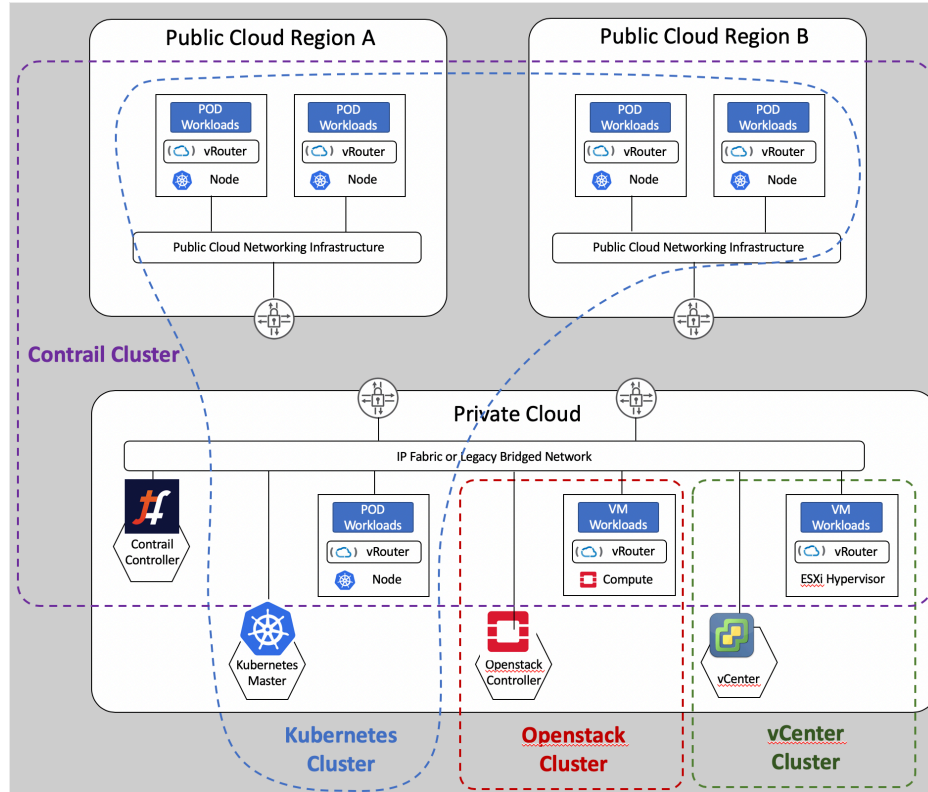
Multi-Dimensional Security – Visualization



Where to Place the Added Value?

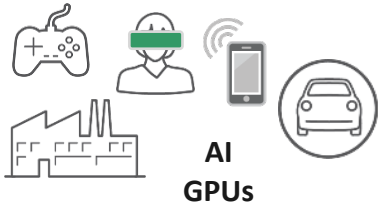
- At the workloads?
- At the region border?
- At a hub region?

Multi-Cloud with Tungsten Fabric

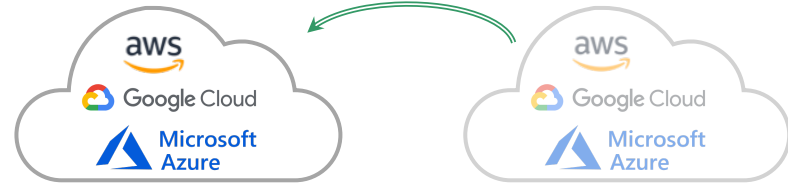


Service Provider

The EDGE CLOUD Drivers



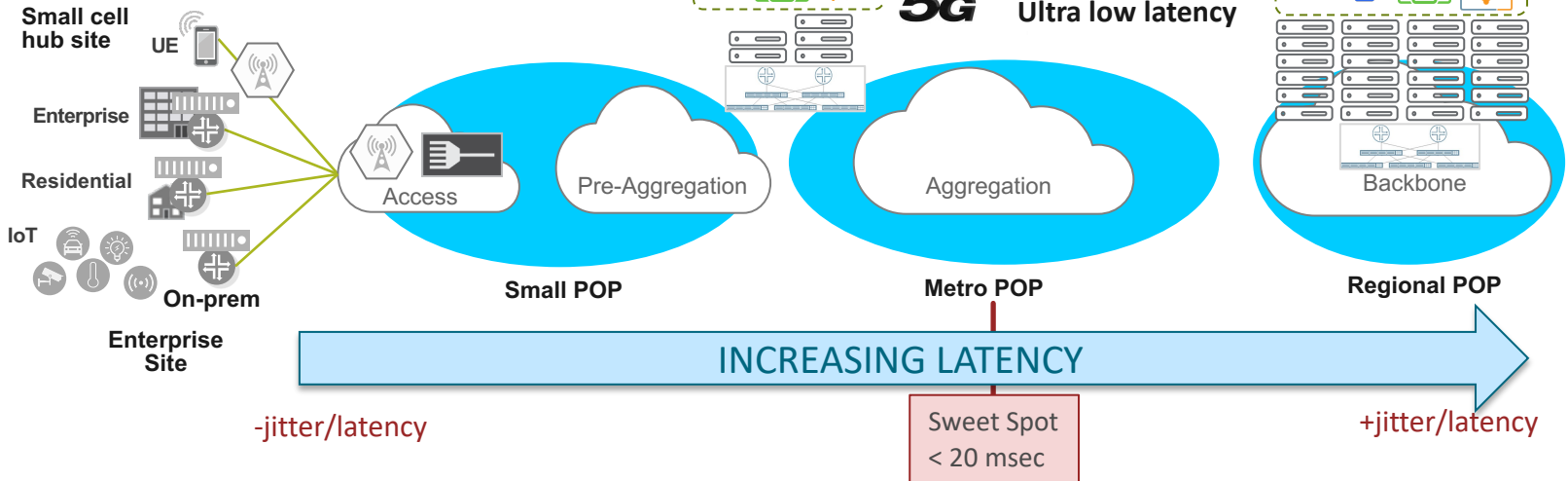
Public clouds leverage their software agility



5G Challenges:

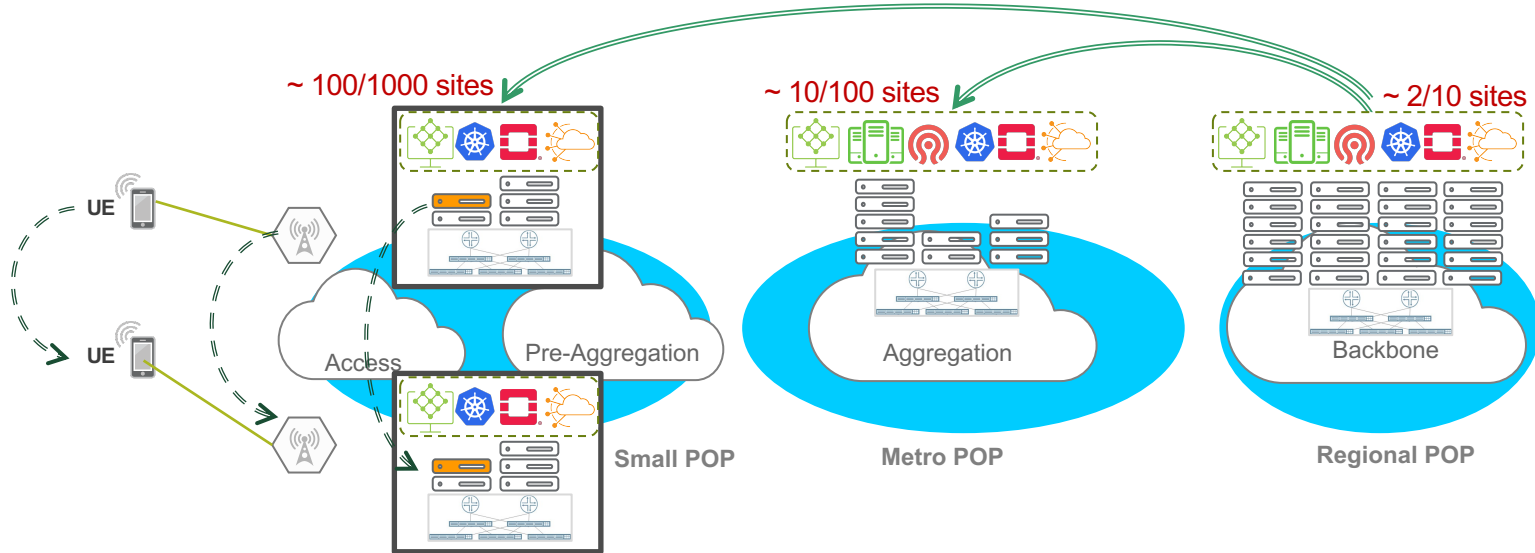
- Ultra Low Latency comms
- High Throughput (*10)

Telcos leverage their real estate



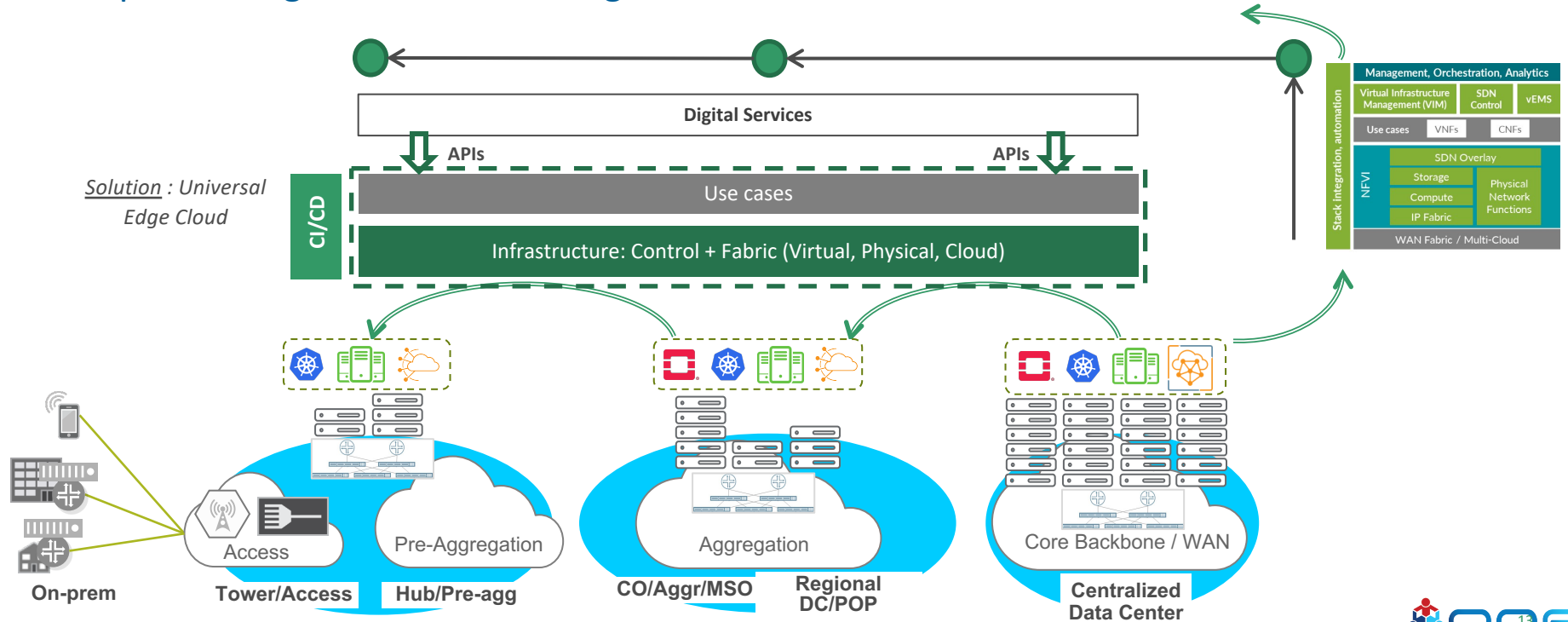
Challenges of the TELCO Edge Cloud

- Massive Scale and number of sites - $O(1000)$ sites !
- How to balance the distribution of the anchor points ?
- Mobility (handover)



The integrated TELCO Edge Cloud Solution

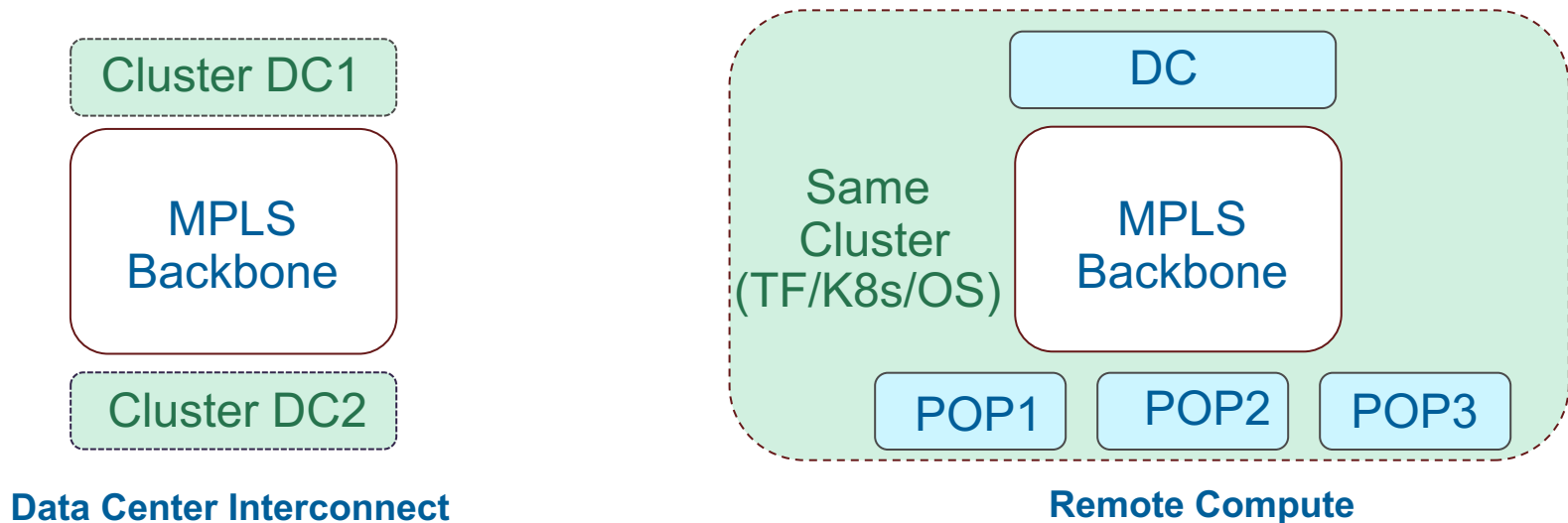
- Vertical Integration complexity explodes with Massive Distribution
- Requires integrated Universal Edge Cloud with CI/CD



How to distribute the TELCO Edge Cloud ?

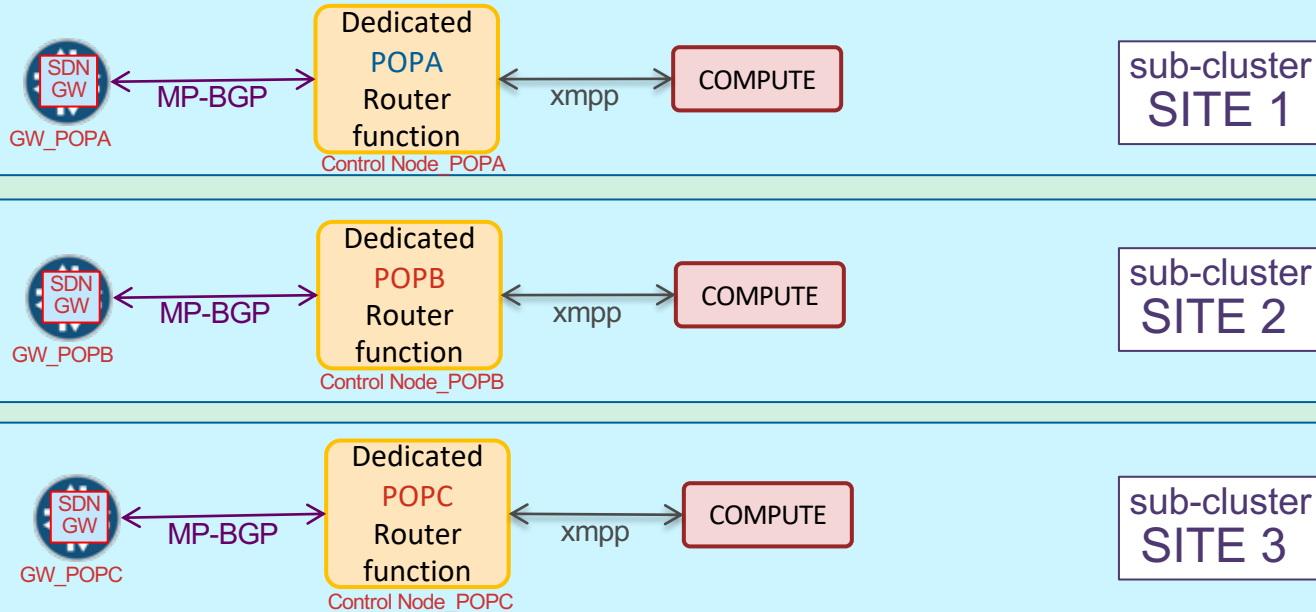
Tungsten Fabric efficiently reconciliates Clusters and Locations with seamless network integration

- **Cluster-to-site mapping supported:** Data Center Interconnect and Remote Compute



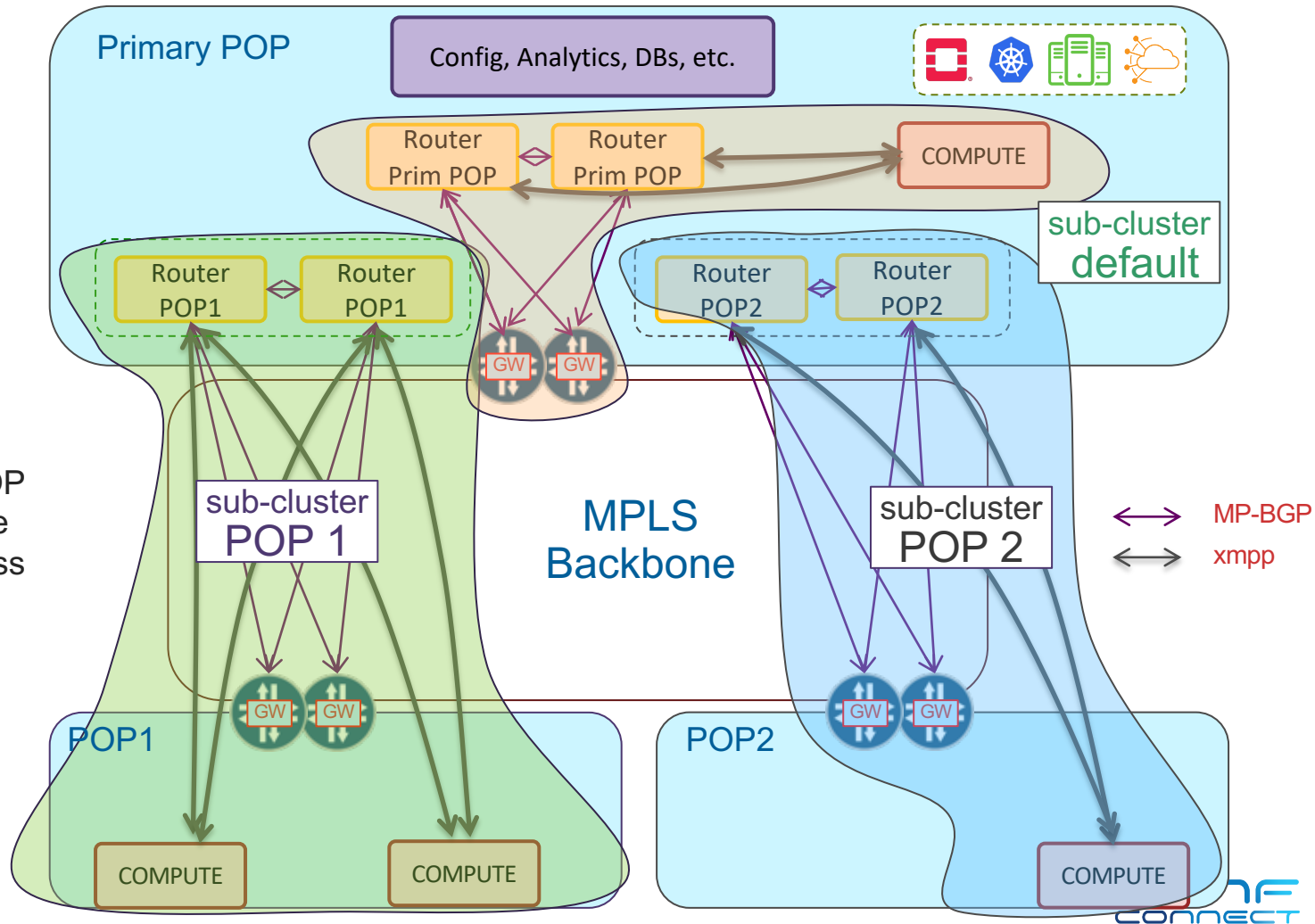
Tungsten Fabric Cluster partitioning – Logical View

Unique K8s or OpenStack glued via TF's SDN



Cluster partitioning

- Unique OpenStack/K8s Clusters seamlessly glued via TF
- All Control Functions hosted in Primary POP to dedicate expensive POP CPU for business critical workload



Q & A



Thank You

Follow Up Links:

<https://github.com/tungstenfabric/>