

Open Cloud Connect

Cloud Services Architecture, SDN, NFV, and
Management

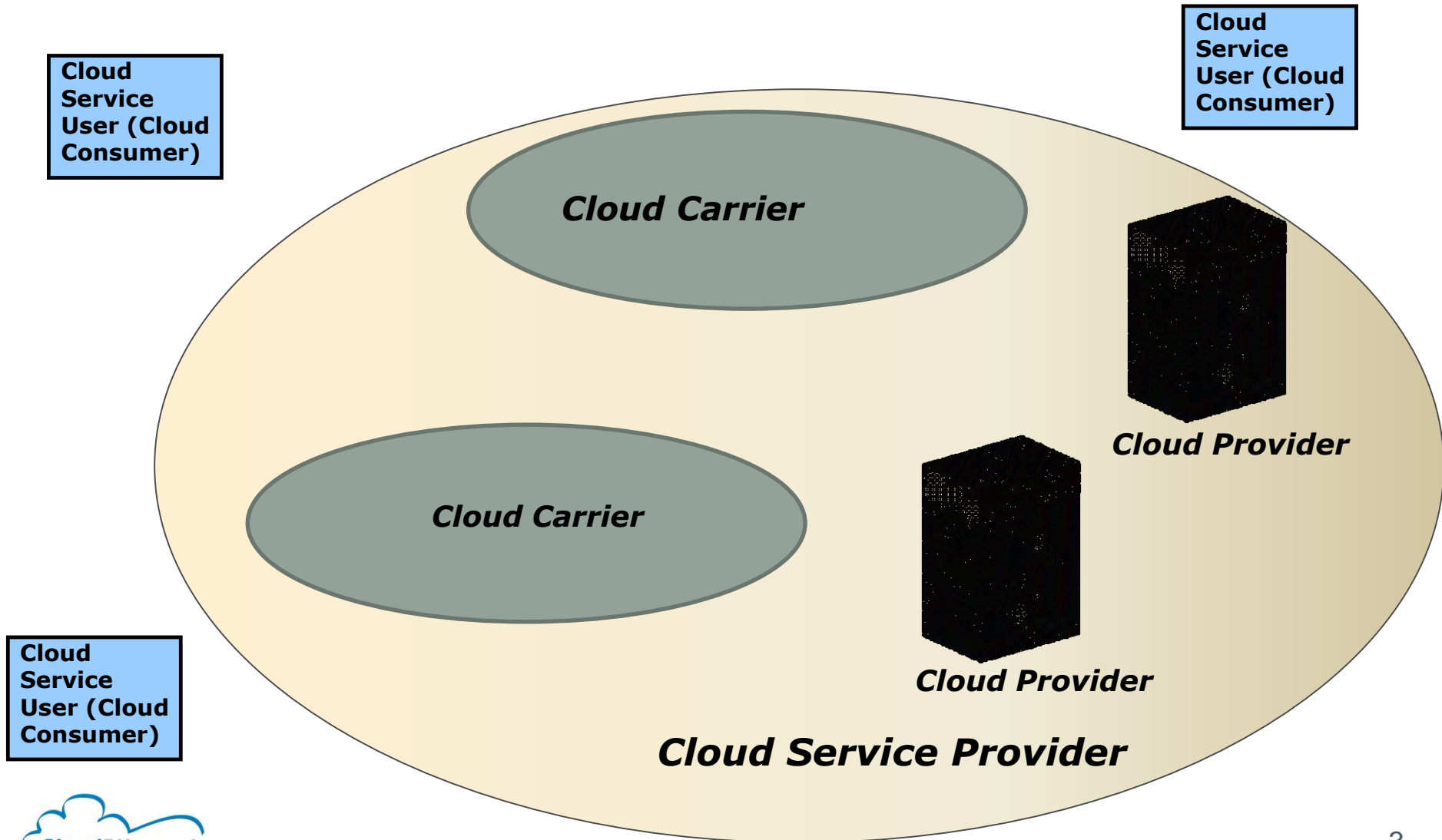
Mehmet Toy, Ph.D
Comcast
January, 2016
CL ETSI NFV Meeting



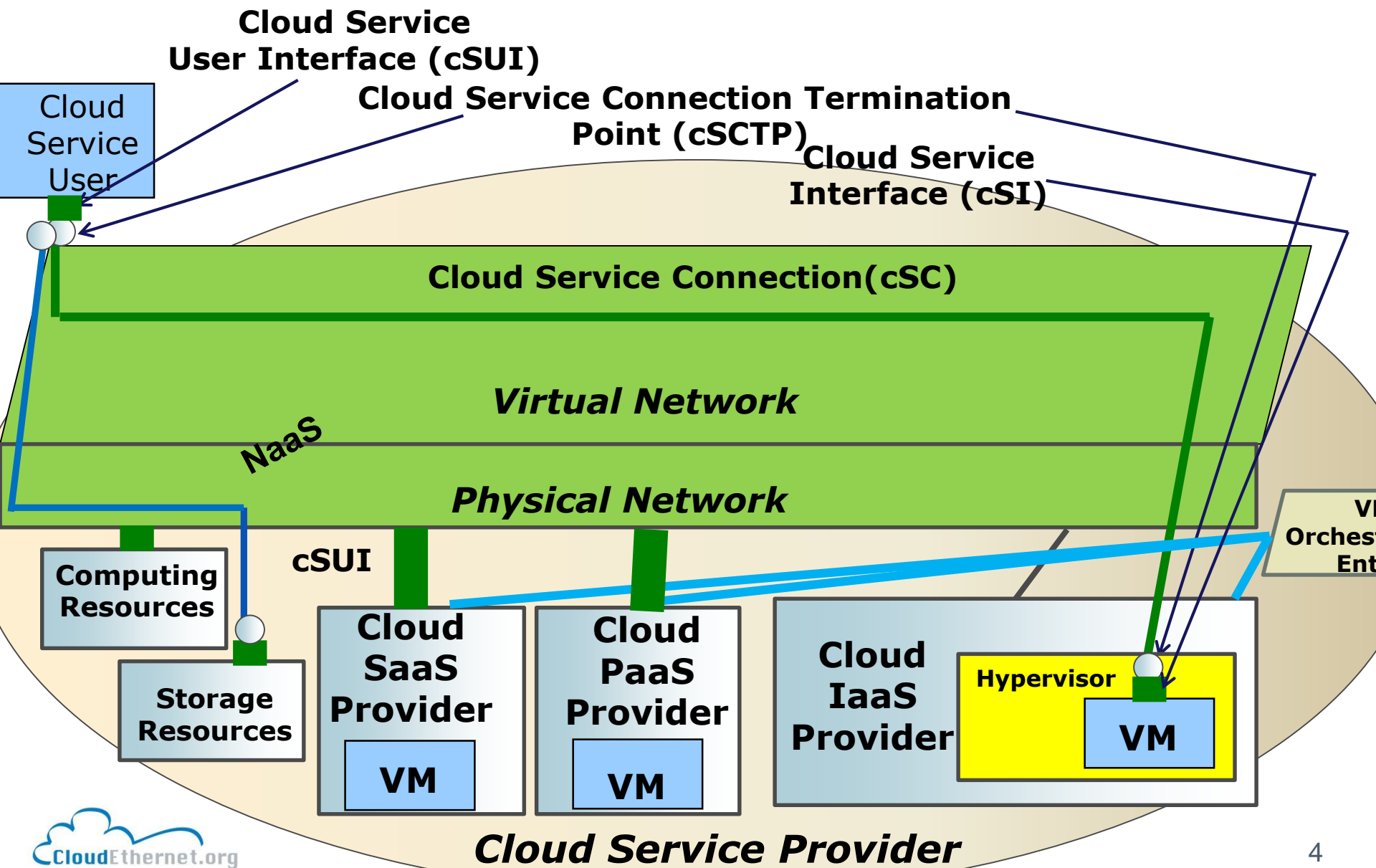
Outline

- **Cloud Service Actors**
- **Cloud Service Architectures: Interfaces and Connections** <http://www.opencloudconnect.org/>
- **OCC vs ETSI NFV Architectures**
- **Mapping Between OCC and NFV Interfaces**
- **Cloud Services Management Architecture**

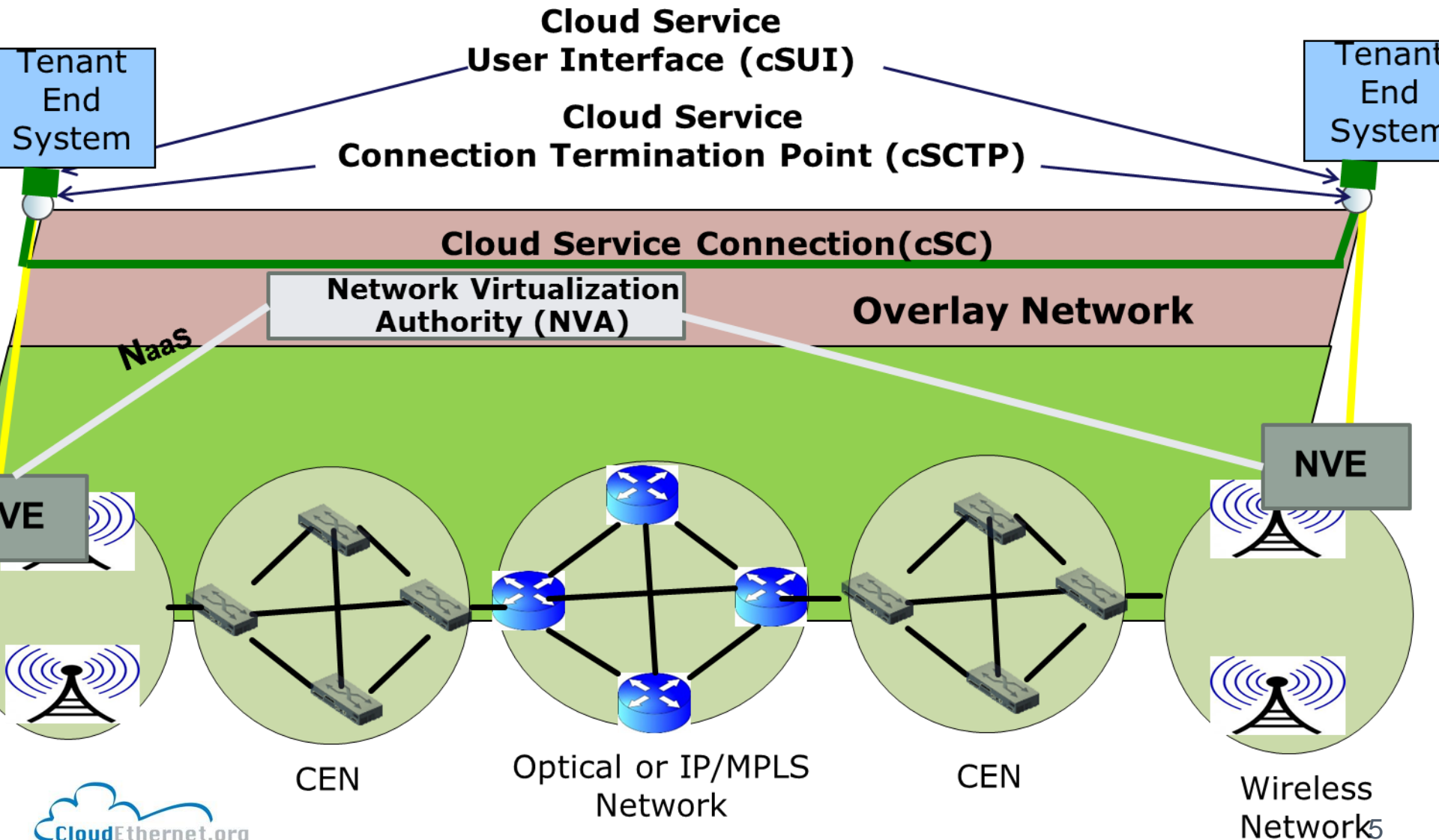
Cloud Service Actors



Architecture for Cloud Services by one Operator

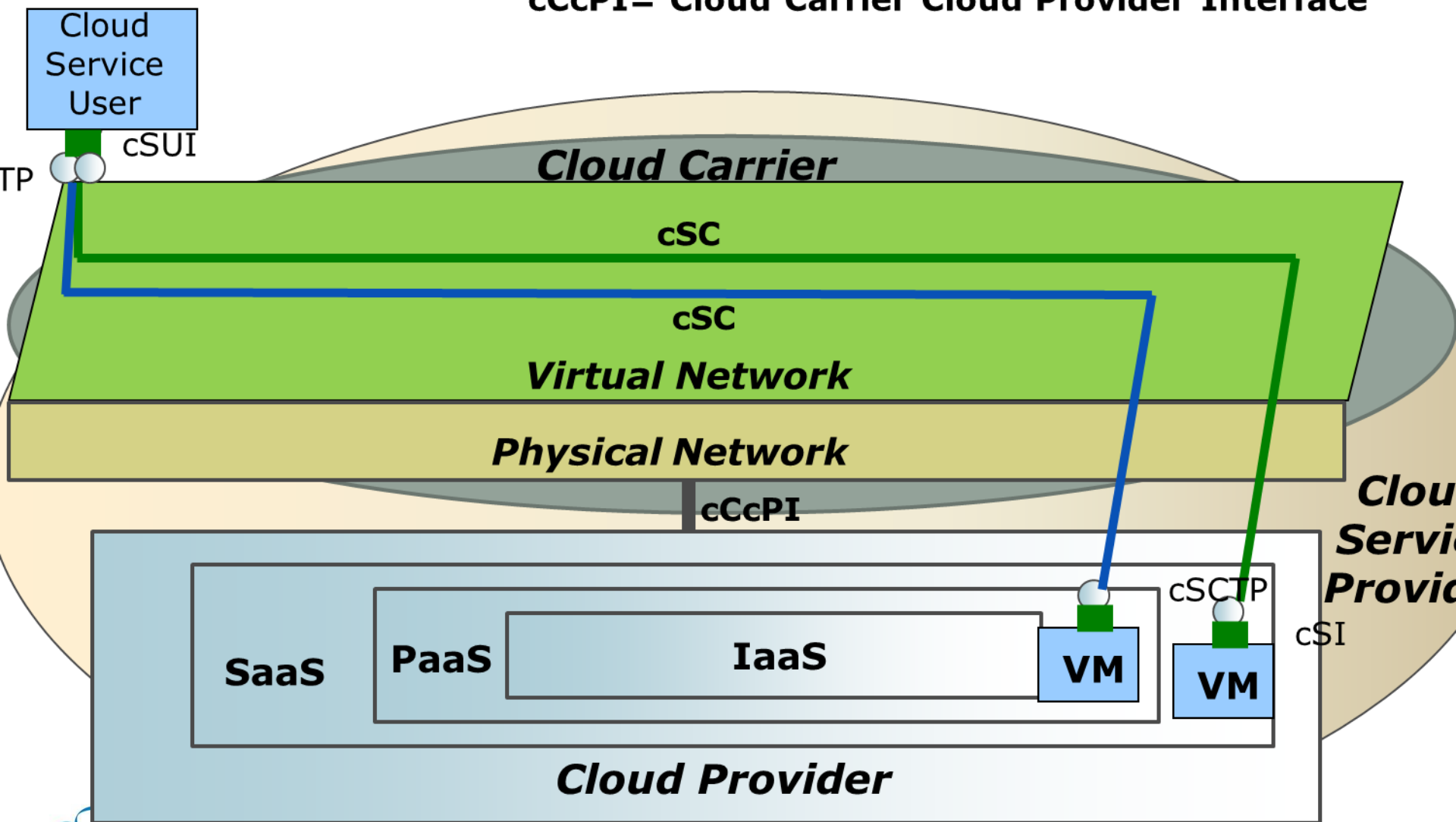


Cloud Services over Overlay Networks

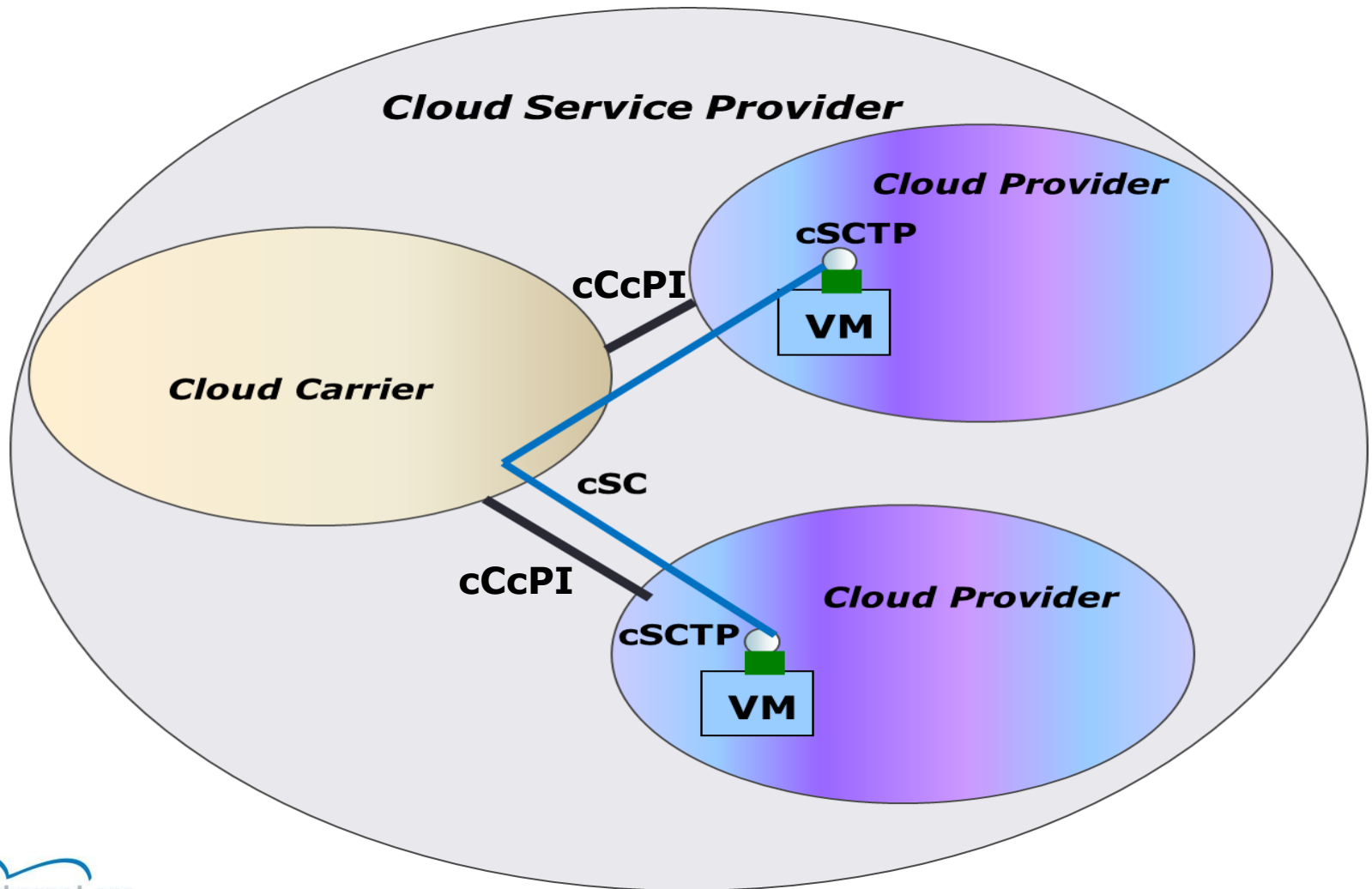


Architecture for Cloud Services by Two Operators

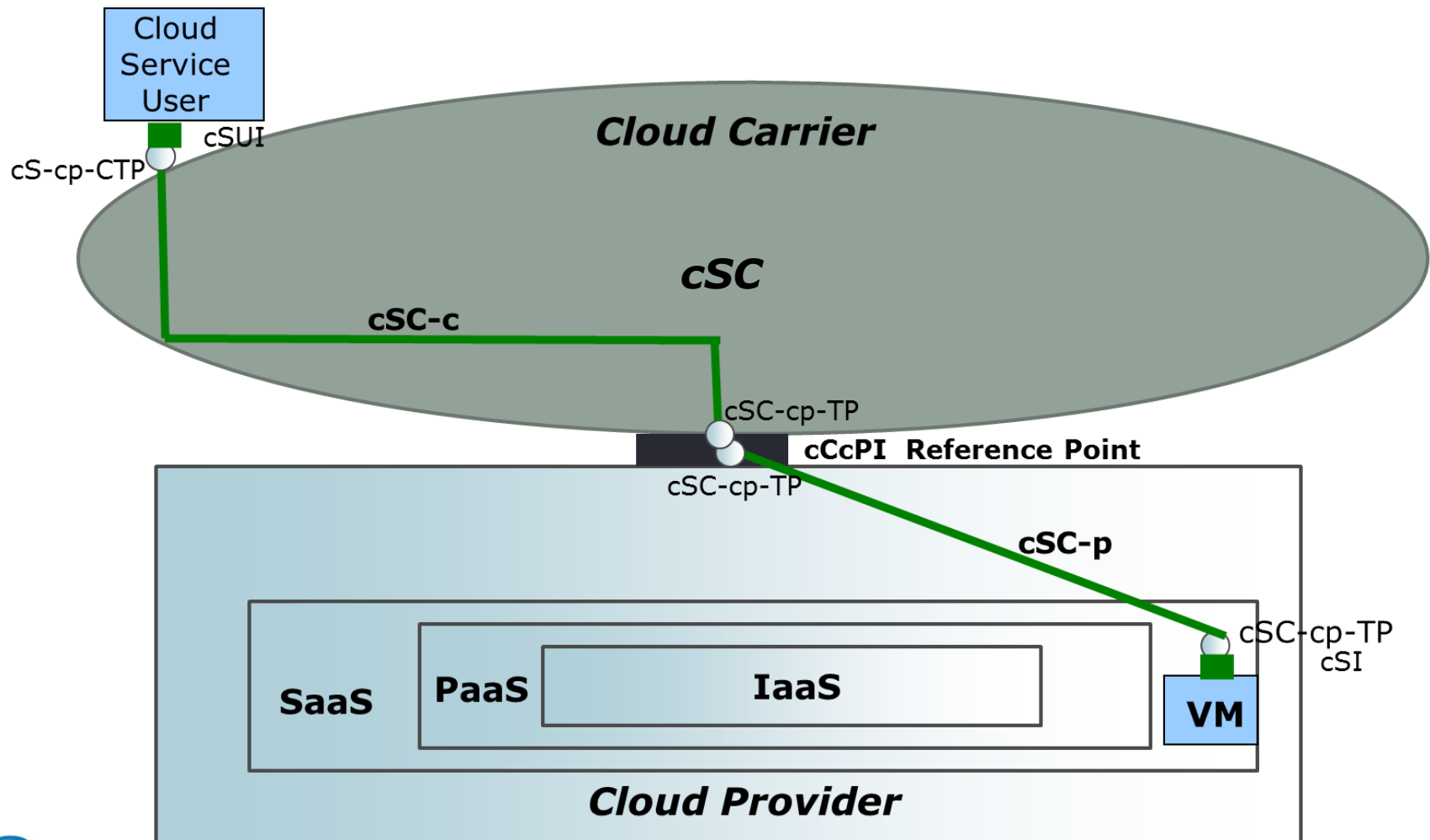
cCcPI= Cloud Carrier Cloud Provider Interface



Cloud Services Between Cloud Providers

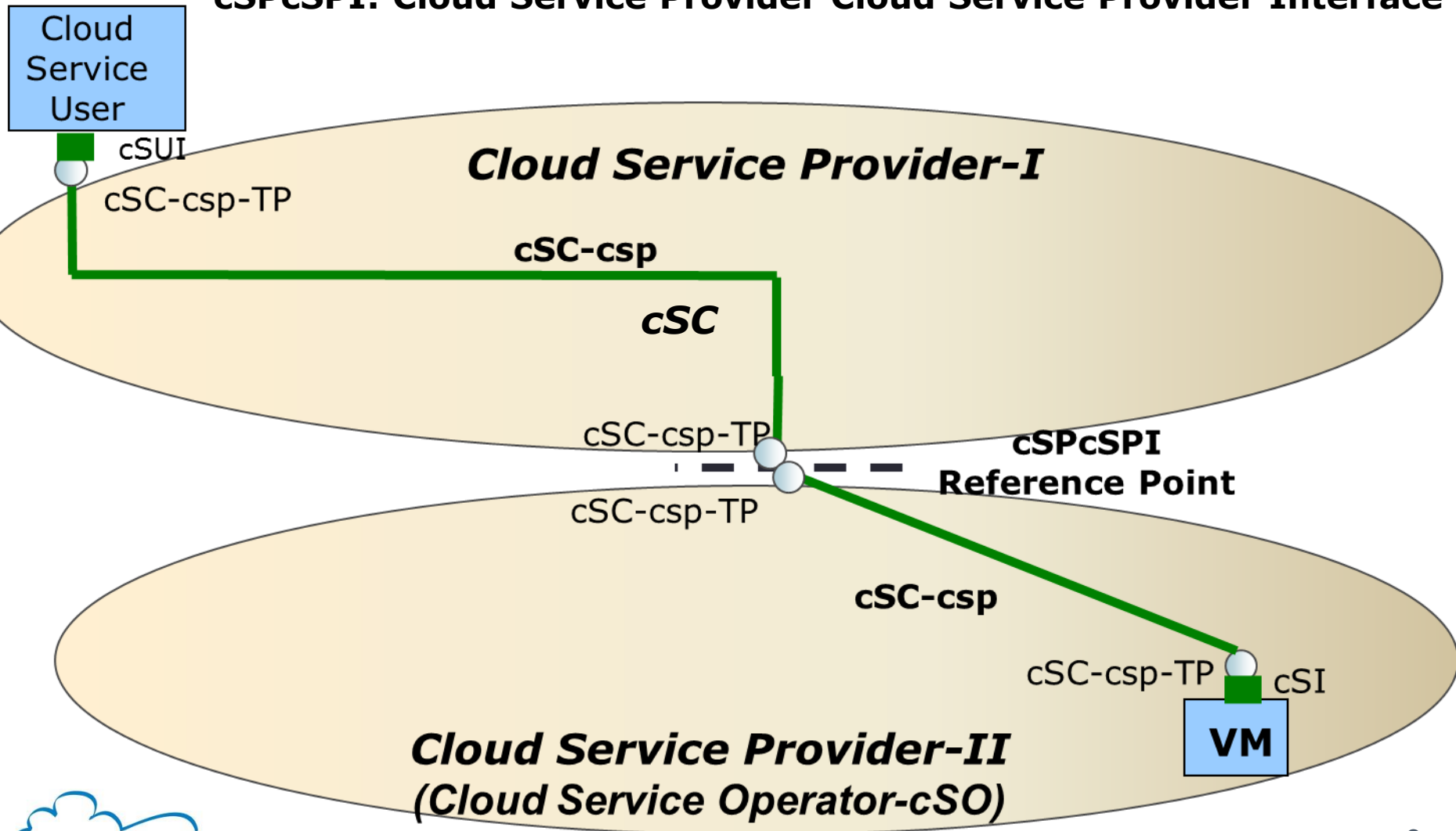


Segments of cSC Crossing cC and cP

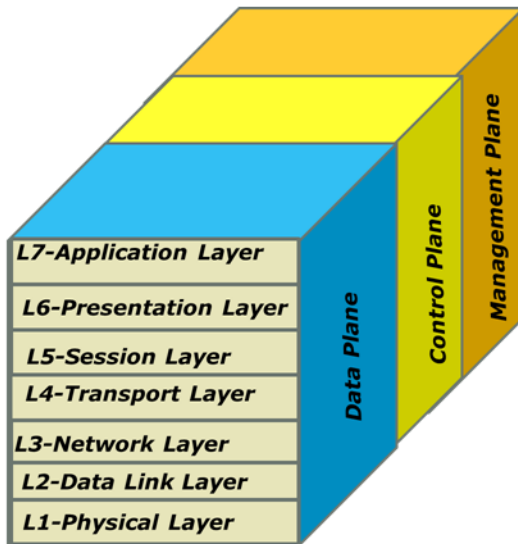


Cloud Services by Two cSPs

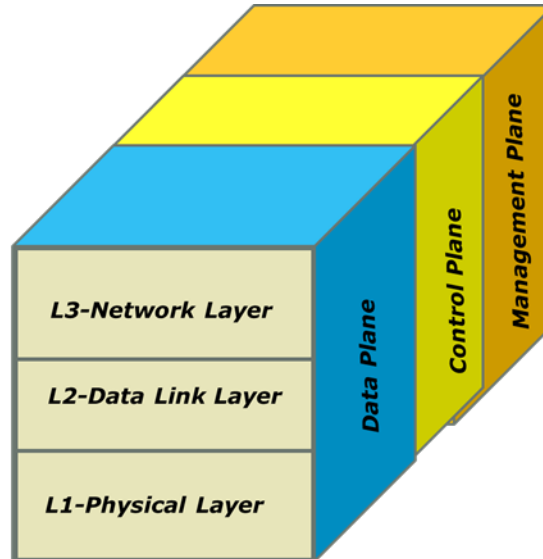
cSPcSPI: Cloud Service Provider Cloud Service Provider Interface



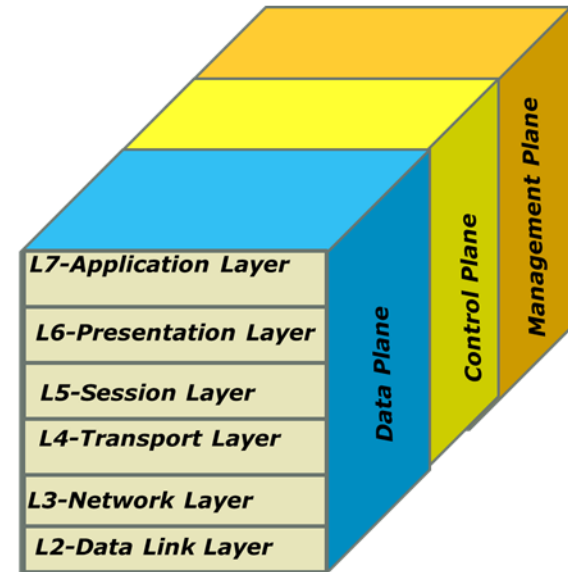
Interfaces



cSUI

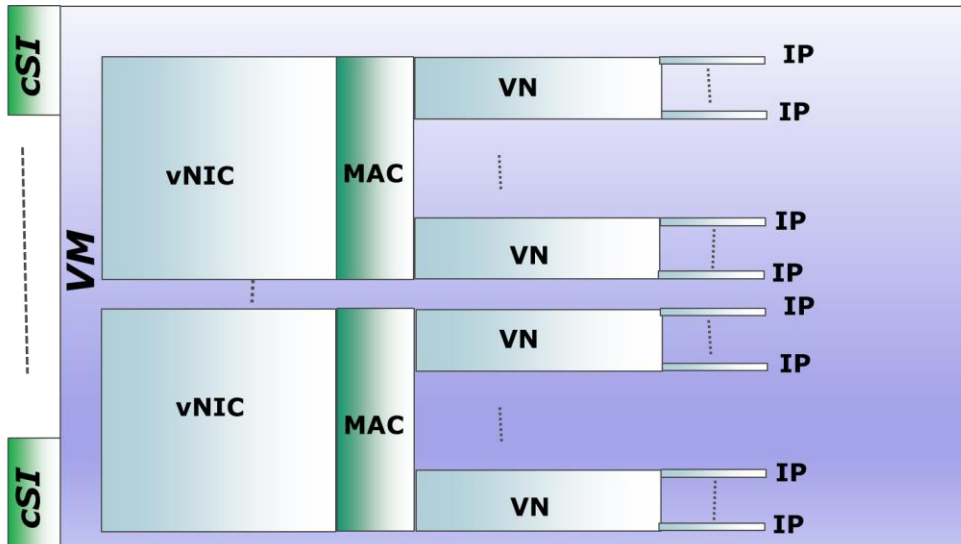
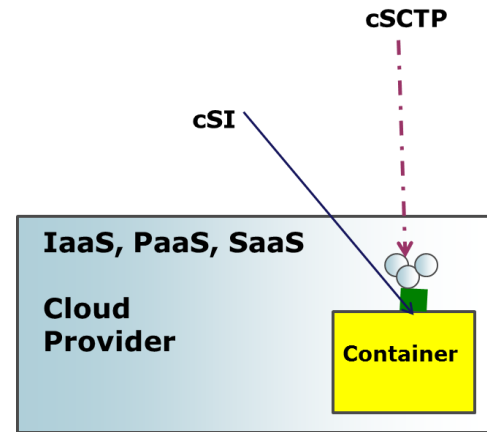
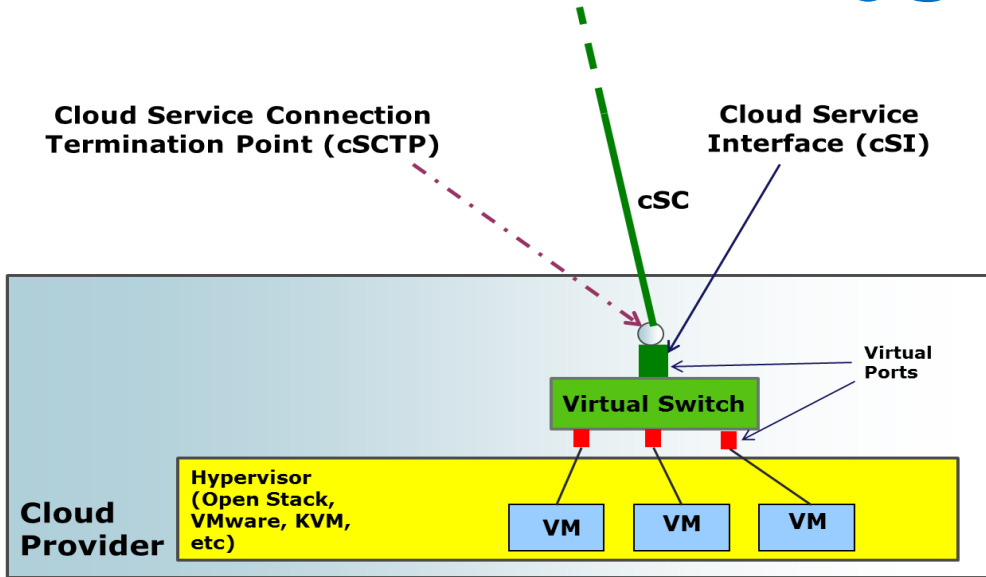


cSPcSPI
Or
cCcPI

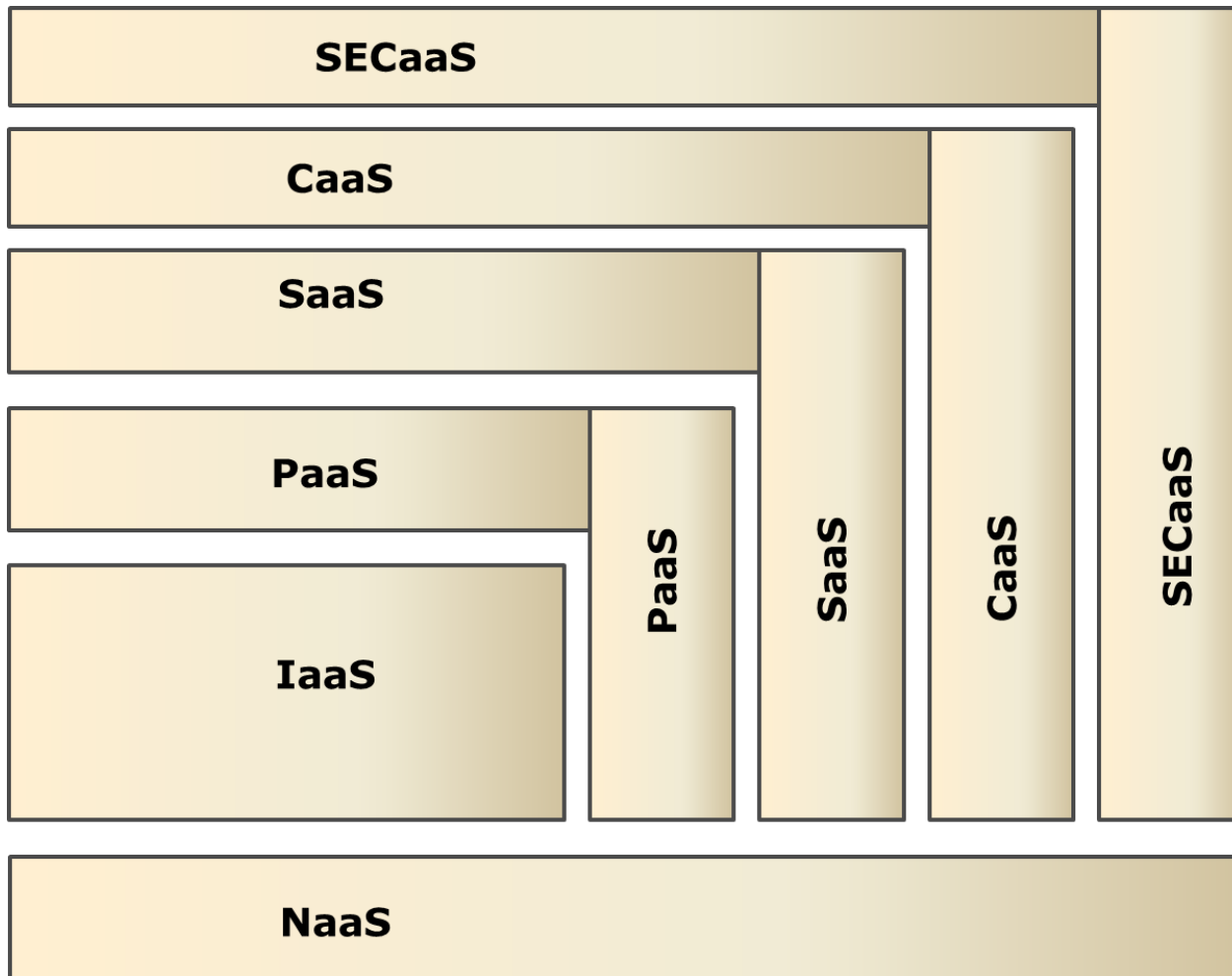


cSI

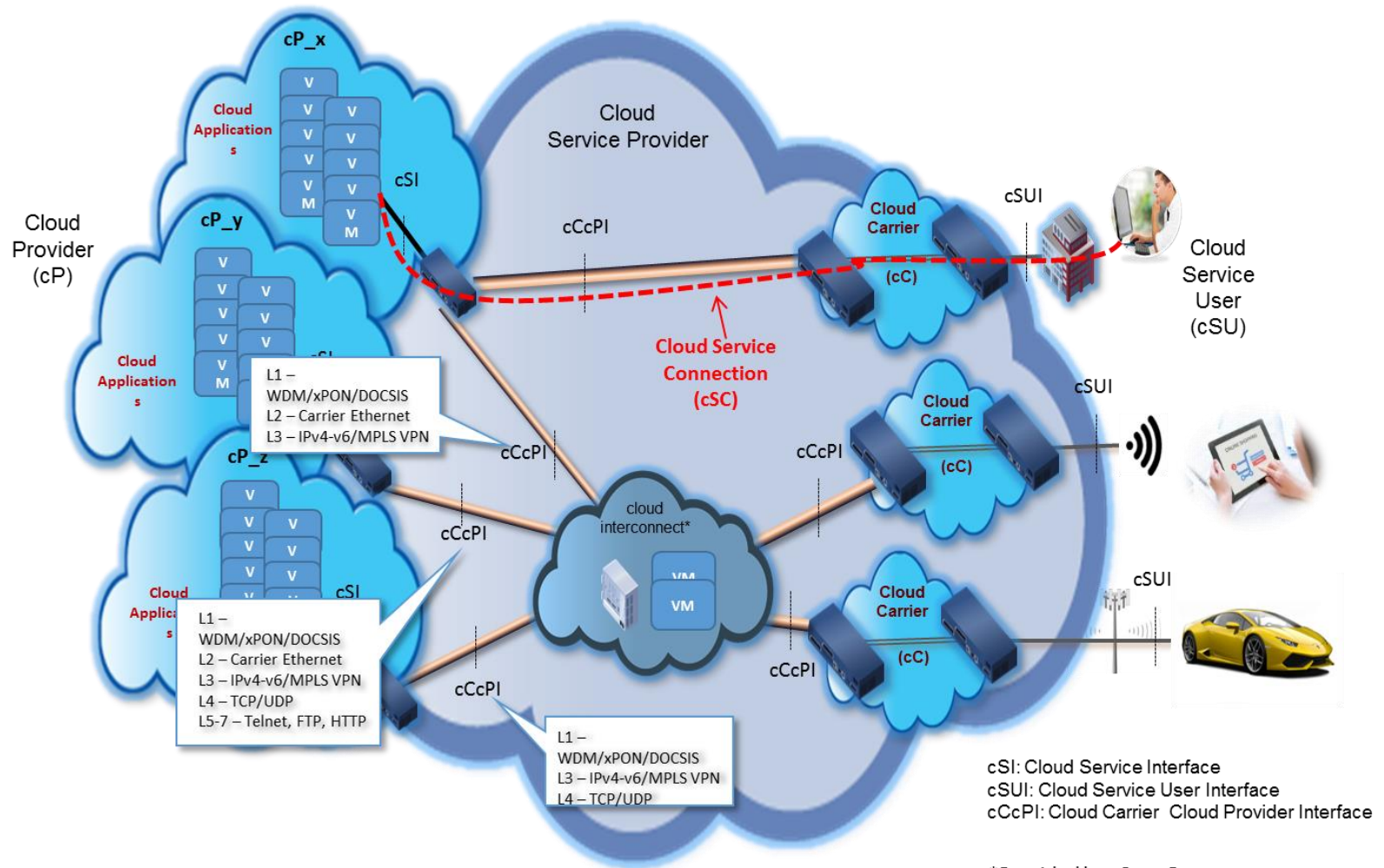
cSI



Cloud Services

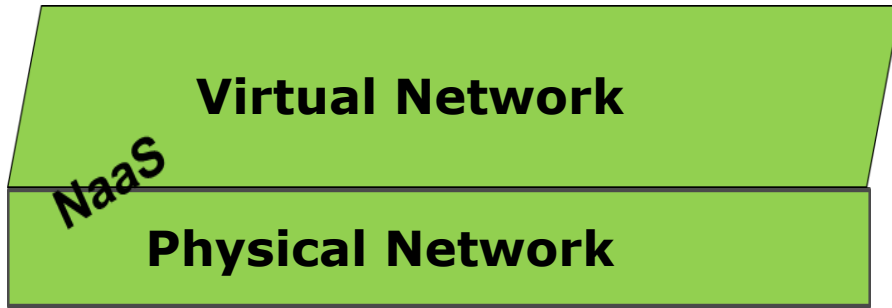


Interconnectivity Services



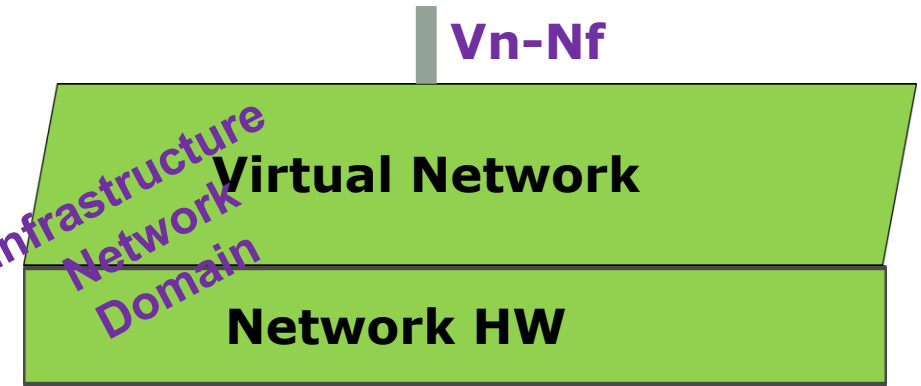
OCC vs ETSI NFV Architectures

OCC Architecture

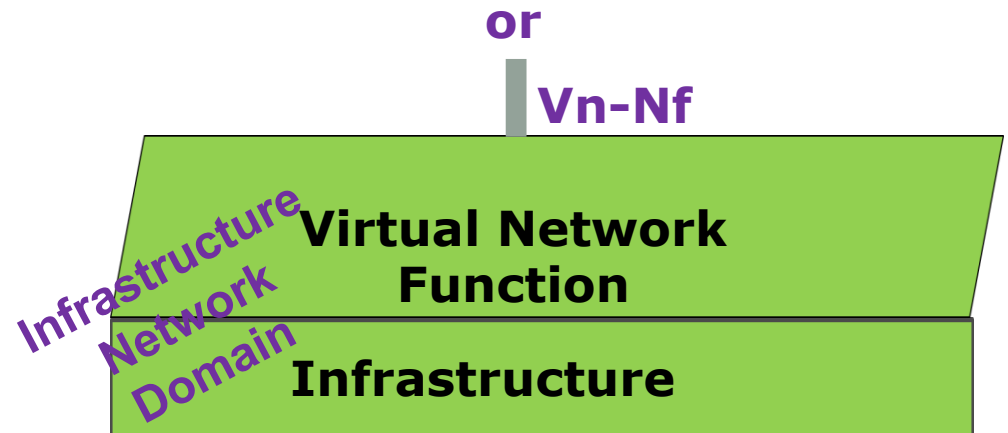


cCcPI
Or
cSUI
Or
cSPcSPI

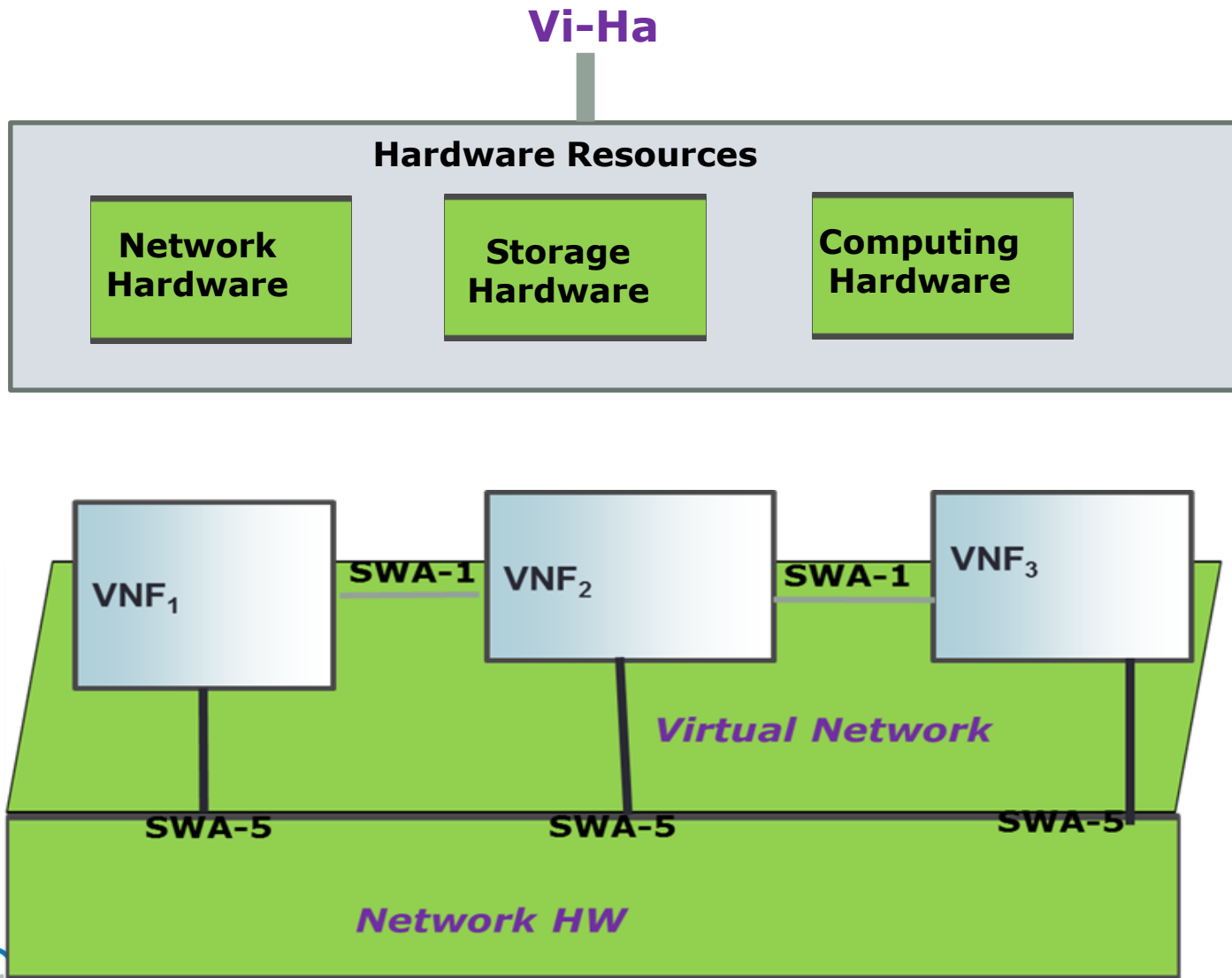
VNF Architecture



(Vn-Nf)/VN interface supporting E-Line or E-LAN

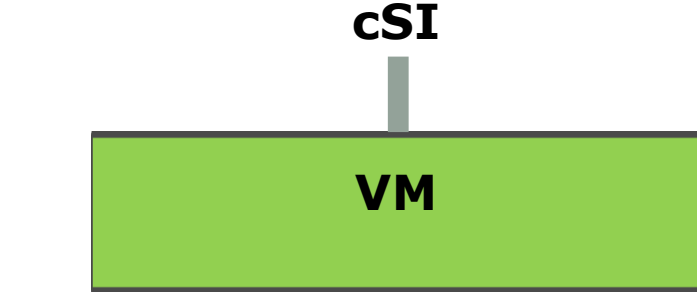


ETSI NFV Bare Metal Server and VNF Interfaces



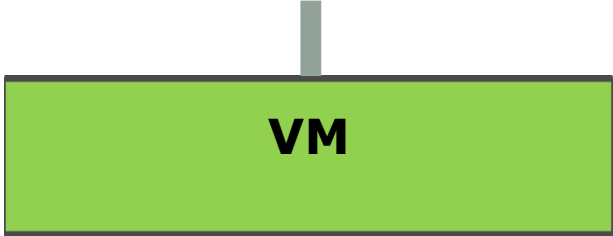
VM Interfaces

OCC Architecture



VNF Architecture

(Vn-Nf)/VM
Or
Vn-Nf-VM



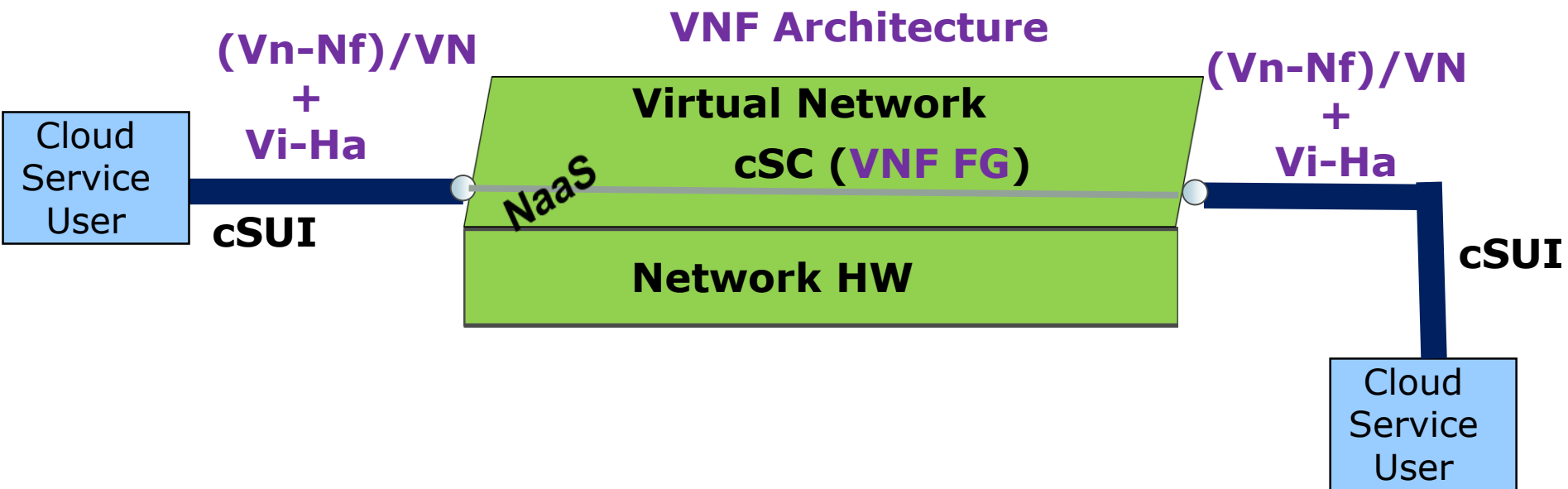
Container
Interface

Infrastructure
Interface

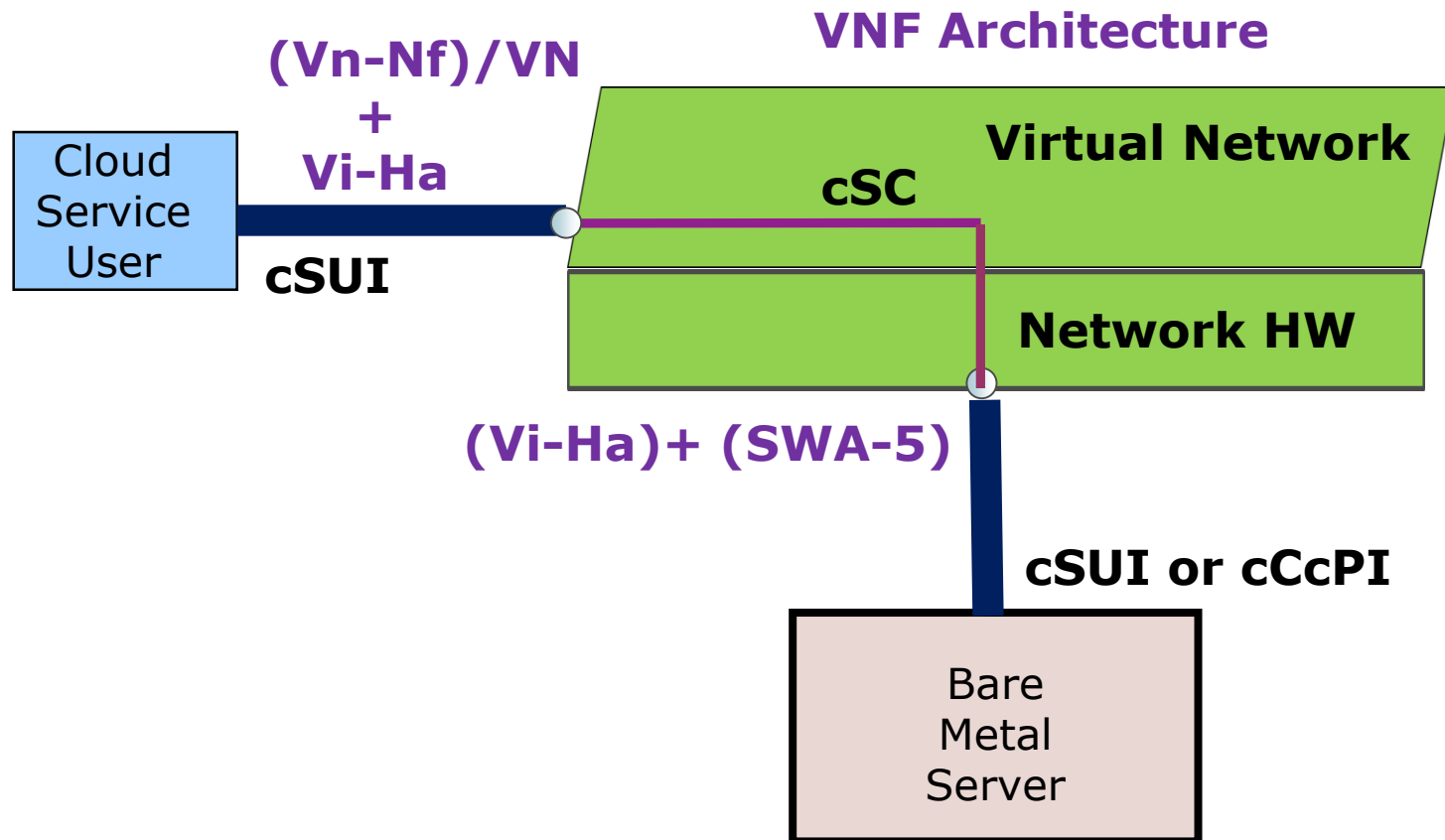
Mapping of OCC and NFV Interfaces

Architectural Construct	ETSI NFV Construct	OCC Construct
User Interface	(Vi-Ha)+(Vn-Nf)/VN	cSUI
VM Interface	(Vn-Nf)/VM	cSI
Container Interface	Container Interface	cSI
SWA-1	Software Architecture-1	cSI
Cloud Carrier-Cloud Provider Interface		cCcPI
Cloud Service Provider-Cloud Service Provider Interface		cSPcSPI
Connection between Users or between a User and VM or between VMs	VNF Forwarding Graph	cSC
Connection Termination Point		cSCTP

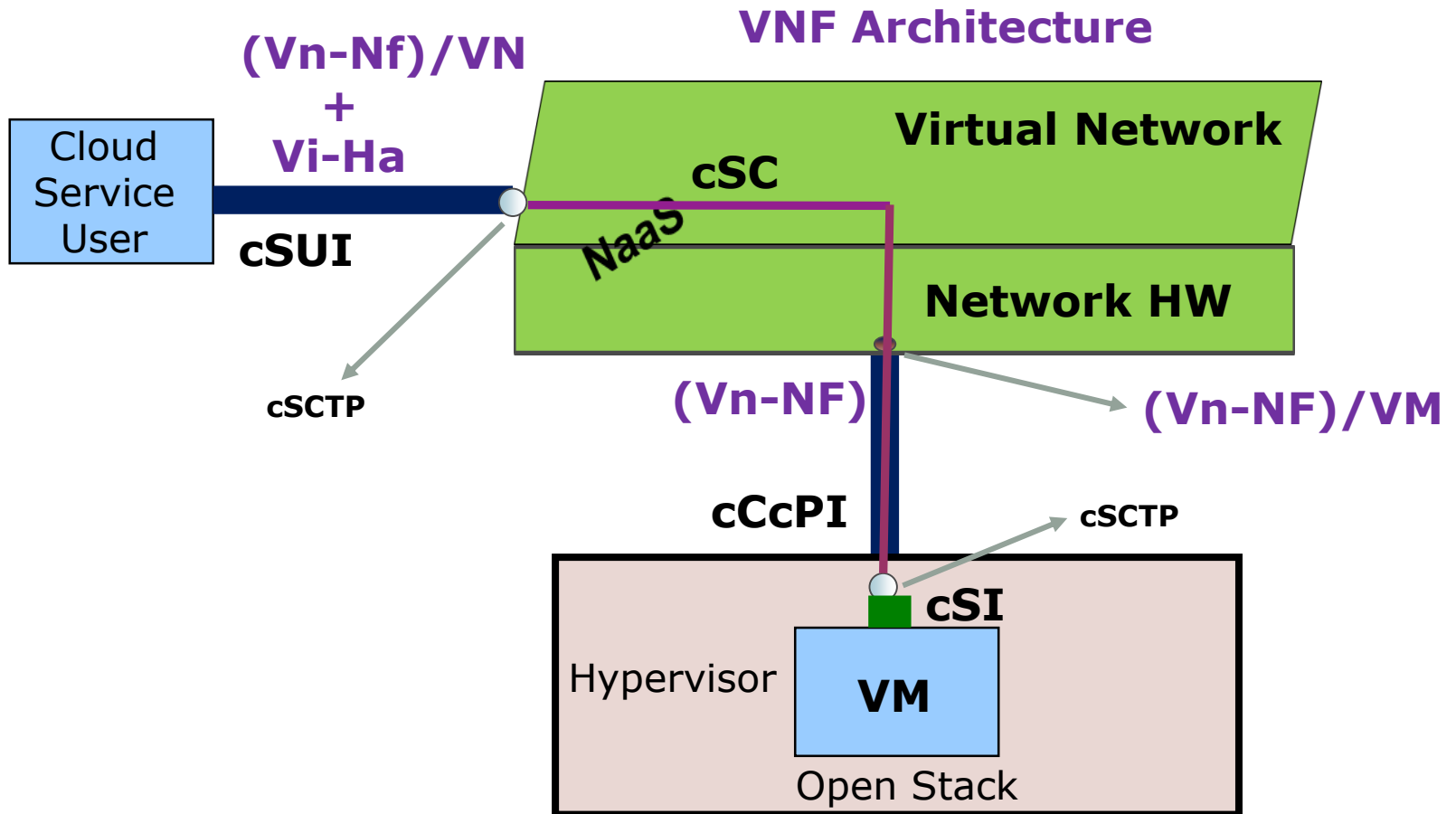
NaaS with VNF Interfaces



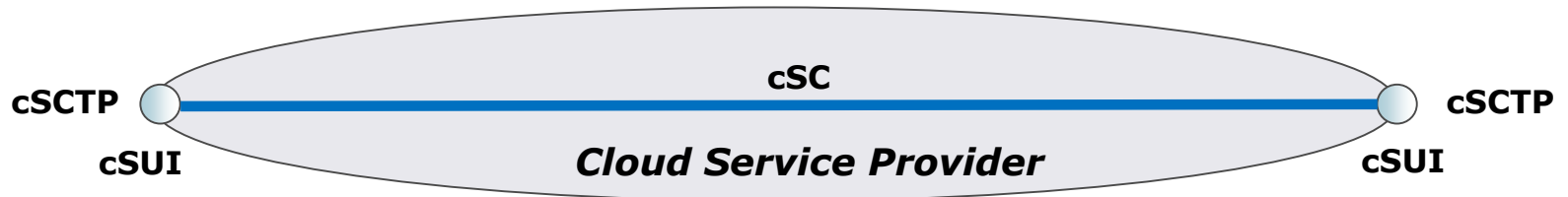
NaaS with Bare Metal Server Interface



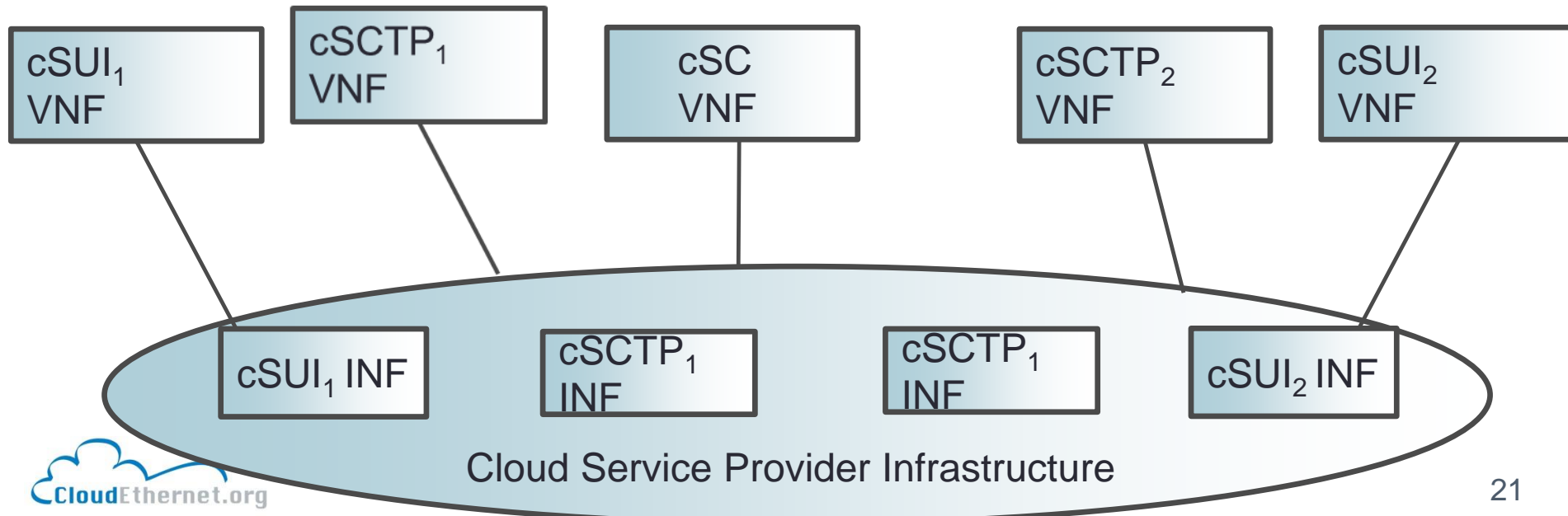
VM Interface



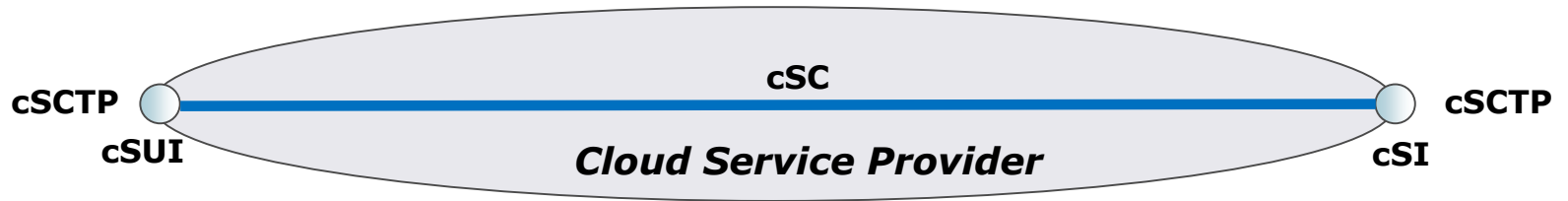
Virtualized cSC between Two cSUs



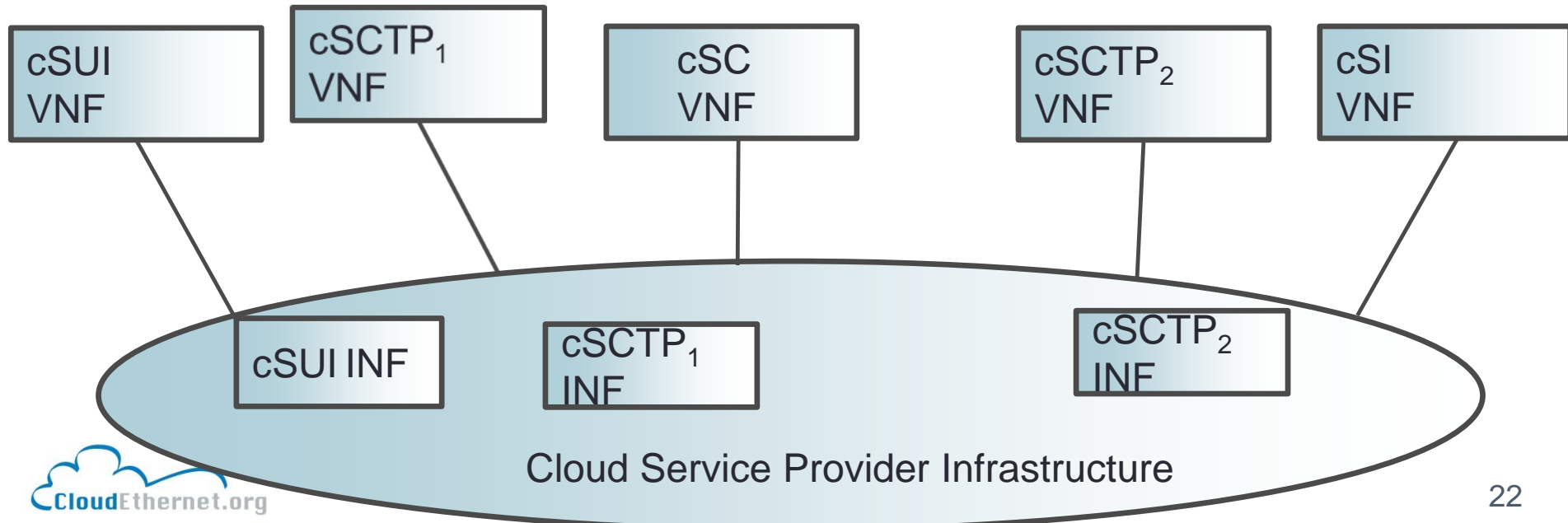
Virtualized Implementation



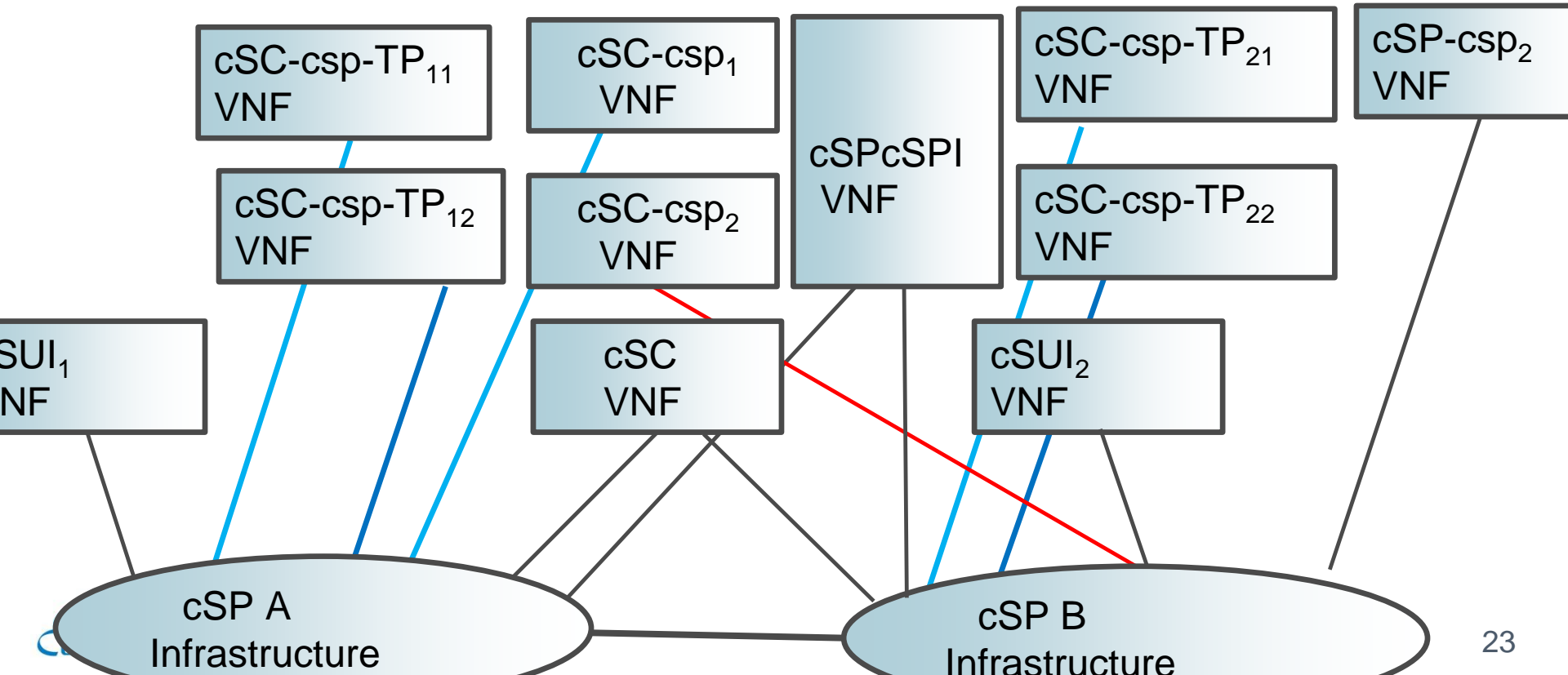
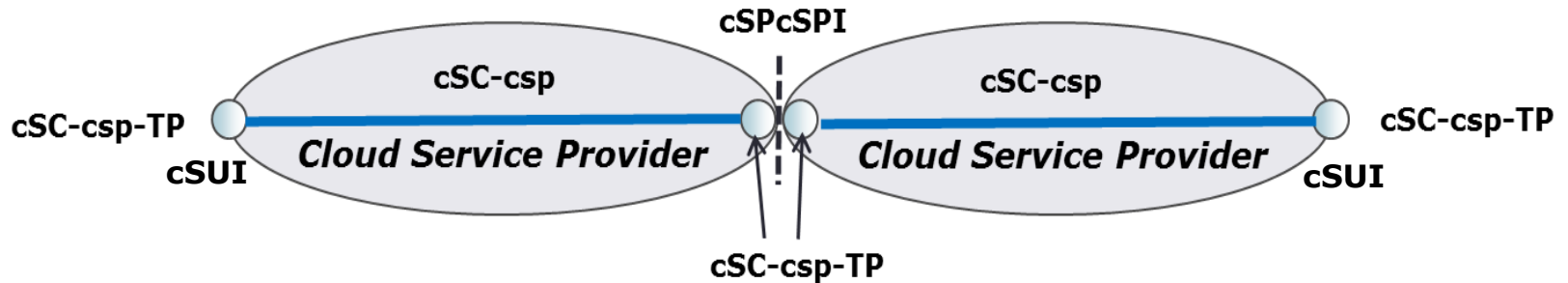
Virtualized cSC between cSUI and cSI



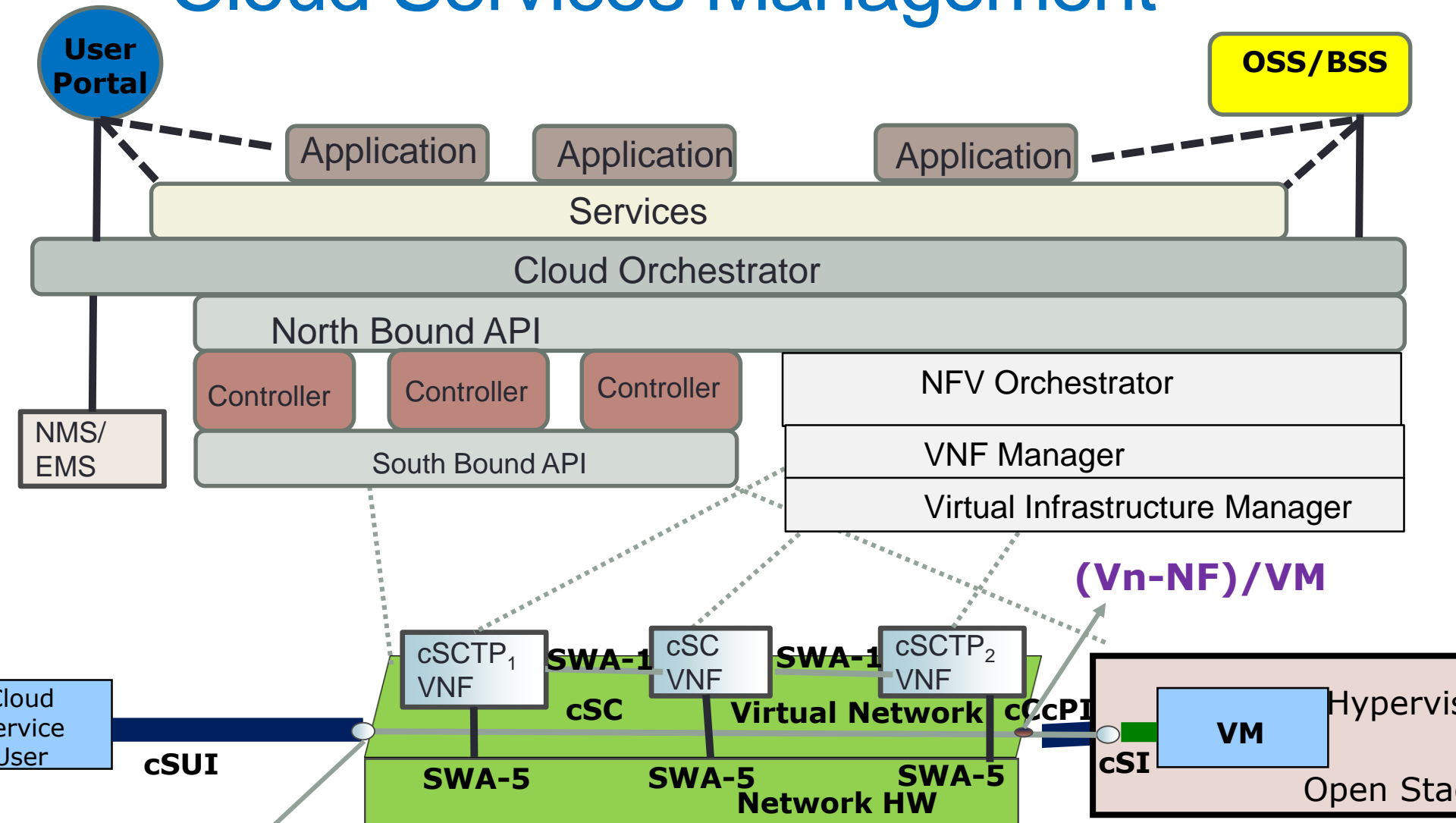
Virtualized Implementation



Virtualized cSC Crossing Two cSPs

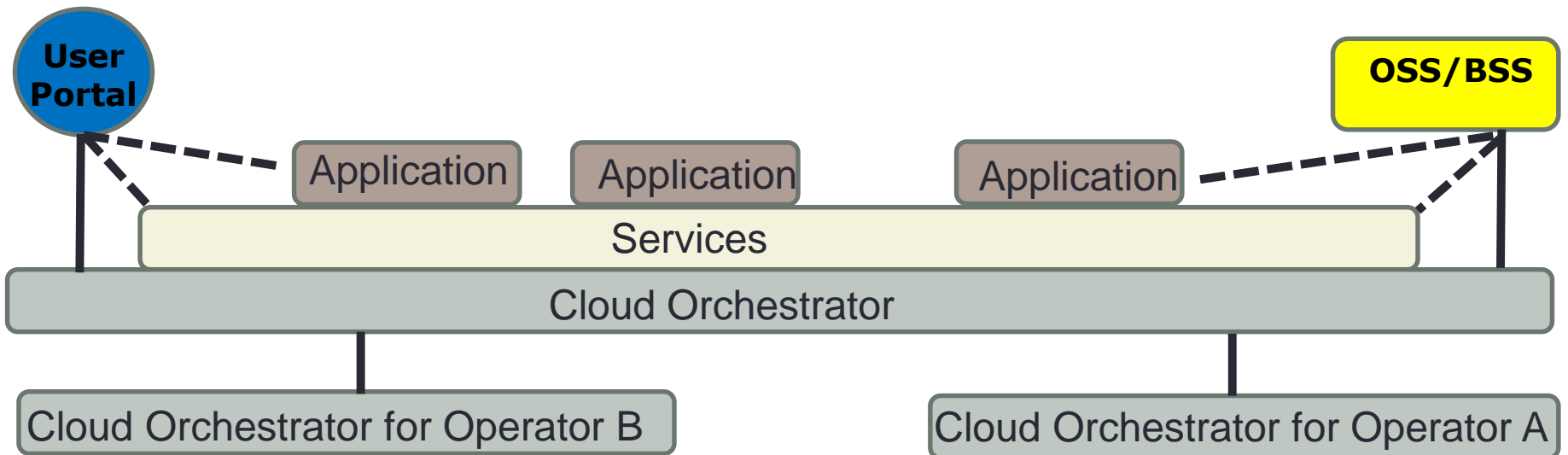


Cloud Services Management

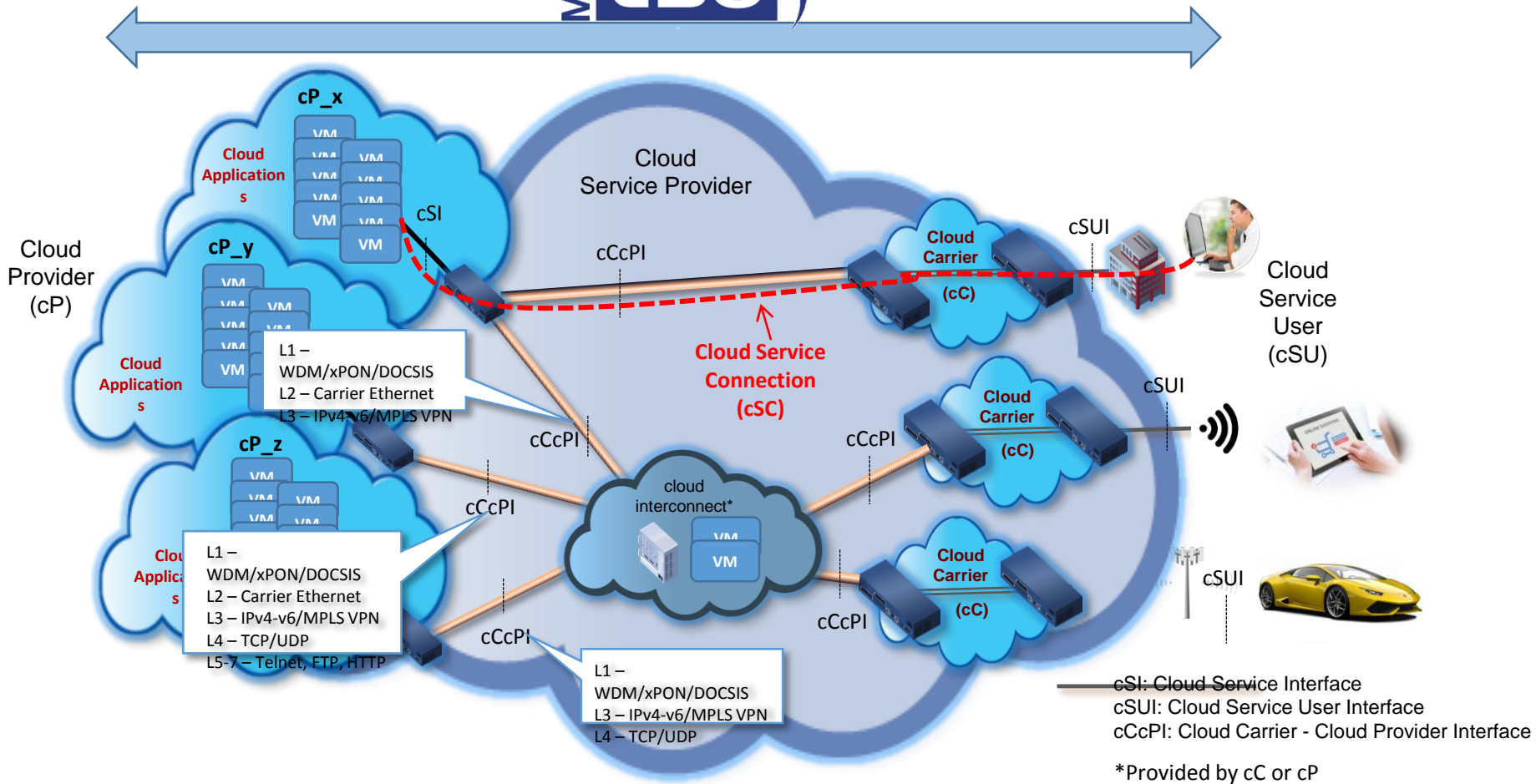


(Vn-Nf)/VN + Vi-Ha

Cloud Services Management with Multiple Operators



LSO for Cloud Services



What is Next?

- **Development of Implementation Agreements for Interfaces and Connections**
- **Development of Implementation Agreements for Services**
- **Development of Implementation Agreements for OAM and Service OAM**
- **Development of Testing and Certification Guidelines for Services**
- **Development of APIs and YANG Models**
- **Development of Life Cycle Service Orchestration for Cloud Services**
- **Collaborating with other SDOs for implementation, and API and YANG model development**

Thank You!

