



# Multi Cloud Connectivity Platform

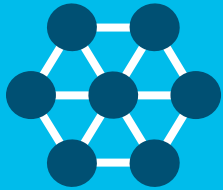
With T-Systems FCI Connectivity Service

Paul Starr, DC Lead Architect  
Burkhard Warnsing, Technical Solutions Architect





# Agenda



Who are T-Systems



Project Journey

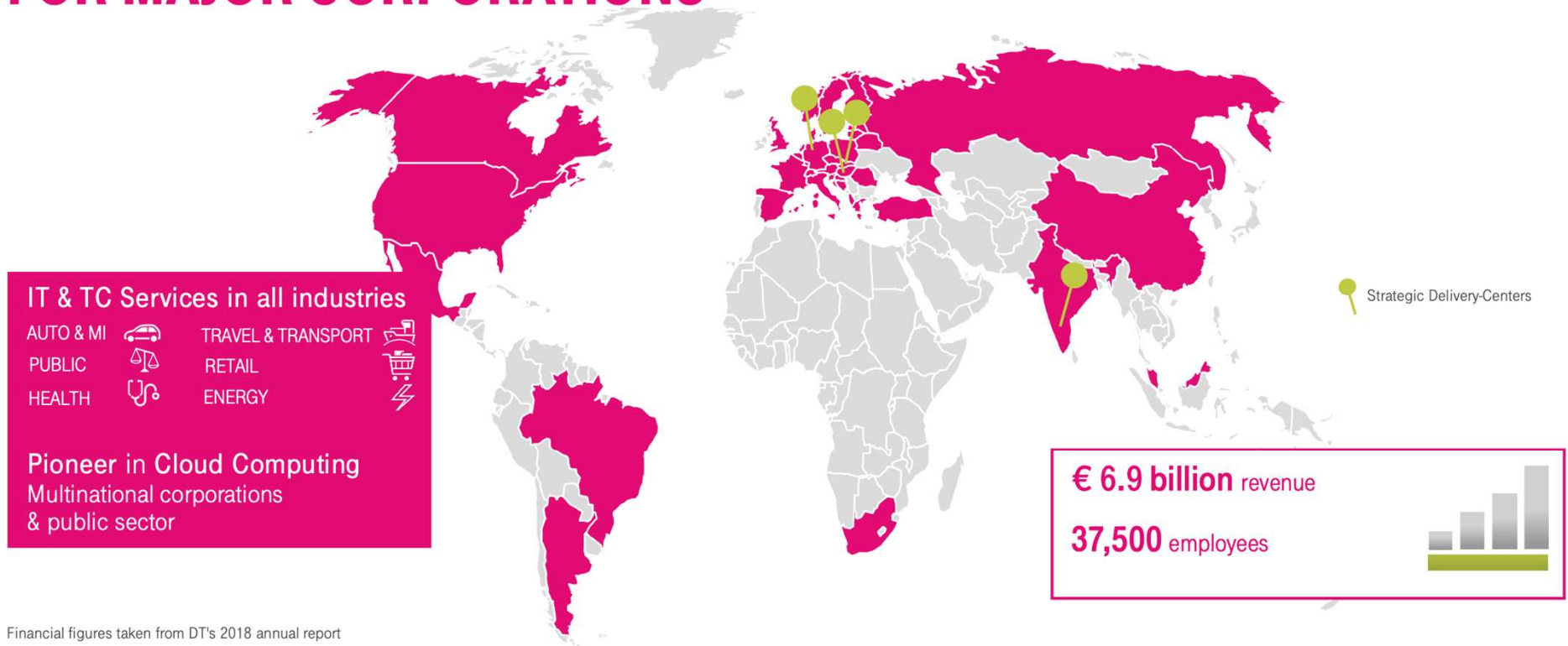


Understand the FCI  
Connectivity Service



Cisco elements

# T-SYSTEMS – DEUTSCHE TELEKOM'S SUBSIDIARY FOR MAJOR CORPORATIONS



## IT & TC Services in all industries

AUTO & MI  TRAVEL & TRANSPORT   
PUBLIC  RETAIL   
HEALTH  ENERGY 

Pioneer in Cloud Computing  
Multinational corporations  
& public sector

€ 6.9 billion revenue

37,500 employees



Financial figures taken from DT's 2018 annual report

**T-Systems** Let's power higher performance

## We build the connected age

**1.5K**

cyber security  
professionals

**>20yr**

of expertise in  
cyber security

**4.8K**

digitization experts  
worldwide

**5G**

integrating network security  
into the core network  
architecture

**65K**

live cloud systems for

**>600**

enterprise customers  
worldwide are run by us

**>1.6K**

Digital Solutions  
projects in 2018

**all DAX**

and 19 of the Fortune 100  
companies are our clients

High project satisfaction

**98%**

average rating of > 1,600  
digital solution projects in 2018

Four building blocks  
to create  
value for your business –  
integrated by the unique  
T-Systems approach

 Connectivity

 Digital

  
Powered  
Systems

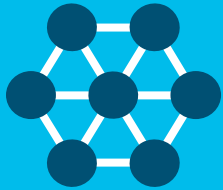
 Cloud &  
Infrastructure

 Security

 **T-Systems** · Let's power  
higher performance



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**“Speed is the new  
currency of business. It is  
not the big that will eat  
the small, but the fast  
that will eat the slow.”**

Keith Krach, founder DocuSign

# Future Cloud Infrastructure

## Cloud from connectivity to complete management

### Application Services

(managing application services end-to-end across platforms, modernizing application landscapes and operating models)

### Managed Cloud Services

(cross cloud governance with security, compliance and cost efficiency, enabling the focus on business digitization)

Platform

Private Cloud solutions

FCI - VMWARE

Hybrid Cloud

Public Cloud products

Multi-Cloud Connectivity Platform

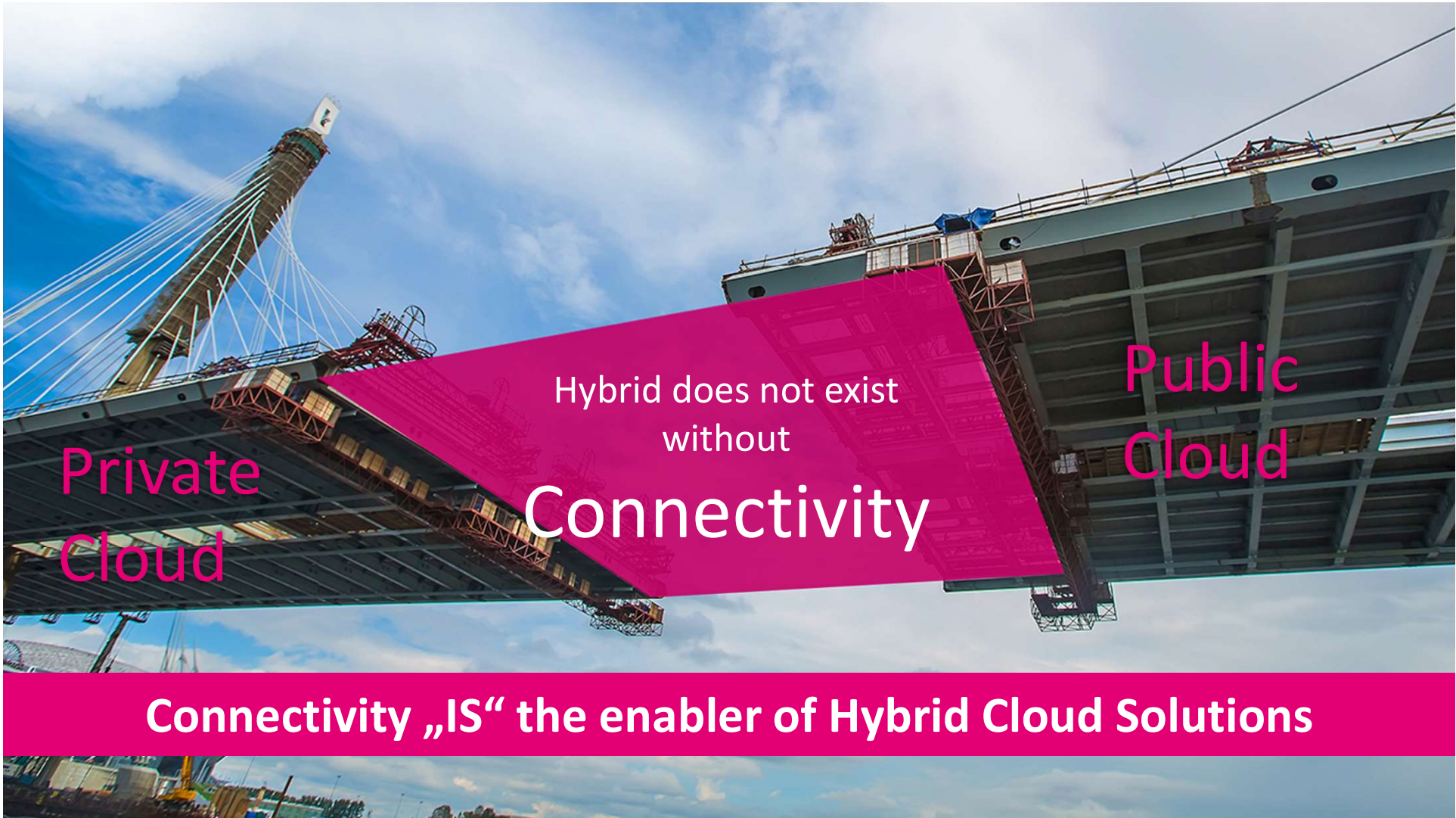
> Greater agility, faster time to market

> Business enablement

> Reduced investment risk, cost flexibility

> Better use of resources





Private  
Cloud

Hybrid does not exist  
without  
Connectivity

Public  
Cloud

Connectivity „IS“ the enabler of Hybrid Cloud Solutions

# Future Cloud Infrastructure (FCI)

## What is FCI

Future Cloud Infrastructure is a highly **secure**, **flexible**, **stable**, and **reliable** private cloud solution, designed on public cloud principals which supports a true **Hybrid** experience to our customers.

### 1. Stepping Stone to Future

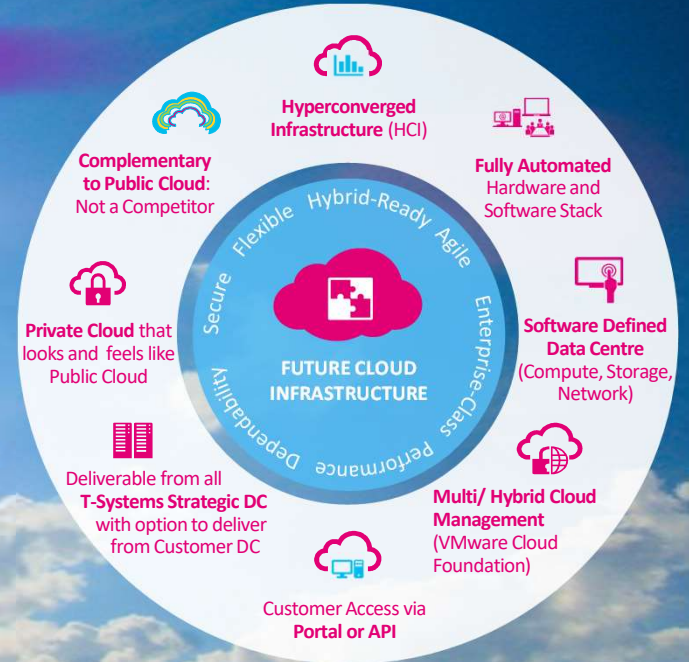
A **modern** private cloud platform with all the tools to enable customers to **transform** applications and make them cloud ready, at their own pace

### 2. Hybrid by Design

Designed to work together with the other platforms to give customers a **hybrid** cloud solution and **manage** it from one single platform

### 3. Public Cloud Experience

A highly **secure** private cloud with all the characteristics of public cloud in terms of **speed**, **flexibility** and **agility**



## Managed Services, Orchestration and Automation

### T-Systems Data Centre



Classic



Existing Platforms



Evolve over time



FCI Central



Workload movement



Google Cloud



Workload movement



FCI Local



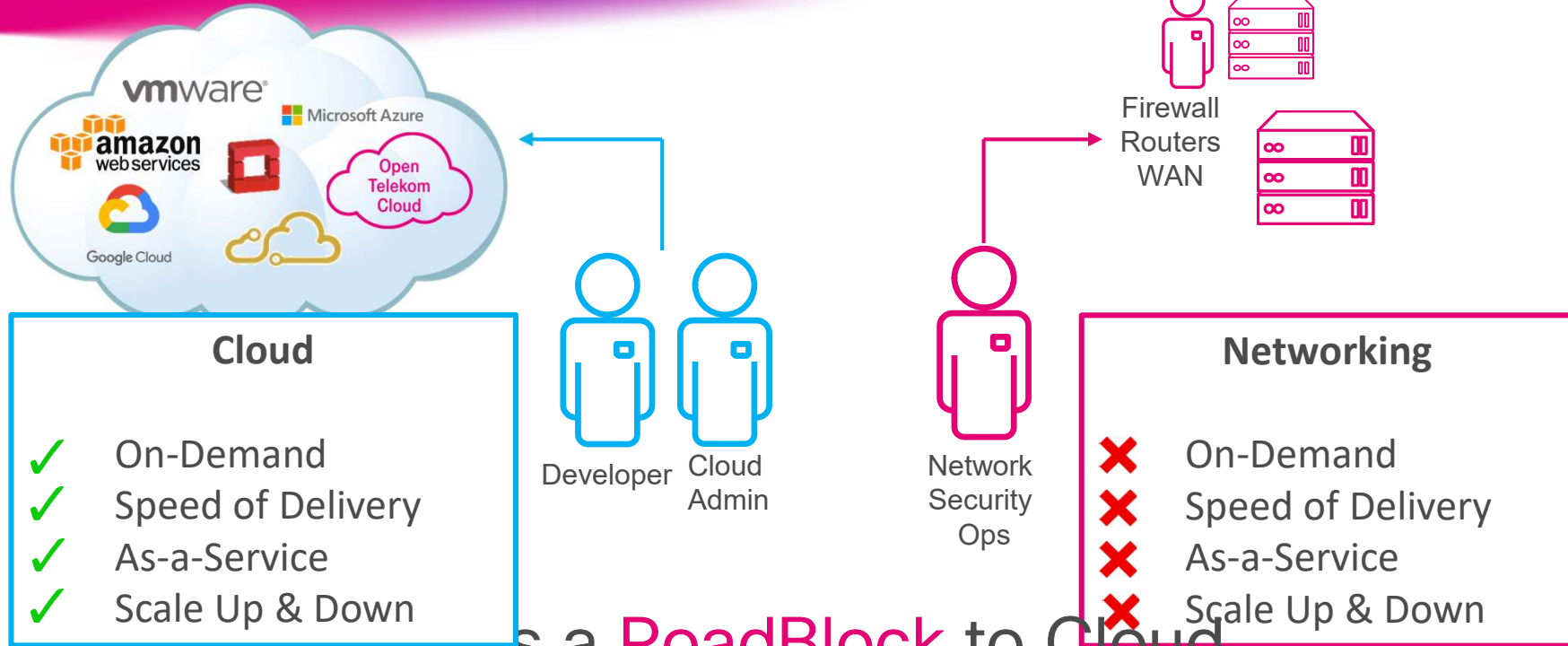
Evolve over time



Current Environment

## Connectivity Layer – Multi-Cloud Connectivity Platform

# Cloud Networking Today



# FCI Connectivity

## Customer Expectations

- 1. Fast Network Provisioning** – Connectivity in minutes to concentrate on my business
- 2. Simple Price Model** – Easy and predictable costs with Pay-As-You-Go or Contractual models
- 3. Simple Network Concepts** – I need a simple service with minimal input from my teams – no network jargon
- 4. Modern “cloud” Look and Feel** – I only want to pay for what I use and when I need it
- 5. End to End Automation**– Automation of all my repeatable services to speed up deployment, yet it needs to be flexible

## MCCP – MultiCloud Connectivity Platform

*“Network services based on a Software defined interconnect platform providing IP Layer 3 connectivity between T-Systems DC’s, Public Cloud and Customer WAN via an easy to consume, quick and secure platform”*

# MCCP Design Principles

Increase Infrastructure Capacity  
and Reduce Infrastructure Costs

## Mini to Maxi Scaling



- Start small – Low initial cost of platform
- Scale out & Grow with demand
  - Virtual and Physical Network functions

## Zero Touch, End-to-End Automation



- Automation at the forefront of design
- Repeatable services
- Speed up customer delivery
- CI/CD Framework
- Improve quality via automated testing

## Services - End to End Network Connectivity



- Managed Network Services
- Services that add value to the customer

## Software Defined Programmable Infrastructure



- Quick setup of new services
- Enhance and introduce new services
- Improves automation

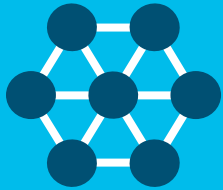
## Commercial Off The Shelf



- FCI Connectivity provides network services.
- Requires a Carrier grade Telco Cloud : Cisco
  - Fully Integrated, Fully Validated
  - Automation framework



# Agenda



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Understand the FCI  
Connectivity Service



Cisco elements

# MCCP – MultiCloud Connectivity Platform

Real Time OnDemand Platform

Fully Automated -  
Portal to Service Delivery

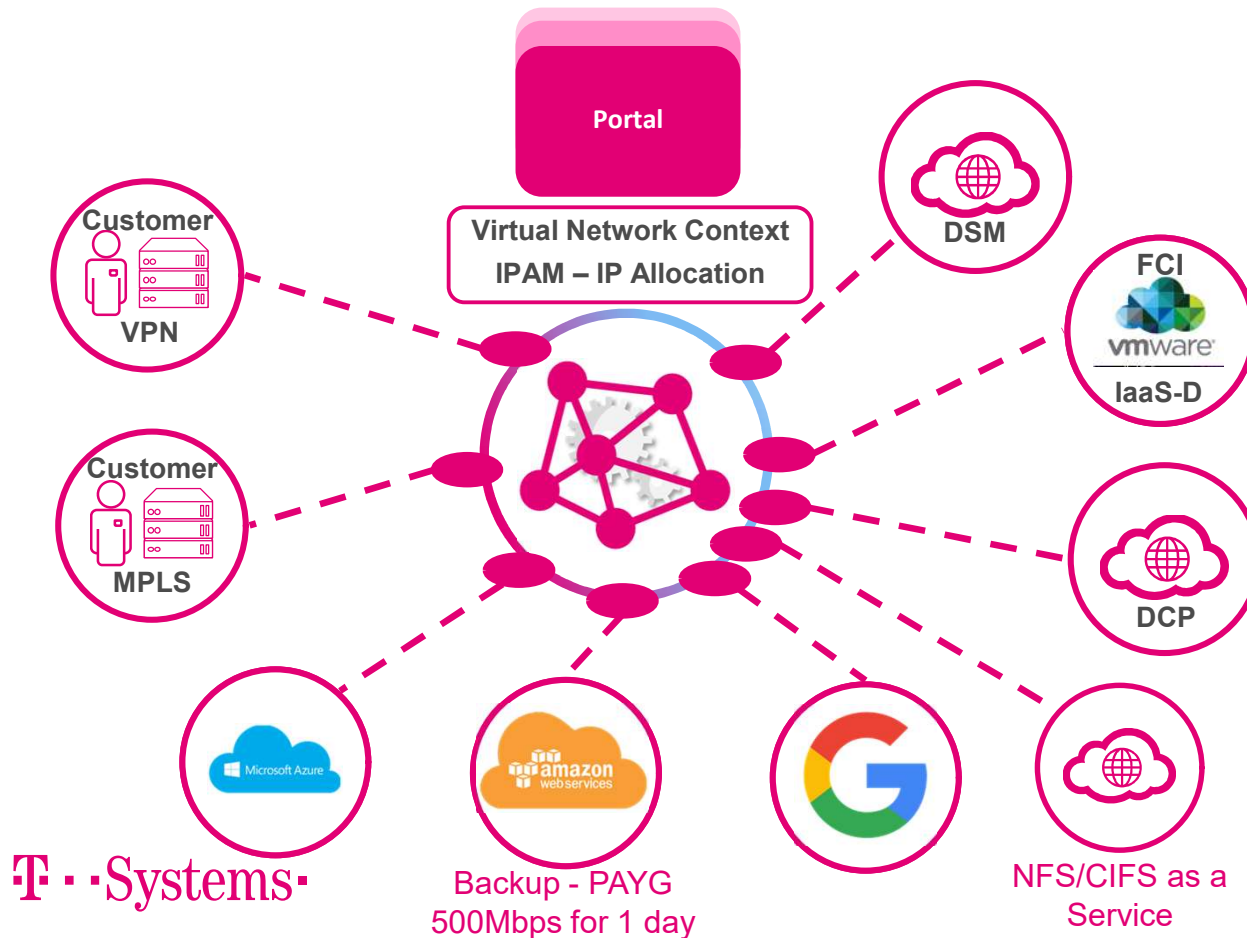
Twin-Core by Design

Reduce delivery

Global On demand  
Multi cloud Connectivity

Consumption & Contractual  
Based Model

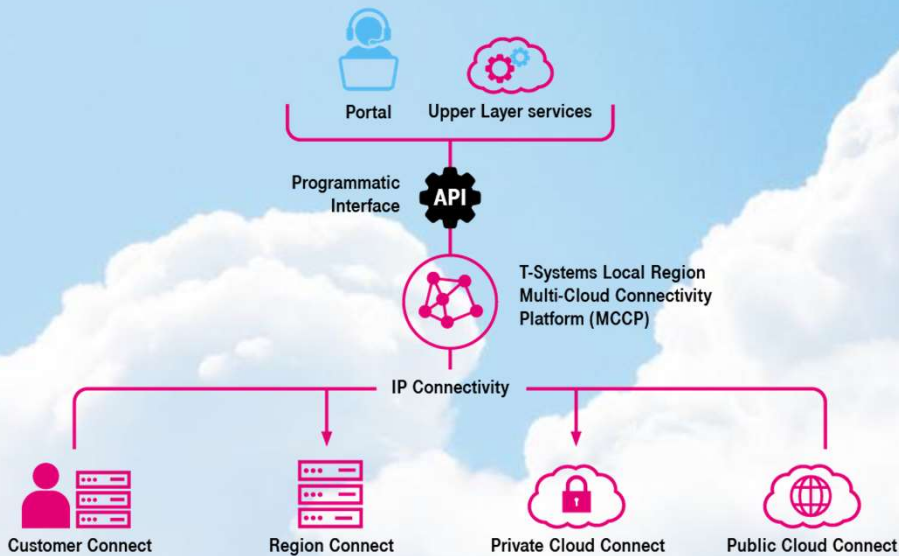
Connectivity Hub  
For any Service





# Connectivity Services

Repeatable and orderable End to End Services



Virtual Network Context (VNC)

## Customer Premise



Customer connectivity solutions to T-Systems DC's

## T-Systems Remote Region



Connectivity solutions between T-Systems DC's

## T-Systems Services



Connectivity solution to and from T-Systems platforms and portfolio offerings

## Public Cloud



Connectivity solutions to Public Clouds

# MCCP Services

## Customer Onboard



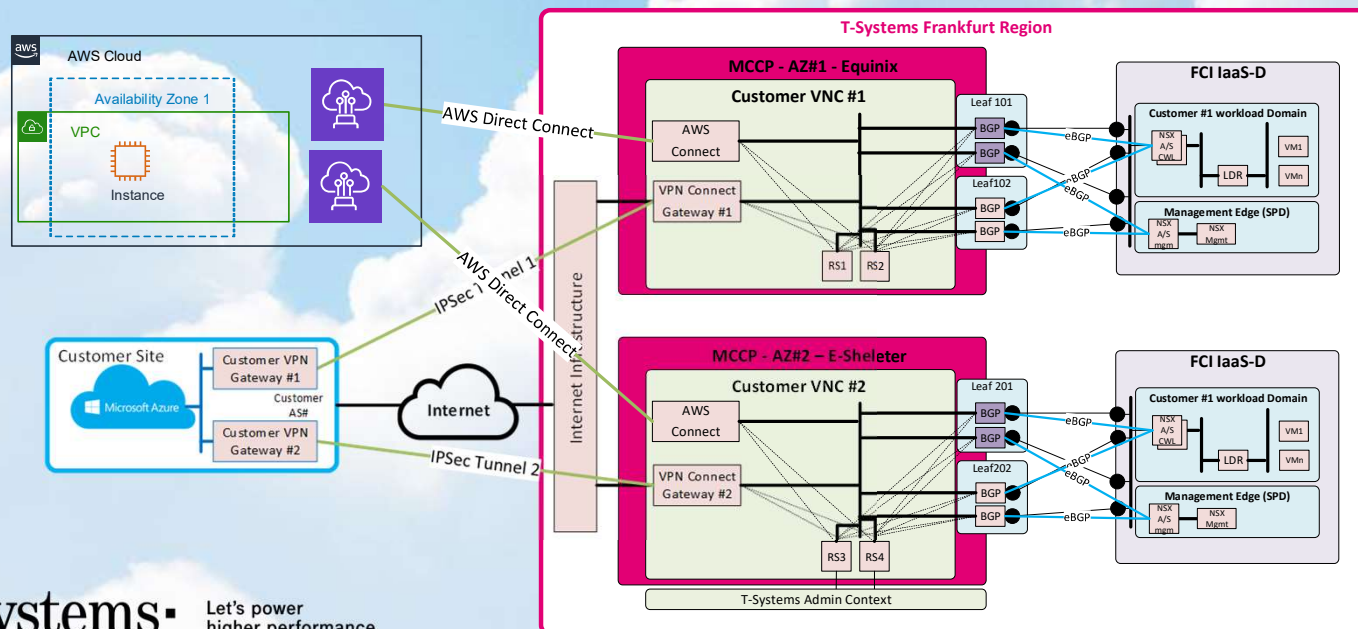
VPN Connect



IaaS-D Connect



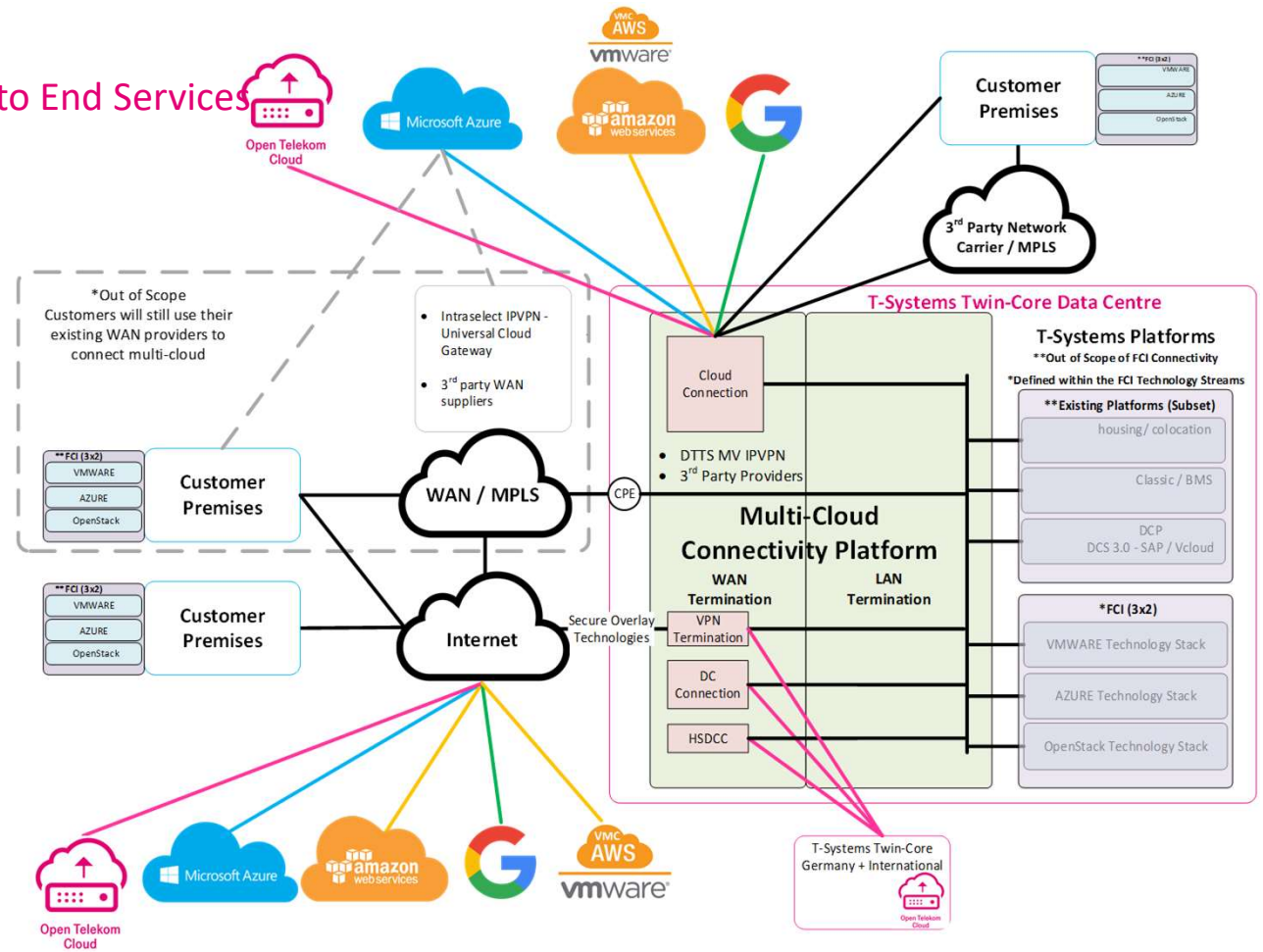
AWS Connect



# T-Systems Services

Repeatable and orderable End to End Services

*Provide IP Layer 3 connectivity between T-Systems DC's, Public Cloud and Customer WAN via an easy to consume, quick and secure platform*



# Customer Portal

TSI PU MIS & PC Service Portal

Service Catalog Requests 3 Cart Tours PS Paul Starr(MVP)

Home > All Catalogs > FCI Connectivity

Search

## Catalogs

All

## Categories

T-Systems Administration

FCI Services

**FCI Connectivity**

Base Services

Customer Connect

Private Cloud Connect

Public Cloud Connect

## FCI Connectivity

### FCI Connectivity Add AWS

 Order a Connection to one of your VPCs in an AWS Region

[View Details](#)

### FCI Connectivity Add Coexist ...

 Order a Connection to Environments on other T-Systems platforms (e.g. DCS3, Dynamic SAP).


[View Details](#)

### FCI Connectivity Add Custom...

 Order a new Secure network to one of your premises

[View Details](#)

### FCI Connectivity Delete Coxi...

 Disposal of a connection to your Environments on other T-Systems platforms (e.g. DCS3, Dynamic SAP)


[View Details](#)

### FCI Connectivity Add DSM Co...

 Order a Connection to your Environment on DSM

[View Details](#)

### FCI-CON Add Virtual Network ...

 Order a new virtual network context

[View Details](#)

### FCI Connectivity Delete AWS

 Disposal of connection to AWS

[View Details](#)

### FCI Connectivity Delete DSM ...

 Disposal of connection to your DSM Environment

[View Details](#)

### FCI Connectivity Del Custome...

 Disposal of connection to one of your premises

[View Details](#)

Showing 9 items


[Show More](#)

# Customer Portal - VPN Service

- Repeatable Service using repeatable template
- Automated end to end - order to deployment
- 10 Mins to deploy – less than 1 mins to delete
- Creates Customer business services, related CI within CMDB, Monitoring, Billing, Reporting

FCI Connectivity Add CustomerConnect

Order a new Secure network to one of your premises

 A connection between a Telekom Datacenter and one of your locations that is managed and controlled by one of your Virtual Network Contexts. This connection might be a VPN with one or two Gateways on your premise.

**Network Related Information**

\*Virtual Network Context

Region

\*Name your Connection

\*Connectivity Type

**Network Settings**

\*Bandwidth

\*VPN Device Model

\*Gateway IP

2nd Gateway IP

\*VPN Profile

\*Pre Shared Secret  [SHOW](#)

\*Routing

**Service Related Information**

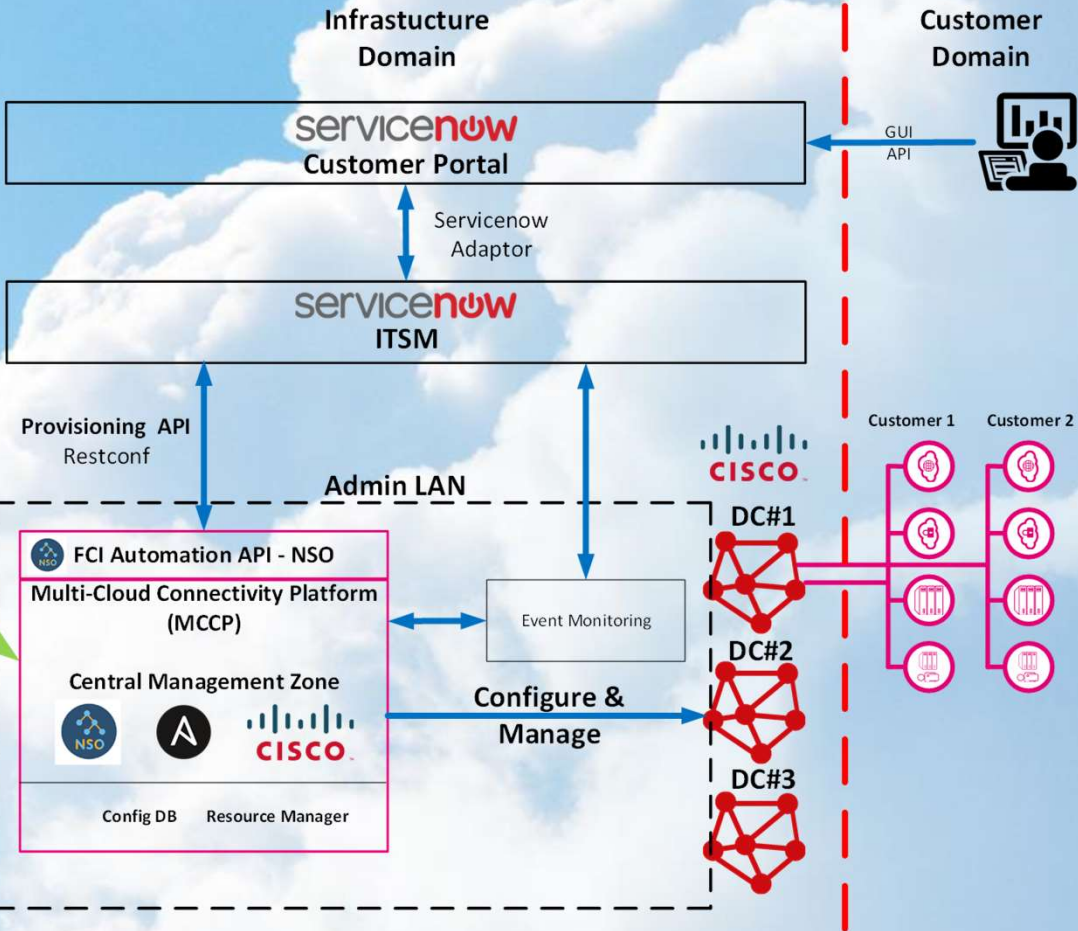
\*Usage Period

\*Technical Contact

\*E-Mail Address

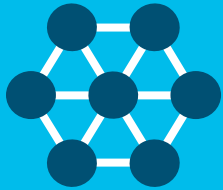
\*Phone

# FCI Connectivity Overview





# Agenda



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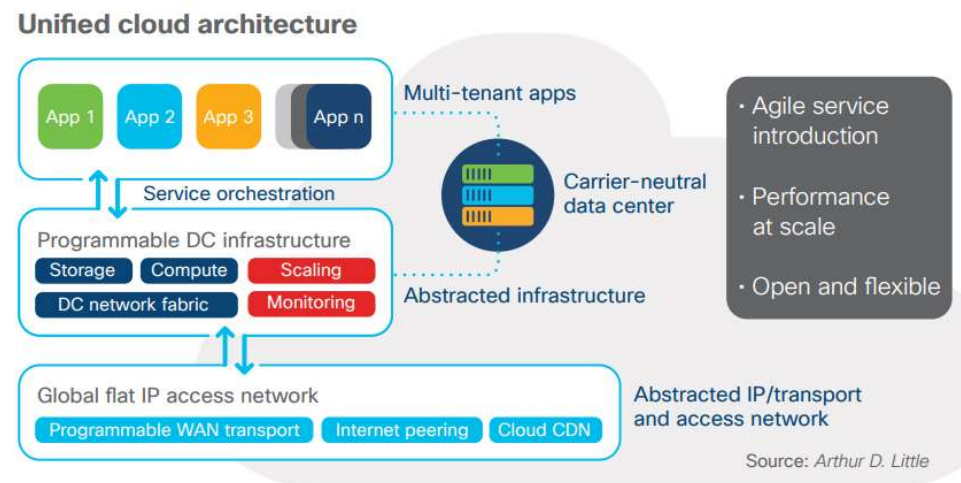
Understand the FCI  
Connectivity Service



Cisco elements

# The interest in Telco Cloud is driven by:

-  Cost reduction
-  Faster Time to Market
-  Automation
-  Common operational environment
-  4G | 5G

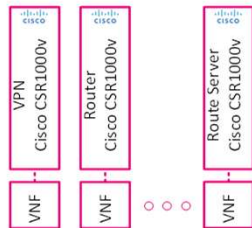




# Multi-Cloud Connectivity Platform - (MCCCP)

## Customer Portal - OSS / BSS

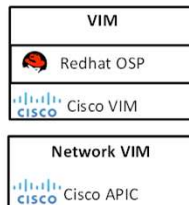
Service Now



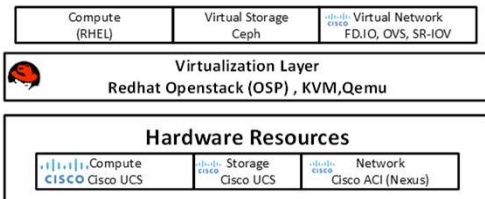
## NFV-MANO



## VIM



## NFV infrastructure (NFVI)



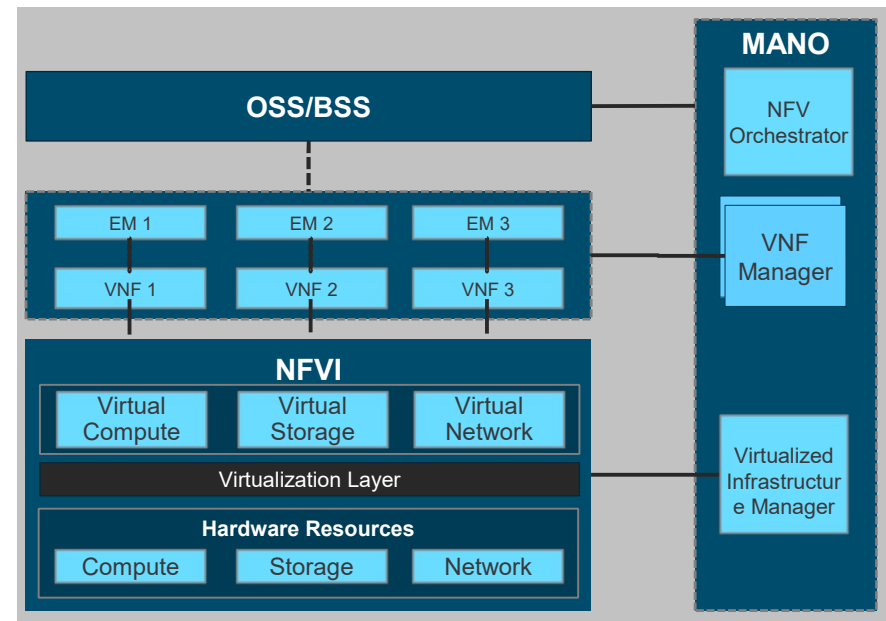
## CI/CD Tool Chain

JIRA, Confluence, Gitlab, JFOG Artifactor

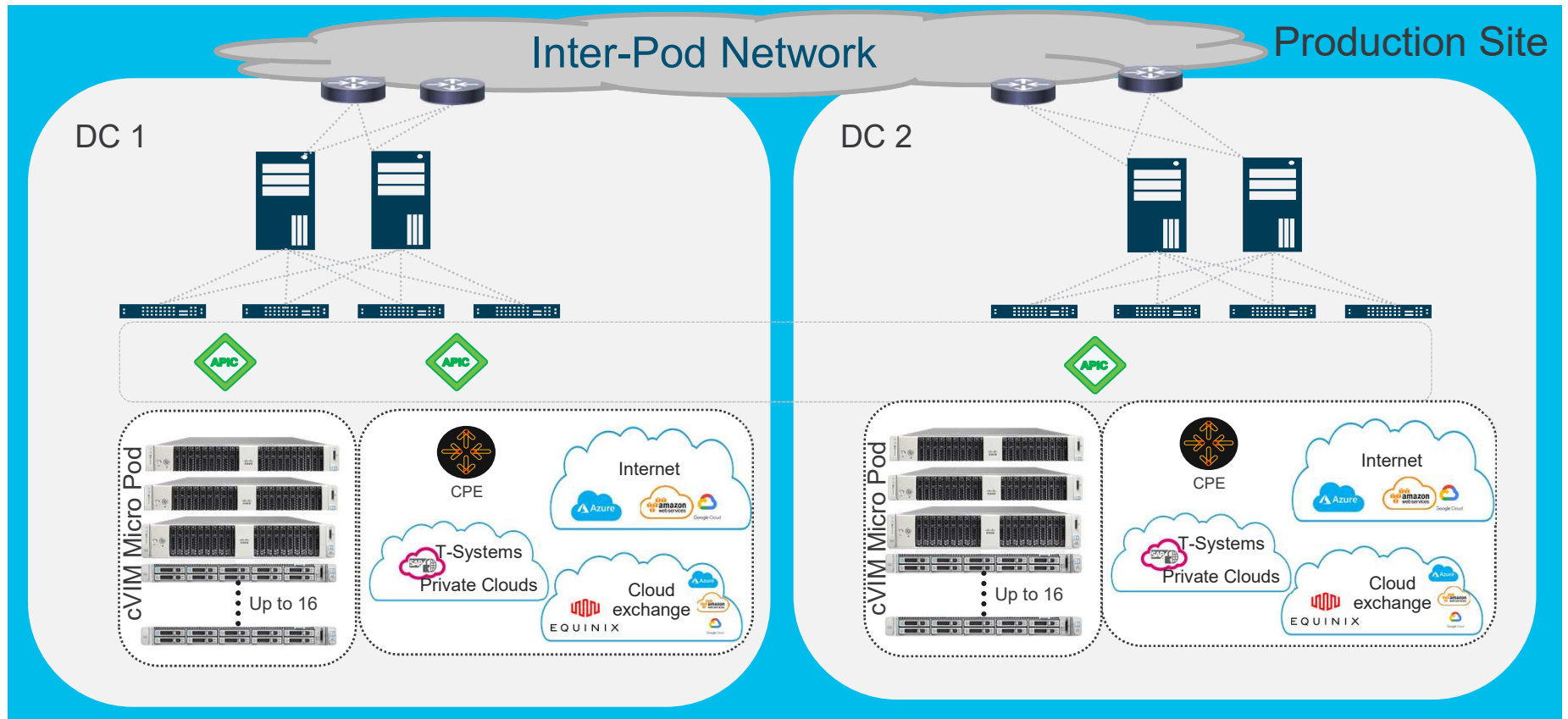
## Monitoring, Management and Service Assurance

Cisco CVIM-MON & EFK Stack

# ETSI Reference Architecture and NFVI

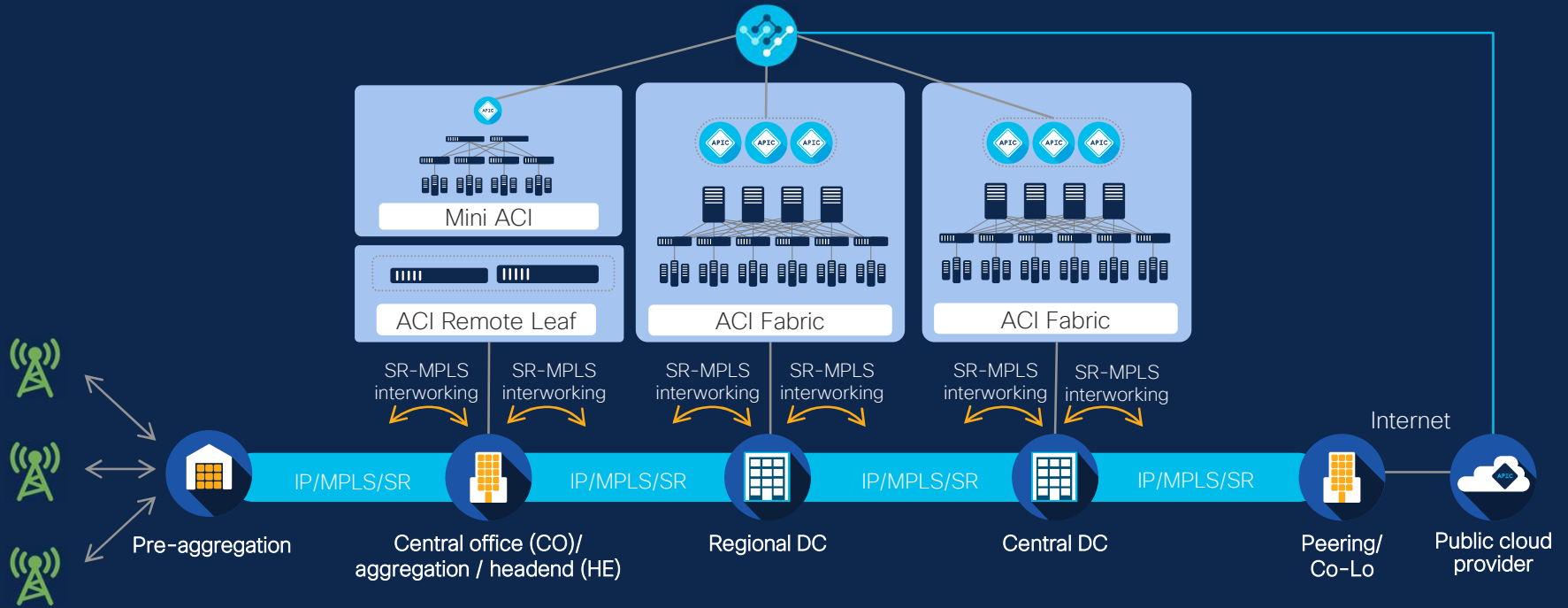


# MCCP production Location



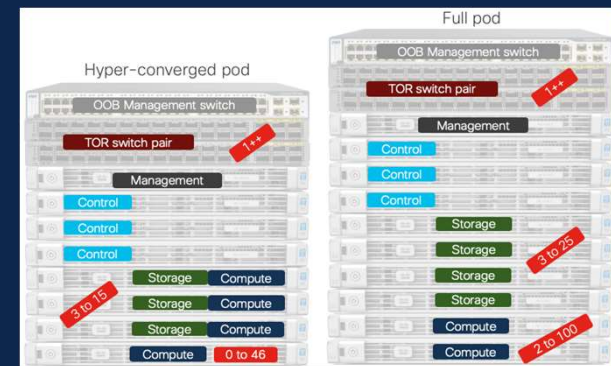
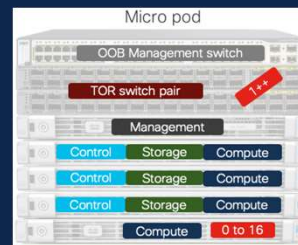
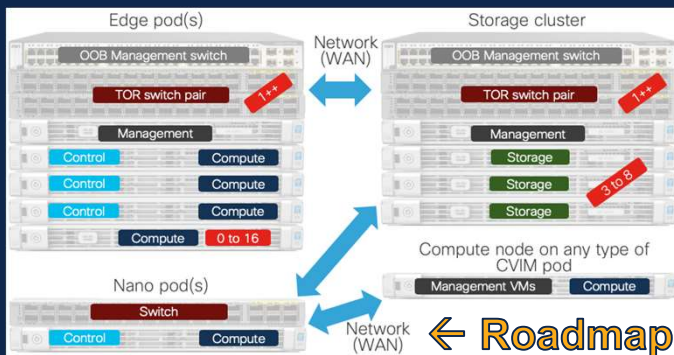
# ACI Hybrid Cloud Connectivity Options

Cisco Multi-Site Orchestrator



Building consistent end to end policy across DC and SP transport networks

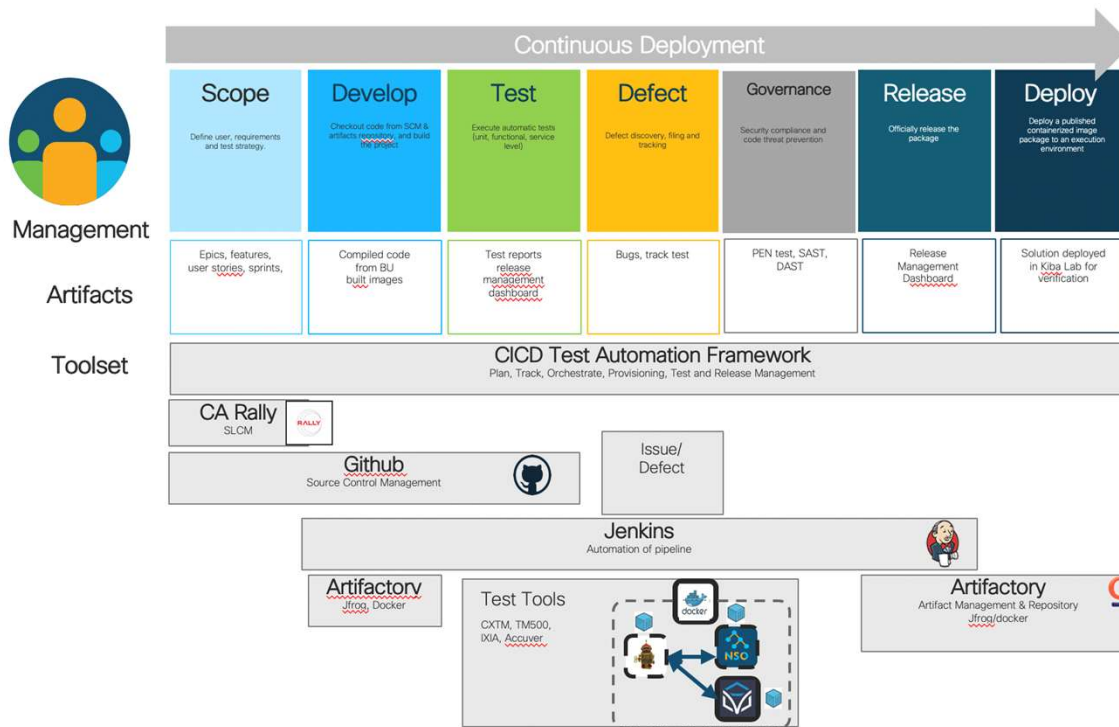
# Flexible Hybrid TelcoCloud options with CVIM



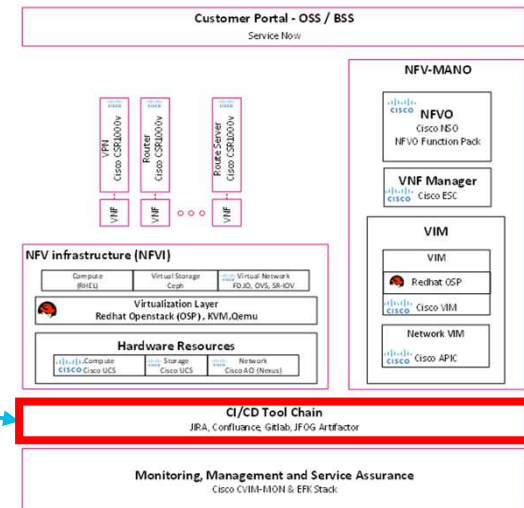
← Small optimized form factor with specialized hardware ... Large form factor with standard hardware →

# CICD & NetDevOps

## Cisco Integrated Testing Automation Framework



### Multi-Cloud Connectivity Platform-(MCCP)



# Wrap-up



Proof of concept capabilities during RFP



Reduced efforts to consume Telco Cloud



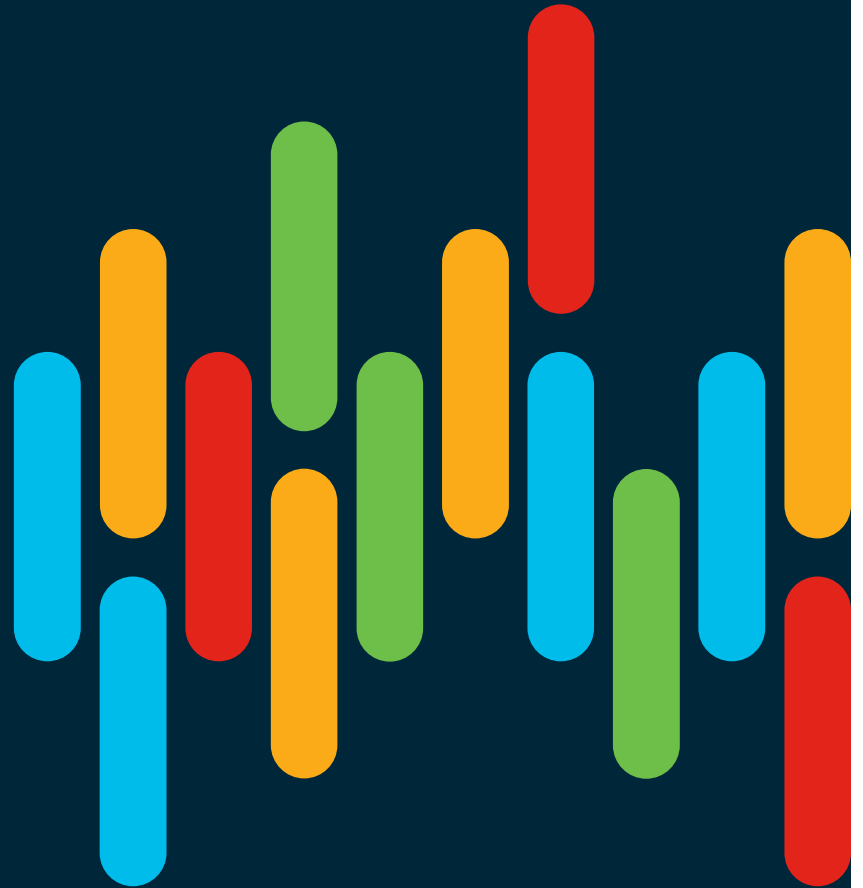
End2End integration of whole solution Stack



Consumption based licensing



Thank you





You make **possible**