



**THINK.
TRANSFORM.**

VIRTUALISATION

VIRTUALISATION IS IMPENDING FOR TELCO NETWORKS TO TAP INTO THE DIGITAL VALUE CHAIN AND ENABLE NEW SERVICE MODELS

In the Telco transformation journey, virtualisation is the key to drive operational efficiency, agility and service innovation. The transformation rhetoric is incomplete unless the need to overcome saturation in legacy systems is backed by investments in agile, cloud-centric, software-based digital architectures - **Software Defined Networks (SDN) and Network Functions Virtualisation (NFV)**.

SDN and NFV aid in centralisation of network control and hold tremendous promise to address Telco network challenges caused by increased traffic volumes, stagnant revenues and the elastic demands from the cloud. Virtualisation promises new ways of building communication networks at a significantly reduced CAPEX and OPEX with a greater scope for innovation in network services, and

improved cloud integration enabling revenue opportunities from new digital services.

Gain control of network assets, improve network performance, reduce operational challenges, save on administration and operational time, and optimise the total cost of ownership with virtualisation services from Tata Communications Transformation Services (TCTS).

Think. Transform.

Get ahead of the competition. Your world-class virtualisation journey begins with TCTS.

TCTS SDN/NFV NETWORK SERVICE PORTFOLIO

RINGING IN Transformation Making legacy systems agile for service innovation	<p>SD-WAN Deployment & Consultancy</p> <ul style="list-style-type: none"> • Consultancy & Business Enablement • SD-WAN vendor evaluation • Deployment plan • Zero touch provisioning • Enhanced security • Application aware routing • Operations & Managed Services 	<p>NFVi Deployment & Operations</p> <ul style="list-style-type: none"> • Setting up NFVi, onboarding VNFs and network configuration for various scenarios • NFV Test Certification Framework • VNF Onboarding • Functional testing • Interoperability Testing • Certification lab 	<p>Network as a Service</p> <ul style="list-style-type: none"> • Platform for connecting service providers end customers to public cloud services • Virtualizing the Edge of the CSP where end user and subscribers are terminated 	<p>Services Validation</p> <ul style="list-style-type: none"> • Vertical Testing: OSS/BSS & application testing • Horizontal testing: SDN Platform & Libraries • End to End testing: Service fulfillment & Assurance 	<p>Migration & Consultancy</p> <ul style="list-style-type: none"> • Understanding current network • Planning • Vendor Evaluation • Proof of Concept • Migration (Pre & Post) • Due Diligence and suggesting roadmap for target network 	<p>Hybrid Network Operations</p> <ul style="list-style-type: none"> • Managing Hybrid operations while operators are busy migrating to SDN and NFV • Operations team with Network and IT skill-set • Adherence to industry standard frameworks
	TIER1 India TELCO implementation	Implementing VNF for various NW Scenarios & testing scenarios	NexGen POP Deployment	Internet & VPN Services Scenarios (3500+) in Library	Best Practices in migrating to SDN NFV enabled network	Tier1 Telco India operations of SD-WAN Network
	TCTS Development Experts: CCIE, OCSA, MEF-CECP, Python, .NET, PMP, PRINCE2, ITIL, ETOM					

SDN/NFV : AREAS OF EXPERTISE

SDN controllers/ protocols

Open daylight, ONOS GUI/ CLI/REST API, Openflow, VTN CLI

Network Function Virtualisation

Openstack / Windriver Titanium, ETSI Mano Architecture, OPNFV, TOSCA/ HEAT based orchestration, Cloudify, Tacker, vCenter, L2/L3 Overlays

Hypervisors & OS

KVM, ESXi, CentOS, Ubuntu, Kernel programming

Virtual switches

OVSDB, Open vSwitch, Linux Bridges, DPDK, SR-IOV

Application, API integration

JSON/XML, Scripting (Python/PERL), NETCONF/ NETMOD, YANG, RESTful programming

VNF expertise

vRouter, OpenWRT, ClearWater IMS, C-RAN, NAT, Firewall

Networking

Converged SDDC, scale out/ in, VXLAN, SDWAN, server homing and virtualisation, virtual switching, DCL, orchestration, Leaf-Spine Architecture

Configuration management and continuous integration tools (DevOps)

Jenkins, Git, Chef, Puppet, Ansible

WHAT MAKES TCTS UNIQUE?

- Service distinction with multi-technology, multi-vendor expertise
- Proven skills in seamless service delivery across multiple geographies and telecom operators
- Recognised processes and automation solutions in network transformation services, continuously increasing value proposition derived from the product
- Large pool of best-in-class technical experts to develop futuristic solutions in network management services
- Customised solution design meeting customer business objectives
- End-to-end customer support and user training as part of solution deployment

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