

Signaling Controller RnD & Solution Consulting Services

Reliable partner to evolve your Telecom Signaling Solutions



Engineering, Design and Development

- From Defect resolution and management
- To new Features development and Releases management
- Plus CI/CD enabling in Development process

Full Testing Services

- All Testing types including Performance and Security testing
- All Platforms from Appliance to Software Edition to Cloud-based
- By All methods from Manual to Automation to Continuous Testing

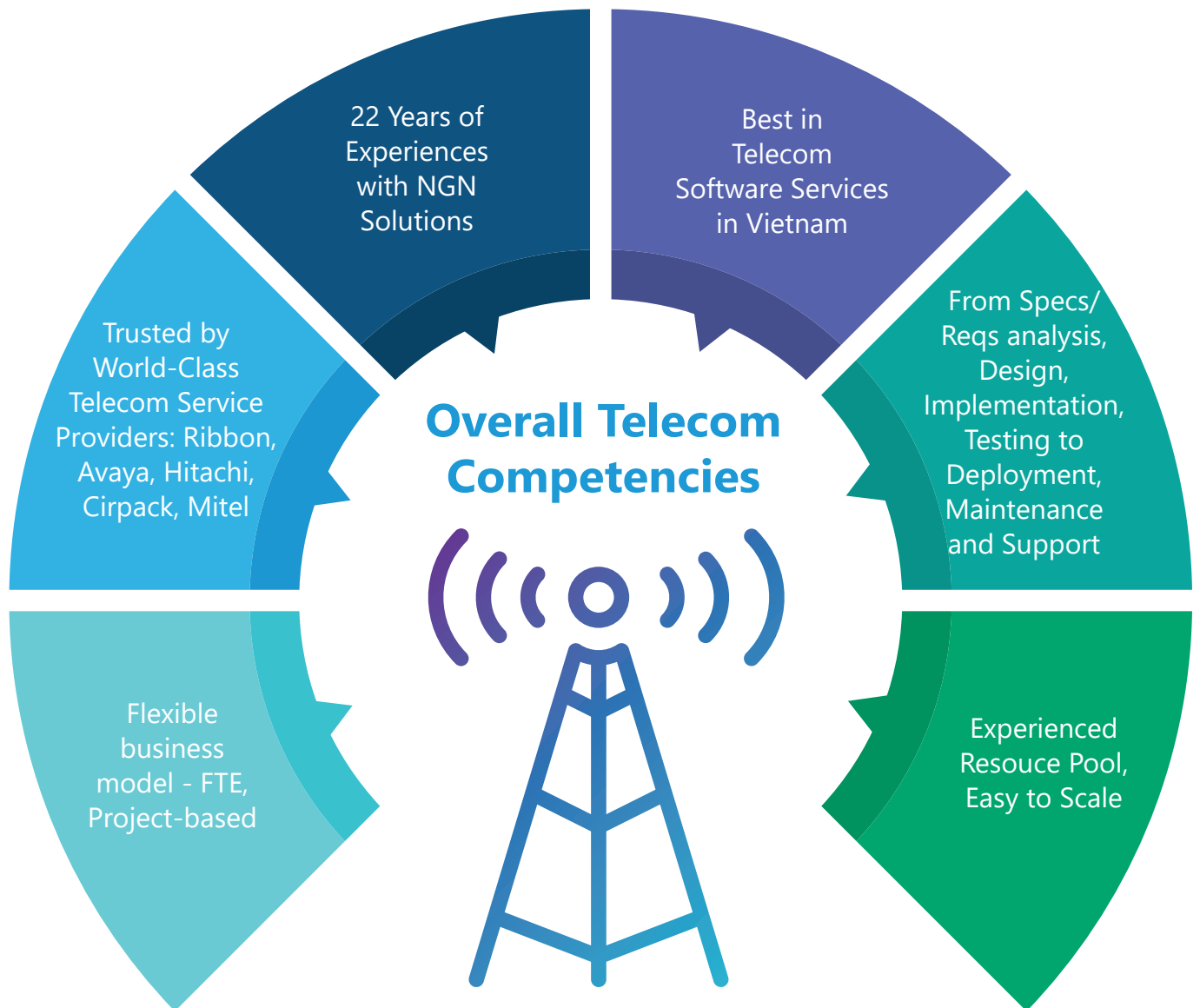
Professional Services

- Resolve and maintain a reasonable number of customer issues based on SLA
- Support Demo and Deployment
- Develop In-Service Migration and Upgrade procedures

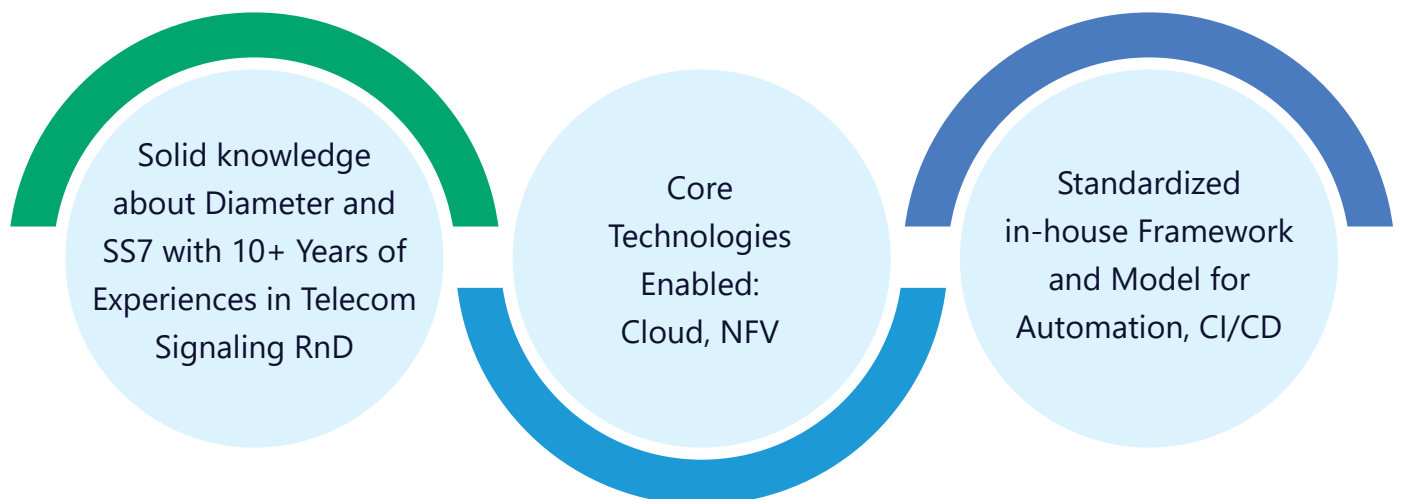
Technology Evolution

- Virtualize and create Software Editions for the Product
- Support Cloud Migration - Public and Private
- Enable 5G Inter-operability

TMA COMPETENCIES



Signaling Solutions Competencies



TECHNOLOGIES

Technologies

- Domains: NGN (Softswitch, IMS), PSTN, SS7, 4G/LTE, 5G
- New Technologies: Virtualization, Cloud, NFV
- Key Functions:
 - Diameter: Core Router, Routing Agent, Load Balancer, Edge Agent, Subscriber Location Function
 - SS7: Signaling Gateway, Signaling Transfer Point, Global Title Translation, IP Edge, Interworking Function (IWF)
- Protocols Stack:
 - ISUP, SCCP, TUP, TCAP, Diameter, HTTP2
 - Sigtran, MTP2, MTP3, M3UA, M2UA, M2PA
 - SCTP, TCP, TLS, IPv4, IPv6, IPSec

Frameworks and Solutions

- Automation Framework: TMA Automation Framework, Robot Automation Framework, TMA Automation Analysis Tool
- Design Solution:
 - Languages and Frameworks: C/C++, Python, Django/Tornado, Scripting
 - High Availability Solutions
 - Cloud/NFV Enabled
- Standardized CI/CD model: Jenkins, Pipelines, Docker, IaC, Coverity, Continuous Testing

Tools

- Testing tools: HP QC, Atlassian Suite (JIRA, Confluence, Crucible, BitBucket), Wireshark, TCPdump, SSH/Putty, Colasoft Packet Play, SmartBits, SIPp, LDAP Browser, MIB Browser, Tera Term, Minicom, Syslog viewer
- Security tools: Nessus, OWASP, NMAP, BurpSuite, Accunetix, Kali Linux (Linux penetration testing tools)

Platforms

Linux:
RHEL

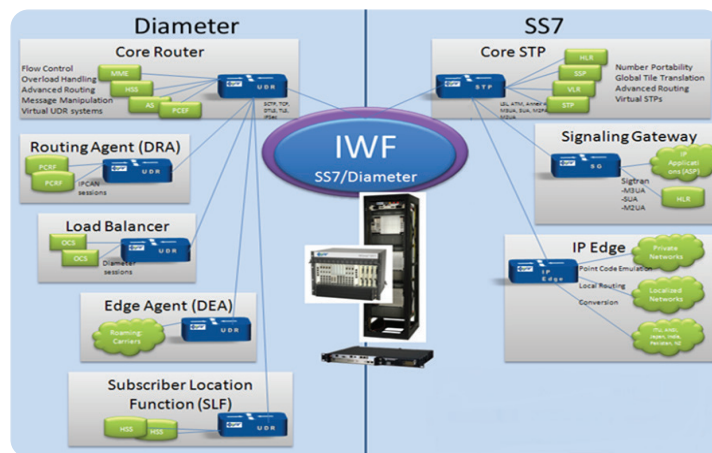
Virtualization:
KVM, VMWare,
OpenStack

Cloud:
OpenStack,
AWS

CASE STUDIES - Signaling Controller VNF

Description

- Migrate a Signaling Controller Platform supporting Diameter, SS7, DCR to Cloud based on NFV architect
- Orchestration & Life Cycle Management
- CSAR package & VNF-D Development
- Ve-Vnfm Development – VNFM integration
- Disaster Recovery Mechanism



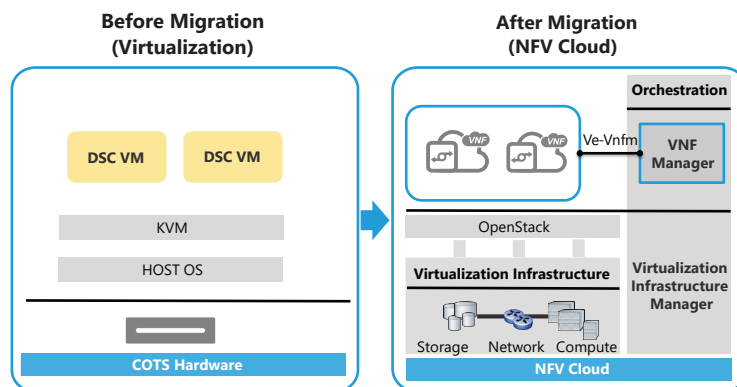
Services:

Design

Develop

Cloud
Deployment

Testing



Technologies

Platform:

RHEL, Openstack,
NFV, VNF, VNFM

Framework:

RESTful API, Django,
High Availability –
Pacemaker

Functions:

Diameter Router
(4G, LTE), IWF,
SS7, STP, SG, ...

Languages:

C/C++, Python,
Scripting