

## Fortune Global 50 Financial Institution Accelerates Application Delivery with Anuta NCX Network Service Orchestration

A Fortune Global-50 (FG50) Financial Institution which operates a large number of banks and insurance businesses around the globe aims to enhance its private cloud services to its group of subsidiaries.

As global businesses drive towards reduced cost, easy availability, increased agility and managed risk, cloud IT infrastructure spending is expected to grow at a compounded annual growth rate (CAGR) of 15.6 percent reaching \$54.6 billion by 2019<sup>1</sup>, accounting for 46.5 percent of the total spending on IT infrastructure. At the same time, the global hosted private cloud market is expected to grow at a CAGR of 35.4% to reach \$40.6 billion in 2019<sup>2</sup>.

To expand its business operations, the FG-50 Fintech required an innovative solution that can automate the provisioning of applications as means to improve time-to-market for its range of services. At the same time, the company aims to reduce its operating expenditure (OPEX) by shifting away from legacy processes including replacing the ticketing system currently deployed to affect policy updates.

The FG50 Fintech deployed Anuta Network's Orchestration Solution, the Anuta NCX. In a Proof of Concept (PoC), Anuta Networks delivered a comprehensive automation solution to accelerate the Application Delivery with Network Service Orchestration for the FG-50 firm's private cloud services.

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*We validated many orchestration solutions in the market and finally selected the Anuta NCX orchestrator solution for its breadth of vendor coverage, compatibility with brownfield environment and flexible platform backed by world-class system integration support.*

- **GM, Network Services Division, Fortune Global-50 Financial Institute**

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*The POC enabled us to showcase the flexibility of NCX service model by adding support for configuring FW rules or LB policies under a logical context which represents tenants. The solution is also capable of bringing up changes quickly as NCX discovers all the contexts, making it ready for user selections.*

- **Operational Team Member**

## 1. Current Application Delivery Challenges

Today's agile organizations rely on IT to introduce new products to market quickly and to differentiate themselves. With the proliferation of cloud infrastructure, there is enormous pressure on IT to become a service delivery organization.

Following are some of the key challenges the FG-50 Fintech was facing:

- Too many point tools that delay application delivery time and increasing OPEX to handle change requests from application owners.
- Managing multiple vendor devices is proving costly.
- Legacy systems and manual processes make it extremely challenging to deliver new applications which involves configuration of multiple network elements such as Load Balancers, Firewalls, Web Proxy, Routers, Switches, IP Address Managers (IPAM), Certificate Managers manually.
- The manual process is burdensome and requires complex exchanges among multiple teams for approval. It also involves having expertise to configure multi-vendor network infrastructure. For instance, customer has over 20,000 Move, Add, Change (MAC) requests for their DNS servers alone that are handled using ad-hoc scripts.
- The manual process often results in mis-configurations and security violations.
- Lack of visibility of application status across the Data Center.
- Ensuring network compliance and service assurance is another area which is very challenging in the Multi-Vendor Network Infrastructure.
- Many legacy applications preventing adoption of latest technologies

A PoC was commissioned to demonstrate network orchestration that is able to address the above challenges. Anuta Networks undertook the challenge to showcase how its NCX service orchestration suite is able to address the exact needs of the FG-50 Fintech in terms of its application delivery requirements.

## 2. PoC

### i. Specific Use Cases Demonstrated During the PoC

Anuta Networks then showcased a select number of use-cases tailored to showcase its solution capabilities in addressing the challenges currently faced by the FG-50 Fintech. These use cases are targeted towards enhancing the application delivery capabilities to support private cloud infrastructure.

Use Cases demonstrated during the POC	Details on how they are successfully demo-ed
<b>Network and Service Discovery</b>	Anuta NCX discovered up-to-date network topology, inventory and pre-existing services in a brownfield environment. Once the devices are on-boarded, NCX discovers all the contexts, VIPs, Certificates, Firewall policies, Host Records, Zones etc.
<b>Rapid network provisioning to deploy applications in multi-tenant private cloud.</b>	Anuta NCX service model consolidated multiple operations on multiple vendor devices such as Routers, Firewalls, Load Balancers, DNS servers, IPAM to deliver virtual networks for application within minutes.
<b>Automate firewall and load balancer policies</b>	Firewall and load balancer policies that were pre-configured and pre-validated using the simple Anuta NCX GUI were translated into complex CLI and API calls to multi-vendor devices within minutes.
<b>Reconciliation and Compliance</b>	NCX is able to validate the actual device configuration against the device state in NCX and enables compliance report generation in matter of minutes.
<b>Enforce RBAC for department admins and users.</b>	The PoC showcased comprehensive Role-based Access Control feature within the Anuta NCX with NACM, Audit Logs and Approval workflows for department admins and users that ensured strict security and compliance.
<b>Service monitoring &amp; SLA Management</b>	Anuta NCX was used to monitor the end-to-end virtual service across multiple network elements and devices. NCX provides physical and logical topology, device level statistics and Alarms management customized for each application to ensure SLA.
<b>IP addressing and VLAN management</b>	Using Infoblox IPAM, the Anuta NCX was used to generate policies to create IP address pools, dedicate IP address blocks to applications and tenants, introduce authorization rules as well as automate the reallocation of IP pools
<b>Capacity management and forecasting</b>	Administrators could organize the discovered resources into multiple pods and resource pools for service provisioning.  NCX uses real-time status information to compute the capacity and availability for each service offering. In addition, NCX generates threshold based alerts to proactively inform the impacted tenants and departments.
<b>Integration with Self-Service Portals and OSS</b>	NCX offers comprehensive Restconf interface, SDK and a library of Python scripts that simplify integration with northbound self-service portals such as Science Logic, vRealize Automation Suite and any other self-service portals.

ii. Architecture

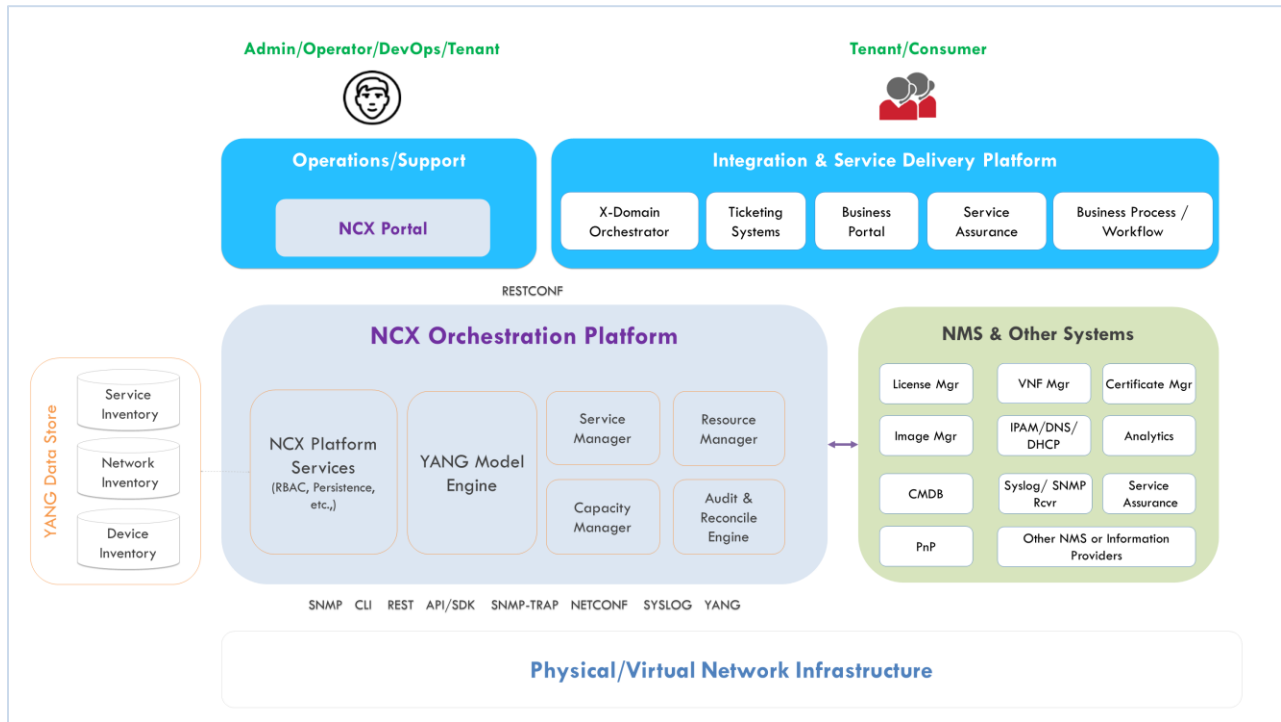


Diagram-1: PoC Reference Architecture

3. Towards Enhanced Application Delivery

While the use cases showed specific capabilities of the NCX in addressing the FG-50 Fintech’s application delivery requirements, the NCX is able to address the needs of any company of any size that is looking to enhance its application delivery capabilities. This is supported by the core capabilities built in the NCX namely:

Core Capabilities of Anuta NCX	Enhancements Delivered
<p><b>Accelerated Tenant On-boarding</b> Anuta NCX automates the configuration of network services across L2-L7 multi-vendor physical, virtual and hybrid networks.</p> <p>NCX self-service delivery avoids legacy handoffs between server and network teams resulting in lower overall OPEX and time to market.</p>	<p>Accelerated Time to Market</p>
<p><b>L4-L7 Automation and Self-Service</b> NCX abstracts multi-vendor L4-L7 appliances including Firewalls, Load Balancers, WanOp etc.</p>	<p>Provided a fully-fledged Self-Service solution; Removes dependency on IT admin.</p>

<p>Tenant admins can manage high frequency operations such as adding or modifying ACLs, NAT rules, VIPs, Real Servers etc. with a simple GUI.</p> <p>The solution avoids cumbersome ticketing process prevalent in the traditional DC and ensures consistent security policies.</p>	
<p><b>Extensible Platform with YANG Modeling</b></p> <p>The rich YANG model enables Anuta NCX to integrate seamlessly with any platform, device or interface/protocol, delivering a truly open architecture. NCX enables customers and partners to develop custom device, service and operational models to match their service delivery needs.</p> <p>NCX uses an extensible, IETF YANG based model-driven configuration and service management engine to manage multi-vendor devices.</p>	<p>Supported Multi-Vendor devices for each technology in the Data Center and obviates the need to learn multiple vendor GUI or CLI.</p>
<p><b>Performance and Scale</b></p> <p>NCX has been proven to automate thousands of L2-L7 devices including routers, switches, firewalls, ADCs, WAN Op, Proxy devices for different use cases such as app delivery, private cloud, ACL and VIP management.</p> <p>NCX distributed architecture scales to several tens of thousands of devices in the network. Both the NCX controller and agent are stateless resulting in a highly available solution.</p> <p>For large scale deployments, NCX supports external DB such as Oracle / Postgres SQL to store server state.</p>	<p>Delivered Scalability for DevOps Operations of any size and in any sector</p>
<p><b>Multi-Tenancy and RBAC (Role Based Access Control)</b></p> <p>The solution requires only one instance of NCX to manage multiple customer's infrastructure. NCX tracks each tenants' resources and tags them separately.</p> <p>NCX offers comprehensive role based access control and integrates with AD and LDAP to enforce authorization policies. Roles and permissions can be customized to satisfy various organizational structures.</p>	<p>Catered for multiple organization and conforms to industry best practices and ensures compliance with regulations</p>
<p><b>Capacity Management</b></p> <p>NCX discovers network infrastructure including device type, role, capacity and topology. Admin can organize the resources into multiple pods and resource pools for service provisioning.</p> <p>NCX maintains real-time inventory of physical and virtual network resources and computes capacity and availability for each service offering. NCX also generates threshold based alerts to inform the impacted tenants.</p>	<p>Discovered existing network services and enables self-service automation for them. This relieves the IT admin from trivial network changes and helps them focus on evaluating and deploying new technologies.</p>

The highly successful PoC demonstrated the capabilities of Anuta Networks' NCX solution to deliver application delivery orchestration for comprehensive network policy automation that supports L2-L7 services including Firewall, ADC, GSLB, WAN Op, Proxy, MPLS, QoS and IPAM. Following are the key highlights:

1. Reduced tenant onboarding time from weeks to minutes.
2. Reduced network team's involvement in change requests by 70%.
3. Introduction of consistency for network operations and improved overall security and compliance.
4. Service Models for customer use-cases were developed in less than 2 weeks.
5. Faster application deployment within any data center environment with integrated service fulfillment testing for quicker turnaround time.

### Six Key Differentiators of Anuta NCX Compared to Other Leading Solutions in the Market

1. Supports the largest range of vendor devices such as Cisco, Juniper, Infoblox, Checkpoint, Ctrix, F5, Fortinet, Palo Alto Networks, HP, Bluecat, Infoblox, Radware and VMware
2. Integrated Service Fulfillment testing with results
3. Resource Management and Service Assurance capabilities
4. In-built applications such as IPAM and network component such as DNS server
5. Yang Model-driven, extensible and scalable platform with the most comprehensive support for multi-vendor physical and virtual network devices and new age SDN controllers regardless of the network use-case.
6. Support for Branch, Campus, Data Center and Carrier Core infrastructure automation across large enterprises, service providers and telecommunications operators – a competitive advantage over similar offerings by other niche players.

### About Anuta Networks

Anuta Networks is the industry-first provider of end-to-end network services orchestration solutions for large, medium enterprises and service providers. The Company's Network Services orchestration solutions help organizations of all sizes accelerate deployments of network infrastructures and bring agility to the network. Anuta Networks' partnerships with industry leaders such as Cisco Systems, F5 Networks, VMware and many others further enable customers to rapidly transform their network services in agile infrastructure deployments. The Company is headquartered in Silicon Valley with offices in Japan, Australia, Ireland, France, Spain and India.

**Reference:** <sup>1</sup>IDC - *Worldwide Quarterly Cloud IT Infrastructure Tracker*; <sup>2</sup>IDC - *Worldwide Hosted Private Cloud Services Forecast, 2015–2019: New Models for Delivering Infrastructure Services*(Jan 2016);