

Key Features

- On-demand Network Virtualization for multi-vendor infrastructure across L2-L7
- Orchestration for physical and virtual versions of the Citrix NetScaler ADC
- Intuitive Service Designer simplifies network service catalog creation
- Out of the box integration with Cloud OS such as Citrix CloudStack accelerates cloud deployments
- Per-Application logical and physical topology views simplifies troubleshooting

Solution Benefits

- Network virtualization improves business agility
- Automated L2-L7 orchestration reduces overall CapEx and OpEx
- Self-Service improves customer satisfaction for application owners
- Support for existing infrastructure provides Investment Protection

NCX for Citrix NetScaler

Delivering agile network services with industry leading application delivery controller

Anuta NCX delivers network virtualization through L2-L7 service chain for existing multi-vendor infrastructure. Anuta has partnered with Citrix to deliver agile network services for cloud and data center networks.

Customer Challenges

Manual Process: Today's data centers need to be agile. With various improvements in server and storage virtualization, network has become the bottleneck. Typically it takes minutes to provision compute and storage resources, but weeks to deliver network resources. This delay directly impacts revenues.

Best of Breed Networks: Customers chose multiple best-of-breed devices in their data center. Each vendor offers a different management interface with its own CLI or API. Hence, a network administrator has to master multiple CLI/API resulting in delay and OPEX increase.

Multiple Form-Factors: With the success of server virtualization, many customers have adopted virtual appliances. While the virtual appliances simplify deployments, they introduce new management challenges related to provision, deployment, service creation and deprovisioning.

Troubleshooting Complexity: Today's Datacenters are extremely complex involving multi-tenant architecture. Network administrators spend 80% of their time troubleshooting application issues to correlate system events across multiple layers in the network.

Solution Overview

Anuta NCX orchestrates data center networks by introducing Citrix NetScaler into the data path and configuring application policies. Administrators can create multiple service catalogs utilizing NetScaler configuration options and publish them to self-service portals. When application owner orders a service, NCX orchestrates the end-to-end multi-layer network including Citrix NetScaler ADC.

Anuta NCX supports both physical and virtual appliance version of the industry leading NetScaler ADC. The combined solution delivers virtual networks within minutes through the self-service portal. In addition to service delivery, NCX also provides comprehensive service management. For each tenant service, NCX provides the physical and logical network thus simplifying the troubleshooting process. If there are any alarms, NCX proactively notifies the application owners. In addition, NCX capacity forecast accurately calculates service availability and generates alarms based on thresholds.

Solution Components

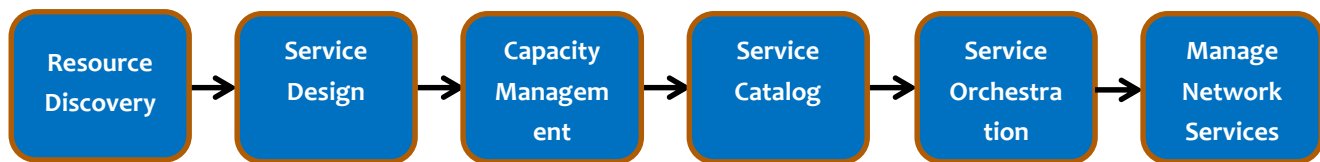
Anuta NCX: NCX is delivered as a software virtual appliance that can be installed in the management network.

Citrix NetScaler ADC: The industry leading Citrix NetScaler ADC delivers rich application experience through features such as content caching, TCP optimization, SSL offload and Server load-balancing.

Solution features

Anuta NCX delivers comprehensive Network Service Life Cycle Management for existing L2-L7 infrastructure.

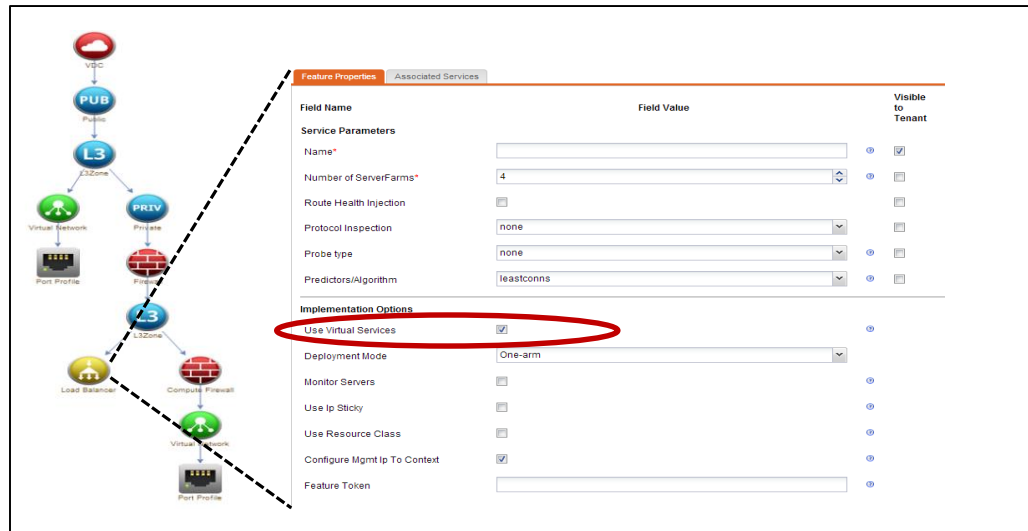
Figure-1: NCX's Network Service Life Cycle Management



Resource Discovery: NCX discovers the existing L2-L7 devices including NetScaler physical and virtual appliances. Based on the connections, NCX builds a topology diagram. The administrator can review, edit and approve the topology and customize configuration parameters.

Service Design: Administrator uses NCX service designer to drag-and-drop network functions and define various services. Each network function can be further customized to provide varying level of services. For example, the load-balancer policy can be customized to decide 1-arm or 2-arm deployment, predictor algorithm and whether to use physical or virtual appliances. In addition, some of the day-to-day operational activities such as 'Create VIP', 'Create Real Server', and 'Delete Real Server' can be offloaded to the application owner through the self-service portal. Thus, the cloud administrator can offer 'Load-Balancer as a service' to the application owners.

Figure-2: NCX's Network Service Design to use virtual appliance for ADC

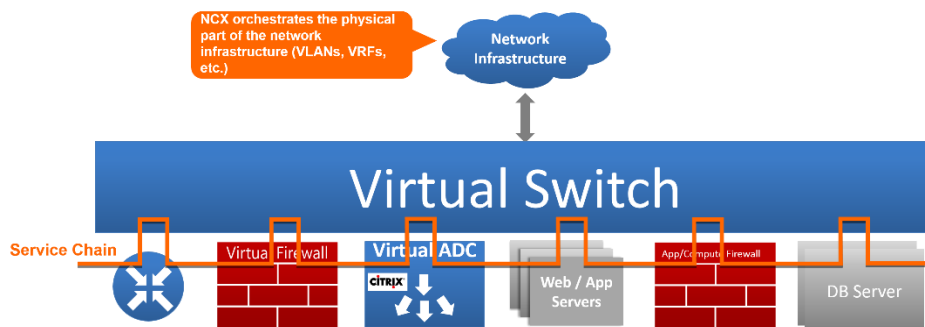


Capacity Management: Once a service is defined, NCX computes feasibility and availability of service. This helps with resource planning and expansion.

Service Catalog: The services are published to either public or private catalogs for tenant consumption through the REST API. NCX also integrates with cloud portals such as vCAC, OpenStack, CloudStack etc. Customers can also use NCX self-service portal or integrate with their homegrown portal.

Service Orchestration: Once a service is selected, NCX implements service chains for the physical, virtual or hybrid topologies. NCX will also instantiate NetScaler VPX using NetScaler API and configures interfaces, data and management paths. The below diagram depicts the L2-L7 service chain created by NCX that uses all virtual network devices. For Application Delivery, the solution is using Citrix NetScaler VPX.

Figure-3: NCX's orchestrated end-to-end (L2-L7) service chain using Citrix NetScaler VPX



NCX delivers service chains across all layers of the network including Citrix NetScaler. Both physical and virtual form-factors are supported.

Figure-4: NCX orchestrated L2-L7 service chain using Citrix NetScaler ADC in All physical topology

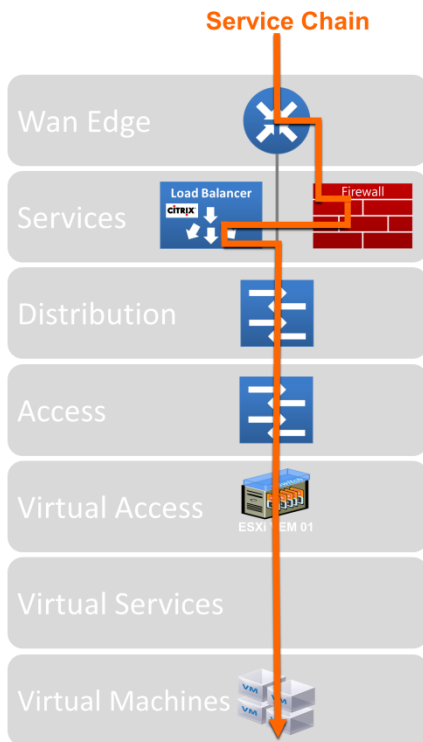
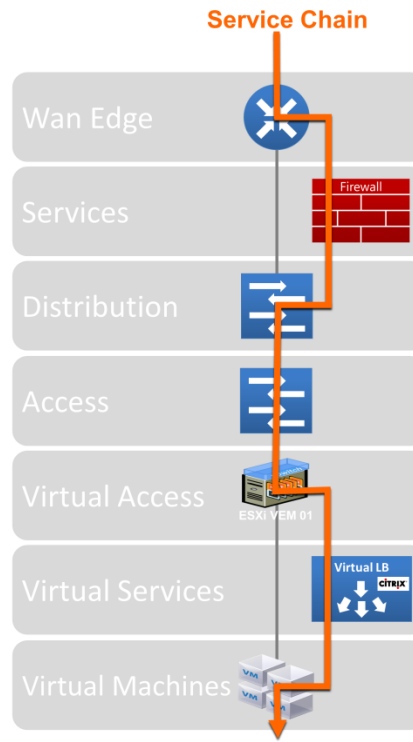


Figure-5: NCX orchestrated L2-L7 service chain using Citrix NetScaler VPX in Hybrid topology



After the service is deployed, NCX provides a self-service portal so that the application owners can manage their load-balancer. In the diagrams below, when a tenant adds two servers to their server farm, NCX automatically configures the Citrix NetScaler ADC.

Figure-6: NCX's self-service portal for tenants to manage their Citrix NetScaler ADC

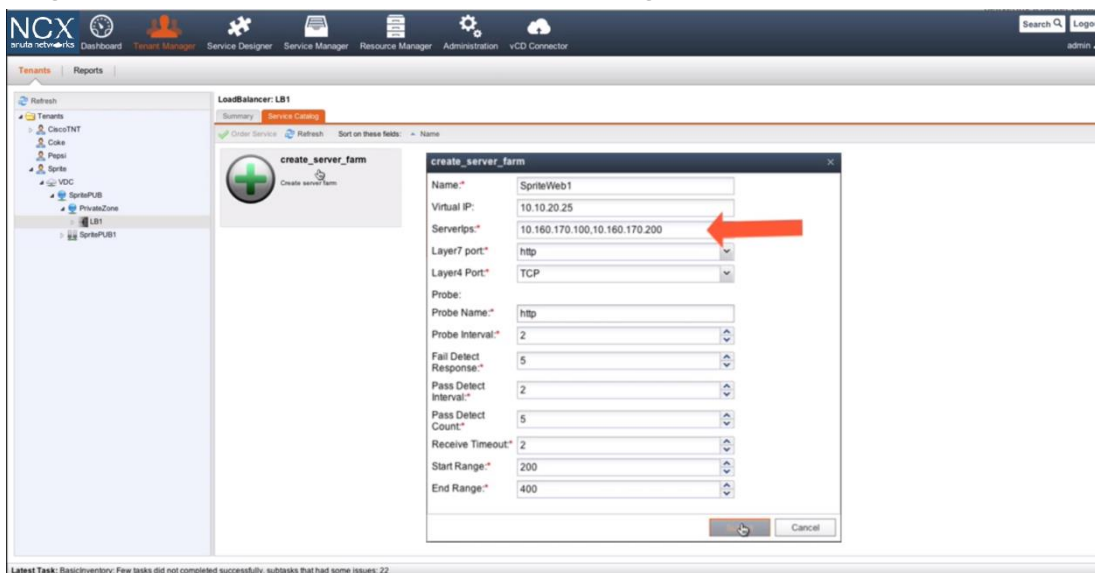
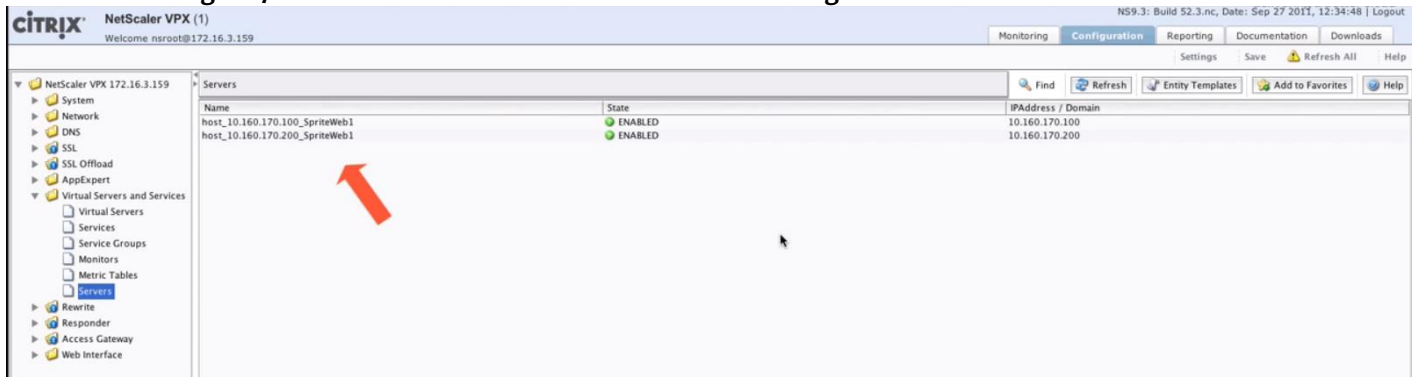


Figure-7: NCX's automates the Citrix NetScaler ADC configuration



Service Management: After the service is deployed, NCX continuously monitors device alarms and updates health and capacity of services and resources.

Solution Benefits

Business Agility: NCX automates the configuration of network services across L2-L7 for multi-vendor devices. The solution delivers virtual networks within minutes. Coupled with Server virtualization, NCX brings new services and applications to the market rapidly.

Reduced CapEx & OPEX: NCX automates the provisioning and de-provisioning of network resources. This results in better utilization and reduces overall CapEx. In addition, NCX self-service delivery mechanism avoids legacy handoffs between server and network administrators resulting in lower overall OPEX.

Self-Service: Through integration with Cloud Portals, application owners can manage the load-balancer or firewall themselves. This greatly enhances customer satisfaction while reducing delays.

Investment Protection: Customers can continue to use their existing investment in Citrix NetScaler and use Anuta NCX for orchestration. Thus, they can achieve agility while leveraging existing infrastructure.

About Citrix:

Citrix transforms how businesses and IT work and people collaborate in the cloud era. With market-leading cloud, collaboration, networking and virtualization technologies, Citrix powers mobile work styles and cloud services, making complex enterprise IT simpler and more accessible for world-wide organizations.

About Anuta:

Anuta Networks, Inc. is the industry-first provider of end-to-end network services virtualization solutions for all cloud deployments. The Company's cloud service delivery solutions help organizations of all sizes accelerate the transition to cloud computing for improved business agility. Anuta Networks' partnerships with industry leaders further enable customers and service providers to rapidly transform their network services in agile cloud deployments.

For more information, reach us at <http://www.anutanetworks.com/company/contact/>