

Simplify Your Virtual Network Configuration Management with VMware Global Network Identities™

AT A GLANCE

- **Network identity management** – simple and reliable.
- Integration with disparate:
 - DNS solutions
 - DHCP solutions
- Multi-tenant IP Address Management handles duplicate addressing and full IPv6.
- API access to all functions to make automation integration simple to implement.
- Multi-tenant enabled.
- Interoperates with TCA.

Introduction

Cloud, 5G, and edge computing technologies offer new capabilities and use cases and are spawning the next generation of services. The proliferation of new services creates a challenge in managing unique network identities.

The Global Network Identities™ solution (It is a platform) running on VMware Telco Cloud Platform™ is the robust solution to ensuring the provisioning of unique IP network identities for all the services. This solution can allow Communication Service Providers (CSPs) to establish that they select, assign and track IP network configurations ensuring successful implementation of automation, control, security, IoT, etc., services across their modern radio access networks (RAN).

The Challenge

When provisioning any new solution (it talks about in general and can be either system, application, or software), the infrastructure must be robust to establish operational readiness and accessibility. The CSP must supply the IP context that the solution will execute in. This is often a manually intensive process focused on individual, vendor-specific network elements rather than holistic provisioning across distributed networks and virtual environments. This creates an environment that lacks a single reliable source of truth. The result is incorrect provisioning with overlapping IP resources. In addition, it makes the auditing of the environment difficult or impossible.

CSPs need an easily implemented, automated, API-enabled, and ubiquitous solution to managing IP Address spaces (IPAM), Domain Naming Services (DNS), and Dynamic Host Configuration Protocol (DHCP) control.

The Solution

With **VMware Global Network Identities** running on VMware Telco Cloud Platform, CSPs can establish consistent successful provisioning of new services and solutions.

VMware Global Network Identities introduces a new network services platform that provides unified visibility, control, and governance of network identifiers. It offers connectors to orchestrate DNS, DHCP, IPAM capabilities in an existing enterprise, public cloud, and managed solutions. It simplifies the management of network identities and provides a framework to help implement zero trust.

- Offers a library of connectors to orchestrate DNS, DHCP, IPAM capabilities in an existing enterprise, public cloud, and managed solutions.

VMWARE TELCO CLOUD PLATFORM

The VMware Telco Cloud Platform enables CSPs to accelerate 5G rollouts from core to edge to the RAN for both containerized network functions (CNFs) and virtualized network functions (VNFs).

VMWARE TELCO CLOUD PLATFORM RAN

The VMware Telco Cloud Platform RAN is powered by field-proven virtualized compute coupled with VMware Telco Cloud Automation and VMware Tanzu for Telco RAN, a telco-grade Kubernetes distribution.

- Use the same common platform to virtualize the RAN now and migrate to O-RAN in the future.
- Run virtualized baseband functions, virtualized distributed units (VDUs), and virtualized central units (VCUs) by stringent RAN performance and latency requirements.
- Optimize the placement of DUs and CUs through programmable resource provisioning.
- Deploy and operate both RAN and non-RAN workloads on a horizontal platform.
- Transform the RAN into a 5G multi-services hub.
- Reduce time-to-deploy by automating the provisioning of RAN sites.
- Simplify the onboarding of vRAN functions with validated and standards-compliant packages.
- Automate lifecycle management of infrastructure, Kubernetes clusters, vRAN functions, and 5G services.
- Programmatically adjust the underpinning platform availability and resource configuration based on the requirements of vRAN functions at the time of instantiation.
- Automatically discover, register, and create Kubernetes clusters from a centralized location to manage thousands of distributed components with ease.

- Provides automation via a single control point tying into existing business processes and workflows.
- Simplifies creation and management of network identities and provides a common resource framework to help implement enterprise-wide zero-trust security.

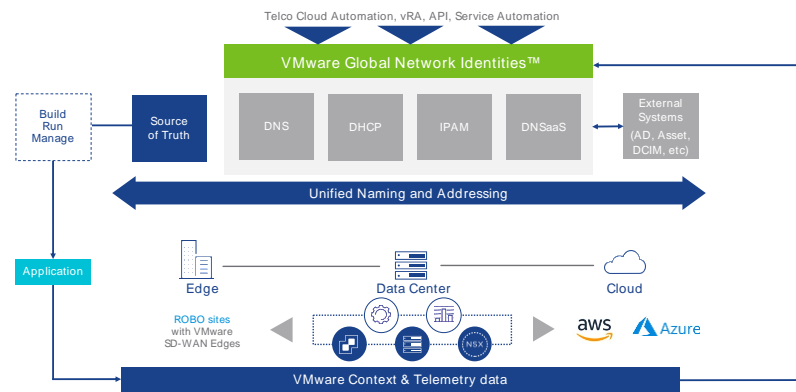


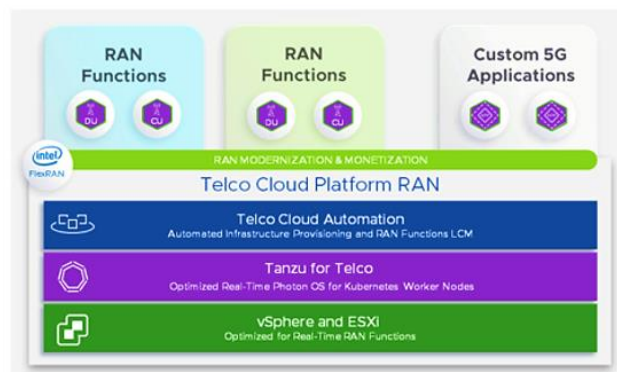
FIGURE 1: VMware Global Network Identities

As part of the VMware Telco Cloud Platform, **VMware Telco Cloud Automation** is multi-cloud, multi-layer automation that can extend from the 5G core to the RAN, providing end-to-end operational consistency for CSPs to radically simplify how they provision and manage their 5G networks.

To accomplish these goals in thousands of RAN and edge sites, the **VMware Telco Cloud Platform RAN™** (TCP RAN) reduces the footprint and resources required at the edge by supporting both RAN and non-RAN workloads on the same platform. **VMware ESXi™** with **VMware Tanzu™ for Telco RAN** can support both virtualized compute resources and Kubernetes at the cell and aggregation sites.

This innovative, common, and horizontal design provides the flexibility and adaptability for CSPs that they need. CSPs can now build out thousands of RAN sites using a pay-as-you-grow approach, from virtualizing the RAN now to migrating to O-RAN, then transforming into 5G multi-service hubs in the future.

With VMware Telco Cloud Platform RAN, CSPs can accelerate the disaggregation of their proprietary RAN and modernize their RAN so they can monetize the 5G services they deliver across their network.



VMware Telco Cloud Platform RAN modernizes the RAN into a 5G multi-services hub that equips CSPs monetize 5G at the edge

FIGURE 2: VMware Telco Cloud Platform RAN

VMWARE GLOBAL NETWORK IDENTITIES

VMware Global Network Identities provides the following core features:

- **Resource manager** – Customizable resource management system with flexible structures, fields, permissions, and workflow integration – all driven by API. Create a global source of truth for network identifiers from VMs to cloud to Branches all in one place. Provides a common resource framework to help with implementations of enterprise-wide zero-trust security.
- **Global permissions structure** – For each object, you can create groups and user accounts, but you can also set permissions down to each object to easily implement multiple tenant configurations.
- **IPAM** – Complete IPv4/IPv6 support that can handle everything from subnet allocation management to host-level assignments to devices, comes with import tools to get up and running quickly. Support for advanced field validation and features like IPv6 Sparse Allocation, VRFs, and VLANs.
- **DNS Controller** – Multiple DNS servers with different DNS technologies and users? Out-of-the-box integration with a variety of DNS providers and platforms gives you the flexibility to work with your current infrastructure “as is” and ease DNS migration(s) in the future as needed. With DNS Groups, you have easy support for duplicate zones and even the most complicated DNS environments. Offers built-in support for role-based permissions and Approval workflows at the DNS Group, DNS Zone, and DNS Record level.
- **DHCP Controller** – One-stop configuration management for DHCP scopes. All are available via API or UI for easy integration and use by provisioning teams.
- **REST API** – An API first approach means simple integration into current environments without sacrificing support for future environments.

With VMware Telco Cloud Automation, CSPs can automatically provision, deploy and redeploy thousands of platform instances across distributed RAN sites. By understanding the requirements of each vRAN or function, as well as each non-RAN function including corresponding characteristics (such as latency and bandwidth) that are intended to be instantiated, the platform can select and automatically configure the underpinning resources to meet the service requirements in the SLAs and QoS. This intelligence enables CSPs to dynamically adjust where functions should be deployed with cloud-first lifecycle management, simplifying Day 0, Day 1, and Day 2 operations while providing the telco-grade resiliency and service availability needed for both RAN and next-generation 5G service.

Key Use Cases

Seamlessly Run Across Multi-Cloud

VMware Global Network Identities automates network identify creation across public, private, and managed services. Built-in multi-tenancy enables you to manage overlapping identities.

Streamline SD-WAN Migration

Simplify disparate DDI solutions by migrating to a common operating model for remote sites and work from home users.

Enable Scalable Security Framework

VMware Global Network Identities helps make Zero Trust security attainable through a foundation of a common resource model allowing a standardized global network identity framework. As metadata starts to overwhelm the actual network identifiers themselves, VMware Global Network Identities delivers a customizable enterprise resource model that puts applications, assets, and infrastructure as top-level entities that can be used to automate naming and addressing.

Telco and Service Provider Automation

A vast connector library enables Telco’s and SP’s to control, interact, and automate various infrastructure services through a unified interface. The flexible approach to provisioning allows customers to accelerate service delivery, accurately provision complex network identities, and dramatically reduce network complexity and costs.

The Opportunity

CSPs can gain competitive advantages in transitioning from purpose-built, appliance-based applications from single network equipment providers (NEPs) to a modern, open, and disaggregated RAN architecture. This transition can enable CSPs to gain the flexibility to choose best-of-breed software components and deploy new services rapidly. New 5G services rely on CSPs to be able to host apps at the edge, close to end customers. A virtualized and open RAN allows CSPs to deliver these new edge services to customers directly from RAN sites.

As CSPs continue building up their RAN and edge networks, disaggregating the RAN opens up numerous use cases. Disaggregation also enables CSPs to raise the value chain and offer a better and differentiated quality of experience to each customer for both enterprise and consumer markets.

CSPs and their customers are launching new network-based services based on the increased bandwidth and decreased latency of 5G networks, such as emergency medical and public safety services, autonomous or driverless vehicles, and low-latency industrial and manufacturing applications. The thing that all these new services have in common is the need to share data that has been carefully selected, transformed, analyzed, and acted upon. In most cases, the feedback must be supplied virtually in real-time.

Summary

Running on the VMware Telco Cloud Platform, Global Network Identities is easily deployed and integrated into the provider's solution based on the Telco Cloud Platform. It allows TCP customers to manage IP allocations easily and comprehensively alongside disparate DNS and DHCP services. GNI's multi-tenant capabilities support complex environments where the existence of overlapping/duplicate IP addresses and distributed services need to be managed in a sensible and scalable way. GNI's REST API provides comprehensive and well-documented integration capabilities to empower automation across the managed infrastructure.

For more information on VMware Global Network Identities, please visit <https://www.vmware.com/products/global-network-identities.html> or contact your VMware representative.