DELL Technologies

Solution Brief

Dell Technologies Validated Design for 5G Core with Oracle Communications and VMware

Reduce the cost and complexity of deploying 5G Core networks

Summary

The Dell Technologies Validated Design for 5G Core with Oracle Communications and VMware is designed to help Communication Service Providers quickly deploy 5G services. The validated design features a 5G core platform, container management and orchestration platform, and telco-grade infrastructure in a fully validated design.

A validated design for the future

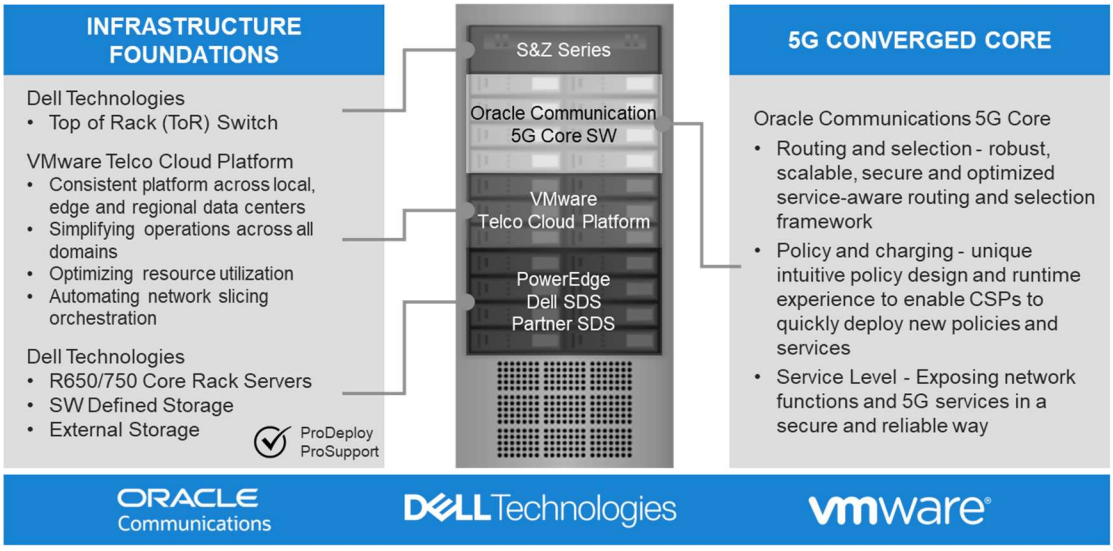
The arrival of 5G not only changes the type of services that Communications Service Providers (CSPs) will deliver but also *how* they will deliver those services. Multi-cloud and hybrid cloud deployments, multi-access edge computing (MEC), and cloud-native network function virtualization all have an important role to play in the telecom network architecture of tomorrow. 5G networks represent a very different world than the proprietary, appliance-based networks of the past, one where flexibility, scalability, and open-source technology are critical to success.

CSPs know that they need to change the way they architect their networks, and that means changing partners to embrace new 5G innovations such as hyperscale cloud platforms, the new 5G Core Service Based Architecture, and network slicing. Existing network equipment vendors may be able to offer CSPs virtualized network functions (VNFs), but a true 5G solution requires a best-of-breed partnership that addresses core-to-edge capabilities. Oracle Communications, VMware, and Dell Technologies have partnered together to build that best-of-breed 5G Core architecture today.

Reduce time, reduce costs with a validated, end-to-end approach

The evolution to a 5G Stand Alone Core solution is different from previous mobile network generations, since 5G introduces a number of innovative and disruptive networking paradigms, many of which had not been applied to mobile networks in the past. With Oracle Communications, VMware, and Dell Technologies, CSPs will have the right partners to enable them in building a robust and scalable core which can deploy multitudes of network functions independent of the underlying frameworks.

The Validated Design for 5G Core with Oracle Communications and VMware brings tested and proven configurations, designed from the start to dynamically fit specific needs of CSPs. The 5G Core validated design is being stringently tested and documented to help speed and simplify deployment of this new solutions.



By offering solutions with flexible design options and guidance on choosing the right partners and components, the 5G Core validated design can shorten deployment timelines which can reduce, or in some cases eliminate the time it takes to design, test, and integrate components from multiple partners.

Oracle Communications cloud native 5G Core solution

The Oracle Communications cloud native 5G core vision is to enable CSPs to build a robust and scalable core in which they can deploy a multitude of network functions. In the validated design, the main focus is in the following areas:

- Routing and selection services - Establishing a robust, scalable, secure, and optimized service-aware routing and selection framework that includes services such as registration and discovery, automated resource control, network visibility, traffic management, core security authentication and authorization, slice selection and binding support.
- Policy and charging - Providing a unique intuitive policy design and runtime experience to enable CSPs to quickly deploy new policies and services, while ensuring the reliability of existing services through a fully automated test framework. The solution will be flexible enough to manage different domain-specific policies and granular enough to manage individual services.
- Service Level - Exposing network functions and 5G services in a secure and reliable way to both trusted and un-trusted entities.

The Oracle Communications cloud native 5G core is based on the principals espoused by the Cloud Native Computing Foundation (CNCF) with seamless integration in open-source orchestration and automation frameworks as well as a range of popular cloud services sponsored by the CNCF. Oracle's 5G solutions are developed using DevOps principles and designed to support zero-manual-touch management. All Oracle cloud native 5G core lifecycle actions are governed by automated CI/CD workflows.

VMware Telco Cloud Platform

The VMware Telco Cloud Platform (TCP) is a cloud-native platform powered by field-proven VMware Telco Cloud Infrastructure coupled with VMware Telco Cloud Automation, providing a cloud-first approach that delivers consistent operational agility for virtualized and cloud-native 5G, Edge, and RAN network functions. Combining infrastructure reliability and operations with intrinsic security and cloud native technology, VMware Telco Cloud Platform reduces operational complexities, and achieves substantial TCO savings by:

- Providing a consistent platform across local, edge, and regional data centers
- Simplifying operations across all domains through consistency
- Optimizing resource utilization with dynamic, programmable provisioning
- Automating end-to-end network slicing orchestration

With VWware, CSPs can modernize their cloud for web-scale speed and agility, while realizing telco-grade resiliency and service availability that provides a more consistent user experience.

Telco-grade infrastructure from Dell Technologies

Dell PowerEdge rack-mountable servers deliver industry-leading price/performance in a highly scalable, ultra-reliable form factor. In this validated design for the 5G Core, PowerEdge R650 and R750 servers are built to meet telco-grade specifications that deliver high availability in both mobile core and harsher edge environments. Customizable hardware acceleration options from Dell Technologies provide optimal server performance characteristics for core/edge workloads. The hardware is further configured based on Oracle specifications and validated in solutions lab testing with VMware TCP to provide the best performance in real-world deployments.

Dell Technologies also delivers technical support and services to help CSPs install, integrate, manage, and upgrade their private cloud infrastructure for 5G workloads. Dell PowerEdge servers are backed by Dell's trusted global supply chain to provide continuity and security for CSPs as they expand and extend their 5G networks. Dell's commitment to delivering the best price/performance for its servers is reflected in its ongoing innovation partnerships with AMD and Intel.

Where 5G innovation meets telco's expectations

The 5G future won't be built by any one vendor. It calls for a collaboration of innovation from the leaders in cloud, telecommunications, containers, and other technologies. Oracle Communications, VMware, and Dell Technologies are taking a step forward toward that future with their validated design for a fully virtualized, cloud-native 5G Core solution. Our goal is to provide the service providers of today with a fully validated, accelerated path to the 5G services of tomorrow.

Solution Highlights

The 5G Core validated design combines industry-leading technology from Oracle Communications, Dell Technologies, and VMware including:

- Oracle Communications best-of-breed 5G Core takes advantage of automation to bring new services to market faster and delivers converged policy and charging, signaling and routing, as well as network slice selection to capitalize on new business models.
- VMware Telco Cloud Platform modernization solution that deploys cloud-native and virtual network function consistently, at web-scale speed, and without disruption.
- Dell Technologies' telco-grade PowerEdge infrastructure to support high-density, high-performance 5G core and edge workloads.
- Consulting and services from Dell Technologies, Oracle Communications, and VMware.
- Single-source financing options through Dell Financial Services.

To learn more about how Oracle Communications, VMware, and Dell Technologies fit into your 5G future, visit us at delltechnologies.com/telecom.