USE CASE

High-performance, Scalable Shared Storage for Telecom Networks

Providers rely on Pure Storage® to solve 5G performance and reliability challenges.

The Challenge

A telecom provider (referred to here as “the telco”) had deployed their 5G network infrastructure using multiple white box nodes with internal storage running CEPH, an open-source distributed storage system. They were running both their virtualized network functions (VNFs) and containerized network functions (CNFs) on this infrastructure. While this deployment was reasonably successful, it soon revealed a critical weakness when one of the nodes in the environment failed. This failure, which led to a significant drop in performance, was unacceptable in an environment that handles cellular call traffic.

To make matters worse, the environment was difficult to manage and required a high level of maintenance. After the failed hardware was replaced, the node needed to rebuild itself, taking over a week to resolve the situation. With the downtime significantly reducing performance, the telco knew they needed a better and more robust solution, so they turned to Pure Storage.

The Solution

The solution was to deploy Pure Storage FlashArray™ as a high-performance, shared storage solution. Rather than using the CEPH shared file system, the telco implemented Kubernetes using OpenStack. The OpenStack nodes connected to FlashArray block storage via Cinder drivers. The same infrastructure supports both VNFs and CNFs.

The telco uses multiple different Kubernetes implementations, all supported on OpenStack with Pure Storage. This node framework supports all 5G network functions including the unified data repository (UDR). It also hosts applications from various ISVs.

Industry

- Telecommunications

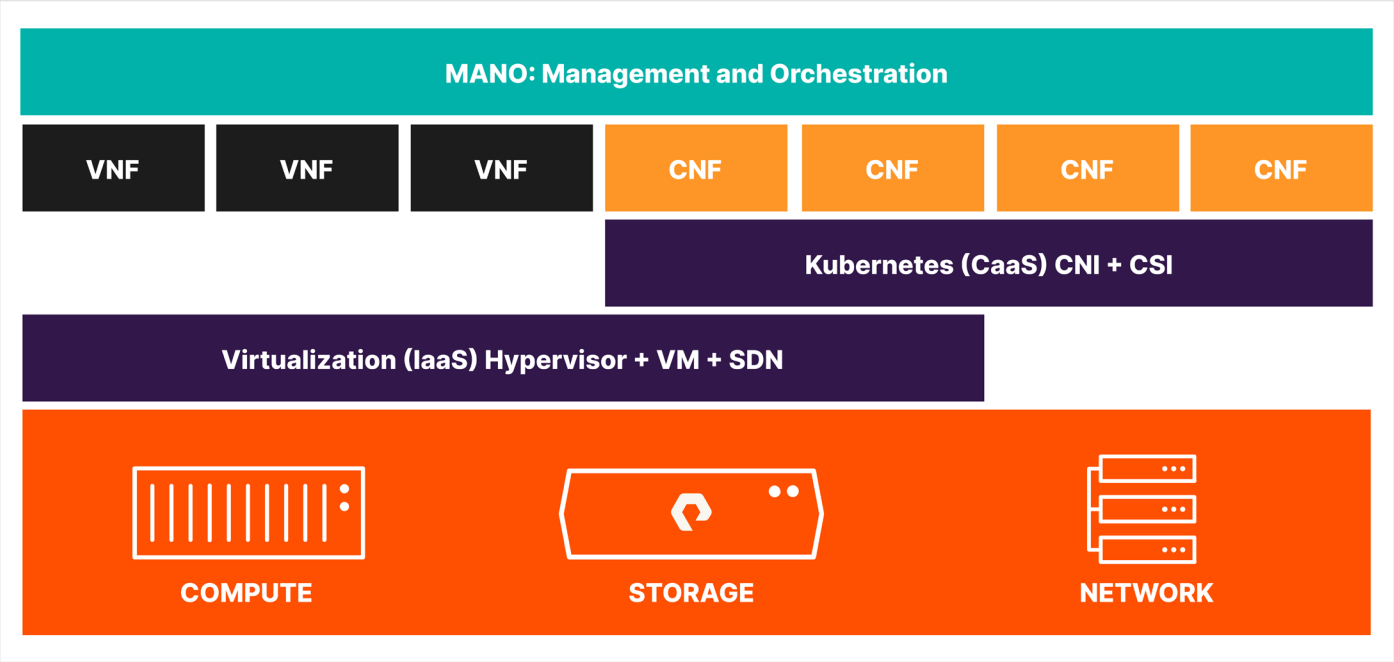
Key Challenges

- Unreliable CEPH deployment
- Node downtime significantly reduced 5G service reliability
- High levels of system maintenance

Pure Storage Solutions

- FlashArray//X™
- Pure1®

The following diagram is a generic representation of the environment which can support any VNF and/or CNF infrastructure.



Generic environment that can support any VNF and/or CNF infrastructure; CaaS: containers as a service, CNI: container network interface, CSI: container storage interface, IaaS: infrastructure as a service, VM: virtual machines, SDN: software defined networking.

Solution Benefits

Performance

The real-time nature of a telecommunications network requires high performance from its network functions. When users make a call, they expect the call to be set up and connected with no issues.

- From a storage perspective, this requires high throughput and low latency, both delivered by FlashArray.
- The system must maintain high performance, even during any adverse events like component failure.

Simplicity

Operational complexity leads to failures and outages and makes staffing challenging. With Pure Storage, the telco gained a solution that:

- Is simple to manage, even at scale
- Does not require any special “tuning” for performance
- Requires little to no maintenance, with non-disruptive software and hardware upgrades
- Is easy and non-disruptive to repair in the event of a component failure

Environmental Impact

Telecom data centers frequently face power and space constraints due to ever-growing amounts of data and new 5G service roll-outs. By using Pure Storage, the telco gained immediate benefits:

- FlashArray uses up to 85% less power than competitive all-flash arrays
- Due to Pure's exceptional product density, FlashArray uses only 10-20% of the rack space compared to similar all-flash arrays
- Industry-leading data reduction from Pure further reduces rack space and power consumption

Reliability

Consistent service is critical to maintaining consumer confidence and loyalty. Even a short-term failure can cause customers to shift to an alternative provider. Pure helps deliver on reliability with:

- Field-proven 99.9999% reliability across thousands of arrays with FlashArray.
- Non-disruptive software and hardware upgrades.
- Continuous functionality. FlashArray will operate even with failed components (such as a power supply or controller). The open source solution originally used by the telco was not able to perform during a failed condition.

Additional Resources

- Visit our telecom industry page and telecom blogs
- Learn about the FlashArray family. FlashArray//XL™ for the ultimate in performance and scale. FlashArray//X™ for block and file workloads across a range of scale and performance. And FlashArray//C™ for capacity-oriented workloads.
- Learn how Pure Storage enhances OpenStack deployments.

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