White Paper

Everpure

The Past, Present, and Future of the Telecom Cloud

Delivering the telecom future today with Everpure

Everpure

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Introduction

Telecom providers have been in the forefront of network design and innovation for decades. That pace accelerated first with network functions virtualization (NFV) and then with cloud-native network functions (CNFs) running on Kubernetes.

What has changed in recent years is the scope of the telco cloud conversation. Today, operators are not just modernizing network functions; they are also building for AI-driven automation, distributed edge-to-core operations, data sovereignty, and carrier-grade lifecycle management across increasingly hybrid environments.

This paper looks at that evolution in practical terms: where the telecom cloud came from, where operators are now, and what the next phase requires from the underlying data platform.

The telecom cloud: The past

For this discussion, we will fast-forward past the many decades of mechanical switching in telecom networks and begin our journey with the advent of digital telecom switching in the 1980s. Products such as the Western Electric 5ESS and the Northern Telecom DMS family revolutionized telecom networks and set the stage for today's digital world.

The original telecom "cloud" wasn't a cloud as we think of it today: it was a network. But with the advent of dial-up services like CompuServe and Prodigy, we saw the start of a cloud-like experience, with telecom providing the pipe that enabled consumers to access shared data and communicate with other users. If you sat a present-day teenager in front of an old CompuServe interface, they would laugh at the crude graphics but would still find it an essentially familiar experience.

The telecom architecture that serviced this original "cloud" was a collection of proprietary hardware with dozens of different systems, each performing a discrete function. It was costly and difficult to maintain, requiring an incredibly diverse range of equipment expertise, and took up football fields' worth of rack space. Even with those challenges, it was remarkably resilient and effective. Yet time was marching on.

The telecom cloud: The present

While the telecom cloud of the past has a somewhat fuzzy timeline, the telecom cloud of the present has a clearly defined birthday: October 22, 2012. That was the date that a global team of telecom industry contributors published the white paper "Network Functions Virtualisation." It was a revolutionary step.

The big idea behind NFV was to move the network functions that were being run on purpose-built hardware to virtual machines (VMs). This was made possible by the rise of VMware, Kernel-based Virtual Machine (KVM), and other hypervisors. The NFV concept said that any function running on a purpose-built device could also be run on a commodity data center kit—servers, storage, and networking gear—via virtualization. There are multiple benefits to NFV, including reduced costs, less power consumption, and greater hardware portability.

That shift is still important, but the "present" no longer means VM-based NFV alone. Even while carriers were still replacing dedicated hardware with NFV, the next development occurred: CNFs. Going a step beyond NFV, CNFs exploit the extreme scalability and flexibility of containers and microservices orchestrated by Kubernetes. They bring all the benefits of NFV but have their own additional benefits, such as auto-scaling, a high level of fault tolerance, and rapid service restart.

Most operators now run a mixed environment where virtual network functions (VNFs) and CNFs coexist while they continue to support multiple network generations and modernize at different speeds.

Just as importantly, the present telco cloud is no longer limited to a single control plane or deployment model. Operators increasingly span core data centers, edge sites, private cloud platforms, and selected public cloud services while trying to keep operations consistent across them all.

The telecom cloud: The future

The next phase of the telco cloud is still cloud-native, but it is more than a container story. It is an AI-ready, automated, and increasingly sovereign operating model that has to support CNFs, operations support systems/business support systems (OSS/BSS) modernization, observability, analytics, and autonomous network use cases on one consistent foundation.

In other words, the future telco cloud is not simply "more Kubernetes." It is a platform designed to deliver:

- Consistent operations from core to edge to cloud
- The resilience and data services required for stateful CNFs
- Support for AI-assisted and autonomous network operations
- Openness and lifecycle simplicity without locking operators into fragmented infrastructure choices

The basic present cloud

A basic present-day telco cloud still often starts in the data center and may include a mix of VMs, containers, and shared storage supporting both VNFs and CNFs.

For many operators, OpenStack remains an important part of that environment, but it is increasingly paired with Kubernetes platforms such as Red Hat OpenShift and other cloud-native stacks as modernization moves deeper into the core.

The challenge is that mixed environments are hard to run at scale. VM-heavy architectures can create operational overhead, while fragmented storage and management models make upgrades, migrations, and troubleshooting more disruptive than modern networks can tolerate.

Adding the edge

Edge has become a much more significant part of the telco cloud than it was even a few years ago. Operators are pushing infrastructure outward to support lower-latency services, enterprise use cases, local data processing, and distributed application delivery.

What is new is the role of AI at the edge and in the core. Telcos are now evaluating smaller AI footprints for near-real-time use cases, while also preparing for larger AI-driven analytics, assurance, and automation workflows across the broader network.

That makes consistency more important, not less. The edge cannot become another silo. It has to operate as part of a common telco cloud model that extends data services, policy, and operational visibility across distributed sites.

The present telecom cloud powered by Everpure

In the near term, most operators will continue to run a hybrid present cloud for years rather than leap directly to a fully cloud-native end state.

Everpure™ still streamlines OpenStack deployments through Cinder integration and simplified storage operations, but the present telco cloud now also depends on a stronger Kubernetes-native data layer, unified lifecycle management, and operational consistency across environments.

Today, that means combining:

- FlashArray™ for high-performance, carrier-grade block and file services for telco workloads
- Portworx® Enterprise for Kubernetes-native data services such as high availability, backup, disaster recovery, and mobility for CNFs and modernized OSS/BSS applications
- FlashBlade//S™ for high-throughput observability, analytics, and AI-adjacent data workloads across telco cloud environments
- Pure1® and Everpure Fusion™ for fleet-level visibility, automation, and simplified day-two operations across distributed sites

A strong example of this direction is shown in the following figure. In 2026, Nokia selected Everpure as the data layer for its next-generation telco cloud on Red Hat OpenShift, positioning the stack as a repeatable, lifecycle-managed architecture for CNFs and future AI-driven operations.

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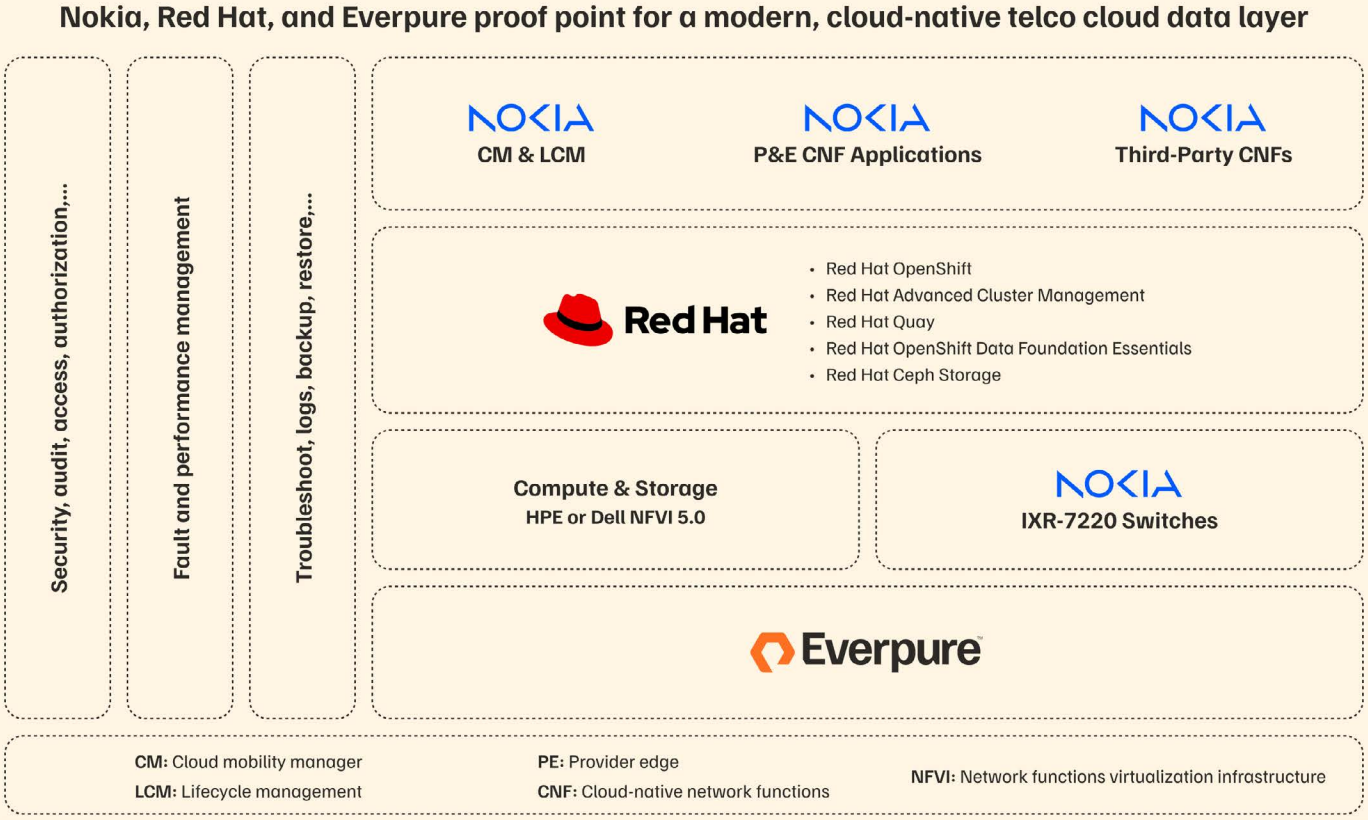

The future cloud

The future cloud for telecom will be defined by carrier-grade Kubernetes, automation, and AI-ready data services. But it will also have to support a longer transition period than the industry once expected because operators are balancing modernization with cost, risk, and the realities of legacy coexistence.

That future state is likely to include:

- A unified operating model across core, edge, and cloud
- A common data foundation for CNFs, AI, and modernized IT applications
- Stronger support for autonomous networks, where AI moves from insight to action
- More emphasis on sovereign control, security, and in-country operations for critical data and network services

The future telecom cloud powered by Everpure

The key enabler for that future is not just faster storage. It is a data platform that behaves consistently across deployments, supports cloud-native operations, and reduces the operational burden of running stateful services at telco scale.

Portworx remains central because it provides Kubernetes-native data services for the operations that matter most in telecom environments: backup, disaster recovery, migrations, security, capacity management, encryption, and high availability.

What is more current now is how that data layer connects to broader operator priorities:

- **AI-driven automation**: Future telco clouds must support analytics and AI workflows as first-class infrastructure needs, not side projects.
- **Operational simplicity**: Consistent tooling and nondisruptive upgrades reduce day-two risk across large, distributed environments.
- **Efficiency and sustainability**: Operators want lower run costs, better utilization, and more energy-efficient infrastructure as 5G and AI demand grows.
- **Commercial flexibility**: Modern telco clouds need open architectures and deployment models that let operators move at their own pace.

Conclusion

The telecom cloud is no longer just a story of NFV giving way to CNFs. It is now about building a platform that can support CNFs, distributed edge services, AI-enabled operations, sovereign requirements, and long-term lifecycle simplicity at the same time.

Operators are still living in a mixed world, but the direction is clear: the most effective telco clouds will be unified, repeatable, and data-centric. Everpure is positioned to help service providers bridge that transition with a modern data platform spanning OpenStack, Kubernetes, edge, and AI-ready cloud operations.

Additional resources

- Nokia Chooses Everpure to Power the Data Layer on Its Next-generation Telco Cloud on Red Hat OpenShift
- Everpure with Nokia on Red Hat OpenShift
- Everpure for Telco AI

Explore Everpure Telecom-Grade Data Solutions

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