WHITEPAPER

Modernizing Migration Toolkit for Virtualization (MTV)

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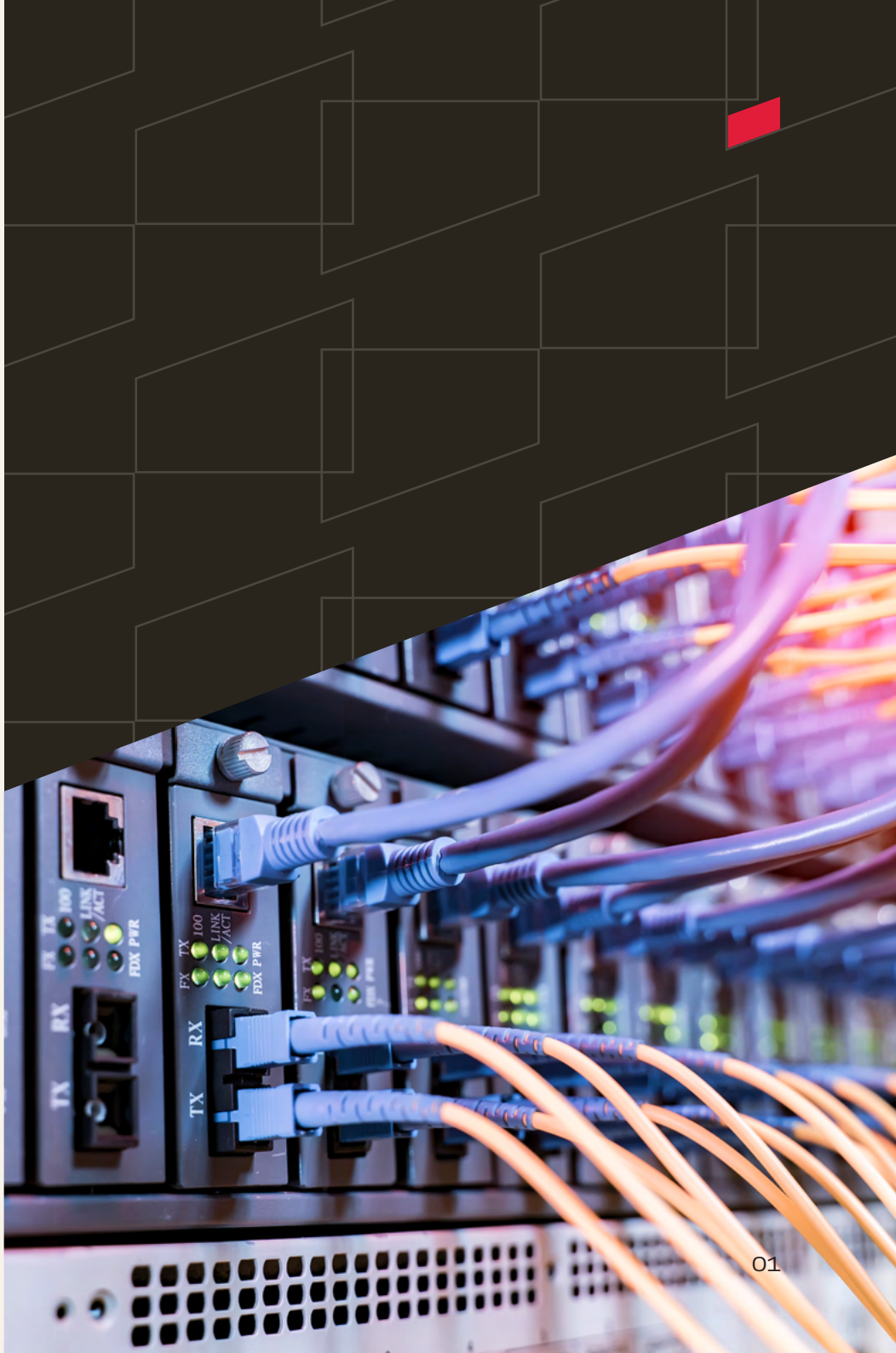
Executive Summary

Telecoms and enterprises are accelerating the adoption of 5G, private networks, edge computing, and AI workloads. As a result, cloud-native, Kubernetes-based architectures are now operational imperatives. Yet most organizations still run massive legacy virtual machine (VM) estates, with critical workloads and virtual network functions (VNFs) tied to outdated hypervisors. The acquisition of VMware by Broadcom, along with licensing changes, is estimated to raise costs by approximately 300–1,050% and has accelerated the need for alternatives.[1,2] While 70% of enterprises plan to reduce their dependence on VMware, analysts report 12–18% TCO improvements from successful VMware-to-Kubernetes migrations, with optimized scenarios delivering 40% savings for some telecom operators.[3, 4, 5] This whitepaper identifies key challenges in migrating legacy VM estates and presents TechM's proprietary virtualization migration toolkit for seamless transitions.



Introduction: The Inflection Point

The demand for virtualization modernization is becoming a critical priority. It is now further driven by low-latency and energy-efficiency requirements for private 5G and edge networks, which are growing at nearly 59% annually.6 Traditional virtualization platforms, with siloed tools and high operational overheads, fail to meet these latency and sustainability requirements, forcing telecom operators to run cloud-native network functions (CNFs) alongside legacy VNFs. At the same time, enterprises struggle to unify VM, container, and AI operations.

Migrating VMs to cloud-native architectures is challenging due to inherent complex network dependencies, including VLANs, IP schemas, routing, and security policies. Manual migrations or fragmented tooling, on the other hand, introduce the risk of downtime, SLA breaches, and business disruption. Running parallel legacy and Kubernetes stacks further increases cost and complexity. Additionally, application refactoring is often impractical in the short term, making a structured, non-disruptive migration approach essential.

Our Migration Toolkit for Virtualization (MTV)

Tech Mahindra's Migration Toolkit for Virtualization (MTV) is the imperative bridge that enables telecom operators and enterprises to move to a unified Kubernetes control plane without disrupting existing environments. MTV allows organizations to overcome operational challenges and legacy technical debt that would otherwise stall cloud-native adoption. Built on Red Hat OpenShift Virtualization, Red Hat Ansible Automation Platform, and Red Hat Advanced Cluster Management for Kubernetes (RHACM 2.16), MTV extends Red Hat's native migration tooling with telco-specific enhancements. It automates the migration of VMs from VMware vSphere and other hypervisors onto OpenShift virtualization, allowing VMs and containers to run natively on a single Kubernetes platform.

Addressing Migration Complexities with MTV's Extended Capabilities

MTV provides the following functionalities to address large-scale migration challenges.

Overlay networking continuity and IP preservation enable exact VLAN/VXLAN mapping without application refactoring.

High-speed migration leveraging existing storage arrays delivers up to 10× faster migration while preserving production bandwidth.

Zero-downtime execution frameworks support pilot validation, phased batch migrations, warm or cold strategies, rollback readiness, and dedicated migration networks.

netOps.ai blueprints and Ansible automation enforce consistent Day-0 to Day-2 operational workflows across VNF-heavy environments.

Deep RHACM 2.16 integration enables zero-touch provisioning (ZTP) via GitOps, Policy-as-Code governance, and multi-cluster observability.

Thanos-powered dashboards feeding OpenShift AI support predictive insights and advanced networking capabilities, including data plane development kit (DPDK), single root I/O virtualization (SR-IOV), CPU pinning, extended berkeley packet filter (eBPF), and NVIDIA BlueField.

MTV's Edge Over Platform-only Migration Tools

While platforms such as Red Hat OpenShift Virtualization or upstream tools like KubeVirt enable destination infrastructure, they do not address migration complexity at scale and demand deep domain knowledge. Without end-to-end system integration and orchestration, they often introduce new silos, creating intricacies. Tech Mahindra's solution overcomes these challenges. It differentiates MTV through the netOps.ai hyper-automation framework, customized VNF migration blueprints, Ansible-driven orchestration, and RHACM-powered governance. MTV preserves network topology and automates DNS, routing, security policies, and observability from day one, delivering faster time-to-value and verifiable compliance.

Target Personas and Deployment Scenarios

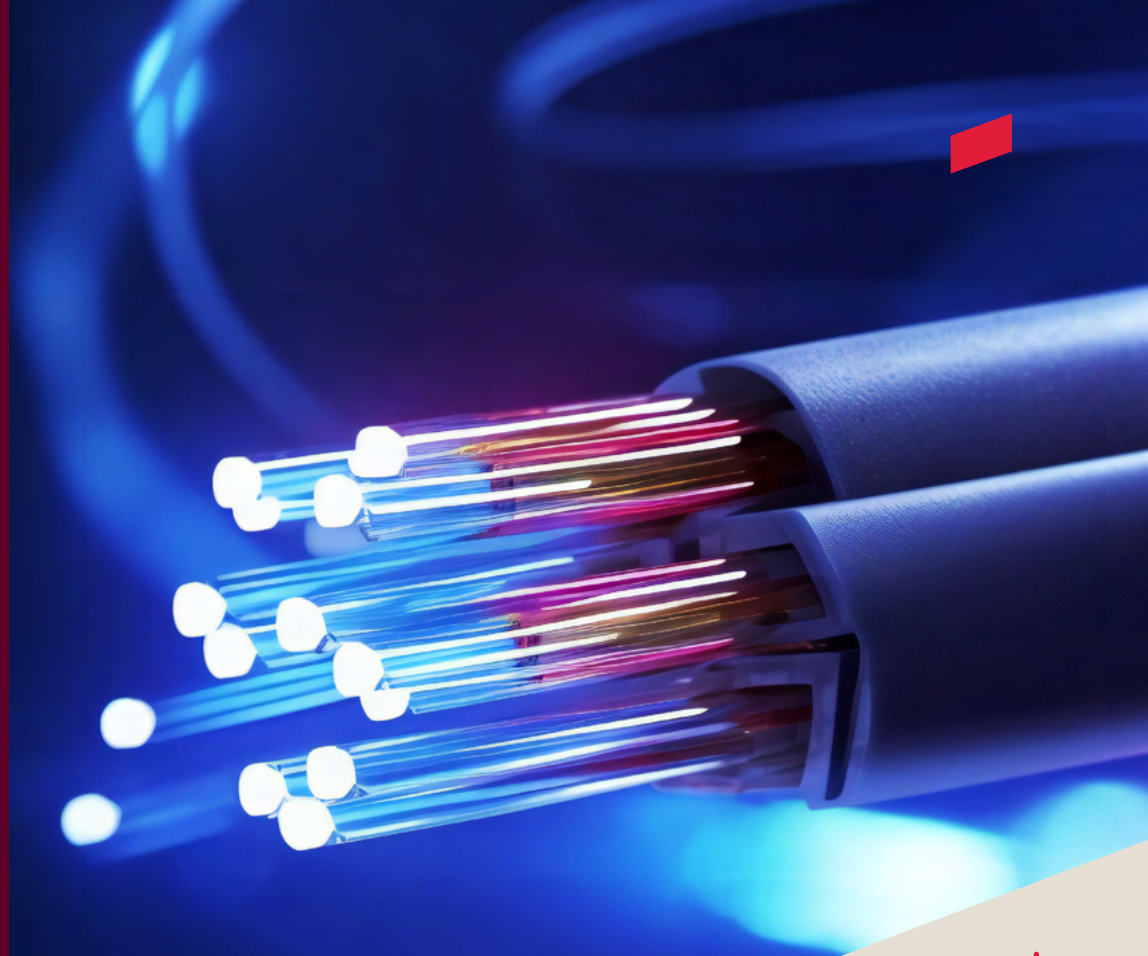
Unlike other toolkits, which are typically tied to a single vertical and become ineffective outside their narrow focus, MTV is purpose-built to target both telecom operators and enterprises. Here's a rundown on its application.

- **For Telecoms**

  CTOs and VPs of network operations use MTV to modernize VNF-heavy 5G core and edge environments while maintaining latency-sensitive services and avoiding regulatory exposure.

- **For Enterprises**

  CIOs and platform leaders use MTV to modernize mission-critical VM workloads without rewriting applications, particularly during hardware refresh cycles, VMware renewals, or AI and edge initiatives that require unified platforms.



Key Measurable Outcomes for Telecom Operators and Enterprises

Migrating a legacy estate is a massive undertaking. It only makes sense if the outcomes are transformative. With MTV, it's not incremental change; it's a fundamental shift. Here's what MTV brings

- A unified hybrid platform supporting VMs and containers on a single Kubernetes control plane
- Zero-downtime migrations with full SLA compliance
- A foundation for gradual CNF transformation and AI-ready edge deployments
- 12–18% TCO improvement, with optimized scenarios showing up to 30–50% savings
- Energy efficiency improvements and KPI benchmarking via RHACM observability and Ansible-driven assurance

The Bottom Line

The move towards cloud-native network operations is inevitable. Telecoms and enterprises are at a critical moment that demands a hard choice: either keep paying a 'legacy tax' on infrastructure that's holding you back or finally bridge the gap to a unified, Kubernetes-driven future.

Tech Mahindra's migration toolkit for virtualization is the smart choice that enables telecoms and enterprises to directly address legacy virtualization silos, downtime risks, and operational complexities. By combining OpenShift virtualization, RHACM governance, and domain-specific automation, MTV delivers a unified, programmable platform ready for 5G, private networks, and AI workloads. With Tech Mahindra as a partner, organizations can modernize infrastructure while accelerating ROI, eliminating vendor lock-in, and building sustainable competitive advantage.

About the Author

With over two decades of experience across Telco Cloud, Core, RAN, and transport domains, Nitish drives the development of differentiated offerings in 5G Core, public and private telco cloud, end-to-end network orchestration, and Lab-as-a-Service, while strengthening transport network capabilities.

As an accomplished leader in technical presales, solution consulting, product management, and global delivery, he engages CXO stakeholders to shape network migration, evolution, and investment strategies, drawing on extensive experience across OEMs and CSPs, including Nokia, Siemens, UTStarcom, and Etisalat.

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With 20+ years of experience driving large-scale cloud, AI, and telco network transformation (NFV/SDN, 5G) across APAC, EMEA, and US markets, he currently leads VMware exit strategies, hybrid cloud modernization, and AI platform adoption (OpenShift AI, TechM Orion) for enterprise and telecom clients.

He brings strong expertise in solution architecture, cloud development, migration strategy (compute, storage, network, DR), and AI-led automation, combined with business alignment through account planning, GTM strategy, and alliance engagement (Red Hat, AWS). He has a proven track record of identifying new revenue opportunities, influencing CXO stakeholders, and delivering transformation programs at scale.

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End Notes:

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About **Tech Mahindra**

Tech Mahindra (NSE: TECHM) offers technology consulting and digital solutions to global enterprises across industries, enabling transformative scale at unparalleled speed. With 147,000+ professionals across 90+ countries helping 1100+ clients, Tech Mahindra provides a full spectrum of services including consulting, information technology, enterprise applications, business process services, engineering services, network services, customer experience & design, AI & analytics, and cloud & infrastructure services. It is the first Indian company in the world to have been awarded the Sustainable Markets Initiative's Terra Carta Seal, which recognizes global companies that are actively leading the charge to create a climate and nature-positive future. Tech Mahindra is part of the Mahindra Group, founded in 1945, one of the largest and most admired multinational federation of companies. For more information on how TechM can partner with you to meet your Scale at Speed™ imperatives, please visit https://www.techmahindra.com/.

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