# Accelerate telco AI transformation with Red Hat and NVIDIA

**Deploying AI workloads on Red Hat OpenShift accelerated by NVIDIA BlueField**

Red Hat in collaboration with NVIDIA is delivering an accelerated application platform for telecommunications AI (telco AI). The joint solution combines the cloud-native foundation of Red Hat® OpenShift® with NVIDIA BlueField data processing units (DPU) technology. Serving as the operating system (OS) processor for AI factories, NVIDIA BlueField offloads, accelerates, and isolates the core infrastructure services that power modern datacenters.

This checklist outlines 5 key benefits of deploying telco AI workloads on this Red Hat and NVIDIA, unified, accelerated platform.

## 1 Reclaim network performance

Cloud-native telco AI workloads require massive communication data volumes, demanding high-throughput and low-latency networking that traditional software-defined networking (SDN) holds back.

- SDN acceleration: Hardware-accelerated networking with full software-defined control on NVIDIA BlueField removes bottlenecks and boosts performance.
- Up to 800 GB/s throughput: Up to 800 GB/s line-speed ensures telco AI workloads can sustain massive traffic volumes without compromise.
- Fully orchestrated networking: A fully integrated Red Hat OpenShift network combination can support automated, consistent, and scalable performance across distributed deployments.

## 2 Maximize infrastructure efficiency

Traditional infrastructures divert compute and power away from essential telco AI systems. NVIDIA BlueField increases efficiency by acting as a dedicated processor for datacenter infrastructure.

- Offload infrastructure services: NVIDIA BlueField handles networking, security, and data movement tasks, eliminating this overhead from the host central processing unit (CPU) with these Red Hat OpenShift services running directly on the DPUs.
- Reclaim compute resources: Shifting infrastructure processing to the DPU unlocks CPU cores for telco AI and other revenue-generating workloads.
- Increase power efficiency: Purpose-built acceleration delivers infrastructure services with lower power consumption than general-purpose CPUs.

## 3 Deliver a security-focused platform for applications

Telco AI requires security at scale without compromising performance. Red Hat OpenShift defense-in-depth and NVIDIA BlueField embeds security directly into the infrastructure across distributed environments.

- Improved security: NVIDIA BlueField enforces strict workload separation and trusted hardware to prevent unauthorized access and lateral movement across the platform.
- Accelerated, real-time threat detection: With NVIDIA DOCA Argus, NVIDIA BlueField delivers high-performance runtime security purpose-built for AI and telco workloads while preserving host CPU resources.

- Broad security ecosystem: NVIDIA BlueField and Red Hat OpenShift provide programmable security foundations that can integrate with a broad ecosystem of telco-grade cybersecurity solutions for monitoring, policy enforcement, and compliance.

## 4 Scale from core to edge

Highly distributed AI workloads require networking that scales beyond a single cluster. Red Hat telco hybrid cloud and NVIDIA BlueField-powered distributed routing extends Red Hat OpenShift networking across core and edge environments.

- Unify underlay and overlay networking: NVIDIA BlueField advances Red Hat OpenShift networking by combining the L3 underlay and SDN overlay through DOCA distributed routing, delivering a single, consistent network fabric.
- Accelerate multisite scale: NVIDIA BlueField supports distributed routing extending networking across clusters and sites, helping large-scale, multisite deployments.
- Deliver resilience and service continuity: Border Gateway Protocol (BGP)-based multipath routing provides high availability and supports unified coexistence with existing network services, eliminating the need for disruptive infrastructure changes.

### Telco companies in the Fortune Global 500 rely on Red Hat

Cloud-native platforms, automation, AI and open source are reshaping the future of networks. Explore these resources to learn about industry trends, technology guides, and recommendations to speed transformation.

## 5 Reduce costs and increase return-on-investment

As telcos scale AI and distributed infrastructure, cost efficiency and agility are critical. The joint solution reduces power consumption, simplifies operations, and accelerates service provisioning.

- Lower power and infrastructure costs: Purpose-built acceleration shifts infrastructure processing to NVIDIA BlueField, reducing overall power consumption and improving performance per watt.
- Increase operational efficiency: Simplified networking and life cycle management reduce manual configuration and daily operational overhead across clusters and sites.
- Accelerate service provisioning and change: Software-defined infrastructures facilitate more efficient rollout of new services and rapid adaptation to changing network and application demands.

### Experience the benefits of Red Hat and NVIDIA's telco AI partnership

Red Hat and NVIDIA unite to deliver the latest innovations, sharing an AI vision fueled by open source, cloud-native technologies. Read more about this partnership and see the list of joint offers.

### Red Hat OpenShift delivers

Learn about how Red Hat OpenShift delivers tested, trusted services for carrier-grade container-based cloud infrastructure.

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