Tackling Telco Ecosystem Fragmentation Challenges with SUSE, OCUDU Technical Project, and Project Sylva

EXECUTIVE SUMMARY

At MWC 2026, SUSE and the OCUDU project demonstrated a production-ready, disaggregated Open RAN stack, deploying OCUDU's AI-native CU/DU workloads on a SUSE-powered Project Sylva infrastructure. This collaboration brings the "Develop Once, Deploy Anywhere" model to life through automated GitOps and zero-touch provisioning, delivering carrier-grade performance on general-purpose hardware while eliminating vendor lock-in across the telco edge.

THE CHALLENGE: FRAGMENTATION IS HOLDING 5G BACK

As Communication Service Providers (CSPs) scale next-generation 5G and 6G networks, they are constrained by legacy architectural trade-offs. The telco ecosystem remains deeply fragmented, characterised by proprietary hardware-software bundles, siloed vendor stacks, and an absence of standardised, carrier-grade open source infrastructure. This fragmentation creates three compounding problems for operators:

- Vendor lock-in that stifles competition and inflates lifecycle costs
- No consistent operating model to manage complex RAN workloads across diverse, distributed edge hardware
- Slow time-to-market for AI-native 5G/6G services requiring sub-millisecond latency and high user density

The core question SUSE and the OCUDU community set out to answer: How do we enable CSPs to deploy high-performance, AI-native RAN workloads across a diverse and distributed edge environment while maintaining a single, consistent operating model; one that eliminates vendor lock-in and dramatically reduces time-to-market for 5G/6G services?

PARTNERS
SUSE · OCUDU Ecosystem Foundation

FRAMEWORK
Project Sylva (Cloud-Native Telco Reference Architecture)

USE CASE
AI-RAN & Open RAN — Edge Deployment

DEMONSTRATED AT
MWC 2026

CAPEX REDUCTION
30%–50% vs. proprietary silos

SERVER REDUCTION
Up to 55% via GitOps automation

DEPLOYMENT SPEED
Weeks → Minutes

CELL CAPACITY
1,000+ users per cell at sub-ms latency

WHAT WAS HOLDING THE INDUSTRY BACK

Before this collaboration began, operators faced two foundational gaps:

- No standardisation: Without a common reference architecture, every deployment required bespoke, site-specific integration work, binding operators to individual vendors and their proprietary roadmaps.
- No carrier-grade open source baseline: Existing open source telco infrastructure could not reliably handle the extreme latency, performance, and resiliency demands of AI-native RAN workloads at scale.

These barriers reinforced each other, creating a market where innovation was effectively gated by proprietary incumbents, and where the cost and complexity of switching remained prohibitively high.

THE SOLUTION: A HORIZONTAL, AI-NATIVE OPEN RAN STACK

SUSE and the OCUDU community, in collaboration with Intel, Supermicro, and the i14y Lab, **jointly engineered** a carrier-grade, fully disaggregated Open RAN stack anchored by the **Project Sylva reference architecture**, demonstrating it in a live production environment at MWC 2026. The solution rests on four integrated layers:

Hardware Foundation	OS & Kubernetes Layer	Orchestration	Workload Layer
Intel® Xeon® 6 SoC processors + **Supermicro edge servers**: high-performance, general-purpose compute foundation.	**SL Micro** (immutable Linux OS) + **RKE2** (Kubernetes): a Sylva-compliant Container-as-a-Service layer.	**SUSE Rancher Prime**: unified centralised orchestration across all distributed edge sites.	**OCUDU** AI-native, software-defined CU/DU functions: deployed via automated GitOps and Zero-Touch Provisioning.

This architecture creates a fully open, horizontally integrated stack that decouples radio software from proprietary hardware, making carrier-grade performance available on commodity infrastructure for the first time.

OCUDU'S CRITICAL CONTRIBUTION

OCUDU was not simply a network function in this collaboration, the community played a decisive role in validating the entire proposition:

- Delivered AI-native, software-defined CU/DU network functions that serve as the intelligence layer of the stack.
- Led workload portability validation, proving that high-performance RAN functions operate seamlessly on SUSE's Sylva-compliant CaaS layer without vendor-specific modifications.

- Co-engineered deep technical optimisations with SUSE to achieve support for 1,000+ users per cell at sub-millisecond latency.
- Demonstrated the practical reality of a disaggregated, open source mobile network by decoupling radio software from proprietary hardware at MWC 2026.

THE ROLE OF OPEN SOURCE: FROM PRINCIPLE TO PRODUCTION

Open source is not a secondary consideration in this solution, it is the foundational framework that makes everything else possible.

- Project Sylva provides the standardised reference architecture that decouples hardware from software and creates a common blueprint for telco cloud deployments across vendors and operators.
- RKE2 and OCUDU's open RAN software replace proprietary "black-box" systems with transparent, community-driven technology that any operator can inspect, validate, and extend.
- The "Develop Once, Deploy Anywhere" model, enabled by open standards and open APIs — means that workloads validated in one environment can be deployed across diverse hardware without modification.

By building on community-driven technology, this collaboration accelerates innovation across the entire telco ecosystem, not just for a single operator or vendor, and creates a reproducible blueprint that others can adopt and build upon.

RESULTS AND ROI: WHAT THE NUMBERS SAY

The MWC 2026 demonstration validated the solution under real-world conditions, with measurable outcomes across performance, economics, and operations:

Metric	Result	What It Means
User Capacity	**1,000+ users per cell**	Carrier-grade scale on general-purpose hardware
Network Latency	**Sub-millisecond**	Meets stringent 5G/6G requirements
CAPEX Reduction	**30%–50%**	Moving from proprietary silos to mutualized hardware
Server Efficiency	**Up to 55% fewer servers needed**	GitOps-driven automation eliminates redundancy
Deployment Time	**Weeks reduced to minutes**	Zero-touch provisioning replaces manual site tuning
Vendor Lock-in	**Eliminated**	Open standards enable multi-vendor hardware freedom

Beyond the metrics, the broader business impact is transformational: operators can transition from being simple connectivity providers to high-value, AI-native service enablers, owning their infrastructure choices rather than being defined by them.

WHAT MAKES THIS APPROACH DIFFERENT

Traditional telco deployments require manual, site-specific tuning, custom integration for each hardware vendor, each location, each software release. This collaboration breaks that model:

- Horizontal architecture: Software and hardware are fully decoupled, enabling operators to choose best-of-breed components without integration penalties.
- Power-on-to-production automation: GitOps and Zero-Touch Provisioning mean that a new edge site can go from powered on to carrying live traffic in minutes, not weeks.
- Real workload portability: OCUDU's CU/DU functions run identically on SUSE's Sylva-compliant infrastructure regardless of the underlying hardware, a claim that has now been validated in a live production demonstration.
- AI-native from the ground up: The architecture is designed for AI-RAN workloads, not retrofitted, making it ready for the performance and intelligence demands of 5G and 6G networks.

NEXT STEPS: FROM PILOT TO PRODUCTION AT SCALE

The MWC 2026 demonstration marks a beginning, not an endpoint. The next phase of this collaboration focuses on three priorities:

- Scaling AI-native Open RAN deployments from pilot sites to full-scale commercial networks, maturing the Project Sylva ecosystem with each new deployment.
- Expanding the technical blueprint library, publishing validation reports and reference architectures that allow other operators to replicate and build upon this work.
- Deepening community contribution, with SUSE and the OCUDU community continuing to contribute upstream to the open source projects and standards bodies that underpin the entire ecosystem.

GET INVOLVED

Explore the technical blueprints and validation reports from the SUSE and OCUDU community. **Contact the SUSE telco experts** to schedule a customised deep-dive session — and join the movement toward a more open, automated, and interoperable future for 5G and 6G networking.

OCUDU EF's **Getting Started Guide** | **ocudu.org**