Executive Summary – Cohere Technologies and the Deft Dance of the USM Delivery

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EXECUTIVE SUMMARY

What explains the dichotomy?

Consider the following:

On one hand, mobile operators are under constant pressure to deliver more capacity without disrupting established networks, right?

Cohere's Universal Spectrum Multiplier (USM) has demonstrated up to 50% spectral efficiency gains, right?

Yet widespread adoption remains limited, WHY?

The reasons are LESS about technology

and

MORE about integration politics, vendor incentives, and deployment realities.

That's the headline!

Operators that frame deployment as an incremental overlay rather than a disruptive swap are most likely to realize its value.

USM introduces Delay-Doppler–based scheduling, overcoming long-standing multi-user MIMO inefficiencies in live environments. The whitepaper examines three delivery modes for the USM:

- xApp-based deployment via the Near-RT RIC - offers architectural elegance, vendor neutrality, and cloud-native scalability. It faces resistance due to business and political realities. Major RAN vendors, wary of losing control, resist third-party applications that attack the very core of their competencies. Despite successful PoCs with operators like Vodafone, widespread adoption remains constrained by OEM reluctance.
- Direct-to-base station integration - is a pragmatic middle ground. Using gRPC wrappers and Cohere's emulation framework, it enables quick deployment with minimal architectural disruption, especially in the vast installed base of FDD base stations. Cohere's work with Bell Canada illustrates is a case in point.
- Joint scheduling with embedded or dApp-assisted logic - represents the deepest integration, embedding USM logic within the base station MAC layer or using distributed applications (dApps). This approach requires full vendor cooperation, which is a long shot.

Here are the implications for you, the stakeholder:

- Telcos: USM offers a near-term lever to extend network ROI without major hardware swaps. Early adopters should prioritize direct-to-BTS pilots.
- OEMs: Must decide whether to embrace USM as a feature within their RAN stacks or risk telcos bypassing them.
- System Integrators: Positioned to bridge integration gaps, especially in multi-vendor Open RAN contexts.
- Investors: USM represents a rare efficiency innovation with measurable payback, but commercialization hinges on navigating telco-vendor politics.

Download the full whitepaper for detailed analysis and recommendations.