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Digital Sovereignty

Balancing Control, Dependencies, and Innovation

Conversations
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OWNING THE NETWORK: WHY SOVEREIGNTY IS THE NEXT FRONTIER FOR TELECOMS

Sharad Sriwastawa serves as co-Chief Executive Officer and Chief Technology Officer of Rakuten Mobile and President of Rakuten Symphony, a Rakuten Group company spearheading the global adoption of open, cloud-native platforms. Sharad joined Rakuten in 2018 to lead the deployment of Rakuten Mobile, Japan's newest and most modern mobile network. He was appointed to his current positions in 2023. Sharad has held global executive roles in India, the Middle East, Australia, the US, and Asia, working with major mobile operators and vendors including Reliance, T-Mobile, Telstra, Siemens, and RAN technology vendor Airspan Networks.

THE ORIGINS OF RAKUTEN'S OPEN PLATFORMS APPROACH

Can you briefly explain Open RAN and how Rakuten Mobile built its network?

Sharad: In 2018, we could have followed the traditional telecom path, selected an incumbent vendor, and built the network the traditional way. We chose a very different route.

We built the Rakuten Mobile network on four pillars. First, complete disaggregation of hardware and software, using off the shelf commodity servers, rather than proprietary equipment. Second, full virtualization and cloudification of every workload, not just the RAN but also the core, BSS, load balancing, everything. Third, AI and automation from day one. We were competing against established operators in Japan and had to control our cost structure closely. Fourth, we embedded security from the start through a DevSecOps approach.

Open RAN, as we define it, goes beyond simply virtualizing software. It is about fully disaggregating the hardware and software stack and moving away from black box systems toward a software defined architecture. That shift gave us far greater flexibility and delivered significant capex and opex savings, which we can now pass on to customers in the form of lower cost connectivity.

Sharad Sriwastawa
Co-CEO at Rakuten Mobile | President at Rakuten Symphony

> **"In 2018, we could have followed the traditional telecom path, selected an incumbent vendor, and built the network the traditional way. We chose a very different route."**

UNDERSTANDING NETWORK SOVEREIGNTY

What does network sovereignty mean to Rakuten?

Sharad: Network sovereignty means you own the infrastructure; you control what runs inside your network; and you control your own software roadmap based on the needs of your geography.

> "Network sovereignty means you own the infrastructure; you control what runs inside your network"

At its core, network sovereignty is the end of permission based innovation. For decades, operators had to wait for vendor release cycles to introduce new capabilities. Sovereignty means you control your own destiny. You are not just operating technology. You are the owner of your technology investment.

We also see governments shifting their focus from data sovereignty to infrastructure and software sovereignty. In parallel, geopolitical pressures are pushing many governments to impose restrictions on, or mandate the removal of, high risk or untrusted vendors. That combination is fundamentally reshaping how operators think about their networks.

> "Open RAN makes sovereignty economically viable and operationally affordable"

Is Open RAN a technology choice, or a sovereignty choice?

Sharad: It is both. Open RAN makes sovereignty economically viable and operationally affordable. You can talk about sovereignty, but if it is too expensive, operators will not pursue it, especially given the pressure on ARPU [average revenue per user], capex, and opex.

Open RAN provides a path to sovereignty that operators can actually afford. It allows them to control their destiny without compromising financial sustainability.

What is your view on fragility vis-à-vis open and closed systems?

Sharad: Fragility in a network comes from two things: single points of failure, and the inability to respond quickly when something goes wrong.

Open RAN addresses both. Because hardware and software are decoupled, you can change the hardware component relatively easily if there is geopolitical disruption or a security threat to a particular vendor. There are multiple options available.

In a vendor lock-in system, if something goes wrong with your sole supplier, it is extremely difficult to exit. The closed system is the fragile one.

Rakuten is one of very few organizations that have built a fully cloud-native network at scale. What has that experience taught you about sovereignty?

Sharad: The two concepts, Open RAN and cloud native, are related but should be considered separately. Each contributes something distinct to the sovereignty question. Open RAN is fundamentally about disaggregation. Cloud native – meaning Kubernetes,[1] microservices, containerized workloads – is a different dimension.

The case for cloud native rests on three things. First, the speed and ease of change. In traditional telecoms, engineers still work maintenance windows through the night to push updates. If you look at how OTT providers manage their IT workloads, change requests are serviced during the day with no downtime, because the architecture supports self-healing. Second, operational convenience flows directly from that. Third, and most importantly, security. A cloud-native network is not opaque. The visibility you gain with a cloud-native network, whether for security testing or for embedding security algorithms directly into the CI/CD [continuous integration/continuous delivery] pipeline, is far greater than anything a closed system offers.

[1]Kubernetes is an open-source system that automates the deployment, scaling, and management of containerized applications.

What are the broader implications of Rakuten's approach for operators pursuing sovereignty?

Sharad: Open RAN is gaining real traction this year. We have more than ten proof-of-concept deployments running right now, and expect four or five of those to go to scale in 2026 and 2027. Our network buildout with 1&1 in Germany is the first fully virtualized mobile network based on Open RAN standards in Europe, and it is growing well. Boost Mobile in the US is another proof point.

The technology is no longer in question. Concerns around massive MIMO [multiple-input multiple-output], power efficiency, and scalability have been resolved. What is lacking is the commercial motivation to move.

Going forward, any greenfield operator will choose Open RAN. The architecture gives them the flexibility to migrate from 4G to 5G to 6G without ever having to swap out a proprietary closed system.

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How do you see AI reshaping telecoms, and does it introduce new sovereignty dependencies?

Sharad: In telecoms, there are two distinct dimensions to consider. The first is using AI for network operations. The second is AI-native products, which are still thin on the ground. In BSS [business support systems] and OSS [operations support systems], things are beginning to take shape. But for the broader network estate, AI is layered on top of legacy infrastructure that was designed 20 years ago and is neither cloudified nor AI-native by architecture. You can achieve a certain level of automation on top of that, but the underlying architecture sets a ceiling on automation.

But the potential is enormous. The collective capex and opex burden across global telecoms is massive, and AI offers a meaningful path to reducing it. We are seeing operators begin to collaborate in this area. At the last MWC [Mobile World Congress], AT&T announced its own small language model initiative. For network operations, you do not need large language models. You need cost-effective, domain-specific small language models. For customer-facing applications, BSS, customer support, and retail interactions, the opportunity is huge and everyone is working on it.

OWN THE CONNECTIVITY FUTURE

When a country says it wants to own its connectivity future, what does that mean in practice?

> "Going forward, countries want resilient networks built on many smaller facilities"

Sharad: In a recent conflict, a small number of data centers were damaged and entire banking systems went offline. That illustrates the risk of over-dependence on a limited number of centralized assets. Going forward, countries want resilient networks built on many smaller facilities, with automation that enables seamless failover without massive capital investment.

These systems must also be simple enough to operate with local talent, rather than highly specialized experts flown in to keep the network running. Owning your infrastructure means it is available off the shelf, transparent, and free of black boxes.

"With Open RAN, you take the software, source your own hardware, operate the network, and carry no dependency on a particular vendor"

Can sovereign networks still be global and interoperable?

Sharad: Sovereignty does not mean fragmentation. The protocols are standardized. A device will not function if it does not follow the protocol. Open RAN is based entirely on 3GPP, so anyone, anywhere can deploy it. There is no inherent vendor dependency baked into the architecture. Operators can take the software, own it, and, in time, take the code and modify it themselves. That is the future I see.

For 30 or 40 years, network operators have focused on generating revenue and delivering customer satisfaction. The technical domain was someone else's problem. But the next generation of CTOs is beginning to think not just about managing technology but owning it. If you look at how enterprises treat their IT estate, they do not merely manage IT. They own it. That ownership mindset is what needs to transfer to telecoms.

With Open RAN, you take the software, source your own hardware, operate the network, and carry no dependency on a particular vendor. The same logic will extend across the stack. Where standards exist, as they do for RAN, this is relatively straightforward. Where they do not yet exist, as in infrastructure observability, those standards still need to be developed.

OPENNESS AND SECURITY

There is a perception that openness creates greater security risk. What is your view?

Sharad: An open system is not inherently less secure. If you own the system, you gain visibility, and with visibility you can make it more secure. An opaque, closed system gives you nothing to work with. When something goes wrong inside a black box, you cannot inspect it, instrument it, or respond to it effectively. We have seen cases where a vulnerability in a single vendor's platform affected operators globally, forcing widespread simultaneous upgrades. That is the risk of concentrated, opaque dependency.

Looking at the extraordinary pace at which AI-driven security capabilities are advancing, these tools work best on transparent, inspectable systems. The function of traditional penetration testing is increasingly being handled automatically, and that will only accelerate. The principle is straightforward: be cloud-native, be transparent, and ensure you have access to your own infrastructure. Without that access, you cannot make it secure.

RECOMMENDATIONS FOR CXOS

What are your top recommendations for CTOs and CIOs building future telco networks?

Sharad: First, if sovereignty is being pursued at a country or regional level, operators must collaborate, rather than compete in isolation. The technologies chosen for the future should be standardized across the region, and operators must work together to create and own standardized technologies, rather than simply manage them, but this will take time. The industry has been dependent on a small number of vendors for decades, and the required skill sets are not yet widely available.

Second, sovereignty requires ownership not just of technology but of infrastructure, and accepting responsibility for its reliability.

Third, resilience must be baked into the design. The challenge is cost. Instead of building multiple redundant data centers, the goal should be architectures that behave as if redundancy exists, without the capital burden. That is only possible with cloud native applications.

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