Case Study: Canonical's Open Source Cloud for BT, The UK in 2024 Phase Three “Open Source and Market Shaping”

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Clare is BT Group's Cloud Engineering Director. She runs the Group's Cloud Services division, a team of 600 professionals dedicated to revolutionising the infrastructure that hosts BT’s enterprise IT and network workloads. She previously worked at Google and IBM in various technical leadership roles and is a software engineer by background.

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Arno van Huyssteen is the CTO for Communications Service Providers at Canonical, the company behind Ubuntu. He's an industry veteran who has channelled his passion for technology to drive innovation and change, working with both mobile operators and telco vendors across the globe.

Arno brings deep expertise and insights into critical telecom environments including core network, data centres, distributed infrastructure, automation, and more. He has successfully led large scale transformation programs including swap-outs and greenfield network deployments worldwide while influencing, co-creating and driving industry collaborations in communities and standards authorities to enhance and evolve modern mobile network technologies.

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London headquartered Canonical, the publisher of Ubuntu and an open source pioneer in enterprise software, is shaping the telecom industry through partnerships with organisations like BT Group. Delivering advanced, scalable 5G infrastructure through open source innovation and a commitment to flexibility, security, and scalability, it is driving the next generation of telecom networks. Canonical is enabling companies like BT Group to transform their networks and meet the demands of a rapidly evolving digital landscape.

Building a Future-Proof 5G Network with Open Source

For the rollout of their 5G network, BT Group needed a platform that would evolve in response to industry demands and consumer needs, ensuring resiliency and scalability. To achieve this, BT sought a partner who shared their commitment to open source and the transformative possibilities it brings. They chose Canonical, whose open source infrastructure solutions— specifically its telco-grade OpenStack distribution— contributed greatly to this transformation.

By virtualising network functions on OpenStack, BT Group was able to transform its 5G components into software applications independent of underlying hardware to create a software defined network (SDN). This approach not only allows multiple applications to run whilst sharing the same hardware but also enables BT Group to update and scale its network seamlessly.

This level of agility, enabled by open source software, played an important part in EE (part of BT Group) recently being recognised as the UK's best and most reliable mobile network(Based on the RootMetrics® UK RootScore® Report: H1 2024. Tested at locations across the UK with the best commercially available smartphones on 4 national mobile networks across all available network types. Your experiences may vary. The RootMetrics award is not an endorsement of EE. Visit ee.co.uk/claims for more detail), with its 5G service now available to almost 80% of the UK population as part of an overarching ambition to enable a 5G connection anywhere in the UK by 2028.

This same cloud core also underpins EE's newly launched 5G Standalone (5G SA) network, supporting an ongoing rollout which will cover more than 30 major towns and cities by the end of 2024, with at least 95% coverage in each of those locations.

An Agile and Collaborative Partnership

Unlike traditional vendor relationships, Canonical and BT Group fostered a collaborative partnership focused on co-creation. Working closely, the two companies designed, deployed, and optimised a cloud infrastructure tailored to 5G use cases. This partnership helped BT Group to take full control of their internal infrastructure, with Canonical providing extensive training to provide the team with the skills needed to operate OpenStack at the highest level. This allowed BT Group to move away from reliance on vendors to manage its infrastructure, encouraging them to operate and scale with newfound independence and control.

Redefining 5G Infrastructure through Open Source

Canonical's infrastructure portfolio extends beyond Ubuntu and OpenStack. Canonical's open source software products, such as Canonical Kubernetes, Juju, and MAAS, address some of the key challenges facing telecom companies globally, such as the pressures to modernise legacy systems, embracing cloud native architectures, and increasing cost-efficiency in the midst of rapid digital transformation. One way in which they do this is by enabling hybrid-cloud models (mixing private and public cloud) to connect old and new systems.

Besides providing open source infrastructure technologies, Canonical also offers mission-critical solutions to meet Service Providers' and Enterprises' needs for Mobile Private Networks and Open RAN requirements. With additional features like real-time kernel, data plane optimisation and low-latency solutions (DPDK and SR-IOV), Canonical solutions empower telcos to deliver rapid, reliable service at a large scale.

Capturing New Opportunities with Edge Computing

5G and open source software have also paved the way for telecom's next phase: edge computing. By bringing processing closer to end-users, edge computing's increased speed offers companies greater efficiency, scalability, and cost-effectiveness. Through their open source tools and support model, Canonical empowers telecom providers to explore and monetise edge computing opportunities confidently.

Conclusion

The partnership between BT Group and Canonical is an example of how the telecom sector can embrace open source technologies to transform and innovate at scale. Together, BT Group and Canonical are not only advancing 5G but are setting a new standard for open-source-driven telecom infrastructure that balances control, innovation, and efficiency. This collaboration shows how telecom operators can meet the industry's toughest challenges with open-source solutions that offer flexibility, autonomy, and a future-ready infrastructure. From the perspective of open source, the telecom sector, which has been a resistant adopter, is having its future market shaped by the power of open source software which has disrupted the sector.

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