# Putting The Operator & End-User Experience First with a New Approach to Telco and Edge Cloud Transformation
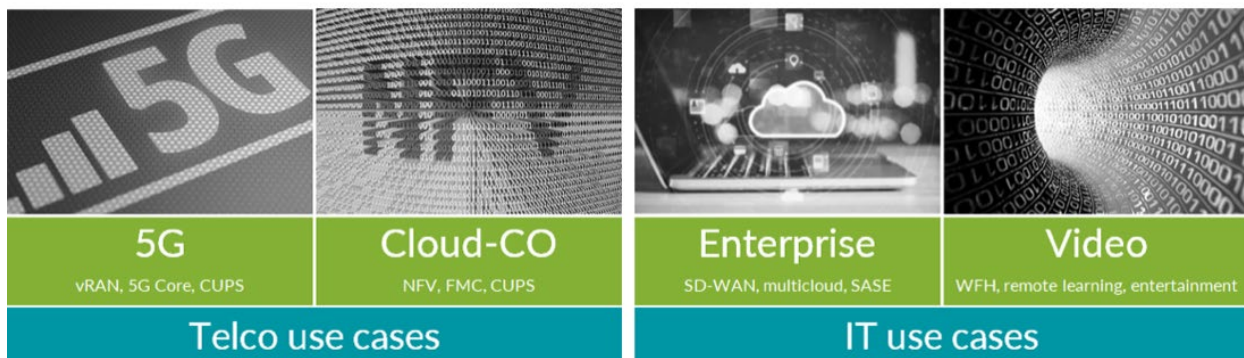
**JUNIPER** NETWORKS | Engineering Simplicity

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Today, there are nearly 7.7 billion people and [over 10 billion connected devices](#) on planet earth. It's mind blowing that, at the touch of a button, it's technically possible to talk, text, chat or use video with any of these devices. It wasn't that long ago that that we had to hold a rabbit-ear antenna to watch the game while today, kids scream about "lagging" as they play Fortnite against someone living on the other side of the planet. The marvel of what they are experiencing is lost on them because, for almost three decades, innovators like Juniper Networks and our customers have simplified extremely complex networking challenges and made it look easy. Today, as network operators embrace cloud technologies to drive new work, learn and play inflections, Juniper is at it again, introducing innovative solutions and highly developed cloud muscle to simplify the telco and edge cloud transformation.

## Telco & Edge Cloud

| 5G | Cloud-CO | Enterprise | Video |
|---|---|---|---|
| vRAN, 5G Core, CUPS | NFV, FMC, CUPS | SD-WAN, multicloud, SASE | WFH, remote learning, entertainment |
| **Telco use cases** | | **IT use cases** | |

With a long history of designing, building and deploying cloud solutions for operators like [Deutsche Telekom](#), [BT](#), and [Etisalat](#) and a recent history of powering the largest cloud providers in the world, Juniper Networks has developed telco and edge cloud expertise, processes and technologies based on real-world deployments and runtime operational experience. The outcome is a telco and edge cloud strategy that is built upon three cloud pillars to deliver value for our service provider customers, simplify the path to cloud transformation and ultimately improve the user experience:

- Open, universal cloud architecture of automated overlay and high-performance underlay to realize on-demand, operational economics
- Community of multivendor collaboration to harness the innovative power of the larger ecosystem
- Comprehensive, end-to-end automation to deliver a secure, assured experience for both the operator and end users

## Open, Universal Cloud Architecture

Telco and edge clouds built on ['function-first'](#) principles were virtualized replicas of the purpose-built, closed and siloed solutions they were intended to replace. Often, the same legacy software is reconstituted in a virtual machine or container to run on general purpose and less performant server hardware. In essence, operators achieve the same outcomes as legacy solutions but at an increased cost of complexity and without achieving cloud speed and elasticity.

In contrast, Juniper's open and horizontal universal cloud architecture is built upon ['Cloud-First'](#) principles, developing an open cloud platform to support any virtualized or containerized workload, digital service or third-party application. Our architecture unifies the operator business with a common cloud platform that can be customized for any serving area in the network – RAN, metro cloud, edge cloud, telco cloud or data center. Network services, business applications and content delivery share a universal cloud architecture with on-demand orchestration to customize services, deliver a quality customer experience and grow revenues quickly and easily.

## Collaborative, Multivendor Ecosystem

In a previous blog, we describe the evolution from ['multivendor' to true, *multivendor*](#) cloud solutions where operators and partners work collaboratively toward a shared goal. This is in stark contrast to the past where operators themselves owned the integration and therefore, all of the risk, of operationalizing a multivendor cloud. To describe this multivendor challenge, one North American tier-1 operator stated, *"The marriage is happening in my lab."*

To unify the collective goals and outcomes of a collaborative partner ecosystem, operators today need and expect partners to take a strong leadership role in the development and deployment of the cloud.  This includes extending the ecosystem to the vast community of developers who view the edge as the new frontier to deliver immersive, latency sensitive and lucrative applications. Public cloud providers like

Amazon and Google have shared a symbiotic relationship with developers to deliver centralized applications. And, with the right platform, partner ecosystem and an untapped resource of edge real estate to distribute compute and nearly eliminate latency, operators are in pole position to lead the edge cloud market.

With decades of service provider and cloud provider experience and more recent collaborations with successful telco and edge cloud transformations, Juniper is further expanding our solution portfolio with strong Prime Integration and System Integration cloud services. Juniper's Professional Services and battle-tested experts use Agile and DevOps methodologies to help operators achieve agility, delivering high quality software and services, from product inception to production, in weeks versus years. Because code is developed collaboratively, vendor code is interoperable and often interchangeable, allowing operators to easily replace one vendor's code with another if performance or quality metrics are not achieved. And, through our relationship with StackPath, our managed edge solutions provide access to over a thousand content partners who are thrilled by the prospect to deliver their high bandwidth and latency sensitive applications from the operator edge.

## Comprehensive, End-to-End Automation

Better operator and end-customer experiences is the goal of cloud transformation, not a collateral result. At Juniper, this is what we refer to as Experience-First Networking. To deliver it, veterans of cloud transformation understand that developing an automation strategy is the first step in a successful transformation journey. However, far too often, the path to cloud transformation begins with technology and ends with automation. Following the example of Henry Ford and the Model-T, operators need to invert the process, starting with an automation framework so that every member and department of the operator's supply chain acknowledges, understands and accepts their role and responsibility in the new cloud model.

At Juniper, we take an 'Operation-First' approach to delivering telco and edge cloud solutions. Shifting away from static, waterfall development models to an agile and dynamic cloud-based model takes vision, planning and an automation framework built upon continuous integration/continuous deployment (CI/CD) pipelines that are standard across all virtualized or containerized workloads and applications. Juniper has proven expertise designing CI/CD frameworks and implementing CI/CD pipelines, allowing operators to treat the Business as Code to deploy software fixes, updates, upgrades and new services into production networks at any time of day.

## Build Your Own versus Edge Cloud as a Service (ECaaS)

Working with trusted partners like Juniper, some larger operators have the expertise to build and operate clouds themselves. But even those operators deploying their own centralized clouds may find the geographical distribution of the edge cloud to thousands of locations too costly or operationally imposing to manage. Other network operators simply have not developed the cloud skills, technology or processes to achieve time to market yet. To mitigate these challenges, Juniper is working with our partner, StackPath,

to give service providers a managed ECaaS option, allowing them to offload the skills and management of the cloud in order to deploy cloud native edge clouds quickly and cost effectively. Since the edge cloud is managed as a service, network operators only pay for what they need (known as "pay as you grow" or PAYG) to contain upfront CapEx costs with immediate time to market.

Whether building and self-managing or consuming as a managed edge service, Juniper's transformational cloud architecture delivers Experience-First Networking for both network operators and your customers.

To learn more about real world service provider transformation, read the whitepaper and register for the event.