

L4S and fixed network slicing could boost operators' QoE, but only when applications actually need it

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Broadband providers have now largely solved the problem of meeting consumers' demands and expectations for downstream service speeds. Indeed, these speeds are now becoming commodified. We see this in the growing number of operators turning to 'tariff flattening' to encourage customers to take faster speeds.

Where, then, do operators turn next to differentiate or, potentially, 'de-commodify' their broadband services? Many operators are looking to latency as the next service metric that has the greatest impact on broadband quality of experience (QoE). There have been some notable 'firsts' in the past few months in this area: Google Fiber (GFiber) in the USA has piloted network slicing and Vodafone Türkiye in Turkey has deployed 'Low Latency, Low Loss, Scalable Throughput' (L4S) live in the field. Accordingly, lots of vendors at Network X 2025 were promoting how their latency and jitter optimisation solutions have a positive impact on end-user QoE.

Vendors are showing that the technology works. The next step is to align these solutions with market demand.

Vendors are developing QoE optimisation solutions; L4S and fixed network slicing are particularly interesting

Vendors' solutions for optimising broadband performance generally make a trade-off between throughput, latency and jitter. All three elements are important for current high-performance applications such as cloud gaming and will continue to be crucial for future applications such as cloud-rendered XR or 4K/8K creator live streaming. However, different use cases require a different balance of these three metrics.

L4S and network slicing allow operators to dynamically adjust this balance, either network-wide (L4S) or per application/user (slicing). L4S alone may suffice for some end-user applications (such as gaming), and slicing may be preferable for others (for example, if one wished to sell tiered quality of service or to create multi-tenant wholesale isolation). Alternatively, the two technologies could be used together.

QoE optimisation technologies are emerging from the lab and are reaching pilot stage

Vendors at Network X this year demonstrated implementations of L4S under simulated conditions. Both **ZTE** and **Huawei** also talked about using network slicing in home Wi-Fi networks. Some operators have already deployed network slicing in cellular networks, but 'real world' deployments on the fixed side are less common.

- **GFiber's** network slicing lab trial with **Nokia** showed that fixed network slicing can carve out a 'lane' for gaming and reduce latency from ~90ms to ~10ms under lab-induced congestion. This trial was not attached to a commercial deployment timeline, but [Google's blog post](#) on the subject highlights that a mass-market deployment would require significant automation and consumer-friendly controls ([such as 'gaming mode' similar to BT's](#)) to be successful. The demonstration framed network slicing as a customer-driven way of improving QoE rather than solely as a network policy, potentially to pre-empt net neutrality concerns.
- **Vodafone Türkiye**, again with **Nokia**, recently reported the first live FTTH trial of L4S, which reduced latency spikes from ~220ms to less than 5ms on real residential lines (including the in-home Wi-Fi 'last inch') in Turkey. This followed Nokia's 2024 lab demonstrations in the UK and was reportedly access-technology agnostic, meaning that it could also work on cable systems.
- **Huawei's** demonstration and summit at Network X positioned its SingleFAN Pro for F5G solution as a way to unify enterprise and residential broadband access on a single platform, using network slices to ensure experience guarantees. It also referenced [network slicing in its Wi-Fi 7 solutions](#).
- Operators such as **Telia Finland** have also deployed network slicing on their cellular networks to enable various speed, latency and data-quality balances for fixed-wireless access and handset users. Such exercises demonstrate that consumer broadband offers can use slicing to enable service-level agreements, despite being delivered over a wireless network.

Many consumers are open to paying more for superior QoE, but most end-user applications do not need L4S-level assurance yet

[Analysys Mason's 2025 consumer survey](#) confirms that broadband QoE, not just raw downstream and upstream access speeds, is the primary driver of Net Promoter Score and churn. High-value customer segments, such as remote workers, gamers and large families, are especially sensitive to coverage and latency issues and are willing to pay for demonstrably better in-home performance.

In particular, 39% of survey respondents said that they would be willing to pay extra for better-performing Wi-Fi customer premises equipment. A further 24% of respondents would consider paying more if the benefits were clearly explained to them. The combined total of the above groups accounts for almost two thirds of all broadband-using adults in our survey. Households

with mesh/extenders already spend around 16% more per month than households that rely on a single Wi-Fi access point. This suggests that tangible QoE improvement could translate into ARPU uplift, even if only a proportion of consumers that said that they were prepared to pay extra for improved Wi-Fi actually followed through.

The question of if and when this broader consumer demand for improved QoE will translate specifically into helping the business case for L4S and slicing-based solutions is unlikely to be answerable until application demands evolve later in the 2020s. These solutions must find product-market fit that matches real-world application usage; many consumers do not yet suffer from the problems to which L4S and network slicing are the answer. Current application demands are mostly satisfied by today's fibre networks, particularly when home-domain control stacks from vendors such as SoftAtHome and Netduma already offer device/service-aware prioritisation within the home network.

We expect further early deployments and pilots of L4S in 2026. Comcast is rolling out L4S technology across major US cities in the hope of reducing broadband latency for millions of customers. This signals the potential for broader deployment. However, full, network-wide L4S deployment will depend on device and application support and network upgrades, and is likely to extend into 2027 and beyond.

Fixed broadband QoE will be a key focus area in Analysys Mason's [Fixed Services](#) research programme in 2026. We explore other aspects of implementing Quality on Demand solutions in our [Network Automation and Orchestration](#) and [Automated Assurance](#) research programmes.