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The Future of the Connected Home

Developing successful value-added-service strategies

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Contents

Summary 5
Key points and recommendations 7
The need for a broadband VAS strategy 8
Growing the connectivity-driven services 9
Expanding through service led 11
Study and survey overview 12
Broadband VAS strategies 13
A more cautious tone to VAS investment 13
Quality Wi-Fi is key 14
Internet security and safety 17
Smart home 18
Application prioritization 19
There is no consensus yet on the home app store 21
Barriers to greater VAS success 23
Low perceived demand remains the key barrier 23
Customer service costs increase pressure on the VAS business model 25
The role of AI in successful VAS strategies 26
Network optimization and management seen as most important use cases in the short term 27
Commercial and customer support applications 28
Energy management remains of key interest 29
Developing more advanced services 30
The use of open gateways 30
Only the very top-tier telcos are fully embracing “best of breed” 30
The importance of standards 32
Standards help drive greater innovation 32
User Services Platform and the evolution of the connected home 32
Appendix 35

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Methodology..... 35

Summary

Worth $400bn on a global basis by 2030 and with a five-year (2025–30) CAGR of 4%, broadband access is the most important fixed residential market for telecommunications operators by some margin. However, virtually all this growth currently comes from increasing subscriptions, which are nearing saturation in mature markets as household penetration reaches its limit. Therefore, if telcos are to continue to grow revenue in this critical sector, it is crucial that they look to also increase broadband ARPU.

Value-added services (VAS) are an important tool in meeting this goal because they can help telcos grow ARPU in two ways:

- **Encourage more consumers to move up the broadband stack.** Most telcos offer a tiered broadband portfolio, largely differentiated today by speed. However, as high-speed services become ubiquitous, consumer demand for simply more speed diminishes. Additionally, because telcos have consistently increased speeds to remain competitive, consumers have gotten used to speeds organically increasing while they are able to remain on the same tariff. However, there are many more features than high speed that consumers value from their broadband service provider. By building these additional value-added features and services into traditional broadband tiers, providers will help encourage a greater proportion of consumers to move up the stack.
- **Expand through premium services.** There is a select range of VAS that consumers are willing to pay extra for. Typically, these are higher-end VAS, such as smart home

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applications, but they can also be advanced versions of more standard VAS. Cybersecurity is a good example: standard cybersecurity features can be included as part of the broadband offering, then more advanced features can be offered for an additional fee. Such services allow telcos to grow revenue by branching out into new adjacent service areas.

In the previous issue of this report, *The Future of the Connected Home: The Rise of Home Applications*, published in 2023, we found there was a fresh surge of interest in new VAS strategies. This was largely on the back of telco investment in Wi-Fi management software, where VAS were seen to further improve the home Wi-Fi experience beyond just Wi-Fi optimization. The focus at that time was largely on technology that would enable quick and efficient onboarding and offboarding of new applications and features.

Skip to 2025, and we found a more cautious approach toward VAS investment. Not because the need to shift away from simple speed is not recognized, nor that VAS are not perceived to offer value, but because of growing uncertainty around the telcos' ability to successfully monetize them, especially among the smaller telcos.

It is true that making a success of VAS is not easy. It requires investment in not just new products but also in marketing, training, and other backend functions. Get this strategy right, though, and customer penetration can be well into double-digit percentages with quantifiable business benefits.

This report explores the new technologies, standards, and strategies that can help telcos make more of a success out of broadband VAS.

The Broadband Forum's User Services Platform (USP) is one of those standards that will help service providers manage this more complex connected-home environment. Developed to help deploy, implement, and manage all aspects of the home network including consumer Internet of Things (IoT), the standard creates a data model, architecture, and communications protocol to enable devices from many vendors to connect to the Wi-Fi home gateway, which can then be managed by the broadband service provider, opening up new business model opportunities as a consequence.

The analysis in this report is based on a quantitative service provider survey of 116 representatives across 32 individual countries; in-depth qualitative interviews with key executives from service providers in Latin America, the Middle East, North America, Europe, and China; and existing Omdia research and data in the broadband, connected, and smart home domains.

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Key points and recommendations

- **Providing a high-quality Wi-Fi experience remains top of mind.** Telcos continue to be very much focused on the home Wi-Fi experience when it comes to general VAS strategy. The home network is seen as vital to delivering the best possible broadband service. In the 2023 report, this investment centered around home Wi-Fi management, which is still seen as important, but it is now also increasingly extending into areas such as more advanced Wi-Fi standards, fiber-to-the-room (FTTR) backhaul, and application prioritization. The home network is seen as a major battleground for service providers, and investment continues to get broad support.

- **After quality comes safety.** Online threats are increasing in both number and sophistication. Because telcos are the ones providing the access to both fixed-line and mobile internet, not providing protection from such threats can harm their brands, and providing a comprehensive solution opens up new and significant revenue opportunities. Many telcos struggle to capitalize on this opportunity, however, never really getting beyond single-digit customer penetration. In our view, consumer cybersecurity is an opportunity that should not be missed, and telcos should work with their vendor partners to create better monetization strategies. In turn, vendors should also utilize their experience to provide greater assistance to telcos, otherwise they face losing a promising supply channel for their products.

- **AI has an important role to play.** AI technology is already being actively deployed in the telco home, especially for applications such as Wi-Fi optimization, targeted marketing campaigns, customer support, and cybersecurity. However, it is also seen (alongside other advanced technologies such as Wi-Fi sensing) as providing fresh emphasis around some smart home use cases and as enabling greater value to consumers. Given the nature of the use cases for AI, customer premises equipment (CPE) devices were seen by many as a natural location to host the technology. Telcos and their vendor partners should continue to explore such strategies because telcos will be seen as more trusted brands in this area than others, especially “nonsovereign” companies, and this will therefore provide them with a new unique selling point.

- **Low take-up can be perceived as a lack of interest.** When telcos’ VAS strategies fail, customer “lack of interest” is often cited as the main reason why, even in areas where all the other data suggests otherwise. This perceived lack of interest can quickly lead to lack of investment support, when in reality, taking a different strategy might have garnered a different result. A decline in VAS investment is a dangerous path that eventually leads telcos to basic connectivity-only offerings (i.e., the dumb-pipe model). Selling VAS may not be easy, but telcos need to be careful not to quickly dismiss opportunities that do not work the first time around and to have alternative plans in place.

- **Vendors have a critical role to play.** A small number of large telcos have the resources to pick a truly best-of-breed partner approach, carrying out all software and

service development internally. Others, a large portion of the market, do not. For these telcos, vendor partners have a more crucial role, not only in helping telcos to efficiently deploy and manage new services but also in deploying successful business models. Not providing such assistance will likely eventually lead to low penetration, meaning that continued investment in offers is no longer viable.

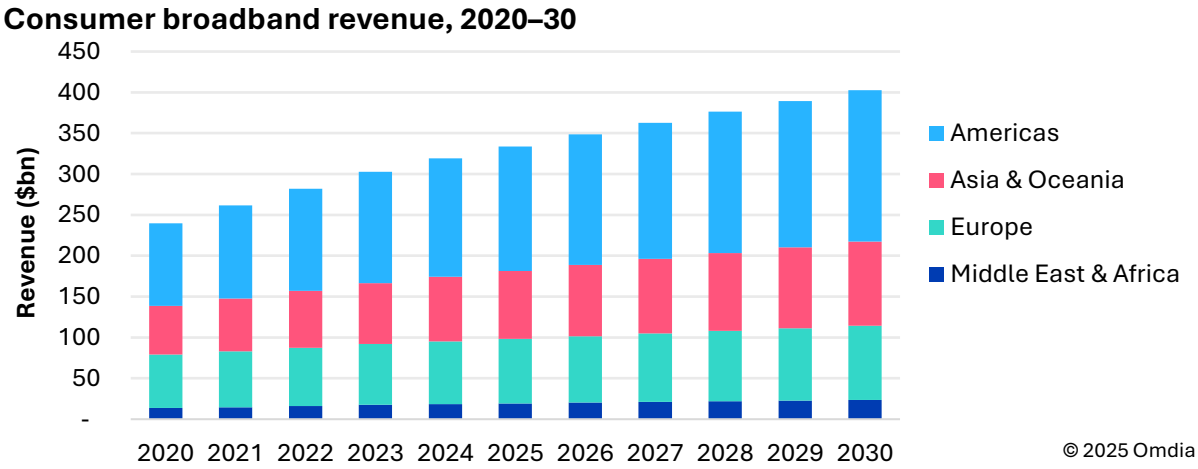
- **Industry standards remain important to success.** More telcos will therefore look to vendor partners to provide off-the-shelf VAS ecosystems, a strategy that was labeled as the best-of-suite model in the 2023 report. This is not to say, however, that the days of proprietary vendor solutions are back. Open frameworks and standards still very much have a role to play, even in these solutions, because they enable more efficient VAS deployment, greater choice of different vendor hardware and software platforms, and more varied (and faster developing) VAS ecosystems from vendors.

- **The Broadband Forum's USP remains one of those important standards.** USP is seen as a key development by the industry for both further Wi-Fi optimization and the delivery of new broadband VAS. Although not all service providers are yet fully committed to implementing USP, in the 2025 Telco Connected Home Survey, 32% of respondents stated that they have already started to invest in USP. A further 29% said that they plan to do so within 6 months, and another 27% in the next 12–18 months.

The need for a broadband VAS strategy

Broadband access has been a huge success story, and with a value of $315bn at the end of 2024 it is now the core revenue driver in the consumer space for the telecommunications industry. This growth will continue, at least at a global level, with a CAGR of 4% between 2025 and 2030, reaching $400bn by the end of 2030 (**Figure 1**).

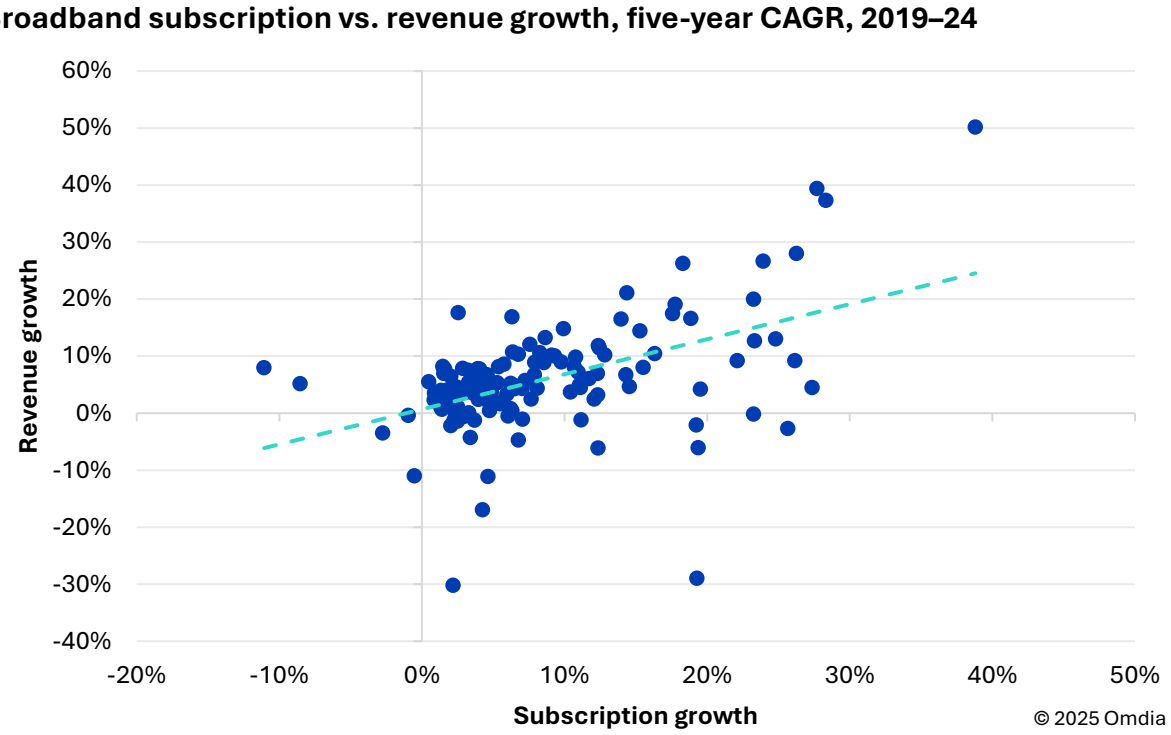
Figure 1: By 2029 the consumer broadband market will be worth nearly $400bn



Source: Omdia

However, virtually all revenue growth today comes from growth in subscriptions (which will increase from 1.16 billion consumer connections in 2020 to an estimated 1.83 billion by 2030), and there is little growth coming from increasing the ARPU. **Figure 2** shows this clear correlation between subscriptions and revenue growth.

Figure 2: Broadband revenue growth is at risk as subscriptions saturate



Source: Omdia

The issue with not growing broadband ARPU is that subscription growth is starting to reach saturation in many countries, so overall revenue growth is also starting to slow. It is critical therefore that broadband service providers look for ways to continue to drive top-line revenue growth, and VAS are a key way for telcos to achieve this goal, both by adding value to the core broadband service (which aids service differentiation and therefore maintains market share) and by creating new premium features that help grow broadband ARPU.

Growing the connectivity-driven services

When broadband services were first launched, the marketing focus was squarely on speed and price. In the early days of broadband, this made perfect sense because speed was the main differentiator for broadband over narrowband connectivity, and price is always an important metric in any market. As markets matured and became more competitive, this focus meant that speeds grew exponentially, but ARPU remained relatively flat. By the end

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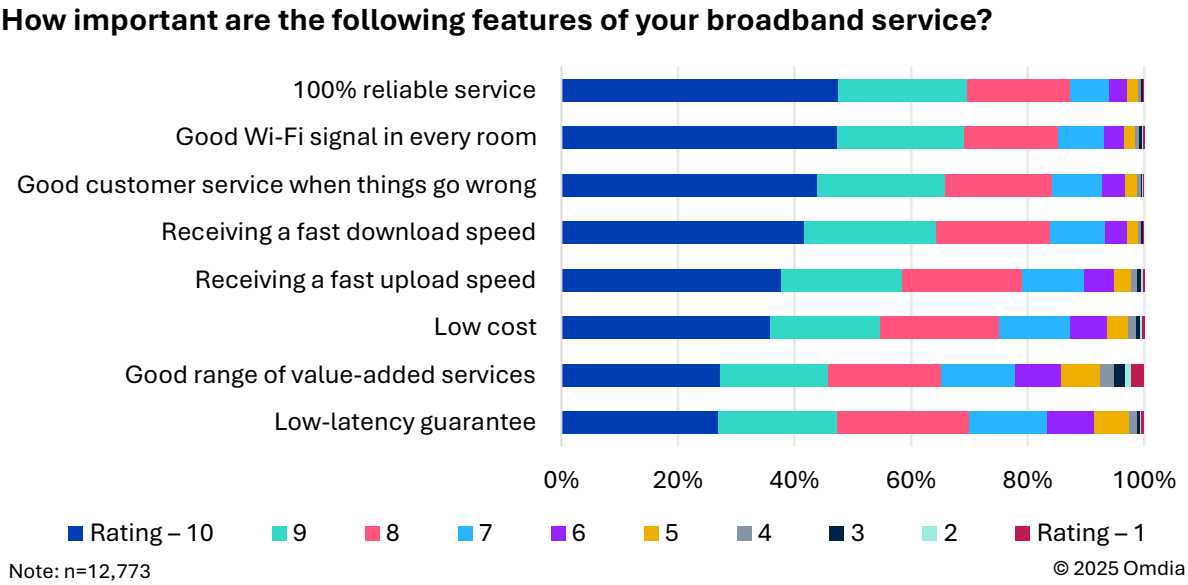
of 2025, 60% of global consumer broadband subscriptions will be for speeds of 500Mbps or more, and 28% will be for gigabit speeds.

Consumers will always value good broadband speed. However, as high-speed services become universal, the demand for more speed diminishes. In Omdia's 2024 Digital Consumer Insights survey, 89% of the 12,700 consumers surveyed said they felt they currently had enough broadband speed for their needs, and 52% stated that they had more than enough.

To differentiate their broadband services, therefore, it is vital for telcos to turn to metrics other than speed. **Figure 3** illustrates what Omdia's survey indicates consumers value most from their broadband service, and although speed still scores relatively highly, it is clear it is not the only or even the most important characteristic.

Figure 3: Broadband speed is not everything



Source: Omdia 2025 Telco Connected Home Survey

One may note that "low cost" now ranks relatively low in terms of the valued service features. This is not to say that consumers do not care about cost; indeed, they always expect services to be of good value and be price-competitive. The features above, then, are what they value over and above the basic price of the service. What this means is that service providers could offer the cheapest products in the market, but if that service is unreliable, or they provide poor customer service, then customers will churn.

Value-added services play a key role in this broader broadband service differentiation. Not only can some VAS (e.g., parental controls, cybersecurity, or cloud storage) add their own

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additional value, others play a key role in meeting some of those key broadband characteristics. For example, Wi-Fi management and network optimization tools could be used to maintain a reliable and consistent broadband experience.

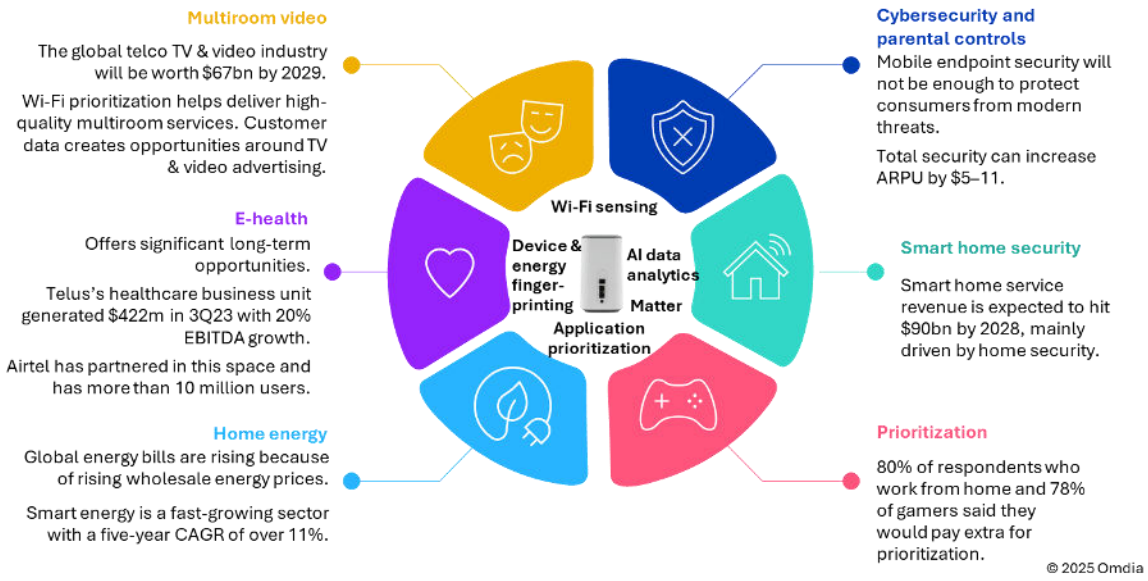
VAS used in this way will normally have to be provided for no extra charge and therefore may not directly grow ARPU, but they can certainly aid differentiation and at the very least protect against customer churn. If positioned correctly, however, they can also be used indirectly to aid ARPU growth, for example, by making higher broadband tiers more attractive.

Expanding through service-led

In addition to helping to develop and strengthen the core broadband service, VAS can also be positioned as premium services to directly grow service ARPU. These are typically higher-end value-added services, such as applications related to the smart home, but they can also be advanced versions of the more standard VAS. Cybersecurity is an example of a VAS that can be positioned in this way: standard cybersecurity features are offered free as part of the broadband offering, and more advanced features such as AI scam protection and ID monitoring can be provided as an additional premium option.

At one time, these premium VAS (especially advanced ones such as video and smart home) were seen as separate from the core broadband strategy. However, with the implementation of more advanced technology in both the core broadband network and the home gateways, there are many features that are often used to the advantage of many different services (device fingerprinting is one example). This development is leading to a more joined-up, integrated broadband home strategy, which is not only creating greater operational efficiencies but is also enabling telcos to be more innovative and therefore opening up new VAS opportunities.

Figure 4: Investing in core broadband technology enables a more rounded VAS strategy



Source: Omdia

Study and survey overview

The remainder of this report is largely based on a quantitative survey (2025 Telco Connected Home Survey) of 116 telecommunication executives and on 13 in-depth interviews with a select group of telecommunication experts from different types and sizes of operators across different regions of the world.

Where possible, the report makes comparisons with the trends outlined in the previous reports. However, note that for the quantitative survey there have been differences in target respondents over the years as well as changes and updates to the questionnaire. For example, in the quantitative survey carried out in 2023, just 6% of respondents worked for a mobile operator or the mobile arm of an operator, 4% in a cable company, and 45% within broadband. In 2025, targets were relaxed to gain more rounded responses, and 30% came from the mobile side of the business, 33% from cable operators, and 31% from a broadband/converged operation. The geographical reach of the survey has also changed; it now includes representatives from 32 countries, including African and Middle Eastern countries (**Figure 5**).

For the qualitative interviews, the focus has always remained on executives responsible for the connected home (from either a strategy or technical viewpoint) to obtain a deep dive into the topics.

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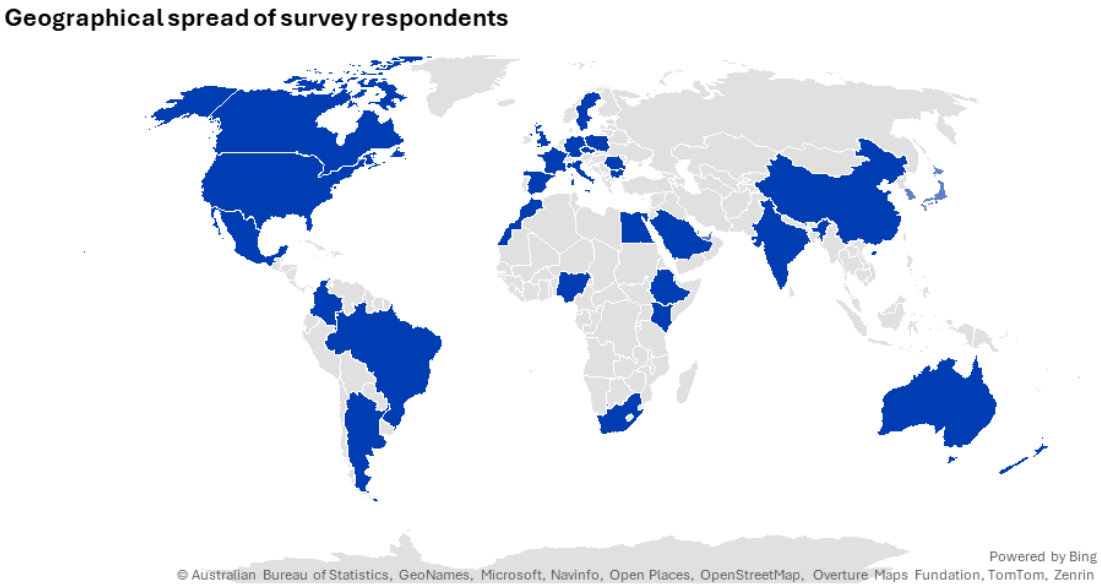
Figure 5: The 2025 quantitative survey covered 32 countries across all geographical regions



Source: 2025 Telco Connected Home Survey

Broadband VAS strategies

A more cautious tone to VAS investment

Overall, the attitude today toward VAS investment from both the quantitative and qualitative interviews is more one of caution than in the study carried out in 2023.

It is not because the need to shift away from marketing speed is not recognized, nor that VAS are not perceived to offer value. However, clear uncertainty remains around the telcos' ability to monetize, which is holding back some further investment. There is also an acceptance within some telco groups about their ability to develop VAS in-house.

Even considering that the quantitative sample has changed and the wording of the question has been updated, **Figure 6** shows a clear decrease in deployment in many broadband VAS areas. To a large extent, this was also backed up by the in-depth qualitative interviews.

However, the importance of VAS is still recognized, and certainly when it comes to improving the home Wi-Fi experience, investment is still ongoing. Additionally, this study also found some green shoots when it comes to VAS monetization, especially around cybersecurity, and this can hopefully start to help stimulate the market.

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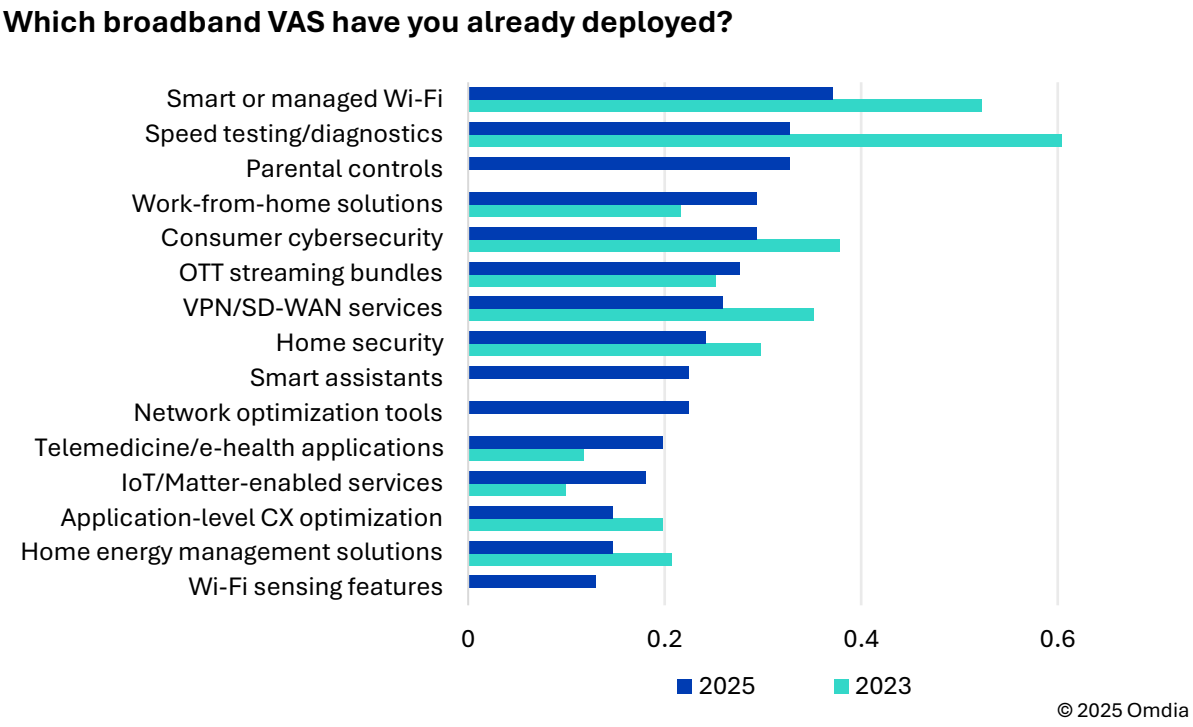
Figure 6: Operators seem to be taking a more cautious approach to broadband VAS



Source: 2023 Telco Connected Home Survey, 2025 Telco Connected Home Survey

Quality Wi-Fi is key

Enhancing home Wi-Fi quality was a key theme of the 2023 report and remains a critical topic today. As broadband operators continue to invest in high-speed broadband technologies such as fiber to the home (FTTH), consumers have come to expect a high-speed, high-quality, and highly reliable and consistent broadband connection to every corner of the home. This cannot be provided without investment in the home Wi-Fi network.

The move to advanced Wi-Fi technologies

Historically, home broadband routers were mainly seen as something that had to be provided but not as something that provided intrinsic value, so the overriding metric when choosing CPE suppliers was low cost. However, these devices were low in quality, which over time, especially as broadband access services developed, led to an increase in customer support calls and customer churn. Although broadband service providers must always maintain control on cost, investment in home Wi-Fi devices has increased because the increased expense is more than offset by the reduction in operational costs and improved brand and service differentiation.

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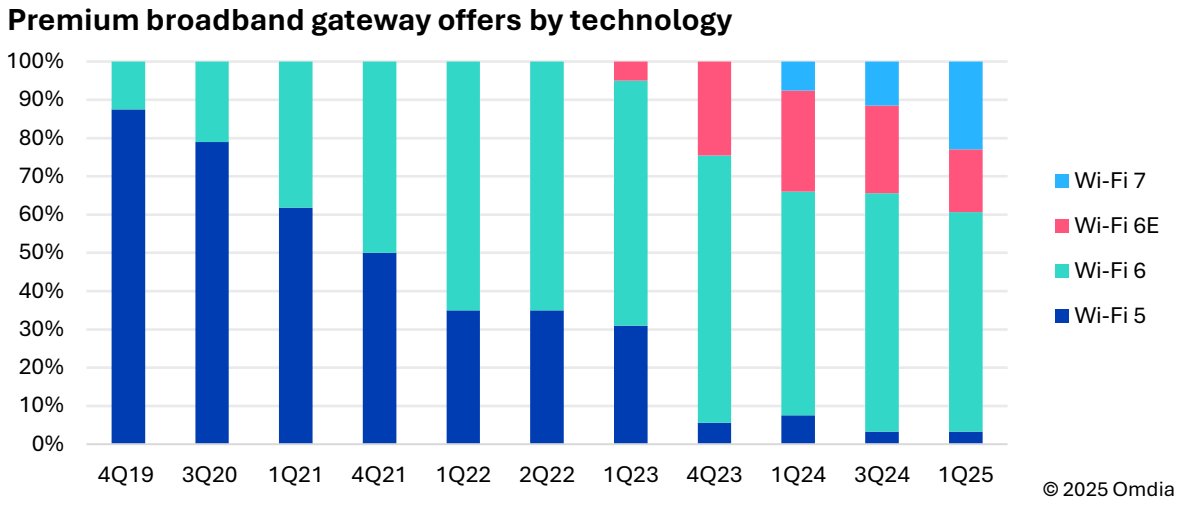
Omdia's Smart Wi-Fi Tracker tracks the top home gateways offered by more than 60 operators around the world. It shows that telcos are now quickly adopting the latest home Wi-Fi standards: 74% offer Wi-Fi 6 technology, and 23% offer Wi-Fi 7 (**Figure 7**). This trend is backed up by the 2025 Telco Connected Home Survey, in which 40% of respondents stated that their companies had launched Wi-Fi 6, and another 41% said that they would launch within the next six months. A further 15% stated that they had also launched Wi-Fi 7, and 53% said they would launch within the next 12 months.

Figure 7: Telcos speed up the adoption of the latest Wi-Fi technology



Source: Omdia

FTTR currently splits the pack

Wi-Fi technology generations are now developing broadly in line with the generational development of the broadband access network (**Figure 8**). However, with each Wi-Fi generation, the Wi-Fi capacity increases; therefore, the Wi-Fi backhaul in the customer premises networks also needs to increase. Additionally, the move to higher-frequency Wi-Fi reduces the capability of the radio waves to propagate through walls and other obstacles. A promising way to solve both of these issues is the move to fiber-based customer premises backhaul networks, known as FTTR. Such networks have been proven to optimize the customer premises network experience.

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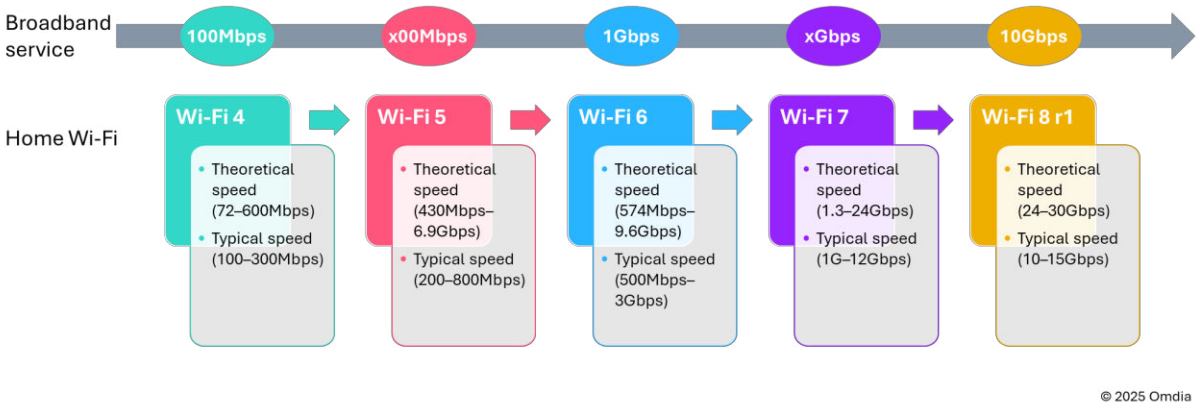
Figure 8: Wi-Fi generations are tracking service developments



Source: Omdia

Therefore, as operators move toward multigigabit broadband service and advance to technologies such as Wi-Fi 7 and 8, many are also considering or even already investing in FTTR. The investment is seen to guarantee a high-level broadband service in all rooms, in every type of home. Initially, such deployments will be focused on larger properties or VIP customers, where the benefits of FTTR would be most experienced.

In the 2025 Telco Connected Home Survey, 24% of respondents stated that they were already starting to offer FTTR, and 40% expected to launch the technology over the next 12 months. This result was broadly backed up by the qualitative interviews, though interviewees were a little more conservative: 40% of them had launched or are at least actively exploring the technology.

However, it was also clear from the in-depth interviews that a significant portion of the others were either yet to be convinced of the business model for rolling out the technology or had explored it and decided not to pursue it further. The issues stated mainly centered around the operational costs and difficulties of deployment.

Wi-Fi management

In addition to more advanced Wi-Fi hardware, Wi-Fi diagnostic and performance management software remains a key investment for service providers to help maintain a good level of Wi-Fi service in the home and to supply detailed customer diagnostic data to customer service, service strategy, and marketing teams. By using AI data analytics, such platforms can dynamically monitor and flex the home Wi-Fi network to optimize its performance, in many cases resolving customer issues before the customer is even aware of them.

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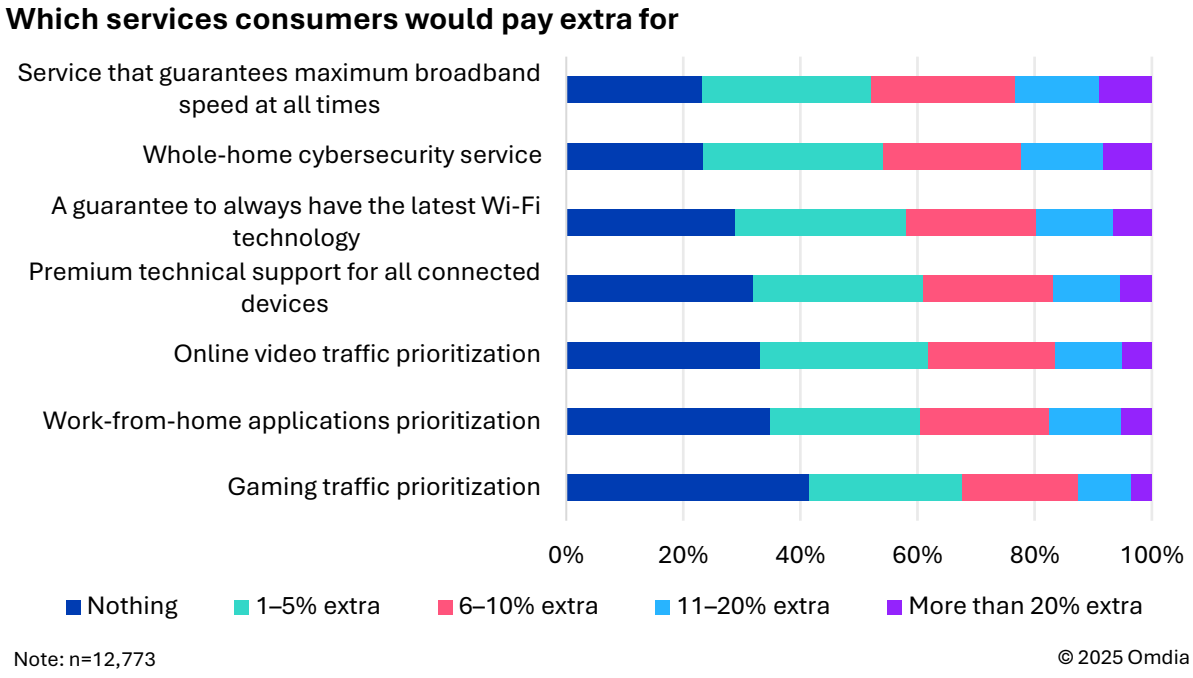
All service providers Omdia spoke to as part of the study utilize some level of Wi-Fi management to help them maintain a good Wi-Fi experience. There is a question about whether a need for such software will remain as hardware continues to develop, but we expect that even with the most advanced hardware, there will always be a need for management of some nature.

Internet security and safety

After features designed to improve the home Wi-Fi experience, cybersecurity and parental controls were highlighted as the next most important broadband VAS by most operators interviewed. This is also backed up by data from Omdia's annual Digital Consumer Insights survey, which asked what VAS consumers were most willing to pay for, as illustrated in Figure 9.

Figure 9: Advanced cybersecurity is one of the VAS consumers are most likely to pay for



Source: Omdia

However, although online safety is seen as being important and something that consumers seem to be willing to pay for, only a small percentage of telcos have so far been able to successfully monetize it. Those that have are seeing penetration rates of 10–50% and cite cybersecurity as one of the most successful VAS they offer after TV and video. Most, however, are failing to get this level of uptake, and others have given up altogether, either downgrading the services they offer or stopping them altogether. The main barriers to

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achieving greater success in services such as cybersecurity are briefly discussed in ***Barriers to greater VAS success***.

Smart home

Smart home is an area that telecommunication operators have invested in for many years, with varied success. Over the years, telco smart home services have come and gone, and service providers have invested, de-invested, and on occasion even invested yet again.

In the report *The Future of the Connected Home: The Rise of Home Applications*, it was predicted that telco interest in smart home was on the up once more, albeit perhaps in a more cautious manner than in previous years. At that time, the research suggested that interest in deploying new smart home solutions (mainly for home security, energy management, and IoT enablement through Matter) had increased.

Another area that at the time was lower in terms of priority but was labeled as a longer-term interest was e-health applications, especially those enabled using Wi-Fi sensing technology. At that time Wi-Fi sensing was still considered to be too immature for commercial launches in the near term.

The 2025 research has shown that these trends have continued, and the number of operators looking to invest in smart home remains positive, especially around the traditional smart home use cases such as home security but also e-health. Two technologies mentioned as helping to drive new smart home ambitions are AI (discussed in the section ***The role of AI in successful VAS strategies***) and Wi-Fi sensing.

Can Wi-Fi sensing provide the telco's unique selling point?

Wi-Fi sensing remains a technology of significant interest to telecommunication operators because, in simple terms, it enables them to offer or add value to smart home use cases without the need to deploy additional hardware. This has obvious cost benefits for the operator but also potential benefits for the end users; for example, it can reduce the use of technology such as indoor cameras, which can be seen as intrusive.

Although the broad consensus within the group interviewed for this study is that the technology is still not fully mature, there was confidence that it is getting closer to being so. A number of telcos interviewed were expecting some type of launch in the near future, even if to start with this would be in conjunction with other types of sensors and IoT devices.

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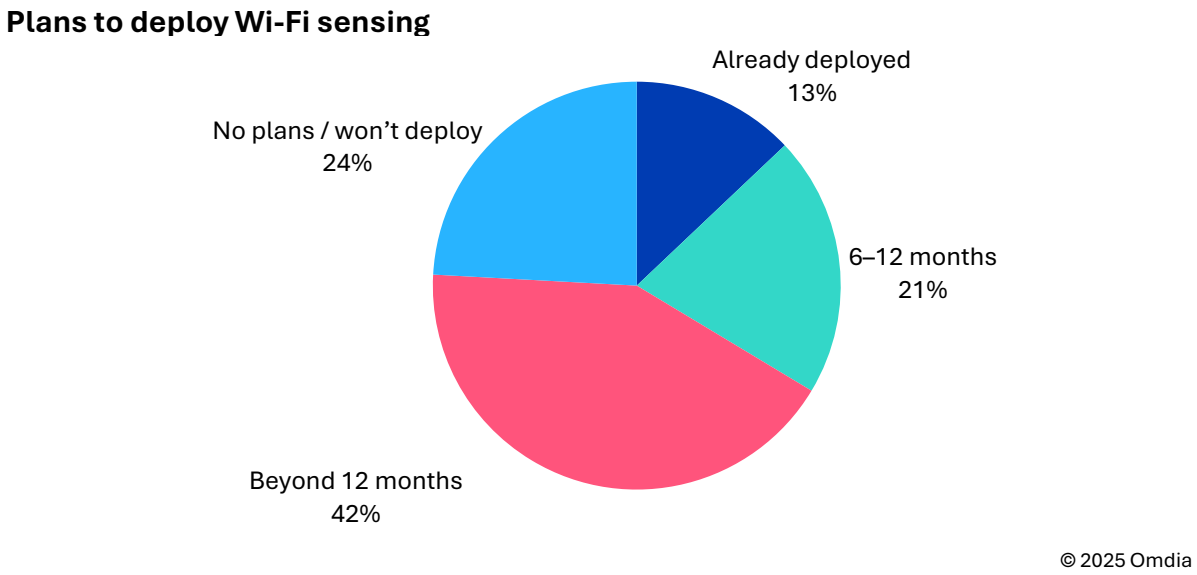
Figure 10: Wi-Fi sensing has gained strong interest from broadband service providers



Source: 2025 Telco Connected Home Survey

Application prioritization

Another area that received significant interest during the 2023 research was application quality of experience (QoE) and prioritization. More than 70% of respondents to the 2023 Connected Home Survey said they planned to use such technology to differentiate their services on a per-application basis at some point in the future. The executives interviewed at the time agreed. The question was: What to prioritize and how?

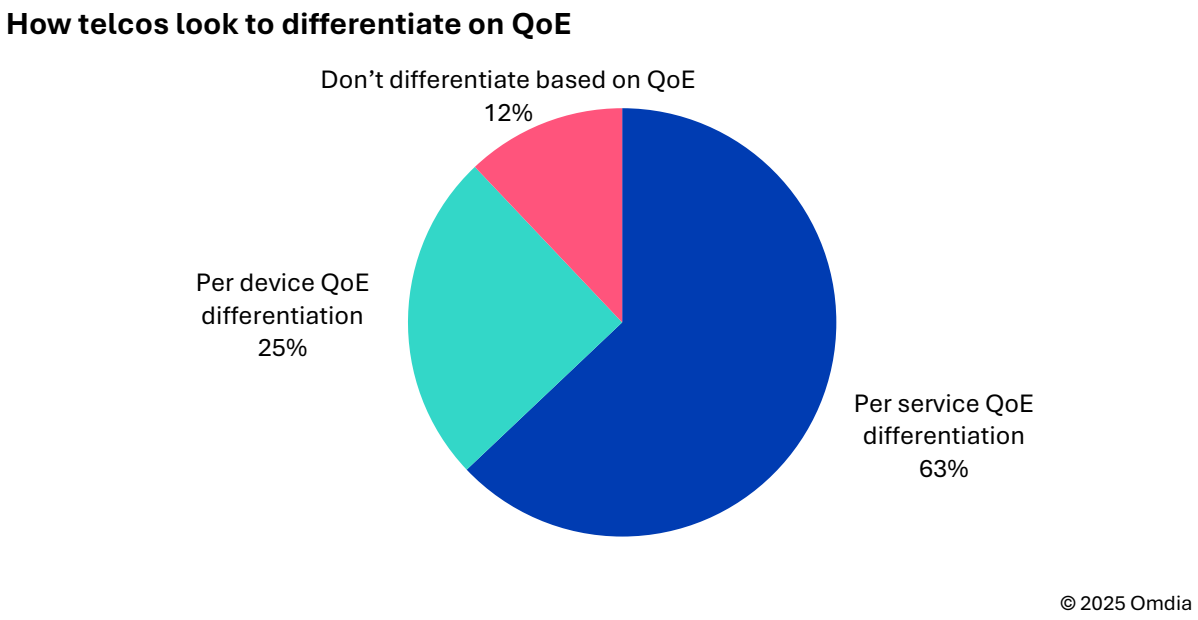
Two years on, and prioritization/latency management is still a hot topic. Most operators Omdia spoke to remained interested in the technology and either had a solution in the network or were looking to deploy soon. There were significant differences, however, when it came to monetization.

Regardless of speed of access, latency is always present in the network, which can have a detrimental impact on certain applications (e.g., online gaming and videoconferencing). In theory, this allows service providers to offer a different type of service—one more tailored to the customer's needs—that is separate from broadband speed. There are a number of examples around the world (EE in the UK is one) that offer some type of prioritization feature as part of their broadband service. A small number of those Omdia interviewed for this report continue to be interested in launching this type of service, focused on either gaming or working from home.

However, the general perception is that although prioritization does add value, the marketing optics around it make it difficult to sell to consumers. To some extent, this is because customers generally understand latency less than they understand speed, and to a larger extent because much of the telcos' marketing around broadband is based on a claim of providing the best network/service. Asking the everyday consumer to pay more for a better service is therefore difficult. Of course, some consumers (e.g., high-end gamers) do experience latency and would possibly be willing to pay extra to reduce it, but in many countries this market is too niche to appeal to service providers focused on the mass consumer market.

This does not mean that telcos have no interest in prioritization and latency management techniques. As stated, most have deployed them or are in the process of doing so. The main drive, though, is to continue to ensure an optimized experience of broadband or of the applications they are delivering over the top of it such as multiroom video applications. **Figure 11** shows that most focus is on QoE at a service level.

Figure 11: Telcos are focusing investment on ensuring optimized experience of key applications



Source: 2025 Telco Connected Home Survey

With this in mind, L4S (Low Latency, Low Loss, and Scalable Throughput) technology is seen as an important development. L4S is an innovative network protocol and congestion control technology standardized by the Internet Engineering Task Force (IETF) in January 2023. This technology addresses the critical challenge of *buffer-bloat*—excessive buffering

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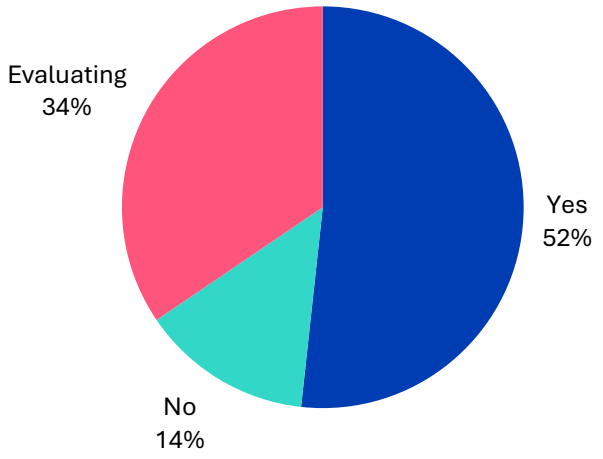
that causes latency spikes—by implementing intelligent queue management that detects network congestion early.

L4S can be implemented in various scenarios from large enterprise networks to home setups, making it particularly valuable for latency-sensitive applications such as online gaming, videoconferencing, cloud gaming, and virtual reality services where consistent, stable connections are crucial for optimal user experience. In the 2025 Telco Connected Home Survey, 52% of respondents believed it was a technology that they would deploy, and a further 34% were evaluating it.

Figure 12: Most respondents believe telcos will deploy L4S

Is L4S a technology that service providers will roll out?



Source: 2025 Telco Connected Home Survey

There is no consensus yet on the home app store

The 2023 report discussed the concept of creating a home app store as a way of delivering a wider range of VAS into the home. At that time, approximately 30% of respondents to the 2023 Connected Home Survey stated that the home app store concept was how they planned to enable and manage new VAS in the home. Within the qualitative interviews, only a select number of interviewees (mainly the larger operators looking to adopt more open standards) were in favor of an app store. Others favored a more varied approach depending on the VAS or feature in question.

In 2025 the result remains pretty much the same with only the larger operators contemplating the app store model. As illustrated in **Figure 13**, the results of the

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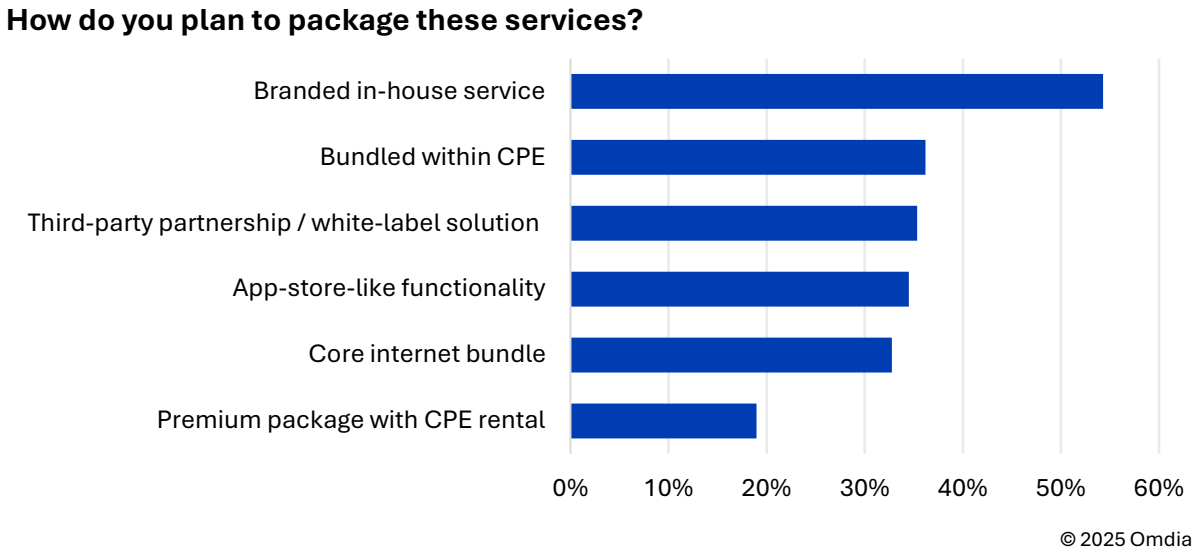
quantitative survey were also similar to those of the 2023 survey. This time, just over 30% of respondents said that they plan to adopt the app store concept.

Figure 13: The home app store concept has yet to still gain further traction



Source: 2025 Telco Connected Home Survey

However, the use of containers to deliver new applications and software features into the home is growing. Regardless of whether operators planned to offer an actual app store or not, a number of operators interviewed by Omdia are now using software containers to deliver new apps via the CPE. The 2025 Telco Connected Home Survey also showed a strong demand for such technology: it was the second or third most preferred way of deploying new services, especially for applications such as QoE monitoring, VPN/SD WAN, application prioritization solutions, and smart home IoT (**Figure 14**).

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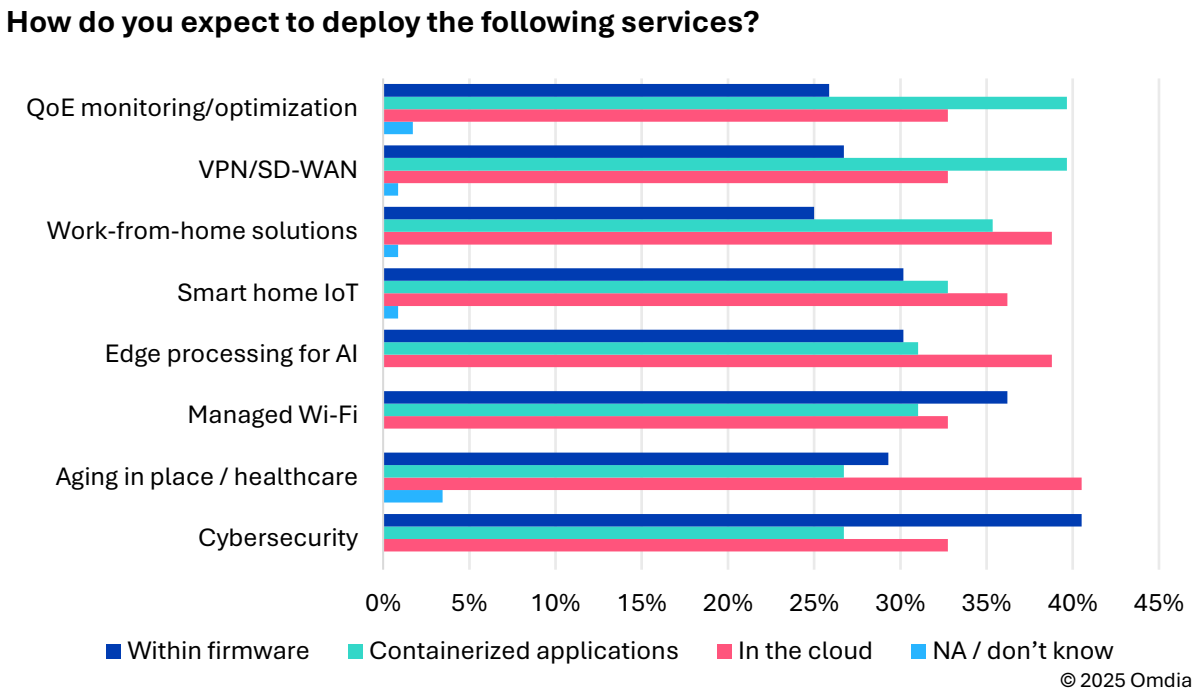
Figure 14: The use of software container technology to deliver new applications is increasing



Source: 2025 Telco Connected Home Survey

Barriers to greater VAS success

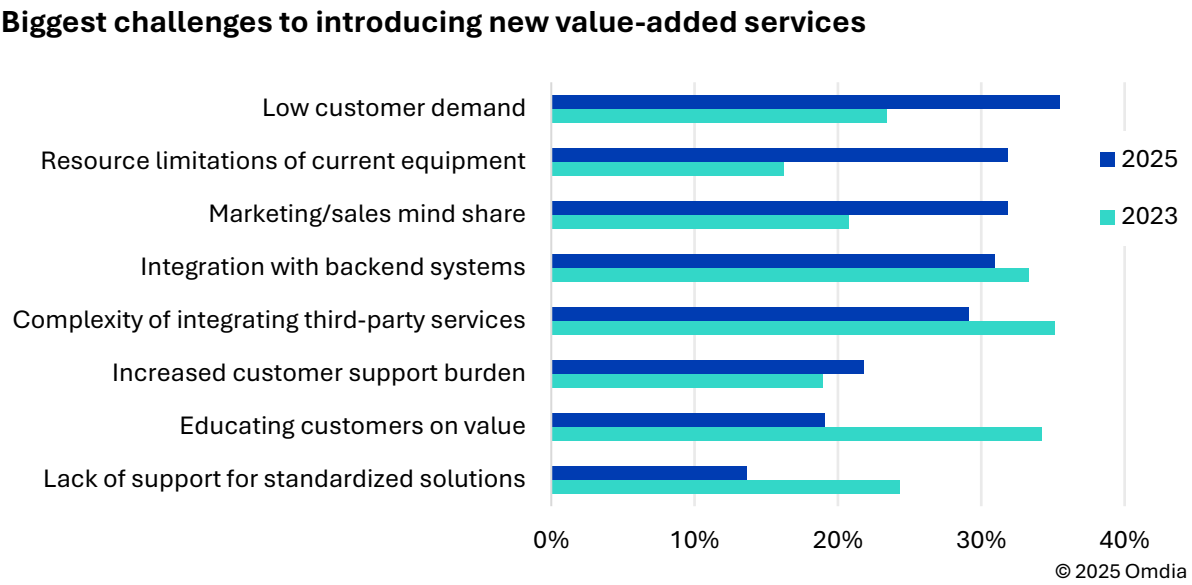
Telcos know that differentiating on speed only is unlikely to grow consumer ARPU, especially in the medium term, and thus need to find ways to generate new broadband revenue growth. This report has highlighted that VAS are one way to do that, and certainly some operators are already seeing success. The question, therefore, is why do many other telcos seem more cautious when it comes to VAS than two years ago?

Low perceived demand remains the key barrier

In 2023, the biggest barriers to greater VAS deployments were largely technical: the difficulties involved in integrating and working with several third-party vendors, integrating backend systems, and dealing with proprietary solutions. The top commercial barrier was only focused on how to educate the customer.

As shown in **Figure 15**, although those technical barriers remain, perceived low customer demand is now the most dominant factor. The in-depth interviews suggest this can also include cybersecurity services, even though all other survey data suggests it is the VAS that consumers value the most.

Figure 15: Increasing customer demand is a major barrier to VAS investment



Source: 2023 Telco Connected Home Survey, 2025 Telco Connected Home Survey

It is true that some VAS only appeal to certain, sometimes quite niche, consumer segments. Consumers use a variety of internet applications and therefore can, depending on the makeup of the household, have very different needs and demands on the broadband network. However, others—cybersecurity is once more a good example—have broad appeal. Therefore, in theory at least, providing a range of VAS should mean there are services and features available that appeal to all customers in one way or another, so a good rate of penetration should be possible.

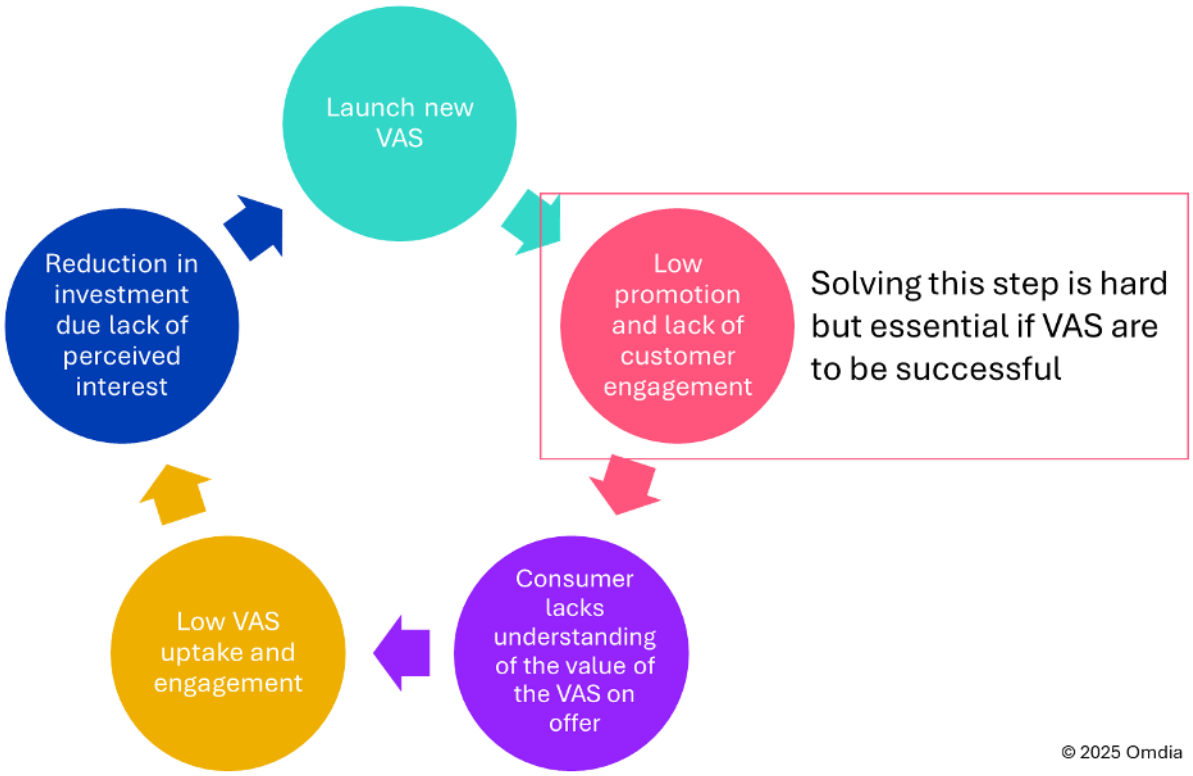
In practice, the truth is that selling VAS is not easy. Consumers need to be made aware of the value of each VAS, which in some cases can be technically difficult and time consuming. Educating consumers on the value of VAS was highlighted as a key barrier in 2023, and although it did not score as highly in this survey, this is as valid today as it was in 2023.

For each VAS, telcos must engage and communicate with their customers, not just at first launch of the service but continually, so they fully know and understand the value of the VAS on offer. All the telcos that Omdia has spoken to that have had success with VAS list good communication and customer engagement as one of the key factors that created that success. But of course, this takes expertise, time, and cost.

If telcos do not engage with and communicate properly to consumers, many may fail to understand the value of the full VAS features and may not even be aware that the service

exists. This lack of knowledge and understanding leads to a low engagement, which in turn leads the telcos to perceive that their consumers have little interest and consequently reduce investment. Lack of investment means even lower value and less communication, so over time the cycle continues until the telco stops offering VAS altogether.

Figure 16: Promotion and customer engagement are key to VAS success



Source: Omdia

Customer service costs increase pressure on the VAS business model

Cost is a metric in any business case. However, in addition to the direct cost associated with providing the value-added service, telcos typically have other costs to consider, because historically, their customers have also come to expect a certain level of customer support. This is less true though of "over-the-top" (OTT) competition, where customers have come to expect a lower level of service, if any at all.

However, to remain competitive against such competition, telcos often have to match the OTT's pricing. Profit margins can therefore be thin, especially if the telco is not managing to drive scale as discussed in the previous section. This added pressure can further lead to telcos abandoning the VAS space.

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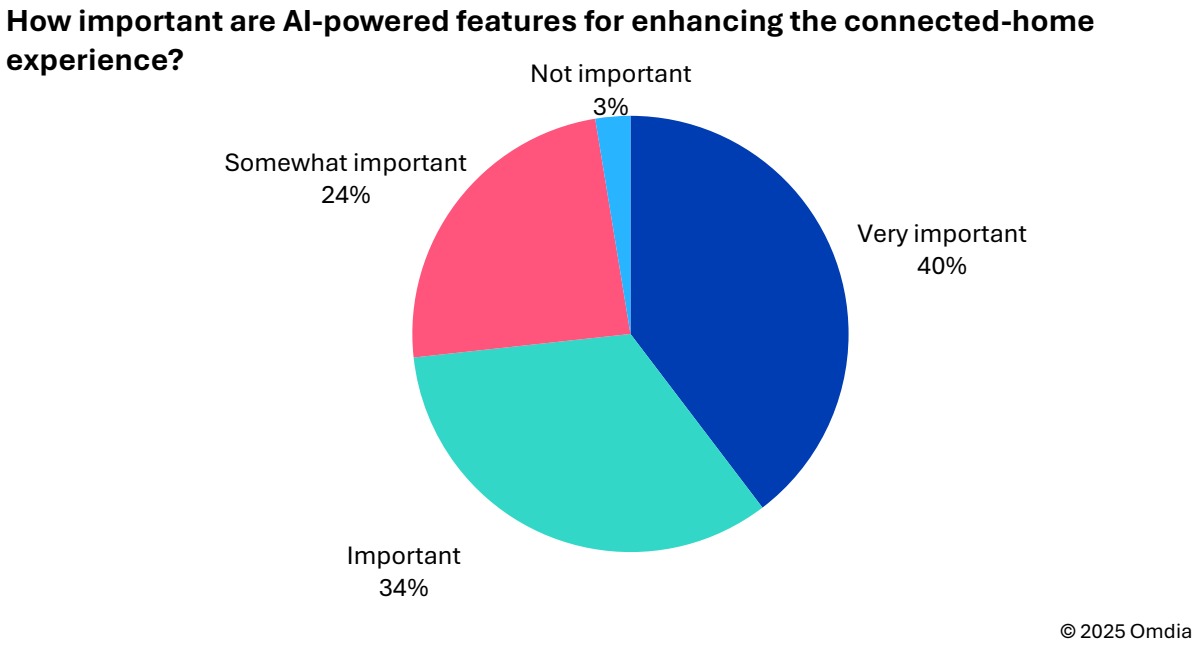
Customer service is a key way that telcos can differentiate from OTT players and retail device vendors. Although it does add to costs, service providers must work with their vendor partners, and adopt new technology such as AI, to provide such support in the most effective and cost-efficient way possible.

The role of AI in successful VAS strategies

The telecommunications industry is poised for significant transformation through implementation of AI across many domains. All executives interviewed concurred that current and emerging AI applications demonstrate substantial potential for both operational efficiency in the delivery of home broadband and enhanced customer experiences. In the 2025 Telco Connected Home Survey, just under 75% respondents also ranked the technology as important or very important.

Figure 17: AI is seen as an important technology for enhancing the connected home experience



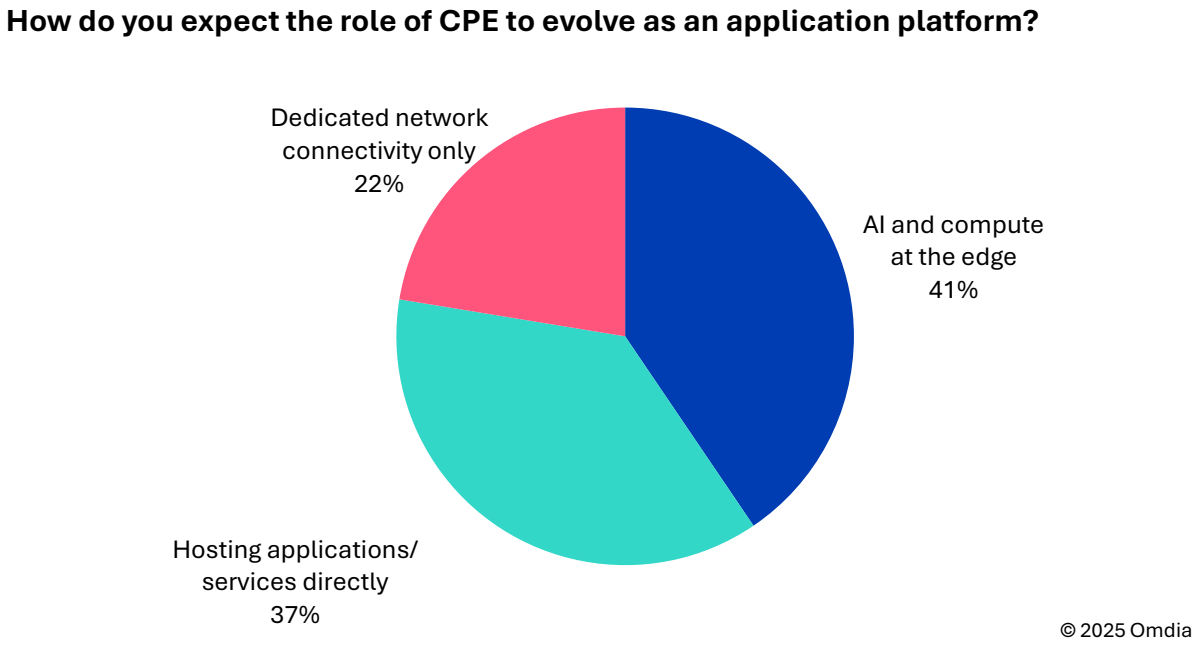
Source: 2025 Telco Connected Home Survey

When it comes to deployment, 33% of respondents to the survey said that they had already deployed AI within their broadband service, a further 28% were due to launch within 6 months, and 56% within 12 months.

Positioning AI technology within the CPE was also noted as an increasing trend because it enables a more efficient way of utilizing AI in applications such as QoE management and

smart home IoT. It is also more secure from a customer data point of view. When they were asked about how they expect the role of CPE to evolve, 41% of respondents in the 2025 Telco Connected Home Survey stated that they expect to deploy AI and compute power at the edge (**Figure 18**).

Figure 18: Most expect to see CPE to evolve with in-built AI technology



Source: 2025 Telco Connected Home Survey

Network optimization and management seen as most important use cases in the short term

Both qualitative and quantitative surveys suggest that adaptive Wi-Fi represents the most promising immediate use of AI (**Figure 19**). The technology can enable more efficient and more granular use of features such as traffic-based prioritization and network optimization that work invisibly to enhance the customer experience.

There are also predictive maintenance capabilities that allow for proactive issue resolution; for example, advanced vendor partner solutions demonstrate the ability to predict microbursts using limited datasets. These implementations can simultaneously improve service quality and reduce operational costs.

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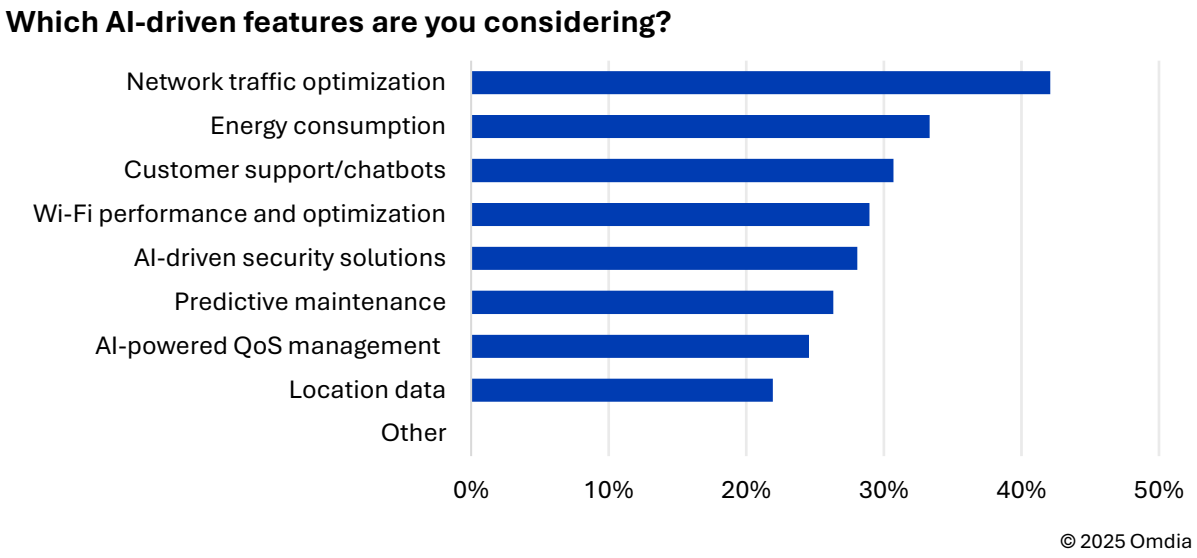
Figure 19: Network traffic optimization and Wi-Fi management are key AI use cases



Source: 2025 Telco Connected Home Survey

Commercial and customer support applications

AI presents opportunities to automate currently manual data analysis for targeted commercial campaigns, particularly for capacity planning and line upgrades. Customer support is another area seeing AI integration, where automated call management systems can improve response efficiency. Such uses mean that customer data and network performance data are key datasets for AI-driven decision making (**Figure 20**). Chipset vendors are increasingly incorporating AI capabilities in their roadmaps with particular interest in traffic pattern recognition for quality assurance of specific service flows. Security threat data is, of course, another key data pool for cybersecurity purposes.

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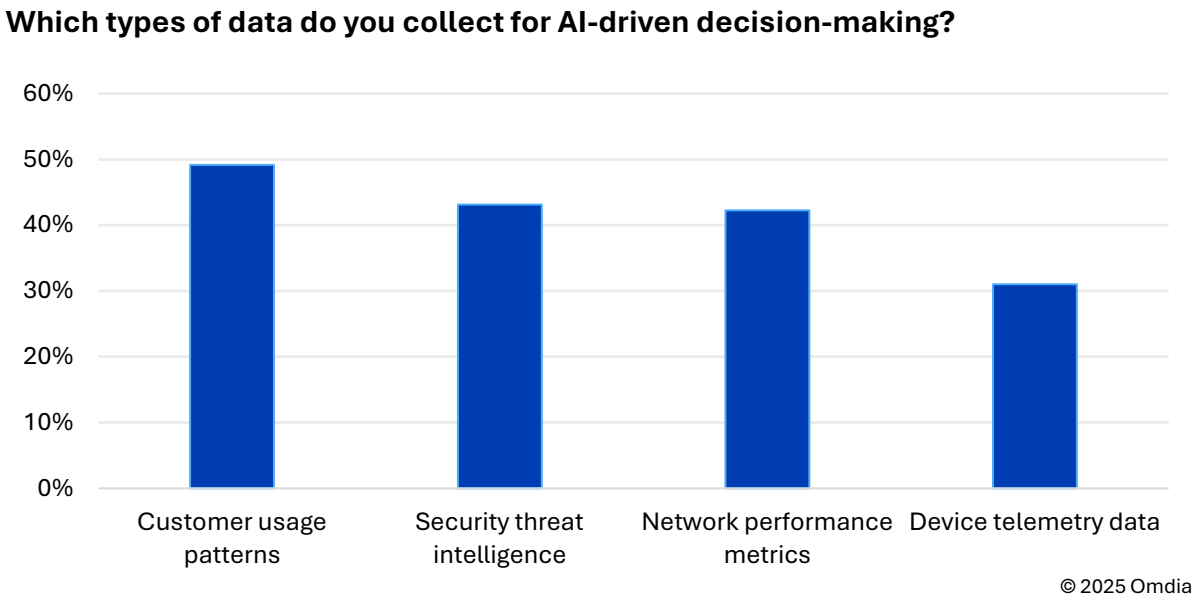
Figure 20: Analyzing customer usage data leads to more effective marketing decisions



Source: 2025 Telco Connected Home Survey

Energy management remains of key interest

As illustrated in **Figure 19**, managing energy consumption is also seen as a key use of AI technology. In the 2023 report, energy management was highlighted as an interesting VAS opportunity in two ways: maximizing the efficiency of the broadband gateways (and other related Wi-Fi CPE) and managing other connected devices as part of a wider smart energy solution.

In 2025, both use cases are still of interest. Nearly 85% of survey respondents (**Figure 21**) now see power efficiency of broadband as important (45% see it as critical), and a growing number of service providers have an interest in energy services in one way or another. AI technology is seen as important to both strategies.

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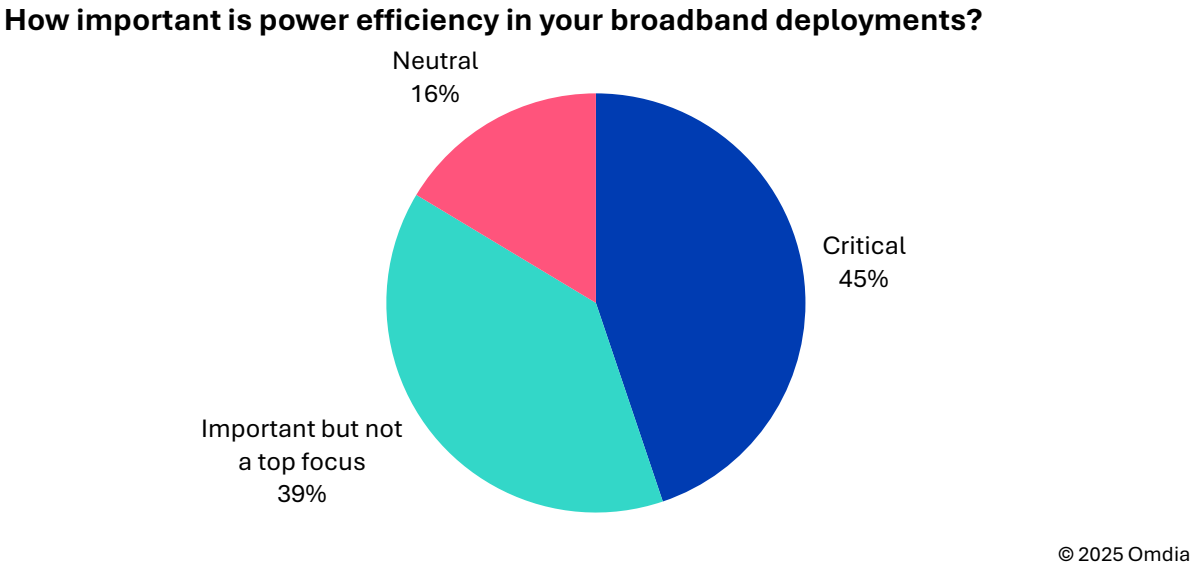
Figure 21: Energy efficiency is a critical metric



Source: 2025 Telco Connected Home Survey

Developing more advanced services

As discussed, new smart home opportunities are still of interest to at least some telcos, and there is potential for AI to make smart home use cases more intelligent and therefore valuable to the end user. For example, AI could be used to analyze sensor data to provide an additional layer of information in use cases such as home security and assisted living. A number of operators Omdia interviewed stated that they are actively exploring how the technology could be used in this way.

The use of open gateways

Only the very top-tier telcos are fully embracing "best of breed"

The 2023 report discussed two broad strategies for the adoption of broadband VAS, which we called *best of breed* and *best of suite*.

Best of suite is where telcos work with a single platform vendor that has created an application ecosystem for the service provider and made sure that all the integration work with the hardware is done. In some cases, the vendor also provides Wi-Fi hardware; in others, the service provider selects a hardware vendor and then goes with a separate software platform vendor. This strategy means the solution works off the shelf and can be quick to deploy—ideal for service providers that do not have the internal resources or do

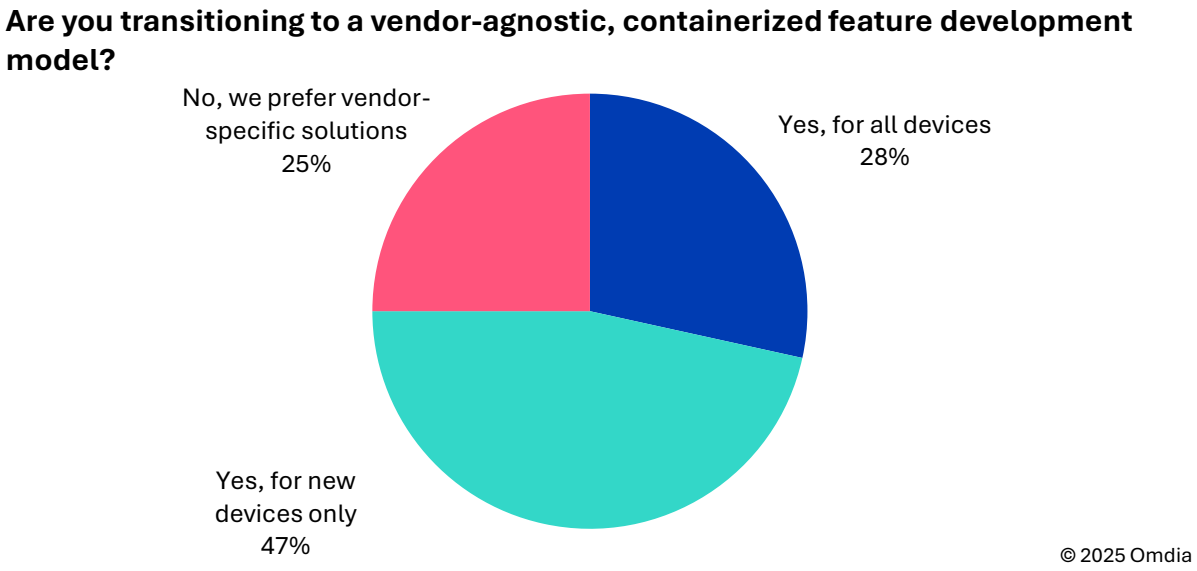
not wish to utilize their own resources to develop such an ecosystem internally. The downside, of course, is that the service provider is locked into that particular platform vendor and is thus limited to the VAS that that vendor has in its ecosystem.

Best of breed is where the service provider fully develops its own bespoke in-home platform, choosing best-of-breed technology and software developer partners as it goes. Such service providers believe that this strategy will enable them to take full control over the ecosystem that they create and hence give them the best chance of differentiation in the market. To achieve this goal, they require a fully open, standards-based model so that both applications and hardware and chipsets can be quickly and efficiently swapped out at any time without the need for further integration work.

This second model provides the operator with the maximum level of flexibility but requires a significant amount of in-house software and technical expertise. This strategy is therefore currently only open to the largest operators, which have the capacity for this level of investment. In the research for this paper, there were examples of medium-sized operators that had started on this path but have since pulled back to the best-of-suite model.

This does not mean that open standards can only be utilized by operators adopting the best-of-breed model. Operators working with the best-of-suite model also agreed that open standards can help their vendor of choice bring a more varied VAS portfolio to the table. It can also ease the platform vendor's integration with its hardware vendor (if the two are not one and the same).

Figure 22: 75% of operators are looking to move to a vendor-agnostic model



Source: 2025 Telco Connected Home Survey

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Figure 22 shows that a significant portion of service providers are looking to shift to a less proprietary model, even though a small portion of these will eventually adopt a true best-of-breed deployment model.

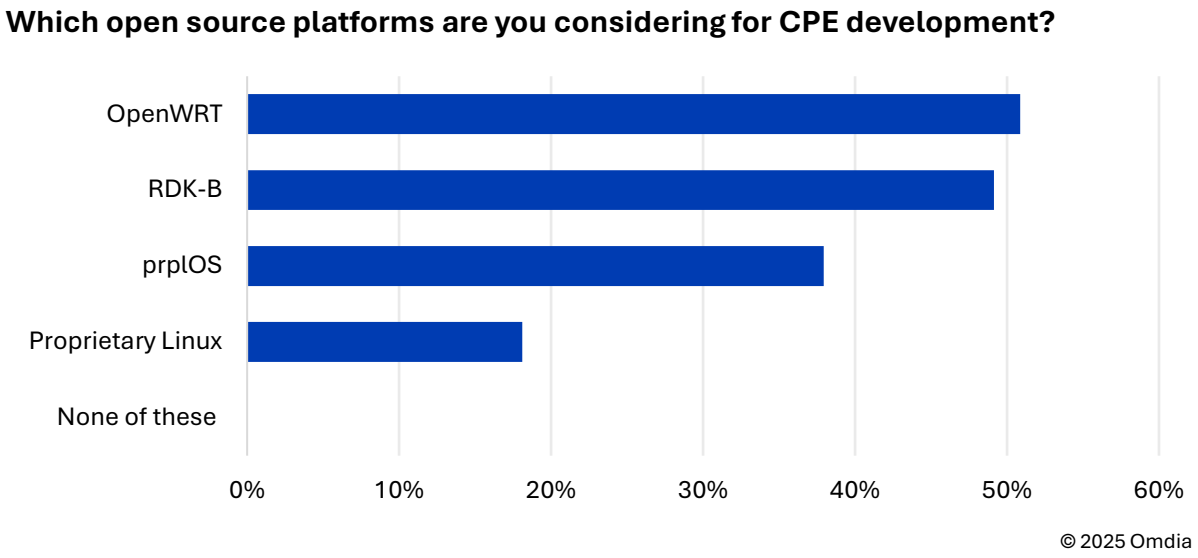
The importance of standards

Standards help drive greater innovation

All operators interviewed, even those with more of a best-of-suite deployment model, agreed that reduced fragmentation and proprietary technology at the chipset level, CPE level, and software platform level help drive greater innovation.

When it comes to open source software, the executives in the qualitative interviews mainly listed RDK-B and prpl as two of the strongest contenders. In the quantitative survey, OpenWRT was also considered as an important option (**Figure 23**).

Figure 23: OpenWRT, RDK-B, and prpl are all considered options for application-enabled CPE



Source: Broadband Forum's Connected Home Survey 2023, n = 111

User Services Platform and the evolution of the connected home

Although initially designed to enable self-install and remote management of broadband Wi-Fi CPE, over the years, TR-069 has spread to other connected devices such as TV set-top boxes, network-attached storage devices, and even more recently into consumer IoT. However, consumer IoT really stretches the protocol's capabilities, and therefore the

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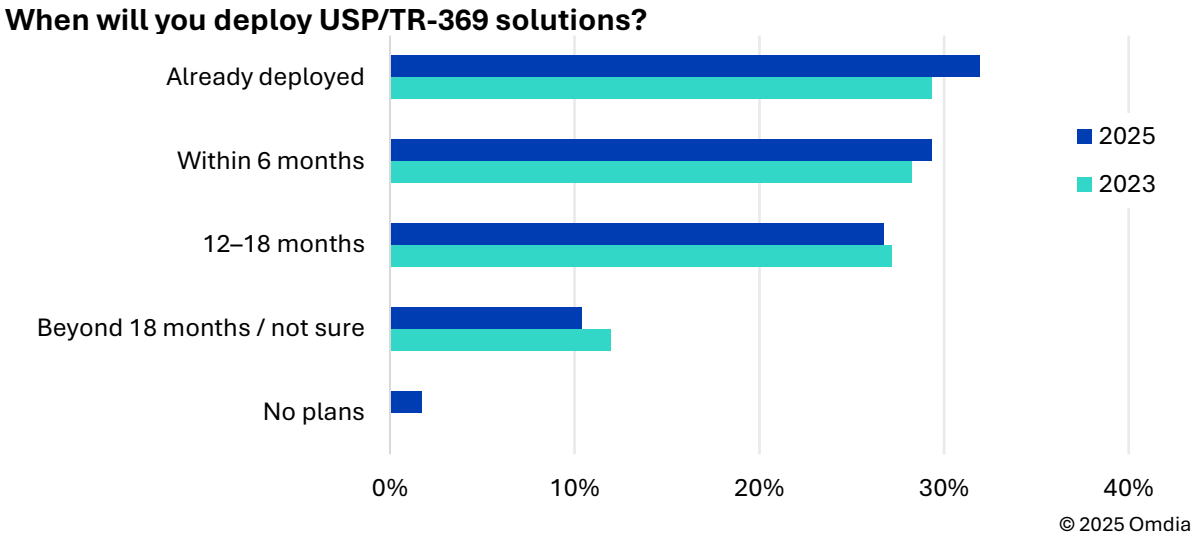
Broadband Forum has developed User Services Platform, which is designed to manage the entire connected/smart home.

USP was developed to help deploy, implement, and manage all aspects of the home network, including consumer IoT. It creates a data model, architecture, and communications protocol to enable devices from a large number of vendors to connect to the Wi-Fi home gateway and be managed by the broadband service provider, opening up new business model opportunities as a consequence.

USP, therefore, is seen as a key development for both further Wi-Fi optimization and the delivery of new broadband VAS and smart home managed services, two fundamental strategic areas for broadband service providers. However, not all service providers are fully committed yet to implementing USP. In the interviews carried out by Omdia, certainly many executives listed USP as a must-have, but a smaller minority stated that they had no current plans for deployment.

In the quantitative survey, results were similar: 32% of respondents said that they have already started to invest in USP, but a further 29% said that they plan to do so within 6 months and another 27% in the next 12–18 months (**Figure 24**). These results were similar to those of the 2023 study with a slight increase in the number of those already deployed.

Figure 24: Approximately 60% of service providers are either deploying USP or will do so shortly

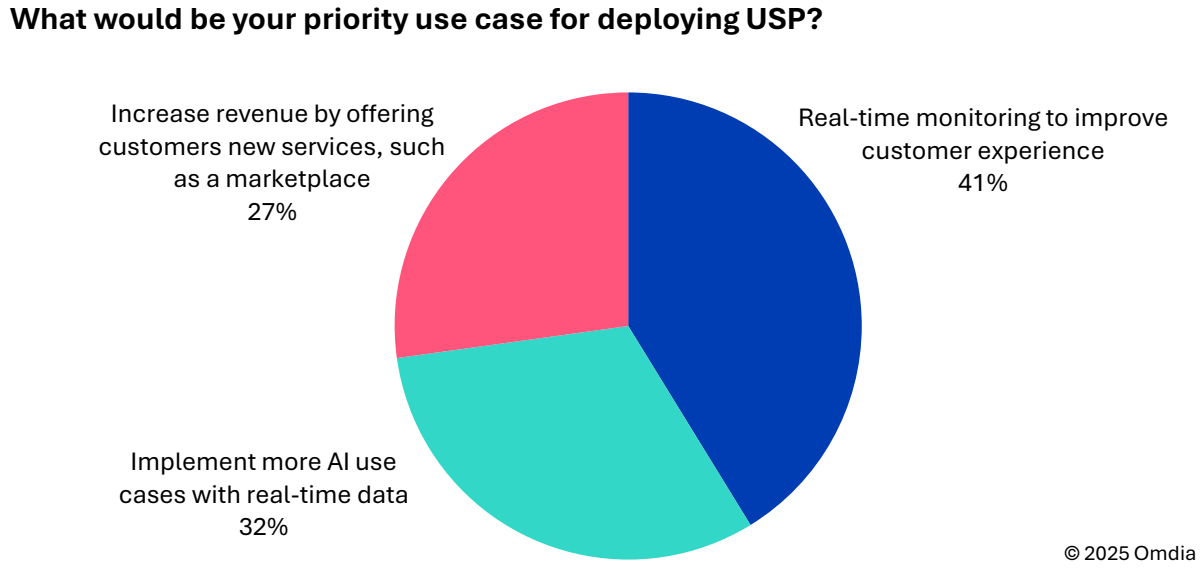


Source: 2023 Telco Connected Home Survey, 2025 Telco Connected Home Survey

In terms of how USP will be used, real-time collection of data from the CPE to help improve the customer experience was certainly a use case mentioned by several of the executives interviewed and came out top in the quantitative survey (**Figure 25**). Other operators were

also building USP into their service platform because they believed it would improve the installation, execution, and management of new applications. This also came out strongly in the quantitative survey, with implementation of more AI use cases also highlighted.

Figure 25: Real-time data collection is a key use case for the USP standard



Source: 2025 Telco Connected Home Survey

Appendix

Methodology

This report is based on a quantitative service provider survey of 116 representatives across 32 individual countries; in-depth qualitative interviews with key executives from service providers in Latin America, Middle East, North America, Europe, and China; and existing Omdia research and data in the broadband, connected, and smart home domains.

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