SURVEY REPORT

Intelligent and dynamic: evolving service assurance for 5G standalone

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Executive summary

5G represents a step change in the kinds of services mobile network operators can offer, especially in the enterprise sector. But guaranteeing the quality of these new 5G services requires an evolution in how operators use service assurance to deliver immediate insight and granular performance data. In order to explore the changing face of 5G service assurance, Mobile World Live conducted an online survey, sponsored by EXFO, to explore mobile operators' 5G plans, how they will monetise it and how they are seeking to orchestrate and assure these networks.

The survey confirmed that service assurance is no longer an afterthought in the 5G era and will be especially key in developing new revenue from enterprise propositions. In 5G standalone networks, service assurance goes beyond troubleshooting and reporting by providing real-time feedback to orchestrators to enable closed-loop network automation. However, many operators are some way from implementing integrated service assurance and orchestration that they will need to capitalise on 5G standalone networks.

Key findings

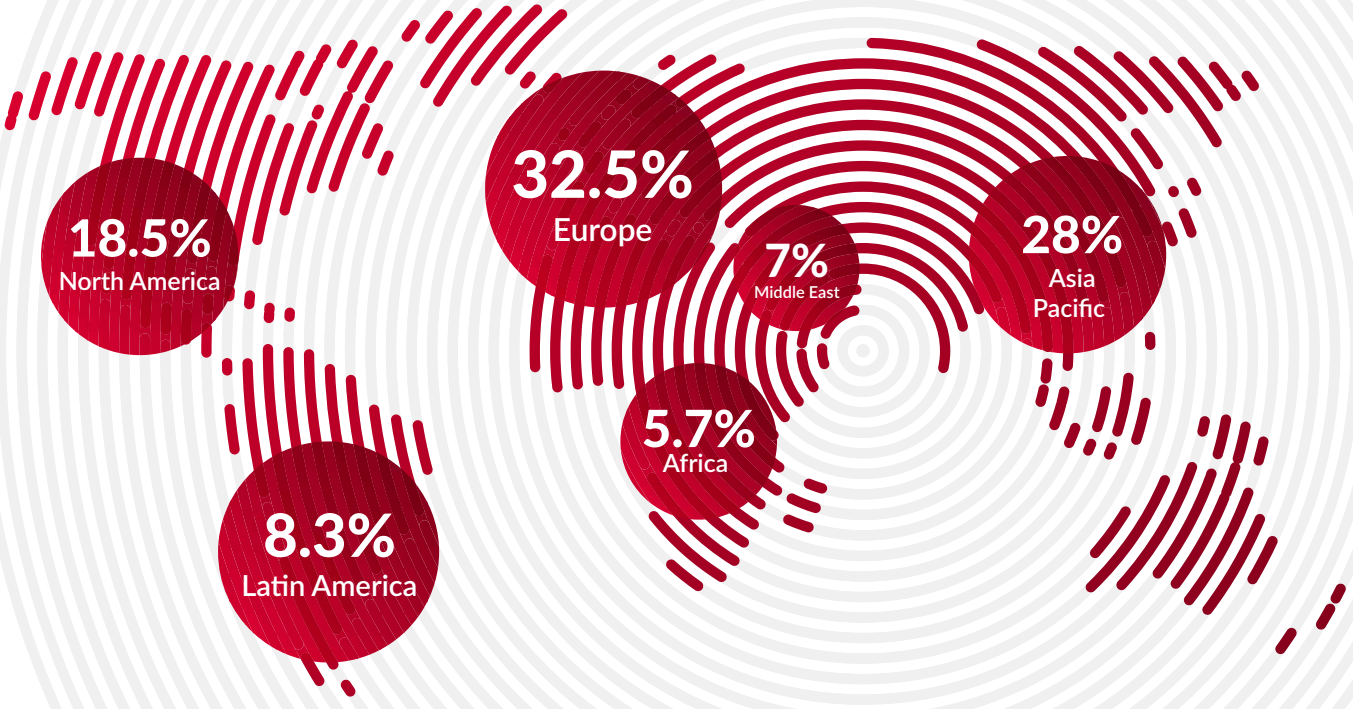
- More than seven out of 10 operators expect to deploy a 5G standalone network within the next two years: 33.8% will launch within the next year and 36.6% of operator respondents expect to go live between 12 to 24 months. Enterprise use cases will dominate. Operators are looking to network slicing as core to their 5G strategies.
- Enterprise services performance SLAs are critical to 5G core monetisation strategies: almost three out of four operators (73.5%) deem performance SLAs 'vital' or 'very important'. Forty percent of operators say that more than half of new 5G revenue will rely on real-time automated service assurance.
- Only 2% of operators feel their existing service assurance capabilities are sufficient for 5G: The overwhelming majority of operators say that real-time reporting and service visualisation, prioritisation of issues based on customer impact and monitoring of end-to-end network slices are necessary for selling advanced 5G services.

Survey methodology

This report is based on a survey of 168 operators conducted by Mobile World Live on behalf of EXFO.

Telecoms operators with group revenues of more than $10 billion comprised the largest group of respondents (51.2%). This was followed by operators with group revenues of under $10 billion 48.8%.

Operators working in network engineering and planning comprised the biggest group of respondents (40.3%), followed by network operations, marketing (both 15.6%) and customer care (3.9%). The remainder was 'Other'.



Introduction

5G will revolutionise mobile connectivity for enterprises in the same way 4G did for consumers. The speed of 5G standalone networks combined with network slicing, ultra-reliable low latency and massive machine type communications capabilities will be a paradigm shift for businesses, transforming the automotive, logistics and healthcare industries, among many others. In 5G standalone, customers are a mix of humans and machines with diverse needs and expectations. In fact, by 2025 there will be five times more connected machines than human mobile subscribers (GSMA).

The high stakes nature of this competition for the demanding enterprise segment is why service level agreements will become the norm in the coming decades. Industry wants guaranteed quality of service, as every moment connected to a substandard network (or worse) costs money. Enterprises will increasingly use 5G for critical business purposes with a focus on mobility use cases and applications. As 5G's sophistication increases, so will customer expectations and their willingness to move to a rival if their current network isn't up to scratch. Research from the GSMA said 88% of churn is caused by lacklustre quality of experience. Operators literally can't afford mediocre networks.

But the more candid operators would admit that they do not have the necessary insight into their networks as they would wish. This is why service assurance is increasingly vital in the 5G era, with its promise to deliver full visibility of networks, adaptively detect and troubleshoot issues and help operators move dynamically to meet customer demand.

This report explores operators' 5G standalone network plans, the role of service level agreements, the monitoring of network performance and service quality and the new requirements of service assurance.

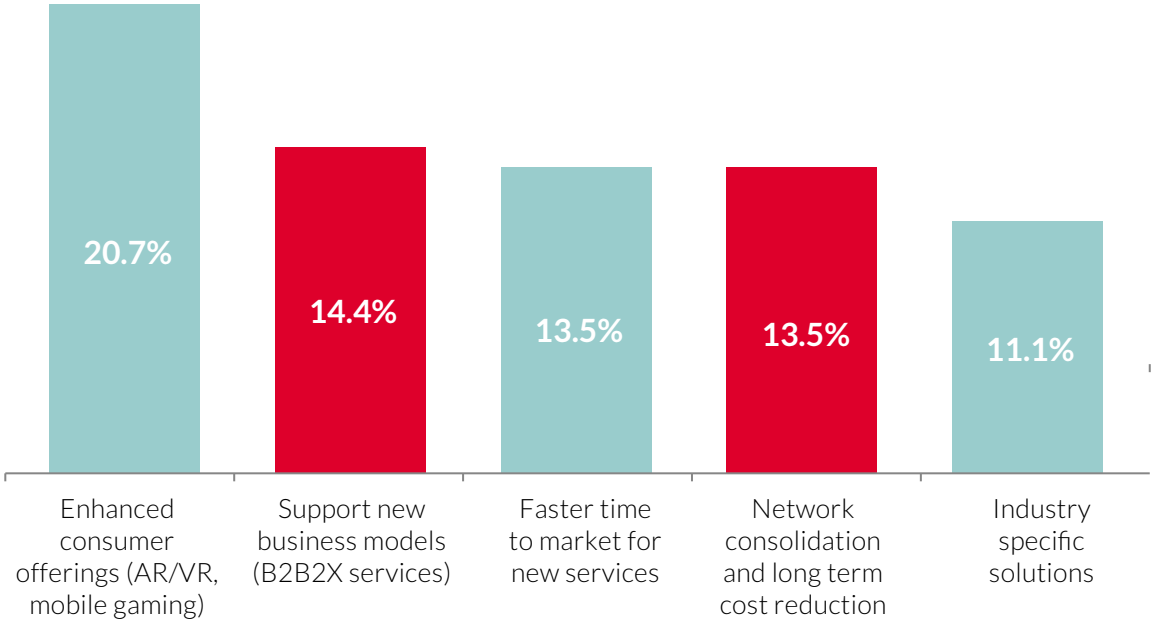
Part One: 5G Standalone Strategies

5G launched with a 4G core and a new 5G radio; a decision that expedited the roll out of the technology, albeit in non-standalone form. Research house S&P Global said 158 operators offer 5G in 67 markets as of March 2021, just two years after it launched.

However, this early launch has come at a cost of not offering the full capabilities of 5G through standalone networks. That is starting to change. According to the survey, 70.4% of operators will launch standalone 5G within the next two years. Fifty-two percent of this cohort will launch between 12 and 24 months from now. People are familiar with 5G and have knowledge of its capabilities (albeit slightly watered down); now it's time to capitalise on its full power.

The primary business drivers for deploying a 5G standalone core network are myriad and reflects its versatility. The largest share of operators said offering enhanced consumer solutions was its motivator in launching. This is perhaps unsurprising given how heavily operators have been focusing on upgrading consumers onto more lucrative contracts. However, as we will see, the promise of 5G standalone very much lies in enterprise use cases.

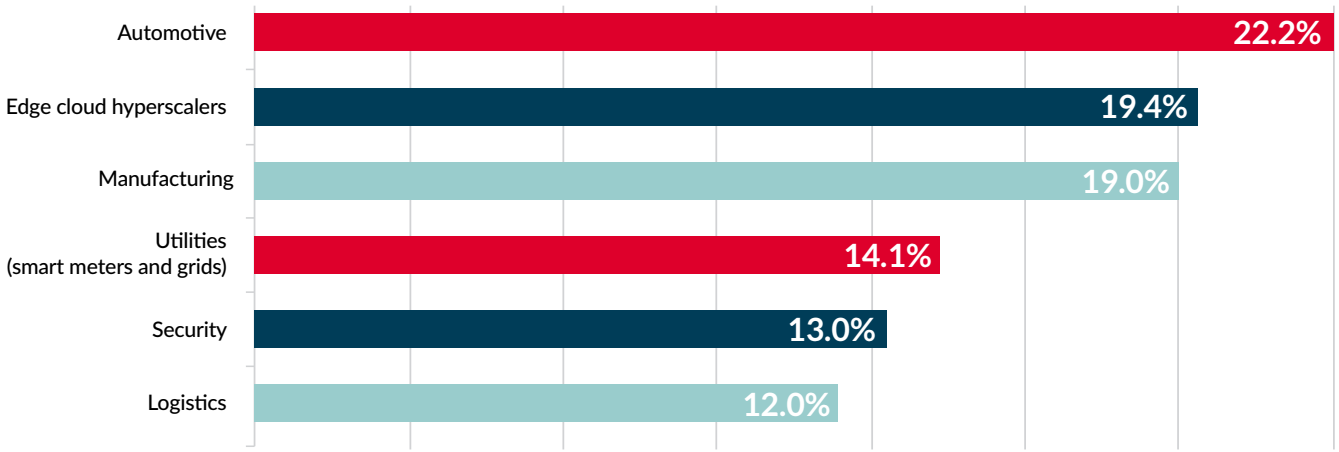
Figure 1: What are your organisation's primary business drivers for deploying a 5G standalone core network? All operator respondents chose up to three answers. Top five responses shown.



However, when the entirety of responses is considered, it is enterprise use cases that dominate, accounting for 67.4% of responses overall. Within those, automotive use cases are the most popular among our operator respondents. The connected and autonomous vehicle is subject to a considerable amount of excitement among manufacturers, with everything from drones delivering goods to consumers and a fully autonomous car running on a mobile network among the use cases. The popularity of edge cloud hyperscalers underlines how low latency is one of the most critical features of 5G standalone.

Figure 2 - Which industries will account for the greatest demand of 5G standalone services?

(All operators, enterprise answers only)

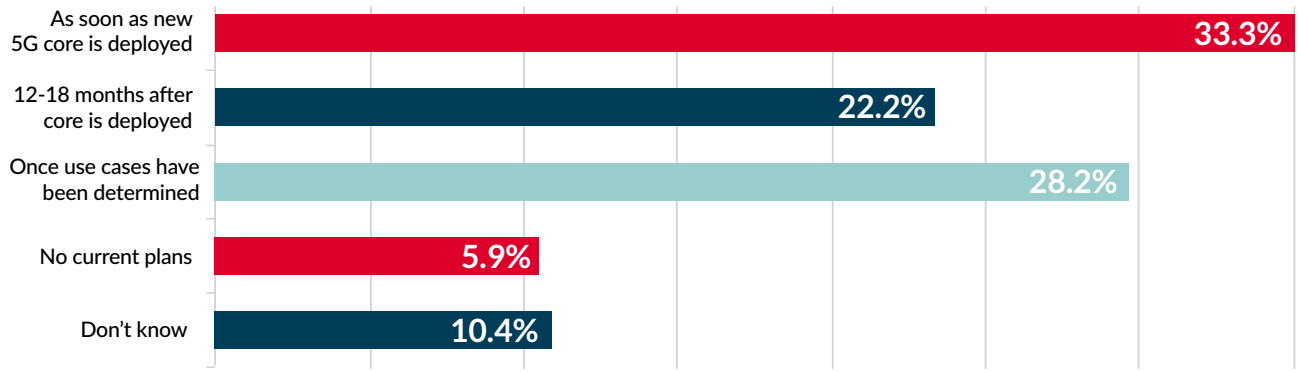


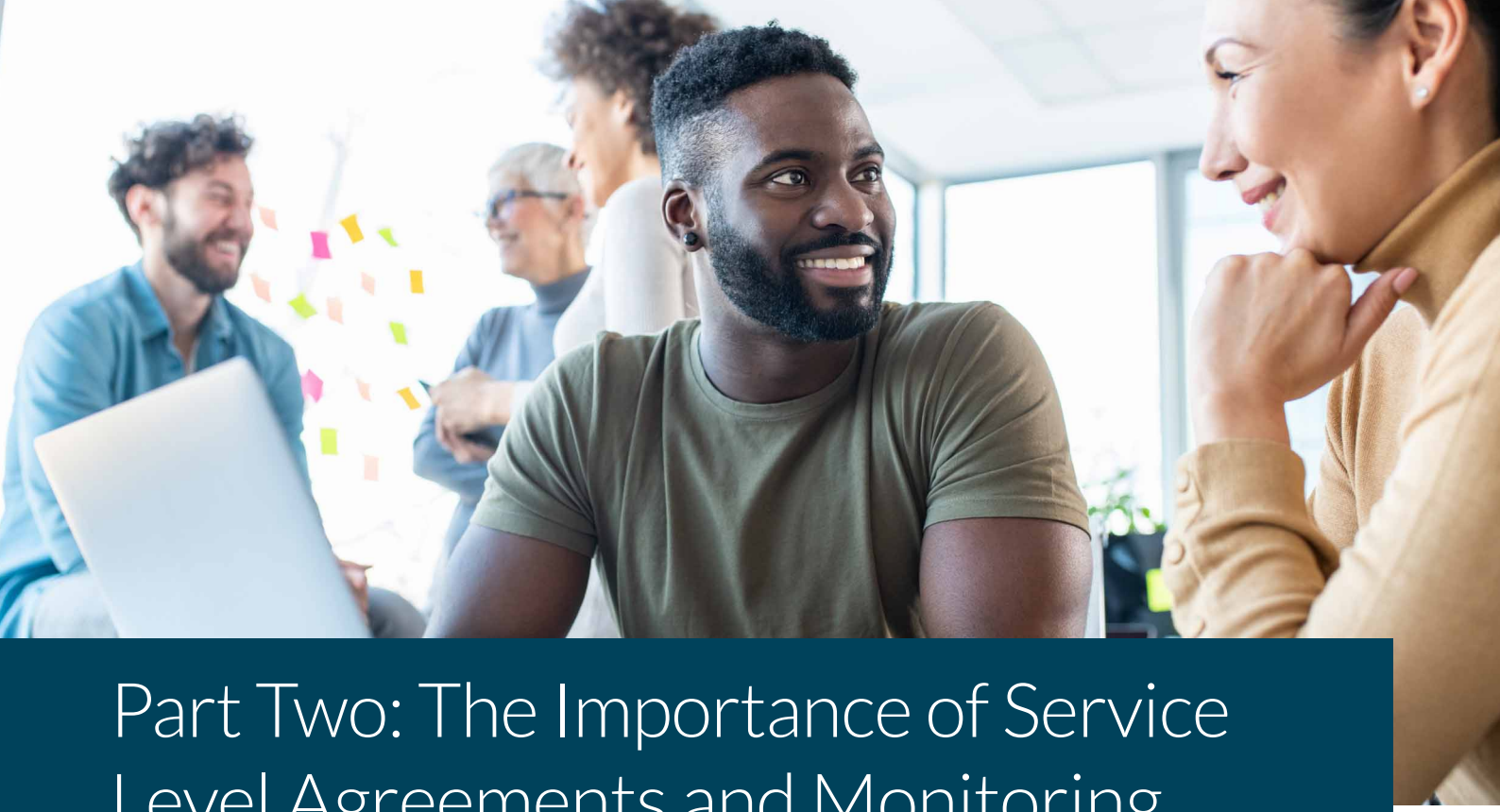
Network slicing isn't new—it emerged during the LTE era but was underutilised. But it is firmly in the mainstream in the 5G era. The ability to split the same network into slices that can deliver different kinds of connectivity to different kinds of markets running under different kinds of service level agreements will reinvent telcos' operations, again opening it up to new kinds of business models and unlocking new markets.

Operators are clearly excited by the prospect, with only 5.9% definitively saying they have no plans to use it at present. For the rest of our respondents, more than half have clear plans in place for slicing, albeit within different timelines.

Figure 3 – When does your organisation plan to use network slicing as part of your standalone core strategy?

(Operator respondents)

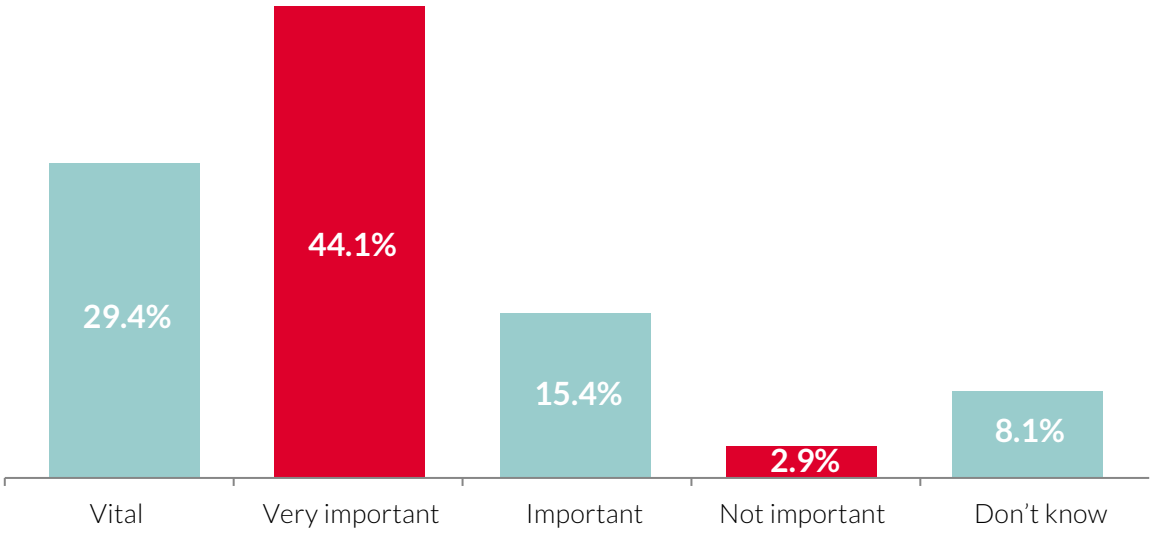




Part Two: The Importance of Service Level Agreements and Monitoring Network And Service Performance

Transparency matters. With the variety of the promise of 5G, operators know they must be clear and open with enterprises as to what they are signing up for. Guaranteeing quality of service will be a clear USP for the decade ahead. As noted above, network downtime is revenue and profit lost to any enterprise. Operators need to assure enterprises this won't happen and having it clearly marked out within an SLA will become the norm for the mobile industry. As outlined below, only three percent of operators think they will be unimportant, compared to 88.9% who said it was "important" (or more). As the benefits of SLAs become explicit, it is reasonable to expect the 'Don't Knows' will deem it important rather than irrelevant to their business.

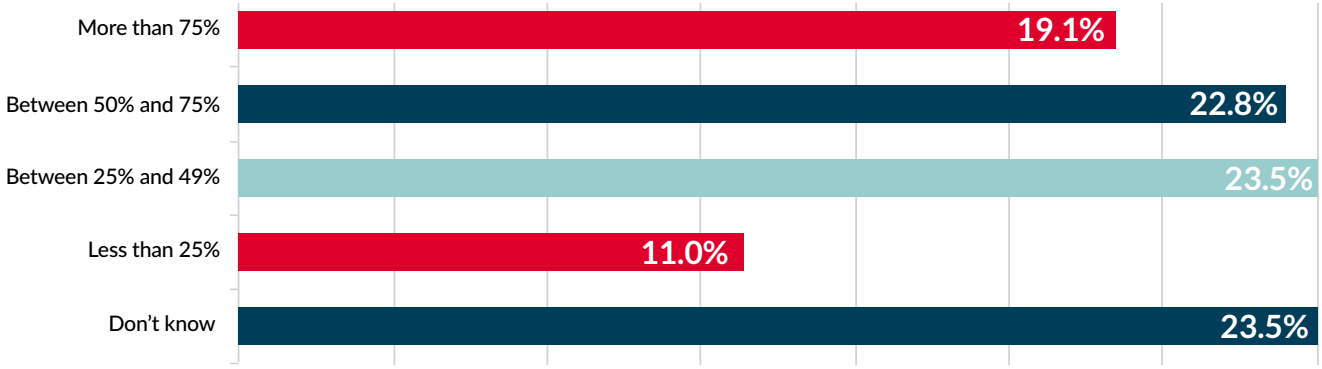
Figure 4 – How important are enterprise services performance SLAs to your 5G core monetisation strategy? (All operators)



However, enterprise SLAs require visibility from the operator to assure the lifecycle of a service, detect problems before they occur and dynamically and automatically assure the customer experience.

Operator respondents are awake to the importance of service assurance and how it will contribute to new 5G service revenue. In fact, more than four in 10 operators feel more than half of new 5G service revenue will rely on real-time automated service assurance to meet SLAs. The high share of operators who highlight the importance of assurance indicates that the almost 25% who are unsure how this impacts SLAs could quickly become converts.

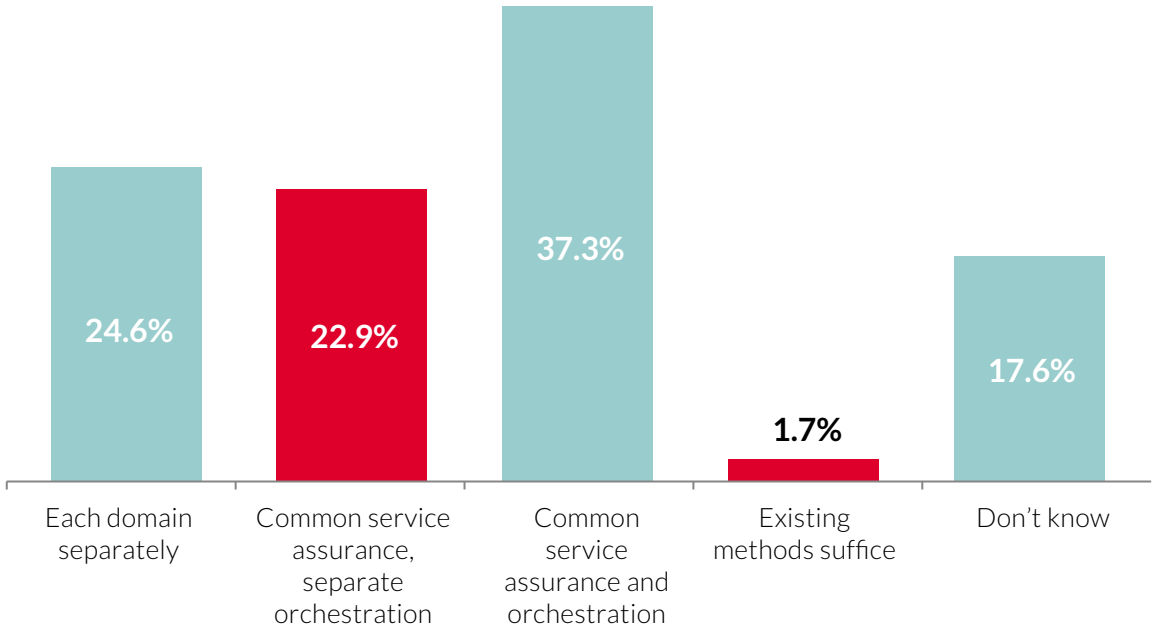
Figure 5 – What percentage of expected new 5G service revenue will rely on real-time automated service assurance to meet performance SLAs?
(Operator respondents)



Part Three – Service Assurance and Orchestration

Things need to change to firmly capitalise on the 5G era and operators have indicated that they know this. Only two per cent of operators feel their existing methods of orchestrating and assuring 4G and 5G networks suffice, compared to almost four in ten operators who will take a common service assurance and orchestration framework approach.

Figure 6 – How will you ultimately orchestrate and assure 4G and 5G networks and services? (All operators)



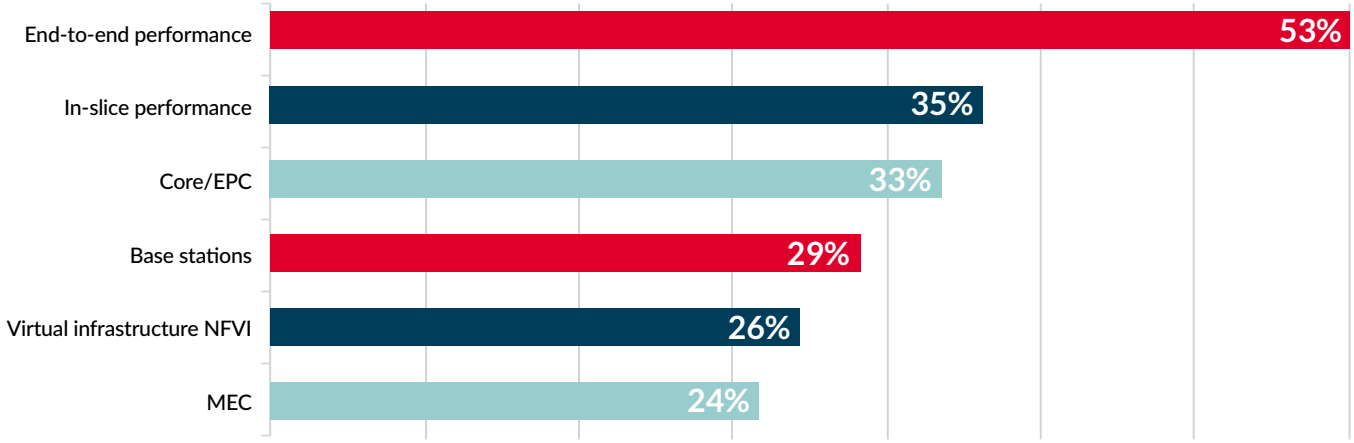
This candour about changing their approach to orchestration and assurance is underlined by operators admitting there is room for improvement when it comes to monitoring network performance and application quality of experience. Less than a third of operators (30.1%) would describe their ability to monitor network performance as "excellent". Just over a quarter of operators (26.8%) would describe this ability as "average" or worse.

When it comes to application quality of experience, the picture is more concerning. A total of 42.2% of operator respondents deemed their abilities to monitor this area as "average" or worse. Only 17.9% described their capabilities as "excellent".

This is clearly a problem. Service level agreements will only succeed with comprehensive knowledge of how every aspect of the network is performing. For many operators, there is work to do. That said, **only around half of respondents (53%)** said they are planning to monitor end-to-end performance in their new 5G standalone network. The majority will monitor most domains, albeit separately. This risks adding fresh complexity into network operations compared to the clarity end-to-end performance delivers.

Figure 7 - Where in the new standalone 5G network do you plan to monitor performance?

(All operators, click all that apply, top six answers)



But what do operators feel is most important when it comes to service assurance? Our findings revealed further acceptance that the technology is a valuable one for operators. We gave them a range of functionalities and asked them to score out of five. More than half of operators deemed every functionality either "high value" or "very high value".

The most valuable was allowing a real time automated application response based on KPIs, with 79.6% of operators classing it "high value" or "very high value".

Next was a performance monitoring service for network and telco cloud layers, which was scored highly by 77.0% of operators, followed by real-time analytics, telemetry, event and fault correlation layer (75.8%).

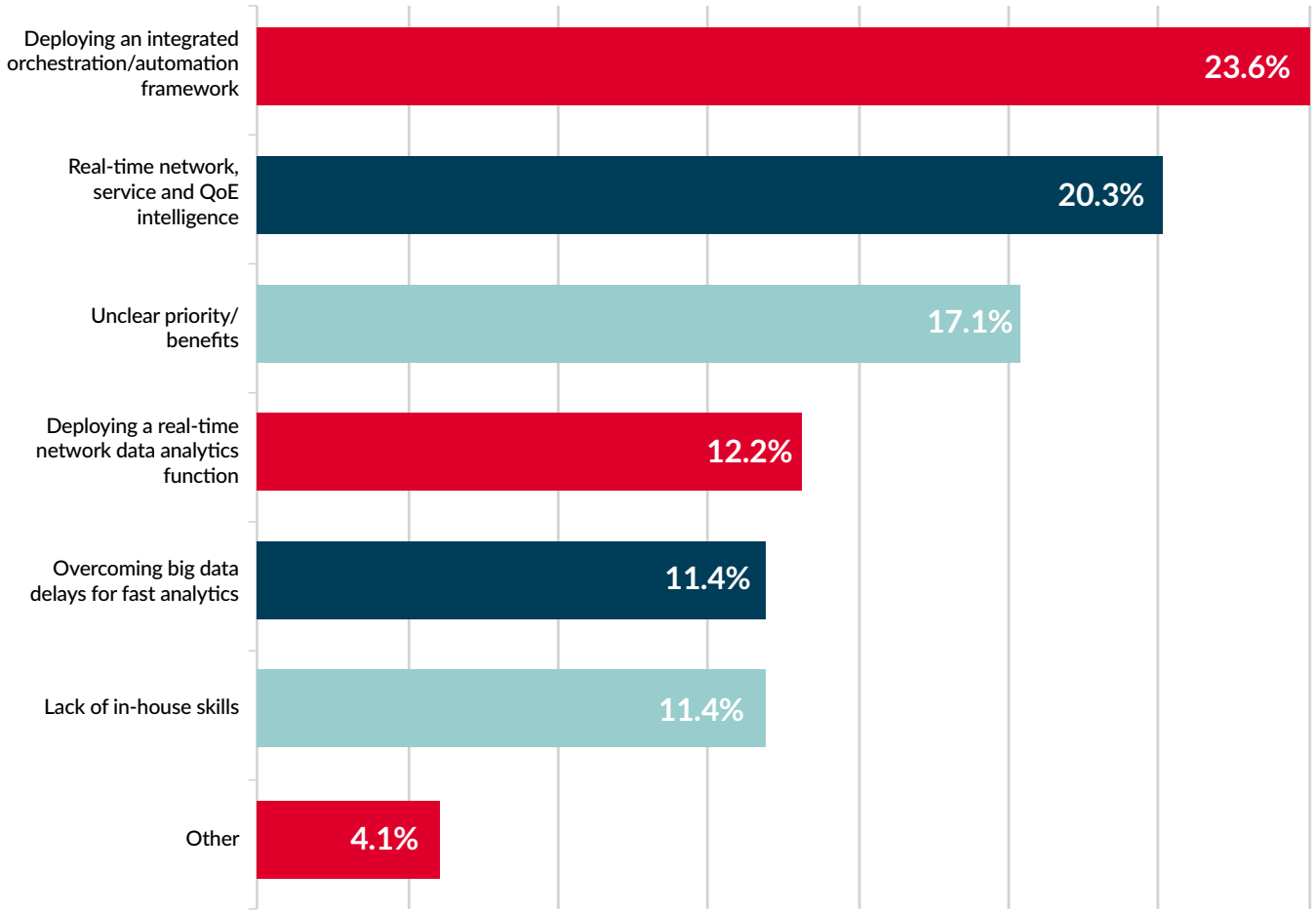
Even the lower-placed options still had a high average score, a likely sign of operators appreciating the value of service assurance. Automated AI-based fault prioritisation and fixes scored highly among 65.3% of operators, followed by orchestrated active test virtual network function (61.8%) and active plus passive monitoring metrics (59.3%)

Similarly, operators were asked to score the service assurance capabilities necessary to sell 5G advanced services. Again, their response showed an enthusiasm for the technology's benefits with more than half of operators scoring every capability "important" or "vitally important". Directly customer facing capabilities placed highest—real-time reporting and service visualisation (75.6% of respondents deemed it "vitally important" or "important"), and prioritisation of issues based on customer impact narrowly behind (73.9%).

However, other capabilities also scored highly, whether the monitoring of end-to-end network slices (71.3%), per service and pre device monitoring (70.7%), AI-driven anomaly and fault detection (61.9%) or edge cloud infrastructure monitoring (59.9%).

But if operators are awake to the value of service orchestration and feel its benefits will be vitally important in the 5G era, what is the biggest obstacle to 5G network orchestration and automation? Simply put, it is the act of deployment itself. Almost a quarter of operators cited this as their main issue, the biggest share of any option and a sign they need help in fully automating and orchestrating their networks which would rely heavily on immediate insight via real-time performance KPIs.

Figure 8 – What is the biggest obstacle to real-time 5G network automation and orchestration?



Conclusion

Operators are alert to how 5G standalone networks will transform their business model from consumers towards industry 4.0 and enterprise applications. They know that SLAs will be vital as a differentiator, a means to reduce churn and crucially a way to drive revenue; enterprise partners will require this before they sign up to a 5G service. They are also alert to the benefits, value and central role integrated service assurance and orchestration will play in the 5G era.

So what is stopping them from rolling out the latter? For some, transforming service assurance is a journey and most are doing so in steps. Getting assurance and orchestration to work together and automate the service lifecycle is key.

But for others, it is clear that the act of deploying the required framework is something that operators are wary of. Networks are complex and the fear of damaging downtime is perennial.

But they cannot put their heads in the sand either. As they admit, the benefits of service assurance are too rich to pass up on. And it is something that will ultimately contribute to the bottom line.

The first step of change in any aspect of life is accepting that you need help. Encouragingly, operators have accepted this; indeed, only two percent view their existing methods of orchestrating and assuring networks as fit for purpose. The good news for operators is that the help is there for them to transform their networks for the better and take advantage of the 5G era.

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The Nova adaptive service assurance platform is uniquely designed to assure highly dynamic, multi-technology networks and services. It provides critical insight by automatically measuring and analyzing what's needed to detect and diagnose outages and degradations. This includes Nova active and passive monitoring, RAN to core troubleshooting, and AI-powered analytics to provide a comprehensive, end-to-end view of service experience.

Nova extracts new value and insight from existing tools by openly analyzing and correlating data from Nova and third-party monitoring solutions, infrastructure and operations' systems. By measuring and analyzing only what's necessary, where necessary, Nova adaptive service assurance unlocks intelligent automation at scale. This frees up operations teams to focus on new services instead of manually maintaining old ones.

Service assurance is transformed with a combination of AI-powered analytics, adaptive monitoring and the ability to integrate and correlate diverse data sources.

Learn more about Nova 5G adaptive service assurance

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