

## Research Report

# Private 5G Answers Healthcare's Urgent Call for Digital Transformation

## Market insights for service providers

### Executive summary

Healthcare is under significant pressure to modernize its IT systems and network infrastructure. The industry has lagged behind other sectors when it comes to digital transformation. The healthcare sector now recognizes that modern networking technologies are necessary for securing patient data and operations and can also improve patient care and drive business efficiencies. The industry's shift to virtual care and teleworking during the COVID-19 pandemic has added impetus to these pressures for change:

**By 2023, healthcare providers will increase their spending on connected health technologies by 70% compared to pre-pandemic spending levels, according to IDC.<sup>1</sup>**

Private 5G will play an important role in healthcare's digital transformation:

**In fact, 75% of large healthcare enterprises plan to deploy private 5G networks by 2024, according to recent Analysys Mason research.**

Healthcare will adopt private 5G networks at hospitals and associated facilities to support a range of high-value use cases, including staff and physician training with augmented and virtual reality; rapid access to massive imaging and data files; infrastructure surveillance and security; telemedicine; remote patient monitoring; and more.

While enterprises in the sector have ambitions to deploy private 5G, they have not coalesced around a specific approach for implementing the infrastructure. A plurality (42%) prefers to deploy private 5G based on a network slice of a service provider's mobile network, and 33% prefer a hybrid on-premises and service provider network deployment. Just 21% plan to own and deploy a dedicated on-premises network. It's still early in this market, however, and service providers can use findings from this study to drive successful engagements and partnerships with enterprises.

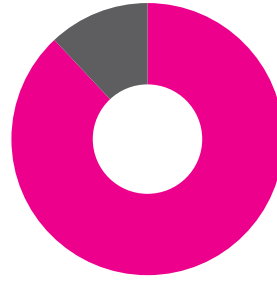
### Cost

Cost is the most-cited barrier to adoption for all deployment models in healthcare. Notably, 63% of healthcare enterprises are concerned about the cost of a fully dedicated on-prem private 5G network. The findings suggest an opportunity to convert enterprises to the network slicing and hybrid approaches, which leverage commercial networks. Both private and public healthcare providers are always under cost pressures. Hybrid 5G offers hospitals a way to experiment and evolve new services and applications without having to absorb the costs of fully dedicated on-premises infrastructure.

<sup>1</sup> "The Network in Healthcare: 2021 and Beyond," IDC, February 2021.

## Deployment criteria

The healthcare sector's two most important criteria—high reliability and high security—were each cited by 88% of respondents, reflecting the industry's need to both ensure an optimal user experience and protect data and patient privacy. The vast majority of healthcare respondents also cite the importance of high bandwidth/throughput, support for low-latency, time-critical applications, and cloud-native architecture.



**88%**  
of respondents agree that reliability and security are the sector's most important criteria

## Managed services

Healthcare enterprises (63%) prefer to outsource services to a private 5G network provider or third-party managed services provider (MSP) rather than handling this work in-house (38%). This is similar to 68% of [manufacturers](#) that said they also prefer to outsource in parallel [analyst research](#). Given the challenges and skill set requirements, it's likely that many in the do-it-yourself segment will ultimately decide to seek external support to provision and manage their deployments. This is especially true in healthcare where salaries for technical staff tend to be lower than in other verticals like finance to whom healthcare consistently loses top talent.

## KPIs

Healthcare enterprises need to monitor private 5G network traffic to assure service performance, detect problems quickly and secure the network. Security KPIs (63%) are the most important metrics to monitor, along with network throughput KPIs (58%). For time-critical use cases, such as connected ambulances and critical patient monitoring, performance KPIs must be monitored in real time. The monitoring will need to cover any edge compute resources that support these applications.

## How does the healthcare sector plan to deploy private 5G networks?

Analyst research, co-sponsored by Accedian, examined how enterprises plan to adopt and manage private 5G networks. 207 respondents from enterprises in Germany, Japan, United Kingdom and the United States were surveyed across six verticals: manufacturing, financial services, retail, transport, healthcare, and the public sector. This report focuses on enterprises in the healthcare sector (healthcare respondents n=24\*). This includes doctors' offices, dental and medical clinics, hospitals, medical and dental laboratories, and home health care agencies.

Private 5G networks dedicated to a particular organization can be delivered in various ways:

- As an organization-implemented and owned private 5G network that runs on the organization's premises (in-building, campus)
- As virtual private instances (a network slice) of a service provider's wide-area 5G network over which the enterprise has a high degree of autonomy and control
- A mix of dedicated on-premise and service provider-owned wide-area 5G network assets (hybrid private 5G network)

\*Responses are indicative of general trends

## Learn how enterprises in the healthcare sector plan to deploy private 5G:

1. What are the key drivers and barriers behind adoption of the various models of private 5G network deployment?
2. Which type of suppliers are most preferred for implementing private 5G networks?
3. What are the use cases to focus on in the short-term?

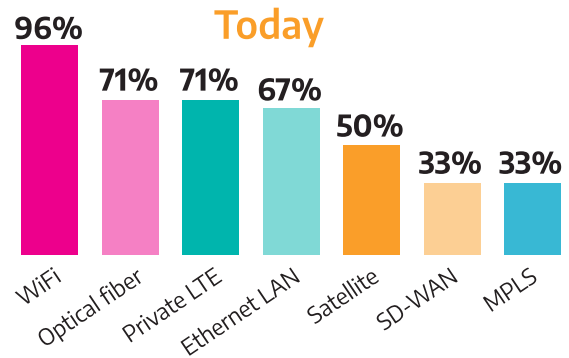
## Key drivers and barriers behind private 5G deployment models

### Connectivity in the healthcare sector\*

A strong majority of healthcare organizations (75%) plan to use private 5G networks locally by 2024. Healthcare's enthusiasm for private 5G places it among the leading verticals interested in the technology: Its interest is comparable to that of the manufacturing sector, in which 76% of enterprises plan to deploy private 5G by 2024.

Healthcare enterprises are accustomed to wireless connectivity. Today, Wi-Fi is nearly universal in the sector, with 96% of healthcare enterprises using it for local area network (LAN) connectivity. Private LTE is also widely used (71%). Service providers can motivate enterprises to migrate these connections to private 5G by citing its optimized radio coverage, reliability, and advanced security protections. Private 5G networks can also be integrated with these existing systems.

\*Private LTE and 5G numbers are high and may include public LTE and 5G, although clear definitions were provided in the survey. Market education is key to driving awareness of the benefits of private options.

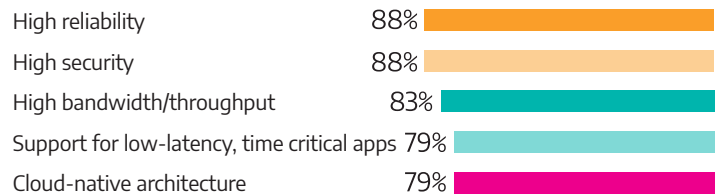


### By 2024



### Most important 5G attributes

High reliability and high security are the most important (and equally important) attributes for 5G in the healthcare sector. Other top-priority 5G attributes include high bandwidth/throughput (83%), support for low-latency, time-critical applications (79%), and the cloud-native architecture (79%).

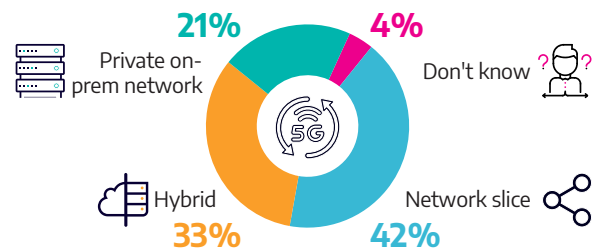


### Healthcare's preferred deployment model for Private 5G

A private network based on a network slice is the most preferred deployment option, cited by 42%, but not a majority, of healthcare enterprises. The hybrid model is preferred by 33% and a private on-prem network is preferred by 21%.

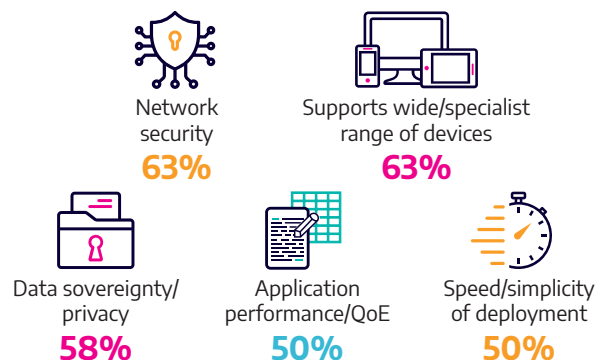
Deployment types:

- Fully private organization-owned on-premises 5G network
- Virtual private network or network slice
- Hybrid mix of dedicated, on-prem and service provider 5G



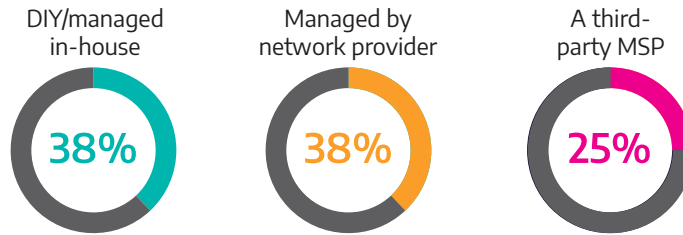
### Important factors influencing deployment model

Private 5G deployments must be both secure and versatile for healthcare organizations. Respondents say network security and the ability to support a wide range of specialist devices are the two most important factors influencing their choice of deployment models, with each factor cited by 63% of respondents. Another important security factor is data sovereignty/privacy (58%) followed by application performance/QoE (50%) and speed/simplicity of deployment (50%).

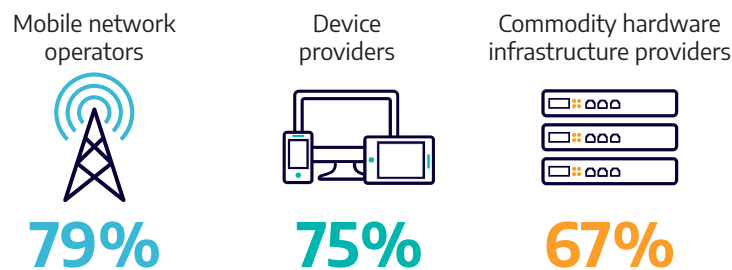


## Preferred suppliers for implementing Private 5G networks

Most healthcare enterprises (63%) prefer to outsource 5G private network provisioning and management to partners. Among those preferring to outsource, 38% prefer to partner with their 5G private network provider and 25% prefer to partner with a managed services provider that has the expertise to deploy private 5G.



Organizations pay attention to multiple influencers when evaluating and selecting solutions. Mobile network operators are the most influential, followed closely by device providers.



## What's holding them back?

Cost is the leading concern across all deployment models. Organizations are also concerned that private 5G networks will be difficult to deploy or customize (in the case of network slices). Privacy concerns, data sovereignty and security pose significant barriers as well.



### Hybrid network

Cost **38%**  
 Privacy concerns **33%**  
 Limited ability to customize **29%**



### Network slice

Cost **54%**  
 Limited ability to customize **42%**  
 Privacy concerns **38%**

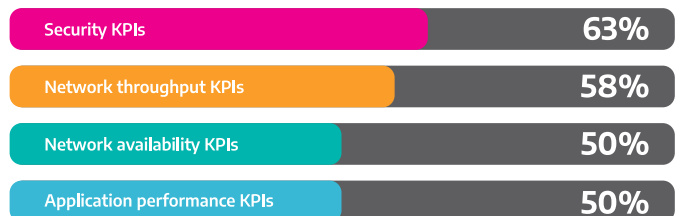


### Dedicated private 5G

Cost **63%**  
 Deployment difficulty **42%**  
 Data sovereignty/security **25%**

## Top performance metrics to be monitored

Security KPI monitoring is most important for healthcare private 5G networks (63%), followed by network throughput (58%).



### Percent of healthcare’s use cases for private 5G that require edge computing platform

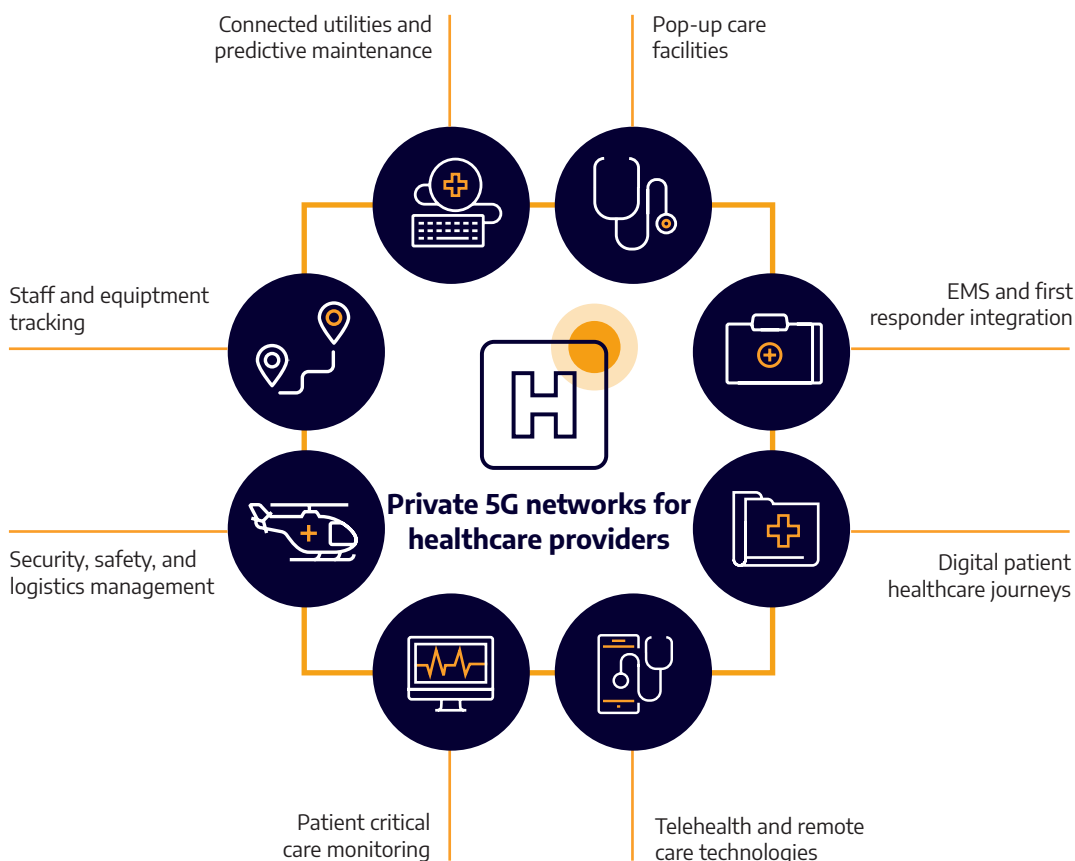
Organizations will need performance KPIs reported in real time, especially for time-critical use cases enabled by edge computing. Most healthcare enterprises will employ private 5G use cases that require edge computing.

% of 5G healthcare use cases for private 5G that require edge computing platform	
% of use cases that rely on edge	% of respondents
1-25%	38%
25-80%	50%
80%+	13%

### Healthcare 5G use cases

Healthcare enterprises are adopting private 5G to modernize their networks in hospitals and affiliated facilities. They are applying the technology for a variety of strategic use cases that improve business and clinical efficiencies and the quality of care. Private 5G networks need to be flexible to deliver the performance characteristics required for targeted use cases and support a wide range of devices.

According to KPMG, healthcare use cases for private 5G include business administrative processes—such as logistics management, facilities management, staff and equipment tracking—and patient care-related applications, including telehealth, electronic health records, emergency response services, and even “pop-up” facilities such as the temporary clinics deployed by overwhelmed hospitals at the peak of the pandemic.<sup>2</sup>




Source: KPMG, Transforming healthcare with private networks

<sup>2</sup> "Transforming healthcare with private networks", KPMG, 2020.

Use cases are also categorized by the type of communications they require. Use cases can involve time-critical or non-time critical communications, remote control of end-user devices, inter/intra enterprise communications, and communications that influence the customer experience.

### Private 5G networks support a range of use cases in healthcare

Vertical industry	Type of use case (category)	Typical examples
<b>Healthcare</b> 	Time critical use cases	Remote surgery, robotic surgery, elderly/critical patient alarm monitoring, AR/VR or staff training
	Non time critical use cases	Identification/tracking/tracing of objects/goods, non-real time sensor data capture aggregation and sharing of patient data
	Remote control use cases	Remote patient monitoring and diagnosis, AR/VR for remote training
	Inter/intra enterprise communication use cases	Identifying/tracking assets across medical campus, surveillance and security, staff/partner collaboration on medical images, etc., reliable, secure connectivity between premises
	Customer experience-related use cases	Inference-based prediction of next advice/action to offer, AR/R-based patient consultation, natural language-based communication with patients for data gathering, in-hospital navigation services

Source: Analysys Mason

## Conclusion

Private 5G adoption by enterprises is at an early stage. Despite all the hype and even strong commitments by healthcare enterprises to deploy the technology by 2024, private 5G is still not clearly understood. Service providers need to educate healthcare enterprises on the technology, especially the benefits of network slice and hybrid models. Many healthcare enterprises have expressed preference for these two models, and further education can substantiate and reinforce this interest. For enterprises that prefer a do-it-yourself approach or have not yet decided, additional education might help shift their interest to managed services. Education could also motivate organizations to partner with managed services providers that can offer private 5G on a subscription-based network-as-a-service (NaaS) model, manage a hybrid network, or help integrate a private 5G network with the enterprise's existing Wi-Fi, SD-WAN or private LTE systems.

Healthcare enterprises are interested in private 5G because it has the flexibility to support a wide range of business and clinical applications. Providers must prove their private 5G solutions will meet the needs of an enterprise's many diverse use cases. Solutions must also support a business case for investment and deployment, especially since a majority already have Wi-Fi and private LTE.

To capture their rightful share, mobile operators will need to design solutions for the healthcare sector with appropriate security controls, especially data privacy and performance guarantees and work with partners and systems integrators that have deep vertical knowledge across the complex healthcare sector.

**Survey partner:** Analysys Mason conducted the private 5G research with 207 enterprises in 2021 on behalf of Accedian.

## About Accedian

Accedian is the leader in performance analytics, cybersecurity threat detection and end user experience solutions, dedicated to providing our customers with the ability to assure and secure their digital infrastructure, while helping them to unlock the full productivity of their users.

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