T-Mobile's Hybrid 5G Network for Boston Children's Hospital: Combining Robust Secure Connectivity with the Mobility to Serve Patients Wherever, Whenever the Need Arises

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: T-Mobile's 5G Hybrid Network for Boston Children's Hospital

Boston Children's Hospital's (BCH's) deployment of a 5G hybrid network being built by T-Mobile, Pixel Health, and Ingram Micro is the epitome of why 5G must seamlessly integrate across different deployment models, from private, onsite 5G networks to fully mobile use of the macro 5G network.

Key Takeaways

- Hybrid network solutions that leverage the macro 5G network are critical to the digital transformation efforts in healthcare, which must concurrently manage robust data sets with strong protected health information (PHI) protections wherever, whenever clinicians and patients seek treatment.
- 5G hybrid networks lean into the strength of T-Mobile's broad 5G network coverage at both the low- and the mid-band spectrum levels and the company's 5G Advanced Network Solutions (5G ANS) portfolio to deliver private 5G network-like security and reliability far from the confines of a single facility.
- Healthcare organizations are increasingly being asked to treat and support patients and staff in a variety of environments — from the four walls of the hospital to remote clinics to the patient's home — and success in those endeavors relies on the reliable, secure, and high-performing connectivity possible from 5G.
- BCH plans to utilize the 5G hybrid network to leverage edge compute and artificial intelligence (AI) resources for workflow prioritization improvement. The 5G hybrid network also establishes a platform to integrate those tools and capabilities into more advanced use cases in the future.

Source: IDC, 2023

IN THIS MARKET NOTE

On September 26, 2023, T-Mobile announced that it is partnering with Pixel Health and Ingram Micro to stand up the first 5G hybrid network for healthcare at Boston Children's Hospital (BCH). Pixel Health is providing consulting and systems integration support for the 5G hybrid network, while Ingram Micro is advising on mobile devices and deployment management to ensure a seamless transition for healthcare clinicians. T-Mobile will provide, install, and manage the 5G hybrid network hardware and related infrastructure.

The network, scheduled to go live in 2024, coincides with BCH's transition from two electronic health record (EHR) systems to a single unified EHR system from Epic. The agreement with BCH is reportedly a five-year engagement, and no other terms of the deal have been disclosed.

IDC'S POINT OF VIEW

Healthcare has long been seen as a strong candidate for private 5G networks due in part to the need (and regulatory requirements) to securely manage a diverse set of data-intensive, protected health information (PHI). In fact, there have been a number of private 4G/5G announcements for healthcare dating back to 2019: Rush Medical Center, Cleveland Clinic, and Maudsley Smart Hospital (United Kingdom), to name a few. What makes the T-Mobile/BCH announcement unique is its recognition that healthcare services are not provided just within the four walls of the hospital, and that practitioners, patients, and equipment need to connect and operate outside the confines of the hospital campus. Combining the security of a private 5G network with the ability to reliably and securely leverage the macro 5G network is essential to using connected health technologies such as virtual visits, remote health monitoring including wearable devices, and mobile health apps to share patient-generated data with healthcare providers.

Much of the 5G networking conversation to date has largely been an "either or" discussion. Use cases either leverage the public 5G network, sharing space with traditional mobile users, or companies could build a dedicated, zero trust private network limited to a specific building or corporate campus. However, that mutually exclusive approach limits the effectiveness of many 5G solutions, which see the greatest utility when resources requiring network connectivity can seamlessly, securely transit between public and private 5G environments. There are a number of use cases within healthcare that are feasible when both the security and the functionality of the use case are equally enabled within the four walls of the healthcare facility as they are further abroad, such as a remote clinic or an onsite visit with a patient. In *IDC PlanScape: Integrating 5G in Healthcare* (IDC #US48584622, April 2023), we highlighted a number of 5G use cases that can benefit from 5G in both a private and a mobile setting, which include "hospital at home" solutions and connected EMS. The BCH announcement also specifically mentioned the potential use of the hybrid network that leverages artificial intelligence (AI) to assist in workflow prioritization for a "… right specialist to the right patient at the right time" approach. Leveraging the ubiquity of cellular connectivity eliminates the need for unique network management constructs that require one set of policies and personas for on-prem connectivity (e.g., Wi-Fi) and another for more mobile solutions whose functionality requires voice and data access beyond Wi-Fi's reach (e.g., cellular).

T-Mobile has long positioned its 5G Advanced Network Solutions (5G ANS) offering as a means of providing a private network experience without the physical private network. In blending its macro 5G network with a traditional private 5G network, the resulting hybrid network is an ideal match for many healthcare applications.

That said, BCH's journey to a 5G hybrid network appears to have followed the typical path, beginning with improving base connectivity. CIO Heather Nelson indicated that while BCH was in the process of consolidating its EHR system, they identified a need for improved, singular, seamless connectivity for all its campuses and remote practitioner locations. Combining the EHR migration with a holistic connectivity improvement delivers operational efficiencies for BCH by allowing staff to access EHRs from any device, but it also is viewed as a means of improving care team collaboration and patient engagement. The connectivity assessment done for the EHR migration also highlighted some of the limitations of Wi-Fi, even within the hospital campus. As BCH pursues greater digitization, the need to scale and connect more and more devices, potentially numbering in the thousands, necessitates a pivot to cellular connectivity. Wi-Fi is better suited to managing devices in a single location with connections numbering in the few hundreds.

Often the dialogue around private 4G/5G networks, and 5G connectivity in general, focuses on the network as a monolith entity unto itself. The reality is that private and hybrid 5G networks are about much more than connectivity. They are platforms from which to innovate around, and extend the reach of, new use cases that are otherwise not feasible using legacy, fixed connectivity. BCH is embracing the concept of the 5G hybrid network as an innovation engine and is already examining how it can improve in-home care with 5G remote patient monitoring and AI-based prioritization for improved workflow management.

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- *IDC FutureScape: Worldwide Healthcare Industry 2024 Predictions* (IDC #US50105223, October 2023)
- *IDC FutureScape: Worldwide Future of Connectedness 2024 Predictions* (IDC #US51287523, October 2023)
- *What Is Driving Healthcare Organizations to Use Cloud Services?* (IDC #US51256323, September 2023)
- *Accelerating Business Sustainability Initiatives with 5G as Part of a Future of Connectedness Strategy* (IDC #US50829223, June 2023)
- *IDC PlanScape: Integrating 5G in Healthcare* (IDC #US48584622, April 2023)

Synopsis

This IDC Market Note examines the recent announcement that T-Mobile and its partners will be building the first 5G hybrid network in healthcare for Boston Children's Hospital. While private 4G/5G networks have been hot topics in the industry, their specific emphasis on connectivity within the four walls of the company facility presents limited utility for many organizations whose operations, customer interactions, and revenue-generating activity occur far from the company headquarters. Hybrid 5G networks that seamlessly integrate the security of onsite, zero trust connectivity with the mobility provided by leveraging the macro cellular network are not only critical for industries like healthcare that provide lifesaving services in a hospital setting but are also tasked with supporting clinicians and their patients in remote clinics and in at-home settings.

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