Seamlessly and securely enabling a productive hybrid workforce "on the go" with connected laptops requires reliable, high-performing, ubiquitous cellular network connectivity.

Robust Cellular Networks Fuel Connected Laptop Strategies for Hybrid/Remote Worker Security and Productivity

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Introduction

As more workers conduct business operations beyond the four walls of the corporate headquarters, finding robust, reliable, and secure means of connecting those employees to corporate resources has become paramount. Increasingly, companies consider cellular connectivity a viable option for connecting their mobile workforce.

With the widespread availability of cellular service in the United States, corporate-liable (CL) cellular network connectivity is the focal point of enabling workers on the go, providing a secure conduit into proprietary systems and maximizing employee productivity. There are plenty of cellular-enabled devices and deployment models, but recently, more consideration has been given to the connected laptop. Connected laptops paired with the consistent performance and embedded security of a 4G LTE or 5G network can drive operational efficiency, cost benefits, and employee productivity.

Definitions

Most workers today are familiar with a corporate-issued laptop. However, most laptops are only Wi-Fi enabled, with few utilizing cellular for broadband connectivity.

AT A GLANCE

KEY STATS

» 40% of companies' employees utilize remote or hybrid work models (source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 5,* June 2023).

» 60% of IT decision makers believe that employees' mobile technology use poses a risk to corporate data security (source: IDC's *U.S. Mobile Security Survey,* February 2023).

» 44% of U.S. companies say that improving worker productivity and collaboration is a driving factor for implementing a connectivity strategy (source: IDC's *Worldwide Future of Connectedness Survey,* June 2023).

WHAT'S IMPORTANT

Robust, reliable, and pervasive cellular network connectivity is essential for connected laptop strategies to achieve security and productivity benefits.

The differences between Wi-Fi-only and cellular laptops are significant. Cellular-enabled laptops have an onboard antenna capable of accessing the cellular networks that mobile operators worldwide have built and maintained. Most can utilize existing 4G LTE networks, and an increasing number are compatible with the newly deployed 5G networks. They also have a slot for a physical subscriber identity module (SIM) card that identifies the laptop with the specific mobile operator's network. A growing subset of connected laptops utilize eSIM, which doesn't require a physical card, provides further security benefits, and makes activating a compatible device on a cellular network easier.

Benefits

Enabling employees to connect seamlessly wherever and whenever the business or customer needs is helpful by itself, but the real impacts come from the follow-up benefits that arise from a broader adoption of connected laptops. Leveraging cellular connectivity for employee connectivity in laptops brings security, efficiency, and bottom-line gains. The key benefits include:

» **Enhanced security:** The use of connected laptops eliminates the need for hybrid or traveling employees to rely on unsecured connectivity, thus reducing the threat of malicious Wi-Fi spoofing, which more than 25% of U.S. businesses report experiencing on a daily or frequent basis (source: IDC's *U.S. Mobile Security Survey*, February 2023). Connected laptops prevent businesses from relying on employees to maintain security controls on their home networks.

» **Improved employee productivity:** The ability of employees to access corporate resources wherever company business takes them eliminates productivity loopholes that result from downtime owing to lack of connectivity. Wi-Fi loses its utility when an employee must jump from one Wi-Fi "island" to another. Nearly two-thirds of U.S. companies say that employee productivity has increased by more than 10% from 2022 to 2023 because of investments in both wireline and wireless connectivity (source: IDC's *Worldwide Future of Connectedness Survey,* June 2023).

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» **Connectivity quality and performance:** Wi-Fi performance can be variable, with the number of connected users at any given time impacting throughput. This can be especially true in connectivity-dense areas such as airports, public transit, and even local coffee houses. However, cellular networks can support greater connection density with smaller upload/download speed impacts. New 5G networks, particularly those deployed on the midband spectrum, can provide competitively fast connectivity. Ookla's February 2024 market report shows all three U.S. mobile operators having median download 5G speeds above 100Mbps, with T-Mobile and Verizon above or near 200Mbps.

» **Cost/margin improvement:** Leveraging connected laptops can drive two types of cost efficiencies. The first comes through device rationalization. Many companies provide a CL mobile hotspot to their employees, which provides connectivity to a company-issued Wi-Fi-enabled laptop when employees are on the go. By consolidating connectivity in the employee's connected laptop, companies can reduce hardware spend on redundant hotspots while maintaining high business productivity.

The second advantage comes from the ability to better manage connectivity service costs. Some companies utilize broadband reimbursement programs to support their hybrid or remote employees. Beyond the reimbursement costs, these programs can be costly to manage from a time and financial perspective. Traveling employees who periodically leverage paid hotspots with hotels and other venues can eliminate many transactional Wi-Fi purchases with a connected laptop.

Considerations

While it is difficult to find fault with the benefits of connected laptops, their broader acceptance and adoption do come with a few potential pitfalls:

» **Hardware costs**: Hardware pricing is one of the biggest headwinds in the accelerating uptake of connected laptops. Cellular laptops require additional internal components, potentially upping the cost. By themselves, factory-released 4G LTE-enabled laptops tend to cost more than standard Wi-Fi-only laptops, which can be significantly higher for 5G-capable devices. The pricing differential should ease in the near term as 5G module inclusion migrates to midtier and lower-tier laptops.

» **Hybrid/remote work culture**: While hybrid/remote work became a staple during the pandemic and gained more acceptance over the years, there is a push to limit some work-from-home arrangements. Return-to-office (RTO) programs are becoming increasingly structured and obligatory. Business leadership could view connected laptops as antithetical to the RTO push and may be reluctant to provide funding and background IT support to expand cellular adoption programs.

» **Evolving technology standards/future proofing challenges**: 4G LTE cellular standards are largely immutable, focusing now on 5G cellular connectivity. However, 5G specifications are still evolving. Some laptops are 5G non-standalone capable, while a smaller but growing number are compatible with 5G standalone, the latter of which is necessary for ultrareliable low-latency communications and advanced features such as network slicing. Companies looking at connected laptops must be aware and consider the impacts of upcoming cellular connectivity enhancements and their backward compatibility with hardware deployed in the field.

Trends

Several key external trends are impacting the prospects of connected laptops:

» **Growth of hybrid work:** The pervasiveness of wired broadband in the United States enabled the nearly overnight expansion of remote and hybrid work, with approximately 96% of residential fixed connections having a speed of at least 10Mbps downstream and 1Mbps upstream in June 2022 while 90% had a speed of at least 25Mbps downstream and 3Mbps upstream, according to the Federal Communications Commission (FCC) (source: *FCC,* "Internet Access Services: Status as of June 30, 2022," **www.docs.fcc.gov/public/attachments/DOC-402310A1.pdf**, May 2024). However, as the acceptance of hybrid and remote work has solidified for the longer term, companies are beginning to think more strategically about managing and securing remote worker connectivity. Rather than ceding connectivity to the whims of an employee's ability to maintain and manage their home internet, deploying cellular CL devices such as connected laptops is appealing to companies, as it provides a consistent, reliable, and secure approach to a hybrid workforce.

» **Expanding 5G networks:** Mobile operators have been deploying, expanding, and innovating around 5G networks for the past five years. While 4G LTE networks provide a solid connectivity foundation for connected laptops, the enhancements of 5G connectivity are jumpstarting the performance of cellular networks, with some operators delivering median download speeds approaching or exceeding 200Mbps. The improved performance fuels more advanced application usage, such as AI, in remote or hybrid work settings (not just within the four walls of the company headquarters). Coverage of 5G has also been advancing, as more than 230 million people are able to access some of the highest-performing flavors of 5G.

» **Windows 10 sunset:** The impending end of service for Windows 10 in 2025 allows companies to capture multiple digital innovations in one upgrade cycle, adding broadband access-anywhere connectivity with a new operating system to support next-generation AI PCs. While some AI capabilities can be native to the device, more advanced AI features and the ability of corporate AI systems to access data from employees on the go require seamless, reliable, and secure cellular connectivity to optimize AI performance.

Conclusion

While this Analyst Brief makes a strong case for using connected laptops to enable and secure hybrid, remote, and traveling employees working virtually, the focus needs to be more than just providing employees with laptops with cellular radios. It is equally, if not more important, to ensure that the device is paired with a ubiquitous, robust, and reliable cellular network to help achieve peak performance and utilize the built-in security features native to those networks. Careful vetting and intimate collaboration with a trusted cellular network provider are essential to maximize the benefits of connected laptops and ensure that adoption delivers the intended business outcomes and bottom-line impacts.

About the Analyst

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Jason Leigh is responsible for IDC's 5G, mobile services, and mobile operator research. Jason's research focuses on the strategic implications and market opportunities presented by the emerging 5G ecosystem, including commercial availability, installed base forecasts, regional adoption trends, content and services enablement, device impacts, 5G's role in IoT, and innovative use cases leveraging 5G.

MESSAGE FROM THE SPONSOR

Why Verizon?

Verizon offers an extensive reliable cellular network to support connected laptop deployments throughout the United States. The company's 4G LTE network covers 99% of Americans (see Verizon Coverage Map FAQs, www.verizon.com/coverage-map/), and its 5G ultrawideband service reaches more than 230 million people (see "Massive, multi-year transformation of Verizon's network yields major benefits for customers," Verizon Press Release, September 26, 2023).

Beyond the network, Verizon is a market leader in business wireless with nearly 30 million cellular lines (Verizon 4Q23 Earnings Call, January 23, 2024) for small, medium-sized, and large businesses as well as for public sector customers. It also has more than 1 million business fixed wireless access lines that leverage the cellular network for reliable, high-performing business broadband connectivity. The bandwidth from its ultrawideband network supports robust connectivity demands in dense environs, including 85 stadiums and 22 airports across the country (see Verizon 5G page, www.verizon.com/about/our-company/5g).

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