The Rise of Wi-Fi First

Why it matters for the enterprise

iPass

With an ever-growing percentage of work communications happening over mobile devices, it is now more crucial than ever for CIOs to find ways to maximize the quality of enterprise mobility while minimizing its cost. Unfortunately, finding the right mix is not easy.

Traditionally, mobility strategies have relied on cellular connectivity, with a limited pool of providers from which to choose. In an environment of reduced choice, quality improvement and cost reduction tended to get sacrificed. But after years of evolution and growth, Wi-Fi has made the leap to rival cellular connectivity, becoming the dominant connection mode in the world.

Wi-Fi now outpaces fourth-generation, long-term evolution (4G LTE) cellular technology, both in regions where mobile data infrastructure is highly developed as well as in those where mobile data infrastructure is far less ubiquitous. Given its benefits and popularity, plus its potential for even better service delivery in the future, Wi-Fi should be at the centerpiece of any CIO's mobility strategy. This paper discusses the changes in the mobile ecosystem that now make adopting a Wi-Fi-first mobility strategy a smart bet for forward-thinking CIOs.

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People prefer Wi-Fi

By now, nine out of every ten people spend more than 19 hours a day within range of a Wi-Fi connection.[1] That's a connection they enjoy over others. Case in point: this year mobile calling over Wi-Fi will surpass LTE calling in terms of the number of minutes of use.[2]

Most everyday consumers adopt a 'Wi-Fi first' strategy simply, because they are technology agnostic and love a good deal. With an eye to managing cellular data consumption, many smartphone users already choose Wi-Fi, not cellular, when given the option. That is because using Wi-Fi does not eat into capped, monthly data allowances. Using Wi-Fi therefore offsets the cost of cellular data plans, without leaving consumers vulnerable to data overages and roaming fees. Not only do Europeans and Americans in general love Wi-Fi, but so too do international travelers. According to the Wireless Broadband Association, 70 percent of international travelers rely on Wi-Fi to stay connected when abroad, instead of using traditional mobile services.[3]

CIOs ignore this love affair with Wi-Fi at their peril. When it comes to engagement, mobile professionals act just like consumers. Studies show that the better connected consumers are the more engaged they are with brands. Similarly, the better connected workers are the more engaged they are with their companies. And low employee engagement significantly undercuts worker productivity. Gallup estimates that each disengaged employee costs an organization $3,400 for every $10,000 in annual salary. Add it up, and that is a loss of anywhere between $450 billion and $550 billion annually in the U.S. alone.[4]

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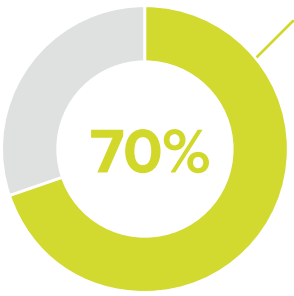
Meanwhile, the Economist Intelligence Unit found a "measurable link" between a mobile-first workplace and an increase in employee engagement. Specifically, the study found that mobile-first "pioneers" saw a 16 percent jump in productivity, as well as significant increases in creativity (18 percent), satisfaction (23 percent) and loyalty (21 percent), when compared to companies that did little to support mobile technology.

In sum, those figures represent an additional 6.4 hours per week in a 40-hour work week, or an extra 41 days or eight weeks that every employee can devote to getting more done.

To accrue those benefits, organizations will increasingly have to rely on Wi-Fi connectivity. Fortunately, many have already, as notes Ken Dulaney, vice president and distinguished analyst at Gartner: "Ethernet cabling has been the mainstay of the business workspace connectivity since the beginning of networking. However, as smartphones, laptops, tablets and other consumer devices have multiplied, the consumer space has largely converted to a wireless-first world."[5]



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A growing trend in and outside of the enterprise

By 2018, 40 percent of enterprises will specify Wi-Fi as the default connection for even non-mobile devices, such as desktops, desk phones, projectors and conference rooms, predicts Gartner.[6] The reason for this is that "additions, moves and changes are costly inconveniences that waste time for enterprise IT organizations," says Dulaney. "A move can sometimes involve cabling changes that can cost as much as $1,000 to route and configure a connector to the right place." On the other hand, Wi-Fi connectivity cuts down costs and allows IT to regain time. "With Wi-Fi printers, desktops and other devices, all that is required is a cable to the power source, leaving workers free to move themselves making reconfigurations of offices easier." In fact, Dulaney is predicting an enterprise IT environment, where Wi-Fi is the norm and wired is the exception.[7]

Will Wi-Fi continue to deliver these remarkable benefits into the future? It would appear so; as The Economist declares, "'Wi-Fi first technology' will be great for consumers, disruptive for mobile firms."[8] Moreover, research shows that in 2017 a significant majority of data traffic will go over Wi-Fi networks.[9]

Further evidence of the strength of Wi-Fi lies in the fact that Wi-Fi is being integrated into the service offerings of Mobile Network Operators and Mobile Virtual Network Operators, a relatively new breed of operators. In 2015, for instance, Google partnered with major carriers Sprint and T-Mobile to launch Project Fi, a mobile virtual network offering that gives its subscribers access to the best available connection, whether that be on Wi-Fi or 4G LTE.

Not only are innovative MVNOs, such as Republic Wireless, Scratch Wireless, Google's Project Fi and FreedomPop, using Wi-Fi as their go-to connectivity technology. Huge Multi-service Operators, such as Comcast, AT&T and Liberty Global, are also rolling out extensive Wi-Fi networks for their subscribers to roam on when outside of the house.

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For many devices now, statistically speaking, Wi-Fi is already the primary connectivity option, with cellular relegated to a backup used to fill in the gaps of coverage. The same goes for countries such as the Netherlands, where close to three quarters of total connections go over Wi-Fi networks. Adopting a Wi-Fi-first enterprise mobility strategy is becoming easier as a wireless ecosystem has already developed around the concept.

Other signs of the ongoing strength of Wi-Fi as a connectivity mode include significant growth in the following:

- **Community Wi-Fi** is being popularized by companies such as Spain-based Fon, which have been pushing the idea of a Wi-Fi router that broadcasts two Service Set Identifiers (SSIDs), one for the owner and the second for the public. The Fon network now has more than 20 million hotspots.
- **Municipal Wi-Fi** deployments are making headlines as city governments seek to extend Wi-Fi to their citizens. In 2016, New York City launched LinkNYC, which replaced payphones with 7,500 new kiosks offering free Wi-Fi with speeds up to 100 times faster than LTE.[10] Similar municipal Wi-Fi projects are being deployed in other major cities in Western Europe and the U.S.
- **Public Wi-Fi** access points around the world increased from 1.3 million in 2011 to 5.8 million in 2015. And Cisco is projecting a sevenfold increase in the number of public Wi-Fi hotspots around the world over the next few years, estimated to grow to 432 million by 2020.[11]
- **Inflight Wi-Fi** is now more popular than an inflight meal, according to research by Lonely Planet.[12] The airline industry is responding to this rapid growth in demand for inflight connectivity by improving adoption across the board; 60 carriers now offer Wi-Fi.

And in the U.S., most carriers offer inflight Wi-Fi service on most of their planes.

- **Curated, amenity Wi-Fi** is becoming widely accessible around the world. As the name implies, amenity Wi-Fi is a shared, complimentary service intended for guests and customers of businesses and public spaces. Companies such as Devicescape implement a curation process, which ensures that the amenity Wi-Fi hotspots users connect to is of the highest quality.
- **Cable Wi-Fi,** from operators such as Time Warner Cable, Xfinity, Optimum, Bright House Networks and Cox Communications, are giving internet customers access to a collective network of more than 500 million hotspots in the U.S.
- **Carrier Wi-Fi** is expanding rapidly. This year alone, carriers are planning to increase Wi-Fi access points by 33 percent.[13]

Wi-Fi growth drivers

Mobile data traffic over Wi-Fi continues to grow at unprecedented rates. The following are significant contributory factors:

Wi-Fi calling

Wi-Fi calling is a service for Android and iOS smartphones providing the ability to make and receive phone calls over a Wi-Fi connection. When you place a Wi-Fi call, it's picked up by your current Wi-Fi network, instead of a nearby cell tower. If you have the feature enabled on your phone, any call you make should be routed through Wi-Fi automatically; there's no special button to press or program to use.

For millions of consumers, Wi-Fi calling is already a fixture of their mobile experience and one of the key benefits of services like Republic Wireless and Project Fi, which allow consumers to switch seamlessly between cellular and Wi-Fi. The capability is especially handy in locations where a cellular connection is spotty, such as in rural areas and locations within buildings where a cellular signal does not reach.

Wi-Fi calling capability is akin to the technology that powers applications such as Google Hangouts, Facebook Messenger, Skype and WhatsApp, all of which allow users to text or make calls over the internet, but bypass traditional data plans. That being said, a key benefit of Wi-Fi calling is the ability to make calls over Wi-Fi without having to open a separate app and manage a new set of contacts.

Moreover, Wi-Fi calling can be cheaper than using cellular networks, especially for international travelers who can make a free call over Wi-Fi back to their home country without incurring roaming charges. Cisco predicts that by 2020, Wi-Fi calling will make up more than half of all data-based voice calling. For context: Verizon only started letting its customers route calls over Wi-Fi in 2007. Now each one of the major U.S. carriers allows some form of Wi-Fi calling.

Video will generate much of the mobile traffic growth through 2020.

Content

As smartphones and tablets become more powerful and popular, consumers grow more accustomed to accessing rich, high-bandwidth multimedia content on their Wi-Fi enabled devices. Demand for multimedia over Wi-Fi is being fueled by the continued development of more powerful smartphones and tablets and a growing assortment of real-time applications that encourage users to consume multimedia when connected to wireless networks.

Because this content has much higher bit rates than others, video will generate much of the mobile traffic growth through 2020.[14] Mobile video represented more than half of global mobile data traffic beginning in 2012, indicating that it is already affecting traffic today, not just in the future.

The Wi-Fi industry is working to make sure this growth in video does not compromise the user experience for consumers accustomed to multimedia on wired devices and cellular networks. Wi-Fi Alliance members are investigating a certification program that will continue to improve the user experience for Wi-Fi-certified devices that are multimedia capable when connected to networks deployed in public hotspots, enterprise environments and residential homes.

Devices

Once laptops were the only Wi-Fi enabled devices on the market. This year there are predicted to be more than 7 billion Wi-Fi enabled devices in use in the world. Back in 2014, 57 percent of all consumer electronics sold globally already had the ability to connect to Wi-Fi. And at the beginning of last year, the Wi-Fi Alliance launched Wi-Fi HaLow, a new standard integral to the viability of the Internet of Things and connected home devices.

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The effect of HaLow will be to extend Wi-Fi's usefulness to a new set of devices with lower power requirements and less need for long-range connectivity. It will also free unlicensed spectrum for more powerful Wi-Fi enabled devices.

Wi-Fi Standards

Launched in 2012 by the Wi-Fi Alliance, Wi-Fi Certified Passpoint™ streamlines access to Wi-Fi hotspots by eliminating the need for end users to find and authenticate a network each time they connect to it. Innovations like Passpoint are producing a more seamless, cellular-like experience for end users who connect to Wi-Fi.

Instead of searching for, choosing and requesting connection to a given access point each time, Passpoint automates the process and still delivers the industry standard in security.

Conclusion

We are in the midst of a major realignment in the wireless market, whereby advances in quality and breadth of coverage make Wi-Fi a viable alternative to cellular. Moreover, Wi-Fi's inherent cost and speed advantage to cellular makes it a better option for consumers and businesses.

Against this backdrop, it just makes sense to treat Wi-Fi as the central connection option for enterprise mobility plans, for example by mandating that devices should connect to hotspots rather than cellular networks wherever possible.

Focusing your mobility efforts on Wi-Fi is not hard. Such a 'Wi-Fi first' approach would mean that mobile devices, whether personal or company-liable, would use Wi-Fi as their primary network when connecting to the internet and only use cellular to fill in the gaps. In some respects, it's inevitable.

The logic of this approach is underscored not only by a growing range of Wi-Fi options, from community to carrier services, but also by ongoing industry moves to improve calling, content delivery, device range and ease of connectivity.

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About iPass

iPass is a leading provider of global mobile connectivity, offering simple, secure, always-on Wi-Fi access on any mobile device. Built on a software-as-a-service (SaaS) platform, the iPass cloud-based service keeps its customers connected by providing unlimited Wi-Fi connectivity on unlimited devices. iPass is the world's largest Wi-Fi network, with more than 60 million hotspots in more than 120 countries, at airports, hotels, train stations, convention centers, outdoor venues, inflight, and more.

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