

# Broadband Expansion Poised To Explode In 2022

AMZN, CIEN, CMCSA, COMM, CSCO, DISH, ERIC, GLW, GOOG/GOOGL, IBM, MIMO, MSFT, NOK, ORCL, QCOM

December 10, 2021

“Heard, tracked, understood, witnessed, confirmed, and you should really think about paying attention to this stuff.”

## Research Question:

**Does the U.K.’s fast broadband rollout hold clues for a similar effort that is part of the U.S.’s new infrastructure bill? How will the spread of fast internet to rural and underserved areas affect the economy? What tech sectors stand to benefit, and which may be hurt?**

## Key Findings

- Broadband has become the most important utility, even above water and electricity.
- New players will emerge alongside infrastructure suppliers for wireline and wireless 5G to Wi-Fi 6 networks.
- Qualcomm is particularly well-positioned to benefit from the move toward universal fast broadband in the U.S., U.K. and EU, as its equipment can help distribute 5G as a Wi-Fi fixed wireless alternative to cables and fiber lines.
- Newcomers can use rapid software development capabilities created in the cloud to build new companies and reinvigorate older ones through the deployment of Open RAN standards. That is expected to push faster broadband into areas that can turn into digital hubs, similar to Digital City in Manchester, England.
- Beware of too much government red tape slowing down ambitious broadband plans.

Positive: AMZN, CIEN, CMCSA, COMM, CSCO (carrier and service provider business), ERIC, GLW, GOOG/GOOGL, MIMO, MSFT, NOK, QCOM

Caution: ORCL

Negative: IBM

## Key Trend Points

- Remote work is increasing. Migrations to the countryside are rising in the U.K. and United States. Broadband access has become real estate gold, sources said, because the “work from anywhere” world can turn a remote cottage in a Welsh valley into a virtual branch office of a Fortune 100 company. “The resistance, even with the London banking crowd, to going back to the office tower is massive,” one U.K. source said. “If you can sort a place in some nice little village where you can get even half-decent internet, you are selling up the London flat to someone who wants to be there and you’re off,” said the CEO of a U.K. broadband access company that supplies wireless access to underserved areas in the U.K. “We are running right back into another wave of COVID hysteria,” said another source. “Of course, it comes right at a time when there is a focus on trying to increase the number of homes being connected to faster internet, so I think a broadband land rush is going to kick off.”
- What it means, sources said, is that the broadband internet core, edge and wireless systems are inadequate to handle what is unfolding in a digital, cloud-based world and that government infrastructure spending is going to trigger a free-for-all in network expansion over the next two to three years. Will fast broadband finally find a way to cover all of the U.K.? Can that happen in the much larger U.S.? Sources said they think it will continue to take time—but they also said traditional carriers are being pushed by new forms of competition from cable operators such as Comcast Corp.’s (CMCSA) Xfinity in the United States and Sky Networks (SYKWF) in the U.K., satellite providers such as Elon Musk’s Starlink and Dish Network’s (DISH) plans for 5G. Therefore, sources said, carrier foot-dragging on broadband means they could get bypassed for government spending if they don’t expand their coverage more rapidly.
- The United Kingdom has been trying to push faster internet into areas of the country that have been lagging for years. Results have been spotty, as carriers hesitate to push infrastructure into remote areas with fewer subscribers, in a similar scenario to the United States. Now, with both countries focusing on faster internet as a political issue involving economic development, billions are being targeted to roll out fast broadband to all areas, including remote regions.
- Sources in the U.K. and U.S. report that many consequences will arise as funds are released—good and bad. In the U.K., several sources said efforts that have delivered wireline and wireless internet at even slightly faster speeds of not much

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more than 50 mbs have triggered an exodus from urban offices and homes into the countryside, This increasing trend offers more evidence of what will continue to happen in the United States as urban refugees flock to smaller cities and towns and away from core urban areas. All of it depends on broadband.

- The U.K. has a program, begun in 2013, called [Building Digital U.K.](#) that has been elevated to an executive agency status. The politics are similar to what the United States is trying to do regarding the broadband component of the recent infrastructure bill. Be careful, U.K. sources warn, because bureaucratic red tape will eat up time and money. To illustrate the point, they say the U.K.'s broadband targets are far from being achieved. Very fast download speeds are considered to be fiber-based 300 mbs—a lower range for U.S. cable companies such as Comcast's Xfinity and Google Fiber (GOOG/GOOGL), which are routinely offering gigabit-per-second speeds to customers in their core service areas. Many U.K. regions still operate at speeds of 60-125 mbs. Pressure is growing to vastly improve internet access as a way out of the pandemic's economic effects. As that pressure mounts in both the U.K. and U.S., opportunities will open up for some new players, sources said, particularly in wireless broadband. One U.K. company that provides broadband alternatives, [M247](#), is rapidly growing in the northwest U.K. A digital hub is being expanded in the Digital City development in Manchester, England, that can send wireless broadband outward across the countryside using transmitters linked to small ariels on individual buildings. Sources said watch for similar types of hubs springing up even in remote areas of the U.S., because broadband pushed into empty land brings development. "It used to be you worried about utilities like water and electricity first," said a wireless-networking source. "Now you discuss broadband connectivity first because nobody will go anywhere without it."
- Currently, both the U.K. and U.S. have barred Chinese companies—most notably Huawei—from their core 5G network expansions, leaving Nokia Corp. (NOK) and Ericsson (ERIC) as the top two equipment suppliers on the radio network side. However, carrier networking sources said both countries are keen to see new players entering the competition through the introduction of Open RAN technology, which eliminates proprietary systems in favor of interoperational open standards. Both Nokia and Ericsson support Open RAN, as discussed in [Blueshift Research's July 12 Tech Trends report](#). That said, sources believe that new players will emerge because open standards reduce barriers to entry into 5G broadband due to the rapid nature of software development in wireless radio networks. 5G development over Citizens Broadband Radio Service (CBRS) is creating a new market, sources said. It is a way to rapidly deploy a 5G-to-Wi-Fi system that is catching on quickly now that expansion money is going to flow from the government. "Nokia has a great [RAN] product," said a U.S. wireless-network building company. "But the annual fees are sky-high. Basically, it's \$6K for a radio and then another \$5K annually for each radio. CommScope (COMM) is \$600 annually for the Ruckus CBRS product. If someone has a good eNodeB with reasonable annual SaaS (software as a service) licensing [a CBRE 5G setup] is the ticket."
- [Airspan Networks Holdings Inc.](#) (MIMO), a small-cap radio technology company, has received FCC approval in the United States to deploy its 5G Citizens Broadband Radio Service AirStrand 2200 radios. The modules are Open RAN and aimed at a widespread broadband expansion design. They can be used by cable companies that want to extend their fixed wireline broadband networks using very fast 5G deployments. Sources familiar with the equipment told Tech Trends that the Airspan kit can be set up on Qualcomm Snapdragon modems that can quickly get clusters of locations running at near-gigabit speeds by translating 5G into Wi-Fi 6. "It's a killer solution," said a key U.S. wireless-networking source who has seen the equipment in action. "I know that they are looking at this type of technology on this citizens spectrum in [the U.K. and EU] as well, because these kinds of nontraditional ways of extending broadband into underserved areas are much faster than dealing with the usual carriers. I think this is going to explode now that money is being thrown at the [broadband] issue. The combination of 5G with Wi-Fi 6 is going to take off over the next two years because it is open-source, and it can take far less time to deploy. I think the Airspan stuff is one example of the software-driven technology that you'll see coming along."
- Another U.K. source said his company has been using 4G cellular signals directed to Wi-Fi modems for a few years as a way to jump over old British Telecom broadband infrastructure until BT's Open Reach fiber development gets into areas where his customers are located. "I would imagine your carriers in the States are similar in how they extend fiber networks," he said. "They only want to go to densely populated areas first. You then have to drag them kicking and screaming into other smaller areas for fiber expansion. That's why 5G will become the way people out in the countryside will finally get gigabit Internet. Our 4G solution has been a stopgap way to deliver download speeds of up to 80 mbs if you are near a transmitter. In some places, it can drop below that. It is spotty, and that is the way internet has been all around the country. That's why you'll see this big battle shape up between the fiber companies like BT and the 5G cellular companies, and we

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will end up with a blended system.” A U.S. source agreed. “It’ll be a primarily wireless 5G expansion,” he said. “On the end of that, you’ll have the signals running fast Wi-Fi. It will be better than what you receive out in rural areas now. Much faster.”

- Sources said there is a stacked hierarchy for how everything will have to come together for universal fast broadband to be a reality across the U.S., U.K. and Europe.
- Chips, fiber-optic cable, core switching and routing, and wireless infrastructure will have to be significantly upgraded—again—if goals set in infrastructure spending legislation are to be reached. Then the traffic will flow far more into the cloud than across in-house enterprise networks, which sources agreed will continue to truncate.
- Nokia, Ericsson, Corning Inc. (GLW) fiber, Qualcomm Inc. (QCOM), Cisco Systems Inc. (CSCO), CommScope (Wi-Fi 6), Airspan Networks, Ciena Corp. (CIEN) optical switching, Microsoft Corp. (MSFT), Google and Amazon Web Services (AMZN) will all be in line to benefit. Artificial-intelligence software companies that create smart edge applications will also be in line to benefit from faster universal broadband. Several sources said Qualcomm is moving hard toward broadband expansion based around 5G. They said they think the company is, as one put it, “energized like I haven’t seen in a long time” by the prospect of fast wireless broadband pushing into areas that have been essentially empty zones on the map.
- On the Enterprise networking side, Cisco’s carrier broadband business detracts from its enterprise networking side by enabling far more remote work to become permanent, meaning centralized office networks will continue to morph into cloud-accessed applications. IBM Corp. (IBM) and Oracle Corp. (ORCL) will have to keep scrambling to stem losses to Microsoft, sources said, because their largest customers have been consolidating offices as workers have gone remote. In many cases, the consolidations threaten to cut down on the number of services IBM and Oracle sell to their existing customer base. IBM has to transition to an all-cloud-based data services company if it is to survive long term, sources said. Oracle will be a close to 100 percent cloud operation soon, other sources said. Microsoft will be the biggest threat to both companies, even though IBM and Oracle run their customers on Microsoft’s cloud infrastructure.
- Any way you look at it, sources said, faster broadband will help the big cloud players as it spreads across the globe and out to users armed with smartphones, tablets, laptops and other computing devices, such as gaming consoles. “Everything will be physically scattered,” said a wireless-networking source. “Except, you won’t see it that way because you’ll be connected to the cloud, and that will host millions of virtual business networks and every other thing you can imagine. It’s ready to go off.”

## Additional Information

The U.K. offers what one source called a “laboratory exercise on how important it is to get government out of the way if you want to get things done.” The source gave this advice to his U.S. counterparts: “Get the money for approved projects as quickly as you can and do your work. Do not get caught up in rounds of paperwork and discussions, because the funds you have approved will never be spent in a timely manner. They will leak out slowly, and that is why you can see that we [the U.K.] have a ridiculous patchwork of broadband service. In fact, we are notoriously underserved in dense city centers because BT has not got fiber available in older sectors. In terms of the countryside, you may have a farm out away from any village, and it is important to extend broadband speeds that are unavailable to them currently. And the government will say, ‘Well, 20 megs is good enough,’ and there will be just that. This is considered here to be acceptable under the digital expansion scheme. Obviously, this is not close to acceptable. I do not imagine that sort of situation will happen in the U.S. However, if government is involved, you never know.”

## Background

John Harrington has been Blueshift Tech Trends senior technology researcher since 2014. He is currently in the U.K. reporting on broadband network development there and the U.S. as it relates to the spending of government funds to expand universal fast broadband via wireline and wireless networks. For this report, he interviewed seven U.K. broadband networking executives dealing with access, core and edge networking and five U.S. sources involved in the construction of fiber and wireless broadband networks and cloud-access direct fiber links. Interviews were conducted in late November and December.

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## About the Author

John Harrington is an award-winning investigative reporter and veteran Wall Street researcher. John previously served as senior editor and senior researcher at OTR Global and was a three-time Emmy Award-winning TV journalist.

John brings expertise and relationships in internet networking, network security, fiber-optic communications, and data center computing to Blueshift Research. John will contribute regularly, sharing deep insight into tech and communications trends, often before they are recognized by Wall Street.

## Report Coverage Areas and Companies

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- Fiber Network Construction and Implementation (ALU, CIEN, CSCO, DY, GLW, IESC, JNPR, NOK)

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