



Technology Insights...

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Research, Analysis, Strategy, Insight

Can Amazon Sidewalk Challenge 5G?

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Amazon announced it is opening up its Sidewalk IoT social-sourced network to developers. Sidewalk is powered by the myriad of installed Amazon devices (e.g., Echo, Ring) that include support for low power Bluetooth and LoRA, and Sidewalk device interactions piggyback on the connection that consumers have in place for their Amazon devices. Amazon claims Sidewalk covers about 90% of the US population, although this obviously varies greatly by location and population density, but it is a low cost/no cost connectivity option for many consumer oriented and potentially even business oriented smart devices. As a result, does Sidewalk pose a significant threat to an important 5G capability that service providers offer?

5G Network Slicing

One of the major benefits of 5G is its ability to do network slicing - being able to offer a small portion of the total network capacity for specific use cases, and at a potentially greatly reduced cost. This is especially attractive with services offered at a low cost to low impact devices that transmit data sparsely or intermittently, including both consumer oriented (e.g., smart health devices, smart tags, etc.) and commercial devices (e.g., smart meters, smart signs, freight and goods trackers, etc.). IoT is seen as a major revenue opportunity by many service providers who are looking to maximize their network revenue models. And with potentially millions or tens of millions of smart IoT devices, the revenue opportunity, even if low per device, is quite large.

But there are some major challenges to overcome with 5G connectivity in smaller IoT devices. Issues include the fairly high power needed for the 5G modem quickly draining any batteries that normally must last months or even years (hence many cellular connected devices still using relatively lower power LTE), the need for a SIM/eSIM hardware-enabled or other identity mechanism for each device, and the cost of the complex modem chip and antennas that raise the BOM costs, although efforts are taking place to reduce this burden.

Sidewalk has the advantage of being a low cost alternative, with the advantage of having a low power modem profile for BT or LoRA that can extend battery life and minimize BOM cost, and no need to pay for connectivity, albeit potentially with less reliability than 5G. That makes it very attractive to consumer-oriented and cost sensitive smart home and

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personal IoT devices that otherwise would likely not be deployed if they needed to pay a monthly service charge for connectivity (on top of any charges they may incur for an application/solution powering the devices). It enables “roaming” devices that connect as they come across Amazon Sidewalk enabled devices (assuming the owner of that device permits it). But if reliability of connection is critical, Sidewalk does not compare with 5G. Amazon promises Sidewalk is a very secure connection, but it doesn't compare to the same level of identity and data integrity of transmissions for 5G. Further, no one has tested whether “rogue” Sidewalk devices can be deployed and intercept data, much like rogue public WiFi units do.

If successful, Sidewalk will likely have a major impact on the still emerging use of 5G slicing, which will nevertheless be attractive for many situations where security, reliability of connections, module identity and good location information is required. But for casual/consumer users of personal IoT devices (e.g., dog monitors, step counters, smart health appliances, etc.) where both cost of the device and cost of connectivity are important, Sidewalk may actually both hinder the market for 5G sliced communications offerings, while also making it much more attractive to use such devices by consumers (and some businesses as well).

Bottom Line: It remains to be seen if there is enough Sidewalk connectivity to make it attractive, especially if some of the Sidewalk sites get turned off by their users who don't want to share their data with strangers. And security has yet to be fully tested in real world scenarios. But we expect a flurry of devices to come to market in the next few months that will utilize the Sidewalk capabilities. Amazon has put a stake in the ground that it wants to be the smart device IoT enabler, and along with its cloud services for IoT (IoT Core), this is a strong statement that they are making. We'll see how well it ultimately works for device makers and consumers of the service.



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