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Volume 18, Issue 10

The Bandwidth Conundrum: Smart Devices and Connection Speeds

By: Jason Moore

Connection speeds in the UK and Ireland are up more than 150 percent in the last few years, so why are so many customers dissatisfied with their bandwidth when access to data has never been faster? As it turns out, the number of devices in a typical British or Irish home has increased to the point where in-home connection speeds are being negatively affected. It isn't simply a case of more devices leading to connection lags. Rather, as more devices become connected (or "smart") inside a consumer's home, not only are there more points of failure, but also as new products and services move into the home, devices are constantly pushing the boundaries of what's needed from the Wi-Fi network. It's the perfect storm when it comes to connectivity issues.

This is negatively affecting customer satisfaction, and unhappy subscribers are contacting their ISPs to fix a problem that isn't even their fault. Can anything be done to fix this major disconnect?

Why are connection speeds so slow?

The issue isn't really the number of devices that are on a home network, but rather how those devices are configured. For example, the average customer never needed great Wi-Fi on their porches prior to getting their first connected doorbell. So, when a customer hooks up that doorbell for the first time and it starts to buffer, they don't immediately think that the issue is related to Wi-Fi range.

Instead, their gut reaction is to blame their ISP for having low-quality service because it simply *must* be the provider's fault. That's pretty much the default for most consumers: blame the ISP

for everything. The same thing happens not just for Internet range issues, but for everything the customer tries for the first time, whether they need Wi-Fi for their smart ovens or washing machines or the first time they try cloud gaming. And because of customers' fundamental lack of understanding in what slows connection speeds, the ISP ends up bearing the weight of constantly closing that education gap for consumers.

One of the common misconceptions about bandwidth is that the addition of more devices automatically reduces available connectivity across the board. While this is certainly a risk, it isn't the main culprit when it comes to slow access in homes. The reality is that most consumer electronics don't eat up enough bandwidth to create general slowdowns. So, while streaming a movie creates a heavy load on Wi-Fi networks, devices like doorbells and thermostats are quite light on data. The problem is not that these devices exist on the network, but that they aren't properly connected, which can create a cascading set of problems that become noticeable to the customer. And when customers get frustrated, their first reaction is to call their ISPs to request a quick fix to the problem.

The ISP: monkey in the middle

To understand this problem, we looked at real-world data from more than 3,000 ISPs around the world and found that Internet users in the UK and Ireland are facing significant connectivity issues despite increases in connection speeds. Upstream speeds have risen 185 percent and downstream speeds have risen 167 percent, but device upgrades and pandemic-related behavioral shifts—mostly related to working from home—have put greater demands on home Wi-Fi environments. When problems arise, ISPs are being unfairly burdened with support requests, which is creating a situation that isn't good for anyone as customers pressure ISPs to fix problems that aren't theirs to fix. It's the equivalent of calling GM to repair a punctured tire on your car.

Over the course of the pandemic, just about all of us have experienced a bad connection on a Zoom call or an online order that slows to a crawl because of the Spinning Pinwheel of Death—and our first thought is that there must be something wrong with our Internet. As it turns out, these connections have been incredibly reliable over the last two and a half years, but ISPs around the world get thousands of calls every day from angry customers wondering why their devices aren't working well. And in many cases, those providers have to spend hundreds of dollars (or pounds or euros) to send a truck around to make sure that there isn't a problem with the actual connection. And there usually isn't.

The scope of the bandwidth problem

People used to talk about the "last-mile problem" to describe connectivity issues, but the issue is most often inside the four walls of the home. In other words, it's a Wi-Fi issue, not an ISP issue. So, what can people do to fix their Internet speed issues? As it turns out, they can do a lot.

Every new device added to a home network comes with new requirements and increases the opportunity for a bad subscriber experience. Once a home network hosts more than six or seven devices, our research shows that it's likely that at least one device will suffer from a bad

connection. Today, that is a common number because people have so many smart devices ranging from doorbells to electric car charging stations in their homes.

Because up to half of support engagements for ISPs can be traced back to problems with the home Wi-Fi setup, rather than with the lines or equipment itself, ISPs can dramatically reduce costs and improve customer satisfaction by helping to prevent these problems, and by diagnosing and resolving them more efficiently. According to our data, about 25 percent of diagnostic scans reveal that there is a less congested Wi-Fi channel available and 30 percent indicate an underlying problem of signal strength, even if there are no issues with the home Internet connection.

The bandwidth problem fix

Unfortunately, many ISPs struggle to cost-effectively diagnose Wi-Fi issues because they don't have visibility into the home network. Regardless of the size of their subscriber bases, ISPs must contend with a diverse mix of customer premises equipment (CPE)—which undermines attempts to gain consistent and universal visibility. In addition, large portions of the subscriber base elect to purchase third-party equipment, all but assuring that CPE-based diagnostics will suffer from coverage problems. Taking an aggregate view of millions of in-home network diagnostic scans led us to two conclusions.

The first is that because such a large proportion of support engagements—as much as 50 percent, for some ISPs—can be traced back to problems with the home Wi-Fi setup, ISPs can dramatically reduce costs and improve customer satisfaction (CSAT) by helping to prevent these problems in the first place and, when they do arise, by diagnosing and resolving them more efficiently.

It is also clear that universal, understandable, and convenient diagnostics are essential both for enabling subscriber self-service utilities and for equipping service agents with essential information. It's time for ISPs to accept that for a number of reasons, including some completely beyond their control, CPEs are not addressing this need—and perhaps never will.

Diagnostics to the rescue

In many cases, a lengthy, costly, and frustrating engagement uncovers that the underlying issue was within the home network: a congested channel, a weak Wi-Fi, signal, outdated equipment, or some other common cause. What is needed is a diagnostic tool that is universally applicable to any home network, regardless of CPE, delivers clear insights that any support agent—and as many subscribers as possible—can understand, and is easy to use so that practically any subscriber can activate it.

Combined with educational self-service resources about common home network issues and potential resolutions, a proactive approach to Wi-Fi management and efficient diagnostics capabilities can transform the traditional support relationship—ultimately slashing ISP support costs and contributing to greater subscriber satisfaction.