HOME NETWORKING

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at ways to address the coverage issue proactively whilst ensuring they remain in complete control of their networks. With this ever-increasing demand for full in-house coverage, we are seeing a trend towards additional Access Points and Wi-Fi extenders."

The Two Problems Poor Wi-Fi Causes Service Providers

There are two problems for service providers who are spending billions to build better broadband networks:

1. Using Wi-Fi to deliver pay TV is much, much easier than installing wires in the home but since Wi-Fi, by and large, is not a whole-home solution, subscribers will be quick to complain and cancel their service when the pay TV video starts flickering.

2. When viewing devices that are connected to the home's broadband network by Wi-Fi start flickering, subscribers will start calling the service provider, complaining about their broadband speed, not their Wi-Fi speed. That'll drive up the cost of customer support and tempt subscribers to look elsewhere.

Service providers and consumers need a better way to measure Wi-Fi speeds in each room, which **ASSIA**'s CloudCheck is a good start – although it seems to depend on broadband too much to be 100% accurate.

ZyXEL Proposes More Wi-Fi, Not Wireline

ZyXEL's proposed solution is more Wi-Fi, not the use of a wire – powerline, coax or Ethernet.

Gewecke proposed that the ease-of-use and simplicity of Wi-Fi Wave 2 technologies make them "an attractive option." Of course Gewecke was selling ZyXEL new Wi-Fi products, which he said create exceptional user experiences. Its ONE Connect solution, launched at Broadband World Forum, according to Gewecke, "allows service providers to gain a highly detailed overview of the home networks they serve." That he said will put service providers "back in control."

Sounding like *The Online Reporter*, ZyXEL said "the rate of consumer adoption of video streaming, in parallel with 4K video, is fuelling the ever-growing demand on Wi-Fi." It cited a recent study that showed video delivered by broadband to TV sets doubled in 2014 and will continue to grow at a rapid pace, increasing fourfold by 2019. At that rate, broadband delivered video will account for 80% of all consumer broadband traffic in 2019.

It might have said but didn't that providing even 100 Mbps to the home does not solve the consumers' problem if the home's Wi-Fi cannot provide 100 Mbps to every room that has a viewing device – where speeds are often below 10 Mbps and lower.

The Online Reporter has tested the very latest 11ac routers that are available and none of them provide 100 Mbps in every room of the 2,400 square foot home we use for testing. Maybe ZyXEL's ONE Connect solution will solve the problem but we doubt it. We have heard the Wi-Fi promises before.

HomeGrid Forum (G.hn) Leads the Charge to an Industry Standard Performance Test

- 'Like-by-Like' Comparisons

Consumers and service providers alike need an industry-standard test procedure and equipment to determine the performance of home network gear in a multitude of situations that are found in the world's homes. For the last six months ***Rider Research*** *has been testing within residences the speeds of the two powerline networking. It has been a difficult and time-consuming, made more difficult by the lack of industry-wide standards for testing. The testing task is much, much greater for service providers who have to consider the hundreds of home layouts and construction.*

In August 2015 the Broadband Forum published a technical report called TR-208 that defines how service providers can assess the performance of powerline products and technologies under controlled conditions. It allows for "like for like" comparison of different home network products under controlled conditions. TR-208 is intended only for service

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"The rate of consumer adoption of video streaming, in parallel with 4K video, is fuelling the ever-growing demand on Wi-Fi."

"'Like for like' comparison of different home network products under controlled conditions."

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providers, not for consumers, but at least it's a start to an industry standard for testing.

The HomeGrid Forum (HGF), which supports and markets the G.hn home network technology, is the first and so far the only home networking association to fully and publicly back TR-208, which it demonstrated at the Broadband Forum's Interoperability Pavilion this week. It was the first such public testing.

"Shows the distinctive performance characteristics of G.hn Powerline products."

It is not yet clear whether TR-208 can be used to test HomePlug powerline gear – or whether it can be used to test coax-based network gear such as G.hn and MoCA. TR-208 was designed by the chipset companies **Broadcom** and **Qualcomm** for HomePlug in addition to **Sigma Designs** and **Marvell** for G.hn so it should be ideal for testing both HomePlug and G.hn powerline devices. It is not certain whether the HomePlug Alliance will push it but the HomeGrid Forum is aggressively pushing it – starting with demonstrations at the Broadband World Forum.

It is also not clear yet whether a) the test results will be made available to *The Online Reporter* and b) whether it is feasible for **Rider Research** to conduct its own tests.

HGF demonstrated G.hn powerline testing using TR-208 universal powerline splitters. It said the test "shows the distinctive performance characteristics of G.hn Powerline products, and allows a 'like for like' comparison with other home networking technologies" no doubt meaning HomePlug.

"HomeGrid Forum has actively supported this approach."

The TR-208 Performance Test is a lab-based plan designed to give accurate, repeatable results over a wide range of conditions. It will allow HGF, its members and accredited test houses "to determine the performance of G.hn products as part of certification," which it called "a robust and stringent certification program that should give peace of mind to both service providers and retail customers."

Despite the appeal of powerline - its availability in every room of every home (and in many cases on every wall) - the testing of powerline networking is very difficult "because of the large number of domestic devices in the home that create noise on the powerlines, and the wide variety of topologies and amounts of connections."

We applaud TR-208 because it "provides the industry, operators, and test labs with a well-defined test bed specification, and a set of tests that enable a direct performance comparison to be made between different powerline products and technologies, which can be independently verified."

HGF president and Marvell executive Donna Yasay said, "Having a recognized test plan based on all powerline standards with the backing of the Broadband Forum gives our test results the credibility they need for operators and consumers alike. We have seen many test plans being used to compare home networking technologies and the results are very variable, depending very much on the choice of set-up. TR-208 takes all the uncertainty and variability out of the set-up and gives truly comparable lab-verified results."

Amen!

Broadband Forum's CEO Robin Mersh said "The key to establishing new technologies and ensuring their ability to work with the many other communications protocols in the network is in having strong, universally accepted testing procedures. HomeGrid Forum has actively supported this approach and we are happy to support efforts to define the test plans, set-ups, procedures and test equipment required to achieve quality results."

A key element in the testing is universal powerline splitters (UPLCs), which are required by TR-208. The splitters allow the tester to build repeatable scenarios in a lab environment and enable easy manipulation of the various network channels, including the injection of noise and the modeling of SISO/MIMO effect.

HGF said it will provide an easy way to obtain the parts of the test equipment that TR-208 requires.

We had hoped that TR-208 would end **Rider Research**'s testing but we have recently started testing coax-based Wi-Fi extenders. The first product we tested was **Actiontec**'s bonded MoCA 2.0 to 11ac Wi-Fi (using Quantenna's 4x4 Wi-Fi chips). It performed well.

We look forward to testing G.hn-based coax to Wi-Fi extenders.