

# G.fast Is Here!

A speeder-upper solution for delivering real broadband over twisted-pair copper

By Valerie M. Sargent and David Coffey / *Multifamily Broadband Council*

**A**re you a “Fixer Upper” fan? Imagine that Chip and Joanna were your broadband provider. Instead of renovating your kitchen, what if they could completely update the service of your older multifamily buildings to deliver real broadband to residents using the existing interior wiring to deliver fiber-like speeds? We can just hear it now: “Are you ready to see your speeder-upper test and have it read 200, 300 or even 500 Mbps?”

Rewiring the inside of a building is hard work, and sometimes it is not even possible. It’s too invasive for many apartment communities. Many older buildings are, at best, difficult to access to install new infrastructure. The choices may be limited. The available options have been DOCSIS, DSL, Ethernet or some variation of PON. DOCSIS is expensive and requires the use of coax. DSL uses twisted-pair copper telephone cabling, and it is speed limited. Ethernet, supporting up to 1 Gbps, has a distance limitation of 100 meters. And last, fiber – though incredibly fast – is the most expensive.

A new option, G.fast, delivers fiber-like speeds over legacy architecture. Almost every building built since 1930 has twisted-pair copper for telephone service. If that copper is in good condition, G.fast can deliver a package of up to 800 Mbps (upstream and downstream combined) for only a few hundred dollars per unit.

Owners that want to meet residents’ ever-increasing demands for bandwidth are discovering that they don’t have to pull new wire or commit much capital to increase the value of old properties. Likewise, service providers that need to up the ante and provide a competitive service can grow their business by deploying G.fast.

## A SIMPLE SOLUTION

G.fast DPUs (distribution point units) typically have 16 or 24 ports for customer drops and allow for copper or optical interfaces on the network side. A DPU can be placed as an edge device on a GPON network, fed via point-to-point fiber or placed anywhere there is access to a network. Multiple DPUs can be deployed in a single building, so the solution is

easily scalable. Each DPU connects to a standard telephone punch-down block and to a low-cost customer-premises G.fast bridge. Two devices are all you need to deploy.

Operators have been moving fiber deeper into the network to increase speeds and reduce the number of customers per service group. G.fast takes advantage of this deep fiber, operating over copper loops of less than 250 meters. This short loop length allows more RF spectrum to be delivered over twisted pair. The additional RF spectrum (106 MHz for Gen 1 G.fast, compared with 17 MHz for most VDSL2 profiles) allows for up to 800 Mbps (aggregate) per pair. The G.fast DPU is intended to be located in a multifamily building or on a pole adjacent to the building to keep loop lengths under that 250-meter threshold.

Applications for G.fast include multiple-dwelling-unit properties, student housing, hospitality, health care and business parks, to name a few. The next iteration of the technology, Gen 2, is expected to be available in late 2019 or 2020. Gen 2 will double the usable spectrum to 212 MHz or beyond and provide for combined upstream and downstream speeds of up to 2 Gbps per pair. The loop lengths will continue to get shorter at high frequencies, but speeds will also increase. With this solution, owners can use wiring that is in their buildings now and deliver today’s broadband requirements for a low cost. The old saying is, “Better, faster, cheaper – choose two.” But G.fast offers a triple threat of better, faster *and* cheaper.

Are you ready to see your speeder upper? ❖

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