

# EUREKA CLUSTER PROJECT CELTIC-PLUS G.FAST-HFCC



## TURNING COPPER INTO GOLD

**Some of the biggest names in the telecoms industry have worked together to develop a way to deliver ultra-fast Internet using existing copper networks.**

Whether it's for a video conference with clients, or for uploading funny animal videos to Youtube, every home and business wants faster internet access. Many operators are struggling to keep pace with that demand, which is why Celtic HFCC-G.fast has won a EUREKA innovation award for throwing them a lifeline. The project brought together some of Europe's most important players – including rivals – to develop a way to use old copper networks to deliver speeds some previously thought only possible through fibre optics.

“The economics for deploying fibre to premises can be challenging in some locations, which is why it's not being deployed everywhere,” says Martin Kuipers, project manager for HFCC-G.fast at the network equipment provider ADTRAN. “What we've developed allows fibre to be deployed deep in the network but uses the last few hundred meters of the existing copper plan to minimise costs while delivering brilliantly fast Internet speeds.” The 11 companies and three research institutes that worked on HFCC-G.fast have provided 300 contributions to standards bodies for using a combination of fibre optics and old copper networks.

The breakthrough involved proving high internet speeds can be delivered using fibre optical cables most of the way to a home or business - but completing the last few hundred metres of connection to the building using the existing copper loops from existing infrastructure. “The common wisdom was you had to go straight to fibre – nobody believed copper could be used in this way,” says Per Ödling, a telecommunications professor at Sweden's Lund University. The researchers developed a way to leverage and carefully manage more spectrum and thus deliver fibre-like speeds over the existing copper drop wire from the distribution point to the subscriber's premise.



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### Headache-free installation

Headed by Ericsson, the consortium created task forces to develop G.fast prototypes like DPUs (Distribution Point Units) and modems that use less energy than usual equipment. The partners believe the international cooperation developed the G.fast standard for industrial purposes five years faster than other comparable standards. The companies believe they can use G.fast to offer Internet speeds of

up to 1 Gigabit/second – enough to meet demand up to 2020 – and most have already signed up to a new project to work on doubling that speed.

G.fast requires lower investment for rollout for telecoms operators like Spain's Telefonica, France's Orange and the UK's BT, all three of which participated in the project. BT, using ADTRAN equipment, tested G.fast in Cambridgeshire, in the East of England, and reached download speeds of about 300 Mbit/second. It has decided to invest about €1.3 billion, on G.fast upgrades in British cities over the next five years. Ericsson believes G.fast could play a role in its focus on developing the next generation of mobile technology, 5G, potentially opening up new markets and business models. “With gigabit capacity, the G.fast technology could become important for some of the 5G deployment scenarios,” says Henrik Almeida, research manager for Small Cell transport at Ericsson, which coordinated the project.

For consumers, there is another advantage to G.fast – installation engineers don't usually need to visit their homes to drill ugly holes in the walls or trample on their gardens. “A surprisingly large percentage of the French throw the installation people out,” chuckles Ödling. “That clearly damages the business case for installation.”

### MAIN PARTNER

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### OTHER PARTNERS

ADTRAN, BT, FTW Telecommunications Research Center, Lund University, Marvell, Orange, Sckipio, Tecnalía, Telefonica, Telnet-RI, TNO, Dension Broadband Systems, EUR

### TOTAL R&D INVESTMENT

€ 4.24 million

### DURATION

January 2013 to December 2014

### COUNTRIES INVOLVED



EUREKA is a European network for market-oriented R&D.



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