

4GBB GOLD/G.fast

GOLD

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Partners:

ADTRAN GmbH, Germany

Alcatel-Lucent Bell, Belgium

BT, UK

Deutsche Telekom AG, Germany

Ericsson AB, Sweden

Lund University, Sweden

Marvell Hispania S.L., Spain

Orange SA, France

SAGEMCOM, France

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Project Website

www.celticplus.eu/project-gold

Gigabits Over the Legacy Drop

The Gigabits Over the Legacy Drop project GOLD will explore multiple-gigabit copper access based on the DSL standard G.fast. GOLD focuses on improving the standards to open a potential mass market for G.fast and boosting the usability of G.fast in dense city areas by development of cost-effective backhauling based on copper. GOLD will also explore a second version of the standard utilising even higher frequencies.

Main focus

The next European leap in broadband capacity has been prepared through the two CELTIC projects 4GBB and HFCC/G.fast. The standardization of the hybrid fibre-copper broadband access technology G.fast was initiated through 4GBB and nurtured to completion of its first version by HFCC/G.fast. We will continue with a third project, GOLD, focusing on

- A) Continued work on the G.fast standard.
- B) Developing and spreading know-how around deployment practices in order to ensure that G.fast becomes a market success.
- C) Boost the usability of G.fast towards dense city areas by developing alternative backhauling option based on copper instead of fibre. This simplifies G.fast deployment significantly (less fibre digging) and opens a potential mass market for G.fast.

D) To go beyond the first standard by initiating the planned second version of the standard promising a doubling of the bandwidth reaching 200 MHz, and also to take the technology further by exploring multiple-gigabit copper access.

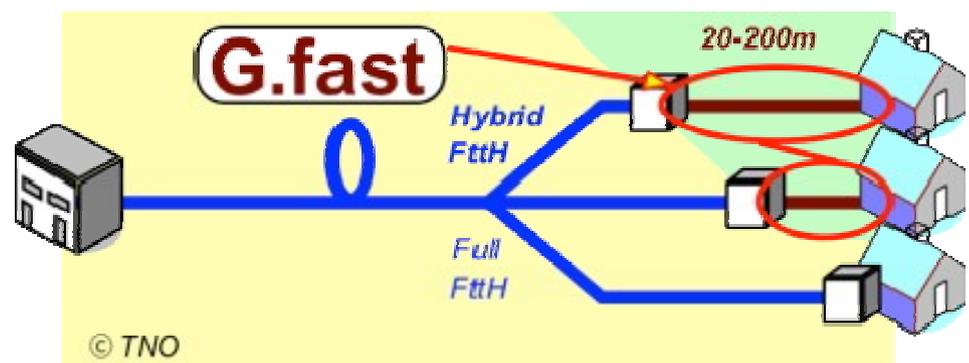
Approach

G.fast is the ideal technology for maximizing the value of existing copper infrastructure. Currently fibre roll-out is very expensive and therefore roll-outs are not happening on a large scale in the access network. G.fast bridges this gap by providing high-speed broadband over the existing copper cables.

The GOLD project will keep focus on G.fast and explore the possibilities of multiple-gigabit copper access to go beyond the first G.fast standard.

To boost the usability of G.fast towards dense city areas the approach of copper backhauling, as an alternative to full fibre backhauling, keeps the digging of fibre at a minimum. This allows for reusing existing copper and VDSL investments and for a more gradual bitrate migration that keeps pace with actual market demand.

To ensure that G.fast becomes a market success know-how about where and how to deploy in the most optimal (economical) manner, and where to select what type of backhauling and powering option is of high importance.



GOLD will also investigate solutions for medium and long-term evolution of copper technologies, beyond G.fast, to meet the future demands of even higher bitrates.

GOLD will approach the project goals through feasibility studies, development of alternative back-hauling and powering options. Measurements, modelling and simulations of physical layer behaviour and G.fast performance will be carried out during the project.

Main results

G.fast is the next generation of residential broadband systems and the latest in the series of: voice-band modems, ISDN, ADSL and VDSL. These technologies have dominated the market and transformed, if not defined, modern living. We expect G.fast to be a worthy successor and reach similar market penetration. Each generation of DSL has increased the capacity by about a factor of ten, as will G.fast.

Being a hybrid-fibre-copper technology relying on a deep-fibre deployment, one of the additional purposes of G.fast is also to extend the fibre networks of Europe and thus prepare for a full fibre network.

The previous projects have initiated the G.fast standard and en-

sured its progress through submitting hundreds of standards contributions. The GOLD project aims to ensure the creation of a complete standards ecosystem for fibre-to-the-distribution point ultra-high-speed access based on G.fast, and a roadmap for its further evolution.

Impact

Europe's competitive edge has long been partly based on having excellent infrastructure, where lately broadband access has risen in importance. In regions largely lacking a copper network, like much of Asia and Africa, broadband infrastructure can either be deployed using fibre at great expense or provided through mobile networks, with mounting capacity challenges. Through G.fast, Europe with its rich copper infrastructure can achieve nation wide ultra-broadband coverage at much lower cost and much faster than many other regions, thus leveraging our earlier infrastructure investments. Boosting European competitiveness is the driving motivation behind the series of three CELTIC G.fast-oriented projects (4GBB, HFCC/G.fast and this project GOLD). European communications industry and operators have a strong position and ensuring their continued technical leadership is an additional ambition of the project.

About Celtic-Plus

Celtic-Plus is an industry-driven European research initiative to define, perform and finance through public and private funding common research projects in the area of telecommunications, new media, future Internet, and applications & services focusing on a new „Smart Connected World“ paradigm. Celtic-Plus is a EUREKA ICT cluster and belongs to the inter-governmental EUREKA network. Celtic-Plus is open to any type of company covering the Celtic-Plus research areas, large industry as well as small companies

or universities and research organisations. Even companies outside the EUREKA countries may get some possibilities to join a Celtic-Plus project under certain conditions.

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