



EUROPEAN COMMISSION - PRESS RELEASE

Digital Agenda: award-winning EU-funded project could bring more powerful broadband connections

Brussels 28 October 2011. An EU funded project which has developed a long-term solution to Internet traffic congestion has just received a prize at Future Internet Week in Poznan, Poland. The TRILOGY project received the Future Internet Award for its outstanding contribution to the Internet architecture and protocols, which could help provide Europeans with faster, more reliable Internet connections.

The three year €9.2 million project, completed in March 2011, brought together researchers and companies from Belgium, Finland, Germany, Greece, Spain, UK and the US to find methods of managing traffic so that congestion at choke points of the network is minimised, thus resulting in better quality connections for Internet users. The EU contributed €5.9 million in ICT research funding.

Specifically, TRILOGY has developed the Multi-Path Transmission Control Protocol (MPTCP), an extension to standard Internet TCP that enables data to be transmitted from one network node to another via multiple network paths at the same time, an algorithm for multipath routing to take advantage of multi-homing at endpoints and “congestion exposure” extensions to the Internet Protocol (IP) to monitor Internet congestion. In combination, they will enable a more resilient, more flexible and more cost effective Internet.

The award acknowledges European research efforts in developing the future Internet, in the context of ever-increasing traffic that is seeing broadband networks overloaded by new applications and video streaming demands.

The results of the TRILOGY project are already being taken up by the ICT industry and integrated into open source and other commercially available operating systems to ensure that Internet connections become more resilient and flexible for all users.

Using funding from the 7th Framework Programme for Research and Development (FP7) to support innovative ICT solutions which will help EU citizens and businesses is a priority of the [Digital Agenda for Europe](#) (see [IP/10/581](#), [MEMO/10/199](#) and [MEMO/10/200](#)).

Background

Internet traffic has reached unprecedented levels. For example, YouTube alone reaches 3 billion views per day and 2 days' worth of uploaded videos every minute in 2011. Demand has led to a decrease in bandwidth availability and has at times cast doubt over the strength of the Internet design altogether.

The TRILOGY Project has developed three new architecture blocks to help manage Internet traffic congestion.

The Multi-Path Transmission Control Protocol (MPTCP) transmits data between two network nodes along multiple paths at the same time, in order to pool the capacity and reliability of multiple network paths and to benefit from multihoming at endpoints – for example a mobile device with several wireless interfaces. An open source version of this protocol is available for the Linux operating system, which has been tested and ported to Android and Nokia devices. In addition, the ICT company Oracle is implementing MPTCP for its Solaris operating system.

Multipath routing: TRILOGY developed an algorithm for multipath routing that allows Internet routers to select multiple paths to a given destination, compared to a single route under the current approach. Traffic is thus spread out over multiple paths, leading to more resilient network connections in case one path fails or becomes overloaded, and an overall improved use of the network.

Congestion Exposure (CONEX) enables IP devices to monitor and share fine-grained congestion information in the network. Until now, this was only possible for the network endpoints. As a result, a user or a network can be held responsible for their impact on other users. This also encourages investment in new capacity.

The award was announced in the closing session of the Future Internet Assembly (FIA), part of the overall Future Internet Week (24-28 October) held in Poznan, Poland. Organised biannually by the country holding the EU Presidency, the Assembly brings together European projects working in the Future Internet field and provides a discussion platform for the latest research results and developments.

The Future Internet Awards promote the best European national and regional future Internet initiatives. Funded under the European Commission's 7th Framework Programme for Research and Development, TRILOGY is a leading example of European future networks research.

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Useful links:

<http://www.trilogy-project.org/>

Future Internet Award: <http://www.cefims.eu/fiaward/>

Future Internet Assembly:

http://www.event.fi-poznan.eu/fia/page/1377/Agenda_details.html?view=program&conference=36

Digital Agenda website: <http://ec.europa.eu/digital-agenda>

Neelie Kroes' website: http://ec.europa.eu/commission_2010-2014/kroes/

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