

HORIZON
2020

A New, Evolutive API and Transport-Layer Architecture for the Internet

Results in Brief

Internet applications to gain better interaction with network services

An EU-funded project has advanced an architectural change to the internet that will help tailor network services to applications. This means innovators can produce faster, more reliable and more secure applications.



© spainter_vfx, Shutterstock

Increasingly, new Internet services and innovations require a better transport-layer architecture, including enhanced signalling between application and network, as well as seamless transport protocols. This is particularly important for SMEs to grow and access an equal playing field with bigger players.

Improving internet transport protocols

The [NEAT](#)  project encouraged online service innovation by developing a free open-source transport system that assists SMEs in exploiting current transport protocols. It helped prepare for architectural change of the internet so that innovators can seamlessly integrate new transport layer services.

“A typical internet application relies on transport protocols to be able to run on the network,” says David Ros, chief research scientist and coordinator of the NEAT project. “Gaming, video streaming, chat applications and modern web browsers typically use different transport protocols based on technology from the 1980s that no

longer reflects the needs of today's online applications and the diversity of networks and systems," he explains. Application developers often have to integrate old protocols and must rewrite their application if a new, better transport protocol is introduced, stifling innovation because of how applications communicate across the network.

Keeping in mind that networked applications make use of these protocols via an application programming interface (API), the NEAT project designed a new transport system that offers enhanced transport API. The latter focuses on transport services rather than protocols, enabling developers to specify application requirements in a more natural way. "We developed a system that takes care of selecting the best available combination of transport protocol, transport options, communication links and other critical considerations based on the app's requirements, requested transport service and pre-specified policies like avoiding insecure wifi links," illustrates Ros.

Importantly, the NEAT system achieves this in a way that is transparent to the application. It automatically deals with in-network devices that may block some transport protocols, discovers the best available transport features and interacts with the network to improve the user experience where possible.

Open-source transport system to benefit innovation

Many industry giants have built in-house transport systems that yield the best performance for applications that have special network requirements. To overcome this challenge, the NEAT project developed a proof-of-concept prototype transport architecture and system that has been released as free open-source code. "This encourages a more level playing field for innovative small companies, from which novel internet applications often come," highlights Ros.

In effect, the NEAT code base provides an example and a starting point for application developers to build modern transport systems that they can leverage and tune for their own applications. The prototype has also demonstrated the feasibility of the Transport Services (TAPS) approach now being standardised at the Internet Engineering Task Force (IETF), to which NEAT has been one of the strongest contributors. To date, NEAT is the only open-source TAPS-compatible system available.

It's worth noting that "the NEAT partners are either already shipping products based on project developments or considering its outcomes as part of their product roadmaps and business strategies," sums up Ros. Via IETF standards, NEAT concepts are being rolled out in commercial operating systems by industry players beyond the project consortium.

Keywords

NEAT

transport protocols

internet applications

internet transport architecture

API

application programming interface

internet engineering

IETF

Discover other articles in the same domain of application



Affordable and reliable internet access available to remote areas

9 April 2021



Longer flights for drones may see unmanned aerial taxis emerge

9 April 2019



Reimagining a new internet for everyone

5 May 2023





Pioneering integration of connectivity advances automated driving

29 July 2022



Project Information

NEAT

Grant agreement ID: 644334

[Project website](#) 

DOI

[10.3030/644334](https://doi.org/10.3030/644334) 

Project closed

EC signature date

17 December 2014

Start date

1 March 2015

End date

30 April 2018

Funded under

INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

Total cost

€ 4 215 751,25

EU contribution

€ 3 957 001,25

Coordinated by

SIMULA RESEARCH
LABORATORY AS



Norway

Last update: 17 September 2018

Permalink: <https://cordis.europa.eu/article/id/239514-internet-applications-to-gain-better-interaction-with-network-services>

European Union, 2025