< P R O J E C T   A C R O N Y M >

PURSUIT
Publish Subscribe Internet Technology

The project applies the information-centric view on networking, focusing on WHAT is being exchanged rather than who are exchanging it or where it is. The project is designing a new internet architecture based on the publish/subscribe paradigm. The eight partners are from four EU countries: Finland, Germany, Greece and UK.

At A Glance: PURSUIT

Publish Subscribe Internet Technology

Project Coordinator

Arto Karila

Aalto University – HIIT, Finland

Tel: +358 50 384 1549

Fax: +358 9 694 9768

Email: arto.karila@hiit.fi

Project website: http://www.fp7-pursuit.eu

Partners:

- Aalto University (FI)
- University of Cambridge (GB)
- RWTH Aachen University (DE)
- Athens University of Economics and Business (GR)
- Oy L M Ericsson Ab (FI)
- University of Essex (GB)
- Centre for Research and Technology Hellas (GR)
- CTVC Ltd (GB)

Duration: Sep 2010 – Feb 2013

Funding scheme: STREP

Total Cost: € **5.20** m

EC Contribution: € **3.77** *m*

Main Objectives

The current Internet is end point centric which has contributed to a number of its problems, including: SPAM, denial-of-service attacks, poor performance in the distribution of digital media, and poor support for mobility.

In PURSUIT, information rather than machines is named and addressed. We are building on the ideas developed and validated in the FP7 PSIRP project, expanding the work towards several key directions, including applications and wireless and optical transmission.

PURSUIT is an academically driven project with strong industrial participation. Ultimately, information centric networking is about empowering the users.

While the work still is at the research stage, some of the results should be commercially deployable in the near future. Parties that should be interested in this project include (in addition to academic institutions) vendors of telecommunication equipment, telecom operators and media houses.

The main objectives of the PURSUIT project are to:

- Further develop information-centric internetworking solutions in crucial areas like transport, caching, error control, flow control, and others.

- Investigate new techniques for building wireless and wireline networks and access methods applying information centrism throughout the layers.

- Investigate the socio-economic impact that our work – both on macro-economic and player-specific level.

- Evaluate the relevant quantitative and qualitative parameters of our solutions, with a focus on security and privacy.

- Develop integrative prototypes and demonstrators that show the full potential of the developed solutions.

Ultimately, information centric networking is about empowering the users.

- Collaborate with the global and European experimental research initiatives on testing and validating the proposed solutions in a reasonably real-world-like environment and on a sufficiently large scale.

Technical Approach

To avoid building silos within the project, we are following the life-cycle approach which is already proven in the PSIRP project.

Instead of dividing the project into WPs by substance areas, the WPs represent different stages of the work.

The workpackages are the following
(with WP leaders in parentheses):

WP1   Management (AALTO-HIIT)

WP2   Design (UCAM)

WP3   Implementation (LMF)

WP4   Experimentation and Evaluation (RWTH)

WP5   Dissemination and Exploitation (AUEB-RC)

Rather than moving from one phase to another, we are using the iterative method, where experience from implementation and evaluation is fed back to design, several iteration cycles are performed during the project, and several stages are active at the same time.

Key Issues

The project builds on the results of the PSIRP project, tackling the open research questions mentioned before and expanding the work into several key directions.

Among the issues requiring further research are: transport, caching, flow control, mobility, impact of the approach to the operation of lower layers, and the socio-economic impacts of the work.
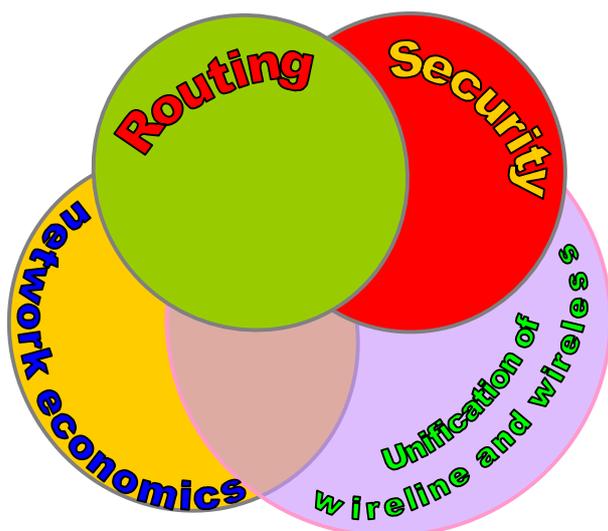
Expected Impact

The project has potential impact in several areas of the work-programme 2009-2010:

- A majority of researchers of internetworking agree that a fundamental reform of the Internet is inevitable in the near future. The US leadership in academic internetworking (gained through research in the 1970's and 1980's) gave US vendors a huge advantage in the commercial deployment of the Internet in the 1990's. It is vital for Europe that we are actively shaping the Internet of the future and ready to lead its commercial deployment.

- PURSUIT is seeking to unify fiber optical backbones and high-speed wireless access under the concept of information-centric networking. Europe is still relatively strong in mobile networking and the project should help retain and strengthen this position.

- There are clear indications that the publish-subscribe paradigm can be inherently more efficient (and energy-efficient) than the current approach in the distribution of digital media.

- Information-centric networking still at the research stage and it will probably take a while before interoperability standards will emerge. When work on such standards is started, our researchers will be well positioned to participate in and influence it.

- Deployment of ICT in other areas has a much greater potential impact on economy than the ICT sector per se. Information-centric networking can help release the Internet from its current ossification and enable a multitude of new services based on it.

- Some of the most significant long-term applications of the work being done in this project are in the public services, including health care, elderly care, and education.

- More affordable and flexible internetworking, which can adapt to the needs of the users, should also have great impact in the building of information infrastructure in the less developed areas of Europe as well as in developing countries.