

Aggregation of WLAN Access Resources

The key idea of the AWARE project is to aggregate privately owned WLANs and to allow telecommunication service actors to exploit this aggregation. AWARE aims at high bandwidth mobile networks in urban areas leveraging on private WLANs, making industry and telecommunication actors ready to deploy their services on top of this new network infrastructure.

Main focus

In most of the western countries, the number of deployed WLANs is already huge and still increasing. This forms a huge amount of wireless resources that are underused, whilst at the same time, the wireless network demand increases. The AWARE project aims to address the issue of deploying a high bandwidth mobile network in urban areas, leveraging on the existing private WLANs or femtocells which currently serve mostly their individual users' needs. To achieve this, the project will deal aggregation methods and solutions to make these non managed resources available to the users; to integrate these resources with existing operators networks that allows a fruitful cooperation; and to develop economical modelling of such an approach, then to identify opportunities and to derive incentive strategies.

Approach

The assumption is that WLAN access points and nomadic users will need to perform more than just providing and sharing connectivity to the Internet. Due to the dynamics of the user behaviour and the scarce wireless resources, network wireless nodes will have an active role not only on the transfer of information, but also on its storage and processing. The project will devise solutions to optimize management of resources in a network with different wireless devices. Current and new techniques for service differentiation and queue management will be studied.

The AWARE project will address efficient mobility that scale for demanding multimedia applications. The project will rely on existing solutions to build a reliable mobility mechanism in the AWARE network context.

Scalability must refer not only to the size of the wireless network, but also to its dynamics, since it will be very difficult to predict how many devices will be attached to a certain access point in a certain moment in time. The project shall optimise control, management, and flexibility of the wireless future networks in order to support a significantly larger and diverse number of devices and complex user requirements.

The specificity of the network that AWARE



AWARE 

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Project ID: CP6-002

Start Date: 31 December 2009

Closure date: 30 November 2011

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www.celticplus.eu/projects/cectic-projects/call6/AWARE/aware-default.asp

aims to deal with needs that existing charging and billing are tailored, i.e. to take into account the fact that the devices are not managed. The project will enable charging and billing in a network composed or shared resources.

Main results

The project aims at assessing the viability of a new network architecture based on the aggregation of shared resources. This new model infrastructure is expected to allow new deployment model and new usages related to social networking.

The project addresses the following techno-economical issues: payments, as it needs to develop a new charging and billing model; Social networking, as the network being set up on social basis, it will allow new usages.

One of the objectives of the AWARE project is to allow seamless interactive services over a infrastructure composed of shared WLAN. The users will be able to use available WLAN in a fully transparent manner.

The project will deeply study new business and economical models implied by the aggregation of shared WLAN resources, and will output analysis and simulations that will allow to identify which deployment model is the best suited to the operator's needs.

The AWARE project will give to

the users the ability to connect at any place where WLAN coverage exists, that means in most of the urban area of Europe.

Impact

The use cases scenarios will be key for a better understanding of potential of shared WLAN infrastructure. The novel architecture for applications that will be released will contribute to scientific advance in wireless networks

Deployment, reliability, handover management features developed in WP3 will be strong differentiators for WLAN solutions and products. The integration of the different autonomous mechanisms, and the novel approaches for reliable and efficient handover will develop new knowledge in WLAN integration area.

The interaction with legacy and billing systems that will be enabled by AWARE results will allow to exploit WLAN resources by operators. The developed approach for distributed monitoring, billing and service management will contribute to a networked view of services.

The theoretical study for user acceptance, the real experimental study, the associated models and the resulting Business Case will validate the economical potential of a shared WLAN infrastructure. The new models and methods that will be developed for assessing economical validity of AWARE

architecture will be strong contributions to the domain of economy in network that is gaining momentum.

About Celtic

Celtic is a European research and development programme, designed to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 8 years, from 2004 to 2011

Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

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