

Antennas VCE: the management of big research projects using Internet Technologies

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Abstract — Antennas VCE is a web portal providing support to the remote management of a Network of Excellence (ACE) funded by The European Sixth Framework Programme. Antennas VCE is aimed to play an central role in the ACE network by providing to Network Participants and Scientific Community a distributed service to access the European excellence in Antenna research, technological developments and applications. It offers a private access reserved to the ACE Participants which contains the services developed to ease and coordinate the network activities and the knowledge exchange; it also supports both a Public and a Community access; while the public part is dedicated to the citizens, the latter is reserved to Scientific Antenna Community.

I. INTRODUCTION

International research programmes promote worldwide big projects involving a large number of experts from many Organisations distributed geographically across many Countries.

The European Sixth Framework Programme (FP6), for instance, funds Integrated Projects, Network of Excellence and other Projects sometimes composed by tenths of Institutions and hundreds of researchers spread across Europe.

Antennas Centre of Excellence (ACE) is a Network of excellence in the European 6th framework IST. It aims to structure the fragmented European antenna R&D, reduce the duplications and boost the excellence and competitiveness in key areas. ACE deals with the antenna function of radio systems. This includes the electromagnetic interface from conductors to free space radiated waves, the beam-forming functions, whether they are analogue or digital, and adaptive "smart" systems to optimize performance.

The Consortium size, the dynamic composition of the involved Teams, the wide spectrum of research and the expected wide dissemination to the scientific Community require a novel approach to the management of this kind of projects, where the research activities, the exchange of knowledge, the spreading of results, etc. need to be virtually centralised in order to be harmonised and monitored.

From these requirements, the ACE Network decided to develop an Internet Portal called Antennas Virtual Centre of Excellence (Antennas VCE) with the aims at becoming the backbone for the Antennas Scientific Community, composed by researchers from Universities,

Research Centres, Industries, etc. actually involved in antennas technology development and application.

Antennas VCE is designed to provide a set of added value services to this Community by establishing a single point to share information across the entire research-manufacturing-users chain.

II. SYSTEM OVERVIEW

The Antennas Virtual Centre of Excellence (Antennas VCE) is an Internet Application whose Graphical User Interface is rendered as a dedicated Portal for Antenna technology primers and experts.

Antennas VCE is configured to offer up to 3 different level of support towards:

- 1) the Citizen; by a public area available in the website to publish unrestricted information;
- 2) the Community, by a Community area accessible by Username/Password to the researchers of Organisations interested in the project but outside the Consortium; it is very useful to widen the impact beyond the Project boundaries by a set of Community Services;
- 3) the ACE Network; by a Project area, accessible by Username/Password to the researchers involved in the project; it contains restricted information and provides a set of tailored Project Services;

as presented in figure 1.

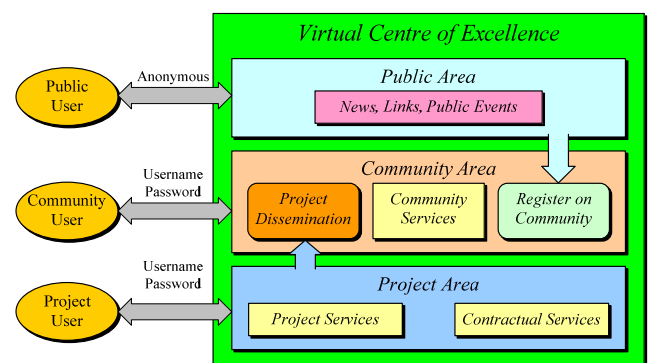


Fig. 1. VCE block diagram with a simple representation of minimum authentication for each VCE area.

From the Information Technology point of view, the AntennasVCE website is implemented using Python and

the Zope DTML languages, with PostgreSQL as database.

III. MODULE DESCRIPTION

The context architecture of the VCE is reported in the following figure, where the basic blocks (modules) of the applications are reported; each block implements a service that is delivered to the user by a set of forms that are used to store and retrieve data from the underlying database.

Data exchange within the same module is implemented by argument passing, while interaction among different modules is implemented through communication with the database. Data Files are only used by some modules to store information to be downloaded 'as-is' by remote users.

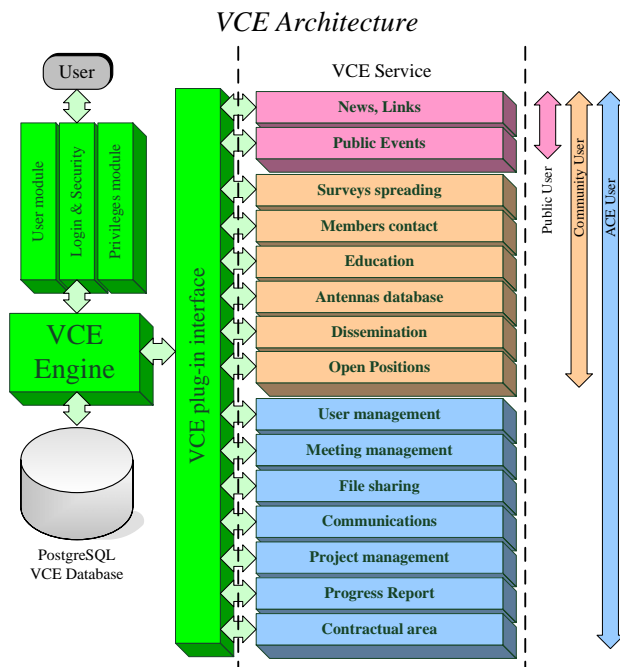


Fig. 2. VCE architecture break-down

A. Login

VCE requires username and password to login. Every user has his own profile, depending on his role inside ACE. Possible role are: Network Coordinator, Technical Coordinator, Executive User (Executive board), Participant User, Activity Leader, Workpackage Leader, Contact User, Contractual User, Researcher, Supervisor (European Community)

B. User Management

Users Management area allows ACE user to view, list and filter by WP and/or organisation information about all users participating to ACE project.

Participants User can add and edit users for his own organisation and he may assign and remove them roles.

Every user can change his own information clicking on his name and he can view information about other users clicking on their name.

C. Meeting Management

The Meeting Management module allows all users to list, view, create, modify, register themselves to planned meetings and to upload / download files related to a meeting.

D. File Sharing

File sharing area is a repository, hierarchically ordered by Activity and WP. Every user has reading/writing rights upon the files.

E. Communication

Communication area provide a facility to send e-mail to ACE users. E-mail can be selected by many different kind of filters.

F. Project Management

The Project Management module allows users with sufficient privileges to view and insert the number of planned and worked hours for researchers, organisations, workpackages, etc. This module offers one input page and three view pages, showing the planned and worked hours at different detail levels.

G. Progress Report

The Progress Report module allows all users to view and edit their contributions to the yearly Progress Report document. This area lists all the document sections assigned to user, their completion status and the Sections they belong to. Only Coordinator can create the complete Progress Report document. A remainder will alert users in delay with their contributions.

H. Contractual Area

The Contractual Area module allows Contractual and Participant Users to perform a variety of tasks. The Communications page allows contractual users to view all contractual communications. Communications are listed from the most recent to the oldest one. The Documents page allows contractual users to view and download the ACE contract and related documents. The Cost Declaration page allows contractual users to view and update their yearly cost declaration. The Prime Contractor can also view the cost declarations of all other organisations. The Statement Shipment page allows contractual users to view and add financial statement shipments. The page shows all shipments performed by your organisation, starting from the most recent one. Finally Payments page allows contractual users to view payments to their organisation.

I. Community

Community is the VCE area visible also to user outside ACE project. It provide two registration levels:

- 1) Guest user
- 2) Member user

To become a Guest user, a visitor has to provide only name, surname and e-mail.

To become a Member user, the same visitor has to provide a wide range of information about his organisation and his department, ACE users are deals like Member users. When a user declares to belong to an organisation, a confirmation request is sent to the organisation responsible, so he can accept or reject this affiliation request. If the organisation does not exist in Community database the user has to register it or he has to ask to an organisation responsible to register himself and their organisation. When a user registers an organisation in Community database he become the responsible for his organisation.

Community provides a wide range of services as forums, newsletter and a list of organisations registered to VCE community.

Moreover every Community member, qualified with the second registration step, will be able to post messages in forum, register himself to European School of Antennas courses and upload information about, for example, software developed by his organisation.

J. Survey spreading

This service include forums and information sheets.

In the forum only the Member users can add topic where post his messages and reply to messages posted by other Member user. The Forum administrator has to survey on to posted messages, when a message is off-topic the forum administrator can delete it, otherwise he has to authorize the message publishing.

In the information sheets a Community user can find a lot of useful documentation about Antennas, ACE and VCE.

K. Education

Education Area provides access towards two module: European School of Antennas and Virtual Antennas Laboratory. Moreover this area provides an E-learning system.

L. Antennas database

Antennas database provide access toward two antennas information type:

- 1) Measurement facilities
- 2) Antennas software

Measurement facilities is an archive where a Member user can find information about registered organisation measurement facilities.

Antennas software is an archive where a Member user can find information about software developed by registered organisation.

M. Dissemination

The Dissemination module allows all users to view the published results of ACE Network activity, organized as a directory tree. At top level, Dissemination is divided into five categories, each one in turn organized as a folder. Conferences is a list of conferences participated by ACE Network, includes all abstracts of papers presented by the Network. Workshops are all the workshops organized by ACE Network, includes all abstracts of papers presented by the Network. Books & Journals is the list of journals where ACE Network published at least one paper, includes all abstracts of papers published by the Network. Liaisons reports information about the contacts established by the ACE Network with other FP6 Projects, FP6 Project Clusters, European Coordination Actions, National or International Organisations related to Antenna R&D. Other Events reports information about dissemination and spreading activities on Antenna R&D carried outside ACE activities and financed by other sources. This last includes any event, both at National and at Organisation level. A Publishing facility allow to content manager to decide in which section of the website these informations has to be published (Project, Community or Public).

N. Open Position

The Open Positions module collects open research positions and available job opportunities which may be relevant to ACE Network members. All users can view the list of open positions and their details. Participant Users can also Add, Modify and Delete Open Positions using the Edit Open Positions button.

IV. CONCLUSION

Antennas VCE is a project still in progress, ready to quickly answer to new user requirements; its structure is flexible and, during the first year of usage, a large number of improvements have been implemented. Moreover Antennas VCE is open to interface other existing external modules that results easy to connect thanks to the "Open Source" approach.

Antennas VCE has been conceived and developed to create a Virtual Centre on the Web where researchers involved in big projects can access remotely and interact as being part of the same Organisation, achieving the highest level of synergy in scientific and technological research.

At the same time, a centralised Virtual Centre allows an easy management of contractual matters, periodic documents composition, decisions by on-line voting, e-learning providing, etc.

ACKNOWLEDGEMENT

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