



Contract FP6-IST 508009

ACE
Antenna Centre of Excellence

Instrument: Network of Excellence

Thematic Priority: IST - Information Society Technologies

Mobile and wireless systems beyond 3G

Deliverable A1.3D5
Report on long term usage of VCE

Due date of deliverable: 31/12/2005

Actual submission date: 31/12/2005

Start date of project: 1/1/2004

Duration: 24 months

Organisation name of lead contractor for this deliverable: IDS

Revision 1

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	PU
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Document Number: FP6-IST-508009-A1.3D5

Workpackage: 1.3-3

Estimated Person Months: 5

Dissemination level (PU,PP,RE,CO): PU

Nature (R, P, D, O): Report

Version: 1

Total Number of Pages: 15

File name: ACE-A1.3D5-2.pdf

Editors: Fabio Giovacchini

Participants: IDS

Abstract

This document contains the view for a long term usage of the Antennas VCE users and describes the planned or performed actions in order to prepare the portal for such usage.

Keyword List

INTERNET, SOFTWARE

Document Evolution		
Revision	Date	Reason of change
Rev. 1.0	31/12/2005	First Edition
Rev. 2.0	01/04/2006	Reviewed Edition

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1. Introduction

1.1. Purpose and Scope

This document reports the status and services offered by Antennas VCE at the end of Antennas VCE second version development and describes the planned modifications and long-term objectives targeted by Antennas VCE beyond the end of the second year of ACE activities, including possible commercial services.

1.2. Referenced Documents

[RD1] ACE Contract

[RD2] ACE Contract Annex I – Technical Annex

[RD3] ACE Future Commercial Development

1.3. Applicable Documents

[AD1] Antennas VCE – System Requirements

[AD2] Antennas VCE – Architectural Design Document

[AD3] Antennas VCE – Test Document

1.4. Acronyms and Definitions

1.4.1. Acronyms

ACE	Antenna Centre of Excellence
NoE	Network of Excellence
Antennas VCE	Antennas Virtual Centre of Excellence

1.4.2. Definitions

Commercial Services On Line services able to produce financial revenue

2. VCE Current capabilities

2.1. Implemented services

An antenna Virtual Centre of Excellence (VCE) has been created. It offers remote services at two different levels:

- a) inside the ACE Network (Private Section), by supporting network activities, knowledge sharing, meetings, project management, contractual aspects, etc.
- b) outside the Network (Public Section), by creating an Antenna Scientific Community to push the structuring impact across Europe, beyond the ACE Participants.;

as described in the following figure.

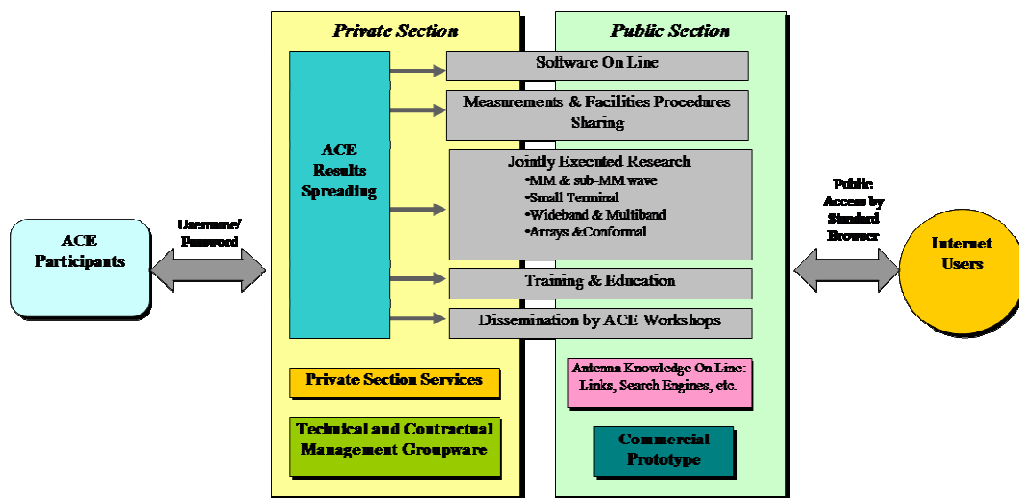


Figure 1 - ACE VCE approach

The VCE home page is www.antennasvce.org, which is linked, as part of the EC IST, to the ACE Network home page www.ist-ace.org.

The VCE services are based on the requirements and architecture defined during the first six months of VCE activity.

The VCE requirements and architecture have been specified in deliverable A1.3D1, subdivided into 2 documents:

- 1) a Requirement Specification, emerged from the collection of suggestions coming from ACE Participants and expressed by preformed questionnaires
- 2) an Architecture Definition, where the main software modules were identified to provide the requested services, as reported in the following figure:

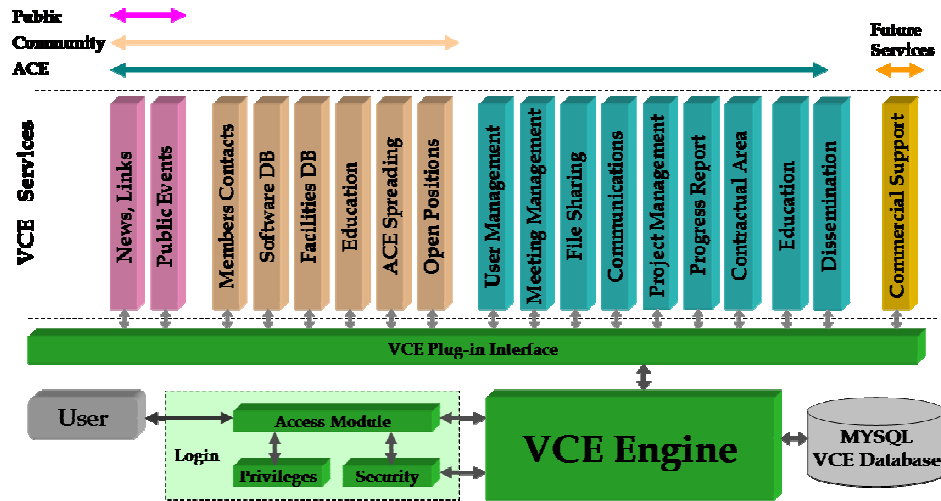


Figure 2 - ACE VCE Architecture

The services development was carried out in the second six months of the A1.3 activity.



The ACE VCE software modules have been developed and published on www.antennasvce.org (see the home page in the figure nearby).

From a preliminary use of the VCE, some measurable results emerged, both at Network and Community level.

In the ACE network a solid coherence was created across the researchers by allowing communications, knowledge sharing and project management vertically as well as horizontally across the ACE activities.

At Community level, the over 180 organisations that expressed interest in the Antenna Research during the ACE proposal are joining this scientific community. This community will create, for the first time, a connected structure composed by European

organisations in the antenna research area.

The publication of the VCE Release-v0 at the end of the first year of the VCE Activity provided a first usable instance of the VCE services.

During the second year, the user feedback on the VCE Release-v0 has been used to verify the services usability, the access flexibility, the interface friendliness, etc. The user feedback has been used to develop the VCE Release-v1, delivered at the end of the second year.

In particular, from the ACE Users feedback evaluation received during 2004 and 2005, the following services have been added to VCE:

- *Call for Proposals*: an online voting service where ACE internal proposals can be submitted, reviewed and voted for financing
- *European School of Antennas*: a service for students and teachers of European School of Antennas. Teachers can create courses, manage their contents and accept or deny course subscription requests. Students can request subscription to existing courses and access to courses information and material.
- *Community*
 - *User Management* allows online registration of users and organisations interested in ACE activities. Also allows to manage users subscribed to the Community
 - *Newsletter* an e-mail based module to spread general information to the Community users
 - *Forum* a module allowing to create multiple moderated discussion forums and manage them
 - *Software Database* a web-based database of Antennas-related software descriptions with search capabilities and allowing ACE members to upload their own software descriptions.
 - *SoftLAB (Software on-Line Antenna Benchmark)* a web-based categorised database of Antennas-related software benchmarks where ACE members can download test cases and report templates and can upload their own benchmark results.
 - *Information Sheets* a module allowing to download brochures, public documents and general information about ACE

Also, the following services were improved:

- *Dissemination* access permissions criteria have been added to this module
- *Education (E-Learning sub-module)* access permissions criteria have been added to this module
- *Project Management* several feature were added: “Additional Cost” cost category, per-organisation configurable conversion between person-months and person-hour and other minor interface enhancements

Moreover, the external modules “Measurement Facilities” and “VALab” have been integrated with VCE in cooperation with UNIFI and UNICAL.

Usage analysis of the various areas denoted strong exploitation of the administrative modules (Contract & Finance, Project Management, Meeting Management, etc.) as expected. At the same time, an increasing interest toward scientific spreading services (European School of Antennas, Community) was measured, leading the VCE team to improve these modules with new functionalities.

3. VCE potential commercial interest

3.1. Commercial services

At the end of the second year, the VCE demonstrated the possibility to attract potential customers through the ACE VCE Community.

The ACE VCE Community is a prototype of the possible services and access criteria to software packages, facilities and remote training, remote conferences, etc, containing:

- Software packages search, preview, etc.
- Test facilities advertisement, measurements booking etc.
- E-learning, including electronic Lectures and tutoring by interactive co-browsing
- Workshops and conferences live remote access or download of recorded sessions.

Moreover, the VCE team designed appropriate schemata to enable permissions on each deliverable produced by ACE and relevant for the dissemination through the web in order to be ready for a proper commercial use, by selling the access, for instance.

In this frame, ACE VCE has also been tested to verify the possibility to use it as a financial source to sustain the ACE Network beyond the duration of EC funding.

In particular, by planning a payment-based access to ACE VCE Community content, services and resources.

4. VCE usage in long term

At the end of the first two years of the VCE development and usage, the following commercial areas arose:

- The Antenna Software selling on-line: with the possibility to evaluate on line the antennas design capabilities, by Try&Buy options, in order to enlarge the European Antenna Business worldwide;
- The Antenna Measurement Facilities booking on-line: with the possibility to select and contact the measurement facilities in order to agree about a measurement planning and prices;
- The European School of Antennas registration on-line: offering the access to the ESoA and distributing the courses documentation;
- The VCE content access: by allowing the remote user to access the VCE content and in particular to specific state of the art documents related to the Antenna Research.

The abovementioned commercial services will be further investigated in the next 2 years of the ACE Network of Excellence. In particular, some prototypes of these services will be implemented and tested in order to verify the commercial feasibility.

The customer target is mainly represented by the Industrial user, but in Academic and Research Centres users can be included in second priority. The following table represent a first analysis of the potential interest of the Antenna researchers for the above mentioned commercial services. The Users have been subdivided into the Organisation categories to take into account different marketing requirements.

	Universities	Research Centres	SMEs	Enterprises
Antenna Information	Medium	Medium	Medium	Medium
On-line Consulting	Medium	Medium	High	High
Antenna Software	Medium	High	High	High
Measurement Facilities Sharing	Medium	High	High	High
Open Positions	Low	Low	Medium	Medium
e-Learning	Medium	High	Medium	Medium
Events and Conferences	Medium	Medium	Low	Low

Fig. 3 – VCE Commercial Potential Interest

In conclusion, we believe that the wide range of Antennas technology know-how being collected and spread by the VCE and resulted from the substantial efforts spent by the ACE Network, can represent an interesting offer for a customer.

In order to match the offer with the high variety of Organisation operating in the Antennas Research (from SME to large Enterprises), the commercial offer will be articulated in different levels with a specific fee for each service available. This approach will optimise the services and maximise the financial income from the available market.

A further difference will be related to the European and non-European customer, where some extra fee could be added. In conclusion, the pricing policies to be used for the VCE services selling will be defined and fixed, trying to find a convergence between the European distribution and the worldwide impact expected by ACE VCE.

5. VCE usage report

The following charts show the VCE usage statistics during its two years of activity, divided in total usage, total usage by month, traffic from different countries, and search key phrases from the major search engines.

Usage Summary for 2004











Reported period	Year 2004				
First visit	14 May 2004 - 13:12				
Last visit	31 Dec 2004 - 22:48				
	Unique visitors	Number of visits	Pages	Hits	Bandwidth
	1562	4944 (3.16 visits/visitor)	311622 (63.03 pages/visit)	843185 (170.54 hits/visit)	6.72 GB (1424.55 KB/visit)

Monthly history for 2004



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2004	0	0	0	0	0
Feb 2004	0	0	0	0	0
Mar 2004	0	0	0	0	0
Apr 2004	0	0	0	0	0
May 2004	68	183	3681	12222	167.86 MB
Jun 2004	148	459	19352	46868	571.37 MB
Jul 2004	92	231	5834	16716	204.68 MB
Aug 2004	84	180	9860	25529	436.04 MB
Sep 2004	170	585	42198	119454	705.30 MB
Oct 2004	272	890	58510	150981	1.13 GB
Nov 2004	371	1233	98947	262721	1.68 GB
Dec 2004	357	1183	73240	208694	1.88 GB
Total	1562	4944	311622	843185	6.72 GB

Countries for 2004 (Top 10)

	Countries		Pages	Hits	Bandwidth
	Italy	it	124390	378406	1.42 GB
	France	fr	37863	89611	1.10 GB
	Spain	es	29818	69967	737.90 MB
	Sweden	se	24552	69504	916.94 MB
	Germany	de	19887	57975	641.78 MB
	Greece	gr	18765	49076	349.94 MB
	Denmark	dk	15999	36493	215.25 MB
	Great Britain	gb	15123	40322	514.41 MB
	Portugal	pt	4757	8807	181.43 MB
	Finland	fi	4499	7735	252.05 MB
	Others		15969	35289	489.07 MB
	Total		311622	843185	6,9 GB

The first year usage shows an increasing interest starting from the first days of May when VCE was first released.

The 2004 traffic was almost completely due to users belonging to ACE project.

Their interest in VCE grew with the progressive release of new modules and the availability of project-specific data uploaded by the users themselves.

Top Search Key Phrases for 2004

17 different keyphrases	Search	Percent
fp6 antenna center of excellence	1	6 %
site www.antennasvce.org antennas vce	1	6 %
virtual-center-of-excellence	1	6 %
bruno casali vce	1	6 %
outdoor advertisement benefits	1	6 %
ace virtual center of excellence	1	6 %
ace vce ids	1	6 %
virtual center of excellence of antennas	1	6 %
ace network of excellence antennas vce	1	6 %
Other phrases	8	46 %

The chart above represents the visits to VCE due to search results on major search engines performed through the Internet by general public users. An analysis on the used search key phrases denotes only a moderate, general interest toward the existence of a web site for ACE project.

Usage Summary for 2005











Reported period	Year 2005				
First visit	01 Jan 2005 - 11:59				
Last visit	31 Dec 2005 - 19:11				
	Unique visitors	Number of visits	Pages	Hits	Bandwidth
	6836	16217 (2.37 visits/visitor)	531412 (32.76 pages/visit)	2030074 (125.18 hits/visit)	25.57 GB (1653.41 KB/visit)

Monthly history for 2005



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2005	300	1010	57149	171224	1.94 GB
Feb 2005	608	1490	66653	274276	1.76 GB
Mar 2005	653	1552	46580	258590	1.66 GB
Apr 2005	627	1438	36566	167715	1.71 GB
May 2005	612	1522	43782	197589	2.17 GB
Jun 2005	652	1560	42394	152230	2.18 GB
Jul 2005	475	908	21861	90062	994.24 MB
Aug 2005	530	916	21171	86714	964.24 MB
Sep 2005	679	1604	59684	210946	3.02 GB
Oct 2005	501	1144	36606	122332	1.76 GB
Nov 2005	645	1637	52342	165417	3.62 GB
Dec 2005	554	1436	46624	132979	3.84 GB
Total	6836	16217	531412	2030074	25.57 GB

Countries for 2005 (Top 10)

	Countries		Pages	Hits	Bandwidth
	Italy	it	176351	728675	4.76 GB
	France	fr	71273	208742	4.54 GB
	Spain	es	56283	204280	3.14 GB
	Sweden	se	46624	206402	2.70 GB
	Germany	de	29969	95918	1.80 GB
	Greece	gr	27369	91053	1.44 GB
	Great Britain	gb	24073	93438	1.27 GB
	Denmark	dk	22778	67972	981.90 MB
	Netherlands	nl	14300	61269	612.77 MB
	United States	us	11471	43128	895.55 MB
	Others		50921	229197	3.49 GB
	Total		531412	2030074	25,57 GB

The second year usage shows a drastic increase in interest and exploitation of VCE services with respect to the first year, with a high traffic due to users belonging to ACE project.

Thanks to the Community area, the interest in VCE of the scientific community also grew during 2005 as can be seen for example from the number of visits coming from the United States.

The continued enhancement of services and the development of the European School of Antennas service, where the general public can find information about ESoA goals and organisation, while students and teachers can coordinate their activities and exchange information, also significantly contributed to the much higher usage of VCE.

Top Search Key Phrases for 2005

936 different key phrases	Search	Percent
european school of antennas	36	2.7 %
travelling wave antennas	19	1.3 %
giuseppe vecchi	10	0.7 %
leaky wave antenna metamaterials	8	0.6 %
leaky wave antennas	8	0.6 %
uniform theory of diffraction	8	0.6 %
antennas metamaterials	7	0.5 %
lola composites	7	0.5 %
computational em	7	0.5 %
Other phrases	1214	91.6 %

The analysis of 2005 search key phrases shows a huge increase of interest towards ACE project and in particular the searches are focused on specific services and scientific topics available on the VCE rather than general information on ACE. It appears that VCE has become a consolidated web site extensively used by the antenna scientific community to search for known services as European School of Antennas as well as information on antenna theory, materials and software for numerical E.M. computations which are provided in particular by the SoftLAB module.

The visible interest from the scientific community to the VCE services shows that the approach followed by the VCE, i.e. to offer an increasing number of services targeted at a wider audience than the sheer ACE project, was correct in order to foster the creation of a virtual aggregation and information exchange centre for the antenna scientific community.

The success of this approach can and should be the starting point for the activities to be performed during and beyond ACE-2.