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Abstract: This document describes the contacts established with several other IST and other European and national projects for the close collaboration with the 6WINIT project. The collaboration activities in the first year are summarised.

Keywords: IST, Concertation, Dissemination, Mobile IP, IPv6, Wireless internet

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1 INTRODUCTION

The 6WINIT project addresses important future network evolution addressing wireless internet with IPv6 incorporation. The project's activities span a large spectrum of issues starting from architecture, design and development of network and application functions applied to both business and the healthcare sector and demonstration of wireless internet over wide area wireless networks such as GPRS and UMTS. In this context, the project has established multiple contacts to ongoing IST projects and the technical activities in national and international projects. This deliverable provides an overview of the activities during the year 1 of the project.

2 CURRENT STATUS OF PROJECT CONTACTS

2.1 Collaboration with other IST Technical Projects

The following table summarises the contacts established with different IST projects and other related groups in promoting the activities of 6WINIT and concerted activities of IPv6 related issues.

Issues addressed	Projects	Main objective	Issues addressed relevant to 6WINIT
IPv6 related	6INIT	**IPv6,** operational platform (Jan- Jun. 2001)	Basic IPv6 network services, including IPv6 routing (BGP), tunnelling, NAT-PT and Ultima transition methods, DNS, addressing, multicast IPv6 and basic email and web services. Some experience with C and Java IPv6 APIs (though Java came late in the project) and code porting. IABG developed FreeS/WAN IPv6 port for (tunnel mode) IPsec. 6WIND made developments for its IPv6 Edge Device.
	GCAP	**IPv6,** Multimedia multipoint; Diffserve, QoS	Some of the protocols developed in the GCAP could be of interest to 6WINIT for some application demonstrations
	INTERNODE		
	MOEBIUS	IP based mobile Extranet platform	Co-operation has been established for possible clinical application trials across the two projects.
	NGNLAB	IPv6 and QoS testbed	The two testbeds in Brussels and Basel are interconnected with the GEANT network and hence provide some good co-operation possibilities for wide area networking with NRENs across GEANT
	LONG	IPv6 applications testbed.	The ISABEL application is being developed in this project for IPv6. The trials can be realised between the two projects once a stable application is available

Connectivity	GÉANT (and TF-NGN IPv6 Working Group, led by UoS)	Pan European interconnection	Successor to Quantum TEN-155 network; carried IPv6 over ATM Managed Bandwidth Service, but no equivalent service yet in GÉANT. GÉANT committed to deploy IPv6 service in its lifetime. Has IPv6 Working Group under TF-NGN studying (as major topics) routing, DNS, addressing, transition tools and applications. Deployed successful A6-based DNS tree with reverse lookups and AAAA synthesis.
:	6NET	NREN IPv6 network	NRENs IPv6 interconnectivity. (Jan'02). UoS is leading Transition Work Package and collaboration with Euro6IX.
	Euro6IX	Pre-commercial operators IPv6 network	The project will start in Jan. 02. It will provide the native IPv6 exchanges interconnected and supporting multiple user groups. Telscom is leading the dissemination workpackage
National projects	UK6IX	IPv6 neutral exchange managed by BT	Possible trials in U.K with interconnections to 6WINIT network
	BERMUDA2 (UKERNA, UoS, Lancaster and UCL)	Pilot for UK academic IPv6 deployment	IPv6 routing/tunnelling, transition tools (including NAT-PT, ALGs and tunnel brokers), wireless LANs with Mobile IPv6, DNS, addressing, network management, some IPsec (VPN) and QoS studies. Web resource being built at www.ipv6.ac.uk. Developed relationships and network links to Japan (IPv6 over ATM PVC) and Internet2 (pending).
	T-NOVA	Mobile IPv6	T-NOVA has both IPv6 and UMTS testbeds. Hence there is a possibility for the 6WINIT trials scenario in their testbed.
Mobile and wireless	Mobydick	Mobile internet	They have e-learning applications trials planned across mobile networks both in local and wide area networks. The co-operation for access to their infrastructure is in discussion.
	WINE	**IPv6,** fully IP-based, optimised, QoS aware wireless Internet	Implementation of performance enhancing proxy, i.e. "Wireless adaptation layer" (implements DiffServ QoS, forward error correction, header compression, payload compression and TCP Snoop); Link layer modules for 802.11b, Bluetooth and HiperLAN/2; Wireless SNMP; Micromobility using Cellular IPv6. See http://www.vtt.fi/ele/projects/wine/
Applications			
	FEEL		Deals with the core problem of intrusiveness of today's mobile technology and how work in local environments can be enhanced by introducing the idea of non-intrusive services realised partly by disappearing computer environments. Includes IPv6-communicating devices. The "meeting room" scenario for ad-hoc device communication can be used in 6WINIT project
Security	6INIT	FREESWAN	Security package was tested within 6INIT project which will be used and enhanced.

Agents and managment	ANDEROID	Active services	There are common partners in both 6WINIT and IPv6 who would trial with active services for mutual benefits
General	NGNI	IPv6 is one of thematic issue	6WINIT participates in the NGNI Meetings, to provide the IPv6 and mobile issues as a part of next generation network roadmap development
	IPv6 Forum	Dissemination possibility	Partners are invited to IPv6 Forum events to give presentations. This platform is effectively used.
	IPv6 taskforce	Strategical directions for Ipv6 deployment	Members of 6WINIT are members of IPv6 taskforce, and contribute to the strategical issues discussions.
	RIPE IPv6 Working Group	European IPv6 address allocation policy	6WINIT takes part in RIPE Meeings and contribute in progressing the well defined policy issues
	6LINK	IPv6 cluster	6WINIT is the initiator of the IPv6 cluster and leads the group.

2.2 Collaboration with Health Informatics Projects

2.2.1 Building on Previous EU Projects

The Electronic Health Record server developed at UCL (CHIME) forms the heart of the 6WINIT London Demonstrator clinical application. This work builds on a ten year pedigree of EU sponsored R&TD projects, largely in the Health Telematics framework. The projects whose results are incorporated into the present demonstrator are listed below:

- Good European Health Record (GEHR) 1992-5: EHR requirements and architecture [i]
- Synapses 1996-8: federated health record architecture and services [ii]
- SynEx 1998-2000: generic middleware components [iii]
- Medicate 1999-2001: home monitoring and alerting agents [iv]
- EHCR Support Action (EHCR-SupA) 1997-2000 [v]

Specific collaborations with the Fifth Framework (IST) Healthcare related projects is being explored, but a review of these so far reveals only limited overlap.

2.2.2 OpenEHR

UCL (CHIME) is in the process of establishing an international foundation (OpenEHR), co-ordinated by UCL and with specific collaborating centres in Australasia and the US[vi]. This will operate as a non-profit body to foster high quality electronic health records amongst the purchaser, vendor and user communities. The main goals of OpenEHR are to support:

- well-formulated clinical requirements, moving towards international consensus;
- rigorous development methodology of systems;
- common information models, where requirements dictate that this is necessary;
- diversity of models and approaches, where this will enrich experience of a variety of approaches and systems and thereby promote quality and cost-effectiveness of solutions offered;
- empirical evaluation of systems performance against consensus clinical requirements;

- convergence between disparate EHR-related standards.

The generic components of the UCL federated health record server will next year be offered as Open Source products through the OpenEHR Foundation.

2.2.3 Good Electronic Health Record

The Good Electronic Health Record Project is an Australian evolution of the Good European Health Record Project referred to above[vii]. The group is developing EHR middleware along a parallel pathway to UCL. A strong development collaboration has been formed with this group, and new joint demonstrators may be proposed in the future.

2.2.4 Internet2

Internet2 is a consortium being led by over 180 universities working in partnership with industry and government to develop and deploy advanced network applications and technologies[viii]. The primary goals of Internet2 are to:

- create a leading edge network capability for the national research community;
- enable revolutionary Internet applications;
- ensure the rapid transfer of new network services and applications to the broader Internet community.

The Internet2 organisation in the US is responsible for promoting the deployment and adoption of next-generation Internet including IPv6. UCL has presented and demonstrated the EHR server work to a healthcare representative of Intenet2 and discussed the 6WINIT London Demonstrator. Internet2 is forging links between UCL, OpenEHR and the American Academic Medical Centres in order to facilitate greater information sharing and possible future collaborative demonstrators.

2.2.5 ProRec

The PROmotion strategy for European electronic healthcare RECords (ProRec) is an EU sponsored Support Action that has been running since 1996 [ix]. Its goals are:

- to promote and co-ordinate the European wide convergence towards uniform comprehensive, communicable and secure Electronic Healthcare Records (EHCR)
- foster cost-effective simpler EHCR access for both patients and professional users
- to assist and support EU EHCR-related telematics and similar projects, nationally and internationally

ProRec has installed a permanent network of centres in Europe focusing on the dissemination of information related to electronic healthcare records. The organisation has just (end of 2001) formed a European Electronic Healthcare Record Institute, which has agreed to collaborate with UCL and OpenEHR to form a European Chapter.

2.2.6 m Net

mNet Australia is a consortium consisting of 16 telecommunications and IT companies and South Australia's three universities[x]. The consortium has been formed in response to a Federal Government initiative called the Advanced Network Program to provide funding for a number of Next Generation Internet (NGI) projects around Australia over the next three years. Some of the larger commercial mNet members include Telstra (Australia's largest Telco), Motorola, Cisco, Compaq, and CSC. Other members are IT application developers in a range of industries including Health, Education & Research, Conventions & Tourism, Multimedia, and e-business.

The networking focus of mNet is on third generation (3G) mobile wireless technology underpinned by IPv6. The initial implementation will combine 3G cellular technology and wireless LANs within the city of Adelaide linked by an optical fibre backbone. At least one regional hub will complement the core network to explore the remote delivery of services for applications such as telehealth.

The health sector applications within the mNet project will include both mobile wireless applications within a hospital setting and also remote telehealth applications. Tridenthealth Australia will be responsible for the telehealth applications which will be based on the Good Electronic Health Record (GEHR). It is also hoped to implement a version of the UCL haematology/anticoagulant clinical management system and other clinical applications which are being developed by them as part of the IPv6 WINIT project.

2.3 Collaboration activities in year 1

The Japanese Central Research Laboratory (CRL), in conjunction with 6WINIT Supporting Partner NTT, has put in a 34 Mbps link between CRL and UCL. This link is restricted to carrying native IPv6 traffic. CRL has also provided a set of high-quality videoconferencing equipment.

The CRL equipment and link was used in a joint session organised between the IPv6 Forum in Madrid, Spain and the COIN-15 Conference in Beppu, Japan on January 31. Dr Campolargo from the EC, Dr F. Kubota and Prof. P. Kirstein participated from UCL, London and several others from CRL, Tokyo.

There has been continued efforts at UCL in exploring the use of the Japanese Central Research Laboratory (CRL) link that was placed at UCL in conjunction with our International Partner NTT. It has been developed in conjunction with Renater for Renater-WIDE testing, and for IPv6 conferencing with CRL.

There have been preliminary discussions within UCL on using ANDROID results in 6WINIT. The UCL Transcoding Active Gateway (TAG), which has been developed as part of the ANDROID project, will be made available; this will be used as an active component in 6WINIT. BT has agreed also that FunnelWeb, which is their background in ANDROID, may be used in 6WINIT.

There have been discussions between UCL and Cisco for their collaboration in providing software for Cisco routers, which would incorporate GPRS, UMTS and Mobile IPv6 support. There has been considerable work done in this area. There have been discussions on the collaboration with Sun for implementing a server for 6WINIT.

On the health informatics side, there has been liaison with US & UK members of HL7; this has included feedback into UK NHS strategy on HL7 v3 RIM. There has also been input to future UK NHS strategy on a national communications infrastructure for health, and attendance at formal standards meetings in health informatics - the ISO/TC 215 Plenary and Working Group meetings in Korea and the CEN/TC 251 Plenary meetings in Brussels. In the ISO/TC 215 meeting, one of the UCL participants in 6WINIT was the Head of the UK Delegation.

On the medical aspects of the project, there has been continued liaison between UCL (CHIME) with consultants from the UK NHS Information Authority consultants on the national approach to electronic healthcare records

3 CONCERTATION PROCESS

3.1 NGNI

6WINIT partner members participated in NGNI events and contributed towards the next generation network roadmap, benchmark report development and to inform the latest activities of standards activities.

3.2 Cluster activities

6WINIT project initiated the organisation of IPv6 cluster and organised several events successfully in the first year. These activities have been further strengthened with the definition of a cluster project 6LINK to bring further consensus among the related projects.

The table below shows the events organised during 2001.

2001-06-21	Brussels	IPv6 Cluster Meeting	6WIND, BT, Ericsson, Telscom, T-Nova, UCL, UoS	New cluster formed, collaborating with mobile cluster
2001-09-12	Sitges	IPv6 cluster workshop	Telscom, UCL, BT, T-NOVA, TED,	The workshop covered the issues to be addressed for IPv6 development and liaison with other projects.
2001-12-04	Düsseldorf	IPv6 Cluster meeting	Telscom, BT, TED	Discussion on the status of standards in IETF, collaboration between 6NET and Euro6IX, and integration of all IPv6 and Application projects in 6LINK framework

3.3 Dissemination activities

In fact, many events and activities come into several areas of dissemination. As a result, there is some duplication in the material below. The material is not quite consistent in style, but it seemed unnecessary to harmonise this.

Press Release

The project issued a press release in Jan. 2001, after the official start of the project and was sent out to many international agencies and IPv6 related fora.

The press release is included as Annex 1. A second press release was issued at the beginning of December, in connection with the demonstrations carried out at the Dusseldorf IST meeting; this is shown in Annex 2.

International collaboration

Prof. Kirstein participated in a workshop on European – East Asia connectivity in Seoul, Korea in March. While there, he gave a presentation on international collaboration. He also visited the 6WINIT international partner ETRI – giving a talk on 6WINIT, and NTT-DoCoMo to discuss their participation in 6WINIT. He pursued this further by hosting a joint EU-WIDE meeting at UCL in

August, and attending the Japanese Gigabit meeting in Okinawa in November (see below). As a result, ETRI now has stated it would like to be a full partner in 6WINIT, NTT wishes to be a supporting partner, and WIDE would like a formal association with the project.

IPv6 Forum events

Telscom and Ericsson participated in the Bangalore IPv6 summit in Jan. 201 with presentations addressing the issues of IPv6 and mobile internet.

IABG, UCL and Ericsson participated in Madrid event during Mar. 2001

IPv6 Taskforce meetings

- UCL, UoS, ETD, T-NOVA participated in the IPv6 Task Force meeting in Brussels on 23rd April
- Many Partners also attended the IPv6 Task Force in Barcelona the 13th Sept. 2001 (UoS, UCL, Ericsson, Telscom, 6WIND, BT, T-NOVA). Telscom presented the need of technical marketing of IPv6 into the business sectors to bring the awareness among the right actors for early introduction.

Conferences:

IABG participated with *Presentation of the 6WINIT project at the DFN congress on February 6th 2001*. The Deutsches Forschungsnetz (DFN) is the computer-based communication infrastructure for science, research and education in Germany. The DFN offers a comprehensive range of communication services including access to the global Internet. On their congress IABG did a German presentation in the IPv6 section having a focus on "MobileIPv6" and the "6WINIT" project

6WIND made a presentation including 6WINIT related activities to **INFOSEC** on 29th May.

6WIND, BT, Ericsson, Telscom and UCL gave presentations at the ICC Conference on the activities of IPv6 and 6WINIT to the Business Applications session. They also gave the same talk on June 15th in St. Petersburg at an IEEE conference. The Conference was also attended by staff from Telscom.

On 18th/19th June, there was a Mobile Concertation meeting, attended by, T-Nova and Ericsson. Other 6WINIT partners were unable to attend, due to other commitments and the short notice. It was agreed to have better co-ordination in the future, so that 6WINIT would be represented officially, and would also make presentations. During the 6WINIT project meeting in Stockholm, it was decided that 6WINIT would take a very active role in dissemination work in the area of IPv6 projects. Telscom (the lead Partner for WP 2) took immediate action in contacting the Commission to propose a "Cluster meeting". With the help of the EU Project Officer, the Cluster meeting was organised on 21st June 2001. All IPv6 related projects were contacted and got confirmation of attendance from almost all IPv6 projects, including new projects under negotiation Euro6IX and 6NET. The meeting was a very successful one in bringing all participants together and agreeing to the framework of the Cluster. Telscom, Ericsson, UoS, BT and UCL gave presentations at the IPv6 Cluster meeting. The following day was a Next Generation Networks Initiative's (NGNI) meeting. Since Ericsson, 6WIND and Telscom are partners in it, their presentations should count, presumably, under that project and not 6WINIT. In addition, BT, IABG and UCL made presentations at that meeting. The NGNI mission is to establish the infrastructure to operate the first open environment for research on the whole range of Next Generation Networks (NGN) topics to be discussed, consensus achieved and collective outputs disseminated to the appropriate international standards bodies, fora, and other organisations. The goal of this first meeting was to identify relevant technical areas, which show still unsolved problems to be addressed in future projects / research activities. IABG here pointed out the missing

functionality of a Mobile Router as well as interworking-problems of wireless networks and security faced by mobile users, which are not covered by 6WINIT.

6WIND and IABG gave presentations at an **IBC Conference** in London on 25th-27th June. The latter presentation focused on IPv6 based Mobile Internet scenarios as they are discussed and standardised by the Internet community as well as by the 3rd Generation cellular community. Within this presentation, IABG illustrated the role of the European Commission in this area and pointed out the work done in the 6WINIT project. Since one day of this conference had been explicitly assigned to *"The Future of IPv6 in 3G, GPRS and UMTS"*, it attracted attendees with a strong interest in mobility.

UMM made presentations of their voice transmission activities in the Polish networking conference; RUS presented the 6WINIT UKT-RUS medical application "GANS" to the IST MobyDick project as a possible (future) demonstration application.

TZI members have given talks on wireless network and conferencing subjects at the following conferences and workshops:

- IP in Cellular Networks
- Deutsches Forschungsnetz (German Research Network) General Meeting
- Workshop of the “WLAN in Education and Research Institutes” Project

TZI has participated in a WLAN-project sponsored by the BMBF (German Ministry for Education and Science) and has led the installation of the largest wireless network in operation at any German university today. The wireless campus network is used for production as well as for research projects – the University of Bremen is currently proposing the “Mobile Campus” as a new perspective for teaching, learning and working. In the future, TZI will validate and deploy 6WINIT technologies within the wireless campus network, e.g., IPv6 based conferencing applications and IPsec-implementations and thus establish a strong linkage between 6WINIT and other WLAN-related projects at the University of Bremen.

UCL, IABG, UoS and 6WIND participated in the European WIDE IPv6 meeting, which was hosted and organised by UCL, under the aegis of 6WINIT and NGN-I, on August 10-11. This meeting was followed by one in Okinawa in November. The result is expected to be close connections between the Japanese WIDE project and both 6WINIT and 6NET.

UCL, UoS and 6WIND participated and presented papers on work related to 6WINIT at iDMS 2001, which was held in Lancaster in September 4-7. Tim Chown’s was a general paper on IPv6 activities. Gregorio Martinez’s was on the IPv6 trials in the 6WINIT project, meeting, Patrick Cocquet’s was on their Edge device. UCL also attended the London Communication Symposium which was held at UCL September 11-12, and the SSE Security Conference in London September 26-28.

UKT has had discussions with the German Air Rescue (DRF) about integration of wireless systems into aircraft. The problem is the permission to use the systems. UKT presented the RUS-UKT project GANS at the annual meeting of the German society for medical informatics in Cologne (abstract and speech).

The German Government has awarded a research grant (which includes both UKT and RUS as partners) to develop the idea of telementoring (GANS) in other fields of medicine; in addition the mobile scenario has been further refined, as a result of the change of the people responsible for the project at DLR. There was a demonstration (poster session) of the GANS at the Telemedicine meeting of MDS (German health insurance forum) in Würzburg in September 2001.

The RUS/UKT demonstration of the 6WINIT "GANS" was accepted for the IST 2001 in Düsseldorf; Ericsson and Deutsche agreed to help with this demonstration. In addition a further demonstration

from VTT was accepted. RUS presented the GANs application to a consortium proposing an IST project on scalable media transmission (MPEG-4) over the mobile Internet (GPRS).

ETRI successfully organised the Global IPv6 Summit in Korea, Seoul on July 3-6, 2001. There were about 400 participants including the world's leading Internet service providers, equipment manufacturers, researchers for the latest news and information about IPv6 technologies and business opportunities. 6WIND made a presentation there. This presentation dealt with the perspectives and new services permitted by IPv6 implementation.

6WIND exhibited their 6WIND Edge Device at the Interop Summit. The objective was to show that already available commercial IPv6 products allow the ISPs to deploy IPv6 Infrastructure and to promote this new market to their customers.

A number of 6WINIT partners participated in the IPv6 Concertation Meeting held at Sitges, Spain on September 13 (BT, T-NOVA, UCL, Ericsson, Telscom and UoS) during the Mobile summit meeting. This meeting (organised by Telscom on behalf of 6WINIT) attracted delegates from all related projects, Beyond 3G cluster and from the U.S. The meeting was very successful in co-ordinating various issues related to IPv6 activity in IETF, IST and the IPv6 taskforce. Close collaboration was established between the IPv6 cluster and Beyond 3G cluster.

There was considerable discussion between 6WINIT partners and those proposing both 6NET and Euro6IX. It was agreed that there would be collaboration with the different projects; indeed, 6WINIT expects to use the 6NET infrastructure for its fixed connections when it becomes available.

Other events attended by 6WINIT Partners include the following:

- TF-NGN meeting, (UoS, UCL)
- Eurescom IPv6 Tsunami project in Helsinki. 30-31 August (T-Nova)
- Bermuda UK IPv6 academic deployment project meetings (UoS, BT)
- Bermuda 2 meeting, 27-Jul: (UCL, UoS)
- UKERNA managed bandwidth next generation meeting, London, 31-Jul (UoS)
- IPv6 Internet 2 collaborative project meeting, London, 5 Sep (UoS)
- IPv6 Transition Conference, Stockholm, 10-11 Sep (UoS)
- QoS conference, Dallas, USA (Telscom)
- Netties2001, Fribourg, Switzerland, 12-14 Sept. 2001 (Telscom)

Demonstrations

INET'2001 was held in Stockholm on 7th June and a 6WINIT related presentation and demonstration were held during this Conference. Ericsson, BT, IABG, T-Nova, TELSCOM participated at INET2001, with Ericsson Research both making a presentation, and demonstrating their version of the 6WINIT Network Architecture prototype, specified in WP3. The presentations and the handout material are available at:

https://www-secure.cs.ucl.ac.uk/6winit-private/doc/ and http://www.6winit.org/presentations/index.html.

On the same date, there was a Mobile Location workshop in Helsinki, in which VTT participated. The event addressed the topics of mobile positioning and location-based services. This theme is the core of one of the 6WINIT applications, i.e. the use of areal spatial information in a mobile application. The 6WINIT project was presented also in a poster. As a curiosity, VTT also prepared IPv6 presentation slides in Finnish; these will be used to promote IPv6 in appropriate events and customer meetings in Finland. 6WIND, VTT and UCL

ICC'2001 took place in Helsinki on 13th June. Ericsson Research again gave a 6WINIT Network Architecture prototype demonstration. This demonstration was a slightly limited version of the demo presented at INET'2001. The major difference was that, at ICC'2001, the demonstration was presented continuously several times in a row, whereas at INET'2001 the Ericsson Research presentation was a "one shot" event. Information about this presentation can also be seen at:

https://www-secure.cs.ucl.ac.uk/6winit-private/doc/.

IST'2001, Düsseldorf

A project proposal for a demonstration of IPv6 applications during the IST 2001 conference in Düsseldorf in December was accepted. The demonstrations are based on contributions from RUS, UKT (a demonstration of "GANS"), Ericsson and VTT (Location information). The details are attached as a press release which can be seen in the annex-2

List of conferences attended by 6WINIT partners

Date	Location	Topic	Participants	Outcome
2001-01-09/10	Thun	NGN Kick-Off Meeting	UCL,Telscom, Ericsson, 6WIND	Discussion of collaboration in the concertation process
2001-01-29/30	Madrid	IPv6 Forum meeting	UoS, IABG)	Dissemination of 6WINIT project
2001-02-05	London	Bermuda2 IPv6 meeting	UoS	Collaboration between 6WINIT and Bermuda project
2001-02-07/08	Amsterdam	Wireless LAN Forum Conference	Ericsson	Participation and project reletad issues discussion
2001-02-08/09	Muenster	GEANT TF-NGN IPv6 working group meeting	UoS	Presentation of 6WINIT project
2001-02-20	London	UKERNA wireless LANs event	UoS	Presentation of paper
2001-02-20/23	Paris, France	SIP-2001 meeting	TZI	Gave a presentation on "An Abstract Call Control Model for Modular SIP Implementations"
2001-02-20/23	Cannes	3GSM World Congress	TZI	
2001-02-26/28	Dubai	IPv6 Summit	BT	Presentation of IPv6 issues
2001-03-07/08	Paris, France	IP VPN Conference	6WIND	Ipv6 VPN network architecture
2001-03-07/09	Washington DC	Internet 2 Spring Meeting	UoS	
2001-03-12	Brussels	Wireless IP Workshop	BT, Ericsson Telscom, UCL	Discussion on the mobile IP issues
2001-03-13	Brussels	Concertation meeting	BT, Ericsson Telscom, UCL	Presentation of 6WINIT project and future plans for the early deployment of IPv6
2001-03-18/23	Minneapolis, USA	IETF (50th meeting)	TZI	The ROHC working group has advanced the specification "RObust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed" <draft-ietf-rohc-rtp-09.txt> to Proposed Standard status -
2001-03-19/20	Prague	NGN Concertation	Telscom, Ericson,	Presentation of first international trials across Japan and Europe

		meeting		
2001-03-22/30	Seoul, Korea	ISO/TC 215 ("Health Informatics") plenary	UCL	Follow-up of health care informatics standards
2001-03-26/28	Exeter, England	UK Networkshop	UoS	Presentation of IPv6 issues
2001-03-27/28	Seoul, Korea	Workshop on European Far East Collaboration (including IPv6 talk), Seoul	UCL	Collaboration discussion between Europe and Seoul on IPv6 trials
2001-04-05	Nice, France	ETSI General Assembly	Telscom	Presentation on the need of IPv6 adoption as NGN strategy
2001-04-02/03	Prague	GEANT TF-NGN meeting	UoS	
2001-04-10	Brussels	CEN/TC 251 meeting	UCL	
2001-04-24	UCL, London	UK Bermuda 2 IPv6 meeting	UoS	
2001-04-24	Mannheim, Germany	VoIP-meeting of the German Research Network organization	TZI	
2001-05-14/16	Ottawa, Canada	IPv6 Conference of the IPv6 Forum	T-Nova	Presentation of papers: "Combination of IPv6 Transition Strategies"
2001-05-20/22	Manchester, UK	CEN/TC 251 Joint Working Groups' meeting	UCL	
2001-05-21	Stockholm, Sweden	IIR SIP Congress 2001	TZI	
2001-05-29/31	Paris	INFOSEC 2001 Conference	6WIND	Presentations
2001-05-31	Geneva, Switzerland	Marcus Evans SIP Conference and Workshop	TZI	
2001-06-05/07	Stockholm	INET'2001	Ericsson Research, T-Nova, Telscom	Presentation & Demonstration
2001-06-07	Helsinki	Mobile Location Workshop	VTT	http://location.vtt.fi/mlw2001/
2001-06-11	Redmond, USA	IETF IPnG Interims Meeting	T-Nova	List of Questions from IETF to 3GPP regarding network issues in 3G mobile
2001-06-11	Stockholm, Sweden	Voice on the Net (VON) 2001 Europe	TZI	
2001-06-12	Berlin, Germany	Deutsches Forschungsnetz (German Research Network) General Meeting	TZI	
2001-06-12	Rostock, Germany	WLAN in Education and Research Institutes	TZI	
2001-06-11-17	Helsinki	ICC2001 meeting	BT, 6WIND, Ericsson, UCL, VTT, Telscom	Presentations & Demonstrations
2001-06-15	St Petersburg	IEEE meeting	BT, 6WIND,	Presentations

			Ericsson, UCL,, Telscom	
2001-06-18	Barcelona	IIR conference	Telscom	
2001-06-18/19	Tromso, Norway	GEANT TF-NGN meeting	UoS	Presentations
2001-06-19	Krynica, Poland	Polish National Networking Conference	UMM	presentation of papers: "IPv6 in the context of mobile applications" and "Voice transmission in IP networks"
2001-06-21	Brussels	IPv6 Cluster Meeting	BT, 6WIND, Ericsson, UCL, UoS, Telscom	Organisation and presentations
2001-06-22	Brussels	NGN meeting	RUS, IABG,, UCL, Telscom	Overview of 6WINIT work in the area of Mobile IPv6 and IPSec,, illustration of still outstanding issues in this area (e.g. mobile router, ...)
2001-06-25	Brussels	IPv6 European Task Force	T-Nova	Lead of Workgroup 'Trials'
2001-06-26/28	London	IBC IPv6 conference	IABG	Overview of Mobile IPv6 in 6WINIT, 3GPP and the Next Generation Internet
2001-04-06	Cologne	GMDS, medical informatics	UKT	Presentation on GANS
2001-07-03/06	Seoul, Korea	Global IPv6 Summit	6WIND	Presentation made
2001-07-27	London	Bermuda 2	UoS	Towards UK academic IPv6 deployment
2001-07-31	London	UKERNA Managed Bandwidth Next Generation Meeting	UoS	Included discussion of options to deploy IPv6 over SuperJANET 4
2001-08-05/10	London	IETF51 meeting	BT, IABG, T-Nova, TZI, UoS	
2001-08-10/11	London	EU-WIDE IPv6 collaboration meeting	UoS	Avenues for collaboration
2001-08-27/31	London, UK		UCL	Part of UK delegation at ISO/TC 215 and attended Working Groups meetings
2001-08-30/31	Helsinki, Finland	Eurescom Tsunami	T-Nova	Discussion on interaction with other networks
2001-09-03/05	London, UK		UCL	Attendance at Medinfo 2001
2001-09-04	Lancaster	IDMS 2001	UoS	Included IPv6 workshop including Mobile IPv6 (presented)
2001-09-05	London	UKERNA Internet 2 Collaborative Project Workshop	UoS	Collaboration options (presented)
2001-09-10/11	Stockholm	IPv6 Transition	UoS	Presented and chaired one day
2001-09-10/12	Barcelona, Spain	IST-Conference	T-Nova	Participation in discussion
2001-09-11	Deauville, France	ComVerse User Forum	TZI	
2001-09-13	Barcelona	EU IPv6 Task Force	UoS, T-Nova, UCL	Towards recommendations for EU governments for IPv6 adoption (UoS rapporteur)
2001-09-17	Krakow, PL	DAIS'2001: 3rd IFIP International	UMM	The conference covered some European state-of-the-art wireless

		Conference on Distributed Applications and Interoperable Systems		research topics. There was an invited talk by Prof. A. Wolisz from TU Berlin and many papers on wireless internet, charging and QoS issues.
2001-09-18	Cannes, France	IIR IP-PSTN Service Integration	TZI	
2001-09-18	Paris, France		UCL	Part of UK delegation at CEN/TC 251
2001-09-18/20	Paris, France	Interop Summit	6WIND	Exhibition of the IPv6 Edge Device
2001-09-27	Krakow, PL	"Network Services in Context of Pervasive Mobile Internet"	UMM	KZ gave an invited talk at CEEMAS conference (http://galaxy.uci.agh.edu.pl/~ceemas)

List of Papers Published/Presented

Date	Topic	Journal/Conference	Status
2001-02-06	Mobile IPv6	DFN Congress	
2001-02-14/17		First Internet Bay conference on Science and Cyber community	
2001-04	State of VoIP at the University of Bremen	VoIP-meeting of the German Research Network organisation	
Overview of current VoIP activities at the University of Bremen.			
2001-05-04	The IPv6 impact on 3G deployment	IIR 3G Conference	
2001-05-21	SIP Conferencing	IIR SIP Congress 2001, Stockholm	
2001-05-31	A Short History of SIP	Marcus Evans SIP Conference 2001, Geneva	
2001-06	SIP WG Status	Voice on the Net (VON) Europe 2001, Stockholm	
Update on the status of the IETF SIP working group.			
2001-06	IPv6 in the context of mobile applications	8th Polish Networking Conference	
2001-06-12	Konversion, nicht Konvergenz: Warum ,Voice over IP" erst der Anfang ist.	Deutsches Forschungsnetz (German Research Network) General Meeting	
2001-06-25/28		IPv6 conference	
2001-08	GANS for students	Slice of life, Munich, Germany	
Performance abilitiy for med. students (Poster)			
2001-09	GANS	GMDS, Cologne, Germany	
Live-Telemangement of Emergencies			

2001-09 Netties workshop, Fribourg, Switzerland

Performance abilitiy for med. students (Poster)

2001-09-11 SIP/VoIP ComVerse User Forum

A brief overview of the use of the Session Initiation Protocol (SIP) by the 3GPP community for next generation signalling in 3G networks. The talk addresses the architectural principles of SIP as well as of the 3G IMS subsystem and presents how 3GPP intends to use SIP. It is particularly pointed out that service creation in 3G networks as currently foreseen seems to be largely derived from traditional telephony service models and is thus centralised. This approach obviously differs significantly from the distributed end-to-end model enabled (and encouraged) by the SIP community. The result of the more traditional model pursued so far in the 3G community is that many of SIP's strengths may not be exploitable in future 3G networks.

2001-09-18 SIP/VoIP IIR IP-PSTN Service Integration

An update on recent development of the major standards for VoIP technologies is given including SIP, H.323, and MEGACO/H.248. Latest common developments are reviewed and the current areas of primary interest for successful deployment of VoIP technologies are given. With respect to future development of the entire technological area of "VoIP" it is pointed out that many current (commercial) efforts strive for replicating the existing phone system (manifested in softswitches and IP PBXes) - rather than aiming at providing an innovative platform for future services. Future services must not be restricted to voice-only communications but should include other media as well as other applications (personal presence and instant messaging is one of these which is already being embraced by the industry). Additionally, the many devices of personal communications (including palm tops, organisers, phone, computers, laptops, etc.) should no longer be viewed as isolated pieces but rather combined to create an integrated desk area environment for interpersonal communication and co-operation. Overall, in the long-term, we will most likely not be witnessing a convergence of networks as is frequently pointed out in today's softswitch architectures - instead, we will be seeing a conversion of non-IP networks to an all-IP environment.

2001-10 Network Services in Context of Pervasive Mobile Internet Proceedings of the Second International Workshop of Central and Eastern Europe on Multi-Agent Systems, Krakow, Poland

The paper overviews the existing IPv6 technologies in the context of mobile applications, pointing out the most important advantages of this technology leverage. The reported works were partially performed under IPv6 Wireless INternet Initiative (6WINIT) Project, supported by EC under the IST Programme.

Robust Header Compression (ROHC) - The last mile in all-IP wireless IP in Cellular Networks 2001, Paris

Making All-IP networks a reality requires a spectrum-efficient way to run IP over the wireless link. For many applications, the size of the headers in Internet protocols poses a significant problem. Earlier standards for header compression do not work well on links that both exhibit non-trivial round-trip times and significant loss..This talk reports on recent work in the IETF on robust header compression for RTP traffic that resulted in a standard that can compress RTP headers to an average of just over one byte, even in the presence of severe channel impairments. Discussing future work in the area of TCP and signalling protocol compression as well as further optimisation opportunities for RTP (coding improvements as well as "zero-byte header compression").

Mobiler Campus Bremen Final workshop of the BMBF (German Ministry of Education and Research) sponsored WLAN project

A report about the design and operation experiences of the wireless campus network at the University of Bremen

Mobile network architecture and applications support	Netties Conference

The architecture of mobile network of the future related with 3G and IPv6 were presented. Particular issues discussed were applications and security issues. The 6WINIT project plans were presented to the big audience.

QoS in wireless network architecture	Wireless networks conference 2001

QoS issues were discussed and the importance of QoS and security to facilitate e-business and e-commerce were presented. The paper is generic and applied to both IPv4 and IPv6 mobile networks.

Electronic Health Records	Toward an Electronic Health Record Europe 2001

Design and Implementation of a Federated Health Record Server

Electronic Health Records	EuroRec01

Information Architecture for a Federated Health Record Server

Linux and iPaq (a paper in Polish)	LinuxPlus, No 11/2001 (55), pp 54-58

The paper describes experiences from adaptation of iPaq for the needs of 6WINIT applications.

GANS education	Telemedizinfuehrer Deutschland 2002

GANS application for medical students

GANS education	Proceedings of the MDS Meeting

GANS as a method to save health care costs

3.4 Standards activity

3.4.1 IETF

IABG, 6WIND, Ericsson, BT, RUS, T-Nova, Telscom,UCL, U of Southampton and ETRI had several members attend IETF 2001, which was held in London August 6-10. ETRI was actively been involved in the NGTrans WG of IETF, providing two Internet Drafts:

- Dual Stack Hosts using "Bump-in-the-API"(BIA)
- Using a Single IPv4 Global Address in DSTM

They also participated in Salt Lake city meeting in December and contributed very actively in different working groups.

Contribution to standards are detailed in the deliverable D4.

4 FUTURE PLANS

The 6WINIT project continues to be active in all types of concertation, at project level, cluster and NGN concertation, Mobile networks etc. to disseminate the 6WINIT results and openly collaborate with all interested parties.

The project also continues to build their liaison with national, international and academic groups for intensive interactive collaboration. The co-operation between 6WINIT and the projects such as 6NET, Euro6IX, 6LINK and NGNI will be further strengthened.

The project also has planned for demonstrations during the INET2002 in Washington as well as in the IST'2002 in Copenhagen to demonstrate the results from the concerted and collaborative work from the partners.

The project partners continue to participate in the IPv6 Forum events, IPv6 taskforce and the strategically important events and meetings such as RIPE, IETF, and interoperability testing events.

5 SUMMARY AND CONCLUSIONS

This deliverable has summarised the contact network built by the project in the first year towards successful collaboration in the second year.

6 ANNEX 1: PRESS RELEASE ON START OF PROJECT

IPv6 WIRELESS INTERNET INITIATIVE (6WINIT) PROJECT FORGED BY STRATEGIC EUROPEAN CONSORTIUM

"Third Generation Internet" Begins to Emerge

LONDON, March 14, 2001 – 6WINIT, an initiative co-ordinated by major European Telecom companies, equipment manufacturers, solutions/software providers, research laboratories and end-user hospitals – are being supported by the European Commission to develop and demonstrate future internet technologies. The 6 M€ project also includes partners from North America and the Pacific Rim. It intends to lead to the provision of a production IPv6-2.5/3G transit service that facilitates high-quality, high-performance, operationally robust and secure Mobile Wireless 2.5/3G-IPv6 networks to facilitate the wider deployment of European M/E-commerce and convergence. It should enable advanced mobile wireless technology to identify the main problems associated with connecting in a seamless way through wireless mobile and fixed IPv6 infrastructures.

"The objectives of the 6WINIT project are to validate the introduction of the new mobile wireless internet in Europe - based on a combination of the new Internet Protocol version 6 (IPv6) and the new wireless protocols (GPRS and UMTS/3GPP). Such an offering will solve the current problems of the dual scarcity in the IP and wireless world of the following: IP address limitation, quality of service and security from the IP side and lack of bandwidth from the wireless side. By piloting some important mobile applications in both healthcare and business environments, we expect to take a major step towards the eEurope vision" emphasised Prof. Peter Kirstein, project co-ordinator at University College London (UCL).

> "The promise of the New Internet is communications ubiquity," stresses Latif Ladid, President of the IPv6 Forum and VP of Ericsson Telebit, adding further "Ericsson is very keen to provide its research skills in next generation wireless technologies to make this project a success".
>
> The 6WINIT project will investigate and validate the set-up of one of the first European operational IPv6-2.5/3G Mobile Internet. This will provide the 6WINIT project customers with native IPv6 access points and native IPv6 services in a 3G environment. Combining the two technologies will generate the best value possible for the European end-user. The project will concentrate on the problems raised by the mobile dimension; it will build on the existence of an experimental fixed IPv6 environment from other initiatives, and will link into such existing infrastructures.
>
> "The eEurope initiative has been initiated to help ensure that the people and businesses of Europe remain competitive. Both IPv6 and mobile technologies are key building blocks of the infrastructure that will be needed. The 6WINIT project will be one of the first to demonstrate the potential of new wireless and internet technologies working together. International and commercial support should help ensure that the project is a major success and that its results are rapidly made available to Europe", says Frans de Bruïne Director in the IST Programme of the European Commission.

Further information, including a full list of the participants and an overview of the programme, is available from the Project Web Site: www.cs.ucl.ac.uk/research/6winit or from:

Prof. PT Kirstein - P.Kirstein@cs.ucl.ac.uk
Dr AV Stokes - a.stokes@cs.ucl.ac.uk

7 ANNEX 2: PRESS RELEASE AT IST, DÜSSELDORF

IPv6 WIRELESS INTERNET INITIATIVE (6WINIT)

Mobile IPv6 goes live at IST-2001

"Serving the Welfare of citizens "

Düsseldorf, December 3rd, 2001 – Internet Protocol version 6 (IPv6) and "wireless access to the Internet" are two concepts that are combined in the IST 6WINIT project http://www.6winit.org/ that started in the beginning of 2001 with a powerful consortium including Carriers, Suppliers, Research organisers, Hospitals and Universities. Live demonstrations of results of the project are made to the general public in the IST 2001 exhibition **booth P203** in Düsseldorf.

Critical healthcare data and wireless communications

Seconds and every bit of information – that is what counts in medical emergency situations. First aid is given in the field or in an ambulance, rushing towards the hospital. It is these very first actions that are usually the most important for patients. In these situations medical personnel need every bit of information and advice they can get to be able to make the right decisions as fast as possible.

Within this context, a consortium of University Hospital at Tübingen, University of Stuttgart Computing Centre, Deutsche TeleKom and Ericsson Research is demonstrating IPv6-based networks and applications. The visitors will be able to get hands-on experience on the Guardian Angel and will see a demonstration, which illustrates an initial result of applying the 6WINIT concepts to an Accident and Emergency situation that is being explored in 6WINIT.

By providing real-time data communication channels between the ambulance and the hospital, vital medical data and live video on the patient can be shared by all specialists at hand. Medical personnel not located at the scene can participate in the first aid, giving advice and detailed information on the patient's medical record. In addition, the hospital receiving data on patient can immediately start making all the necessary preparations for the required treatments.

This scenario has been realised by integrating innovative medical applications with next generation mobile Internet technology – forming the Guardian Angel system. In addition to the everyday mobile communication most of us have been used to, future network technologies, e.g. UMTS together with IPv6 can support people in new ways – and even save lives.

7.1.1 Location aware applications

Helping the people to find what they are looking for. Location awareness is another important aspect of many wireless networks. The location of moving objects – whether they are human beings or autonomous robots – can be detected by comparing measured signal strength values with previously calibrated values. Indoors, this is often a more satisfactory way of ascertaining exact position than using GPS satellite positioning. VTT Electronics is demonstrating an IPv6 enabled application of their system – an application that helps the people to navigate.

These two demonstrations are early examples of the attributes that will be possible when the wireless Internet becomes fully available. The ambulance demonstration shows vital data and control going through the IPv6/GPRS route. The audio and video in the ambulance demonstration and the location information in the VTT demonstration are both using Wireless LANs. As wide-area 3rd Generation mobiles come on stream, both these applications will be able to transfer easily to the new facilities.

Further information, including a full list of the participants and an overview of the programme, is available from the Project Web Site: http://www.6winit.org/ or from: Prof. PT Kirstein - P.Kirstein@cs.ucl.ac.uk and Dr AV Stokes - a.stokes@cs.ucl.ac.uk

Technical description of the 6WINIT network demonstration:

The always-best-connected Guardian Angel medical applications require an ability to seamlessly roam between different types of access networks – whatever is the best available in a certain location. Ericsson Research has implemented this functionality at the IP/network layer within a prototype Multiaccess Mobile IPv6 stack. Using this technology the medical applications within an ambulance can always stay best connected with the hospital.
In the Multiaccess network IP traffic can be dynamically transferred from one network interface to another. In an example scenario, when the ambulance arrives to a WLAN hotspot, video stream on the patient can be transferred there from GPRS, in order to achieve higher bandwidth and a better picture quality. Many possible reasons exist for doing these kinds of vertical handovers; better signal level, higher bandwidth, or more reliable services may become available.

In the future prototypes different IP traffic flows can also use separate network interfaces simultaneously. For example, sufficient reliability might not be available in a WLAN hotspot network; therefore vital data transmissions could simultaneously use GPRS or UMTS interfaces.

The presented Multiaccess network is transparent to applications and access technologies. It is based on a Linux Mobile IPv6 stack developed by GO – an Ericsson co-funded research project in Helsinki University of Technology. The required Home Agent functionality is provided in a commercial Ericsson high performance dual-stack router platform, which is optimised for the special requirements put by real-time traffic in the future mobile Internet.

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[vi] See http://www.openehr.org

[vii] See http://www.gehr.org

[viii] See http://www.internet2.edu

[ix] For example, see http://www.prorec-france.org

[x] See http://www.mnetcorporation.com