

# Catalysing effective participation using ISABEL virtual conferencing platform: opportunities for UbuntuNet Alliance as a participant in the GLOBAL EU FP7 Project

Margaret Ngwira and Tiwonge Msulira Banda

Paper to be presented at the 6<sup>th</sup> International Conference on Open Access, Lilongwe 2008

**Abstract** - Through the use of ISABEL video conferencing software to host virtual events and provide the related services that would be part of an event where participants are physically present, partners in the GLOBAL project (Global Linkage Over Broadband Links) are researching the enabling of communication, dissemination, collaboration and networking with colleagues and conferences where location becomes irrelevant. UbuntuNet Alliance, the African regional Research and Education Network is a partner in this EU FP7 Research Project which brings together research teams in Europe, Asia and Africa. The paper describes the project, the opportunities the GLOBAL project may provide and the unique constraints and opportunities for UbuntuNet Alliance through its participation.

**Index Terms** – GLOBAL EU FP7, ISABEL, Videoconferencing, UbuntuNet Alliance, Africa, NREN, collaboration, connectivity, bandwidth, capacity building, research networks, fibre infrastructure

## I INTRODUCTION

Information Isolation is a concept that was first articulated by Jane Kinney Meyers (1991). One may be in the Third world or the First world but if one is unable to participate to the full in the knowledge world, one suffers from Information Isolation

In the academic and research world of Eastern and Southern Africa, information isolation is a reality for many faculty and researchers. The invisible college concept that evolved from the 15th century and was further identified by Derek de Solla Price in his groundbreaking work on citation networks (Crane 1972) has been weakened. For a variety of reasons, scientists may no longer be part of the “invisible college”, the community of peers who support each other and encourage the sharing of information and the generation of new knowledge.

The reasons are many and complex:

- lack of exposure to new ideas because of atrophying of academic libraries during the 90s
- dearth of funding for research of any but the most applied nature
- outdated and poorly maintained equipment
- pressure to support income by carrying out a stream of consultancies at the expense of research

- staffing crisis through brain drain and other causes of shortage
- the inadequate exorbitant Internet Access that stalks most of Africa because of the lack of availability of fibre infrastructure and the resultant dependency on VSATs.

The last cause of information isolation is the one that has concerned the author for most of the decade and has led to participation in the work described here.

## II UBUNTUNET ALLIANCE FOR RESEARCH AND EDUCATION NETWORKING

UbuntuNet Alliance for Research and Education Networking was born three years ago. It facilitates the development of National Research and Education Networks (NRENs) in its member countries in eastern and southern Africa – including MAREN in Malawi. Together, the members work for improved Internet connectivity and a vast reduction in price primarily through the deployment of fibre infrastructure. When deployed, this should give increase in bandwidth and lowering of price measurable in orders of magnitude. This will assist in overcoming Information Isolation, mobilizing academics and researchers in accessing cutting edge information and technologies and collaborators and rebuild the invisible colleges. But until the fibre is laid, is there any opportunity available to overcome information isolation?

In order for the critical mass to participate in world class scientific and research events and thus reach out to build communities, a huge budget is required. Currently one does not only look at the budget required but also at the carbon footprint or environmental damage caused by crossing the globe for perhaps a two day meeting.

In addition to the core mandate of UbuntuNet Alliance as a catalyst for NREN development primarily through access to fibre infrastructure, the Alliance is also a willing partner in collaborative research on aspects on network development and service delivery. One exciting opportunity that presented itself to the Alliance was the opportunity to participate in an EU FP7 Research Project, GLOBAL: - Global Linkage Over Broadband Links.

### III WHAT IS GLOBAL?

According to the Project Document, (Global, 2007) Overview to the GLOBAL Project:

“The GLOBAL project proposes the set up of an innovative Web 2.0 -like Collaborative e-Infrastructure, called the Virtual Conference Center, or VCC, which will enable the regular realisation of virtual events. Virtual events are understood here as an on-line high quality real-time event which is held in a Virtual Auditorium created by interconnecting over the Internet many rooms or auditoriums located anywhere in the world. TV production methods and advanced floor control algorithms must be used to achieve a natural, high quality and well ordered interaction among participants in virtual events, as illustrated in Figure 1 below.

The Virtual Auditorium will be made accessible with the most advanced broadband collaborative and videoconferencing tools and applications to achieve the highest quality collaborations in virtual events. In addition narrowband access with lightweight clients -VC, VoIP, Instant Messaging, streaming, mobile phones and other collaborative tools - will be also included to facilitate participation from remote or less developed regions.



Figure 1: Screen capture of a virtual event on Isabel

One main goal of GLOBAL is to allow and help research projects to disseminate their results and events to a wider audience located in multiple geographical locations through the organization of virtual conferences. GLOBAL provides a user-centric interface for planning, creation, announcement, coordination, content management and realisation of virtual conferences with open and wide participation. Through these virtual conferences the participating users will be able to exchange information on e-infrastructure development in their region, identify partners for future collaboration and exchange and discuss synergies between their running initiatives.

The virtual events will provide advanced video - conferencing and collaboration tools and support to the participants. Each event is recorded and stored on a repository together with documents and outcomes for future consultation.

The virtual conference centre provides three main

functions focused on usability:

- a virtual auditorium, for planning, coordination and management of the virtual events,
- an event repository, to store the recordings and outcomes of the events,
- and a virtual corridor, which will support networking and partnership building amongst the participants.

### IV GLOBAL RESEARCH PARTNERS

GLOBAL research partners are located in three continents and are Research Institutes and RENs. The research team comprises both network and computer scientists, and social scientists

The partners are:

1. Zentrum Fur Soziale Innovation , (ZSI) Austria
2. Universidad Politecnica De Madrid (UPM), Spain
3. Agora Systems S.A. (ASSA), Spain.
4. Cooperacion Latino Americana De Redes Avanzadas (CLARA), Uruguay
5. University College London (UCL), UK
6. Jozef Stefan Institute (JSI), Slovenia
7. UbuntuNet Alliance, Malawi

### V WHAT ARE THE RESEARCH PARAMETERS?

According to the Plan on Knowledge Management and Dissemination (Document D3.2), GLOBAL's main aim is to widely disseminate the results of the project and to provide the results of the virtual events in a sustainable way. By its nature as a support activity, GLOBAL has a very strong focus on spreading excellence, exploiting results, and disseminating knowledge. Apart from the development of GLOBAL services, the main focus is to reach the objectives in four different forms of liaison and dissemination:

1. Setting up specific GLOBAL events and disseminating to our own remote end users which will serve information exchange on relevant topics in e-Infrastructures
2. Disseminating targeted information to researchers, developers, programme and project managers, etc., so that the relevant users are reached by the services offered
3. Familiarising organisers of third-party events with the technology, in order to encourage them to use the GLOBAL technology for their own networking events with their remote participants
4. Initiating discussions with providers of third-party systems to consider what will be required for interworking

### VI WHAT ARE THE COMPONENTS OF THE PROJECT

Implementation of the GLOBAL Project is broken down into Workpackages, with partners having different responsibilities. The Workpackages are in turn broken down into tasks.

#### A. Workpackage 1: Creation of the Virtual Conference Centre.

This will involve the following tasks: Creation of the VCC Website core infrastructure; the Virtual Auditorium

core infrastructure; inter-networking infrastructure; and narrowband access to virtual events.

#### B. *Workpackage 2: Realisation of “GLOBAL Networking Sessions”*

A minimum of 3 GLOBAL Networking Events will be organized per year. Tasks to be carried out are: Technical help desk; content-wise organisation of events; and technical operation and management of GLOBAL Networking Sessions. So far, one GLOBAL Networking Sessions was held: The TERENA Networking Conference in Brugge in May 2008. On top of that, several monthly project partner meetings have been held.

#### C. *Workpackage 3: Disseminate the events information and to provide the results of the virtual events in a sustainable way.*

This will involve the following tasks: Development of project promotion material; the Virtual Corridor and continuous dissemination channels; website interfaces and content.

#### D. *Workpackage 4: Expand the use of the VCC and its services to third parties.*

This includes the following tasks: identification of and liaison with potential users and developers; logistical support to events organized by third parties. WP4 is mainly a liaison and support task. It will include delivering technical requirement, but their realization may well require technical activity by WP1 or the third parties themselves as well as training and technical support from WP2.

#### E. *Workpackage 5: Implementation of sound project and financial management of the GLOBAL project, including reporting to the EC.*

This WP is grouped into the following tasks: Organisation and management of the GLOBAL workplan. Including Quality Assurance; Financial Management if GLOBAL; proactive communication with all project partners as well as the EC as regards the implementation and progress of the project, including reporting.

In addition, sites may be responsible for coordinating the hosting of virtual events. The main role of UbuntuNet Alliance in this project originally was dissemination, but as the project evolves, there is a strong likelihood of the Alliance hosting an African-based Virtual event.

### VII THE VIRTUAL CONFERENCE CENTER

A social Web 2.0 like site will be the entry point to the Virtual Conference Center. The web site will facilitate not only the planning and realisation of virtual events, but also support networking, partnerships and other kinds of relationships among participants in the events.

The web site will provide three main functions

1. The Virtual Auditorium: For planning, coordination and realization of virtual events.

2. The Event Repository: event recordings, documents or participant interests for later reuse.
3. The Virtual Corridor: supporting networking and partnerships with event participants

From the network point of view the VCC shall support advanced Internet features for the realisation of virtual events such as:

- Connection via satellite links with large delays
- Use of IP unicast, multicast or mixtures of both
- Use of IPv4, IPv6 or IPv4/IPv6 transition scenarios
- • Use of encryption tunnels and VPNs for securing virtual events
- • Protection against IP packet losses

The connection between Europe and institutions in remote regions - Latin America, Eastern Europe, Central Asia, Africa or regions in Asia-Pacific - which can obtain the highest benefit from the VCC infrastructure due to distance or travel barriers is considered as a priority, but of course connectivity will be promoted with any part of the world.

### VIII WHAT EVENTS HAVE AND WILL BE ORGANIZED/COVERED?

1. Future Internet (could be organised in cooperation with EIFFEL SSA)
2. GRID technologies and applications
3. E-infrastructure for e-learning
4. E-infrastructure for health
5. Research Networking e-Infrastructure

The Alliance has been asked to identify a remote speaker for a large event in India in early 2009 and hopes to comply.

### IX WHAT ARE THE CONSTRAINTS

For UbuntuNet Alliance as a site with a low bandwidth environment, participation has been as challenging as one would expect! On the day of the TNC 2008 in Brugge meeting, the first virtual event, the Internet connection was down at our Service Provider during the testing session until the meeting was about to start. Then the service provider reconnected, but not to our site but a long network cable was strung across the grass to the ISP and we participated successfully.



Figure 2: Screen capture of the TNC 2008 in Brugge, May 2008

Successfully or partly successfully – being a VSAT site, with limited bandwidth, downloading of ISABEL was the first challenge and as such the computer was left to download overnight. During the videoconference session there is a time lag between any input leaving UbuntuNet to the event venue. There is a slightly eerie disembodied voice.

There were problems with drivers for the webcam at first and the webcam was replaced and some problems were resolved but really there is not enough bandwidth for live images from UbuntuNet so instead, a still photo is used. But advice and support from the team in Madrid and Vienna is always prompt and helpful,

## X THE OPPORTUNITIES

For a relatively young organization such as UbuntuNet Alliance, the exposure achieved by being part of a team of well established organizations of international repute has been very positive. A major challenge of the Alliance is to achieve visibility and be perceived as a serious player. Being part of an EU FP7 project has assisted.

The Alliance member NRENs are distributed from Sudan through DRC to South Africa. The opportunities ISABEL may present for improving communications through internal meetings, capacity building workshops and meetings with development partners are exciting. The membership area for the Alliance is an area where air travel is much more expensive than in the west.

Most significantly, the opportunity provided by the GLOBAL project for scientists and practitioners in the UbuntuNet Alliance membership region to participate in prestigious international events both as audience and as speakers with minimum carbon footprint and maximum exposure is unique.

## XL CONCLUSION

The paper started discussing the concept of information isolation. For a researcher who attends a major event and asks a question at the plenary, he or she will be one of many and their voice hardly heard. Through use of the ISABEL System, the participants of the remote site, for example in one of the UbuntuNet Alliance countries enjoy full screen exposure in a way that is rarely not possible for the on site participants and their voice and issues may be heard.

The GLOBAL Project presents vast opportunities for organisations that desire to cut travel costs as well as reduce their carbon footprints. For instance, through the use of the VCC one may not need to travel across the globe to attend a one or two-day meeting.

UbuntuNet Alliance greatly appreciates being included in the GLOBAL project. This raises profile, builds capacity and provides members and their constituency with opportunities for participation and collaboration that would not have been available otherwise.

## REFERENCES

- Global Linkage Over Broadband Links (2007) Capacities - Research Infrastructures Part B of the proposal : Support actions (SA) (Internal project document)  
Global Linkage Over Broadband Links (2007) Grant Agreement : Description of work. (Internal project document)  
Crane, Diana (1972) 'Invisible colleges: Diffusion of knowledge in scientific communities.' The University of Chicago Press: Chicago and London  
Kinney Meyers, Jane.(1991) 'The Contribution of CDROM in Overcoming Information Isolation: Insights from an African Experience" CDROM Librarian

Project supported by EU FP7 Grant