

DECLARA

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Editorial



Rafael "Lito" Ibarra,
RAICES Executive Director,
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From a chronological point of view, it might seem to be a significant amount of time. From the point of view of the Knowledge Society, four and a half years is very little time. No matter how we look at it, we can only say that it has been an advantageous period of time. And we still have a horizon to find and the strength to keep going.

It has rained a lot and we have seen many dawns in both the old and the new continent since June 2002, when we exchanged ideas and dreams about the possibility of creating a truly Latin American network with its own connections, and with a single PoP with Europe in order to optimise costs and technology.

A couple of landmarks

From the moment in which academic networks were created in countries that didn't have one before, until the day in which European Commissioner for the Information Society highlighted the project at the Lisbon Ministerial Forum 2006 and in which CLARA was appointed as one of the e-LAC workgroups, we can see a timeline filled with the efforts of many actors, all of them pushing in the same direction: the institutional strengthening of this Latin American network.

In areas related to informatics technology and communications, recent advances include the connectivity of RedCLARA to the Pacific West exchange point by means of the WHREN-LILA project; the extensive use of ISABEL as an affordable alternative to carry out videoconferences; and the communication with organisations like Energy Science Network (ESnet), NASA Integrated Services Network (NISN), and the Australian Advanced Research and Education Network (AARNet).

Permanent challenges

However, in parallel to the political lobbying and technological advances in the backbone's administration, operation, growth and improvement, there are other issues that give origin to a permanent planning, discussion and exchange of ideas, and other more concrete efforts. These issues are in fact two major concerns in the minds of Latin American networks' leaders: the future sustainability and proper use of the connection.

In fact, bearing CLARA's future in mind, sustainability and self-funding alternatives become very important. We must eventually find them since we have invested a great deal of time, work, and, most significantly, creativity and talent. The project has been lately perceived as one of the most successful projects in European - Latin America collaboration by many collaborating organisations, countries and all sorts of institutions. But it is crucial to turn this enthusiasm into realistic means of permanent sustainability. This becomes even more crucial as we approach the project's formal closing date in March 2007.

On the other hand, from the point of view of each national network, we are faced with the urgent need of making greater and better use of the existing links. This need becomes even more evident in national networks from smaller countries with lesser development in science and technology issues, and also in CLARA's younger networks. It is not surprising that these characteristics can be found in the same networks. This challenge implies that the participation of CLARA's "elder sisters", the more developed networks, can be a success factor for CLARA as an association.

Achievements and challenges. Results and plans. Memories and hopes. Just like any living crusade, CLARA feeds on its people and its history, but has an optimistic and alert attitude towards the future.



RAGIE:

The Guatemalan Network harvests its fruits

The Guatemalan Research and Education Advanced Network, RAGIE, got connected to RedCLARA less than a year ago. However, it has scheduled lots of activities and although the Guatemalan population does not know this technology is available; those who need it are making full use of it.

RAGIE's Executive Director, Luis Furlán, tells us about the advantages of being a small network and about their needs. He also expresses his opinion about the state of advanced networks in Latin America.

On 27 November RAGIE will be officially launched. After a couple of failed attempts, this network will be able to have a proper celebration.

María Paz Mirosevic Alborno

The development and history of several advanced networks in Latin America is a subject we have covered in every issue of RedCLARA. The executive directors from these networks agree on the fact that there are important differences in the level of development among neighbouring networks.

Countries like Mexico, Brazil and Chile are leaders among their peers and set an example to be followed. On the other hand, in other countries like Guatemala, history shows us that networks have been the result of sheer strength and hard work: organize a national network, get the funding, training, design, operation of the 'local loop' and finally, international connection.

Although it has been a difficult process, the Executive Director of the Guatemalan Research and Education Advanced Network (RAGIE), Luis Furlán, states that despite the fact that RAGIE came into existence thanks to the ALICE project, it has made great progress and it has actually set the example for other networks in issues like 'coexistence' between traditional and advanced networks, and in the implementation of the IPv6 protocol.

In addition, Luis highlights some advantages that have been very useful for RAGIE, such as the fact that its operation depends entirely on its members financial contribution, or the fact that they don't have receive

contributions from the government or other external entities. This has made them act more carefully when it comes to carrying out a certain action, investment or when determining their priorities.

Another advantage, according to RAGIE's Executive Director, is that they have managed to build the network with low-cost technology. In fact, this network's router, which is connected to RedCLARA, is a Linux box. According to Furlán, this has been a positive experience since they have managed to learn and get to know a lot about network operation.

But Furlán is aware of the fact that the lack of a physical office and hired staff represents a major disadvantage for RAGIE. "This means the members of the Directive Council get a huge workload since we are involved in all areas, from administration to operation. This problem is something we are analyzing in depth and we feel that we cannot go on like this much longer. To achieve RAGIE's full development we need to hire an administrator with full-time availability for that task" tells Luis.

However, RAGIE's progressive advance is undeniable, especially when we hear about this network's history. The facts show that its creation is the result of sheer strength-

Once upon a time...

The history of Internet in Guatemala begins in the early 1990's, when the country realized about independent transport networks were not connected to the Internet. It was at that time that RAGIE's Executive Director, Luis Furlán, established a UUCP (Unix to Unix Copy) node in order to be able to at least have access to the electronic mail system.

This node was installed on a regular computer, and therefore it could not be exclusively devoted to this service. In order to establish communication, they got connected once or twice every day to the Hurricane Project node in Costa Rica, which served as the access gate towards the rest of the world.

The operation of this node started with five users, who were researchers from the University of the Valley in Guatemala (UVG). They node grew quickly and soon afterwards practically all researchers from UVG and most of its professors were making use of its services. All this was done with a 386 PC, with a 2 MB memory, a 20 MB hard disk, a modem and a telephone line. The operation continued growing until it was necessary to install a 486 PC for exclusive use and another telephone line was added. This way, they served up to 600 users. Due to Hurricane Project's internal policies, UGV's UUCP node had to change server and establish connection with UUNET Technologies in Virginia, USA. Because of the high costs, they only made one phone call at midnight when it was cheaper. The service was closed down in December 1995, when the MayaNet project came into operation.

MayaNet was trying to create and launch the first scientific/academic national network that would eventually interconnect five universities and research centres in Guatemala. However, the GuaTel monopoly made impossible to carry out any form of electronic communication without their intervention.

In 1995, CONCYT and GuaTel signed an agreement at the National Congress, where the President of the Nation and his ministers were present. But by 1998, MayaNet

had already collapsed and most universities withdrew themselves from the project.

As part of the creation of CLARA in 2004, Guatemala summoned ten universities in its territory to participate. Six of those universities formed the a committee for the creation of the Guatemalan Research and Education Advanced Network (RAGIE) which was then constituted in February 2004 as a Civil Association, with Luis Furlán as its Head.

RAGIE first members were: University of San Carlos de Guatemala, University of the Valley in Guatemala, Francisco Marroquín University, Galileo University, Mariano Gálvez University and Rafael Landívar University.

Guatemala's new scientific/academic network, RAGIE, started operating in February 2004, linking only its members.

Once the project was well-developed, RAGIE decided to officially launch its network. This hasn't been done yet, but the launch ceremony is scheduled for 27 November 2006.



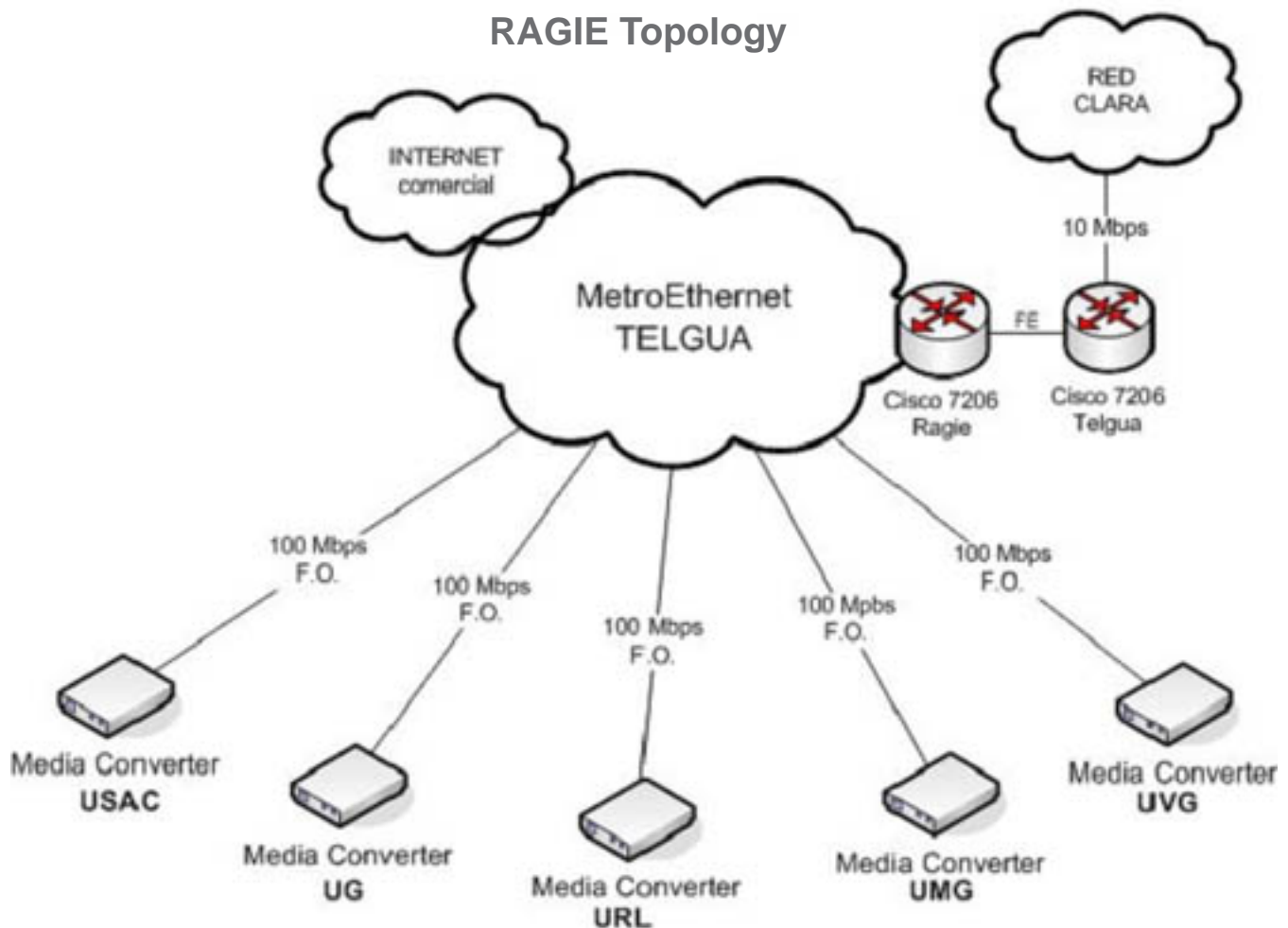
Luis Furlán

CLARA's intervention

In Luis Furlán's opinion, one of CLARA's main achievements is the creation of a exclusively Latin American network. "CLARA has created development needs in countries that didn't have them before, and in those countries that already had those needs, it has contributed to the consolidation of their operations. This is highly important, because a country needs to generate its own science and technology in order to boost its own development" sates Furlán.

"CLARA has been able to unite countries, to form an important group of network technicians and

RAGIE Topology



administrators, and is now beginning to provide users with services that are important in research and education. Multinational projects are relevant since they facilitate the transfer of technology and knowledge, reducing thus the learning curve in many cases”, adds RAGIE’s leader.

Due to technical and financial problems, RAGIE was not able to get connected to RedCLARA until December 2005. This means that it has been connected for less than a year and, if we take into account the fact that the process of familiarisation with advanced networks is a slow one, we cannot expect Guatemala to be actively making full use of CLARA’s benefits. However, Furlán tells us that his network is involved in several activities and projects, such as:

- Videoconferences by means of OpenMCU, VRVS, H.323 and Accessgrid
- VoIP with PBX Asterix and SIPX
- Instant Messaging with Jabber

- Mail and Web between universities
- Distance education
- Remote instruments operation
- Virtual days
- Download of high-volume content at high speed
- Video (<http://www.researchchannel.org>)
- Documents (<http://ocw.mit.edu/index.html>)
- Telemedicine via Internet2 for surgical procedures in operation rooms - Thesis project at the University of the Valley in Guatemala.

Luis, what is the relationship between the Guatemalan society and RAGIE and CLARA?

Despite some efforts to promote the network through press conferences and the publication of several articles in the media, I think most people have no idea about their existence.

We have been planning the “official” launch for more than a year, since August 2005, at the ALICE meeting

held in Antigua, Guatemala. We haven't been able to carry it out because we didn't get the long-awaited connection until September this year. Then we were planning to do it in conjunction with an event organised by the Information Society in Guatemala, and this was also postponed due to several causes. Finally, we have scheduled the launch for 27 November this year and we hope people get to know more about RAGIE and CLARA.

I must say that this isn't much of a priority in a country like ours. When you take into account that there is a high illiteracy rate and that only 2% of the population completes their secondary education, then it's easy to understand that the country has many other priorities. However, I think that the significant fact is that there is an advanced network available for those who need its services.

Luis, let's talk about the digital divide. What is the situation like in your country?

Technology is a fascinating subject. In the case of telephony in Guatemala, we were at the bottom of the telephones per capita list for a long time. Because of the country's geography, because of governmental plans, among other things, it was just impossible to install telephone lines throughout the country. Today, the development of mobile telephony is way above that of fixed lines and, in this sense we could say that the digital divide has been partly bridged.

When we talk about the Internet, the situation is very different. Then we talk about the lack of electricity, of computers, etc. We are far behind in this matter. Currently, the capital city receives most benefits, although there is already Internet access in the major provincial towns. In terms of the local population, the development of an advanced network does not reduce the digital divide, since this is something that is out of reach for the vast majority of the population. It's only available in the capital.

Nonetheless, from the point of view of international relations, this advanced network allows us to keep in contact with other countries and, as I've already said, to reduce the learning curve and therefore to bridge the divide.

What do Latin American countries need to bridge the divide?

The factors that have an impact in this matter are multiple. We need infrastructure: electricity, communications, etc. But in my opinion, education is the key element. Even if we had the infrastructure, if people can't read or write, how can they make full use of the Internet?

However, the same disadvantage represents an enormous opportunity for technologies. I think that Internet and Second Generation Internet in Guatemala will be mainly used for education purposes. Advanced networks and their capacity to handle high-quality multimedia can be used to great advantage since learning can be worked on involving all senses.

Another very important element is the cost of international connectivity. The experience of the ALICE project clearly shows it. A high percentage of the connectivity costs of the entire project have to do with the connectivity costs for Central America. If we are not able to solve this, the digital divide will be increasingly greater.

As for the initiatives, it is fundamental to keep supporting those initiatives coming from various international and regional organisations. The Puebla-Panama Plan and the Mesoamerican Information Motorway, among others, are good examples. If they are implemented, future perspectives will be much better.

Cathrin Stöver:

“The commitment from CLARA and DANTE to succeed was always stronger”

November 2006: RedCLARA is now two years old, the ALICE project is starting to live its last period and the CLARA partner institutions are defining how to carry on by themselves. All that everybody knows is that the Latin American advanced network must keep growing because we cannot go back. November of 2006, a crucial moment for RedCLARA, for ALICE. This is the spinal cord of the interview that we had with Cathrin Stöver, ALICE Project Manager (DANTE).

María José López Pourailly

It is impossible to turn back time. There's no way, no matter what, the clocks and the calendars will never go back. But even though for some people this is more than just a fact a categorical sentence, it all depends on how you look inside the glass, we have the option of look at it and find it half empty or half full. In this case, half full means the opportunity to look back in time and learn from the results of our past actions. That is what we did with Cathrin Stöver, we look back in time, we remembered the very beginnings of CAESAR and ALICE, and we analyzed what has been the ALICE project history. Why now? Because RedCLARA is now two years old, and ALICE is starting its last period, which means that CLARA will start to walk alone, as the grown up institution that must be.

The main objective of the ALICE project was to interconnect Latin America with Europe, RedCLARA is now two years old. When you realize this, what is the first thing and image that comes to your mind?

Community is the first word that comes to my mind. RedCLARA is not just a physical data communications infrastructure spanning all of Latin America. RedCLARA has also created a community. The CLARA community today consists of the connected NRENs, their staff and also their partners in Europe and the US. This community building has led to a strong integration

within Latin America and between Europe and Latin America and the US and Latin America. We can build the future on this community.

The ALICE Project official approbation, the financing support of the European Commission throughout the @LIS Programme, was the result of all the work done before within the CAESAR project frame, and of many people. Looking back in time, what do you think it was the real motor that make the idea of interconnect Latin America with Europe a reality?

The momentum that was created during the CAESAR meeting in Toledo back in 2003 was decisive. Latin American responded to CAESAR and the @LIS programme with a clear commitment and political will. The EC funding via the ALICE project acted as a catalyst for the creation of CLARA and RedCLARA. It is clear that what Europe brought to Latin America was wanted and needed in the Latin American research networking community.

A year ago, when the European Commission granted the extension of the ALICE project until the end of March of 2007 you said: "I believe that we can all be proud of this result, although we all know that it is just the beginning". Now that we are just five months far from March 31, what do you think? Are ALICE, RedCLARA and CLARA still just in the beginning of this path or they have grown a



Cathrin Stöver,
ALICE Project Manager
(DANTE).

little and now they are near to reach the middle of the route or maybe far?

The extension of the ALICE project has given CLARA and the newly founded NRENs the time to consolidate themselves. CLARA has taken on more staff as the tasks are growing. The next step now needs to be for CLARA to take on the full responsibility for the project. I hope that we will be able to achieve this step in the coming six months. If this step can be made, I believe we can look back and say that we are in midway to self-sustainability.

After receiving the news of the extension of the ALICE project, the explicit support that Commissioner Viviane Reding gave to the ALICE project and to RedCLARA has been one of the most relevant issues of year 2006, for the CLARA community. But that support it is the result of a huge work. Could you tell us about that work and how do you evaluate the results of the Lisbon Summit?

The ALICE project partners met with Commissioner Reding for the first time at the GÉANT2 launch event in Luxembourg in June 2005. Already then she showed great interest in the creation of CLARA and RedCLARA. This was expressed again at the European, Latin American and Caribbean Summit of the Information Society which was celebrated in Lisbon in April 2006. However, in my opinion the greatest success of the EU-LAC summit was the fact that all Latin American and Caribbean countries unanimously expressed towards the European Commission their wish to continue the successful cooperation that had been started via the ALICE project. The attending ministers and delegations from Latin America and also from Europe endorsed the success of ALICE. It was a decisive moment for the project and probably also for the future of CLARA and RedCLARA.

During all these years, what have been the most difficult issues that you and the ALICE project have had to confront in order to succeed?

There were many hurdles on our way. I am pleased to say that we have been able to overcome them all. Whatever the issue, the ALICE project did find a way to solve the problem and was able to continue. We never

gave up, but kept looking for the solution. The commitment from CLARA and DANTE to succeed was always stronger.

What has been the best of the ALICE Project history?

I think the best is that ALICE did not only create RedCLARA, but also several new NRENs across Latin America. The fact that countries responded to ALICE and RedCLARA by creating their own internal NRENs is probably the best outcome of ALICE. The creation of the new NRENs is the reason why RedCLARA can truly call itself a Latin American network today.

Now that RedCLARA is two years old, what would you like to highlight about it and about the people and NRENs that have made it function, work and serve?

Commitment and political will.

What will be the steps to follow during the five months that the ALICE project has ahead?

We will apply for another extension of the ALICE project and we hope to be able to continue with ALICE as far into 2007 as possible.

What would you like to be said by the ALICE project members and the European Commission about the ALICE Project on April 1st?

A great success. To be continued.



Florencio Utreras, Executive Director of CLARA, Cathrin Stöver and Rafael Ibarra, Executive Director of RAICES (El Salvador), in Lisbon.

Enhancing network capacities

CENIC paves RedCLARA's way to Pacific Wave

Thanks to an agreement settled by CLARA and CENIC (Corporation for Education Network Initiatives in California) that allows REDCLARA to use CENIC's optic network capacities to reach Pacific Wave (PW) -a state-of-the-art international peering exchange facility designed to serve research & education networks throughout the Pacific Rim and the world- through one of the three nodes that it has in Los Angeles (USA), RedCLARA is now able to exchange traffic directly with other regional networks of North America and to define its own policy to exchange traffic with those networks.

María José López Pourailly

Pacific Wave is a joint project between CENIC and the Pacific Northwest Gigapop (PNWGP), it's operated in collaboration with the University of Southern California and the University of Washington, and at the date it has 28 participants, CLARA is part of this list.

Designed to enhance efficiency of IP traffic, PW peering services offer outstanding opportunities to: pass IP traffic directly with other national and international networks; reduce costs associated with IP traffic that would otherwise transit multiple circuits; and, increase efficiency by directing traffic as quickly as possible to the target network/organization, reducing the number of 'hops' required to complete for the data to get to its destination.

CLARA joins PW through one of the three nodes that are placed in Los Angeles (California, USA) at 1GbE (Gigabit Ethernet). But to get to that node, CLARA had the assistance, actually the huge help of CENIC. To explain this better, let's go a little bit back in time, to July of 2005, when the link between the RedCLARA node in Tijuana and the CalREN (the California Research and Education Network, which was designed and implemented and actually operated by CENIC) node

in San Diego was established in the framework of the WHREN-LILA project. WHREN-LILA funded the fiber infrastructure between these two nodes and this gave RedCLARA the access (an entry point) to the USA networks. Now, to reach PW, RedCLARA needed to go from San Diego to Los Angeles, and this is where CENIC plays a fundamental role, because it is by CENIC's optical network capacities, by CENIC's infrastructure, that RedCLARA access to the PW exchange point in Los Angeles.



"The agreement with CENIC, that allows CLARA to extend the connection of RedCLARA from San Diego to Los Angeles, it is of main importance, it let us to enhance our network capacities, by using CENIC's infrastructure without any additional cost", highlights Florencio Utreras, Executive Director of CLARA, and he adds: "This network capacity donation from CENIC, must be thanked to the work and support of Jim Dolgonas, President and CEO of CENIC, and of John Silvester, from the University of Southern California and one of CENIC directors".

In what is referred to the Pacific Wave connection, this is financed by CLARA.

Benefits for CLARA

Pacific Wave promise that it “enhances research and education network capabilities by increasing network efficiency, reducing latency, increasing throughput, and reducing costs”.

If we have to physically define it, we should say that PW is a collection of distributed international exchange points located in geographically dispersed locations along the Pacific Coast, that serves metropolitan, national and international advanced optical networking infrastructure initiatives.

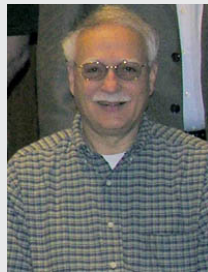
How does it works? The clue is on its website: “Pacific Wave's shared exchange is a layer 2 exchange comprised of local and intersite VLANs for IPv4, IPv6 and multicast packets. There are VLANs for jumbo and non-jumbo enabled sites as well”. “Each participant is provided with IP addresses for its local VLAN and all necessary intersite VLANs. For example, if a participant is connected in Los Angeles, it would be able to peer with participants that are located in Seattle and the Bay area as well”, this last is exactly the case of the RedCLARA connection, which is of 1GbE for real.

In words of RedCLARA’s Network Engineer, Eriko Porto, the benefits for the CLARA community can be summarized in two: “The ability to exchange traffic directly -and he underlines this “directly”- with other regional networks that have presence there, before that we were receiving the announcement of these networks prefixes through our peering with CalREN, meaning that CalREN was giving transit to RedCLARA to get to other networks. From the technical point of view we go to and from other networks using the same paths, meaning that essentially we are passing through the same links, and nothing changed regarding delays or capacity, but the major advantage is that now we can define our own

policy to exchange traffic with these networks. When someone else gives transit to you, you are completely tied to their existing policy and changes. If they modify their agreements, you automatically go together, you don’t have control. It is more a political than technical leverage, but it is a very important one”.



Florencio Utreras,
Executive Director of
CLARA



Jim Dolgonas,
President and CEO
of CENIC



John Silvester,
University of Southern
California, CENIC
Director.



Eriko Porto, Red
CLARA Network
Engineer

And for sure that’s important, furthermore when we realize that in such a short period of time, RedCLARA has already established traffic exchange agreements, and configured direct BGP peering (Border Gateway Protocol) with several networks that are present in the Los Angeles-PW exchange point: Pacific Northwest Gigapop, Energy Sciences Network (ESnet), NASA Integrated Services Network (NISN), Australia's Research and Education Network (AARNet), and National LambdaRail.

For those of us that are not real “techie”, to understand concepts like BGP or BGP peering is not easy, therefore it is better to ask. The answer comes from RedCLARA’s Network Engineer:

“BGP, Border Gateway Protocol, it’s the protocol used to exchange IP networks reachability information between Autonomous Systems (AS). This protocol has a lot of embedded tools that give to the administrators the ability to manipulate the policy about the prefixes announced. When you exchange traffic with other AS, you may prefer certain paths for certain networks, you may want to block some announcements for some peers, and more. So BGP gives you the ability to construct a political routing, not always the most efficient but the most suitable for your needs”.

About BGP peering: “You may have IP connectivity between your router and the other AS router, for instance you may have physical connection, IP addresses configured in both sides, and you can even ping the interface, meaning that everything is ok, you can reach the entry point of the other AS



(send IP packets), but if you don't establish a 'trust relationship' between these two routers, nothing happens. You must activate (successfully start) a BGP routing session in order to begin exchange information and be able to reach the other AS networks, and this is a 'BGP peering'. Some parameters must be agreed between both administrators and the configurations must be done in a coordinated style".

The advances continue

Plus the connection to PW, the RedCLARA NEG (Network Engineering Group) has also upgraded the provisional multihop-ebgp peering with Abilene (the Internet2 backbone) to a direct BGP peering in the USA West Coast.

Subsequently RedCLARA is now directly receiving the prefixes from these peers and providing enhanced connectivity services to its partner NRENs (National Research and Education Networks). And the promise is that the NEG will be working continuously to establish new agreements with other regional networks available in that region.

Also, the NEG and the NOC (RedCLARA Network Operation Centre) have started testing the implementation of a BGP communities configuration for IPv4 and IPv6, which will give RedCLARA more flexibility to manipulate the routing between the NRENs and other networks, and will provide a better troubleshooting capability for the NOC.

More Information:

Pacific Wave: <http://www.pacificwave.net/>

CENIC/CalREN: <http://www.cenic.org/>

WHREN-LILA: <http://www.whren-lila.net/>

An application for broadband Internet:

CLARA and ISABEL, two very close friends

The ISABEL platform, created by a group headed by Professor Juan Quemada from Madrid Polytechnic University (UPM, in Spanish), already has a place in CLARA's plans. After both institutions signed a collaboration agreement, Latin American advanced networks are getting ready to make regular use of this platform, which will very helpful for broadband applications.

Professor Quemada speaks about ISABEL, about its history and the challenges already met and those to be fulfilled.

María Paz Mirosevic Albornoz

In order to explain what the ISABEL platform is about, it is necessary to state that it is responsible for the development of a new concept of service that facilitates real-time collaboration through the Internet, and has been used for the execution of various distributed activities.

According to Telematics engineering Professor Juan Quemada, leader of the group that created ISABEL Platform at Madrid Polytechnic University, this is an application for broadband internet designed to provide the most efficient support to organize congresses, lectures or meetings through the Internet. In order to fulfill this objective, ISABEL integrates two kinds of techniques:

- 1) Protocols to organize participation, which allows each participant to act at the right time. This is done by combining together social protocols used in interpersonal relations in this kind of events and protocols of communications between computers.
- 2) Combination of TV production protocols and protocols for Internet videoconferencing and collaboration. Thus, a collaboration session is conducted as if participants were in a big virtual stage which contains all people connected through ISABEL.

The ISABEL Platform has been developed, so far, to support activities related to the academic world, such as scientific congresses, lectures or meetings, where participants usually have to travel to attend the event,

something they can avoid now if they do it though the Internet by making use of this application. Nonetheless, this service has also a huge potential use in other areas, of which the most immediate one is telemedicine.

With this new tool, Latin American countries can have access to far-reaching benefits. Access of education and research professionals to the most important world events in their fields will be highly important, especially for those living in remote areas.

Welcome ISABEL

In early October, CLARA's Executive Director, Florencio Utreras, and Dr Javier Uceda Antolín, Rector of Madrid Polytechnic University, signed a collaboration agreement to deepen relations and to join efforts to contribute to the use of collaboration systems by promoting the use of the ISABEL Platform, created by a group headed by Professor Quemada.

The agreement stipulates that UPM will promote the provision of the ISABEL Platform for CLARA, who will in turn make it available to its members so that they can use it in as many videoconferences and collaboration sessions as they wish, provided that these sessions are kept within International Advanced Networks that integrate academic organizations from all continents. This is an agreement that will certainly be beneficial for the Hispanic world.



Professor Juan Quemada

At the same time, it was agreed that CLARA will support the development of videoconferencing events in which UPM is interested. This participation will be carried out mainly through the National research and development (I+D) Networks that are part of CLARA, as well as through CLARA's engineering teams.

ISABEL in the eyes of Juan Quemada

Professor Juan Quemada, ISABEL Platform group leader, is aware of the importance this technology has for Latin American advanced networks and, although he admits that there's still a lot to be done, he is convinced that the group is going in the right direction.

"The ISABEL group started working more than 10 years ago on a tool that makes use of the capacities of new broadband networks that were being developed at that time, in order to carry out collaboration work in real time through the Internet. Our objective was to organize completely distributed events through the Internet. The idea was that these events resembled, as much as possible, equivalent non-virtual events. I am very happy because I think ISABEL is the best collaboration tool to perform this task. But we have had to overcome many hurdles along the way, and we will have to overcome some new ones", comments Juan Quemada.

Why is it called ISABEL?

The project which gave birth to research on this topic was prepared in 1992 and since we were at the height of the Fifth Centenary celebrations, the project was named ISABEL in memory of Isabella of Castile. The technology inherited the name a few years later.

Juan, in your opinion, what are the advantages of ISABEL?

ISABEL makes collaboration through the internet more efficient and attractive because it organizes participation and develops visual messages that make it possible to understand what is going on in other remote places.

How do you evaluate the tool you created?

I think ISABEL, as well as other tools that stem from the concept of service that we have developed, can lead to a new generation of highly efficient services of collaboration in real time. There is a lot to be done, but we are heading in the right direction.

The presence of ISABEL in Latin America

So far, many events have been broadcast through the ISABEL platform for the CLARA community. One of them, a very important one, was the Internet Governance Forum (IGF) organized by United Nations between October 30th and November 2nd, 2006, in Greece.

The session broadcast by ISABEL was that of November 2nd, where the organizers themselves, Juan Quemada and Daniel Díaz from RAAP (Peruvian CLARA member) and the creator of this idea, Rosa Delgado from ISOC, wanted Latin America to participate in this event.

The session's broadcast was of great importance because of the participation of people like the United Nations Secretary General, Kofi Annan, several state ministers and IT authorities.

RINGrid, a new step for CLARA:

Remote Instrumentation in Next-Generation Grids, more than a project, a must

The huge changes that the new technologies and information technologies have done in our society, have also change the way that we visualize the world, and for Science, Industry and Commerce, the concept of boundary, of political and geographical frontiers, are more and more meaningless. In these areas and more over, in the world of the advance research and education networks, the necessities are growing; knowledge grows. The broad international cooperation is the key for success. And in the mentioned areas, cooperation also means to be able to use sophisticated equipment and top-level expertise which is often locally unavailable. Therefore, as the RinGrid project acknowledges, “the development and dissemination of techniques and technologies that allow virtualized, remote and shared access to industrial or scientific instruments is essential for the progress of society”.

María José López Pourailly

In October 1st, 2006, the RINGrid project started its 18 months challenge. Funded by the Sixth Framework Programme (for Research Infrastructures - Communication Network Development) of the European Commission, Remote Instrumentation in Next-generation Grids (RINGrid) is an IST (Internet Society Technologies) Specific Support Action project that is constituted by ten partners (including two consortia: one of Italy and the second one of Latin America, which is CLARA, of course) from eleven countries (Poland, Austria, Greece, Bulgaria, Romania, Mexico, Uruguay, Chile, Brazil, Italy, United Kingdom). Its principal goal is to validate and do proposals of standardization in the use of remote instrumentation in Grids.

Which is the importance of working in the use of remote instrumentation? The clue is written in the project summary: “The possibility of using scientific or industrial equipment independent of their physical location helps in the equality of opportunity for and unification of communities and subsequently opens new opportunities

for industry, science and business. Furthermore, it has a very important political and strategic impact, as we head towards a more unified Europe. The systematic identification of instruments and corresponding user communities, the definition of their requirements as well as careful analysis of the remote instrumentation synergy with next-generation high-speed communications networks and grid infrastructure will be the basis for the definition of recommendations for designing next-generation Remote Instrumentation Services. Project results will be disseminated to scientific, industrial and business groups of users to increase awareness of the benefits of using next-generation Remote Instrumentation Systems, which are essential for promoting egalitarian access to the European e-Infrastructure opportunities. All the objectives of this project will be achieved through close collaboration of EU member states and third countries to ensure Europe's strong participation in research initiatives conducted at the international level”.

During the defined period of 18 months, and with a total budget of 999.165 € (770.650 € funded by the European Commission) the RINGrid partners will intent to achieve the following objectives:

- Identification of instruments and user communities, definition of requirements.
- Synergy between remote instrumentation and next-generation high-speed communications networks and grid infrastructures.
- Trend analysis and recommendations for designing next-generation Remote Instrumentation Services.
- Promoting egalitarian access to European e-Infrastructure opportunities.
- Dissemination of project results to scientific and business groups of users.

The functional structure of RINGrid is draw by six Work Packages (WP), each one of them addresses different areas of the project:

- WP1: Management.
- WP2: Identification of instruments and user communities, definition of requirements.
- WP3: Evaluation and requirements for infrastructures.
- WP4: Future Emerging Trends and Recommendations
- WP5: Dissemination, standardization and cooperation with other projects.
- WP6: Prototype implementation and verification.

CLARA's participation in RINGrid

CLARA participates in RINGrid project through two of its members: RNP (Rede Nacional de Ensino e Pesquisa) -the Brazilian National Research and Education Network (NREN)- and REUNA (Red Universitaria Nacional) -the Chilean NREN.

RINGrid also aims to enhance scientific cooperation in European Union (EU) member states as well as with EU candidate countries and countries in Latin America,

using the RedCLARA network infrastructure made possible by the EU's ALICE project. “We believe that close collaboration between the EU member states and third countries (e.g. Mexico, Chile and Brazil) will ensure Europe's strong participation in the research initiatives conducted at the international level. We also have to take into consideration that some research areas (e.g. radio-telescope experiments) require large geographic scale cooperation”, says the Technical Annex of RINGrid.

But how did CLARA get involved in this project. Marcela Larenas, REUNA's Project Manager answers: “Norbert Meyer, from the Poznan Supercomputing and Networking Centre contacted CLARA to validate the interest of Latin

America in participating in an SSA project of remote instrumentation. REUNA was contacted in the framework of this invitation, then after presenting the remote instrumentation UCRAV project to the organization in Poland, REUNA was accepted. Then we called RNP, because of the Brazilian expertise and relevance in laboratories and other scientific matters. Therefore, CLARA participates in RINGrid throughout REUNA and RNP”.

It is important to add that the experience of CLARA and, again, of REUNA and RNP, in Grid infrastructures, expressed on their participation in the EELA project (E-Infrastructure shared between Europe and Latin America), it was another important factor for those who thought

in the idea that gave birth to the RINGrid project, furthermore when establishing close cooperation with other initiatives and projects such as EXPReS, GridCC, and EELA is intended to strengthen collaboration between research and user communities.

In what is referred to the project development, REUNA and RNP, so CLARA, are part of the Work Packages 2, 3, 4, 5 and 6. This mean that they will have to work in the following tasks:

WP2: Definition of instruments, instrument owners and potential beneficiaries (end user) requirements. To



Marcela Larenas.

perform this task REUNA and RNP must identify instruments and user communities, as well as requirements definitions in different areas. While RNP will focus in material science and astronomy, REUNA will center its attention in astronomy (mainly through AURA observatory), actual UCRAV remote instruments and other new instruments. REUNA and RNP will also endeavor to extend the impact of the project, by seeking to identify additional areas of application of the benefits of remote instrumentation, respectively within Chile and Brazil, through interaction with the national agencies for financing of scientific instrumentation in these two countries, and with the institutions benefited by this support.

WP 3: Identify the requirements for remote instrumentation on each aspect of the measurement scenario.

WP 4: Analysis of access and core network evolution with respect to remote instrumentation services. CLARA will give its support to analyze the impact of next generation networks and grid infrastructures' development in Latin-American countries.

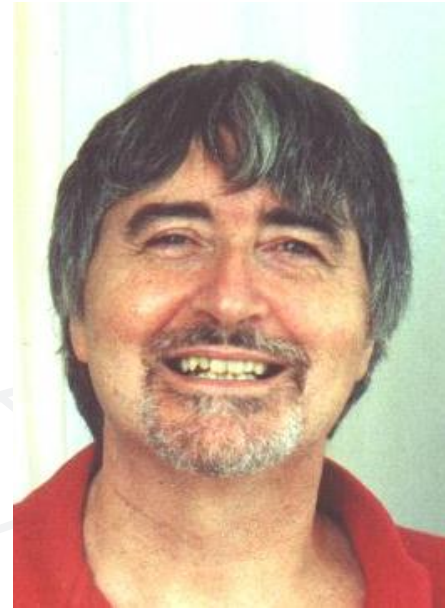
WP 5: Dissemination and cooperation with other projects and standardization bodies.

WP6: Prototype implementation and verification; the UCRAV remote instrumentation project will be setup in the RINGrid pilot infrastructure, in conjunction with other remote instrumentation tools/services that are currently operated by some of the RINGrid partners.

Michael Stanton, RNP's Technological Innovation Director, can explain us better the REUNA and RNP responsibilities in the project: "REUNA and RNP are currently dividing all the work between them, currently working together on WP2 matters, where the idea is to collect and catalog material about potential remote instruments which can serve as the focus of the project. Both REUNA and RNP have already included a list of instruments in the TA. We are now helping to define the information we need to collect. The other 3 members of WP2 (Mexico, Bulgaria, Romania) do not have any people in IT, just in scientific areas, so we are trying to show them the necessity to

include collection of IT information in the survey. Recently my group from RNP went to La Serena to visit AURA and talk to the people there who work in data management and communications and software development for the GEMINI and SOAR telescopes. This is all relevant to RINGrid. In UCRAV, REUNA already has a working laboratory environment for remote instrumentation. This experience will be important for making a contribution to WP6, which deals with pilot solutions".

For Marcela Larenas (REUNA), to place UCRAV in the prototype "will allow to test the obtained recommendations in this grid platform of instrumentation services, which from the point of view of the standardization and of the quality of services, will add value to the existent platform. This will improve the options to enhance the scope of



Michael Stanton.

action of the project in terms of offering the analysis services to other institutions in Chile and of other countries. At the same time, it will serve to identify the best practices and that could be implemented in the new versions of the prototype, by incorporating new instruments or services that, integrating the recommendations and standardization that will be presented as results of this project, will allow this pilot to be the first services platform of Latin America that works in accordance to those recommendations".

In representation of CLARA, Michael Stanton traveled to Poznan, Poland, to participate in the RINGrid Kick-off Meeting which was held in October 12th and 13th. Stanton tell us about the importance of this meeting: "Before the meeting, I had only met briefly the coordinator. After two days of intensive meetings and a night out, people who were just names on mailing lists become human beings. It all goes to improve the human networks built by cooperative projects. It also is important

to mark the beginning of a new enterprise - it has symbolic value”.

Of course, the participation of Michael Stanton also served to negotiate some details of CLARA participation, for instance to define the implementation of UCRAV in the prototype (WP6) and to get to know the colleagues from the different working groups, including their leaders.

From Stanton’s own point of view, the strength of CLARA inside RINGrid is its experience in collaborative projects: “CLARA is good for international projects in general for two reasons - it is a ready made information system, and it can work well with training and dissemination. Some of the countries (mainly Brazil, Chile, Mexico and Venezuela) can go a bit further, in that they have their own projects, which can be incorporated in larger ones from Europe”. Now, when we asked him about what will CLARA and its community gain from the experience and the work that is going to be carried out in RINGrid, he had no doubts: “Mainly recognition that we can contribute to this kind of project. In RINGrid, there is space for demonstrating that we have serious activities going on

here, and that we can be relied on to produce results. I expect to gain the confidence of the Europeans in this way. Obviously, the project also will have technical products, and these may possibly help to advance our own projects”.

More Information:

- RINGrid website: <http://www.ringrid.eu>
- In Wikipedia: <http://en.wikipedia.org/wiki/RINGrid>
- UCRAV: <http://www.ucrav.cl>
- RNP and SOAR: <http://www.rnp.br/en/news/2006/not-060919.html>



28-29 September, Punta del Este, Uruguay:

Ida Holz represented CLARA at the Latin American Meeting on UN Millennium Objectives and Information and Communications Technologies

About a hundred participants from eighteen countries, including representatives from Governments, civil society entities, international organizations (United Nations, IADB, ECLAC, OAS, ITU and the World Bank) and the business world, gathered in late September in Punta del Este. Their aim was to determine how the telecommunications sector can serve as a social inclusion tool to reduce poverty and inequalities in the Latin American region. Ida Holz, Director of RAU (Uruguayan Advanced Network) represented CLARA at this event, which was organized by the Latin American General Secretariat (SEGIB, in Spanish) and the Hispanic-American Association of Research Centers and Telecommunication Enterprises (AHCJET).

María José López Pourailly

The two day Meeting included special and plenary sessions with presentations about issues such as the importance of public-private strategic partnerships, the Latin American social environment and ICT, the state of telecommunications within the region and the contribution of enterprises to attain the Millennium Objectives.

The activities developed during those two days also included two parallel working sessions developed by six discussion groups focusing on issues such as economic growth, e-Government, health, training, geographic and economic divide, and inequality. The idea was to elaborate a document to be presented at the next Presidential Summit which will be held in Montevideo. According to Ida Holz, “we advanced the discussion and clarification of some issues, but we should have dedicated more time to do it in a better way. The meeting was very short and there were lots of issues to be elucidated”, and it is obvious that when it comes to discussing ways to overcome poverty, two days seem like a rain drop amidst a vast ocean.

As for the Latin American scenario, it is a bit hard to believe that telecommunications could actually serve as a tool for social inclusion and the reduction of poverty, especially because of the latter: poverty. The situation is worse if we take into account the fact that the poverty index reached 45% according to studies conducted by CECLAC. Ida Holz is aware of this fact and is very realistic when discussing the Meetings aspirations: “I think that although poverty-related issues cannot be solved, we can at least participate in social inclusion schemes, offering free communications for educational centres, giving priority to access for more remote areas. The same applies to the civil society. This process is taking place in some countries, including ours”.

In general terms, the Meeting’s recommendations propose the constitution of an instance at a regional level to:

“- Contribute to the development and dissemination of the best practices in the use of ICT focused on the attainment of the Millennium Objectives.

“ - Develop pilot projects and programmes at a regional level that aim at bridging the economic, geographic, health and training divides.

“ - Create a horizontal public-private cooperation fund that favours the horizontal transfer of technologies, knowledge, funds and experience by facilitating technical help initiatives between staff and experts from Latin American countries”.

The next question obviously is: Why was CLARA invited to participate in this event?

Ida Holz answers: “Today, CLARA is a well-known and respected organisation thanks to its achievements resulting from the creation of RedCLARA and of the advanced academic networks in the region. I think we could say that CLARA is a referent in the attainment of coordinated actions for collaboration in Latin American countries”.



Ida Holz

How do you think that CLARA should face this Millennium objectives? How should it contribute to obtain them?

In terms of contribution I think CLARA should create, sponsor and enhance concrete regional projects and initiatives, and it should support the implementation of local initiatives by transferring technology and building intra-regional capacities. These tasks, among other tasks related to collaboration among countries, are the ones that CLARA should put forward. In terms of development, there are great differences within the region. The CLARA project can and must collaborate to eliminate inequalities regarding academic, scientific and technological development, and thus attain an overall growth that brings us closer to countries in other regions, with whom we can work and share projects.

Who do you think should have a more relevant participation in the attainment of this objective: networks from the civil society, regulating bodies and governments, academic networks and their communities, or the enterprise?

I think we cannot exclude anyone. The reality of each country is different and, consequently, the participation of one organisation or the other will be more or less relevant, but we need everybody to attain the region’s overall integration and progress.

The recommendations elaborated at the Meeting seem quite naïve if we want to attain social inclusion and reduce poverty in Latin America. Would you add any other recommendations? What would be CLARA’s role in this scenario?

The recommendations are certainly not sufficient to attain social inclusion and reduce poverty. I don’t think CLARA can approach the objective of reducing poverty, but it can certainly contribute to improving social inclusion, paying attention to the educational needs within the region. CLARA is still in the early days of its existence. As time goes by, once it has consolidated itself as an organisation and once it has completed priority projects for the attainment of objectives such as collaboration in technological and scientific development projects, CLARA will be able to move on to other social content objectives. A lot has been done in a very short time and, undoubtedly, the unity we have achieved within the region will enable us to do even more for the benefit of all people.

New networking solutions support Global Science initiative

Monitoring of multiple domains and point-to-point connections made possible by GÉANT2 project.

Press Release by The Works of DANTE

(Originally published in GÉANT2 website:

<http://www.geant2.net/server/show/conWebDoc.2243>).

7th November 2006, Cambridge, UK: Researchers across the globe are benefiting from new advanced networking solutions, deployed as part of the GÉANT2 project. For the first time ever, scientists collaborating on the world's largest particle physics experiment, the Large Hadron Collider (LHC), now have access to dedicated point-to-point network connections between distributed research centres. In addition, new monitoring tools enable them to analyse the status of traffic across the multiple network domains that connect these processing centres. Now 'live', the monitoring system not only facilitates the unprecedented ability to immediately identify and locate any issues with point-to-point connectivity, but also enables those scientists involved to guide the direction of research.

CERN (the European Organisation for Nuclear Research) is currently building the Large Hadron Collider, the biggest scientific experiment ever undertaken. LHC's experiments will generate energy equivalent to 70,000 times that of a nuclear explosion, and create conditions similar to those experienced just after the Big Bang. It will produce roughly 15 Petabytes (15 million Gigabytes) of data annually, once it is fully operational in 2007. This huge amount of data needs to be distributed to processing centres around the world, for quick and efficient analysis. GÉANT2, and its partner networks, enable the data to be accessed and analysed by thousands of scientists across the globe.

"As research co-operation becomes increasingly global, it is vital to not only ensure that connectivity is provided to support collaboration between researchers in different world regions, but also to see that these circuits can be properly operated and the integrity maintained," said Hans Döbbling, General Manager for DANTE, which operates GÉANT2 on behalf of Europe's NRENs. "The 'virtual private network' created for CERN by GÉANT2 and the collaborating research networks, reserves high bandwidth connectivity, free from general research traffic."

GÉANT2 is the largest research and education network ever built for the European academic community. It enables the switching of circuits and the reservation of 'virtual' paths across a dedicated network. Data generated by the LHC will be distributed from CERN to 11 primary processing sites, each connected to CERN by a dedicated wavelength switched path of 10Gbps. These primary centres are connected to each other and to secondary processing sites for additional data analysis, usually within the same country, with a dedicated point-to-point connection. These are provided by GÉANT2 and the relevant National Research and Education Network in the participating countries; GARR (IT), UKERNA (UK), SURFnet (NL), DFN (DE), RENATER (FR), RedIRIS (ES), SWITCH (CH), NORDUNET (Nordic region), Internet2 and ESnet (US), CANARIE (CA) and ASNet (Taiwan), to create a truly international team of collaborating researchers.

DANTE's Chief Technical Officer Roberto Sabatino said: "The ability to monitor traffic across multiple domains is unprecedented. One of the key features of GÉANT2 is the ability to deploy point-to-point connections, and this is being done on an intercontinental scale. When you add the ability to monitor the stability of the links right across the connected networks, you create an incredibly powerful networking solution that could fundamentally change the nature of scientific collaboration and global research."



A G E N D A

D E C E M B E R

Fall 2006 Internet2 Member Meeting: "Ten Years and Looking Forward"

December 4-7 , Hyatt Regency Mc Cormick Place,
Chicago, Illinois, USA.

<http://events.internet2.edu/2006/fall-mm/calls.cfm#proposals>

Experts in Information Society World Summit application and monitoring Meeting: Use of the TIC to further growth and development.

December 4-5, Geneva, Switzerland.

<http://mail.google.com/mail/?attid=0.3&disp=vah&view=att&th=10e5cf2055df689b>

Second IEEE International Conference on e-Science and Grid Computing

December 4-5 , Ámsterdam, Netherlands.

<http://www.escience-meeting.org/eScience2006/>

First EELA Grid School – EGRIS-1

December 4-15, Itacurucá Island, - Rio de Janeiro State,-, Brasil

<http://www.eu-eela.org/egris1/>

4th TERENA NRENs and Grids Workshop

December 6-7, Ámsterdam, Netherlands

<http://www.terena.nl/activities/nrens-n-grids/workshop-04/>

IADIS CELDA Conference 2006

December 8-10, Barcelona, Spain

<http://www.iadis.org/celda2006/cfp.asp>

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INTERWORKING 2006

January 15-19, Santiago, Chile

<http://www.interworking2006.org/index.php/home>