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High Quality Video-conference Service (HQVS) scope definition

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Periodical Progress Report

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Abstract: This document describes the ELCIRA team work in defining the scope of a High Quality Video-conference service (HQVS) between Latin-America and Europe. The ELCIRA WP3 team defined the main elements of the service including its characteristics, services to be provided, and agreements.

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For more information on ELCIRA, its partners and contributors please see http://elcira.redclara.net (this website will be available in October 1st 2012).

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SCOPE DEFINITION OF A HIGH QUALITY VIDEO CONFERENCE SERVICE

1.- INTRODUCTION

This document sets out the definition for the scope of a High-Quality Videoconference Service (HQVS) between Latin America and Europe. It will describe the agreements and set the ground elements for an interregional service that can be accessed, used, and supported in a common way irrespective of whether the user is in Europe or Latin America. In order to achieve this, the WP3 Work Group provides a definition of the HQVS the elements that it will include. This document includes the definitions of the work to be done in WP3, and the main guidelines for it to be carried out.

2.- EXECUTIVE SUMMARY

ELCIRA WP3 aims to implement agreements for a High-Quality Videoconference Service (HQVS) between Latin America and Europe. In this document, the WP3 Working Group will define the scope of work. Initially, the WG details the desired features of the HQVS and establishes a set of network requirements, including the need to use research and education networks for the service, and the available bandwidth needed for institutions, among others. The main goal is that institutions participate with a high-quality network with the required quality of service. Another work area is the Inter-regional Certification Programme (ICP). The ICP will be designed to ensure quality and recognition for participants. The participant institutions will be able to achieve quality by knowing the ICP procedures on how to improve their videoconferencing infrastructure, and by receiving the recognition of a branded model that will award ICP recognition as validation of their network quality. The WP3 work will include the integration of directories so that users can identify resources available across the regions. There will also be important integration work carried out on dialling systems. The above will be carried out through the development of a Latin American gatekeeper and its connection to the European eduCONF service. The goal is to provide a unique and easy way to use the service across both regions. The scope also defines the establishment of a support network agreement, in order to work on common service procedures towards the possible integration of help desks and support. Finally, the work group states that the system will be standard-based and open, so the service evolution will be done in collaboration with the participant institutions.

3.- BACKGROUND

Work Package 3 of the ELCIRA Project aims to implement a High-Quality Videoconference Service (HQVS) between Latin America and Europe. Videoconference services have been common across academic, private and research institutions for several years. Nevertheless, the organisation of videoconferences is still not an easy task, and the

service itself sometimes has unpredictable results. The causes of this are many, including the presence of proprietary technologies, high equipment costs, reduced technology adoption, the lack of agreements in dialling methods, and the complexity of the environment itself. The ELCIRA projects aims to improve the overall quality of videoconference services on research and education networks by working on solving these problems. Furthermore, the high bandwidth available on research and education will push videoconference services to new levels of quality for applications in areas such as biology and telemedicine, for instance. The HQVS will obtain agreements on technology and recommendations for ensuring the best achievable videoconferencing service between Europe and Latin America. For instance, it is intended that dialling to connect to a videoconference will be as easy as making a telephone call. Nevertheless, dialling systems across institutions and regions are not integrated, and there are multiple different dialling systems. Facilitating access to the service through the integration of dialling methods would be a great improvement for end users. Call quality also depends on the network, equipment configuration and other technical aspects. The HQVS will define the technology recommendations that help institutions to achieve maximum performance. The above will be obtained through an agreed certification programme with technical recommendations and documentation that empowers institutions to provide a better service. The HQVS directory service will enable end users to know other locations with which they can have HQVS videoconferences and of which type (telepresence, HD, standard). In order to deal with any problems which may arise, the HQVS will have a structured/federated support team that ensures end-user satisfaction. The Latin American and European support teams will work on common policies and procedures that will ensure effective interaction between support teams. The following sections describe the main elements of the HQVS between Latin America and Europe.

4.- CHARACERISTICS AND FEATURES OF THE HQVS

The specification of the HQVS is a very important task due to the different capacities which exist among technologies and institutions. Today end users require increasing levels of quality. They have access to high definition in their homes, better levels of quality on commercial networks, and services which are easier to use. This is where research and education networks can show their value with the high-speed connections that are available today. The Work Package team has defined a set of characteristics for the HQVS. This set of features will allow a wide range of institutions, with different technologies, to participate having the best possible quality. The characteristics which have been identified are as follows:

a) The video-call quality relays on network quality. The **HQVS will specify the minimum network requirements**. **The participant institutions will use this standard** in order to ensure a great user experience**.** These requirements are explained in detail in numeral 8.

b) Quality will be guaranteed in a HQVS. When a video-conference has bad image resolution, audio problems, or cannot be connected instantly, the customer will always have an altered perception of the service. In order to have a quality guarantee, ***the HQVS must have an certification programme agreed by both regions that allows people to test and assess their resources***. Furthermore, the HQVS will provide a set of documents with best practices and recommendations including dialling, protocols, sound systems, adjustments to the room environment, bandwidth and others that will help to improve quality and use of the systems.

c) ***The HQVS will have an EU-LA public directory of human and technical resources for the service***. The above is very important to facilitate access to the service and make its use easier.

d) The HQVS will have ***an integrated dialling system between Europe and Latin America*** and numbering plans that facilitate access and service use. With this service, the users will be able to dial to an institution in Latin America and Europe in the same way.

e) The HQVS will have a federated support network to provide assistance when problems arise. Even with all the preventative measures (certification, standardisation, etc.) problems may occur. Nevertheless, problems may be an opportunity to improve the users' perception of quality when there is quick and efficient assistance with their problems. This is one of the goals of the support network in the HQVS.

5. SUPPORT NETWORK FOR THE HQVS

A common videoconference service between LA and EU requires significant work to integrate and standardise systems, functionalities and procedures. For instance, the videoconference protocols, dialling methods, and reservation procedures have differences even within national networks. In order to deploy federated support some agreements will be necessary. The agreements will include the availability of local contacts for end-user support, the publication of this information in a support system, the ability to test rooms or systems to facilitate problem detection, and the use of and contributions to a technical support procedure, among others.

In ideal circumstances, the support team will be made up of experts from Europe and Latin America. The ELCIRA WP3 group is considering two main options for the support team:

a) A centralised global helpdesk support area with local support teams at each institution. The global helpdesk could be in Europe or Latin America, and would be financed by the partners affiliated to the regional video-conference networks.

b) Regional support teams (one in Europea and one in Latin America) which collaborate using common procedures. Local support would also be available, and the helpdesk group could take advantage of differences in working hours in the two regions.

Whilst a centralised helpdesk for both regions would be a positive option, this will require strong agreement on procedures that perhaps cannot be achieved. Consequently, it may prove more effective to have different support teams and which collaborate on the deployment of procedures.

6. SERVICE POLICIES

The work in the HQVS will produce a set of common service policies between Latin America and Europe, and procedures to maintain them. An inter-regional service will embrace differences and try to set common rules, best practices, and unified procedures (not all) that do conflict with local policies. The WP3 working group understands that the difference service policies across NRENs and institutions can be an entry barrier to implementation. GÉANT and RedCLARA have carried out work previously in service policies in their regions, and it is highly recommended that the agreements for an inter-regional service will be based on this. The aim is to take advantage of the best agreements already made within the regions.

In order to overcome entry barriers due to policy differences, the WP3 working group will define a policy agreement where requirements are the minimum possible, so that any institution can join without significant efforts in adapting technical infrastructure. The above agreement for the HQVS will include the following policies:

a) Institutions will use a gatekeeper to join the HQVS service. The LA and EU global gatekeepers will be shared with institutions that do not have it.

b) Each participant institution is autonomous to define their local access policies to video-conference rooms, nevertheless; the access policies will be published in the global directory for users' information. The above will guarantee that the user knows the procedure to achieve access the service resources.

c) Using the HQVS requires that the institutions have enough bandwidth for the video-conference services. Institutions will not have a minimum of 15 Mbps of free bandwidth at all times.

   Institutions will encourage their users to provide feedback on the quality of the delivered service. The above will be done through a unified survey system that allows easy statistics collection with shared access. The ELCIRA project participants will agree on a method for collecting video-conference experience in the network.

7. BENEFITS OF THE HQVS

The HQVS aims to provide the following benefits for participant institutions and users:

a) With the High-Quality Video-conference Service (HQVS), the institutions will have a high quality service of in all of its chain elements, from finding the service to using it. The HQVS will request that participants comply with a certification process, and the videoconference network will use a recognised branded model for institution accreditation. Institutions that have been certified can guarantee a high level of service with excellent videoconference results. The branding model will provide a service compliance logo that institutions could use to promote their services.

b) The value of the videoconference network for the NRENs and institutions will depend on the size of the network itself. The higher the number of institutions subscribed to the service, the higher the opportunity the user will have to hold high-quality virtual meetings.

8. BANDWITH AND NETWORK QUALITY

The HQVS participant networks will provide sufficient bandwidth to support the traffic produced by the videoconference service without contention or packet loss. The certification process of the HQVS will require institutions to have sufficient bandwidth for videoconference services. Furthermore, the HQVS will provide the recommendations for dimensioning and the testing procedures that can help users and support teams to identify whether they have any issues that need addressing. Checking procedures will be different for end users and local support teams. For support teams, the testing procedures will use tools such as Iperf to checking for delay, jitter, and specific technical parameters. For end users, the tool provided would be simplified, and could resemble a typical bandwidth test that can be run from any web browser.

The HQVS bandwidth and network quality requirements are as follows:

a) The ***HQVS requires that the connecting institutions use the research and educational networks for the service***. This is because research and education networks ensure network quality, and are not prone to over-usage or congestion as may arise on commercial networks.

b) The rooms will be able to call and be called by the HQVS system. ***The HQVS system recommends that systems do not use firewalls or NAT for videoconferencing*** elements such as MCUs, gatekeepers, or end points.

Firewalls can easily affect conference set-ups, and can lead to service problems and customer dissatisfaction.

c) The HQVS participants will guarantee that they ***have sufficient free bandwidth of at least two times that configured for the terminal*** multiplied by the number of participants. For instance, a terminal configured with a 2-Mbps videoconference will have a network with free available bandwidth of 4 Mbps. If the conference that would take place has 5 participants, the institution will have at least 20 Mbps of free bandwidth.

d) The HQVS will define the standard delay and packet loss for different kinds of connection. This information will serve as a basis that institutions can use to identify whether they have the proper resources to achieve the required quality parameters. ***The HQVS participants will guarantee tht they suffer less than 1% packet loss during any conference.***

9. DIRECTORY SERVICES

The HQVS will provide an agreement for the integration of directory services. The directory service will store information about the videoconference rooms, their resources and technical contacts. The directory services can run through standard LDAP services using H.350 specification, or through web service integration. The HQVS will define an agreement for information in Latin America and Europe to be integrated. In the scope of WP3 scope, the Working Goup will define the standard and implement a testing environment for directory integration. The ELCIRA project be based on previously defined standards, and the integration of API developed by the eduCONF project in Europe.

10. DIALLING METHOD AND GATEKEEPER SYSTEM

The integration of dialling systems for the videoconference service can be achieved through gatekeeper systems. In the European videoconference network the gatekeepers are in place. The ELCIRA WP3 team will implement the gatekeeper system for the Latin American videoconference network, and integrate it with its European counterpart. Institutions will configure a gatekeeper, taking into account aspects such as the the ability of the gatekeeper to call using GDS or IP address.

11. RESERVATION SYSTEM

The Working Group considers that a desirable feature for the HQVS would be a global reservation system. Nevertheless, its implementation is very complex due to policy differences across institutions. RedCLARA has been developing a reservation system for its Latin American service since 2009. ***The HQVS will adapt a basic version of this reservation system for institutions in Europe and Latin America that do not have their own***. The scope of this application will be limited to the directory service and scheduling assistance. The application will be easy to adapt to the customer institutional image. The application will be provided as a functional trial for institutions that want to test the service with their environment.

12. FURTHER CONSIDERATIONS

Commercial technologies frequently lead institutions to adopt some kind of term or proprietary work. In the HQVS, the work will be based on standards that guarantee interoperability and protect institutions' investments. The group has established that ***terms and technologies such as HD and telepresence can be supported but will not be obligatory.***

The HQVS service will be an open initiative. Participation by institutions in HQVS will be promoted and the rules of the service will:

a) Allow institutions to collaborate with service and policy development. The idea behind this is to promote innovation through participation.

b) Increase the number of institutions that wish to participate, allowing then to feel part of the service, not only its consumers.

c) Shared resources in the service, such as MCUs, gatekeepers, the reservation system, etc., must be open for use. For instance, institutions will allow gatekeepers to accept calls from GDS without access lists or firewall rules with human intervention.