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# D3.4 Pilot Test System of a GDS and integrated VC service with 3 institutions among LA and EU

A project of the Seventh Framework Programme (FP7)

This project is funded by the European Commission

A project implemented by RedCLARA

# Periodical Progress Report

*ELCIRA Deliverable: Pilot Test System of a GDS and integrated VC service with 3 institutions among LA and EU*

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**Abstract:** This report aims to explain details of the deployment status about videoconference network, work done by Latin American NRENs, how to use the service and present results of the first tests over the pilot system.

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## DELIVERABLE ROUTE

| | Name | Member/Activity | Date | Responsible |
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# 1 GLOSSARY

| | |
|---|---|
| MCU | Multipoint Control Unit |
| GDS | Global dialing Scheme |
| HQVS | High Quality Video-conference Service |
| NREN | Network Research and Education Network |
| H.323 | Standard set of protocols to establish videoconference calls |

# 2 INTRODUCTION

The High Quality Videconference Service (HQVCS) was born in the ELCIRA project in order to enhance and promote video communications between researchers and academics of institutions of Europe and Latin America. HQVCS provides essentially the possibility to dial between Videoconference Equipments with phone numbers as conventional telephony, the quality of the call will depend of characteristics of the elements involved in a call process (MCU, Endpoints andH.323 Software Clients). Besides, this Gatekeeper network will allow VC managers to obtain statistics of the service and provides other features that improve the administration of calls.

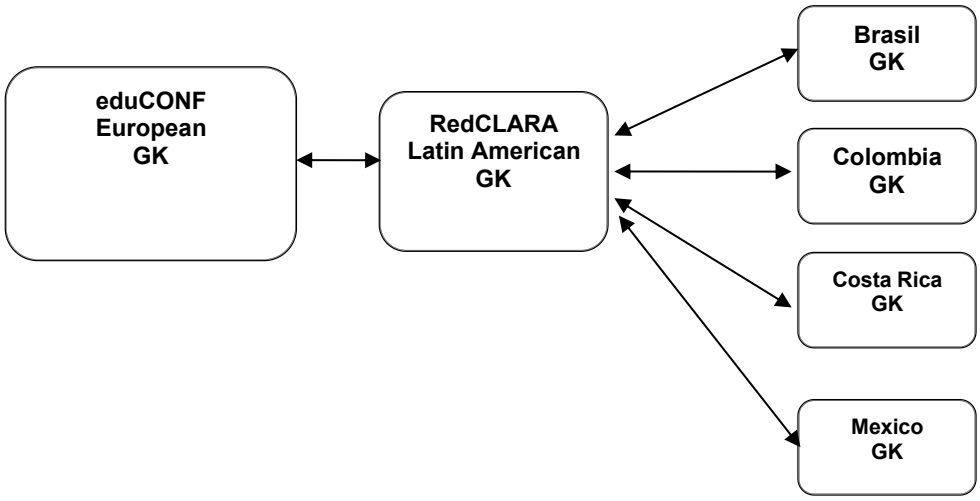
This report aims to explain implementation status of the Pilot HQVCS service, the NRENs that are connected to the network, milestones, how to use the service and results of first tests.

# 3 THE HQVS PILOT NETWORK

The service has been implemented with a series of hierarchical Gatekeeper that routes call requests using prefixes of numbers to establish a call between videoconference endpoints. These elements are connected as Neighbors of the Latin American Gatekeeper managed by RedCLARA.

There is a Latin-American Top Level Gatekeeper managed by RedCLARA that is connected to other international videoconference networks like eduCONF (Europe). This element will attend call requests from different LA NRENs and route them to other networks or to other NREN from LA.

Latin American NRENs needs to implement a Gatekeeper solution to attend call requests to his country and been added to the Latin American Gatekeeper.




### 3.1 PARTICIPANT COUNTRIES

These are the NRENs/Countries that implemented Gatekeepers and are connected to the network.

| Country | NREN | Country Code | Gatekeeper |
|---|---|---|---|
| Colombia | RENATA | +57 | 190.15.31.13 |
| Costa Rica | CONARE | +56 | 200.9.33.200 |
| Brazil | RNP | +55 | 200.130.15.16, 200.130.15.17 |
| Mexico | CUDI | +52 | 200.23.60.25 |

Also can check members of NRENum.net which is a system that provides a network of ENUM servers to resolve numbers and easy find the requested resource. When a number is dialed Gatekeeper will query this ENUM tree and receive an URI to establish communication.

NRENum.net Members:
https://confluence.terena.org/display/NRENum/Members

TERENA ENUM Participants:
https://crawler.nrenum.net/

### 3.2 IMPLEMENTATION STATUS BY NREN/COUNTRY

In November 2013, the Colombian NREN RENATA implemented a Gatekeeper solution that had been added as a neighbor of RedCLARA Gatekeeper. First tests were making calls using numbers to other institution from other countries like Czech Republic, Brazil and United Kingdom.

November 2013, RENATA contributed Costa Rican NREN CONARE to implement their Gatekeeper solution. Some tests were made making calls to RedCLARA MCU and between them.

December 2013, RENATA applies for delegation request for zone 7.5.nrenum.net at NRENum.net. There were technical problems in the deployment of ENUM server because NRENum.net team requires IPv4 reverse resolution, IPv6 address and two DNS servers (master and slave) to zone delegation.

February 2014, Zone 7.5.nrenum.net has been delegated to RENATA, next steps in this service is to use DNSSEC and maybe delegations to other zones of Colombia.

Status by Country/NREN:

| Country | GDS enabled | NRENum.net | Status |
|---|---|---|---|
| Brazil | Yes | Yes | Pilot |
| Colombia | Yes | Yes | Pilot |
| Costa Rica | Yes | No | Pilot |
| México | Yes | No | Pilot |

European institutions were integrated through the eduCONF Video-conference network. RedCLARA integrated its gatekeeper with the counterparts in Europe (eduCONF), Australia (ARRNET), United Kindom (JANET), and Ireland (HEANET).

This work was carried out with the support from the eduCONF team, who provided the initial configurations, and collaborated with problem management and call testing.

### 3.3 DIAL PLAN

According to the Global dialing Scheme (GDS) every participant of the High Quality Videoconference Service has to define or use a number that follows E.164 ITU recommendation.

E.164 ITU Recommendation:
<IC><CC><ZP><EN>

| | | |
|---|---|---|
| IC | International Code | Defined as (00) |
| CC | Country Code | Standard country codes are used |
| ZP | Zone Prefix | RedCLARA recommendation is (01) that fits very good |
| EN | Endpoint Number | Assigned by the NREN to every Endpoint connected |

NOTE: Country codes at http://countrycode.org/

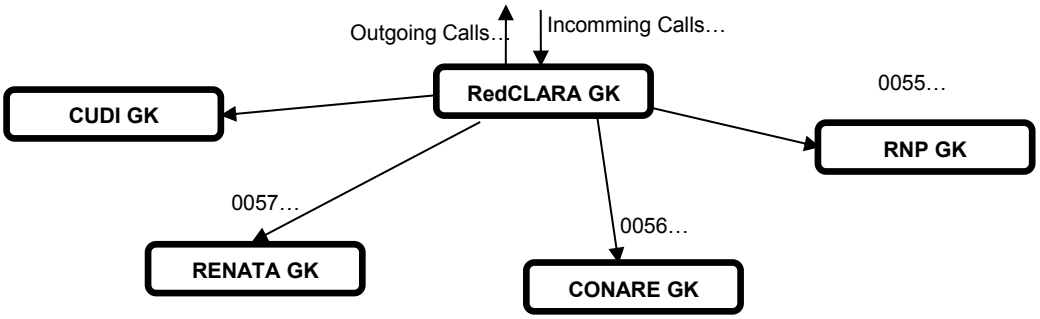
This existing dial plan works as routing rules configured on Gatekeepers, this type of connection is known as Neighbor. To ENSURE that the network works properly, is recommended to follow these principles:

1. RedCLARA Gatekeeper MUST have only International and Latin American NREN Gatekeepers as Neighbors

2. Latin American NRENs Gatekeepers MUST have RedCLARA Gatekeeper as Neighbor with 00,!<CC> routing rule to them.

3. Other institutions connected beneath NRENs have to define their own routing rules

This is explained in the next figure:




# 4 EDUCONF INTEGRATION

EduCONF network managed by GEANT allows communications with institutions of Europe and uses Gatekeepers to route call requests. To an NREN is easy to be integrated with this network thanks to RedCLARA. RedCLARA has worked with the eduCONF team in the integration of the new Latin-American network and its European counterpart.

## 4.4 IMPLEMENTED INFRASTRUCTURE

The continental network gatekeepers works as the core routing points for calls between its networks. Here is the list with the information about implemented infrastructure.

Top Levels Gatekeepers

| Continent or Zone | Ruled by | IP Address |
|---|---|---|
| Europe | GEANT | 193.198.203.131, 150.254.161.50 |
| Latin America | RedCLARA | 200.0.206.181 |
| United States | Internet2 | 207.75.164.39, 64.57.22.6, 207.75.164.90, |

| | |
|---|---|
| | 192.148.244.130, 152.2.17.185 |

NREN Gatekeepers

| Country | Ruled by | IP Address |
|---|---|---|
| Colombia | RENATA | 190.15.31.13 |
| Brazil | RNP | 200.130.15.16, 200.130.15.17 |
| Costa Rica | CONARE | 200.9.33.200 |
| Mexico | CUDI | 200.23.60.25 |

## 5 HOW TO USE GLOBAL DIALING SCHEME (GDS)

Briefly, the steps to join and use the HQVCS are as following:

1) Implement a Gatekeeper for your NREN or Institution.
2) Request joining your GK to Latin American Top Level Gatekeeper managed by RedCLARA.
3) Register on your Gatekeeper by setting up H.323 connection parameters on the settings of your Endpoint.
4) Start making calls using numbers.

NOTE: If your NREN or Institution counts with a Gatekeeper, only steps 3 and 4 are needed. Setting up H.323 parameters may vary depending of the brand of your Endpoint, but basically the process of registration on Gatekeeper is automatic.

Make a Test Call:
RedCLARA test room with the number: 0056012010020

NOTE: Quality of calls depends of elements involved in the call.

## 6 HQVCS TEST NUMBERS

These are the test numbers by integrated Latin-American NRENs:

| NREN | Country | Endpoint/Room | Number |
|---|---|---|---|
| RENATA | Colombia | Meeting Room 1 | 0057015302604 |
| RENATA | Colombia | MCU | 0057015302701 |
| RedCLARA | Chile | MCU Test Room | 0056012010020 |
| CONARE | Costa Rica | Meeting Room | 005060125195700 |
| CUDI | Mexico | Meeting Room | |
| RNP | Brasil | MCU | 0055901234 |

The following are the tested numbers in eduCONF's network:

| Country | Number |
|---|---|
| Portugal | 00351400102136 |
| Croatia | 003857580629999 |
| Czech Republic | 00420950087999 |
| Germany | 00491009791 |
| Poland | 004861102000001 |
| Slovenia | 0038601010000 |