REUNA

Ciencia y Educación en Red

E-infrastructure for the research and education in Chile

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2014 Internet2 Global Summit

REUNA, expanding the frontiers of knowledge

Mision

To be the leading digital platform in the country, which articulates, communicates and collaborates with entities of science, culture and education, and insert them in the global scenario using advanced and innovative services.

Strategic Plan 2014-2017

Vision

REUNA as an strategic player in the development and evolution of the education and science sphere; connecting great ideas with innovative solutions that significantly expand the knowledge and transform the lives of people.

Our profile

- **+ 20** years of contribution to the digital development of the country.
- The first NREN in Latin America
- Connected to Internet2 since 2000
- 1st NREN connected to RedCLARA
- **29** research and education institutions currently in REUNA, between them:
  - 18 Universities
  - 5 Astronomical centers
  - 5 research centers
  - + CONICYT

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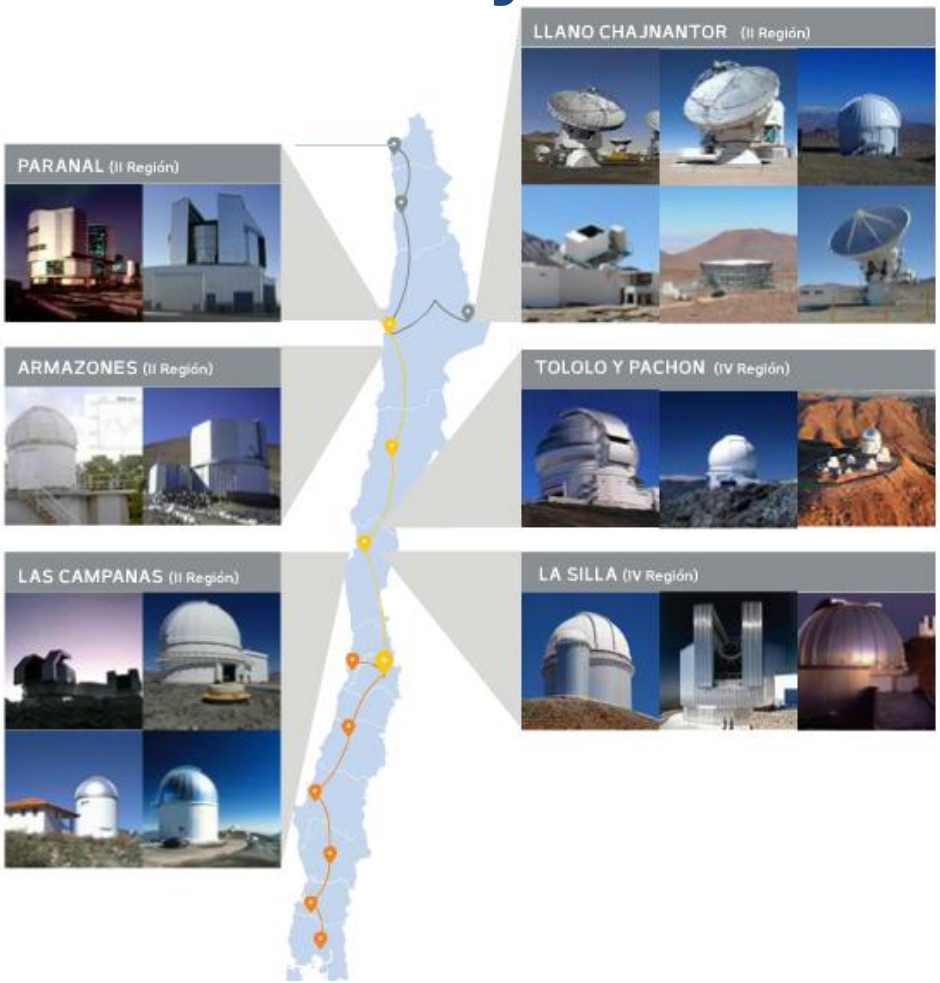
e-infrastructure: some drivers

Astronomy



Chile will concentrate **70%** of the global telescope facilities

- **75%** of these telescopes and **72%** of the national astronomical research community are connected trough REUNA

e-infrastructure: some drivers

Laboratory for SCIAN
Scientific Image Analysis

NLHPC
National Laboratory for High Performance Computing
Chile

ATLAS EXPERIMENT
http://atlas.ch

EX UMBRA IN SOLEM

Research Labs use the national research network as the key element for their science.

REUNA, helping in the process of Innovation

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Technical details of the network

DWDM layer and Ethernet/IP Layer

Length: in the order of 3.000Kms

- 50% is 1Gbps over an SDH transport
- 50% is 2,5Gbps over a DWDM wavelength

Santiago (metropolitan area)

- DWDM network with 9 nodes,
- CIENA and NTT photonic router
- DWDM link to RedCLARA

Network services:

- IPv4, IPv6
- Multicast
- BGP
- In house NOC

Challenges

By 2017:

- Integrate 85% of the national R&E community (Currently 20%, a 4-fold increase)
- Adequate the service offer to the increasing demands of the intensive users (currently Astronomy, HPC)

We have to plan the network development

- Get a nationwide direct access to the physical layer
- DWDM technology
- Redundancy (Long country with one main road, and natural disasters)
- Synergies with other countries

Astronomy network challenge

In **2018** Chile will concentrate **70%** of the global telescopes infrastructure

Future:

- LSST (8.4m)
- GMT (24m)
- CCAT (24.5m)
- etc

LSST
Large Synoptic Survey Telescope

- sky survey each 3 days
- **15 TB** by night
- 40Gbps to 2017
- **100Gbps** to 2020

REUNA is the strategic partner for the connectivity

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Network is the essential element

Moreover, the services are the instruments that the researchers perceive and use for their work

REUNA always had a users' service strategy

Service beyond connectivity

Collaboration

Digital Content

Identity Management

Collaboration

To support both communication and interaction among the end users (e.g. academics, researchers, students) of our partner institutions.

1. Videoconference (H.323, Desktop, DVTS)
2. Web tools (e.g. Filesender)

Success story: Remote collaboration with local infrastructure

Since 2001 REUNA has been involved in videoconferencing.

The latest, on March 6th, REUNA led the first meeting for international collaboration in Telemedicine with local DVTS infrastructure.

The main goal is to use this infrastructure for teaching and sharing experiences among doctors in Chile and Latin America in the short future.

Digital content

To offer a digital space for sharing information related to science, teaching and other academic activities.

1. Streaming service
2. Video hosting and video on demand.

Success story: A cloud service model for the content production

Universidad de Los Lagos has been able to produce local content using all the cloud infrastructure for digital content offered by REUNA.

After 8 month of use, this university increased the content production in a 35%.

ULagos-JornadaEducacion
Owner: ulagos
Channel: U Lagos

Identity Management

To offer strong infrastructures which support both validation and access of the end users to different platforms and services.

1. COFRe: The chilean access federation.
2. eduroam.
3. REUNA-CA: Grid Certification Authority.

Success story: Easy Wi-Fi access for both visitors and end users.

Universidad de Chile and Universidad de Santiago are the first eduroam participant institutions in Chile.

In one year of operation (2013), we registered in the order of 20K roamings from visitor users and Universidad de Chile registered 6K roamings from their end users.

Identity Management (cont.)

To offer strong infrastructures which suppot both validation and access of the end users to different platforms and services.

Success story: Offering easy access to scientific journals.

In 2012 the Chilean agency for Science and Technology (CONICYT) was committed to offer access to scientific journals for all the Chilean research institutions. REUNA played an strategic role developing the platform for authentication and authorization.

Last year, this institution registered more than 6K access to different scientific publishers through COFRe.

Nowadays the scientific publishers in COFRe are 11, among those that stand out Elsevier Science Direct, Nature and SpringerLink.

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