



ReUNA
Ciencia y Educación en Red

SAACC meeting

Jan 10th – 2017, Miami

Outline

1. Background
2. Upgrades during 2016
3. Astronomy community connectivity
4. Strategic Plan

REUNA
Ciencia y Educación en Red

35 research and education institutions

19 Universities

5 Astronomical centers

10 Research, culture and education centers

+25 years of high growth and contribution to Chile's digital development

Backbone overview

- **12** of **15** regions of the country
- **+3000** Km of extension
- **1** to **10** Gbps of backbone capacity

Upgrades during 2016

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  - 2nd 10G La Serena to Stgo

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- Santiago to South
  - Stgo – Temuco 2G to 10G

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- 2 new PoPs
  - Chillán and Pto Montt

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- Backbone switches
  - Renewal of 50% backbone switches to Juniper EX9200

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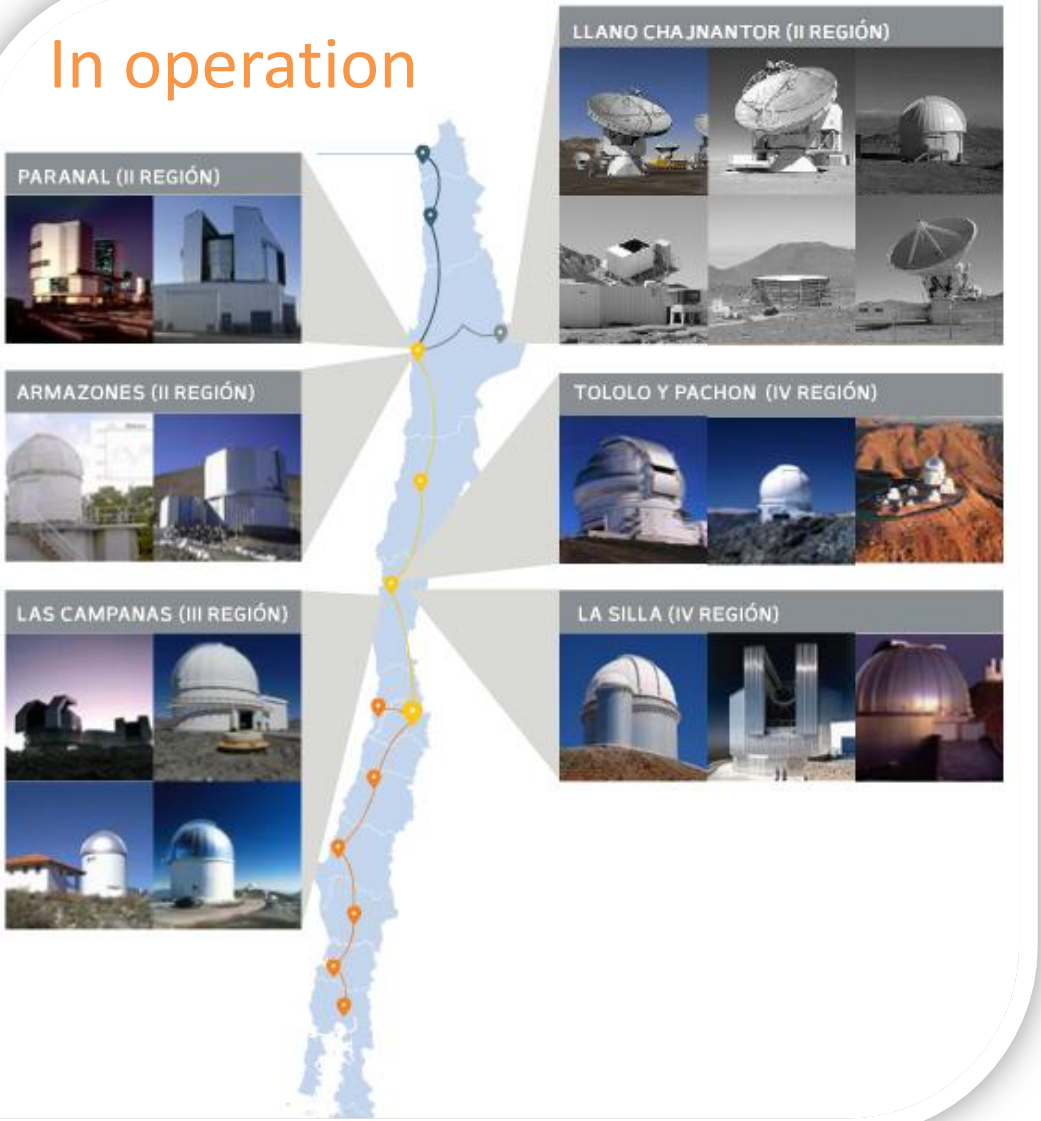
- Santiago ring

  A 2nd 10G to Level3 PoP

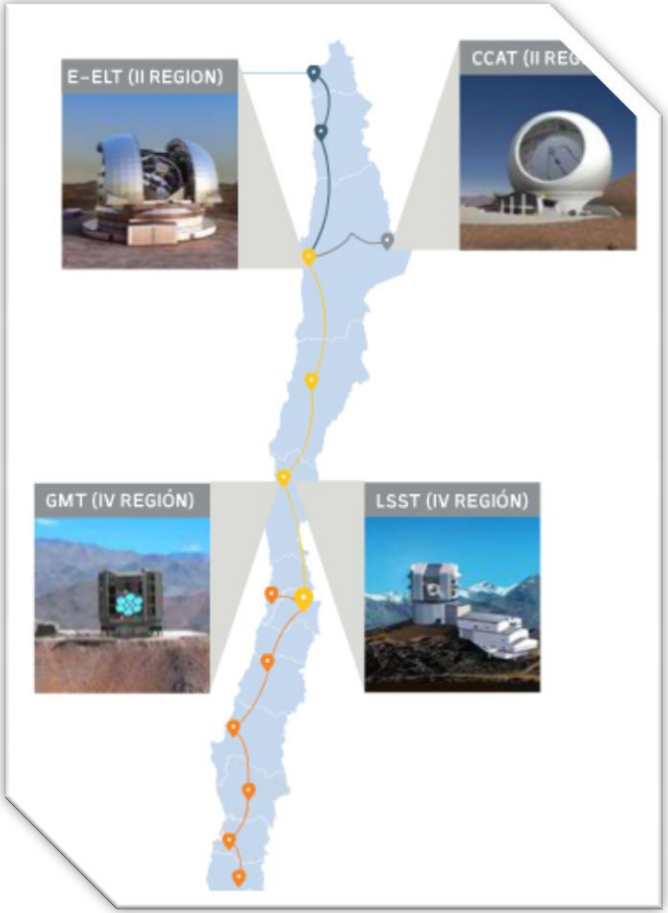
Astronomy Community Connectivity by region

Astronomy facilities

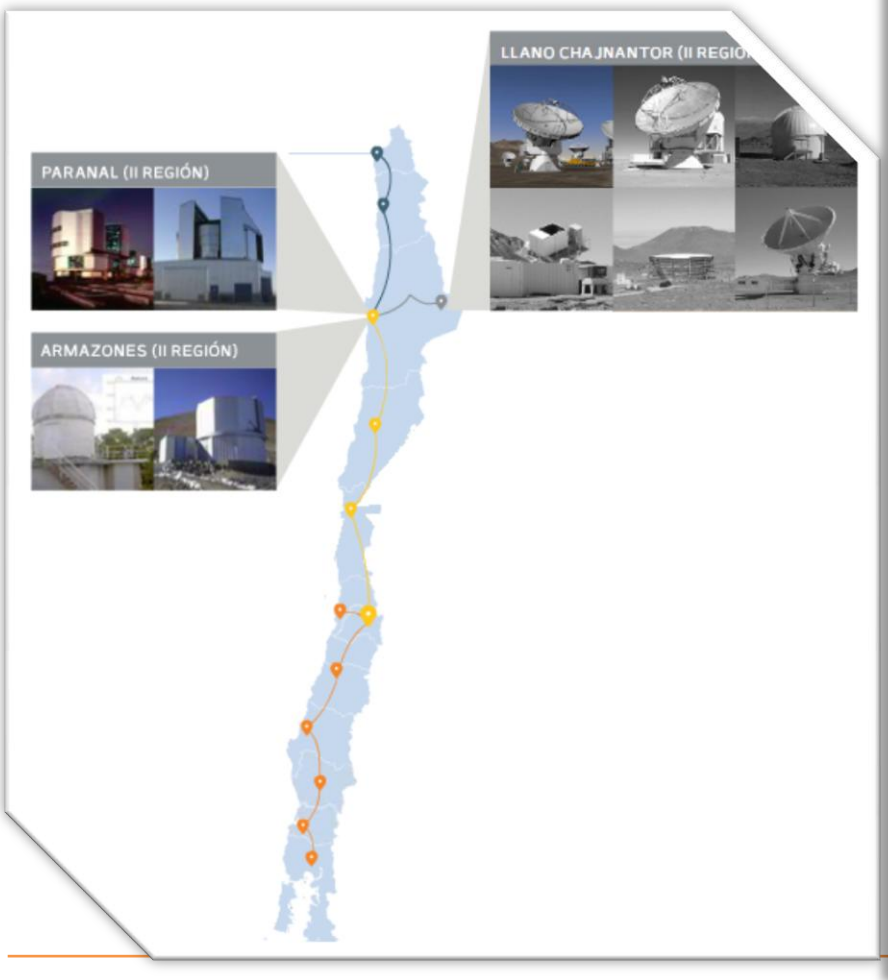
In operation

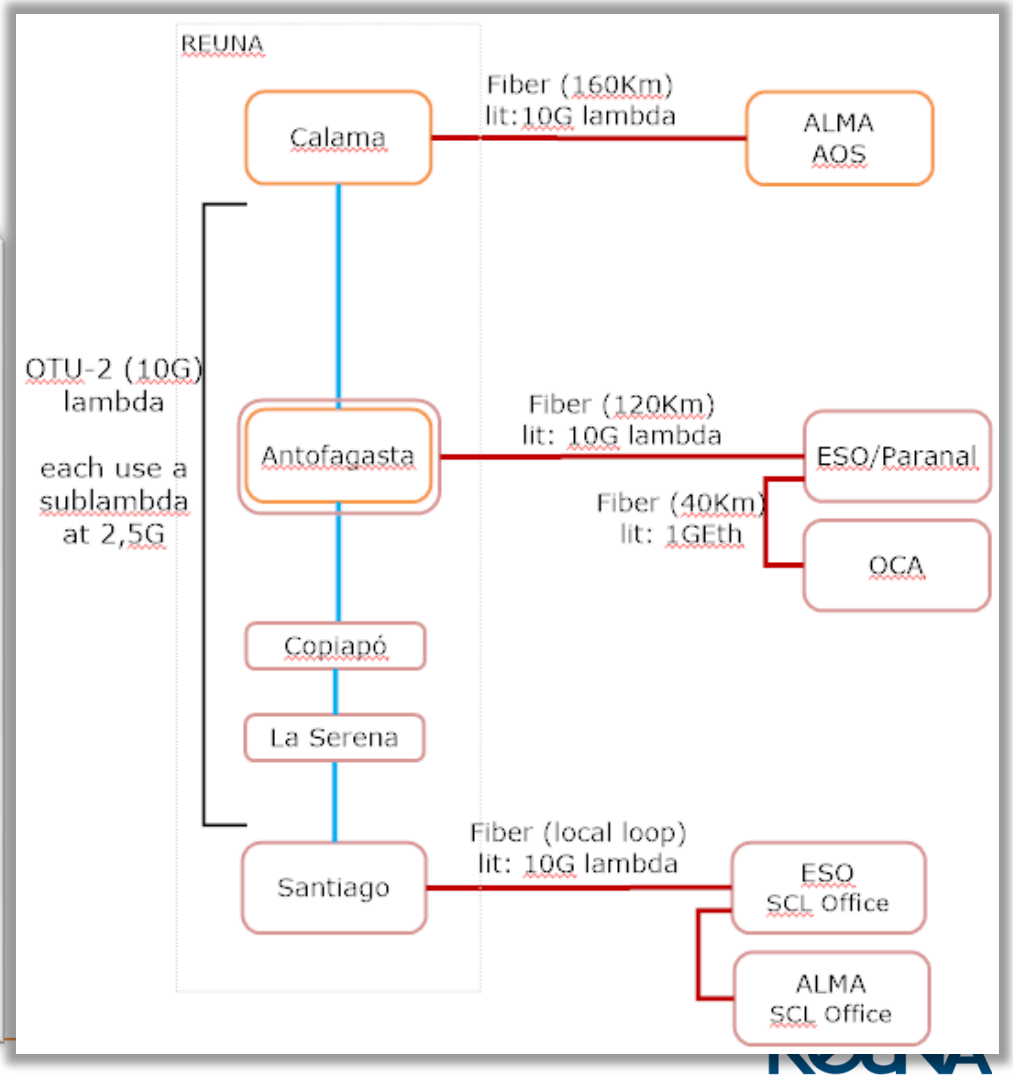


In construction or planned



II Region - Antofagasta





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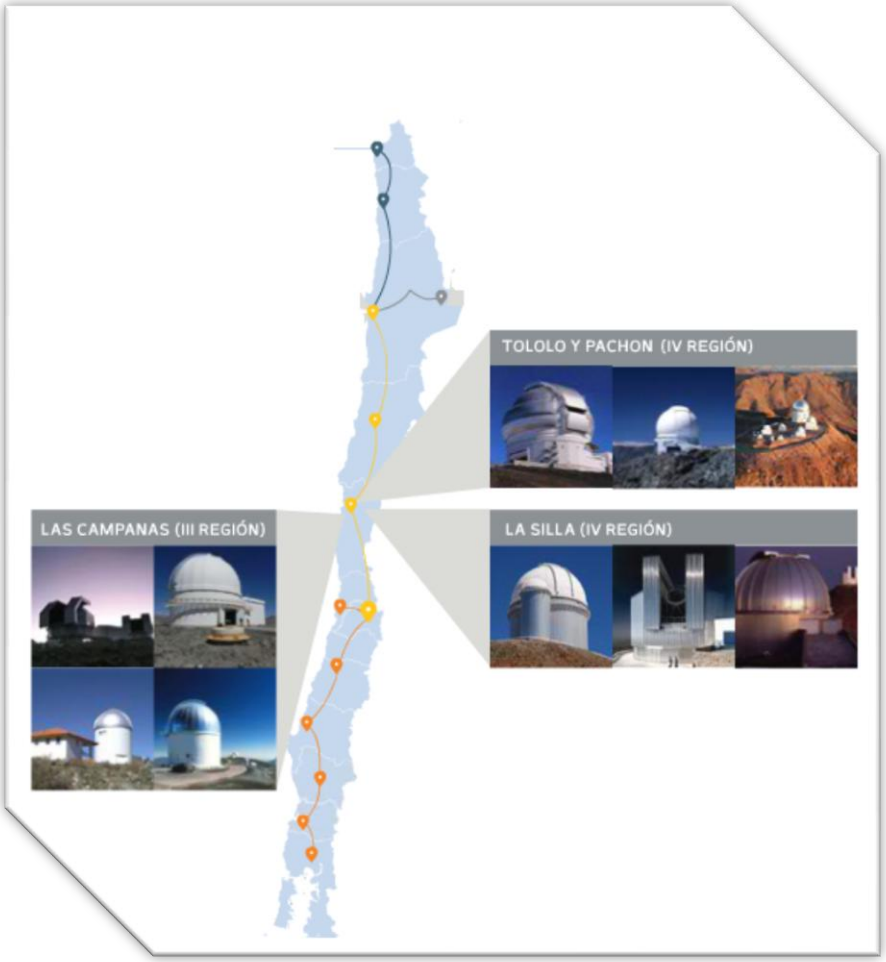
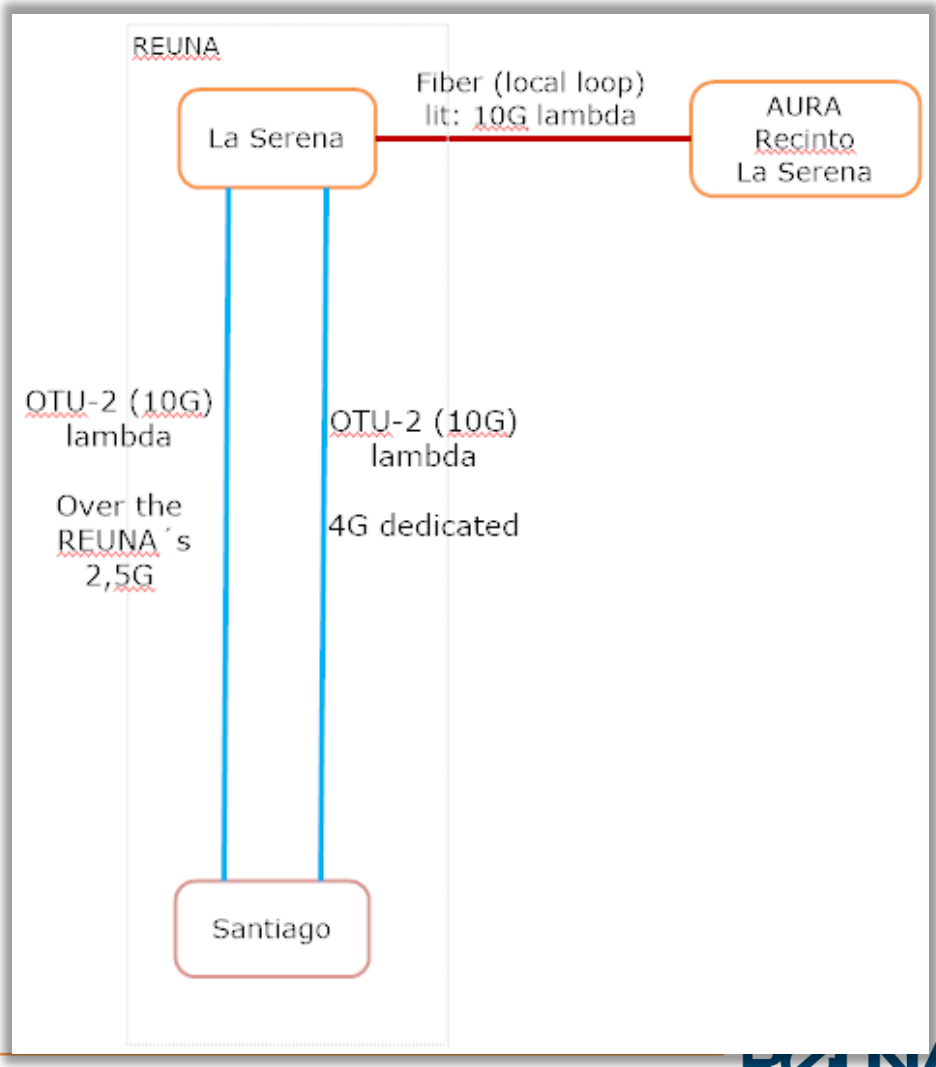
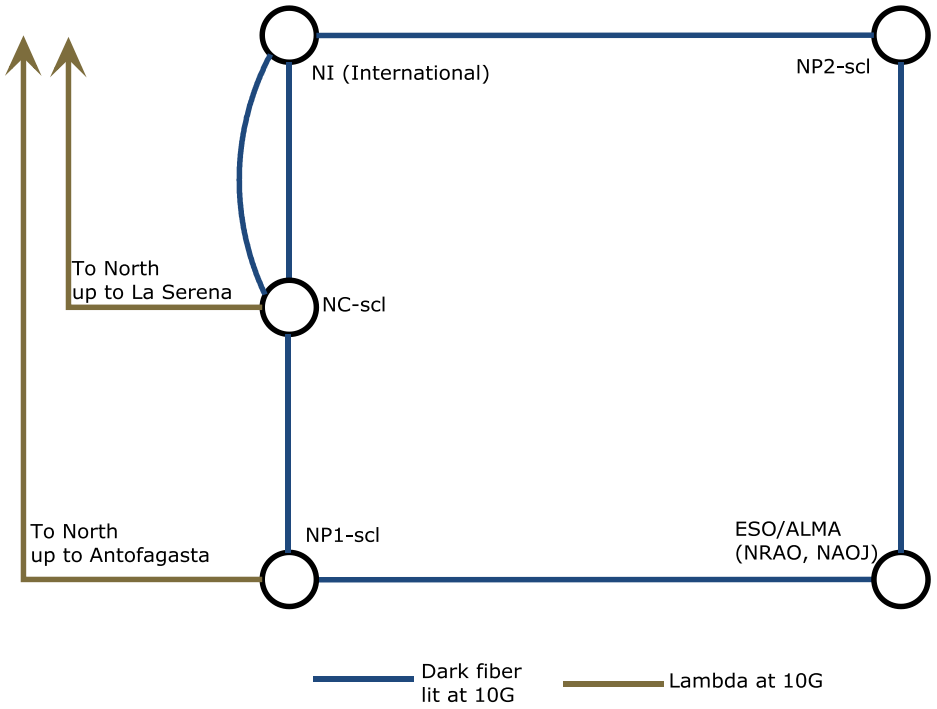
IV Region - Coquimbo





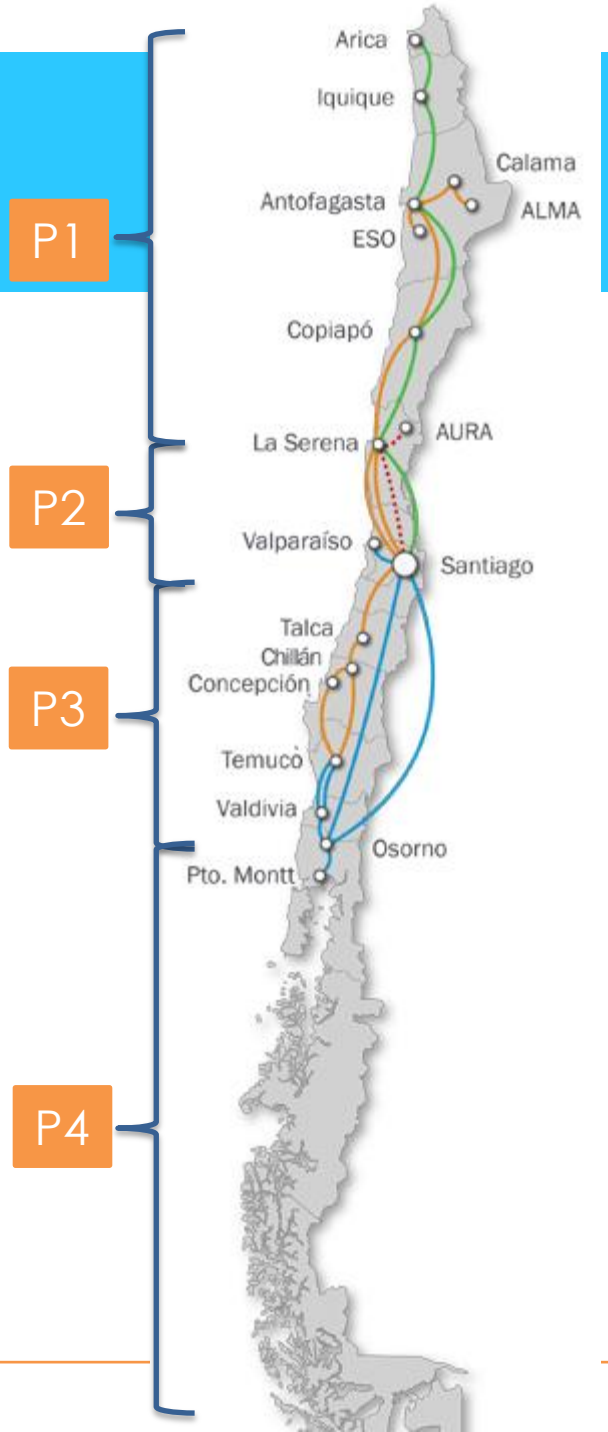
Santiago



- Traffic transported over Layer2 circuits
- P2P VLANs of each Institution
  - ALMA AOS – ALMA SCO
  - ESO Paranal – ESO Stgo
  - AURA LS to International node

Strategic Plan

Network infrastructure Strategic Plan2015-2018



Toward an optical national network:

- **P1**: Arica - La Serena, in synergy with astronomy community and BELLA project
- **P2**: DWDM network La Serena – Santiago (in synergy with AURA/LSST)
- **P3**: Santiago – Concepcion. Short time: upgrade in capacity. Long term: fibre or lambdas.
- **P4**: Synergy with public projects

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P2: Santiago – La Serena in synergy with LSST/AURA

Path	#	Item	REUNA	AURA
Santiago La Serena	1	Fiber (1 pair) between La Serena & Santiago,700Kms Housing: 6 along the path plus AURA in LS	✓	
	2	DWDM equipment along La Serena to Stgo plus the Santiago ring	✓	
	3	Backup path: Currently 10G. 40G min to 2020		
La Serena Observatorio	4	Fiber (2 pair) entre LS y Portería AURA	✓	
	5	Fiber (12 pairs) in AURA land , connects Cerros Tololo & Cerro Pachón		✓
	2	DWDM equipment between La Serena and Pachón (LSST) & Tololo (AURA)		✓

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La Serena to the north in synergy with BELLA

- Project started: 31/March/2016
- Partners: CEDIA, RedCLARA, DFN, FCT, GARR, GEANT, RED.ES,RENATA,RENATER, REUNA y RNP
- Divided in two subprojects:
  - BELLA-T: To complete the AL optical backbone for R&E.
  - BELLA-S: Capacity over a submarine cable to connect EU & AL for at least 25 years, for the R&E community
    - The tender process to acquired this capacity is on going

BELLAT

- Secure & resilient AL backbone which allow equal acces from AL to EU, support of 100Gbps wavelenghts in south america.
- Each NREN is working to deploy its own Optical network, this will be shared with AL backbone.
- There will be a tender process for BELLAT (to find fiber or spectrum), the pre-announcement has been published

2017 Action Plan

Activity	1st semestre	2nd semestre
La Serena – Santiago project in sinergy with LSST/AURA		
BELLA Tender process		
1st step of the optical network from Santiago to South		

Expanding the human knowledge frontier on Science, Culture and Education in Chile