

— RNP – Rede Nacional de Ensino e Pesquisa

- Brazilian NREN (National Research and Education Network).
- Non profit/social organization.
- 800 institutions and around 1.800 campuses de universities, research centers, museums, university hospitals and technology parks, 4 millions of students and professors;
180.000 researchers;
3.80 pos-graduations programs;
Big science projects, thematic networks, open university, etc.;
- 6 ministries compose RNP Program (PRORNP):
MCTI, MEC, MCOM, MS, MINC, MD

Sistema RNP 2023

Educação, Pesquisa e Inovação em Rede



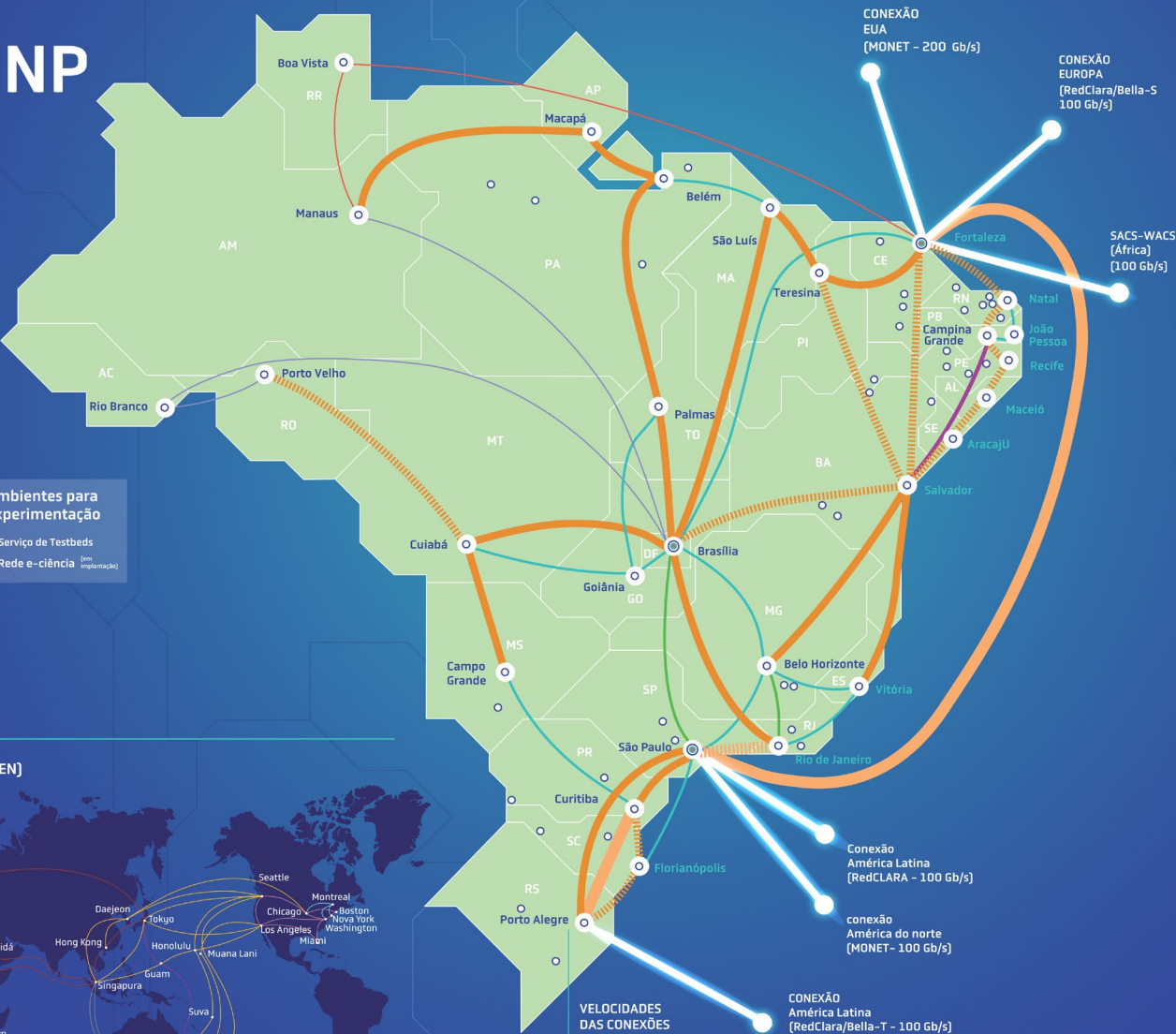
Ambientes para experimentação

- Serviço de Testbeds
- Rede e-ciência (em implantação)

Global Research and Education Network (GREN)



- AER
- AmLight
- ANA
- APNet
- AP-REX
- Indigo
- JGA
- SANREN/TENET
- BELLA



VELOCIDADES DAS CONEXÕES

- 200 Gb/s
- 100 Gb/s
- 1 Gb/s
- 3 Gb/s
- 10 Gb/s
- 20 Gb/s
- 40 Gb/s

* Capacidade de até 4 Tb/s.

* Potencial de crescimento para 1 Tb/s.

Organizações usuárias

- Instituições de educação superior e pesquisa
- Agências de fomento à pesquisa
- Estabelecimentos de saúde com ensino e pesquisa
- Museus e Instituições culturais
- Ambientes promotores de inovação (parques e polos tecnológicos)
- Empresas inovadoras

Abrangência

- **1,8 mil** pontos conectados
- **800** organizações atendidas
- **140** unidades de saúde integradas à RUTE
- **27** Pontos de Presença Estaduais

Centros Nacionais de Dados (CNDs)

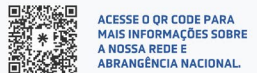
REDECOMEP

66 Cidades com redes comunitárias

Altamira	Curitiba	Marabá	Rio Branco
Araçáju	Currais Novos	Marianas	Rio de Janeiro
Belém	Dourados	Mossoró	Salvador
Belo Horizonte	Florianopeles	Natal	Santa Maria
Bom Jardim	Fortaleza	Niterói	Santarém
Blumenau	Foz de Iguaçu	Duro Preto	São Carlos
Boa Vista	Garanhuns	Palmas	São Geraldo do
Brasília	Goiana	Panóplia Ferraz	São Luiz
Campina Grande	Guanambi	Paulo Afonso	São Paulo
Campinas	Igatu	Pelotas	Santa Terezinha
Campo Grande	Itaó Câmara	Petrolina	Sobral
Caruaru	Joaquim Pessoa	Pombal	Teresina
Castanhal	Juazeiro	Ponta Grossa	Vitória
Castrolândia	Juazeiro do Norte	Porto Alegre	Vitória da Conquista
Chapico	Macapá	Porto Velho	Vitória do Santo Antão
Craíbas	Maceió	Quaxara	
Cuiabá	Manaus	Recife	

PoPs

ESTADO	INSTITUIÇÃO-ABRIGO	ESTADO	INSTITUIÇÃO-ABRIGO
Pop-AC	UFPA	Pop-DF	UFCE
Pop-AL	FAPESP	Pop-PE	ITEP
Pop-AM	UFAM	Pop-PI	FAPEM
Pop-AP	UNIFAP	Pop-PR	UFRR
Pop-BA	UFBA	Pop-RS	CEPP
Pop-CE	UFCE	Pop-RN	UFRRN
Pop-DF	RNP	Pop-RD	UNIR
Pop-ES	UFES	Pop-RR	UFRR
Pop-GO	UFPA	Pop-RS	UBERS
Pop-MA	UFMA	Pop-SC	USOC
Pop-MG	UFMG	Pop-SE	UFES
Pop-MS	UFMS	Pop-SP	USP
Pop-MT	UFMT	Pop-TB	UFT
Pop-PA	UFPA		



ACCESSE O QR CODE PARA MAIS INFORMAÇÕES SOBRE A NOSSA REDE E ABRANGÊNCIA NACIONAL.



Backbone +100 G - 7^a Generation- Partners

Northwest:

CHESF (2016)
ISPs (swap)

Southwest and Midwest:

Furnas (2017)
ISPs (swap)

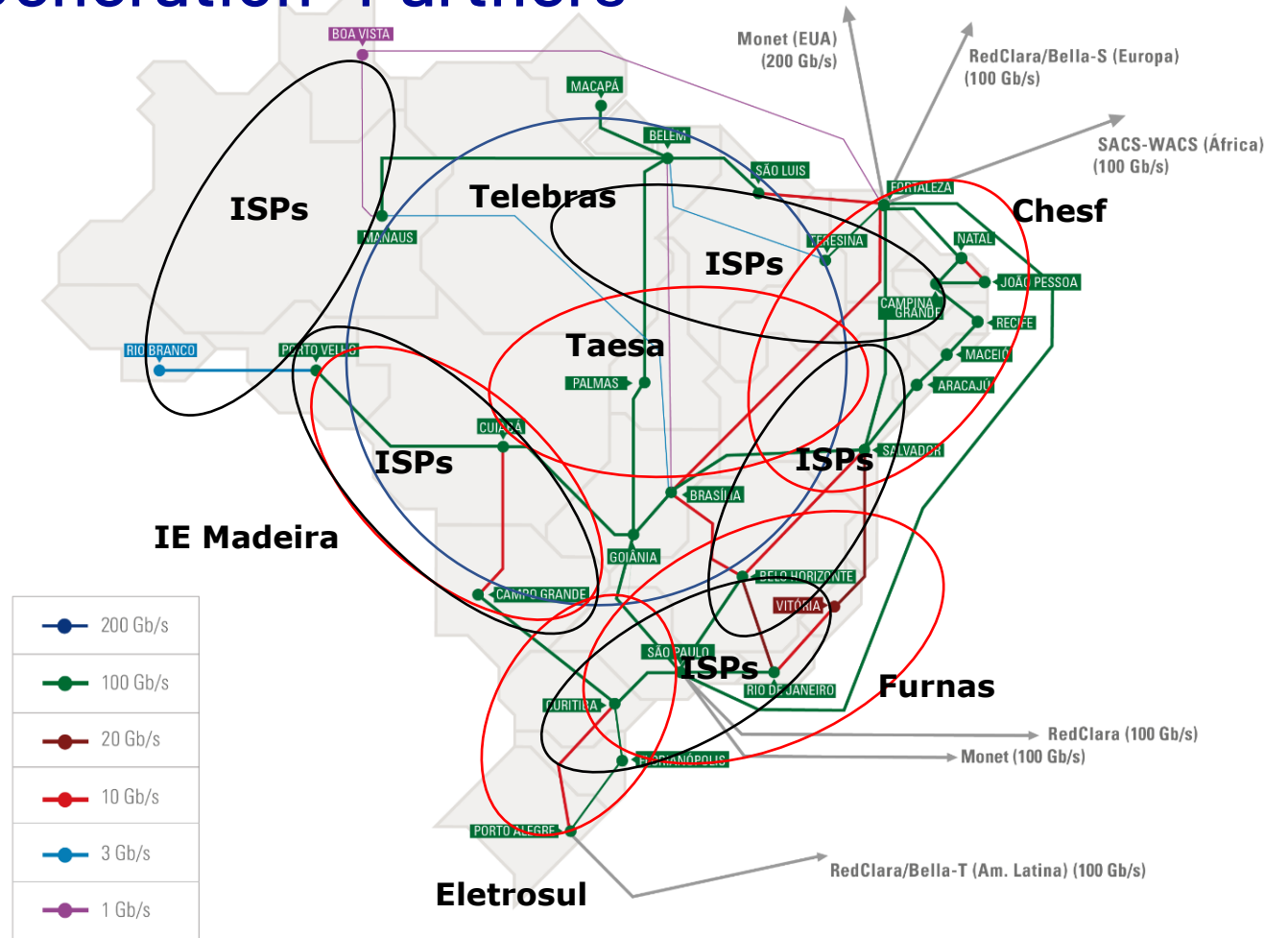
South and Midwest:

Furnas
Taesa
Eletrosul (2018)
ISPs (swap)

North and Midwest

Taesa (2019)
IE Madeira (2020)
Telebras (2019)
ISPs (swap)

 Power companies





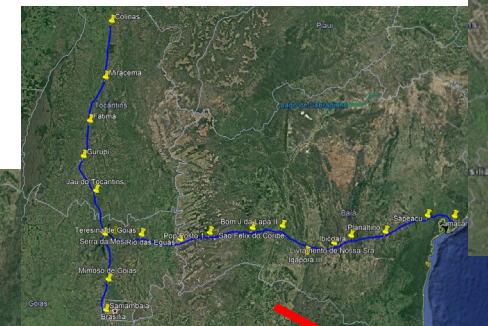
Partnerships w/ Chesf, Furnas, Eletrosul, Taesa, & IE Madeira

- Initial Illumination (DWDM System) of OPGW dark fiber at 100G
- 10+ optical channels, available on all routes
- Some illuminated routes in partnership with ISPs
- Other partnerships with Power Companies, already agreed and in process

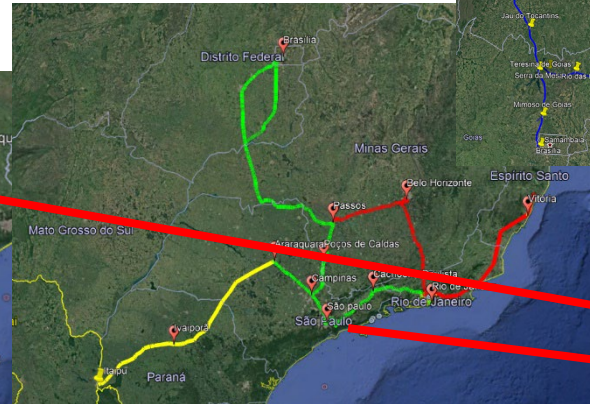
IE Madeira



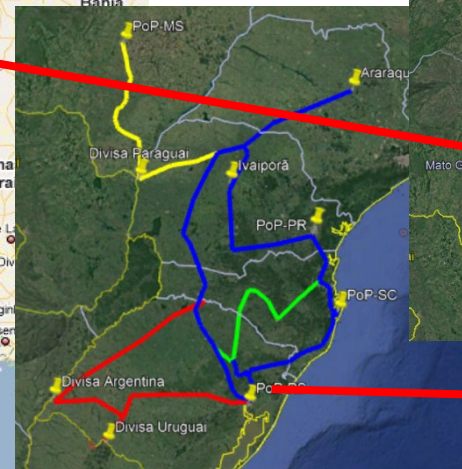
Chesf



Taesa



Furnas

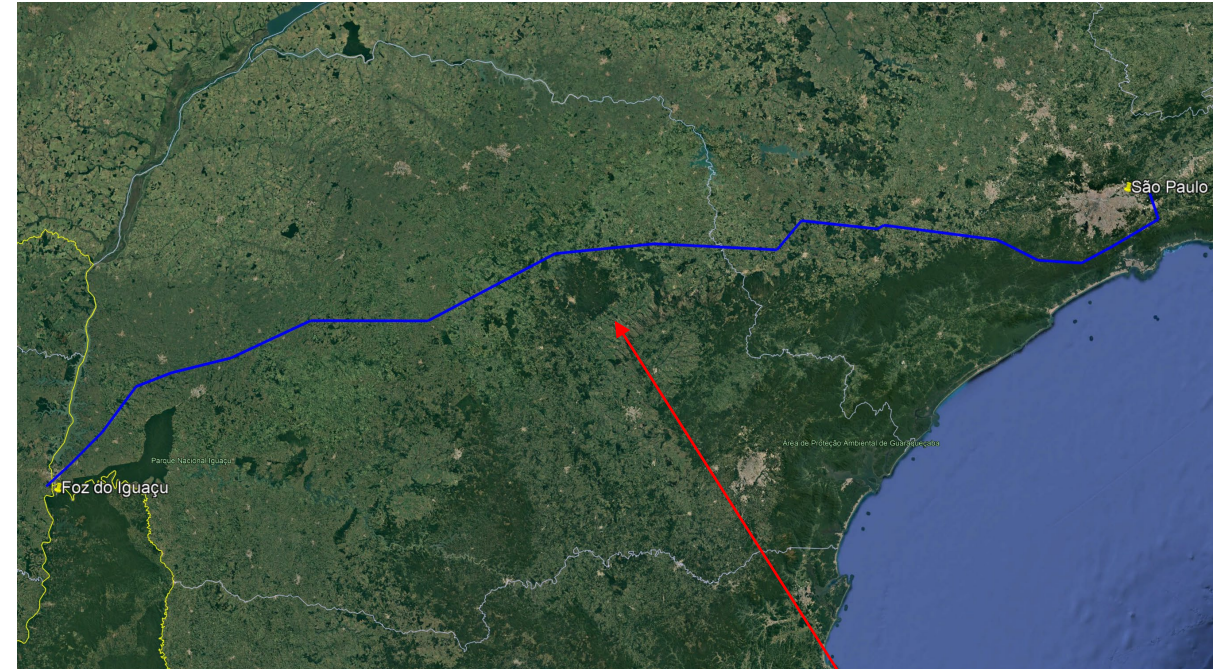


Eletrosul



—●—●— Brazil – Paraguai (Bolivia) Route

- São Paulo – Foz do Iguaçu (border w/ Paraguay)
- RNP & RedCLARA are looking for financiers to implement the DWDM system
- Potential to:
 - Improve connectivity in the interior south region, mainly Paraná State
 - Connect Paraguay
 - Potential to reach Bolivia
- Planned system has the potential to activate up to 20 channels of multiplex of 100Gbps
- Cost and initial configuration
 - Total: 3.200.000,00 €
 - Initially: 1x 100Gbps to RNP/RedCLARA + 10x100Gbps
 - Potential to activate up to 40 channels (of multiplex of minimal 100Gbps)
- With the system installed, RNP & RedCLARA will be able to swap channels to obtain capacities/channels to reach Asuncion and other regions
 - Potential to swap up to 10 channels (of multiplex of minimal 100Gbps) w/ Paraguay players
 - Ongoing negotiations



Brazil – Uruguay Route

- Porto Alegre – Santa Vitoria do Palmar (border w/ Uruguay)
- RNP & RedCLARA are looking for financiers to implement DWDM System
- Potential to:
 - Reach Pelotas and other cities in this route of the interior Rio Grande do Sul State
 - Connect Uruguay
- Planned system has the potential to activate up to 20 channels of multiplex of 100Gbps
- Cost and initial configuration of the DWDM System
 - Total: 800.000 €
 - Initially: 1x 100Gbps to RNP/RedCLARA + 10x100Gbps
 - Potential to activate up to 40 channels (of multiplex of minimal 100Gbps)
- With the system installed, RNP & RedCLARA will be able to swap channels to obtain capacities/channels to reach Montevideo and interior of the Uruguay
 - Potential to swap up to 10 channels (of multiplex of minimal 100Gbps) w/ Antel (Uruguay state-owned Company - <https://www.antel.com.uy/>)
 - Ongoing initial negotiations

