RNP
ORGANIZAÇÃO SOCIAL DO MCTI

Educação, Pesquisa
e Inovação em Rede

RNP National and International Networking Initiatives

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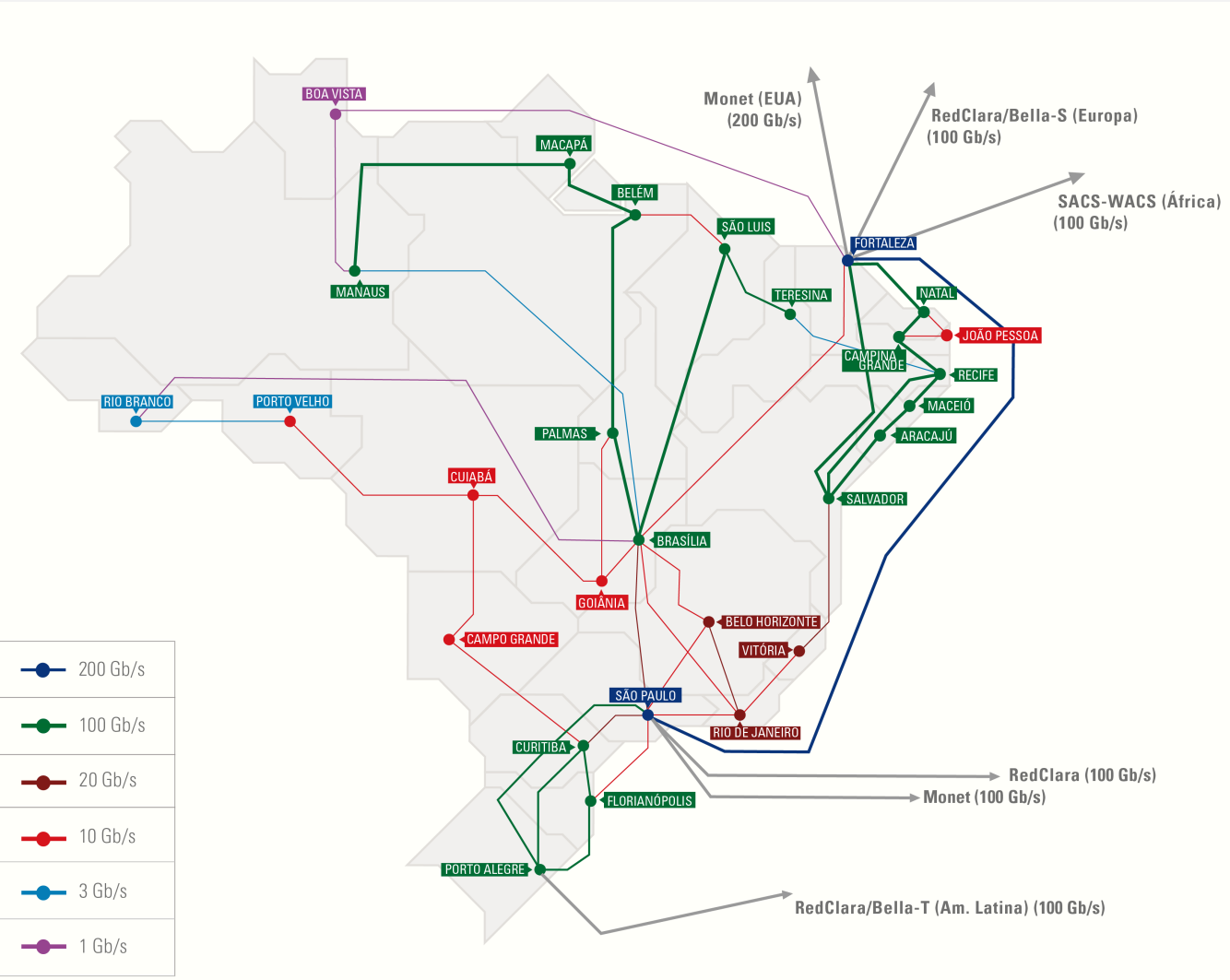
Americas' Research Network (AmRP)

October 11 2022, Salt Lake City, Utah - US

Agenda

- RNP Backbone
- Regional Networks
- RNP Testbed Service
- International R&D collaborations
- e-Ciber Project

RNP Backbone



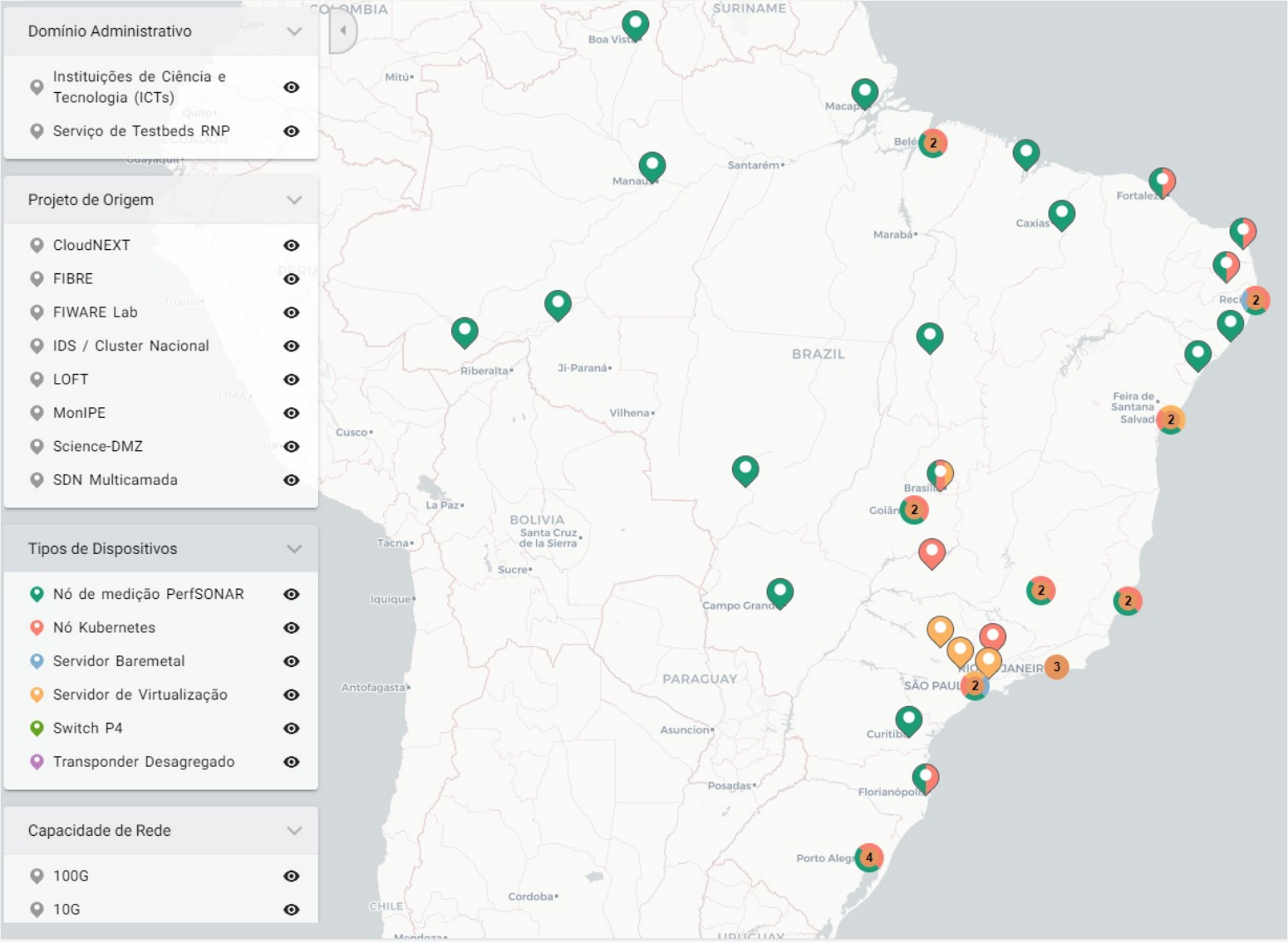
Rede Ipê

- 1,97 Tb/s aggregated national capacity
  - 19 active 100G circuits
  - 11 100G activated over the last 16 months
  - 21 100G activations in progress
- 600 Gb/s international capacity
  - To Africa, Latin America, Europe and US
  - Over SOL and SAX Exchange Points

Current Approach

- Exchange circuits with partners in “joint lightning” of dark fibers
- Partnership 100G circuits
- Procurement of capacity for redundancy or gap filling

RNP Testbed Service



Unified offer of resources from different testbed projects

- FIBRE, CloudNEXT, Science DMZ...

Nation-wide Resources (locations):

- perfSONAR Nodes (27)
- Kubernetes Nodes 24)
- Virtualization Servers (7)
- Baremetal/DTN Servers (5)
- P4 Switches (3)
- Disaggregated Transponders (1)

mapatestbeds.rnp.br

Main international R&D collaborations

perfSONAR – Development partner

GNA-G Working Groups

- AutoGOLE/SENSE – Co-chair
- Data Intensive Science - Member
- GREN Map – Development partner

GEANT RARE Project – Contributor

Telecom Infra Project – Member

Open Networking Foundation - Member

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SISTEMA RNP 2021

ESTÁ NASCENDO UMA NOVA REDE ACADÊMICA PARA O FUTURO

NORTE CONECTADO

1 SANTARÉM
2 ALENQUER
3 MONTE ALEGRE
4 ALMEIRIM
5 MACAPÁ

AMBIENTES PARA EXPERIMENTAÇÃO

- CLOUDNEXT
- FIBRE
- FIWARELAB
- IDS
- LOFT
- SCIENCE-DMZ
- SDN-MULTICAMADA

VEJA EM DETALHES O NOSSO SERVIÇO DE TESTBEDS

CONEXÕES INTERNACIONAIS

CABO MONET (EUA)
200 Gb/s

CABO ELLALINK (EUROPA)
100 Gb/s

CABO SACS (ÁFRICA)
100 Gb/s

CABO WACS (ÁFRICA)
100 Gb/s

REDCLARA (AMÉRICA LATINA)
100 Gb/s

REDECOMEP

44 CIDADES COM REDES COMUNITÁRIAS

ESTADOS:

AC
RB MetroNet

AL
RAAVE

AM
MetroMAO

AP
MetroAP

BA
RedeVASF (Juazeiro e Petrolina)
Remessa

CE
GigaFOR

DF
Gigacandanga

ES
MetroVix

GO
MetroGyn

MA
Redecomep São Luís

MG
Inconf.edu (Ouro Preto e Mariana)
RMBH

MT
Pantaneira

MS
Redecomep Campo Grande

PA
MetroAlta
Metrobel
Redecomep Castanhal
Redecomep Marabá
Redecomep Santarém

PB
MetroJP
MetroCG

PE
Redecomep Caruaru
Redecomep Garanhuns
Icona

PI
Rede Poti

PR
Redecomep Curitiba
Redecomep Ponta Grossa

RJ
RedeRio Metropolitana
MetroNIT
RMP (Petrópolis)

RN
GigaNatal

RO
Rede Porto

RR
Rede BV

RS
MetroPOA
RECOP
Redecomep Santa Maria

SC
REMEP-RLN

SE
MetroAju

SP
MetroSampa
Redecomep Campinas
Rede Sanca

TO
MetroTins

CONEXÃO AMÉRICA DO NORTE (200 Gb/s)

CONEXÃO EUROPA (100 Gb/s)

CONEXÃO ÁFRICA (100 Gb/s)

CONEXÃO AMÉRICA LATINA (REDCLARA - 100 Gb/s)

CONEXÃO AMÉRICA DO NORTE (AMLIGHT - 200 Gb/s)

BOA VISTA
MACAPÁ
MANAUS
BELÉM
SÃO LUÍS
TERESINA
FORTALEZA
NATAL
JOÃO PESSOA
CAMPINA GRANDE
RECIFE
MACEIÓ
ARACAJU
SALVADOR
PORTO VELHO
RIO BRANCO
PALMAS
CUIABÁ
BRASÍLIA
GOIÂNIA
CAMPO GRANDE
BELO HORIZONTE
VITÓRIA
SÃO PAULO
RIO DE JANEIRO
CURITIBA
FLORIANÓPOLIS
PORTO ALEGRE

VELOCIDADES DAS CONEXÕES

100 Gb/s
200 Gb/s
3 Gb/s
10 Gb/s
20 Gb/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

APLICAÇÕES DE TIC

- INTELIGÊNCIA ARTIFICIAL
- EDUCAÇÃO A DISTÂNCIA
- BIG DATA
- TELESSAÚDE
- BLOCKCHAIN
- TRABALHO COLABORATIVO
- INTERNET DAS COISAS
- CIBERSEGURANÇA
- GESTÃO DE IDENTIDADE
- COMPUTAÇÃO EM NUVEM

~800 Institutions

~1700 campuses

44 metropolitan networks

27 PoPs

1,7 MIL PONTOS CONECTADOS

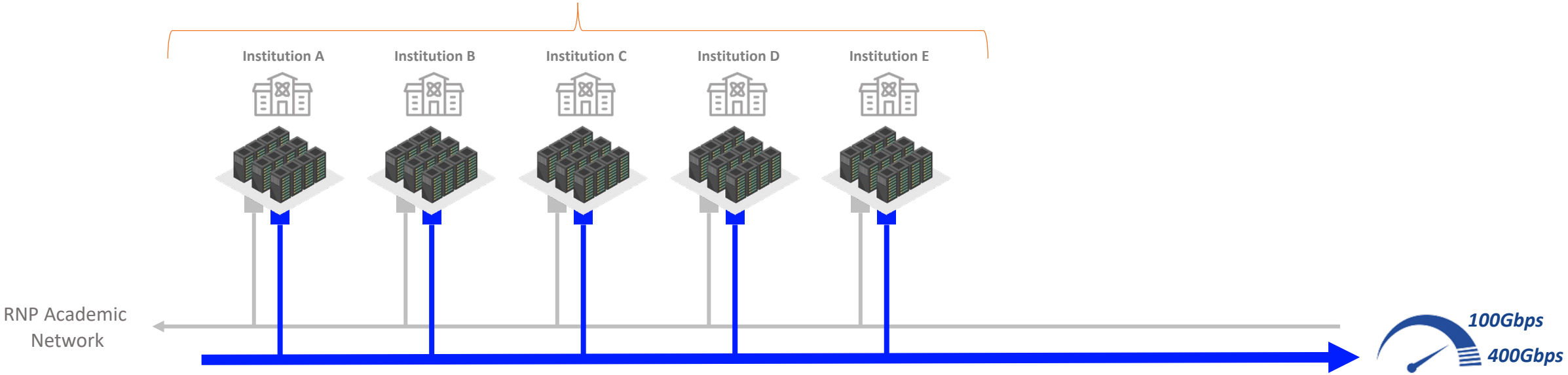
800 ORGANIZAÇÕES ATENDIDAS

140 UNIDADES DE SAÚDE INTEGRADAS À RNP

27 PONTOS DE PRESENÇA ESTADUAIS

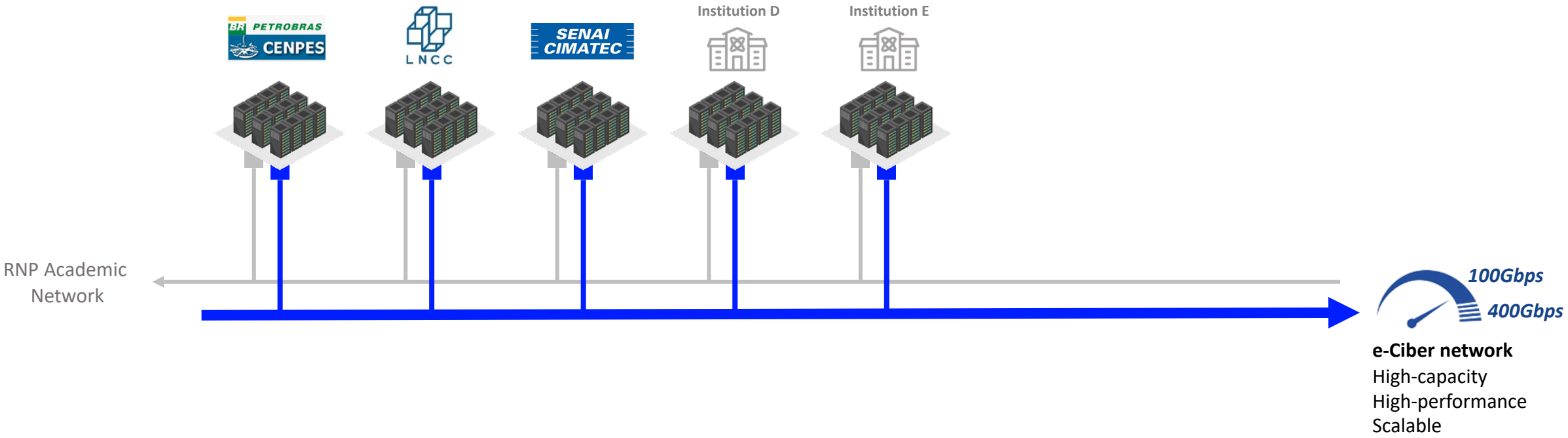
e-Ciber project: conceptual model

Top-5 most infrastructure-demanding research centers in Brazil



e-Ciber network
High-capacity
High-performance
Scalable

e-Ciber project: conceptual model



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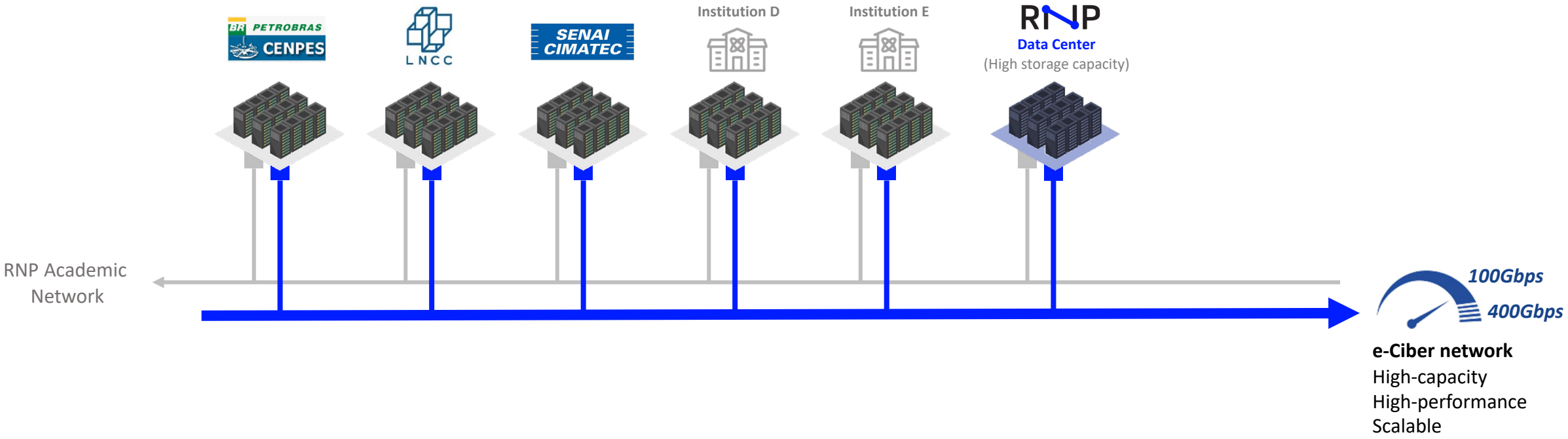

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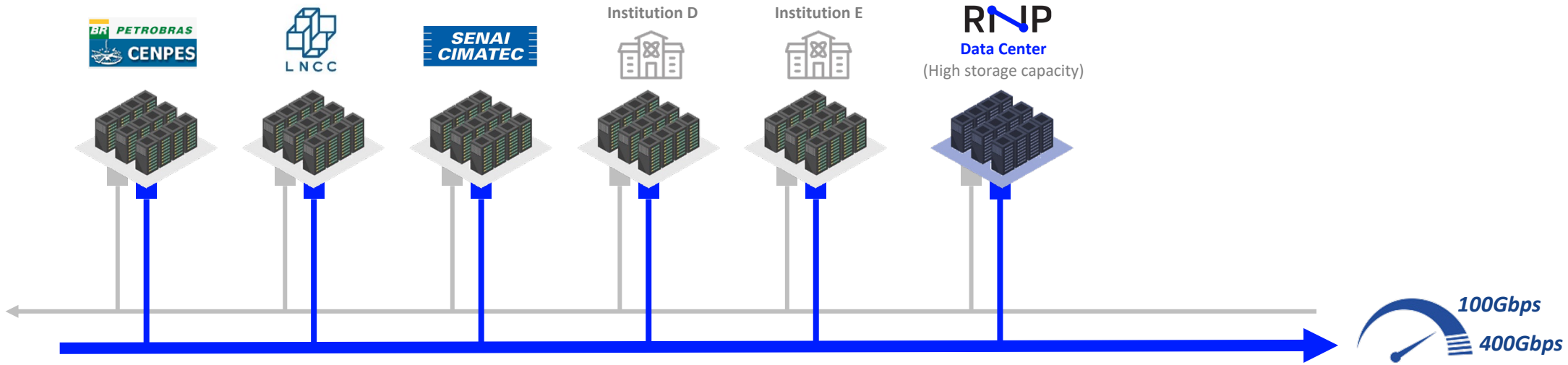


e-Ciber network
High-capacity
High-performance
Scalable

Service Layer

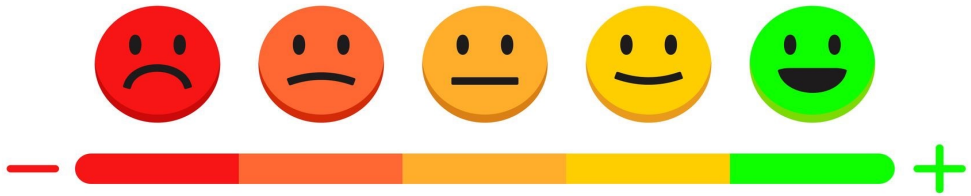
Cibersecurity & Network Operation Center

Secure cloud storage, Co-location for HPC

Pool of experts / Consultancy for new projects and R&D

Success metric

Last-mile capacity upgraded to 100Gbps



Superfacility with shared business model
(sharing and integrating computing resources, knowledge, decisions, help desks...)

Thanks !
Questions?

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