RNP   The brazilian national research network

status & trends

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What is RNP ?

physical network,
made of lines,
routers, PoP's
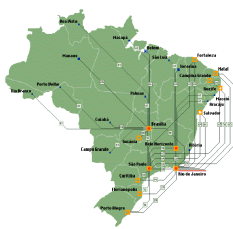Management.
(RNP2 backbone)

A non profit
organization to manage
the network and to
promote its use

Project and
funding
programme

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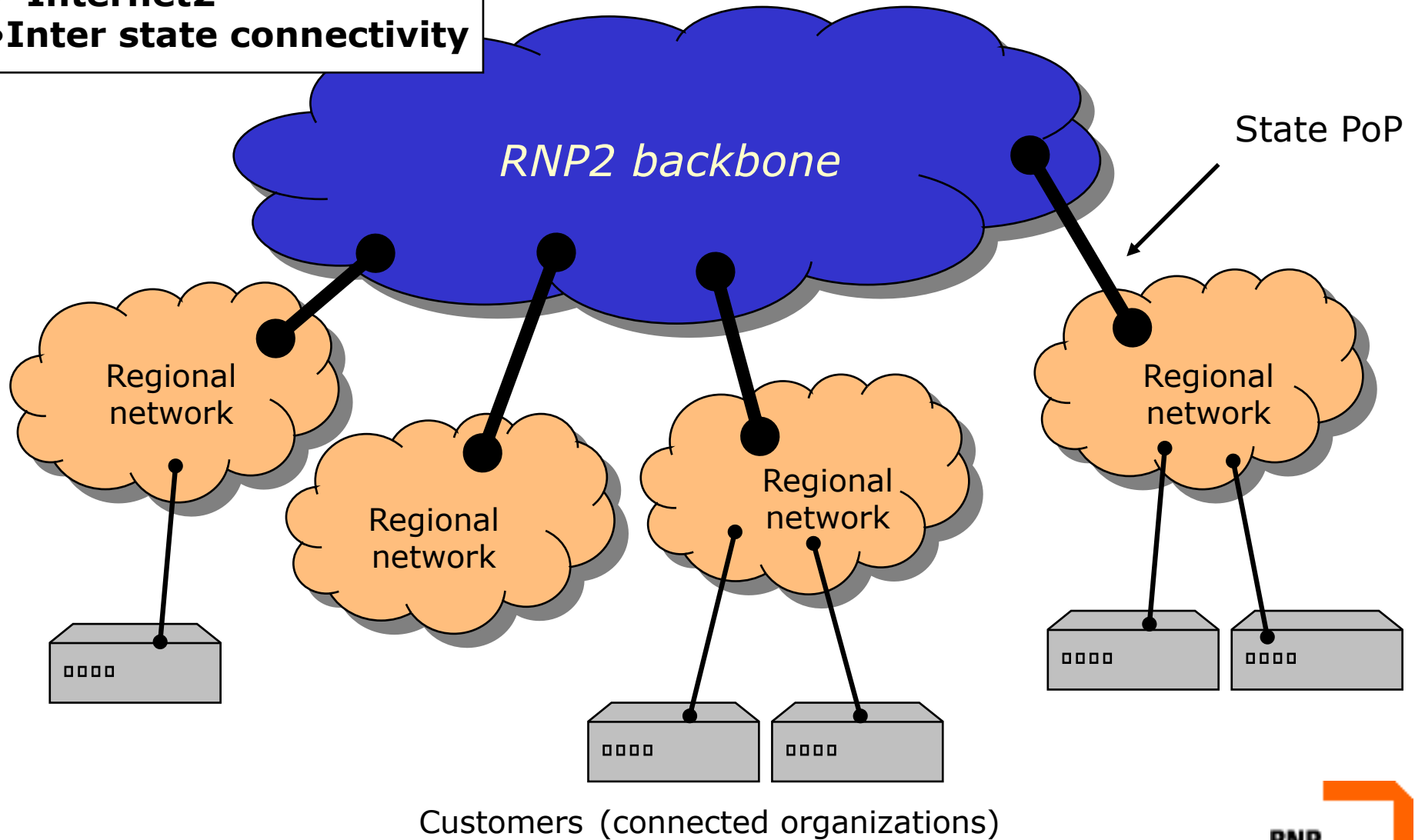
Project and funding programme

RNP backbone

RNP

- Peering
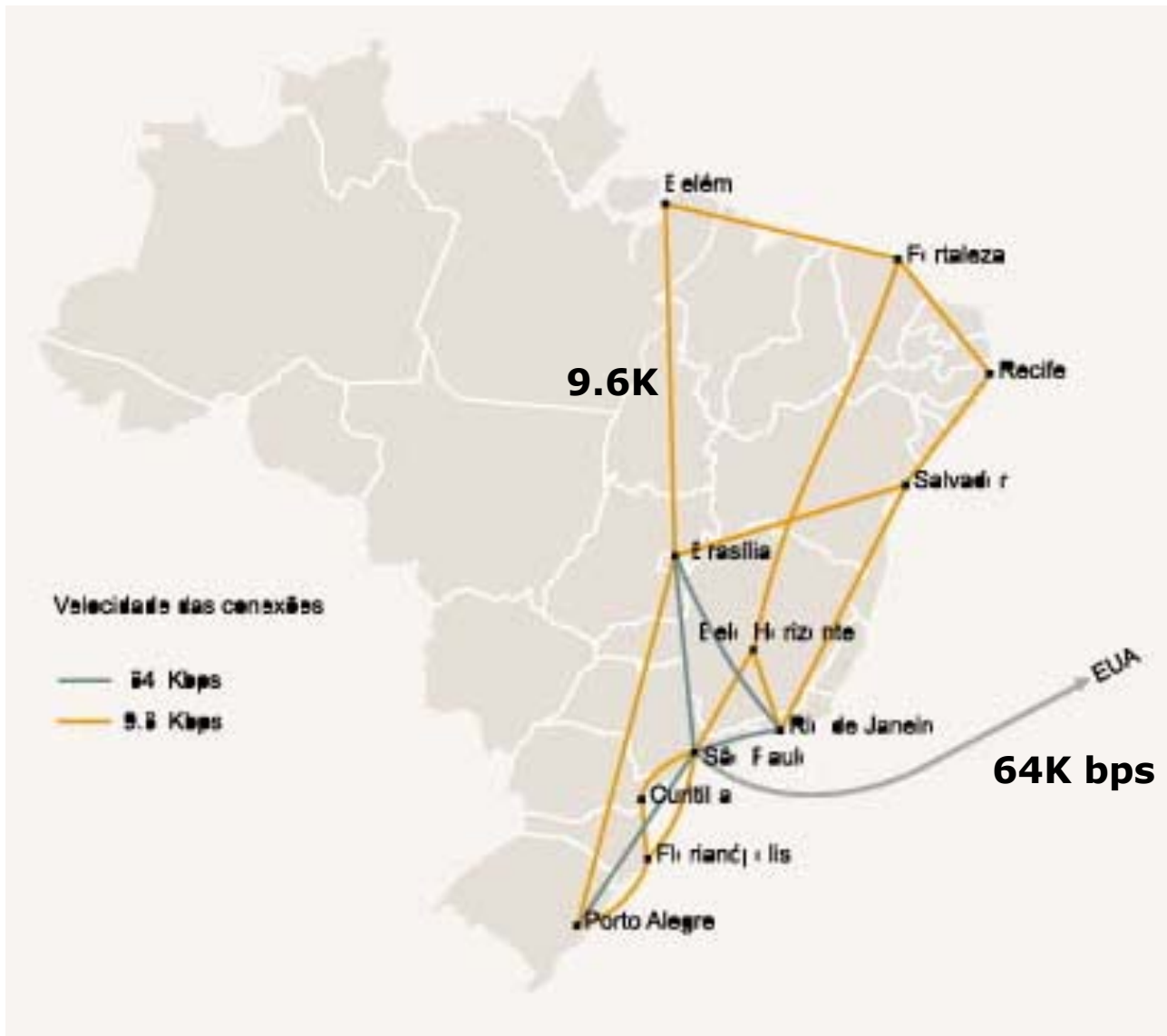- Global international Internet
- "Internet2"
- Inter state connectivity

RNP2 backbone

State PoP

Regional network

Regional network

Regional network

Regional network

Customers (connected organizations)

RNP2

First RNP backbone (1991)

First proposed RNP2

155 Mbps to Internet2

first sketch in 1997/98

Cost=infinite

622 Mbps national links

RNP 2

Boa Vista
Macapá
Belém
Manaus
São Luís
Fortaleza
Teresina
Natal
Campina Grande
Porto Velho
Recife
Rio Branco
Palmas
Maceió
Aracaju
Salvador

155 Mbps ATM
34 Mbps ATM
6 Mbps Frame Relay
4 Mbps Frame Relay
2 Mbps Frame Relay

Cuiabá
Brasília
EUA

Linhas dedicadas
155 Mbps
45 Mbps

Goiânia
Belo Horizonte
Vitória
Campo Grande
São Paulo
Rio de Janeiro
Curitiba
Florianópolis

For details and statistics
http://www.rnp.br

Porto Alegre

01 01 04 06 01 04 03 04 06
155
45 [Internet2]
01
01
01
02 05 10 15 04 06 07 10 03 03
01
18
07
04 20
03 02
20
08
14
12 20
25
10

Metropolitan high speed networks

ReMAVs

- 2 years grant (by the end of the past century)
- Some more succesfull than others
- Based on ATM OC3/OC12
- Not yet interconnected by a true high speed national network

RNP backbone

- separate budget
- telecom costs directly paid by
-    the Science & Technology ministry
- ~ 12 million dollars/yr

- most visible action of RNP

- We have all the badwidth we need (or all that we can use) most of the time.

- more than 300 institutions

RNP backbone

Inter state conectivity:

- Total bandwidth adds to 250 Mbps

- POP's operated by partnership agreement with some customers (mainly federal universities)

- Presently based on leased ATM VP's from a major telco (most of them heavily used)

RNP backbone

RNP

External conectivity:

- 155 Mbps to global Internet (US ISP) – 60% used

- 120 Mbps of traffic exchange (peering points) with brazilian commercial ISP's

- 45 Mbps to AmPATH + "Internet2" (65% used)

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RNP government programme

- funding for Information Society related projects and activities

- "Informatics Law": lower taxes for computer industry that invest in related research

- RNP is one of the possibilities

- Variable amout of $$$, from 2 to 5 M$

- Mostly as equipment

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Project and funding programme

RNP organization

new
- Non profit non gov. organization

new
- 4 M$ budget this year
- 6M$ in 2003

- About 50 people

RNP organization

What we do:

- we seek for partnerships
- we seek for opportunities
- we go for international and national meetings
- manage the net and plan the growth of the backbone
- training: courses, seminars,
- meetings and events

new
- funding for working groups in universities on selected themes (IPv6, QoS, distance learning, IP telephony)
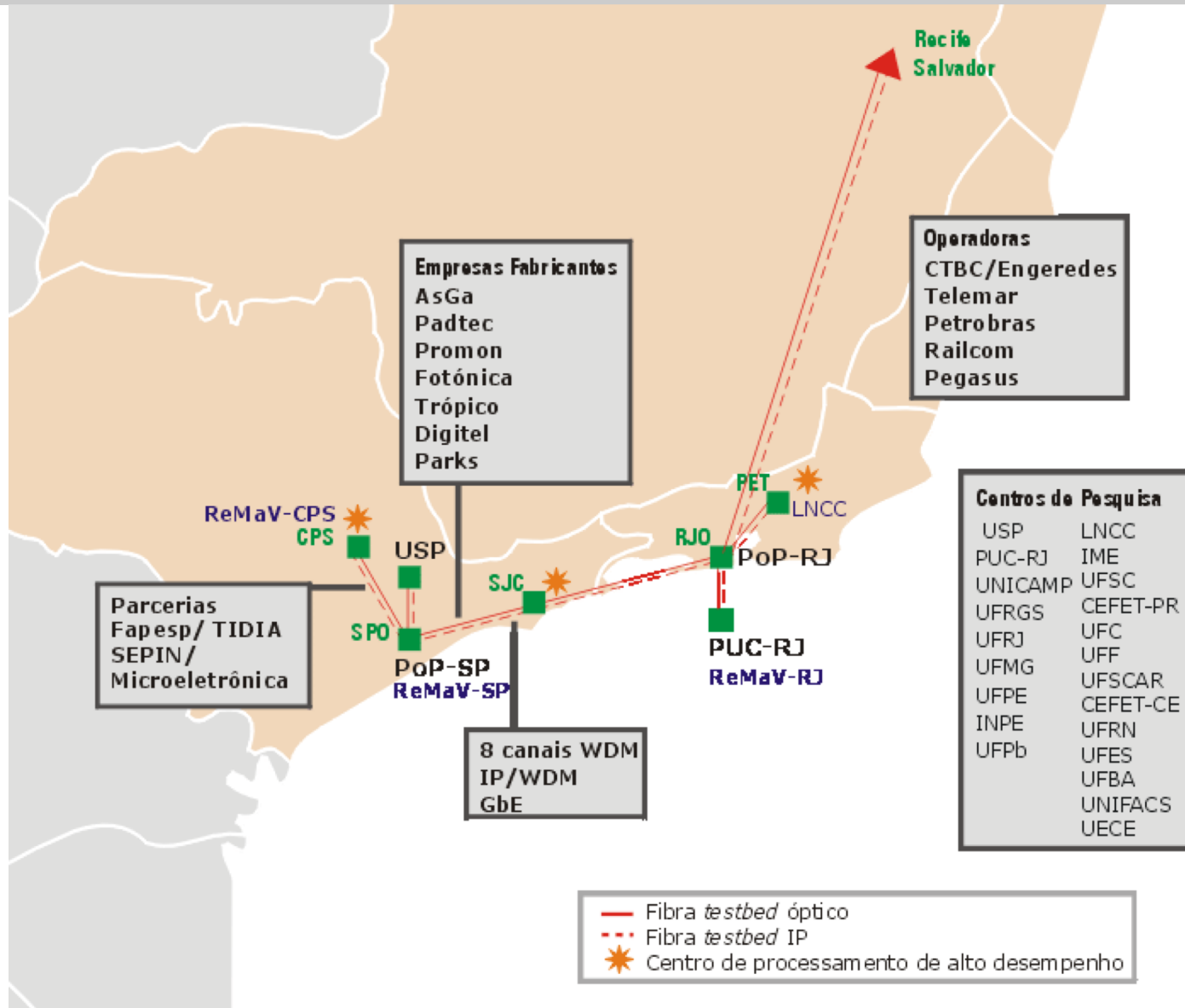
RNP mission statement

"Promoting the innovative use of advanced networking in Brazil."

Problem: we must know better our clients;
we must know better about their usage of the network.

Ongoing work to get closer to the universities and research institutes.

The GIGA project

Final remarks

- parternership is very important.
- hard to obtain partenership from industry
- most of the perceived innovation (by the public) happens out of the academic net.
- keep operating the backbone, but no longer the main goal (but it takes the largest part of our budget)
- we need to understand better the network traffic
- missing large deployment of BW demanding app's
- missing a true high speed national network

THE END

Q&A