National Research and Education Networks to support Healthcare: The Brazilian Telemedicine University Network RUTE

Paulo Roberto Lopes, PhD
Presented by Eduardo Grizendi, CNO/RNP

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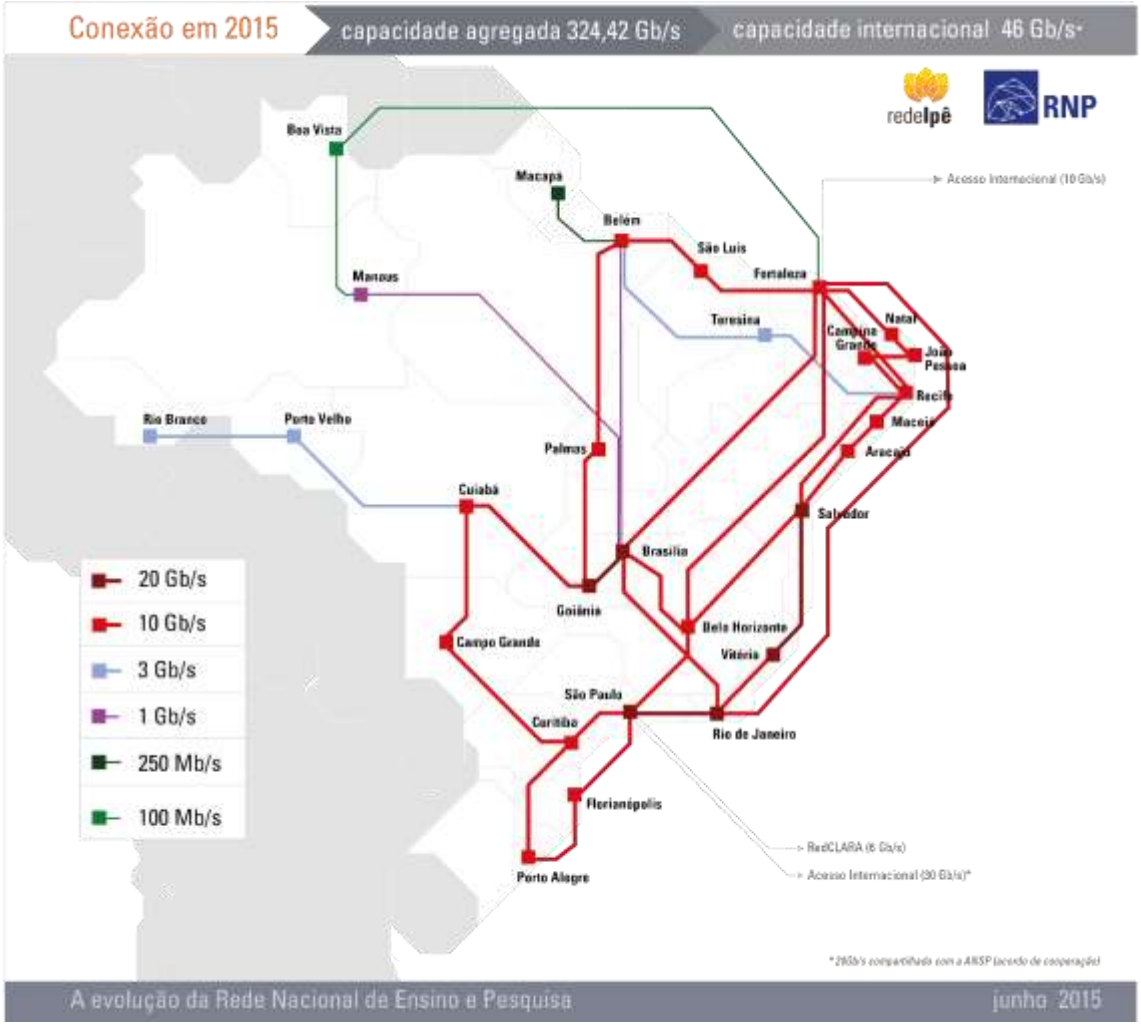
Health Scientific Community

Integrate the NRENs to enable expansion, difusion, organization, monitoring, management and evaluation of knowledge and scientific evidence on Health !

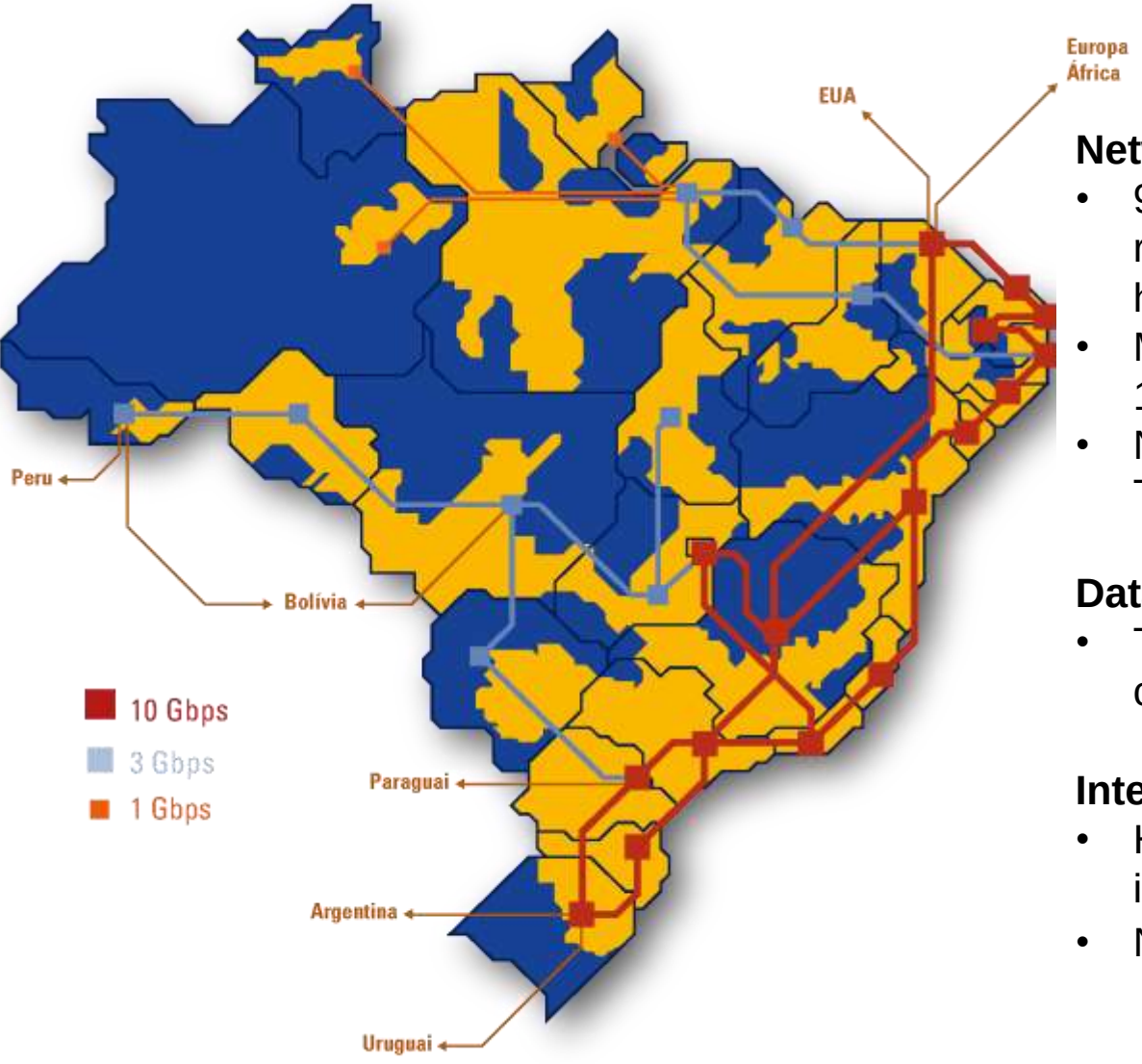
Cyberinfrastructure – RNP Today



- Operating since 1991
- 280% increase in aggregate capacity
- 24 states connected up to 10Gbps
- Amazonia included
- 600 institutions connected
- 27.500 research groups connected
- 3,5 million users

National Research and Education NetworkBackbone

Ciberinfrastructure – RNP until 2015



Network in land

- 900 municipalities with universities, research centers and teaching hospitals
- Minimum velocities 100Mbps and 1Gbps
- National Broadband Plan with Telebras

Data Center

- Technological and scientific data and collections in the cloud

International integration

- High capacity transfrontier integration with academic networks
- New submarine cable Europe/Africa

RNP Global and Regional Integration

The World Health Organizationchas adopted the following description:

"Telemedicine is the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities"

Telemedicine - opportunities and developments in Member States:
report on the second global survey on eHealth 2009. (Global Observatory for eHealth Series, 2)

CFM: Defines Telemedicine as the Medical practice through the use of interactive audio-visual communication methodologies, with the aim to <u>assist, educate and research</u> in Health.

CFM – Medical Federal Council, Resolution nº 1.643/2002 Brazil

We can add: Management, Monitoring and Evaluation of Health Processes !

The Brazilian Telehealth Initiative

Remote Assistance

Program Telehealth Brazil Networks
Primary Care, 14 states, 4.141 / 2.367 pontos / municipalidades
www.telessaudebrasil.org.br

Continuous Education

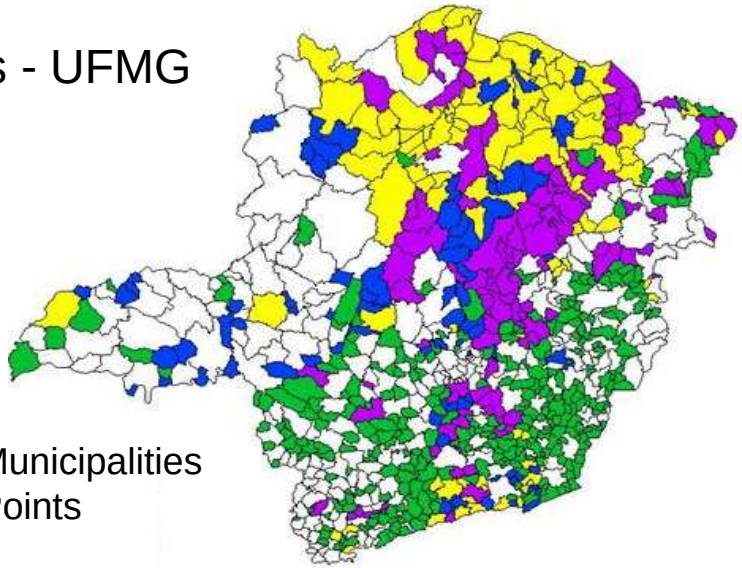
The Open Health University – Training on-the-job for 200 thousand health professionals
www.universidadeabertadosus.org.br

Collaborative Research

The Telemedicine University Network, RUTE, connects University and Teaching Hospitals in all states www.rute.rnp.br
Today: 118 Telehealth Units, 55 SIGs

Telehealth in the State of Minas Gerais

Clinical Hospital - Federal University of Minas Gerais - UFMG
Minas Gerais Health State Department



770 Municipalities
900 Points

12hours/day
1500 ecg/day
1300 Teleconsult/month
(UFMG, UFU, UFTM, UFJF, Montes Claros, UFSJ)

80% of the telepatients need no transfer to Reference Centers

10% municipal health budget savings

More than 2 million TeleECG

NRENs

WHO World Health Organization/2013 "eHealth and inovation in child and women health" study in 64 countries indicates:

78% lack on qualified personnel

77% inadequate infrastructure

NRENs help bridging this gap!

Book RUTE 100 Telehealth Units Launched in the RNP Forum, Brasília 2014

Preface from Dr.Najeeb Al-Shorbaji, Director Knowledge, Ethics and Research World Health Organization

Parte I
Capítulo I - A implantação de 100 unidades de telemedicina, novos avanços e perspectivas tecnológicas e a Gestão da Comunidade na Rede Universitária de Telemedicina
Capítulo II - A modernização dos hospitais universitários federais no Brasil
Capítulo III - A Universidade Aberta do Sistema Único de Saúde (UNA-SUS)
Capítulo IV - Contexto e perspectivas do Programa Nacional Telessaúde Brasil Redes
Capítulo V - Telessaúde na América Latina: a estruturação do projeto Protocolos Regionais de Políticas Públicas para Telessaúde
Capítulo VI - Programa de e-Saúde da Organização Pan-Americana da Saúde (Opas): cada vez mais próximos do acesso universal à saúde
Capítulo VII - A experiência da rede ePORTUGUESe da Organização Mundial da Saúde (OMS)
Capítulo VIII - Pesquisa TIC Saúde 2013: indicadores para o acompanhamento das práticas de telessaúde
Capítulo IX - Avaliação: um componente importante da telemedicina

Parte II
O impacto da RUTE em alguns estados do Brasil – relato de experiências
Parte III
Catálogo de unidades da RUTE
Parte IV
Catálogo de Grupos de Interesse Especial (SIGs)
PARTE V
Catálogo de Serviços RNP
PARTE VI
Resultados de Pesquisa e Desenvolvimento (P&D) da RNP com potencial para a saúde

http://rute.rnp.br/noticias/-/rutelistaconteudo/Confira-a-versao-digital-do-livro-Rute-100-lancado-durante-o-Forum-RNP-2014-em-Brasilia/1866898_7lJx

RUTE – Special Interest Groups

- a community whose interest is to advance knowledge and learning in a specific area, where members work together to produce solutions on a question or a series of questions.
- Health professionals, researchers, managers and professors
- Today: 48 SIGs; circa 50-60 sessions/month ; 310 participating institutions

SIGs statistics– N° of participant institutions					
Coord	**SIG's RUTE**	**Dez 2008**	**Dez 2010**	**Dez 2012**	**Dez 2014**
UERJ UFBA	***Child and Adolescent Health***	9	24	29	36
UERJ	***Pediatrics Radiology***	13	24	28	31
Unifesp	***Teaching Hospitals Management***	-	9	16	26
UFU	***Cardiology***	-	15	22	24
IFF Fiocruz	***Human Milk Bank***	-	28	33	33
Unifesp Unirio	***Indigenous Health***	-	-	3	6
RUTE Unifesp	***SIG Technical Operations***	-	7	23	26
UFSC	***Standards in Telemedicine and eHealth***	5	11	14	14
UERJ	***TelePsiquiatry***	3	9	15	19
UFRN	***Collaborative Medical Education***	-	6	8	13
Unifesp	***Oftalmology***	7	12	15	16
UERJ	***Intensive Nursing and High Complexity***	3	52	80	125
UFMG	***ICT's in Health***	6	25	26	26

*** Expansion to ALC and Palops**

RUTE

SIGs statistics– N° of participant institutions

	SIG's RUTE	Dec 2010	Dec 2012	Dec 2014
1	*Sanitary Vigilant*	26	30	38
2	*Clinic Toxicology*	3	3	7
3	*Dentistry and Oral Diagnostic*	15	15	15
4	*TeleNursing Education*	13	18	23
5	*Telehealth Standards*	11	13	12
6	*TeleDermatology*	18	19	18
7	*Child and Adolescent Health*	24	29	38
8	*Oftalmology*	12	15	16
9	*Pediatrics Urologiy*	10	10	14
10	*ICTs in Health*	25	26	24
11	*Rural Internship*	11	14	15
12	*DST – AIDS*	8	9	9
13	*Teaching Hospital Nursing*	15	20	27
14	*Intensive and High Complexity Nursing*	52	80	135
15	*Pediatrics Radiology and Image Diagnosis*	24	29	34
16	*TelePsiquiatry*	9	15	21
17	*Cardiology*	15	22	25
18	*Ear, Nose and Throat*	6	6	9
19	*Neurorradiology*	12	19	18
20	*Abdomen Radiologiy*	12	18	19
21	*Urology*	6	8	9
22	*Onco-Ginecology*	7	12	13
23	*Breast Radiologiy and Image Diagnosis*	14	19	20
24	*Telecoloproctology*	4	7	12

Other SIGs created:

Oncology Nursing
Workers Health
National Research Clinic
Pediatrics Endocrinology
Mastology
Primary Care
Colective Dental Care
Perinatology
Cervical Patology
National Telehealth Research
Trauma, Emergency Surgery
Oncopediatrics
Farmaceutical Care
Pneumology
Fetal Medicine
Multiprofessional Residency
Teledentistry

http://rute.rnp.br/eventos

	SIG ENT - Ear Nose and Throat 11:00h - 12:00h SIG Hanseníase 11:00h - 12:00h SIG Sentinela 16:00h - 17:30h SIG Hemorrede – Técnico-Científico http://url.rnp.br?He	12:00h - 13:00h SIG Endometriose 13:00h - 14:00h SIG Urologia 15:00h - 16:00h SIG Teleodontologia 16:00h - 17:00h SIG Fonoaudiologia	SIG Ressuscitação Cardiopulmonar (RCP) 12:15h - 13:15h SIG Discussão de Casos para o Internato http://conferencia.u 14:00h - 15:00h SIG Colaborativo em Educação Médica http://url.rnp.br?si 14:00h - 15:00h SIG Infecções Congênitas Materno Infantis	SIG Técnico Operacional RUTE 10:30h - 12:00h SIG Cuidados Farmacêuticos 11:30h - 13:00h SIG Terapia Ocupacional em Contextos Hospitalares e Cuidados Paliativos http://url.rnp.br?te		
13 11:30h - 12:30h SIG Endocrinologia Pediátrica	14 11:00h - 12:00h SIG Medicina Fetal 11:00h - 12:00h SIG Sentinela 13:00h - 14:00h SIG Oncopediatria 14:00h - 15:00h SIG Odontologia – Diagnóstico Bucal 14:00h - 17:00h SIG Padrões para Telemedicina e Informática em Saúde 14:00h - 18:00h SIG Rede Brasileira de Análise de Tecnologias em Saúde (REBRATS) http://url.rnp.br?si	15 12:00h - 13:00h SIG Oftalmo 14:00h - 15:30h SIG Saúde do Servidor Público	16 11:00h - 12:00h SIG Cardiologia 11:00h - 12:00h SIG Perinatologia 11:00h - 12: SIG Saúde e Adolescer http://url.rnp 12:15h - 13: SIG Discuss Casos para http://confer	17 10:00h - 12:00h SIG TelePsiquiatria	18	19

X

De: 16/04/15
Duração: 11:00 – 12:00
Título: SIG Saúde de Crianças e Adolescentes
Apresentador: Marilúcia Picanço (UNB)
Tema: Transtornos do espectro do autismo: a detecção precoce pelo pediatra
Descrição:
URL: http://url.rnp.br?sigsaudedecrianca
Tipo: Vídeo Conferência

Mainly for portuguese speaking countries

Important Links

http://url.rnp.br/?RUTE-ProcessoHomologacaoVC

http://url.rnp.br/?RUTE-SIG-Participacao

http://url.rnp.br/?RUTE-Adesao

Preceptors Program started Set 2015

National Multi-professional Residency Program in videconference: ca. 50 to 60 VC rooms and 650 preceptors every week

7 sessions
4600 participants

Cost avoidance
ca. 2.2 million US$

The Latin American Endoscopy Teleconference – Japan Kyushu University Hospital – Aug 5th

Connecting institution	Moderator's name	Country
1. Clínica Alemana	Dr. Roque Saenz, Dr. Pablo Cortes, Dr. Antonio Rollán	Chile
2. Kyusyu University Hospital	Dr. Shuji Shimizu, Arika Aso	Japan
3. Fukuoka University Chikushi Hospital	Dr. Kenshi Yao	Japan
4. Javeriana University of Cali	Dr. Martha Lucia Montes	Colombia
5. Hospital General Dr. Manuel Gea Gonzalez	Dr. Jose de Jesus Herrera Esquivel	Mexico
6. Hospital Sharp Mazatlan	Dr. Enrique Paredes-Cruz	Mexico
7. RedCONARE	Dr. Burgos Herbert, Dr. Gabriel Rodriguez	Costa Rica
8. Sao Paulo University Ribeirao Preto	Dr. Paulo Sakai	Brazil
9. Instituto de Gastroenterologia Boliviano – Japones	Dr. Gustavo Uidales	Bolivia

Foto: Magnus Nascimento

Ricardo Lagreca, diretor do HUOL, comentou a qualidade da imagem transmitida ao vivo

Captação, transmissão e visualização em 4k (2160x4096)

Brazilian television News about RUTE event – Band Channel 26/02/2013

CineGrid 2013: Coming to a Dental Office Near You?

San Diego, Calif., Dec. 18, 2013 - If you think digital media is all about entertainment, you haven't seen a live 4K video feed of a dental extraction.

The extraction and three other medical procedures - streamed live to the big screen at the University of California, San Diego's Atkinson Hall Auditorium - had everyone talking (if not cringing) at the eighth annual CineGridT International Workshop, which is held each year at UC San Diego's Qualcomm Institute (QI). The demonstration was a proof-of-concept for 4-way streaming of 4K video (four times the resolution of HD) from surgical operating rooms for medical education, professional training and second-opinions-at-a-distance. These dramatic demonstrations utilized the FOGO software player, developed by Prof. Guido de Lemos and his team at the Digital Video Applications Lab (LAVid) in Brazil's Federal University of Rio Grande do Norte.

Surgery at USP School of Dentistry
Broadcast in 4K for Cinegrid in San Diego, California, USA , Dec-10, 2013

Cinegrid São Paulo Brasil 29/08/2014

- As the world leaders are setting the development agenda for the coming 15 years through Sustainable Development Goals (SDGs) and that Universal Health Coverage (UHC) is one of the prominent health targets and that information and communication technology (ICT) is changing the whole landscape of access to information and health services in support of person-centred healthcare, there is a natural request to place an agenda item for the Executive Board, January 2016 and the World Health Assembly May 2016 on Tele-health for Universal Health Coverage (GT2015 Canada)

Important and innovative for the development of Research and Education in Brazil: federal investment in the academic network

Participation, coordination, integration and investment from the Ministries of

Education
Science, Tecnology and Innovation
Culture
Health

In the Brazilian National Research and Education Network

The Brazilian Health Ministry integrates officialy since 2012, the Interministerial Program for Maintenance and Development of RNP.

RNP

Angola, 07/11/2014

Faculty of Medicine, UAN Luanda