



**Telemedicine to a connect world:
Controlling medical equipments remotely in
hostile IT environments**

Who is diagnext.com ?

We are the first cloud provide specialized in hostile environments fo telemedicine.

Awards !

- Internacional HIMSS Latin America 2015
- ABIMED Inovation Award 2015
- INOVA SAÚDE ABIMO 2015
- 100 Most Influential Health 2016: INNOVATION

We transmit medical images up to 190 times faster than international standards!

What we call telemedicine ... so far away from the traditional !

- Remote specialized IT management
- Transporting large useful files
- Secure and encrypted communication network, end to end
- Data archiving with up to 95% lossless compression !!!
- RIS
- PACS
- All the radiology: Computerized Tomography, Mammography, X-ray, Magnetic Resonance, and all others.
- HIS
- Teledermatology
- Telepathology
- Telepneumology
- Teleneurology
- Telecardiology
- Telemonitoring
- Teleinterconsultation
- Teleorientation
- Tele Operation & Remote Control
- Telemetry

Infrastructure and Information Technology specialized in Health



It's health, simple and without borders!



Platforms built for Telemedicine

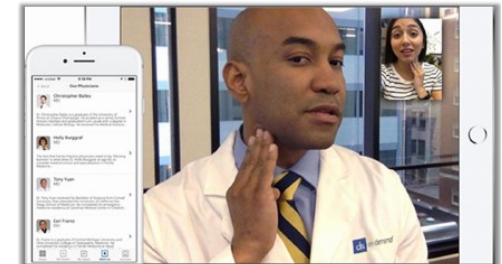
In order to connect your patients to their doctors and to each other using any device from anywhere and in any language.



Electronic prescriptions directly to pharmacies.



Ability to upload educational videos to patients for viewing the patient before the telemedicine session.



Internal protected texts and emails and the ability to upload photos.



Improving the quality of service with better satisfaction.

It generates great cost savings, reducing hospitalizations and emergency consultations, and improves patient and provider satisfaction and engagement.



Enables collaboration from the local care provider.

It not only connects patients with their doctors, but also local providers with each other - doctors can collaborate on complex cases in large virtual meetings.



Improves quality and safety.

Patients, providers and hospitals are safer by reducing disease transmission with remote biometric data screening and monitoring - all embedded in a highly secure telemedicine platform.

What is equipment remote control?

It is the ability to *remotely* operate environments that intrinsically *did not have the capacity to perform such an action*, only being viable through the insertion of *logical* or *physical* tools. It is conventional in critical environments, in energy, electricity, oil and television.

Questions

- Medical equipment manufacturers do not allow the use of software for the remote operation of these devices, as they are invasive and infringe copyright laws;
- How to monitor remote healthcare environments?
- The consumption of telecommunications in metropolitan projects is unpredictable. The manufacturers' recommendation is to use physically unviable communication channels.

Attention, important notice:

***The healthcare market announces that
diagnext.com has been active in breaking
technological paradigms for over 11 years!***

Tele Operation, Remote Control & Telemetry

- Remote operation of computed tomography and magnetic resonance environments;
- Through specialized communication equipment for this purpose, transport of images and remote systems;
- Orientation and communication with other health professionals and patients, through specific cameras and sound systems;
- Customed construction, team preparation and setting up the environment in record time;
- Single data center, providing greater interaction between the doctors responsible for the report and the technicians who operate the equipment remotely.



... Past: one technician per equipment ...



... Our future vision, today ...

Tele Operation, Remote Control & Telemetry

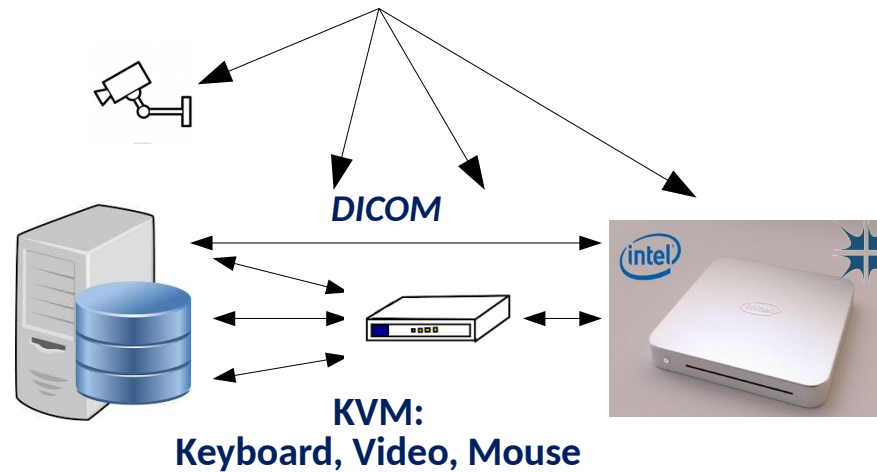
	<i>The past</i>	<i>Our telemedicine vision</i>
Characteristics	A radiology technician by equipment.	A team of radiology technicians operating various equipment distributed remotely.
Cost	High and unpredictable: HR, hiring, logistics, interaction, training, etc.	Controlled and balanced.
Risk of contamination disease	High, difficult to prevent, and different per unit.	Minimal, office environment.
Training	By hospital, it involves complex logistics, continuous interruption, etc.	Facilitated. Staffs in few locations.
Human Resources	Outsourcing of several groups. Complex and site specific assembly.	Centralized teams. Management made easy. Quick preparation of groups and service.
Technical responsibility	One for each location. Diversity of legislation.	Centralized management on the topic.
Interface with medical staff by teleradiology	Operational interface and relationship difficulties. Large repetition of exams due to lack of dialogue.	People in the same remote technical environment. Easy interaction.
24 x 7 operation	Difficult adaptation of teams for operation. Depending on the implantation site, impossible.	Due to the ease of assembling teams and its remote feature, almost immediately.

And what would the environment be like?



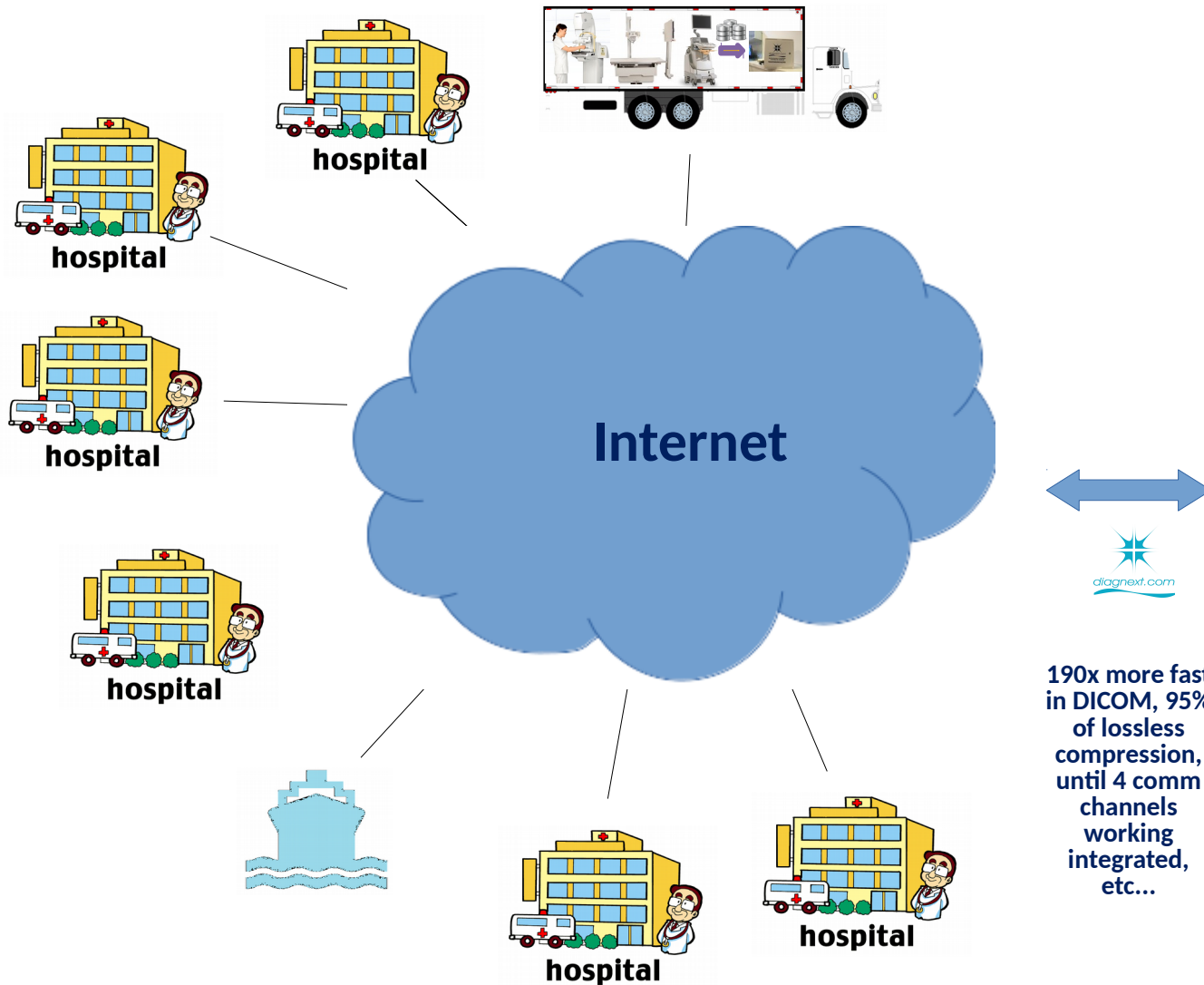
Devices are inserted that do not change the context of the equipment, and allow the ability to efficiently transport information.

Computed tomography, Magnetic Resonance, etc.



The exam and computational environments remain unchanged, untouched.

And what would the environment be like?



190x more fast in DICOM, 95% of lossless compression, until 4 comm channels working integrated, etc...

Medical Operations Center



Responsibilities: Report, technical operation and IT.

We overcome barriers and expectations ...

Advanced functionality without sacrificing technical performance.

With your brand.

Without practical, linguistic and cultural barriers.

Renowned suppliers and partners in their segments, with a long history of success and innovation.



Flexibility to meet future needs with low cost of ownership.

Rapid response and implementation.

Local and Remote Telemedicine Platform, Completely Integrated and Own Case Management.

Simple acquisition of patient data.

Traditional: 300 Mbytes of general data transfer.

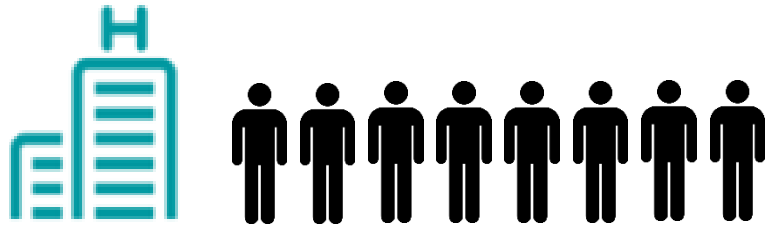
**Channel example:
1 Mbps upload - 40 min transfer**

diagnext.com: 1,000 Mbytes of general data transfer or 4,200 Mbytes DICOM.



How much time is needed to do a medical report?

Health Unit

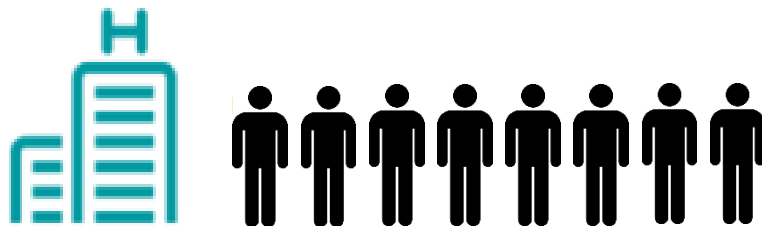


Report Centre



And with us?

Health Unit



More Fast



More Cheap



Less Data



Amazonas Study Case

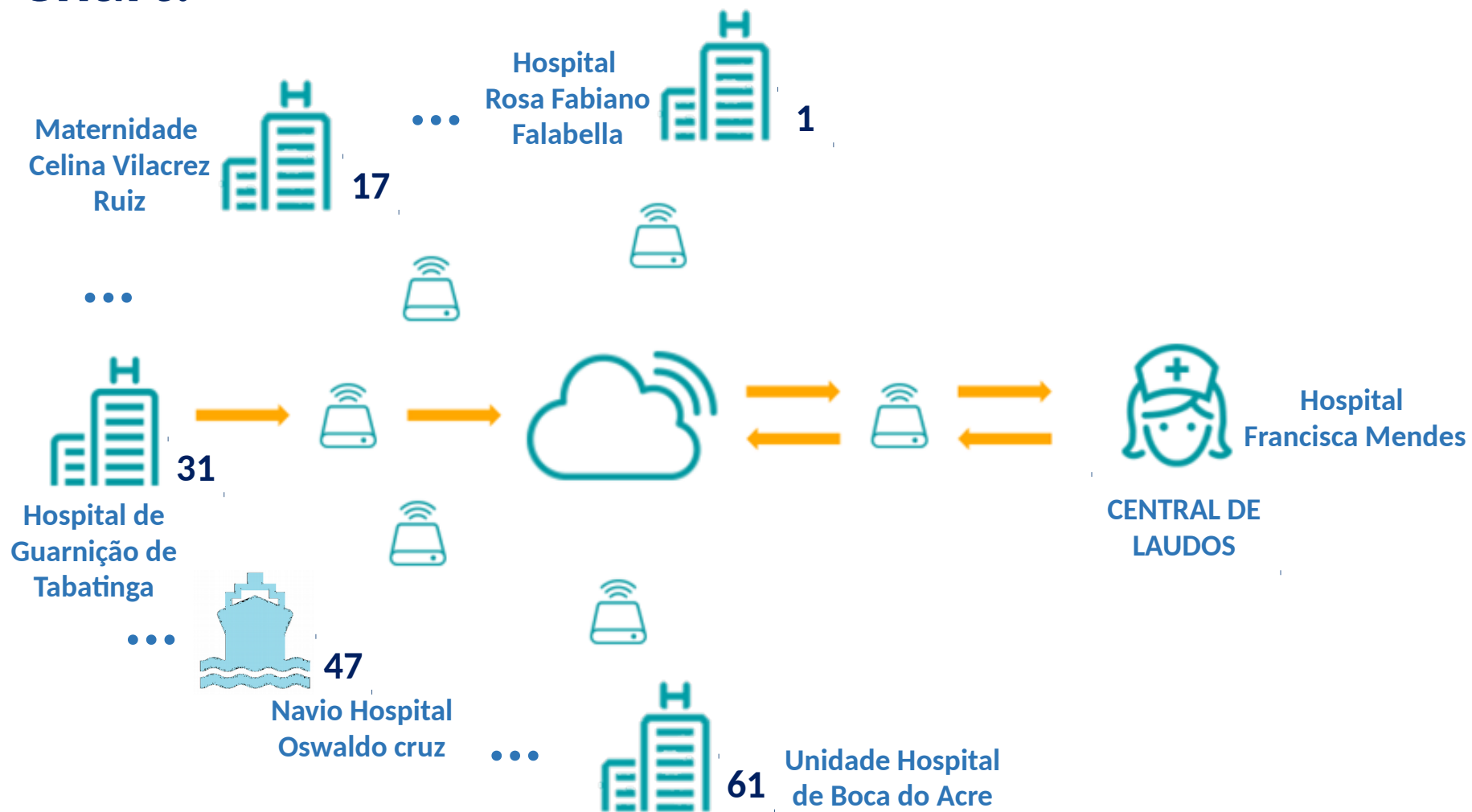
- With the help of the latest technology, allowing the transmission of Radiological images of all sizes and in record time, the Government of Amazonas has been able to overcome the geographical barriers of the region, currently in **61 Units**, and is expanding the mammography service to municipalities in the interior of the State.
- In **2015** and **2016**, **100,000** mammograms were performed outside the capital.
- In tests carried out in **2016**, it was shown that the transmission time proved to be **22 times** more efficient than the market standard. In **2019**, it is **190 times**.



“The model of this program, considering the geographic characteristics of the region and with the use of satellite technology, is extremely bold, without a similar in Brazil and abroad. It is a beautiful proof of the important role that Telemedicine plays, combined with the efforts made by the State Government through the Health Department's Technology area, **to expand the access of the population living outside the capital, to the specialized health services provided here.**”

said the Secretary of State for Health of Amazonas, Dr. Pedro Elias de Souza.

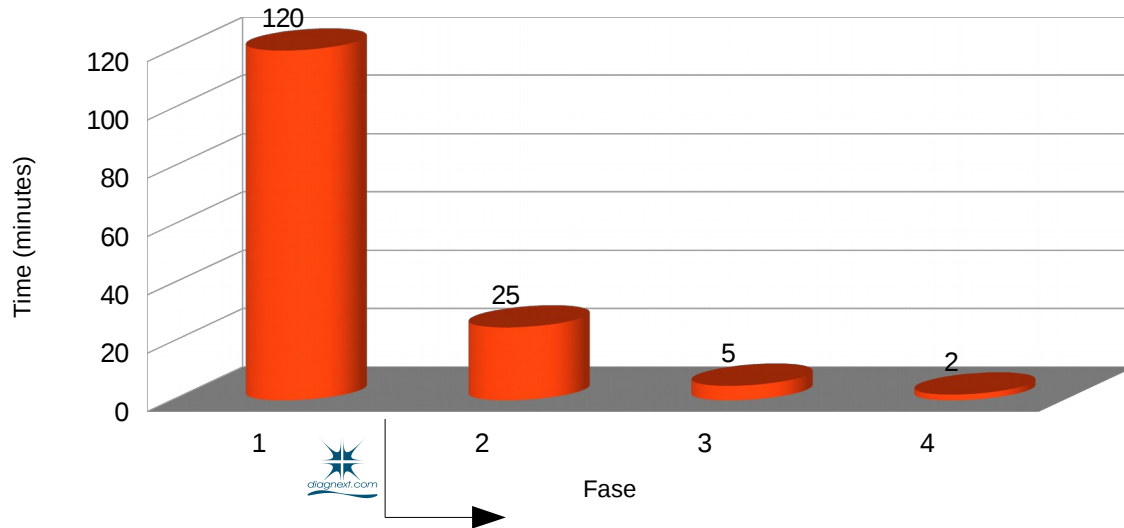
Solution Chart:



Time evolution of Telemedicine model...

Transmission Time of 1 exam per project phase

Diagnext started in the 2nd phase



2014: Start of the participation of Diagnext.com in the project!

Fase	Year	Time (min)	Exams / day	Diagnext.com Annual Development
1	< 2013	120	12	
2	2014	25	57	75% reduction to the previous time.
3	2015	5	288	Reduction of the time in 75% from previous again (+ of 95% to the initial one).
4	2016	2	720	Transmission of several new exams, and reduction in 60% of the time to the previous (+ 98% to the initial).

Telemedicina no Amazonas

Transmission of **exams and any kind of data** between **ALL** connected hospitals **bidirectional, simultaneous and without limits!**



Storage in different places of data to be able, in case of loss of communication, to enable the dynamic and automatic sending of all the tests performed. It allows, in the return of the link, the images are sent quickly to the Medical Report Centers.

Possibility of sending real exams **directly** to the diverse Medicals Report Centers **simultaneously**, in case of need and displacement of the patient.



Immediate and instantaneous referral of the examination, allowing the hospital to receive a prior opinion of the exams performed, to release the patients, as soon as possible.

The exams can be sent to **several Diagnostic and Reporting Centers** directly, without interventions and automatically.

Centrais de laudo



Monitoring, Management and administration of remote equipment, providing for maintenance, operation and agility of technology solutions for hospitals.

Network Operational Center, that do automatic reports, likes amount of sent exams, list of patients, cumulative by type of exam, destinations, etc.

Extreme case study examples... we have many!

	Mobile Units from		Amazonas Hospitals
	São Paulo	Bahia	
Healthcare Units	9 health mobile units	3 health mobile units	60 Hospitals
Radiologic Equipments	CRs (breast Cancer Analysis)		CRs (mammography and X-Rays)
Communication Method	4 x chips of mobile phone (diferent operators)	1 to 2 x cell phone chips (from different suppliers) and local connections (unstable and low speed).	1 satelite connection (128 – 256 kbps, unstable, Ku)
Reception Point	PACS		
Results: Qtd / time	50-80 exams/day	150-170 exams/day	100.000 exams/ano (42.000 breast cancer analysis, 58.000 X-rays)
Resultados: média de tempo de transmissão	5 – 10 minutes	Totally received untill 21h	2 – 5 minutes
Conclusions	The equipment finishes transmitting quickly, before the end of the next exam.	The equipment finished sending the exams between 6 pm and 9 pm, which made the entire report feasible the next morning....	The equipment finishes transmitting quickly, so that the patient does not leave before the quality assessment.



Thanks for your attention!