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Res. 2333 del 2012

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Report after one month of training

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TEMDEC Telemedicine Development Center of Asia

Pontificia Universidad JAVERIANA Cali

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Objectives of training:

- How the telemedicine event is realized
- Required quality level for telemedicine
- Teleconferencing systems
- Technical preparations
- How to work on problems

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Kyushu University Hospital

TEMDEC Telemedicine Development Center of Asia

About TEMDEC (History):

- TEMDEC is the most important center in telemedicine in Asia, they control and supervise other institutions that work with telemedicine.
- This center was created since 2002 when Korea and Japan organized the world cup soccer games, these were connected using a large fiber optic, the project was named "Genkai Project",
- The principal objective of this project was accelerate the mutual remote communications in many fields: Education, Culture and Business.

Source: http://www.temdec.med.kyushu-u.ac.jp/eng/img/about/references/leafletA4_eng.pdf

Staff of TEMDEC

DOCTOR

- Prof. Shuji Shimisu MD PhD
  Director of TEMDEC
- Prof. Naoki Nakashima
  MD, PhD
- Dr. Tomohiko Moriyama
  MD PhD
- Dr. Taiki Moriyama
  MD. PhD
- Dr. Yoshihiko Sadakari
  MD. PhD
- Dr. Akira Aso
  MD. PhD

ENGINEER

- Kuriko Kudo
  PhD
- Yasuichi Kitamura
  PhD
- Yoshioko Houkabe
- Shunta Tomimatsu

COORDINATOR

- Ryoko Yoshida
- Chiharu Kodama
- Yul Hamazaki

ADMIN STAFF

- Akiko Oyama
- Mayuko Okada
- Rintaro Katayama
- Min Hu

How work at TEMDEC

Objective

Principal Objective

1. Share medical knowledge with people from other continents and countries, breaking the borders of countries, using super-fast Internet and advanced technology.

Knowledge

Doctors

The doctors contribute with important and interdisciplinary medical knowledge.

Engineer

The engineer are the people who implement and integrate the videoconferences and network systems.

Technical

Videoconferences Systems

In this layer we have: Videoconferences protocols, cameras, microphones, screens: mixers, switchs, equipments for videoconferences (Vidyo, Polycom)

Network Infrastructure

In this layer we have: use of network protocols, swichts, cabling, Network LAN, servers, internet channnels.

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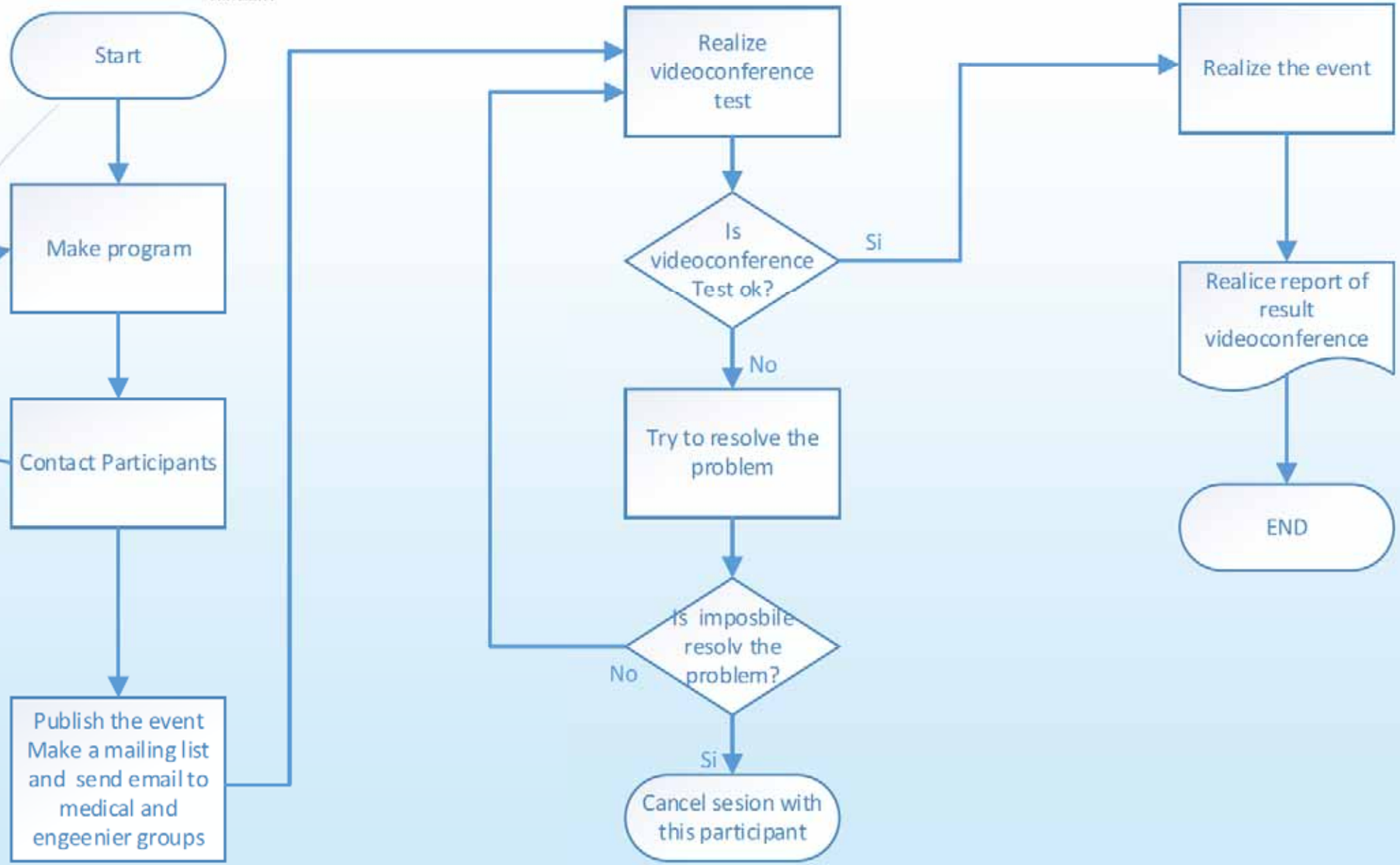
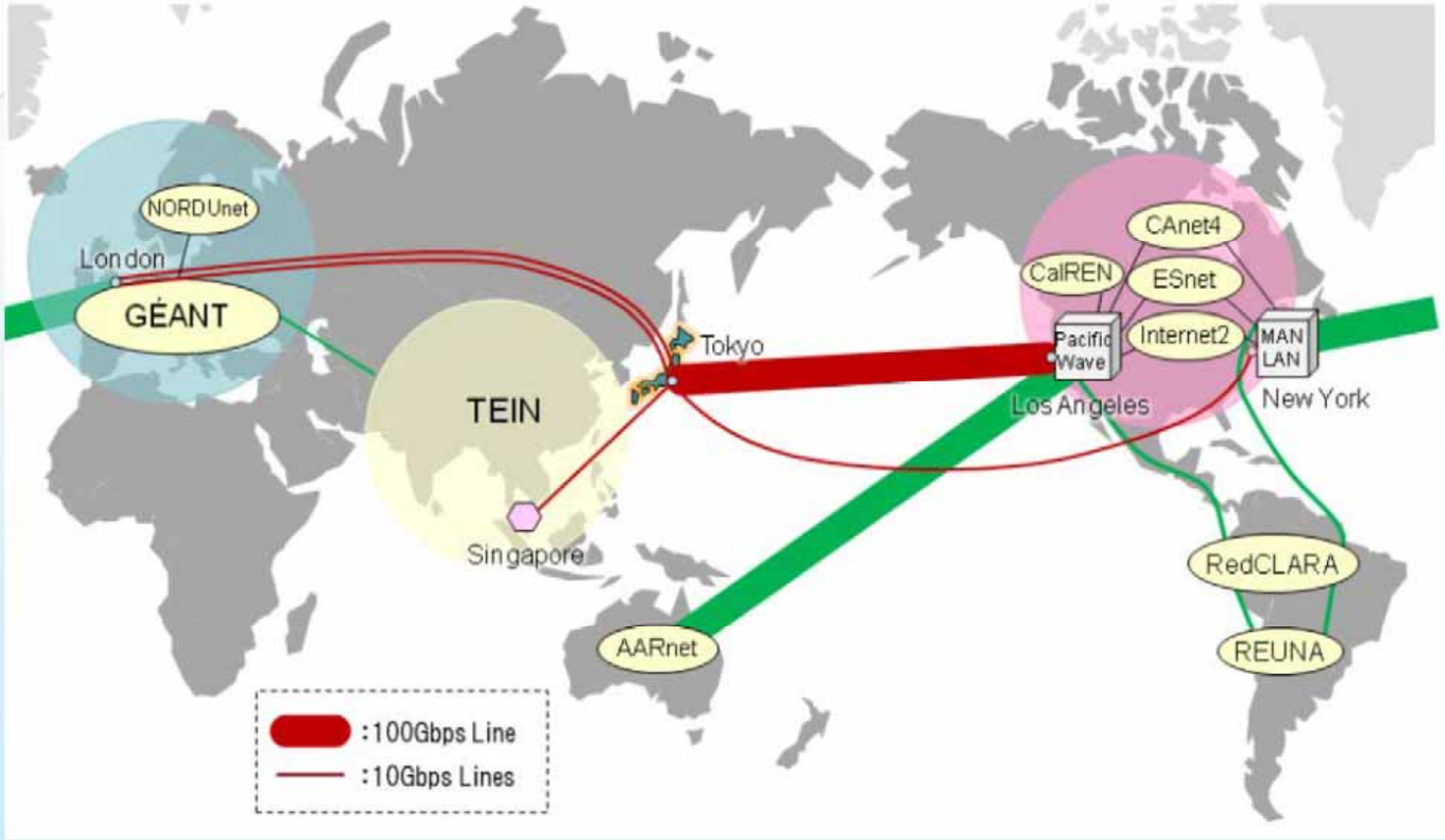
How the telemedicine event is realized:



Quality level required for telemedicine

- Is recommended a good bandwidth, around 2-3 Mbps.
- Is better use an wire connection to have a more stablish network
- Use a good video camera like HD webcam
- Use a good USB microphone, this should have echo cancelation
- Is necessary open the corrects ports UDP and TCP in the firewall.
- The latency and lost packets over the channel should be minimum.

Network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London
GÉANT
TEIN
Tokyo
Singapore
CAnet4
CalREN
ESnet
Pacific Wave
Internet2
MAN LAN
Los Angeles
New York
RedCLARA
REUNA
AARnet
:100Gbps Line
:10Gbps Lines

Teleconferencing systems - Systems in the room











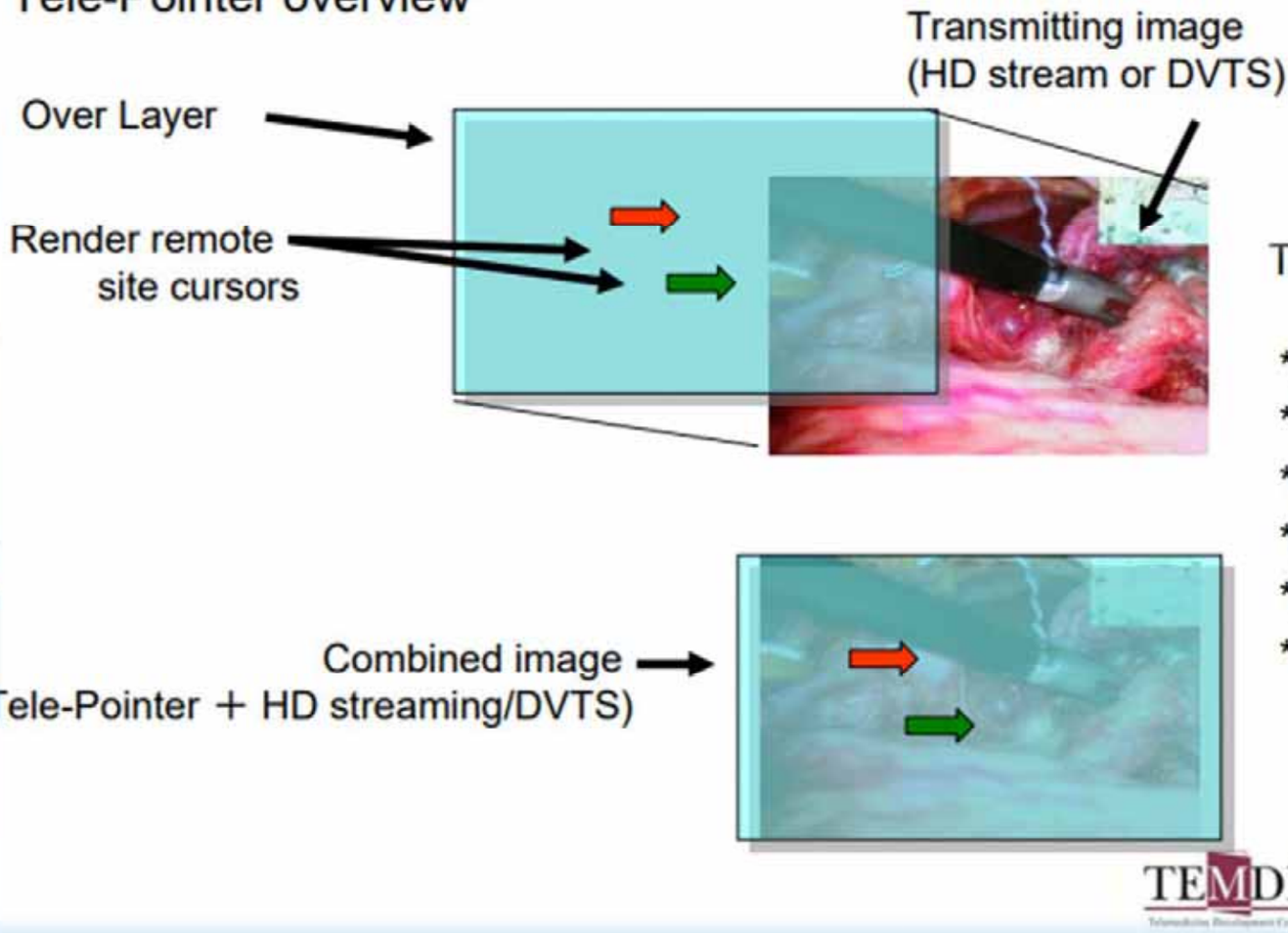


Systems in the room

- Vidyo System
- DVTS System
- Polycom System
- Control System
- Networks (NREN, Internet)
- Input systems: Cameras, Medical devices
- Output system: Screens, audio recording
- JoinView: Video sharing
- Recording system: Blu-Ray Disc Archive System

Teleconferencing systems - Telepointer system:

Tele-Pointer overview



Tele-Pointer specifications

*Server-Client type commercial software.
*Operates with Windows PC.
*Accepts five cursors rendering at once.
*Accepts twenty clients connections.
*All clients can get cursor control authority.
*The client software can be distributed.

Source: https://apan.net/meetings/apan32/Session/Slides/Medical/tech/2.pdf

Teleconferencing systems – Rack Storage

- Blu-Ray Disc Archive System
- HDD system

They have other system for recording video ubicated at the server room of hospital

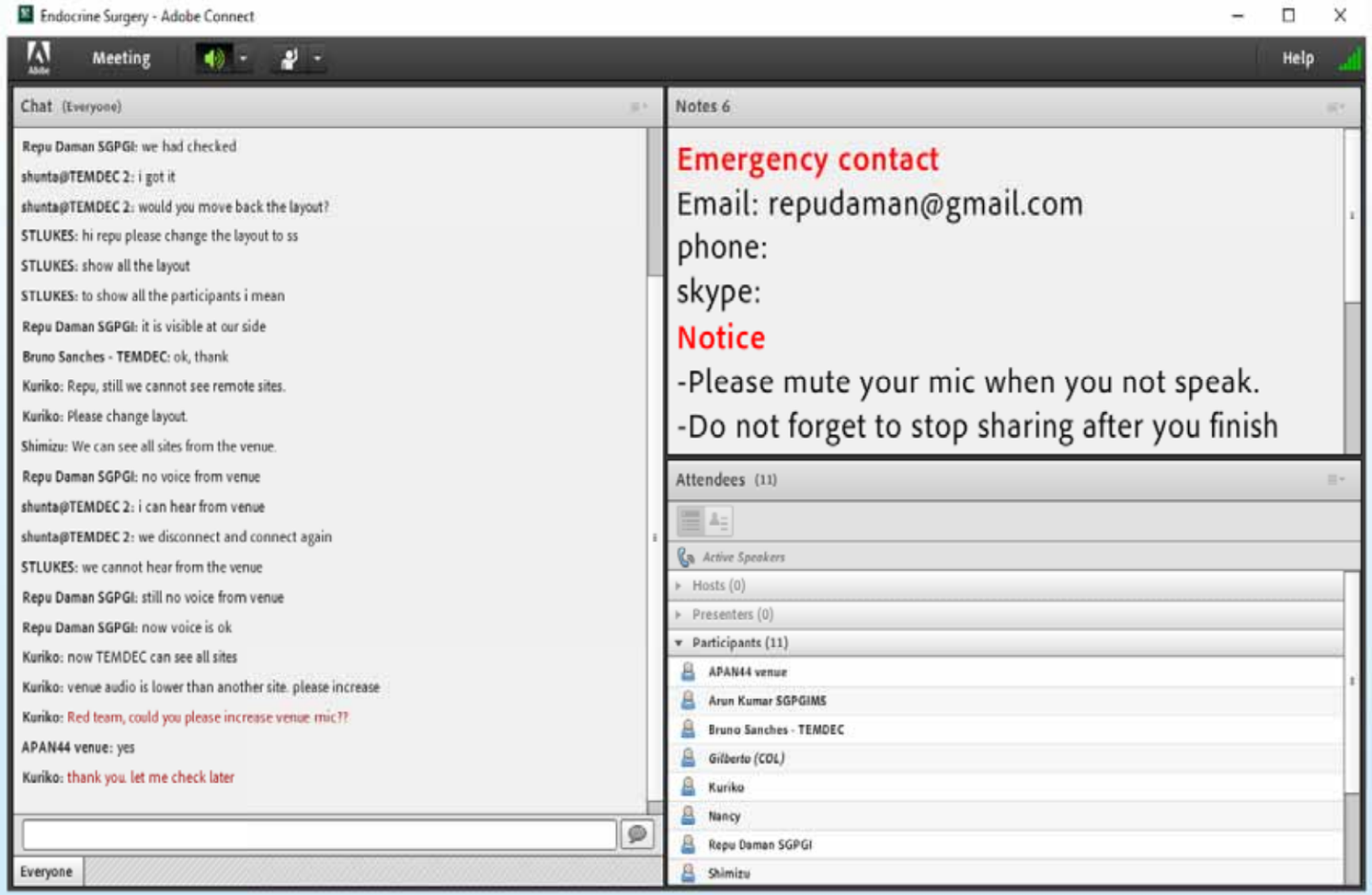
Server rack hospital

This is the rack of servers used in TEMDEC, inside are the following servers

- Two servers for vidyo portal
- Two routers vidyo
- Two gateway vidyo
- One recording streaming server for Vidyo
- One Polycom MCU
- One server for teleconferences management systems (Med-Hok), this system is developed in house

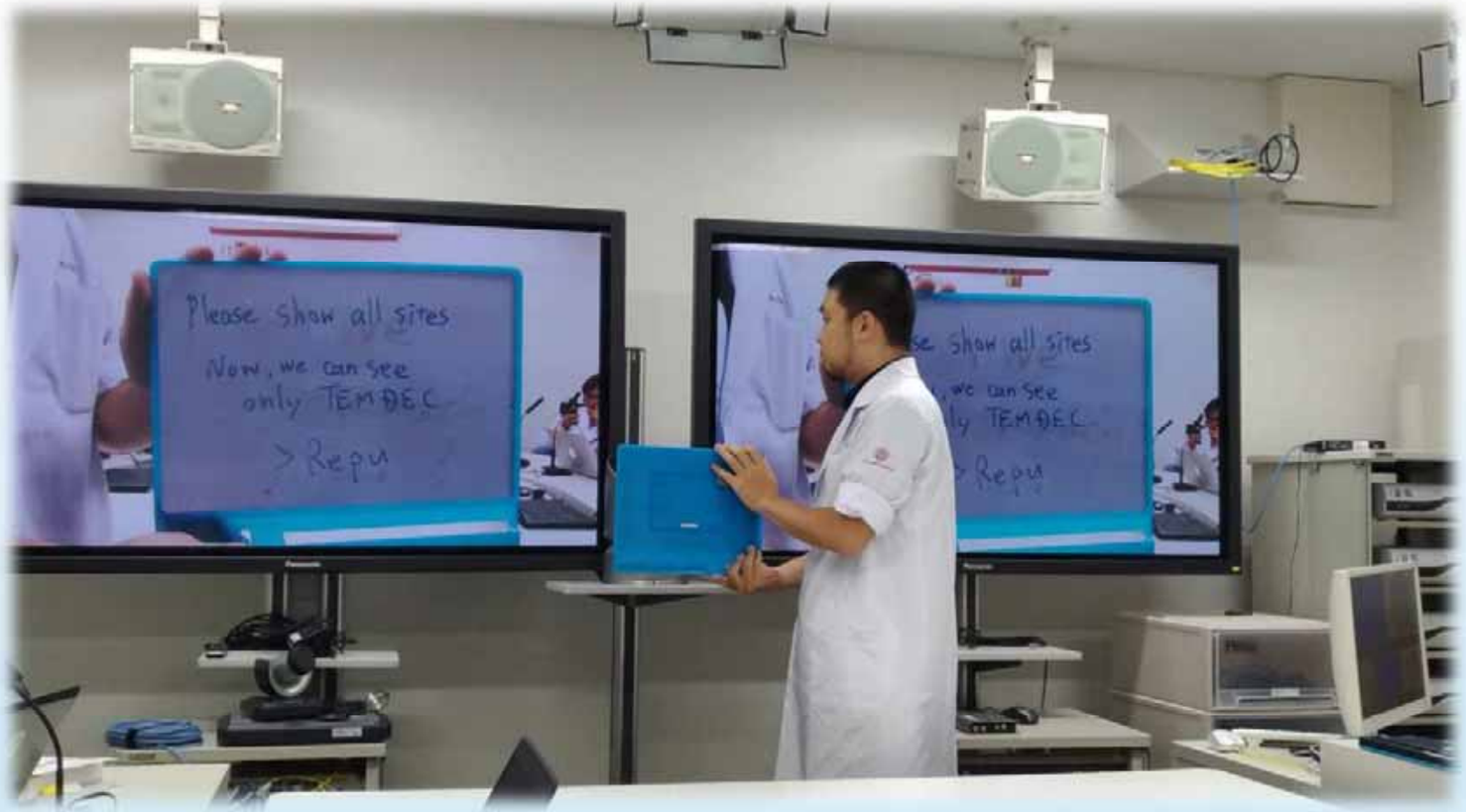
Teleconferencing systems – Adobe Connect

Adobe connect is used for the staff to resolve technical problems while the videoconference is Running.



Adobe Connect

Teleconferencing systems - Board



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Teleconferencing systems - Room

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Event APAN 44

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Operation room tour

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Live in Japan

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Japanese food

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Activities after work

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Future plans

- Share the knowledge learned with institutions in my city that are interested in deploy a telemedicine system, to achieve this goal it´s necessary to be a spokesman for the training received in TEMDEC.

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Thank You

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