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Healthcare

ATEN
CASE STUDY

The Medical City, Metro Manila, Philippines
The Center for Advanced Skills, Simulation and Training Innovation

Founded in Metro Manila as part of an international healthcare conglomerate, The Medical City (TMC) is one of the largest tertiary care providers in the Philippines. A few years ago, TMC decided to create the Philippines' most advanced training center for minimally-invasive-surgery (MIS). Called CASSTI, this center features MIS operating rooms, virtual reality stations, and various simulation and lecture halls, all of which are connected to monitors in remote class- and seminar-rooms which are dispersed across an area of a couple hundred meters.

The Medical City, Philippines: Hands on the Future

"CASSTI was brought about by the need to effect a change in medical and surgical training. The traditional mindset...is not ideal, as it does not give the trainee the opportunity to achieve mastery before patient contact." - Dr. D. A. Reyes, CASSTI Head Situated in Metro Manila, tertiary health-care provider The Medical City (TMC) decided to put keyhole surgery technologies directly into the hands of Filipino doctors. To do that, TMC created The Center for Advanced Skills, Simulation and Training Innovation (CASSTI), a cutting-edge training center that instructs Filipino doctors using real-time observation of surgical procedures, instructional demonstrations, virtual reality, and other interactive simulation practicums.

Key Customer Requirements

Keyhole surgery—also called laparoscopy, or minimally-invasive-surgeries (MIS)—is a high-tech medical procedure that is revolutionizing healthcare. At its simplest, an MIS station can be described as an extensible camera with an array of robotic surgical extensions, all connected to a video screen. Doctors insert these extensions into the patient and use them to observe and navigate the patient's internal anatomy or to perform surgery. Because MIS procedures can only be observed over video screens, training doctors in MIS presents the medical world a new set of challenges that may be significantly eased with the right technological solution.

Surgical procedures are singular, time-sensitive operations where every moment must be carefully observable. Consequently, any break in a video feed is potentially a critical failure. Similarly, because doctors rely upon remote cameras and video feedback to observe and conduct their surgeries, the highest possible video resolution is a top priority, while viewers in observation rooms may also require shifting to alternate views in order to understand the full surgical context.

To protect against early obsolescence while minimizing the complexity of their video network, CASSTI wanted a modular, easily upgradeable, latency-free switching system that would connect the operating room and simulation centers to multiple output-destinations (classrooms, seminars, and other simulation centers). Students and lecturers also needed to be able to smoothly switch to alternate video feeds. Because CASSTI's hardware output included DVI and HDMI channels, DVI/HDMI integration was also needed.

ATEN Solution Benefits

ATEN's answer was an elegant and economical VanCryst integrated solution: a modular VM1600 is the heart of the system, connecting operating and teaching rooms to classrooms and observation decks, with integrated HDMI and DVI A/V extenders further integrating peripheral inputs and monitors.

The VM1600 provides on-board signal conversion for all switched I/O combinations, whether HDMI-DVI or VGA-HDBaseT, as well as on-board scaling conversion for all resolutions up to and including Full HD (1080p).

The Critical Importance of Seamless Switching

Most important for CASSTI's needs, however, was VanCryst's trademarked Seamless Switching technology. In comparison to conventional switches, Seamless Switching cuts signal loss during channel-switching by as much as 1000%, changing between feeds with practically no loss of signal.

VanCryst integrated solutions deliver low-latency feeds across a hundred meters with no signal degradation whatsoever—and when integrated with the VE800 video extenders, observers can use common Telnet and SSH celphone apps to communicate with the central switch, allowing students and trainees to change between video feeds and AV profiles as needed.

“...[CASSTI] offers physicians and trainees the ability to achieve and assess proficiency through simulation and pace-appropriate, structured supervision. It is an ideal learning environment with expert supervision.”

Dr. Alfredo R.A. Bengzon, TMC President and CEO

CONTROL ROOM

CONFERENCE ROOM

Laptop
HDBaseT VIDEO EXTENDER VE810T
Display
HDBaseT VIDEO EXTENDER VE810R

10 M

HDMI VIDEO EXTENDER VE810R
PC 4
PC 5
HDMI VIDEO EXTENDER VE810T

LOUNGE

Display
HDBaseT VIDEO EXTENDER VE810R
Display
HDBaseT VIDEO EXTENDER VE810R

20 M

HDMI VIDEO EXTENDER VE810T
HDMI VIDEO EXTENDER VE810T

LOBBY

Display
HDBaseT VIDEO EXTENDER VE810R

40 M

HDMI VIDEO EXTENDER VE810T

Modular Matrix VM1600
HDBaseT Input Board VM7604 X2
HDBaseT Input Board VM7804 X2
HDBaseT Output Board VM8804 X2

DVI VIDEO EXTENDER VE600R
DVI VIDEO EXTENDER VE600R
DVI VIDEO EXTENDER VE600R
DVI VIDEO EXTENDER VE600R
DVI VIDEO EXTENDER VE600R
CAMERA PROCESSOR
HDMI VIDEO EXTENDER VE810R
HDMI VIDEO EXTENDER VE810R
HDMI VIDEO EXTENDER VE810R
HDMI VIDEO EXTENDER VE810T
HDMI VIDEO EXTENDER VE810T

25 M

DVI VIDEO EXTENDER VE600T
Laparoscopy Machine
DVI VIDEO EXTENDER VE600T
Laparoscopy Machine
DVI VIDEO EXTENDER VE600T
Laparoscopy Machine
DVI VIDEO EXTENDER VE600T
Laparoscopy Machine
DVI VIDEO EXTENDER VE600T
Laparoscopy Machine

SIMULATION ROOM

40 M

HDMI VIDEO EXTENDER VE810T
Virtual Machine

VR ROOM

15 M

HDMI VIDEO EXTENDER VE810T
Laptop
HDMI VIDEO EXTENDER VE810T
Tablet
HDMI VIDEO EXTENDER VE810R
Display
HDMI VIDEO EXTENDER VE810R
Display
HDMI VIDEO EXTENDER VE810R
Display

Ceiling Camera

LECTURE AREA

LOCATION | ATEN PRODUCT | ATEN I/O Card | INPUT | OUTPUT | HDMI | DVI | CAT6 | DISTANCE

Solution Architecture
The Medical City Philippines

ATEN

Product Overview

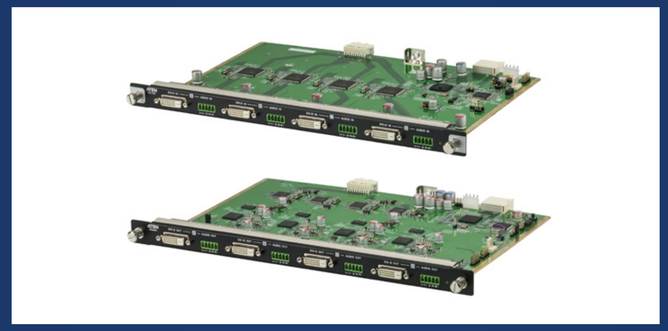
Modular Matrix Switch

VM1600

- Connects any of 16 video sources to any of 16 displays
- Video wall – allows you to create custom video wall layouts via intuitive web GUI
- Seamless Switch™ – provides continuous video streams, real-time switching and stable signal transmission

4-Port DVI Input/Output Board

VM7604 / VM8604



- Superior video quality – up to 1920 x 1200 @ 60Hz
- HDCP 1.4 Compatible
- EDID Expert – selects optimum EDID settings for smooth power-up and the highest quality display

4-Port HDMI Input/Output Board

VM7804 / VM8804

- Superior video quality – HDTV resolutions of 480p, 720p, 1080i and 1080p (1920 x 1080)
- Audio-enabled, HDMI audio can be extracted and stereo audio can be embedded
- Consumer Electronics Control (CEC) support

Product Overview

DVI Extender with Audio Transmitter/Receiver

VE600AL / VE600AR

- Features ATEN EDID technology that allows transmission over one Cat 5e cable
- Superior video quality – up to 1920x1200 (40m), 1080p (40m), 1080i (60m)
- HDCP-compatible

HDMI Extender with IR Control

VE810L / VE810R

- Either the HDMI device or display can be controlled via IR control
- Extend 1080p by 40 m; extend 1080i (HDTV) by 60m
- Non-powered (only requires one power adapter)