HOSPITAL OF THE FUTURE

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STRIVING TO IMPROVE THE HUMAN EXPERIENCE IN HEALTHCARE

As hospitals look for ways to use and allocate limited medical resources in more efficient ways, technology-assisted planning offers solutions that contribute to better environments for healthcare providers and patients alike. A primary goal in healthcare is how to improve the human experience. For almost a decade, Advantech has been dedicated to providing hospitals with intelligent technology to help them achieve this goal. This year, Advantech is focused on providing solution-ready packages that are designed around carefully planned hardware and software. Advantech is committed to assisting hospitals implement technical solutions that help them improve areas such as outpatient services, nursing care, and critical care.

Advantech sees the intelligent hospital from the perspective of the patient as well as the medical staff and tries to meet the needs of both. As part of its efforts to provide a better patient experience, one of Advantech’s solutions improves hospital workflow by integrating a queue number calling system with application software to reduce patient wait times. Continuing to care for the patient as they move from one point to the next during a hospital visit helps improve the relationship between patient and staff. When it comes to bedside care, our Patient Infotainment Terminals help patients stay connected with family, making their stay more comfortable experience.

In addition to the many direct benefits Advantech products bring to patients, our stringent medical safety certification process aids them as well. Equipment maximized for safety and infection control bring peace of mind to patients and caregivers. Advantech is also creating integrated operating rooms, providing high-end, robust computing terminals, that aim to improve workflow for medical staff and improve the patient experience.

In 2012, Advantech received the European Medical Grade PCs - Company of The Year Award from Frost & Sullivan. This honor gives us confidence we are moving in the right direction and we commit to providing healthcare professionals the robust solutions that build more intelligent hospitals.

This issue’s cover story features the future hospital. In it we’ll introduce how current and future hospital technology is being integrated into medical care. Mobile devices that support patient monitoring, data transfer, and wireless transmission are becoming increasingly common. Institutions are becoming increasingly interested in ideas about the technology of future healthcare, which include: increased connectivity, patient self-monitoring devices, cloud technologies, adoption of electronic health records (EHR), and more.

As the popularity of integrated operating rooms grows, careful consideration in the early design phase can help avoid costly renovations. Example applications will be introduced, showcasing perfectly integrated software and hardware for use in the integrated OR.

Also in this issue will be an introduction to the upcoming World Partner Conference which Advantech is hosting in China. At the WPC, Advantech will show a new, value-added SRP operation model. Participants will be invited to experience a hospital of the future.

Lastly, Alexandre DeJonge, founder of Masante, will share his vision for the future hospital, and the challenges faced in creating an optimized information system. You won’t want to miss this discussion.

CH. Wu
Advantech iService Vice President
The American Recovery and Reinvestment Act of 2009 (ARRA) authorizes the Centers for Medicare & Medicaid Services (CMS) to provide incentive payments to healthcare givers to adopt, implement, upgrade, or demonstrate “meaningful use” of certified electronic health record (EHR)* technology. These potential recipients have been identified as Eligible Professionals (EPs) and Hospitals.

The final goals of this meaningful use of EHR technology and related activities are:

1. Make it more patient-centric and improve the patient experience.
2. Provide incentive to improve performance of the healthcare institutions (outcome-based).
3. Reduce overall healthcare costs (doing it right the first time; reduce readmissions etc.).

Royal Philips and Georgia Regents Medical Center (GRMC), Georgia State’s public academic health center, have recently signed an agreement to form a 15-year alliance. In this agreement, GRMC placed an order worth USD 300 million, in which Philips will work closely with GRMC to support multiple GRMC sites, including the combined 632-bed medical center, cancer center and children’s hospital. The goal of this project is to develop better patient outcomes. This project is a first of its kind in the USA and it represents the largest order received by Philips. The tasks include consulting services, supplying medical equipment, operational planning, performance and medical training. In short, GRMC has agreed to outsource the medical operation to Philips much like a company outsources its IT function to a service provider. This business model is so new, there is no existing regulation. So the project will invite federal regulators to participate to help define new rules.

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Part of the motivation behind the Philips and GRMC alliance is, in response to the relatively new “meaningful use” idea, the potential mutual benefits. For GRMC, the reward can be reimbursement from the government due to better patient outcomes; for Philips it will be a bonus.

**Hospital of the Future**

Palomar Hospital, based in San Diego, CA, tried to accomplish those goals by investing USD 1 billion in building a state-of-the-art technology-based medical center from the ground up to create a better patient experience. As a starter, the design of the facility makes it look like a hotel or modern high-rise office complex. When a patient checks in, a machine will scan the eyes to capture the biometric data. This unique ID will track the patient within the system and there is no more paperwork to fill out from doctor to doctor. (Some countries have a better system than the USA. Canada, for example, has a system that uses one ID card to identify the patient nationally.) When the patient stays in the hospital, it uses a wireless, wearable device to monitor their vital signs such as heart rate, skin temperature and oxygen level. The measured data is fed wirelessly into the server of the hospital. If the patient has a high fever, for example, an alert signal or alarm will be sent to the caregiver or the nurse on duty so they can address the problem. This can be applied to the patient even after checking out of the hospital. “We really want to provide the best patient experience from the beginning to the end,” stated Orlando Portale, chief innovation officer of Palomar Hospital, “and this is only the beginning.” To further enhance the patient experience, a VGo robot will provide some friendly greetings and video communication to visitors including the family members of the patients. Other new technologies used by Palomar Hospital include the Xenex disinfection system, which kills regular germs as well as superbugs on the surfaces of the patients’ rooms, as part of the cleaning process, in just 10 minutes.

**Mobile Patients**

The slogan “Anytime, Anywhere” was invented to sell mobile devices. The concept of mobility is not limited to the busy professional any more. It is now applicable to the busy patient or to those who don’t want to stay in the hospital for a long time. In terms of disease prevention and management, diabetes is rated very high on the list. Today, various vendors provide different solutions enabling the caregivers to monitor the patients anytime, anywhere using a mobile device. Smart insulin pumps can deliver the right dosage of insulin to the patient wirelessly from a wearable unit attached to the body. Taking this one step further, we are seeing prototypes of wearable sensors implanted inside the fabric of clothing to monitor the vital signs of patients including EKG signals. What this means is that when a patient is “under observation,” it can be done anytime, from anywhere and the “hospital” is not confined by four walls. This will further enhance the patient experience by providing them with more mobility. Qualcomm Life, the maker of 2Net, is a strong proponent of mobile health (mHealth). 2Net is a set of wireless health solutions that can capture and deliver medical device data to integrated portals or databases from nearly any wireless medical device for storage in a system designed for security and interoperability. “It is important to have a low-cost, end-to-end solution with built-in safety for a hospital environment,” says Anthony Shimkin, senior director of marketing at Qualcomm Life.

**Operating Room of the Future**

Today, intelligent robots are used in the University of California hospitals to perform surgery. The surgeons control the robot and view the patient via a remote video feed. The robot can work within smaller incisions on the patient to make recovery easier. Compared with traditional procedures, robotic surgery, in some cases, would allow patients to recover in days rather than weeks. With the advance of Internet or cloud-
based solutions, a hospital in a remote area can have access to the experts. For example, during the surgery, the expert located remotely can assist the operation by viewing the process from a large medical-grade HD display and providing advice and support to the surgeon in charge. Potentially, the expert can even control the robot remotely to operate on a patient via the Internet. Additionally, the procedure can be recorded for future study. On the lighter side, robots can also be used to perform tasks such as delivering meals or medicine to patients, as is the case at Boston Children’s Hospital.

The Future Trends
The healthcare policy will continue to impact the development of technologies and the behavior of hospitals. But ultimately, the entire healthcare ecosystem, including the insurance companies, has to come together to make “meaningful use” real. There are two possible trends to follow. First, expect to see hospital services go beyond their four walls. Second, standards for interoperability should evolve and become more practical. (For example, see medical device standardization activities within AAMI, UL, ML PnP and Continua Health Alliance.) Rising healthcare costs along with the incentives provided by the American Recovery and Reinvestment Act of 2009 (AARA) will force hospitals to keep only the very sick and send other patients home for rehabilitation care. Wearable, wireless sensors can keep the caregivers informed of the health condition of the patient. This applies to mobile home healthcare or mHealth as well.

Julian M. Goldman, MD, program director of the Medical Device “Plug-and-Play” (MD PnP) Interoperability Program at Massachusetts General Hospital, stressed the importance of the seamless transition experience, “The patient needs to have an effective way of being identified (Patient ID) using all the available technologies such as RFID, barcode and any other technologies both inside and outside the hospital buildings.” MD PnP, based in Cambridge, MA, received funding of USD10 million from the government to promote innovation and safety in patient-centric medical device integration.

So who is responsible for the safety of the patient? The primary responsibility falls on the hospital. But ultimately it is the U.S. Department of Health and Human Services that has the responsibility for overseeing public health in collaboration with other agencies, such as the FCC. Goldman, who sits on several of these government committees, further suggests that to ensure patient safety, the full ecosystem of medical devices, EHRs and other Healthcare IT must be interoperable to enable innovation in the safety and efficiency of healthcare.

Mary Logan, president of the Association for the Advancement of Medical Instrumentation (AAMI) observed that companies in the interoperability space may work effectively in a vertical manner but still have far to go in working horizontally. For example, a vendor tests its device and it works flawlessly, but when put in an environment where it is on the same network with a device from another company, there are co-existence problems. Alarm systems are another good example of this problem of vendors not taking into consideration the entire horizontal ecosystem. Logan noted that, “A company may have the coolest new sensor in the world, but if that sensor adds to the already too noisy environment of alarms and alerts, it’s simply an annoyance and not a helpful tool.” Medical technology needs to be designed from a complex socio-technical lens, not from a ‘cool feature’ lens, putting the human needs first,” said Logan. AAMI has a number of new standards efforts underway in the interoperability space, medical device security, wireless co-existence and test methods and software. It also has a major standards initiative underway with UL around interoperability of medical devices.initiative underway with UL around interoperability of medical devices.
organization of healthcare and technology companies, supports the idea of EHR and provides a set of guidelines (now IEEE 11073) for device manufacturers to design products with end-to-end interoperability and safety built in. In addition to working nationally, Continua’s guidelines were adopted by other countries such as the UK, Singapore and Denmark. “Continua is working with the United Nations to provide a set of guidelines,” stated Clint McClellan, president and Chair of the Board of Directors of Continua Health Alliance. “We are interested in helping device manufacturers both nationally and internationally.”

In observing the major investments that took place recently, one can see that healthcare vendors and hospitals are serious about providing patient-centric solutions under the ARRA. Healthcare technologies including wireless, robots, imaging and cloud-based solutions will continue to propel the Healthcare IT (HIT) business. Device and solution providers will see opportunities abound. One big challenge ahead is getting the whole healthcare ecosystem to work together under the federal policy. With a shortage of medical personnel predicted, seamlessly integrated healthcare solutions are urgently needed to improve productivity and efficiency.

*There is a difference between Electronic Health Record (EHR) and Electronic Medical Record (EMR). EMR refers to records of a patient stored in a facility while EHR contains the life-long records of the health history of a patient. EHR is the property of a particular patient.*

**HiMSS 14**
*Time: February 22nd-27th, 2014  Location: Orlando, Florida*

The HiMSS Annual Conference is well-known. Advantech will host a booth this year in its continued support of the event, and demonstrate a range of products covering point-of-care, patient and hospital infotainment, mobile & clinical healthcare, and patient bedside technologies. A number of Advantech’s channel partners, system integrators, and software providers will also present, showing the power of co-partnering and the delivery of complete, integrated system solutions. Our staff will be glad to introduce themselves to you! Please visit us at Booth 721.
Island Solutions
Currently, medical programs are kept away from patients with data being held on various computers. Patient data can come from different programs and systems. Hospital information systems are complex—lab results, test results, x-rays—when the data is combined, it can create an exact picture of the patient and their condition. One trouble faced by medical computing systems is that the differing programs do not always „talk“ to each other; at each station, the doctor or nurse must re-log in and it is often necessary to switch back and forth between programs.

Questionable Data Security
With many existing IT solutions the need for data security hampers ease of use. Each program requires its own access code and this can cause problems. Since there are so many different passwords required, users may be tempted to write them down on a piece of paper and place them on the monitor. It’s also questionable whether or not doctors and nurses are logging out between sessions, even if regulations require them to do so. Often, patient data sits unprotected and accessible to anyone.

CLINICS SET THE COURSE FOR THE FUTURE
Clinical Software and Patient Entertainment under One Roof
Georg Massion, Sales Manager, ClinicAll

What services and technologies will clinics use to beat the competition in their search for skilled professionals while at the same time providing excellent care to patients? Nowadays, patients in hospitals expect access to the internet, email, and to television and other multimedia programs. Nurses and doctors need safe, easy and quick access to medical systems from all parts of a medical facility. There’s real potential in clinical IT solutions when they simplify, consolidate and deliver attractive, new services. ClinicAll, offers a combination of standard clinical medical programs with additional patient entertainment services. The ClinicAll solution runs on Windows 8 and its operating model makes good economic sense.
Data Availability
Data accessibility issues and lack of time means that information remains unused. The lack of data is not the problem, but it is frequently unavailable in a timely manner when and where medical staff really needs it.

Demand for Entertainment and Information
Demand continues to grow from patients to access multimedia systems. It is no longer acceptable for patients in the same room to have to agree on which TV program to watch on the small screen on the opposite wall. They expect more personalized infotainment at their bedside with video-on-demand, audio books, internet, radio, TV, music, telephone and e-mail all readily available. These expectations can be satisfied with the new “CliniTeC” box. Advantech has developed a slim, elegant, 15-inch, all-in-one touchscreen monitor specifically for ClinicAll. All components are mounted in patented, stackable carts in clinic-specific decor. The terminal can be moved easily to any bedside. The touchscreen monitor uses a hydraulic system for movement, and can be extended from the base and placed in a comfortable position by the patient. When the system no longer needs to be used, the screen can be put back, freeing up space so that staff can carry out their work. The Clinitec box has a cable with magnetic connectors on the wall side. The connectors disconnect automatically when any tension is placed on the cable. This protects the cables and connectors from damage and prevents injuries. Of course, the monitor is also available with wall swivel arm. Internet access is delivered to the bedside via various cables, such as Ethernet, VDSL (two-wire telephone lines), CoaxLAN or WiFi.

The Future is Here
If a computer terminal is at patient bedside, how can a doctor get one-click, secure access to medical information? A common operating system with intra-program security and interoperability is necessary. For this reason, ClinicAll has developed a strategic partnership with Microsoft. The medical workstation runs a Windows-based operating system that uses new applications developed for Windows 8. These include Lync, SharePoint and Vergence. Lync offers patients and staff a modern communication tool. SharePoint offers efficient collaboration not limited to only Microsoft Office programs. Vergence provides single sign-on for easy access with just one click. And the power of Windows 8 opens up new possibilities for information exchange. The clinic’s own hospital information systems (HIS) are fully-integrated and compatible, creating the potential to improve process efficiencies. New possibilities are opened for a more pleasant working environment and more attractive patient care.

One Password Opens All Doors
Single sign-on is an access control feature for independent but related software systems. This property allows a user to log-in just once and gain access to all relevant systems, without having to log in to each application separately. Vergence is integrated into the normal Microsoft Login stream. For example, a physician logs in at a computer at their house and then changes to another device, after logging in to this secondary device he will see the same page as is on his computer at home. He saves the path through the folder structure. The doctor can log in by entering a password or by automatic identification using a smart card or Near Field Communication (NFC). They can then access data on the patient’s
terminal with a quick swipe on the touchscreen. Since the system already knows the identity of the patient in the room, Vergence can automatically search the appropriate subsystems for all the entries made for this patient. All the background information from all the programs is delivered together, without a second password ever being needed. Data security is combined with ease of use for the benefit of patients and healthcare personnel.

Cooperation and Exchange
ClinicAll integrates programs that are used by the hospital into an overall system. The specially developed software from ClinicAll ensures that the interfaces between all programs function safely, successfully bringing together the two worlds of infotainment and hospital information systems.

Costs and Funding
It costs money to buy, install, operate, maintain and replace new terminals. With its special operator model, ClinicAll undertakes these costs and the operating risk so that clinics can gain easy access to the new technology. Patients are used to paying for access to telephone or television services. The new services can be provided as a billable service to the patients, making the terminals self-financing. ClinicAll is convinced that infotainment will be very popular and offsets the cost of acquisition clinics and hospitals.

Summary
Data processing within the clinical environment is becoming more and more interconnected. Microsoft, ClinicAll, Advantech and other companies are working together for the digital future of the hospital workplace, each company bringing its own strengths to bear. The result is a concept that is safe and secure, and easy to use. It opens up possibilities for new services. As a turn-key supplier, ClinicAll’s unique operator-business model is welcomed by clinics looking for a complete solution. From consulting and planning, through installation, financing, and operation—patient needs, patient welfare, and simplified medical routines can be cost-effectively delivered (Third-party Software licenses can be considered separately.).

Clinic Infotainment System with Windows 8
Windows8 has been designed specifically for touch screen monitors and makes the application very comfortable.
The infotainment system is connected quickly. The installation cost is minimal; the clinic can continue to run smoothly during its operation. Existing phone lines can be used, See the example below:

**Clinitec Box**
The swivel arm is often perceived as unattractive. Therefore the patented bedside terminal without a swivel arm was born. The world premiere of the CliniTec-Box was in November 2012, with its launch at the medical trade fair Medica in Düsseldorf.

- Complete technology in a box, inaccessible for patients
- Medically approval EN 60601-1
- IPX1 certified
- Front IP65-protected rubber-coated
- Suitable for hospital environments

Optional functions can be accessed directly from the home screen:
- Service call / Soft call
- Meal plan
- Patient survey
- Medical information and movies
- Private hospital information
- Patient schedule
- Room control for lights, blinds
- Connection to all common hospital information systems (HIS)

Once again Advantech will be showcasing products at the Medica exhibition. Medica is the world’s largest medical marketplace. You are invited to see demonstrations of our digital operating theater solutions, critical care, patient care, bedside infotainment, and digital waiting room solutions. Our medical-certified touch panel computers and AMiS computerized medical carts will be up and running. Our staff will gladly show you all their features, like multi-touch screens, RFID, Smart Card readers, WiFi and more. Our Barista will be happy to serve you a nice latte! You can find us in D42, Hall 15.
A GREAT TIME FOR A NEW ERA IN CLINICAL COMPUTING

With Windows® 8 Operating System Devices and Applications

Bill Crounse, MD, Senior Director Worldwide Health, Microsoft

At the end of the day there's nothing compelling about a new computer operating system unless it, the devices upon which it is installed, and the software applications that run on those devices, offer significant value to people. For medical professionals that means significant value not only for their personal life and clinical workflow, but ultimately to the quality of care they provide to their patients. So let me share what I believe are the top 3 attributes of Windows 8 devices and applications that make such a compelling case for clinicians, and open up a new era in clinical computing.

Windows 8 helps keeps healthcare information secure.

Windows 8 provides a set of devices that are compelling enough to meet the needs of clinicians as well as meet the security and compliance demands of the enterprise healthcare settings where they work. The growing presence of consumer tablets and other devices in clinical settings may be convenient for clinicians, but it has been putting pressure on healthcare IT departments in terms of managing access to, and the privacy and security
of, highly regulated and confidential information. In a recent survey of healthcare executives and CIOs, 66% agreed that the “bring your own device” trend is complicating their ability to manage information resources and that providing IT support for consumer-grade tablets is increasing IT costs. Windows 8 merges enterprise-ready devices and enterprise-class security into a consumer-friendly package. Security in healthcare is so important it has to be considered holistically, and cover more than just the encryption of the end device. Windows 8 devices can be fully encrypted but they also plug straight into the secure and manageable infrastructure that healthcare organizations have been investing in for years.

Windows 8 works the way you do.

Whether at a hospital, clinic, accident scene or other setting, clinicians are highly mobile workers. They need solutions that facilitate clinical workflow. Windows 8 opens an era of new devices across many different sizes and form factors so clinicians have far greater choice in the kinds of devices they will use, and where they will use them. There is a consistent look and feel to the user interface. Not only are these devices optimal for accessing and consuming information, but they offer all the options you need for data input including touch, stylus, voice, keyboard and mouse. Whether you are working on a screen just a few inches in size, or many feet in size, these new devices offer the choice, connectivity, user experience and enterprise class services that have all too often been missing in clinical computing.

Windows 8 facilitates communication, collaboration and productivity without compromise.

With Windows 8, healthcare workers can have productivity, convenience and mobility without compromise in a single device. Windows 8 builds on what is great about Windows 7 while creating a modern platform designed for a new generation of hardware experiences for clinicians and other healthcare workers. And, a new generation of Windows 8 apps, built to take maximum advantage of the power, convenience and cost savings associated with cloud computing, is poised to change the way healthcare workers connect with each other and their patients. Windows 8 works with the contemporary clinical, business and personal solutions clinicians need to do their jobs. And, with what’s called “Windows to Go” for Windows 8, clinicians can literally turn any computer into a secure Windows 8 enterprise PC using a bootable USB stick that provides an ultra-mobile work style experience. It’s like having a secure enterprise desktop PC in your pocket.

With Windows 8, clinicians get a user interface that is bright, intuitive and fun to use. There is an amazing choice when it comes to the device type and form factors they want—choices from Lenovo, Acer, Asus, HP, Dell and of course, Microsoft’s own Surface devices. BitLocker encryption helps keep information on Tablets, Ultrabooks and other devices secure. Standard USB ports allow for easy connectivity to useful tools like ultrasound probes from Mobisante, printers, scanners, storage and more. Many devices offer the full range of data input options clinicians need including keyboard, touch, mouse, stylus (including handwriting recognition), and voice. Of course, Windows is also a
platform that is popular with developers around the
globe. So every day, new Windows 8 applications for
clinicians are becoming available, such as reference
materials from UpToDate and Micromedex, or EMR
applications, including a popular new solution from
SAP called EMR Unwired.
This app was designed specifically for hospital physicians
and integrates various clinical source systems including
PACS, clinical archives, and more. The app comes with
built-in demo data, so you can try it out for free.

For more information about Advantech healthcare
solutions, visit www.advantech.com/healthcare. For
more information about Windows® healthcare solutions,
visit http://bit.ly/1aPEOFb. It’s a great time for a new
era in clinical computing!

About the Author: Bill Crounse, MD is Senior Director, Worldwide Health for Microsoft. He is re-

sponsible for providing worldwide thought leadership, vision, and strategy for Microsoft technologies
and solutions in the healthcare industry. As a board certified family physician, he practiced medicine
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CIO and Chief Medical Information Officer for the Overlake Hospital Medical Center and the Overlake
Venture Center in Bellevue, Washington. He is also the co-founder of a technology company dedicated to
improving information exchange and connectivity between physicians and their patients. Dr. Crounse is
known internationally for his work in medical communications and information technology.
Medical imaging markets encompass a range of specific areas where NDSsi’s products are used, including endoscopy, image guided surgery, interventional medicine, and patient and bedside monitoring. NDSsi is the global leader in designing and manufacturing comprehensive medical imaging and informatics solutions for today’s operative and interventional suites.

When considering the features of a surgical video and visualization system, it’s important to remember there are a number of critical elements that impact the overall quality of the video equipment chain. From the endoscopic camera or other source, through the various levels of distribution and processing equipment, and onto the display, surgical imagery must be captured and reproduced accurately and consistently. As we transition to a fully digital world, there are still many pieces of analog equipment in use. This means each device in the video chain must be compatible and allow the system to handle high-definition (HD) and standard-definition (SD) signals, in both analog and digital formats.

By choosing modular-designed equipment to maximize format and signal flexibility, an OR can build in the appropriate amount of future-proofing according to its needs. Clinically-accurate and relevant images delivering a high benchmark of color, contrast and brightness, can enhance a surgeon’s ability to perform a procedure, as well as to recognize tissue abnormalities and make the right decisions in real time. With advances in surgery techniques allowing for an increasing number of minimally-invasive procedures, surgical staff will rely more and more on the quality of the visualization system.
OR Visualization & Integration

Access to multiple sources of imagery is also of key importance for the modern OR. Scans, ultrasounds, X-rays and other patient data may be required during certain procedures, giving the surgeon a more complete picture. But instantly bringing all of this imagery into the field of view can be challenging. The OR video equipment chain must be able to provide picture-in-picture, split-screen imagery, format conversion and scaling, as well as display different video formats on the same screen (Multi-Modality Imaging).

In previous years, ORs were cluttered with numerous pieces of video processing equipment to make this happen. The future trend is toward consolidation of a myriad of processing tasks into more advanced, compact, multipurpose platforms designed to deliver lots of processing capabilities while saving valuable space.

NDSsi’s Medical Visualization Informatics Platform

Driven by technological innovation and real-time knowledge of medical imaging needs, NDSsi developed ConductOR, a Medical Visualization Informatics Platform. This customizable, video integration solution enables routing of virtually any medical imaging source to the surgeon’s field of view and beyond.

The medical-grade appliance can serve as the visualization informatics backbone for integrated operating theaters, enhancing clinical workflow and improving overall efficiency.

The solution provides matrix switching functionality within the OR, and HD video streaming over IP networks to enable telemedicine applications beyond the OR. It addresses the needs of the surgical suite by delivering the functionality of a typical video rack in one medical-grade appliance.

Application Synergy

In a recent project in a Norwegian hospital where Advantech and NDSsi were both involved in an integration project, the parties came together with enthusiasm to implement a combined solution in one application. The result made them realize and understand the added value of including the Advantech POC-W211 Point-of-Care terminal into NDSsi’s OR visualization & integration solution with the ConductOR platform.
In this application, the Advantech POC-W211 Point-of-Care Terminal serves perfectly as a medical-grade user interface to control ConductOR (POC-W211 is a point-of-care terminal designed for various applications in operating rooms and ICUs, including patient monitoring and Patient Data Management Systems (PDMS) that comes with a versatile array of options that fulfill a variety of medical usages cases).

The project produced an easy, touch-controlled distribution system for different medical imaging sources to be routed to any output, including multiple displays. Because of its compactness, this touch-controlled, all-in-one medical platform can be positioned centrally in the OR, within easy reach of anyone on the operating team.

- All-in-one, medical-grade, touch controlled video routing solution
- Matrix switching functionality allows any input to be routed to any output
- Advantech POC-W211 Touchscreen allows easy control as a stand-alone unit
- Modular design enables flexible configuration options
- Built-In HD video streaming over IP networks

By taking an integrated approach to video equipment planning and upgrading, ORs can be rid of oversized, obsolete A/V racks, excess cables and wires, and older equipment, and equipped with more energy-efficient, space-saving devices. The new systems enable the distribution of HD-quality images from compact integration appliances and operating practices that offer a safer, more efficient OR for both patient and surgical staff.

Curious to see the ConductOR - Advantech application running live? Visit the Advantech booth (D42, Hall 15) and NDSi booth (F14, Hall 10) at the Medica 2013, 20-23 November, Düsseldorf, Germany.

www.ndsi.com – marketing-emea@ndsi.com

Jens Ruppert, Vice President and General Manager Surgical Business Unit, NDS Surgical Imaging
A REFRESHING LOOK AT THE CENTRAL MANCHESTER UNIVERSITY HOSPITAL PEDIATRIC INTENSIVE CARE UNIT

Tom Fiander, Technical Sales Executive, ECA Ltd

The Central Manchester University Hospitals – NHS Foundation Trust in the UK is comprised of six major hospitals in the Manchester area. ECA Health, a medical computing system integrator, has developed a variety of solutions for the Trust over the years. ECA is Advantech’s Premier Partner for Digital Healthcare products in the UK and Ireland. The decade long partnership has facilitated ECA’s success in many of its projects and underpins the strong bond between it and the Central Manchester NHS Foundation Trust.

Technology Refreshes Take Advanced Planning

Technology refreshes are usually anything but refreshing. Even with the best of intentions they can cause disruption and time lost if the proper planning is not done. At a hospital, disruptions are not on the agenda: they are costly and potentially dangerous. So, when the Central Manchester University Hospitals – NHS Foundation Trust decided to upgrade its Pediatric Intensive Care Unit with modern point-of-care terminals, they turned to ECA Health for help in designing a solution. ECA has been working with the Trust for a number of years on similar projects used in the hospital’s Pediatric ICU and in support of the entire critical care anesthetic suite, and they have built up its trust with the hospital.

Planning, Partnership and Product Features Spell Success

As ECA began planning the refresh, they began working with staff to define the requirements of the project. The hospital needed point-of-care terminals capable of running 24/7 in a medically-controlled ICU. Phil Thomas, Chief Technical Officer, Department of Anesthesia, at Manchester Royal Infirmary, helped ECA build a requirement’s list. He told ECA that the terminals would be used in a clinical environment, close to the patient. He said they needed to be easy to clean to eliminate potential sources of bacteria. And he said that two essential features the hospital would like in a real-time data collection system, were having a battery backup for continuous use as well as wireless networking capabilities for portability. From this input, ECA was able to outline key requirements for the project.
ECA turned to its long-term partner, Advantech. The two companies have worked together successfully for over a decade in strong partnership. After reviewing the requirements for Central Manchester University Hospitals - NHS Foundations Trust, ECA recommended Advantech’s POC-S177 Slim Point-of-care terminal be installed in the hospital’s Pediatric ICU. The POC-S177’s specifications more than met the hospital’s requirements:

- 17” LCD display, with resistive touchscreen
- Fanless design with low audible noise
- Isolated electric design for COM/LAN ports
- IPX1 water resistant enclosure; IP65 rating
- Dust-tight front panel
- UL60601-1/EN60601-1, CE & FCC Class B certified
- Intel® Core™2 Duo 1.2 GHz processor, 800 MHz FSB
- 2GB RAM, 250 GB HDD
- WLAN Module

Don’t Forget Excellent Technical Support
ECA assisted the hospital in the successful upgrades to their ICU area. Advantech supplied the POC-S177 terminals which were mounted to Draeger Primus Anesthesia machines in the hospital’s operating theaters. ECA continues to provide ongoing support to the Trust and has implemented a local warehousing center in nearby Reading, to be able to quickly respond to support issues with local stock, a repair center and custom images.

The Result is a Happy Customer
Post-installation Phil Thomas was pleased, saying “[the POC terminals] have been incredibly reliable since we introduced them.” He added, “A number of them run 24/7 and there have been no issues with them at all. As they are used in a clinical environment, close to the patient, ease of cleaning was an important factor when choosing the systems. As the POCs have certified ingress protection, we were confident that using disinfectant wipes would not be a problem and that has been borne out in use. They have now been further purchased across the organization including our new critical care unit. Performance-wise they have exceeded our expectations. The addition of wireless networking and battery backup has also allowed us to bring in resilience in our application.”

Long-term partnership, careful planning and rock-solid solutions are the key to a successful technology refresh. The benefits of POC-S177 to Central Manchester University Hospitals – NHS Foundation Trust are:

- ease of cleaning
- IP Protection
- high performance computing
- fanless and noise-free operation
- reliability
- longevity support
- wireless capability
- advanced battery backup

WPC 2013
Time: November 9th-11th, 2013 Location: Jiangsu, China

Advantech Digital Healthcare invites you to the Advantech World Partner Conference in Kunshan, China. Come find out how collaboration is building intelligent hospitals. We’ll showcase intelligent outpatient services, quality nursing care, and the integrated operating room. Advantech’s solutions increase efficiency, enhance efficient nursing care and integrate critical data. Our partnerships with premier medical equipment manufacturers stimulate innovation and lead to the creation of world-class healthcare solutions. We’ll work with you every step of the way. You can visit us on the 8th floor.
It has been three years since Alphatron started working intensively with several hospitals; the goal was to find the most effective solution for dispensing medication in hospital wards. These partnerships started after we presented our concept designs for the AMiS care station. By introducing the modular AMiS care station to the hospitals, we showed them we had taken the necessary first steps towards offering a complete, and more importantly, completely usable, mobile solution for hospitals. AMiS has been designed for maximum user friendliness for care providers, being both practical and comfortable to work with in close proximity to the patient. This facilitates high acceptance of the device by the hospital as a caregiver mobile workstation.

**AMiS - the Mobile Intelligent careStation - complies with all requirements**

Using AMiS, the care provider has the Electronic Patient Record as well as the eMedication Administration Records immediately at their disposal, anywhere and anytime. Along with all the additional medical tools that can be easily added to AMiS, this innovative care station is the ideal workstation, enabling care providers to attend to patient needs at their bedside without difficulties. AMiS further reduces the administrative burden on the organization, complying fully with the requirements for hygiene, ergonomics, ICT and medical technological security.
Experience from pilot tests using existing medical carts
From pilot tests studying the use of existing electronic medical carts in hospitals we arrived at a number of remarkable findings. One of the most important drawbacks only came to light after longer tests (> 3 months). The findings showed that the existing medical carts were too unwieldy for daily use and were not deployed directly at the bedside due to their poor maneuverability; nurses would routinely leave the carts in the hallway. The intended goal of dispensing medication at the patient’s bedside, was therefore not achieved. The pilot failed because it did not provide the necessary guarantees using barcode assisted medication dispensing.

The existing medical carts were not being used as hospitals had intended. The carts were left in the hallway during medication dispensing rounds, increasing the risk of mistakes. Surprising results, don’t you think?

Increasing demand for AMiS Medication dispensing Cart
The Dutch pilot hospitals put out an urgent request for the development of a convenient and compact electronic medical cart. The proposed AMiS medication box that can be attached to the modular AMiS care station was already pre-ordered by all pilot hospitals. This pushed us positively to speed up the development of this unique solution, and because of their belief in the AMiS concept we were able to deliver the first medication boxes in the final quarter of 2012.

We are excited about the fruitful cooperation taking place between healthcare institutions and the industry leading to the delivery of improved solutions for better and safer patient care.

AMiS Medication Dispensing System CL16P
The AMiS MDS CL is a medication box with 16 spacious medication containers. The medication box features a touch display using a pin code to close or open all of the medication containers at the same time. The intelligent system features an electronic locking system allowing care providers exclusive access to the medication. In order to safely manage drug dispensing at all times, the system also features a programmable timer which will close the medication box automatically at a specified time. This means that even if a mobile work station is left unattended, all medications will automatically be locked away safely. You can read more about this innovative medication box on our website, www.alphatroninnovations.com/articles/medication/
A VISION COME TRUE

How Disappointment of Masanté Turned into Success

Alexandre De Jonge, Founder, Masanté

“I am a doctor not an IT-specialist. Give me a system ready to go. I want to turn it on and start right away,” said the wishful physician responsible for purchasing IT-infrastructure equipment for his department. And with that, a million dollar negotiation came to an end. From that defeat came the birth of a brilliant business model. In 2005, Alexandre de Jonge and Kenneth Brown started their own enterprise, Masanté. Their vision—make hospital information systems successful and ensure that hospital staff liked to work with them.

What happened at that time?

deJonge:
It was a crazy situation. In 2005, hospitals were pretty well computerized in the administrative areas, but had absolutely no computer-based support for medical care. The company I worked for at that time invested a fortune in developing a software system for hospitals. We were proud of how fast we could access laboratory data. But every time we talked to senior medical staff, our words fell on deaf ears. Without a reliable terminal the best software is useless, and at the end of the day we only could sell our software in combination with hardware. When we began negotiations with medical staff, they wanted the convenience of one-stop shopping. That didn’t match my employer’s strategy. My boss wanted me to sell only software. We lost valuable orders. That created a desire in me to come up with a better solution. Starting MaSanté was the result.

Wouldn’t working with an integrator have solved your problem?

deJonge:
Not really. I listened carefully to what users told me. Just having an appropriate computer was not the critical point. The users wanted to continue to work the way they were used to. I kept asking myself what it was that caretakers and physicians really wanted? How could we motivate clinical staff not just to buy IT-systems but also to really put them to use? It quickly turned out that available ready-to-buy components were only a part of the user’s expectations.

What was your vision?

deJonge:
It is the vision of MaSanté to design hospital information systems which make life of medical caregivers easier, help patients get better, and generate a return on investment for the hospital. Namely, the best technology, the right features, convenient to use and with fast amortization.
Sounds as if that means you own development?
deJonge:
Doing our own development would have meant reinventing the wheel. There are already companies on the market which have a huge know-how in very specialized areas.

You do not develop your own components and there are no perfectly matching parts available. So how do you meet your goals?
deJonge:
MaSanté partners with selected companies and influences their product development. That is how we get the best global solutions for our very specific requirements. We do not care so much about the technical details of existing products. What we ask ourselves is which company has the right strategic attitude, financial power and the appropriate technology to provide us with functional solutions. For our part, we manage the aspects of sales and technical project management. We talk to hospitals all around the globe, and have found that people have the same requirements no matter whether they are in Australia, France, Singapore or Abu Dhabi. We bundle all the ideas and suggestions we receive into a universal concept. That is the way our product MonAmi came into being. It’s a patient health terminal integrated into an over-the-bed table.

In your opinion, what is MaSanté doing differently compared to other companies?
deJonge:
Real market intimacy is our absolute strength. Physicians, nurses, IT and hospital managers are all part of our team. They do real work in hospitals and we get their advice. We have our finger on the pulse of what is happening in healthcare centers; we are closely involved in each area and also gain insight into what is going on behind the scenes. That is what drives us, delivers ideas and opens doors worldwide.

It took you seven years to get your first product sold. Did you ever doubt your vision?
deJonge:
There was no time for doubts. In 2005 I left my old employer and started planning and organizing. In 2006, we combined the hardware that was available to build our first prototype. That solution was too bulky for doctors and caretakers; they asked for a more streamlined system that could be placed closer to patient beds. We continued developing. By 2008, MaSanté was founded and at the same time our first sellable prototype was ready. But its feet were too high to fit all the beds out there. We continued making improvements. In 2009, three hospitals qualified our reworked prototypes, in 2010 production started, and by 2011 a one-year-trial phase conducted in three hospitals came to an end. One academic hospital, one private-care-for-cancer institute, and one general hospital put our MonAmi to the test, throwing every trick in the book at it. This trial by fire validated our system right from the start.

Did your partners show understanding of the long leadtimes for your product development?
deJonge:
It was not always easy but at the end of the day we convinced our partners by maintaining our strong focus, our enthusiasm and building successful prototypes. Advantech understood straight off what tremendous momentum our solutions could give to the healthcare IT-market. They stayed with us all the way.

Where does the path lead to, what are users looking for?
deJonge:
Appetite comes with eating. Smart people work in hospitals and they are bubbling with ideas. That is our source for innovation. The basics stay the same. Medical IT has to be close to the patient and every caretaker who needs it, has to have access to patient information. That implies that a 500 bed hospital needs 500 computers. Needless to say, systems have to be affordable and fit into areas where space is at a premium. It is important that our solutions are convenient, and maintenance and replacement has to be simple. All these requirements are finished in an over-the-bed table solution which must be connected to existing cabling. We have to guarantee that only authenticated staff can access data; data integrity and safety have to be ensured.

Alexandre De Jonge
Founder, MaSanté

The interview was conducted by FraukeFerrisch-Waldmann, makomti
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- Optional Bluetooth, RFID inner WLAN module, Li-ion battery pack
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