

# APPULSE HEALTHCARE PRACTICE

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SOFTWARE SERVICES OFFSHORING FOR SMALL AND MIDSIZE BUSINESSES

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- Ability to develop software for integrated solutions (i.e., medical devices, and medical informatics products working together in real time.
- Experience of working in Diagnostic Imaging and Image Management solutions involving standards like DICOM and for workflow systems involving PACS.
- Implemented Electronic Medical Records (EMR), and Real Time Video Conferencing solution for linking Doctors, and Patients in Tele-medicine system
- Stringent norms for IP Protection, Data confidentiality, and security

## EXPERTISE AREAS

- Medical Informatics
  - Device Management
  - Patient Monitoring Services
  - Tele-Medicine Systems
  - Diagnostic Imaging
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- ISO 9001 Certification
  - Experience in working with ISO 13845 compliant Processes
  - Experience with Regulatory requirements such as HIPPA and HL7



Government of India

# Case Study - ImageStreamMedical Inc

## BUSINESS SCOPE

- Provide an innovative and productivity enhancing integrated control solution for operating rooms (OR) and EndoVascular suites
- Key requirements for this project included a competency in video and image management,
- Ability to provide real-time visualization of the OR from remote locations.
- In each OR, staff will have complete touch panel control over video, lighting, audio, XM radio and hands free telephony.
- Video Conferencing for helping surgeons demonstrate live surgical procedures to students.
- Interface and control a variety of hardware include streamers, decoders and PZT cameras.

## APPULSE SOLUTION

- Appulse proposed a .NET Framework based architecture to control how the video was routed, user access control and provided hooks for video streaming across the Hospital LAN.
- XML based API such that multiple types of clients can interface with the system ( web browser, thick clients, mobile devices)
- Highly Fault-tolerant system so that if one module crashes, the overall application is not affected. Crash Recovery in case of software failure.
- Developed a custom protocol to synchronize data transfers for smooth playback.
- Cache Management to reduce network traffic and improve response.
- An easy to use video editor was developed for doctors to create and edit videos for educational demonstrations.

**Platforms and Databases:** Windows Vista, 2003, Macintosh, Windows CE / Mobile, Embedded Windows XP, All Browsers, Connectivity: IrDA, USB, Bluetooth, Serial, SQL Server, RAID Storage

**Technologies:** C/ C++, C#, .NET, Agile Processes, WPF/XAML, WCF, MFC, IDL, XML, XSL, Windows Services, Sockets, Multithreading, Drivers, HIPPA, HL7, Object Oriented Design

# Case Study - ImageStreamMedical Inc

MainStream OR provides a two way communication route between ORs and other locations on the hospitals network. Each OR and procedure room, as well as any properly configured PC on the hospital's network has a direct connection to a VaultStream server, which acts as a central repository for all video and images produced during the procedure. With the addition of LiveStream to a network server, properly configured PCs can view any video source in the OR.

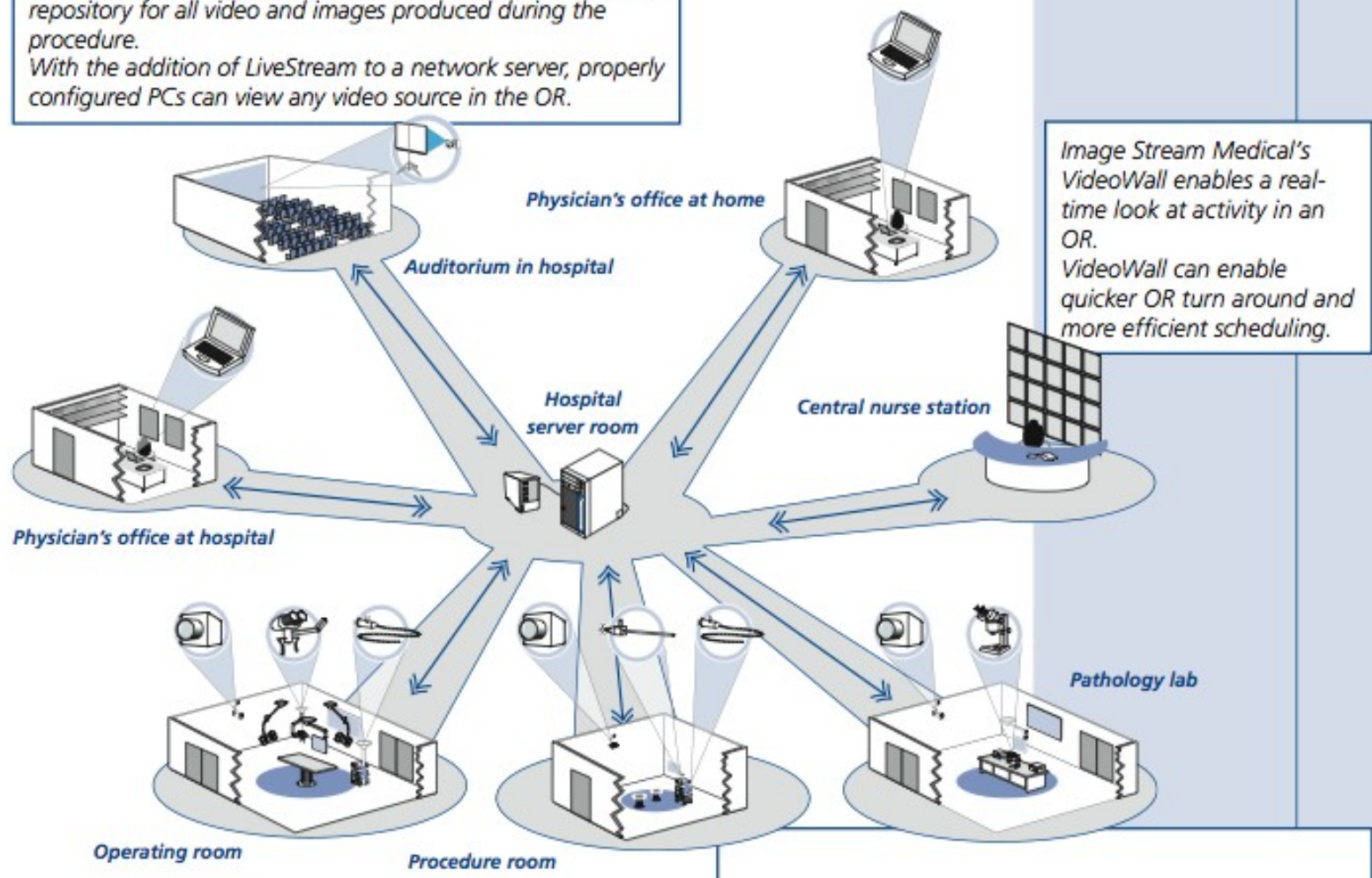


Image Stream Medical's VideoWall enables a real-time look at activity in an OR. VideoWall can enable quicker OR turn around and more efficient scheduling.

# Case Study -Tele-Medicine Software

## BUSINESS SCOPE

- Create a Tele-medicine software which can be deployed in Indian villages and towns where there is a lack of good quality healthcare facilities.
- A self-sufficient system with ability to create and maintain long-term electronic medical record (EMR) of patient, view, connect, transmit, and retrieve expert opinion.
- Medical Data Transfer and Real time Audio/Video conferencing on low bandwidth.
- Easy use for non computer-savvy doctors and paramedics.
- Uploading of images, audio file and video files needs to be supported.
- Supports offline, online, and interactive telemedicine with support for multiple devices.

## APPULSE SOLUTION

- Appulse proposed a .J2EE Framework based SOA architecture which was designed is highly extensible and open architecture for supporting future requirements on the system.
- Architecture Salient Points –Scalability, Reusability, 10% up-time with fail over support, Clustering, Data Storage on SAN hardware, Master-Slave database replication.
- Electronic Medical Record Storage was done as per the approved standards of DIT, and Government of India and data exchange was using HL7 and DICOM standards.
- REST SOAP based APIs so that multiple types of clients can interface with the system ( web browser, thick clients, mobile devices)
- Cache Management using MemCache for reducing the response time on low bandwidth connections.

**Platforms:** Windows 2003 Server, All Browsers (IE, Firefox, Safari, Chrome), Device Connectivity: IrDA, USB, Serial, SQL Server, SAN hardware

**Technologies:** MVC Framework, Servlets, JSPs, POJO beans, JDBC API, Jboss Application Server, Agile Processes, XML, XSL, DICOM, HL7, Object Oriented Design

# Case Study - Tele-Medicine Software



Doctor | Logout

## TeleMedicine

- ◆ Home
- ◆ Pending Request(s)
- ◆ Reports

### Appointment - Fever

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**Patient Details**

Registration Number: KIO32631308806286	Patient Name: test
Father/Husband's Name: testing	DOB: 2009-03-17
Gender: M	Age: 0

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**Disease Questionnaires**

Question: \* Have you eat food?  
 Answer:  Yes  No

Question: \* Have you sleep food?  
 Answer:  Yes  No

Question: What the patient Has take in food?  
 Answer:

Question: Additional Comments  
 Answer:

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**Doctor's Comments**

Observations:

Prescription:

