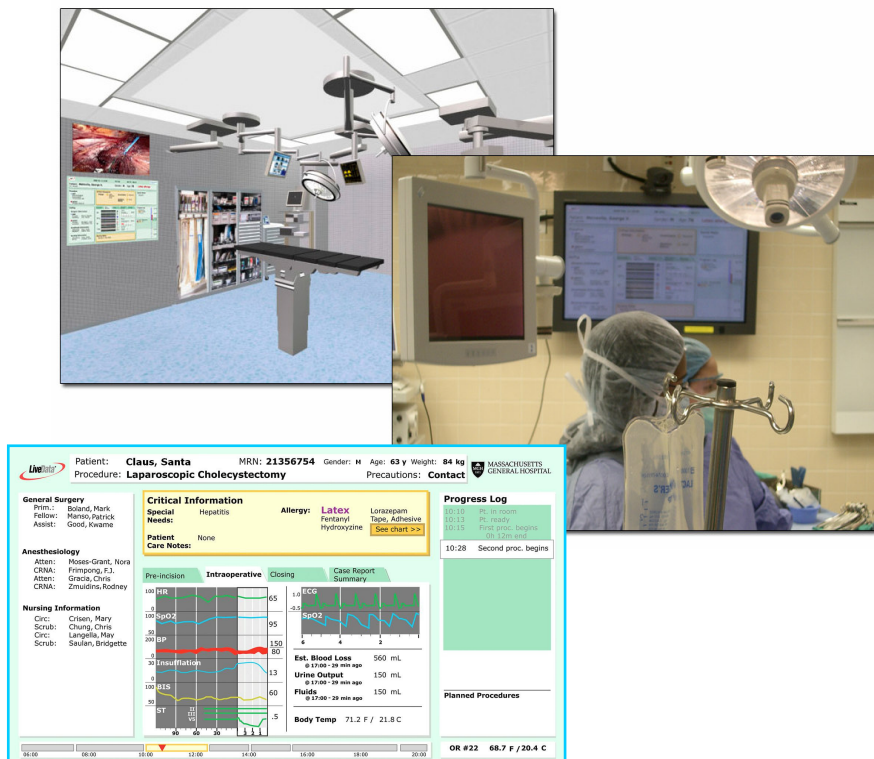




Creating the Visually Integrated Hospital

LiveData is dedicated to making it possible, for the first time, for everyone in the hospital to be on the same page. We do this by closing the gap between the work processes of the hospital staff and the myriad IT systems and clinical devices, bringing disparate information together in meaningfully context-aware visual displays we call "Visual Applications." These applications augment the existing hospital infrastructure, to enable team members to be more aware, respond to exceptions, make critical handoffs, and in general work more effectively by having the right information, in the right form, at the right time. A hospital augmented this way becomes the "Visually Integrated Hospital."



Underlying these Visual Applications is a proven real-time data integration engine we call the Visual Data Engine (VDE). This software serves to unify disparate systems, bringing together information from different vendors' applications and data structures, and delivering real-time data streams to applications that can, in turn, synthesize, display, and help users to manage complex, dynamic environments.

LiveData OR-Dashboard is the first of many visual applications enabled by the LiveData VDE. OR-Dashboard, described in more detail below, brings together all of the information the OR team needs to know about a patient or operation, and presents it in an easily internalized form on a large-screen display. Additional visual applications offered by LiveData include: Radianse Capacity Management, utilizing



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RFID-based indoor positioning systems to track patients, key assets and processes; and LiveData's Clinical Portal, which uses web technology to deliver real-time visual displays of PACS, Pathology, Digital Video and other monitoring systems.

LiveData real-time data integration and display technology makes the "virtual" hospital a reality, enabling medical centers to serve patients anywhere via web-based telemedicine and telementoring services. Viewed in this light, LiveData offers strategic technology to our customers, bringing a clear vision and the requisite tools that utilize real-time integration and display technology to solve hospitals' most pressing problems.

LiveData OR-Dashboard



LiveData OR-Dashboard at Massachusetts General Hospital

Since 1991, LiveData has provided real-time data management solutions to the electric power and manufacturing industries. In 2003, LiveData joined CIMIT, a non-profit consortium of academic and research institutions founded by Partners HealthCare System, Massachusetts General Hospital, Brigham and Women's Hospital, Massachusetts Institute of Technology, and Draper Laboratory. LiveData joined CIMIT with the objective of applying its real-time data integration and display technology to fundamental challenges in patient care. Working with CIMIT and clinical experts at Massachusetts General Hospital, LiveData developed LiveData OR-Dashboard.

Patient safety improvement in the OR requires systems that simplify the environment and augment staff capabilities. LiveData OR-Dashboard captures and integrates patient data from diverse sources – including physiological monitors, anesthesia equipment and patient record systems – into a comprehensive yet concise view of the patient's status, displaying the information on an "electronic whiteboard" in the OR. This immediate, single view summary to the OR staff increases their ability to respond quickly and accurately to changing events. LiveData's web-based display enables authorized users anywhere to view the identical images seen by the OR team.



By getting everyone on the same page, and making certain that, at critical junctures, key patient information is known and exchanged, LiveData OR-Dashboard facilitates effective handoffs and helps prevent foreign body retention, wrong site / wrong side / wrong patient surgery, allergic reactions, and adverse drug events. Advanced clinical decision support and OR readiness monitoring capabilities assist the OR staff by freeing them from routine tasks, allowing them to focus on the patient. In addition, the data archiving and analysis capabilities of the LiveData system allow retrospective analysis of OR errors and their root causes.

LiveData's expertise in real-time data management, disparate systems integration, data communication protocols and user interface design for mission-critical systems makes LiveData uniquely qualified to develop systems for the operating room. The US Army recognized LiveData's unique capabilities, awarding a series of Small Business Innovation Research (SBIR) grants to LiveData. A Phase I award was issued in December 2003, followed by Phase II and II Plus awards, totaling \$1.3 million.

The LiveData OR-Dashboard system has been installed and is fully operational in the CIMIT / MGH Operating Room of the Future, and at Memorial Sloan-Kettering Cancer Center, in its 21 new operating rooms. Tours may be arranged upon request.

LiveData OR Dashboard – Visual Product Description

Case Setup – Before Patient Arrives at OR

The screenshot displays the LiveData OR Dashboard interface for Case 4585. The patient is Santa Claus, M, 23 M, 14 kg, with MRN P-4585, under General Anesthesia in OR #68, with a temperature of 71 F / 21 C. The procedure includes Tracheoesophageal fistula repair, Pediatric Gastrostomy tube placement, and Pediatric Jejunostomy tube placement. Allergies listed are Latex, Lorazepam, Fentanyl, Ketorolac, Hydroxyzine, and Penicillin. Staff assignments include OR Nursing (Murphy, McCrady, Herrold, Guinevere, Hobbs, Raine, Hiles, Gareth), Anesthesiology (Larson, Bonnie; Richardson, Shawn), Pediatric Surgery (Herndon, Piety; Hoffhants, Alex; Townsend, Wymond), and Other Surgery (Candies, Essie; Harper, Payton). The induction room is also noted. The Case Setup section lists equipment like a Rigid bronchoscope and a Flexible gastroscopy. The Nursing Assessment shows Pre-Op done by Jori Sorenson, completed at 11:38 on Dec 12, 2005, with Pre-Op Meds of SC Heparin. Patient status is confirmed as voided, eaten (NPO), allergies verified, and pneumatic boots on. Inplants include the left knee. The progress log and patient care notes sections are currently empty. Post-op information indicates the family is waiting and a 23-hour observation is planned. A timeline at the bottom shows the current case (12:30-15:30) and other scheduled cases.

LiveData OR-Dashboard at Massachusetts General Hospital

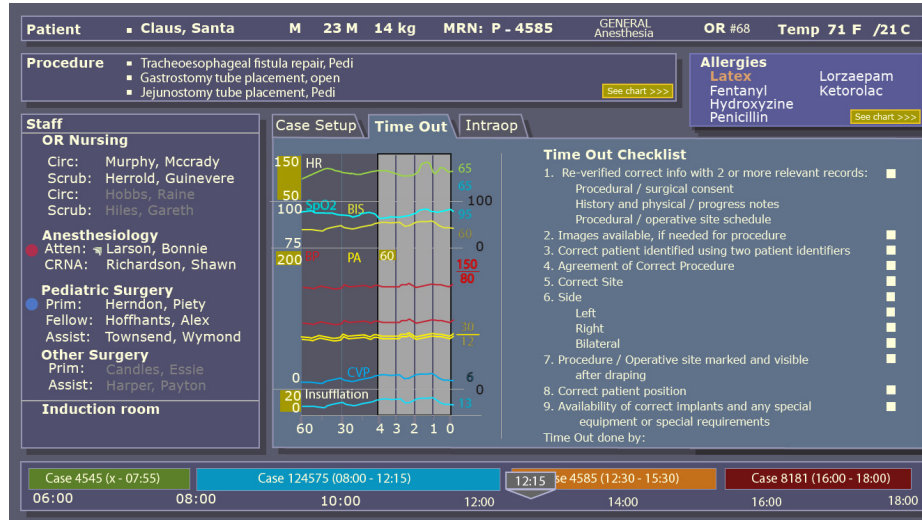


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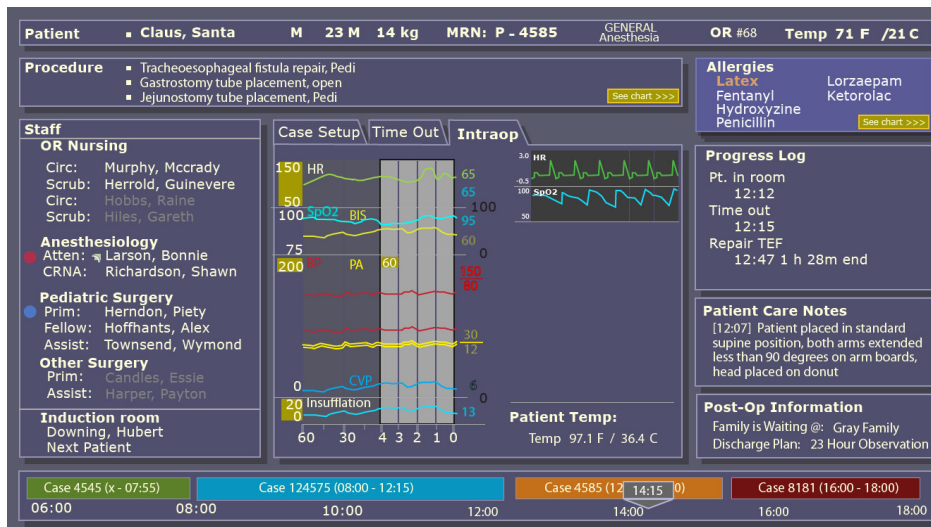
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Time Out / Safety Pause – Patient Ready for Surgery



LiveData OR-Dashboard at Massachusetts General Hospital

Intraoperative View – Surgery Underway



LiveData OR-Dashboard at Massachusetts General Hospital



Closing Safety Checks / Preparation for Transfer

The screenshot displays the LiveData OR-Dashboard interface for patient Claus, Santa V. on Jan 11, 2006 at 12:20. The interface is divided into several sections: Staff (Nursing, Anesthesia, Surgeon, Support), Critical Information (Special Needs, Allergy, Nursing Notes), Summary (Medication, Counts, PACU), and Progress Log. The Allergy section highlights a Latex allergy. The Progress Log shows a timeline of events from 09:10 to 19:55, including anesthesia start, surgery start, and extubation. A legend at the bottom right identifies planned procedures for Orthopedics, Oncology, and Urology.

LiveData OR-Dashboard at Memorial Sloan-Kettering Cancer Center

LiveData OR-Dashboard Benefits

LiveData OR-Dashboard enhances patient safety, preventing foreign body retention, wrong site / wrong side / wrong patient surgery, allergic reactions, and adverse drug events:

Better team communication reduces potential for error:

- Key patient information is visible to the entire team, getting everyone on the same page. A latex allergy, for example, will be visible to everyone, from the OR setup, to pre-incision safety check, and throughout the operation.
- Anyone can spot problems. Because everyone on the team can see key physiological trends, there will be fewer missed trouble signs and a faster team response.
- Shows who is in the room, and who should be there – lets people ask for help by name, creating a more communicative team, and eliminates confusion when people are missing.

Enhance process discipline and information hand-offs:

- Workflow screens reinforce process discipline, eliminates forgetting of basic safety procedures. For example, the team may not advance to the active surgery until all have reviewed and accepted the pre-incision checklist.
- Instantly communicate information about the patient and operation. Reports can be automatically generated that go with the patient to post-anesthesia care.
- operations as they happen.



Improve team performance with better, experience-based training with the ability to replay operations:

- The ability to replay operations opens the door to dramatically enhanced clinical training. LiveData time synchronizes OR data with video taken of the operation, so the entire operation can be stored, analyzed and replayed.

LiveData OR-Dashboard also offers significant opportunity to enhance the hospital's reputation, increase revenue and reduce costs:

Telemedicine and Telementoring extend expertise beyond the OR

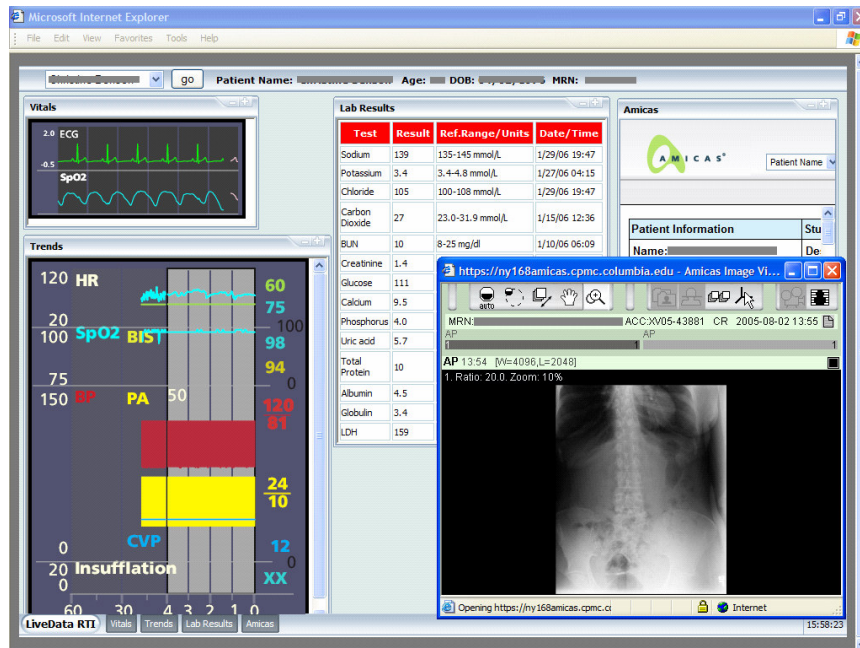
- Web-based services enable authorized experts anywhere to offer live consultations to any organization, anywhere, that will benefit from their expertise.
- Extends the reach of hospital services, and presents the opportunity for new revenue streams

Increase on-time operation, reducing overtime, staff downtime, and the need to reschedule

- Reduce set-up time – by providing clear instructions about the upcoming operation.
- Reduce incidents of delivering the wrong patient to the wrong OR.
- Stay on schedule – by graphically showing the team elapsed time, and time remaining until the next operation.

Other Visual Applications

LiveData Clinical Portal



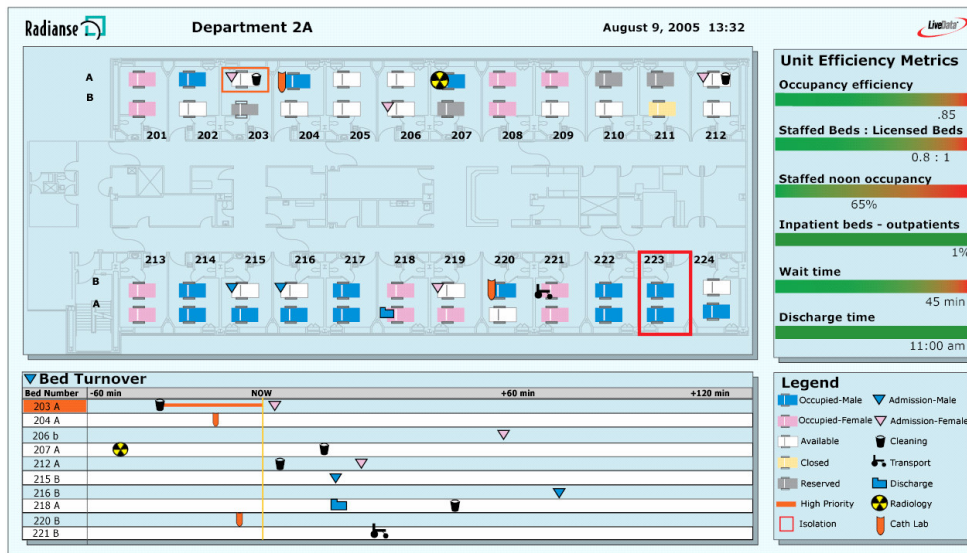


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Radianse Capacity Management Visual Process Management with Radianse Indoor Positioning



About LiveData

LiveData, Inc. is the leading innovator of real-time data integration and display technology, addressing the data, application, and process integration needs of mission-critical operations. LiveData solutions continuously monitor, synthesize, and respond to highly complex, multi-faceted processes, spanning hundreds to tens of thousands of devices, diverse protocols, systems, and databases.

LiveData customers include leading healthcare institutions, Fortune 1000 energy companies and utilities, manufacturers, and state and local governments. Founded in 1991, LiveData is headquartered in Cambridge, Massachusetts.

For more information, visit LiveData's website, at www.livedata.com.