



VIMS
Vital Image Management System





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For most healthcare organizations today, the flow of image data between hospital staff and central archiving systems is critical to the vitality of the enterprise and to improved patient outcomes. With technological advancements, the increasing size and amount of data call for a better way to present and store this data.

Vital Images saw the need for an architecture that consolidates all this new data into a single, secure management solution that provides broad access options, ranging from the Web to an EMR.

One Solution | Thin and Power Clients Sharing the Same Data

A key part of our solution is the Vital Image Management System (VIMS), a centralized server that efficiently takes enormous amounts of image data from the scanner and, in a single push, makes it available to multiple users anywhere. By centralizing data management, clinical pre-processing and distribution of imaging data and tools, VIMS is able to optimally manage the data explosion created by demand of thin-slice CT scans.

VIMS provides flexible access to 3D information from advanced visualization workstations, a PACS workstation, through a Web browser, or integrated into the EMR. It utilizes off-the-shelf hardware and leverages industry standard interfaces to seamlessly integrate with and leverage an existing enterprise or IT infrastructure.

VIMS offers a consistent thin-slice data visualization experience, with a remarkably short time to first image, bringing robust 3D advanced visualization to the entire enterprise.

Key Features

- Consistent view among any user of the system from virtually anywhere within the enterprise
- Compatible with CT/MR/PET and other scanners you use today
- Option to integrate with your existing enterprise or IT solution; many integrations available today
- Removes resource competition with PACS by managing massive thin-slice CT data
- Secured by fault-tolerant and redundant design options
- Communicates with Vitrea Advanced and Vitrea Core
- Reduces hardware costs through leveraging commodity hardware components
- Lightens the network load by using unique lossless volume compression
- Integration
- Dramatically reduces the time to first image

Optimally manage

the data explosion

created by demand

for thin-slice CT scans.



“ Enterprise deployment has increased the penetration and growth of advanced visualization across the hospitals and departments. The process has certainly been more streamlined and controlled. Software updates affecting all users can be handled centrally—and automatically—because the next time a user logs in from his or her workstation or personal computer, the latest software is what will be there. We are able to not just manage deployment across the different areas of need, but also track usage, fixes, upgrades and enhancements from a centralized control hub. ”

Rasu B Shrestha, MD, MBA

Medical Director, Digital Imaging Informatics and Chief, Radiology Informatics

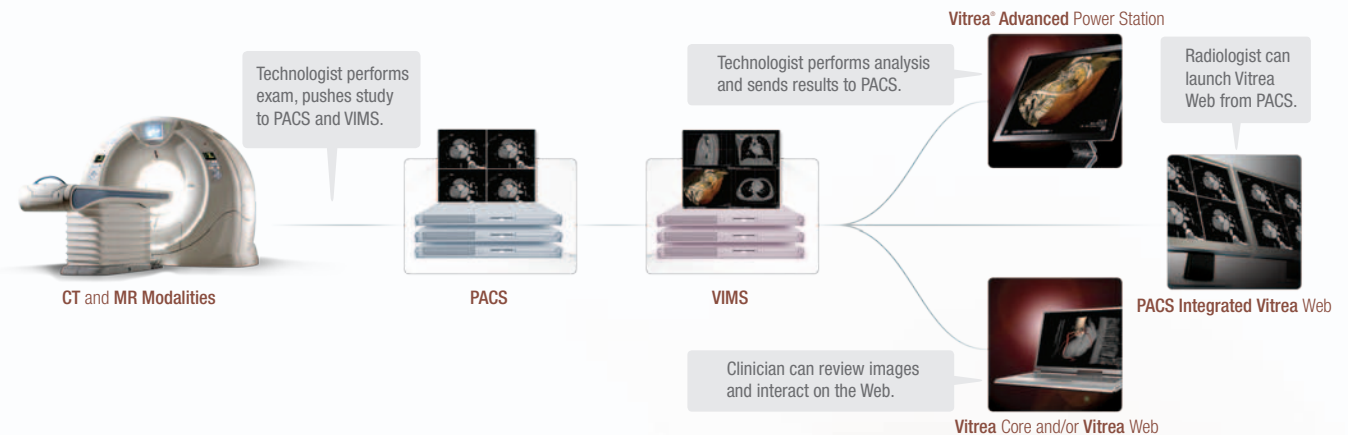
University of Pittsburgh Medical Center

Three Key Principles of Architecture

The VIMS centralized server enables access to images anywhere at any time. This single repository is designed around three core architectural principles that facilitate scalability, serviceability and delivery of fault tolerance:

- Clinical Applications
- Data Management
- Storage Management

In today's dynamic hospital environments, these tools have been proven to cost-effectively meet the demands of a 700,000+ case-per-year facility.



Scalability in your hands

Each dimension can be expanded separately with off-the-shelf hardware. Whether you want to increase the number of concurrent users or the amount of data flowing through the system, it's easy to determine your needs and match them to the hardware from your chosen vendor. We simply increase and reconfigure the system's capabilities when demand goes up. There's no need to buy expensive proprietary hardware.

Flexibility as usage grows

- Allows concurrent user sessions
- Scales easily as study volume increases
- Leverages existing storage

High Availability

The Vital Images solution provides high availability operation protection by offering configuration options with no single point of failure.

Vitrea Core and Advanced Nodes

Proactively manage all user sessions; work independently for each customer login. If a server goes offline for any reason, the system is able to detect this in real time and ensure that no new sessions are assigned to that resource.

Data Application Servers

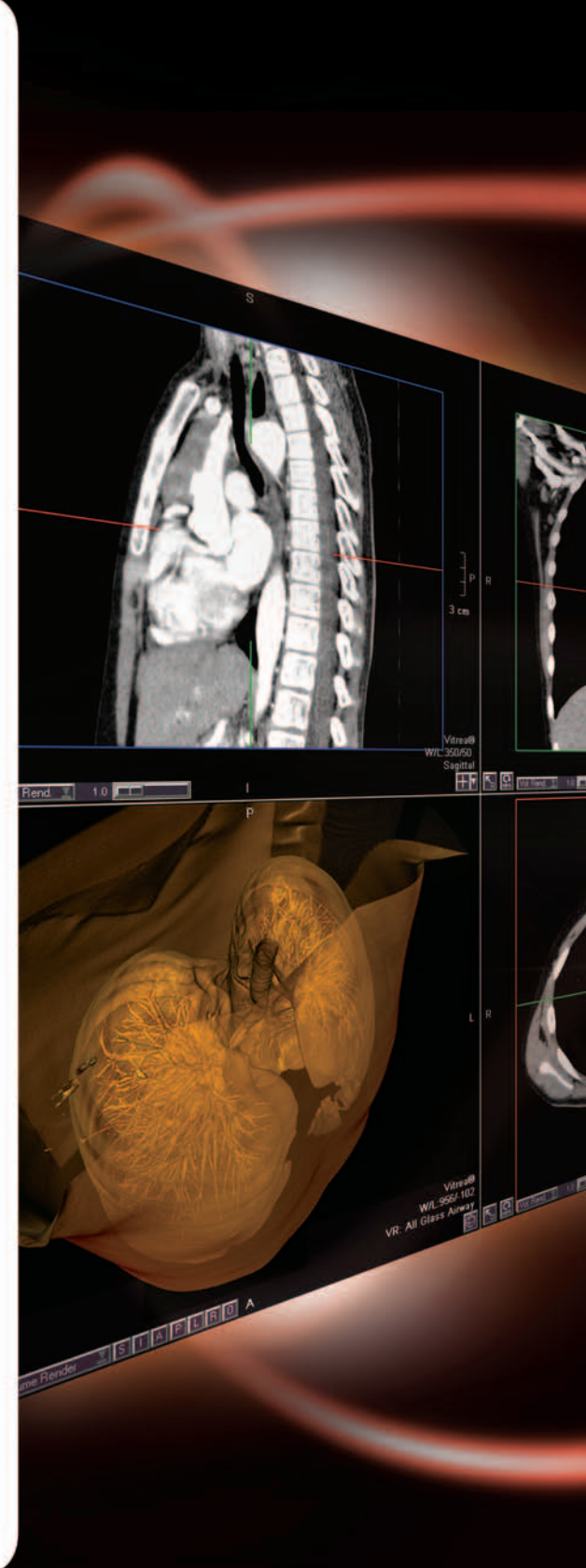
Manage DICOM information and Vital data processing in order to optimize the user's viewing experience. VIMS can leverage any industry standard network load balancing technologies. Two available options can provide either a software-only solution or a full hardware Layer 5-7 Switch. At the database layer, Application Servers leverage SQL Server 2005 as a high-availability mirrored pair, with an option for a live failover support via a witness server.

Storage Management and Cache

VIMS provides an efficient and effective way to store volumetric data for a demanding facility. By utilizing the most advanced volumetric compression format in the industry, VIMS is able to store, transport and load large data quickly on the server for user access. For storage options, VIMS requires a simple UNC/CIFS share to store and manage its data models. We recommend using standard NAS to SAN to existing storage protection at the disk layer, which may be scaled to SAN storage as needed. It can utilize off-the-shelf NAS storage or leverage existing storage at a given site.

Additionally, the system permits improved maintenance by allowing for full DICOM input load to occur while standard database maintenance functions (upgrades, backups, restores, repairs) are happening on a live system. The system can support zero downtime upgrades to occur in the highest availability configurations. We recommend:

- Two load balancing solutions:
 - Resonate Central Dispatch (software-based solution)
 - F5 BigIP (hardware-based solution)
- Stateless Application Servers
- Microsoft® SQL Server 2005 running in mirrored high safety mode
- Data stored separately from application servers on HA storage device (NAS/SAN)



Scalability

High Availability

Serviceability



Serviceability

The administrative functions of the Vital solution have been consolidated and centralized to provide access to all of the critical components of the functioning system. This includes the ability to add/remove running advanced nodes from a cluster system, as well as status and control functions of all system services. With real time updating of any remote DICOM entities, there is no need for unexpected downtime as new equipment is integrated with the Vitrea Enterprise Suite.

The system also provides an extendable real time system reporting infrastructure. Available statistics include DICOM throughput, volume throughput, clinical user usage, and audit event level of specific users accessing specific patients. Additionally, centralized access to a system-wide logging mechanism for critical events can be combined into customized report views. Altogether, these tools are able to offer a high value, real time health status on the system in a single user-friendly interface.

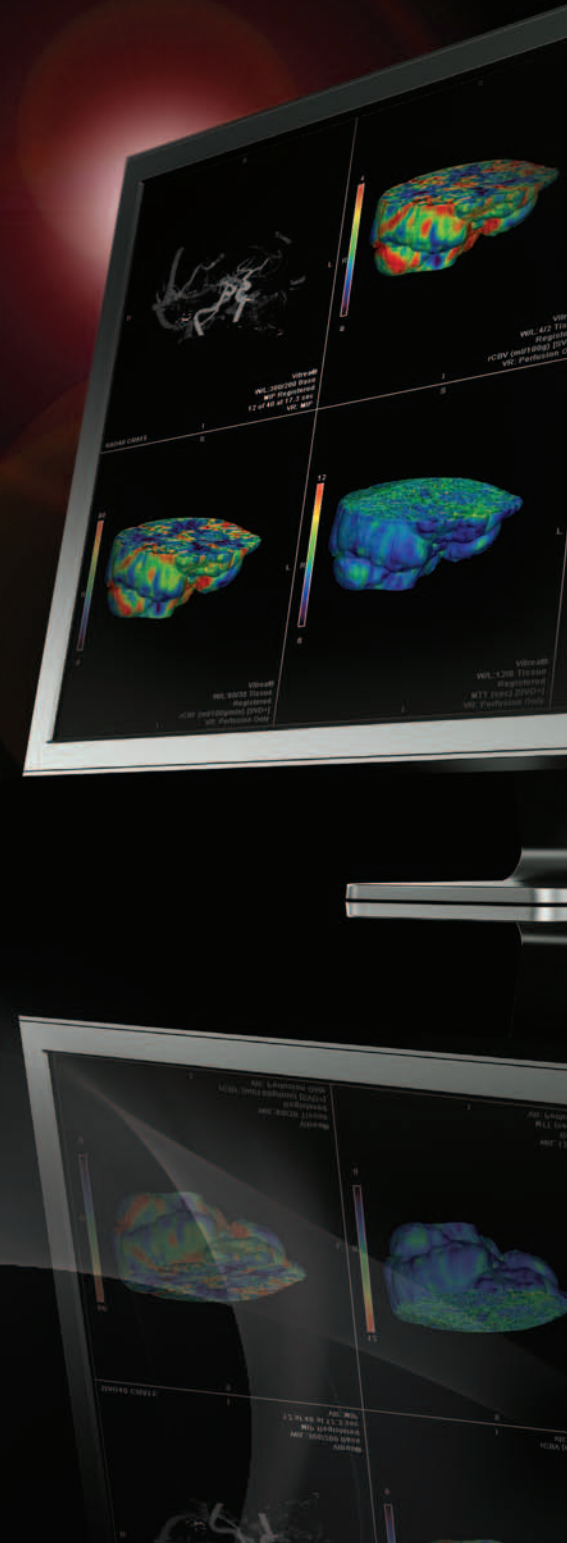
Centralized Management and Monitoring

- Administrator GUI interface with built-in revision control for any configuration change
- Real time reporting on inbound imaging load and concurrent user activity
- Centralized event log

Deployment Summary

The ability to deploy the Vitrea Enterprise Suite on standard hardware, on a flexible timeline, enables the Vital solution to truly grow to meet your future needs. We begin deployment by listening to your ideal work scenario and creating a plan. Then our implementation team works with your IT department to execute deployment for optimal integration that fits your requirements. Finally, we train your team and make sure the solution meets your expectations.

The Vital team strongly believes that a successful enterprise solution is based on a long-term relationship rather than a drop-shipped-only product. We've designed our solution and deployment process to reflect the varying needs of healthcare environments and are committed to providing ongoing support for your success.





VITAL

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