

Consolidating and Standardizing Enterprise Imaging

It's Not What You Think

Why consolidating and standardizing don't have to mean ripping out other data systems, disruption or limitations.



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Introduction

New focus for imaging groups brings both challenge and opportunity

The rapid evolution of the healthcare landscape is well known. Increased mergers and acquisitions have added complexity for growing imaging groups. And government mandates, decreased reimbursements and the need for population health management have increased financial pressure on the industry.¹ Driven by a dual focus on improving patient outcomes and reducing costs,² healthcare organizations are changing the way they operate, looking for ways to achieve even greater efficiency.

Meanwhile, technological advances have led to capturing an unprecedented level of detail in medical imaging. More detailed images – not to mention more images per study – are generating a steep upward trajectory in data volume.^{3,4} On one hand, this increased data volume can bring new opportunities through automated insights and machine learning. On the other, operational challenges arise from the fact that the data typically resides in numerous PACS and at multiple sites – many with different dedicated workstations and viewing applications. With applications and data scattered across systems and sites, managing an imaging group has become more complex than ever.

Healthcare leaders acknowledge the benefits of consolidating data sources and standardizing applications and workflows. But many believe that it will disrupt care delivery and require a large upfront financial commitment. They are concerned about change management and that their clinicians will lose access to the tools and applications they know and like. They think the road to standardizing and consolidating their enterprise imaging systems will be long and arduous.

But it doesn't have to be. In this eBook, we propose alternatives for consolidating and standardizing enterprise imaging that help organizations to:

- achieve operational efficiencies
- leverage insights from “big data” and machine learning
- improve patient care

Read on to learn why consolidating and standardizing your enterprise imaging systems does not need to be an expensive, disruptive or limiting initiative.

Phased Enterprise Imaging

The benefits of consolidation without the disruption

Advances in medical imaging technology enable even more detailed images to be captured, with corresponding larger file sizes. In addition, as the number of radiological studies rises, the number of images per study is also growing. Each of these trends contributes to an exponential increase in healthcare data volume.^{3,4} To capitalize on the benefits of big data, healthcare organizations are looking at ways to consolidate enterprise imaging systems and electronic health records.

Consolidated Architecture – is “Rip and Replace” the Only Option?

One solution is the vendor neutral archive (VNA). Designed to reduce financial and resource pressures in the long-term, a VNA can improve image access and collaboration. In the short term, however, traditional VNA implementation methods can divert key resources for extended periods of time and cause lengthy system disruption. That’s because implementation has generally meant shutting down – or “ripping out” – PACS and a massive, costly data migration while they are replaced.

An Alternative: the Architecture Evolution

Ripping out PACS now and implementing a traditional VNA is not the only option. Another solution involves a progressive approach in which a scalable, real-time VNA is put in place immediately, with the option to evolve over time, at a comfortable pace set by the imaging group.

This phased approach allows facilities to realize the benefits of consolidated infrastructure in the short-term, without system disruption or the same level of up-front investment. It pulls data from different PACS, modalities and other data sources, transforms it, and makes it available quickly. By leveraging existing infrastructure, systems continue to function as usual, but the real-time VNA performs as if there were a single architecture, allowing organizations to realize the benefits of a system consolidation immediately.

Once the real-time VNA is installed, the organization may then choose how and when to shut down various PACS – gaining the additional benefits of single-system operations. The data migration can proceed in the background, nearly imperceptibly to system users. Both solutions are modular and scalable, allowing imaging groups to add the features and functionality they need, as their budget allows. The ability to apply a progressive, scalable solution that manifests results immediately – without disruption to existing systems – can help an organization change course and meet its goals.

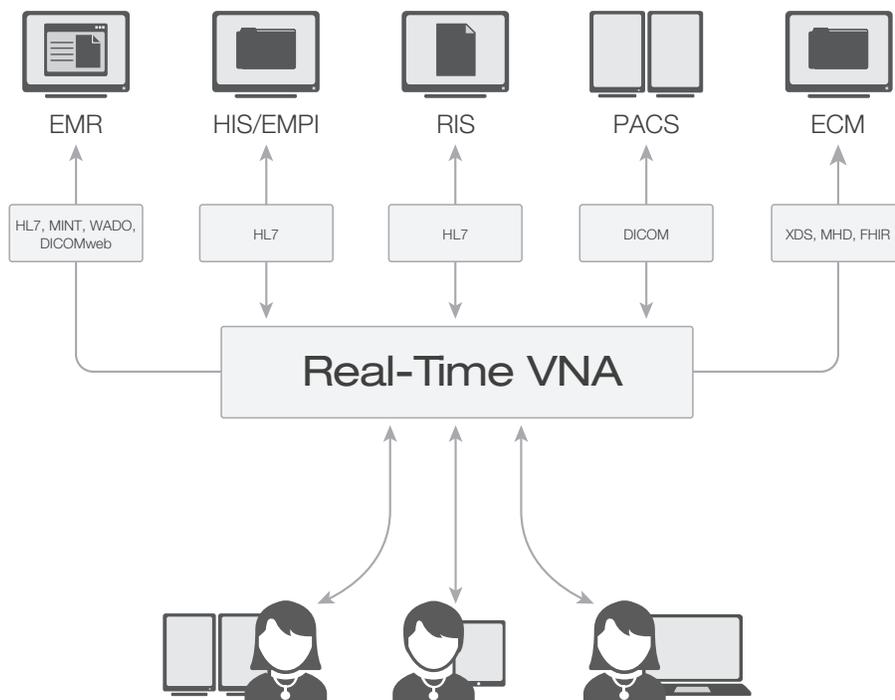
Using the method we propose, migrating data to a new architecture does not require a large, dedicated project team. Data migration can be managed in the background, and systems can be replaced progressively. There need not be any impact to your clinical or management activities. When handled properly, consolidation results in existing systems being replaced one by one, on your timeframe, while your systems continue to operate smoothly.

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Enterprise Imaging and the Freedom of Interoperability

Implementing a real-time VNA brings data from all systems together. This interoperability enables data access at deeper, contextual levels – levels at which patterns and connections over the patient population can be seen and acted upon.⁶ Based on this, powerful knowledge can be leveraged to affect patient outcomes. Opportunities for efficiencies are created – bringing relevant patient information (from PACS, VNA and enterprise-wide ECM) to the point of care.

Consolidating and standardizing your enterprise imaging can mean freedom from workflows imposed by PACS on a VNA as well as freedom from too many vendor contracts to manage. But it's also the ability to choose the tools best suited to your organization. Traditionally, the emphasis has been on storage – on getting data *into* the system. Today, you can focus on getting data *out* of your system efficiently, gaining insight from it and using it wherever and whenever you need it.



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Advanced Visualization

From distributed to standardized

The healthcare industry continues to see increased mergers and acquisitions.⁷ Many imaging organizations grow by adding practices with established, preferred advanced visualization vendors and tools. Budgetary responsibility may remain localized rather than centralized, with clinicians at each site selecting applications, unaware of organizational usage patterns. There is no question that the availability and proliferation of advanced visualization applications have led to better image analysis and care quality. But they have also added another layer of complexity for expanding imaging groups.

Gaining Flexibility

For many imaging practices, a complex site network translates into numerous dedicated workstations and clinical workflows that vary by location. A flexible consolidation deployment can provide options, including full virtualization, thin-client and virtual private network (VPN) access anytime, anywhere.

Once systems are consolidated, workflow standardization can be addressed. Of course, the primary focus for workflow is quality. But, in today's healthcare environment, speed is equally important. Improving one factor should not decrease the performance of the other. The answer lies in working with a partner that can simplify the standardization process by evaluating your current state, including disparate systems, and provide high-quality workflows that enable clinicians to achieve results quickly.

Progressing from Locally Selected to Centralized Applications

Standardizing advanced visualization leads to many operational efficiencies. When applications are strategically selected on an enterprise level rather than on a site-by-site basis, your organization can benefit from simplified vendor maintenance/service contract management, streamlined user training, and consistent, repeatable workflows. If you ensure the solution offers the following features, it can gain support at all organizational levels:

- vendor neutral platform that allows access anywhere, anytime
- customizable and scalable implementation
- flexible deployment options, including full virtualization
- fast, high-quality clinical workflows
- standardized user experience

As you choose an advanced visualization solution, be sure to factor in customer support quality and the cost of upgrades.

Freedom to Choose the Applications You Need

When imaging organizations gain visibility into application usage and workflows, the need for standardization becomes clear. But the path to standardization may not be. For multi-facility imaging organizations, application availability has led to adoption at a site level rather than at an organizational level. The result is numerous advanced visualization applications scattered across the enterprise – often including duplicated functionality – each with its own vendor maintenance and service agreement, training program and proprietary workflow. This doesn't align with today's focus on cost control, efficiency or resource conservation, given the time it takes to manage a long list of vendor contracts.

Many associate standardization with losing access to key clinical applications because they believe it requires a commitment to using a limited set of applications from a single vendor. However, there are options for customizing application sets and gaining access to third-party integrations of popular viewing applications and clinical tools. Your organization's application usage rates can be analyzed, and a standardization strategy can be tailored to your needs.

Setting Goals for Standardization

Operational goals for standardizing enterprise imaging should include interoperability, improved efficiencies and decreased costs. All three affect both the bottom line and patient outcomes. A single, vendor neutral solution provider should allow you the freedom to choose the premier applications you need at launch. But you should also be free to add future applications as needs arise. It's important to choose a vendor that will develop a tailored strategy to incorporate the applications you need based on usage rates.

Healthcare organizations are finding that choosing a single-vendor solution can reduce support and maintenance costs, decreasing total cost of ownership. Whereas premier advanced visualization applications may have been too expensive in a multi-vendor implementation, consolidating with a single vendor brings them within reach. The financial impact of standardizing advanced visualization is clear. But when your focus is on patient outcomes, equally important is the ability to leverage premier advanced visualization applications to find answers more quickly and easily.



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Enterprise Analytics

Real-time intelligence leads to stronger decision making

To control costs and realize greater efficiencies, imaging leaders need real-time access to financial, clinical and operational data. But that data is often locked in multiple proprietary systems. The key is consolidating data from disparate systems so that it's accessible and actionable, then implementing real-time reporting solutions that will enable stronger decision making.

Managing the data necessary for decision-making and patient care is one thing. Bringing data together to create actionable information is another. There are new ways to leverage data that can empower your organization to make stronger decisions for the future. These predictive and prescriptive analytics tools recommend specific actions to take toward achieving objectives providing a critical, strategic advantage for complex health systems.

Evolving to a Data-Driven State and Evidence-Based Management

One of the most significant benefits of consolidation is the transition from a data-management organization to a data-driven one. It offers a new level of enterprise visibility for datasets previously accessible only in local systems. As a clinician applies evidence-based *practice guidelines* to patient care, more healthcare leaders are applying evidence-based *management* to their operations, looking for evidence to point the way to better clinical, financial and operational decisions.

Evidence-based management is showing promise not only for healthcare enterprise management but also for helping imaging groups focus on patient outcomes through enhanced disease surveillance and population health management.

Making Customized Reporting Simple

One success factor in implementing evidence-based management is enterprise-wide data access for reporting. If reporting can only be managed through an individual system's vendor tools, it remains confined to that system. The datasets from disparate systems cannot be easily combined to obtain a holistic view. When reports from multiple proprietary systems are needed, turnaround times can be impractical.

For example, to justify an investment in a new CT scanner, you might want to calculate current CT utilization rates and average wait times. This requires data access at a deeper level than you can get with a typical multi-PACS, multi-modality enterprise. Without centralized access to reports, getting at this level of detail would be a significant challenge, because data is stored in various proprietary systems, and it is available only via a deep-querying process that requires a specialized IT skillset. These queries can take up to a week to process.

However, once data is consolidated, utilization rate and average wait-time reports can be run quickly and easily. The reports can automatically populate graphs and charts for quick interpretation. And you can manage and optimize modality throughput easily. To accomplish this efficiently, you can take advantage of flexible, purpose-built reporting systems that can scale with your organization, rather than building a unique reporting system.

Predicting Opportunities

In this complex healthcare environment, imaging organizations are experiencing mounting cost and quality pressures. To navigate this, they need solutions that help them focus on and prioritize their most valuable opportunities. These solutions can help close the gap between knowing what questions to ask and knowing what to do once you have the answers.

By applying predictive and prescriptive analytics to operational and financial data, you can see opportunities to increase revenues or avoid costs. You can predict how actions you take today will impact your organization tomorrow. This level of insight enables you to identify specific, prescribed actions that can standardize clinical workflows, improve operations and impact your bottom line.

Freeing Users from Dependence on IT

When controlling costs is a priority, committing IT hours to pulling reports from different viewing systems and from multiple PACS doesn't make sense. But if user-friendly, standardized, centralized reports are developed, reporting can become a self-service activity.

With tailored reporting, users are empowered to access actionable, relevant data themselves. They can generate their own reports, or if they do request reports from IT, the turnaround time is considerably shorter. Conversely, if data is dispersed among different systems, it's easy to imagine a scenario in which two users could run the same analysis and come up with different results, depending on how the queries are run. Consolidation eliminates this inconsistency.

Consolidation also allows you to apply an analytics solution so you can see data in intuitive graphs and charts, helping reveal opportunities to grow your revenue stream, enhance clinical quality and improve operational efficiency. A strong analytics solution offers:

A strong centralized reporting solution offers:

- standard communication protocols such as HL7 and DICOM
- keyword searches for clinical reports
- real-time patient experience metrics
- key performance indicator development
- data visualization
- flexible, customizable options
- predictive and prescriptive data modeling
- support enterprise data warehouse integration

In evaluating a consolidation solution, consider whether it provides customization opportunities within an analytics platform. Organizations often have unique data needs best addressed by proprietary applications that will need to reside on the platform. Some vendors hesitate to build customized features into an analytics platform if they won't fit every site's needs. But with a flexible solution, your organization can adapt the system to fit without building a new solution from scratch.



Conclusion

A shift in thinking about consolidation and standardization

Today's healthcare organizations are motivated by many factors, including opportunities to improve care quality and reduce expenses.¹ Consolidating and standardizing enterprise imaging can help achieve these goals. Beyond the operational, financial and IT benefits, it can help improve interactions between clinicians by removing the communication barriers that arise from disparate system and workflow use. Conversations become easier, and answers become clear. In the end, the patient wins.

Consolidation and standardization initiatives don't have to involve large upfront investments. There are multiple paths for consolidating systems. You can implement a solution in the short term, or you can accomplish it on a longer timeline and still reap of the benefits immediately. It can be managed in the background while your systems continue to run uninterrupted. Standardization can be achieved while clinical teams maintain access to the applications with which they are already familiar. Consistent, optimized workflows can be established networkwide. It's easier than you think.



FOOTNOTES

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