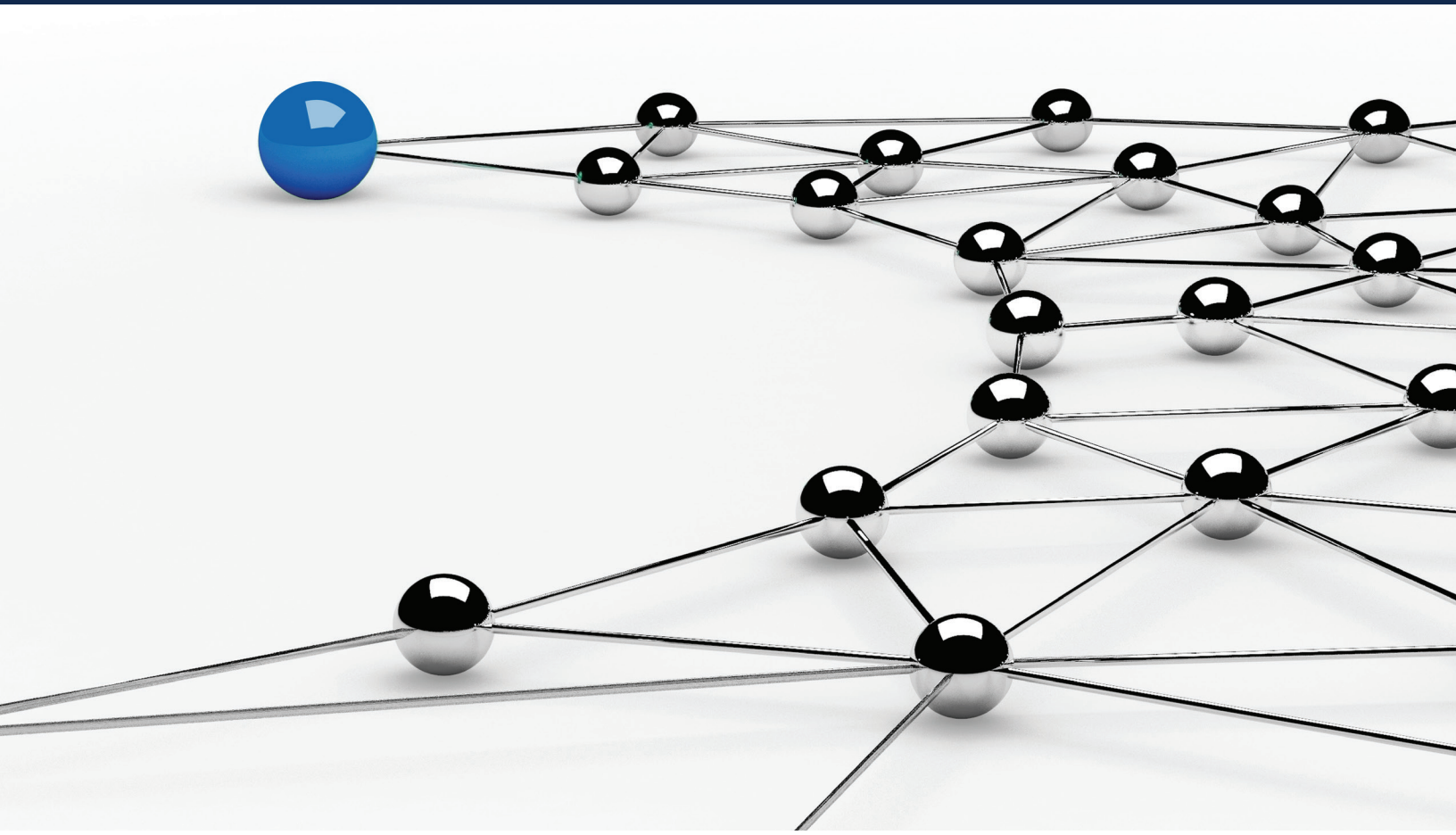
A FEATURED EBOOK

Image Sharing

Explore your needs carefully to ensure that costs are minimized and results are realized



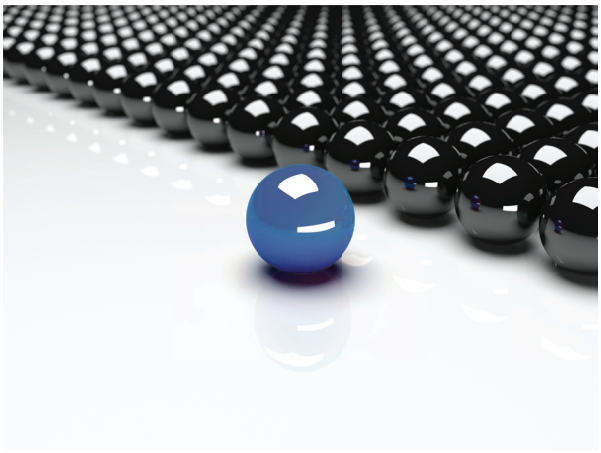
terarecon

terarecon

CONTENTS

terarecon
P 650.372.1100 | INFO@TERARECON.COM

The big problem with small study volumes



If you assume that 5% of your total departmental imaging studies will require you to receive images from outside your facility, then you can see how small these projects are when compared to other solutions. The reality is that there is not much money available to solve this problem. Cost constraints are as much the cause for poor image sharing workflow as the technology gaps themselves. The more expensive the system, the less value can be derived from its use. Though more advanced and tightly integrated systems can see more use, the initial costs are often too high to justify the purchase. It's not enough to eliminate or automate the outbound CD export processes. The real challenges and the greatest opportunities to improve care involve inbound image sharing. It's not a simple task to solve the workflow, interoperability and change management challenges that underlie bidirectional image sharing workflows.

Peer-to-peer cloud systems are often highlighted as a new way for physicians to self-register and share images and information. Real-time transfer of images and information is possible with these technologies, and the potential to connect these to Health Information Exchanges (HIE) is attractive. Most Electronic Medical Record (EMR) systems and voice-driven reporting solutions can connect and integrate with image sharing cloud-based systems. Unfortunately, the economics don't work when you consider the number of studies shared per year. Sharing a study should not cost twice as much as the fee charged for the entire Picture Archiving and Communications System (PACS). From a security and account management perspective, providing outside unaffiliated physicians with access to your internal health information systems is not practical. Integrating all of these complex systems together is not a great way start. And so, today the CD reigns supreme. It seems that perfection is the enemy of progress. The ability to start small, simple and affordable is the first and foremost criterion to image sharing success.

terarecon
P 650.372.1100 | INFO@TERARECON.COM

CHAPTER 2

The dirty secret to achieving simple image sharing workflow

There are realities of image sharing that need to be considered before selecting a system. It is important to recognize that many people are often involved, especially for the inbound sharing workflows. In fact, for the three main image sharing workflows involving primary, secondary and tertiary care, the file room staff is still involved due to the need to match demographics and establish the relationship between internal and external physician stakeholders. Images need to be checked to make sure they are formatted correctly and matched with the patient record. Can this be automated? Yes, of course. However, acute care settings require that images are imported into the local PACS. As such, careful consideration should be given to the process in which outside images are transported all the way to the internal 'clean' PACS. To do this, you need to consider the roadblocks that exist between the outside physicians and their ability to view them once made through the EMR. Notably, there are issues to overcome with firewalls, 'dirty PACS', CD reader applications, file room staff availability, the 'clean' PACS and the systems that notify the EMR that a study is available to be viewed.

What is a 'dirty PACS'? It's the dirty secret of image sharing. There must be a place where the outside studies are imported and viewed before they are trusted to be sent on. CD's often arrive with non-standard data sets, and accessing portable media always brings the risk of unintended files entering your network such as viruses. The problem with the dirty PACS is that the images are usually inaccessible to the person that uploaded it, and images are almost certainly inaccessible by anyone inside the health system until they are pushed beyond the dirty PACS. It's too inefficient and very slow. The dirty PACS should be eliminated!

It seems obvious that an imaging study of unknown quality or appropriateness should not be allowed to be pushed into the clean PACS. Studies should not be pushed through your firewall until they are viewed by a physician or another trained professional, so that the study can be deemed appropriate, needed within the PACS and safe for transfer.

- Providing physicians the ability to immediately view studies on the sharing system greatly increases the speed of care.
- Ensuring that the sharing solution has the ability to display images and allow the user to push studies directly to the clean PACS can eliminate the need for a dirty PACS.

terarecon
P 650.372.1100 | INFO@TERARECON.COM

CHAPTER 3

Three key workflows to look for in your sharing solution

Starting small and being able to evolve your image sharing system to achieve the highest levels of automation, performance, scalability and interoperability are the key requirements of modern sharing solutions. When selecting an image sharing solution, you may want to consider the following three key workflow levels.

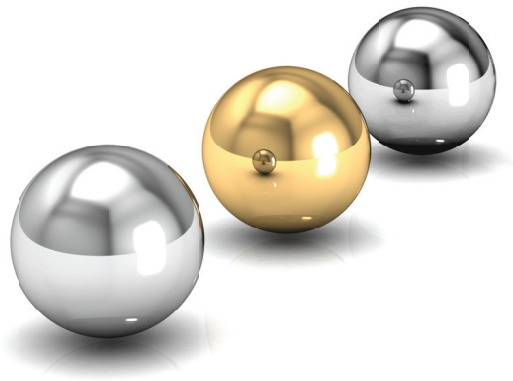
Silver level sharing workflow should be able to be accomplished very affordably and should not require complex integrations. Unless you plan to use image sharing cloud services in stand-alone mode, these will not achieve the desired workflow because they require a more complex integration to your data center. The goal of silver sharing is to eliminate the CD and avoid the need for the dirty PACS. All that is required for such systems is a simple virtual server placed in your demilitarized zone (DMZ) within your data center. This is the safe place outside your firewall. This sharing server can be used to provide image viewing access to external physicians using the internal account management. It should be possible to select which internal and external physicians are allowed to upload images to the dirty and/or clean PACS.

SILVER IMAGE SHARING SYSTEM REQUIREMENTS SUMMARY:

- File upload application or web portal
- Integrated medical image viewer
- Image transfer to PACS (often DICOM formats only)
- Account management features

terarecon
P 650.372.1100 | INFO@TERARECON.COM

Gold level sharing workflow requires a bit more integration effort, because these should leverage HL7 communication and DICOM Modality Worklist (DMWL). This interface is used to match the incoming studies with the patients in the health system, allowing a freshly imported study to be quickly matched with the same patient's demographics. Gold level sharing solutions support the import and viewing of both DICOM and non-DICOM imaging formats along with a wide variety of report and clinical content types.



Platinum level sharing workflow generally requires the same integration effort as gold, however additional work is needed to configure the system for peer-to-peer sharing or so-called 'referral' workflows. In such cases, an external physician can access the sharing solution and identify the intended internal recipient of the imaging study. This is the most elegant, secure and evolved method for inbound image sharing workflow. The system residing in the DMZ creates a private customer-managed cloud service that inherently has access to all of your images without sending them across the internet, because the system is local. The bi-directional image sharing occurs with the same benefits of an expensive 3rd party managed peer-to-peer cloud. Internal or external users can identify another internal or external recipient for a closed-loop type of referral workflow, with the added efficiency of electronic notifications.

GOLD IMAGE SHARING SYSTEM REQUIREMENTS SUMMARY:

- All of the aforementioned silver workflow features, plus
- Non-DICOM, reporting and clinical content support
- Internal and external LDAP integration to manage physician logins and access
- Integration via HL7- DMWL to facilitate imaging study and patient matching

PLATINUM IMAGE SHARING SYSTEM REQUIREMENTS SUMMARY:

- All of the aforementioned silver and gold workflow features, plus
- Inbound and outbound referral workflows
- Notifications

terarecon
P 650.372.1100 | INFO@TERARECON.COM

Look who's looking

Whether you begin with a silver, gold or platinum type solution, the capabilities of the embedded medical imaging viewer are germane. Considering that only a small number, approximately 4%, of studies are ever accessed again after 6 months, it is these 4% of images that are in high-demand and have the highest value. Your initial sharing solution, no matter how simple, needs to focus on the specialty use cases and tertiary care. As such, even the simplest image sharing solution needs a powerful zero-footprint medical image viewer, enabling those uploading images to easily review what they have sent, and those that need immediate access to images don't have to wait to access them through a PACS download.

terarecon
P 650.372.1100 | INFO@TERARECON.COM

Rate your current image sharing solution. Is it all a part of one elegant sharing system?

Requirement	Have Feature Currently? (Y/N)	One System Currently? (Y/N)
Immediate viewing of outside images before PACS import		
DICOM, non-DICOM, clinical reporting and clinical object support		
Drag-n-drop uploader or web application portal for import		
Elimination of dirty PACS		
Inbound and outbound referral workflow		
Notifications (email, text)		
HIE compatibility		

Need more information?

Download more eBooks on related topics here.

Learn more about the TeraRecon image sharing solution on our website here.

Ready to be really impressed? Sharing is just one part of the big picture. Explore the big picture here.

Strategy

Define your goals and a unified vision for the future.

Implementation

Utilize best practices and proven methodology.

Rollout

Ensure adoption and support across the enterprise.

Optimization

Get the most out of your technology investment.

Turnkey

Save time and money with pre-packaged solutions.

terarecon
P 650.372.1100 | INFO@TERARECON.COM