
The Vendor Neutral Archive:

Shifting the Long-Awaited Patient-Centric Medical Record Into High Gear



A White Paper

Executive Summary

The advantages of an integrated, patient-centric digital medical record across the continuum of care are varied and numerous. Because of the fragmented American healthcare system itself and the clinical IT infrastructure that supports it, a patient-centric record has been beyond the reach of most healthcare enterprises. By standardizing and integrating patient information at the archival level, a Vendor Neutral Archive (VNA) provides a straightforward and cost-effective strategy for development of such a patient record. VNA-enabled patient files can be easily shared across medical specialties and add new imaging information to an Electronic Medical Record (EMR), also commonly termed an Electronic Health Record (EHR) system, putting a facility on the path to Meaningful Use. This white paper provides an overview of VNA technology and examines its key attributes, advantages for all stakeholders and the current and future state of VNA market offerings.

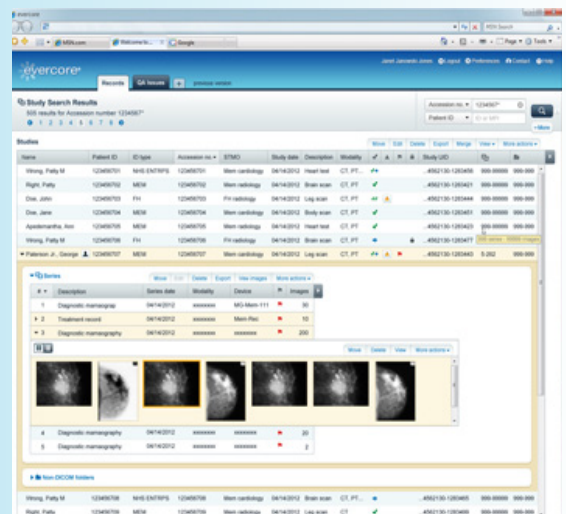
Introduction

University hospitals. Emergency care clinics. Free standing radiology practices. Government supported healthcare. Hundreds of disparate systems and dozens of applications. The fragmented state of healthcare IT mirrors the fragmented state of the US healthcare system overall.

Indeed, it comes as no surprise that today's push for a consolidated electronic patient record across a patchwork of disconnected providers—all enabled by equally disconnected IT applications—is fraught with pitfalls and challenges.

The benefits of a single comprehensive digital record with patient-centric clinical information that is distributed across the continuum are readily apparent. Availability of this information to all providers regardless of geographic and institutional boundaries means more informed clinical decision-making and treatment efficacy and efficiency. It means enhanced patient safety with elimination of unsafe drug interaction and cumulative unsafe radiation dose. It means prepping an ER in advance of a patient's arrival when seconds are precious and less duplication of medical testing—as well as diminishing the cost and management of mountains of redundant healthcare data. Recent government mandates and financial benefits for achieving Meaningful Use have brought the issue of patient records to the forefront. But unfortunately, a single patient file isn't quite as simple as it seems. Or is it?

Currently, most digital healthcare data is stored in discrete silos tethered to the specific clinical application that created it. John Doe's radiology exams are, of course, located in PACS, while his EKGs are sequestered in a cardiology system and his dermatology photographs on a network folder.



The exponential growth of specialized healthcare IT systems as the digital age progresses also makes this an exponentially growing problem.

Ironically, the difficulty in solving the problem is inexorably tied to the cause itself. Moving to a more comprehensive enterprise-wide IT system can be extremely costly and challenging because of the difficulty in aggregating proprietary data across multiple applications and then migrating it to more comprehensive applications. So the vicious cycle continues.

Enter the VNA

According to many industry experts, the light at the end of the IT tunnel is what has been termed a Vendor Neutral Archive (VNA). A VNA is a vendor-agnostic data repository serving multiple clinical IT applications both within and across medical specialties. The specific definition of the term varies significantly, as does acceptance of the actual term itself. Some prefer PACS Neutral or Vendor Independent Archive, while others suggest Vendor Neutral Architecture. The thought is that these terms better describe the implied open approach to information sharing and data ownership as well as the significant paradigm shift inherent in the VNA strategy.

As a general definition, most would agree that such a repository is standards-based and accepts, distributes and enables display of information from numerous other IT applications—whatever the originating department or IT vendor. A VNA is patient-centric, easily displaying comprehensive data for a single individual. Systems typically integrated with the VNA include HIS, PACS, RIS, and EMR/EHR, as well as some specialty departmental systems. The goal is to enable the availability of relevant data and the interoperability of clinical IT systems through a standards-based data format, eliminating today's hodge podge of costly, clumsy IT interfaces and home grown workarounds. Key to that is a consistent metadata format—which provides a means of identifying the data as relevant to a particular patient, wherever the information enters the IT system.

In a perfect VNA-enabled world, treatment location becomes irrelevant. With a consistent patient identifier, the result is a comprehensive treatment record, easily retrievable by any specialist and IT application that needs it.

History

Today's healthcare data difficulties are rooted in the history of healthcare and healthcare IT itself. Catering to individual specialists and niches, current IT systems were simply not built to facilitate interoperability and information exchange. Because most perform specific functions within a particular department, there simply was no impetus to enable cross-application communications.

VNAs are predicted to store 31% of all new studies worldwide within four years, according to a major new report by InMedica, the leading independent provider of market research and consultancy to the global medical electronics industry.

Further, even within a particular system, such as a RIS or PACS, data is often incompatible across vendors. Many believe vendors have purposefully perpetuated this, creating proprietary data formats that keep their customers in an ongoing relationship with them. Clearly, vendors have had every opportunity and incentive to do so, and the result is today's vendor/hospital love/hate relationships—and islands of isolated data rather than more logical and useful consistent patient-centric organization.

The Problems of Proprietary PACS

Because diagnostic images and reports are among the most frequently shared information across the continuum of care, the isolated PACS archive—often held hostage in proprietary vendor formats and though other means—poses a particular problem for a patient-centric system. The longstanding DICOM standard fails to fully specify the metadata tags, or fields, used to identify and annotate data, enabling PACS vendors to retain vestiges of their proprietary systems. Additionally DICOM permits the addition of private tags, which will not read on other vendors' systems, and allows relational data fields to be left empty. All this becomes extremely problematic for information consolidation and sharing by patient.

While communication of DICOM information across disparate PACS solutions is difficult enough, the promise of an EMR/EHR enabled with DICOM images and related PACS information is even more complex. Integration can require custom interface engines to link unrelated systems and possibly data transformation as well as even duplication of entire archives. Interfaces are costly to purchase, implement and maintain and create security risks and scalability issues. Data duplication astronomically multiplies the storage and maintenance costs.

Also contributing to this is the nature of the DICOM beast. Imaging files are enormous and becoming larger—and therefore are complex, costly, cumbersome and challenging to manipulate and share.

Finally, another issue making PACS data difficult to integrate with other IT systems is that many vendors' applications are tied to their own proprietary storage platform. Therefore, in effect, medical sites do not truly control or own their patient data and cannot make the changes necessary to facilitate data organization on a more global level.

However, the VNA brings about a philosophical change in data ownership. With a VNA, IT applications are no longer tied to physically addressed storage and communication with other systems through proprietary integration. A VNA breaks the connection between the application and the archive, freeing data. It provides a virtualized approach to information management with

What PACS Vendors Don't Want You to Know About Their VNAs

The move to a VNA may be viewed as much as a philosophical choice as a medical device purchasing decision. By eliminating proprietary data formats, a true VNA gives medical sites the ability to maintain and control their data and to use it with any standards-based clinical system on the market. With a VNA, medical sites declare their independence. They are no longer subject to the technology and pricing whims of major equipment vendors.

Therefore, logic suggests that a PACS vendor may not be the best VNA provider, and experts agree.

- With less experience and motivation, a PACS vendor is unlikely to demonstrate the proven VNA interoperability with other major PACS vendors, who are, after all, their competition.
- Similarly, PACS vendors may not have the existing plug-in interfaces to a competitor's PACS that independent VNA vendors offer. They also may be less willing to take the lead in connecting with new PACS applications. After all, being 'open to integration' can simply mean that a vendor is willing to let a PACS provider connect with their system—not the reverse.
- DICOM leaves plenty of room for vendor discretion in the definition of the word neutral. For example, how a VNA deals with empty DICOM header fields can make a significant difference in how that data ultimately behaves and can help put PACS vendors back in the driver's seat.
- A VNA also leaves a lot of latitude on the management of non-DICOM objects, opening the possibility of less standard data identification and storage tactics.

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storage fully controlled by hospital IT—not the IT vendor. Any application using the VNA requires only a single point of integration to a standardized service to enable data access for a patient-centric archive.

Also, many PACS come tied to vendor-specific storage solutions. Because users have few options, vendors can charge extremely high fees for the inevitable expansion of storage capabilities or for migration of data to a new archive if a site switches PACS providers. However, with the standards-based VNA, sites retain full data ownership and can archive on their platform of choice as well as migrate data at will.

PACS Beyond Radiology and DICOM

Additional factors also compound the problem of organizing and sharing data stored in PACS. Today, PACS is also often called upon to store a growing variety of data—both DICOM and non-DICOM—from within radiology and from other medical specialties.

DICOM data stored may include cardiology, neurology, and an ever-growing list of the ologies. The departments that generate this data often have their own identification numbers, requisition systems and even accession numbers that all must be reconciled and managed within the PACS just to create an integrated record in this single application.

Radiologists are increasingly adding non-DICOM data objects—such as scanned prescriptions and reports—to the PACS archive. Additionally, the data contributed by other departments may not be in DICOM format. Without an accepted metadata management standard to help systems identify these objects, sharing them beyond PACS also is problematic. Many experts note that storage of this data is well beyond the core competencies of radiology-centric PACS solutions and places stress on their infrastructure.

Whether or not non-DICOM information is managed in a PACS, it is of course managed somewhere. If archived in a separate IT application with even more department-specific formatting, the difficulties of introducing it into any patient-centric system are even greater.

The Better Way to Archive

Naturally, existing non-standard data will have to be transitioned to this formatting as part of the VNA migration process. However, medical sites weary of the ongoing cycles of data conversion that accompany a move to a new IT application will be pleased to know that this will be the last data migration they will ever have to perform. And the process can be handled efficiently and cost-effectively by many VNA vendors.

What PACS Vendors Don't Want You to Know About Their VNAs (continued)

- Since a VNA is only one of its many offerings, a PACS vendor likely will not have the same VNA experience and track record of success as a specialized VNA vendor.
- A VNA is not likely to be a PACS vendor's key, long-term technology offering. Clearly, handing over control of workflow, integration and data management or ownership to a healthcare provider is not a revenue-producing strategy for a PACS company, notes well-known industry consultant Stuart Gardner. Medical sites should question how committed PACS vendors will be to the VNA space.
- A PACS vendor will also tend to place limitations on infrastructure choices such as storage, database, and server platform.
- VNA specialists are likely to have more special features and to stay abreast of evolving VNA technologies than PACS vendors since this is the focal point for their business.
- A VNA and an Enterprise-Wide PACS Archive are not one and the same animal. While an Enterprise PACS Archive may accept information from all the ologies as well as non-DICOM data, it still remains directly linked to the PACS solution and ties the user to the PACS vendor. Information remains siloed in radiology and will be difficult to integrate into an EMR/EHR. A true VNA is a fundamentally different.

IT consultant Gardner succinctly sums it up, "PACS vendors have no particular incentive to help long-term customers adopt the technology that will enable them to transition to another vendor's PACS." By contrast, an independent VNA does—VNAs are their livelihood.

Because the VNA contains diagnostic images, image-enabling of an EMR/EHR and other IT systems becomes far less challenging than with a siloed PACS archive. Providing this patient-centric storage and information sharing will put a facility on the road to Meaningful Use.

Versatile Standardized DICOM and Non-DICOM Storage

As a comprehensive system, in addition to DICOM images, a VNA stores non-imaging DICOM data. This includes DICOM Structured Reports, containing CAD and measurement data as well as exam findings, and DICOM Presentation States with user manipulations such as shutters and overlays.

The VNA also stores and manages non-DICOM information from across the healthcare enterprise. These file types often include JPEG, PDF, word documents, waveforms, and various video and audio file types—in short whatever modern medicine sends its way. In particular, these versatile storage capabilities make the VNA an appropriate repository for data from specialties as diverse as the lab—growing in importance—and ophthalmology to speech pathology and dentistry.

Whether in DICOM or not, once the objects have been associated with the appropriate patient records, a simple search of the applicable fields will gather the information necessary to create a comprehensive patient record. To facilitate this, the VNA includes an enterprise-wide database that is truly patient centric. The database captures from the objects patient and exam identifying information such as patient name, patient IDs, accession numbers, exam descriptions and much more. Information may be retrieved from the VNA using industry IHE standards such as DICOM query and retrieve protocols, XDS and XDS-I, and WADO.

Standardizing DICOM

If IT systems storing to the VNA produce slightly non-standard data, many VNAs stand ready to help. Through DICOM tag morphing, advanced systems can neutralize non-standard DICOM data, reconcile and manage patient identifiers from multiple sites and resolve inherent metadata discrepancies.

It is of note that some VNAs will also allow the altered DICOM header data to retain initial tagging so that it can still interact meaningfully with the system that created it. This allows departmental IT systems to retain some autonomy. Whether and how dynamic data neutralization is handled may vary significantly with the VNA vendor and has important implications for the true neutrality of the archive. (see sidebar What PACS Vendors Don't Want You to Know about their VNAs.)

Standardizing Unstructured Data

Known as unstructured data, non-DICOM objects must be turned into structured objects with headers providing identifiers similar to the DICOM

Key Attributes of a Vendor Neutral Archive

According to healthcare IT expert, Herman Oosterwijk, the key attributes of a VNA are:

- Provides patient-centric storage.
- Supports open standards.
- Manages images as well as related information.
- Provides the capability for query, storage and retrieval.
- Supports multiple departments, enterprise and regional architectures.
- Maintains patient privacy and security through audit trails.
- Transcends upgrades and changes of PACS and allows PACS solutions to be interchangeable.
- Eliminates future data migration and/or conversion of data formats.
- Hardware agnostic.
- IHE compliant and certified technology.

standard for storage in a VNA. A VNA commonly uses APIs or the XDS standard to ingest non-DICOM objects and structure this information for the image manager database. Other techniques such as DICOM Wrapping or DICOM Encapsulation are also available. The choice between encapsulation and conversion is largely determined by whether the data needs to be returned to its native format for use in its original system. In many cases data must be returned to its original format because the diagnostic tools involved in its interpretation require this.

Currently, XDS is generally a more costly strategy than the alternatives. But, it is more sophisticated and rapidly gaining traction.

Of Special Importance for the HIE

A VNA with the ability to retain a site's original content is an excellent choice for a Health Imaging Exchange (HIE), which typically involves facilities with a broad variety of PACS, order, billing and other IT solutions with some degree of proprietary identifiers. The VNA will neutralize and translate data from one site in the exchange for use in another. At the same time, it can retain the site's original information to support ongoing use in the originating institution. In such cases, a VNA provides a far more cost-effective, practical and acceptable solution than migrating all facilities across the HIE to a set of shared IT solutions.

Enabling the EMR/EHR

A key goal of the VNA is to provide access to complete, accurate and timely patient data at the point-of-care, which most often takes place through the EMR/EHR system. While IT has struggled with a broad spectrum of clumsy and costly ways to enrich the system with images and related data, a VNA simplifies the task. A simple link to the standardized archive will bring up all these images, imaging-related data and information in the VNA for a particular patient. Embed a lightweight DICOM viewer, and the result is an easy and elegant enterprise-wide image viewing solution delivering a rich clinical picture of the patient.

Naturally, this same link and viewer can bring VNA information to any physician portal connected to the archive with a simple click.

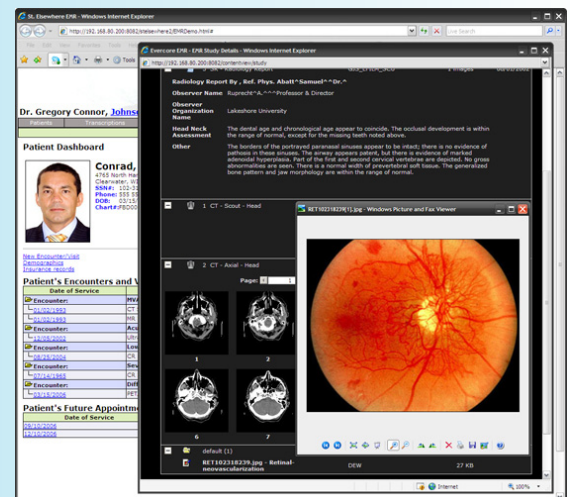
Liberating Your Healthcare Data

In addition to aggregating data for a more global view of the patient record, the VNA provides other significant benefits.

True Data Ownership

As discussed in the section The Problem of Proprietary PACS above, the VNA returns data ownership to the medical facility. In addition to simplify-

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ing data sharing across medical IT systems and sites, users are no longer tethered to the vendor-specific storage solutions associated with their PACS. They are no longer held captive to the high prices vendors charge for proprietary archive expansion or for data migration should a site wish to change IT systems. A VNA breaks the connection between the application and the archive, freeing data.

Streamlining PACS Migration

With a VNA's true data ownership, a site has the ability to elegantly switch to any new standards-based PACS or other clinical system without data migrations or significant data reconciliation and cleansing, which are costly both in both time and money. Typically a new PACS can be connected to the VNA with a simple plug-in with little interruption of department functions.

Analytics and Trending

With this access to open standards data across multiple applications, medical sites can also treat their data like the business intelligence that it truly is and run cross-departmental and enterprise-wide analytics—examining, for example, financial trends, staff performance and patient referral patterns.

Lifecycle Management

With its greater management sophistication, a VNA is the logical choice to automate data lifecycle management, including retention and purges as well as file duplication according to both legal requirements and institutional policies. A PACS solution may simply flag certain studies for specific handling, while a VNA can save time and costs by directly driving the lifecycle management process itself. Based on complex rules, for example, it can age off older studies to a secondary archive, compress them or purge them altogether, as well as duplicate information for disaster protection.

Scalability

Market research suggests that today's 300 bed hospital with 30 TB of imaging data will require 3 petabytes of data to support similar patient services by the year 2020. Instituting a VNA, of course, is a long term decision, and vendors are keenly aware that they must support exponentially growing volumes of data. By definition, a VNA is scalable. The best VNAs are built to scale transparently, on the fly and should not require added administrator management time or add operational complexity to the system. According to healthcare IT expert Herman Oosterwijk, "Even if data should surpass a 'semi-artificial limit,' such as 1 million images, a VNA will be able to preserve information and that data should not have to be migrated or ported." (Although, he notes that conceivably a VNA database might have to be ported—which is a simple process in which all information remains intact—if it became too large for the original media.)

Benefits of the Vendor Neutral Archive

The transition to a VNA realizes a full range of advantages that will enable care providers to:

- **CREATE ECONOMIES OF SCALE:** Reduce the silos of clinical image data through implementation of a shared institutional infrastructure. This can reduce storage management costs—and improve data security (HIPAA compliance) by using standard IT policies and principles for managing enterprise data.
- **PROVIDE ENTERPRISE DATA MANAGEMENT POLICIES:** Standardized enterprise data management rules greatly decrease storage costs and reduce or eliminate legal liabilities using institutional data purge policies or data tier policies (hardware/compression rules).
- **REDUCE INTERFACE COSTS:** Using a shared archive platform to store clinical data and distribute it, IT management can reduce complex system interfaces to the EMR/EHR, enterprise information systems (EMPI, patient registration, etc.), and departmental information systems (RIS, CVIS, etc.) within the enterprise.
- **OPTIMIZE IT INFRASTRUCTURE OPTIONS:** Allows IT to select best tools (PACS, workstation, etc.) for clinicians to meet job requirements. The VNA reduces difficulties involved in migrating large volumes of image studies. In addition, reducing vendor dependence can decrease new or replacement PACS expenditures by creating a more competitive bidding environment.

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Cost Containment

In today's age of shrinking budgets, a major advantage of the VNA is that centralized storage cuts costs. Quite simply, enterprise-wide storage is less expensive than department-based archiving, due, in part, to an economy of scale in purchasing. Naturally, a VNA also eliminates costs for expensive data replication in multiple siloed archives. It also consolidates IT staffing and maintenance, paring down the departmental hours required.

Advanced VNA Functionality is Here Today

VNAs are predicted to store 31% of all new studies worldwide within four years, according to a major new report by InMedica, the leading independent provider of market research and consultancy to the global medical electronics industry. As the VNA passes through the early adapter stage and becomes mainstream, the technology is becoming increasingly sophisticated. Currently, true VNA vendors are building out their offerings and integrating more advanced features and functionalities.

Clearly, all VNAs are not created equal. Medical facilities considering the technology should research forward-looking features and make informed decisions. These include:

Migration Engine

Today's leading edge VNAs also often provide tools to automate the entire data migration process from an existing PACS to the new archive. For example, TeraMedica offers the Evercore Enterprise Clinical Suite, which includes its Smartstore VNA and a range of useful related products. As part of that suite, it provides an Evercore Data Migrator, which moves and validates data seamlessly across an open architecture to its Smartstore archive. Such tools can save hospitals costly fees for outside contracted migration services.

Unified Enterprise Viewer

An extremely useful complement to a VNA is a multi-format, unified image viewer. TeraMedica's Univision lightweight, zero-footprint browser-based image viewer can be embedded into any EMR/EHR or any physician portal across the enterprise. With just one click, doctors can view any DICOM or non-DICOM image, report or other digital clinical content that affects a patient diagnosis and treatment plan. The viewer eliminates the need to log into different systems multiple times to access patient data. TeraMedica also offers Image Connect, a feature allowing users with advanced visualization needs to plug in their desired tool to Univision and click directly into the desired patient context. Additionally, Univision allows sites to customize the look and feel of their viewing environment for consistency with existing IT applications to enhance physician usability and acceptance.

Benefits of the Vendor Neutral Archive (continued)

- **IMPROVE AVAILABILITY OF DATA:** A centralized image archive allows for an easier and less expensive implementation of a highly available data storage management solution.
- **ENHANCE CLINICAL INFORMATION LIFECYCLE MANAGEMENT:** Managing clinical data based on its clinical value over time in a tiered clinically-aware archive improves availability of information (via different QOS tiers) and reduces storage management costs (using intelligent compression or purging techniques).
- **IMPROVE PATIENT CARE:** By simplifying the sharing of imaging studies and clinical content between PACS, departments, and facilities, clinicians can have access to additional relevant patient information. This, in turn, can positively affect clinical efficacies.
- **FACILITATE COMPLETION OF THE EMR/EHR:** Placing more information into an EMR/EHR context allows broader distribution of content to physicians and clinicians. This results in greater acceptance of the EMR/EHR by both physicians and allied staff.
- **CREATE AN INFRASTRUCTURE FOR DATA MINING AND OUTCOMES RESEARCH:** By connecting data across the enterprise, a VNA will allow for broad-based analysis of clinical data usage patterns. This information can be used to potentially reduce costs and improve efficiencies at the department, facility, or enterprise level.

Comprehensive Management of Medical Specialties

A VNA should be versatile enough to manage the input, workflow, distribution and application of all clinical data for a full range of medical specialties. It should also have the adaptable architecture to support new imaging modalities and clinical specialties as they evolve in the future. TeraMedica's Evercore Enterprise Clinical Suite platform represents the level of performance hospitals and other multi-specialty delivery networks should seek out today to assure they are selecting an archive in the forefront of technology.

Intelligent Workflow and Document Capture Solutions

Intelligent VNAs may also support workflow management functions, including rules-based information routing and image pre-fetching. In addition, TeraMedica Smartstore speeds non-DICOM data acquisition productivity with automated information capture features. For example, Smartstore automates document ingestion from various document systems, scanners, and other electronic document generation devices. It identifies, organizes and routes document types as desired. It also fully automates information extraction and validation using a site's customized business rules, before delivering them to the archive.

Object Change Management Support

A well-integrated VNA should offer object change management strategies to free users from duplicate data maintenance on multiple systems. For instance, a demographics change on the PACS solution would typically need to be duplicated at the VNA. A system such as TeraMedica's Evercore platform supports integration of IT systems such as HIS, PACS, RIS, and EMR to seamlessly deliver updates initiated by those systems eliminating duplication of effort.

Sophisticated Infinitely Scalable Storage with Cloud Support

Experts predict that archives will be measured in petabytes in the coming years. With rapidly growing storage volumes, scalability is a chief concern when selecting a VNA. Forward-thinking VNA companies employ sophisticated storage strategies to build VNAs that can be expanded transparently with new archive devices and virtual storage platforms cost effectively with no detrimental impact on performance.

Also offered today are infinitely scalable complete virtual storage solutions such as cloud storage, which offer a virtual access point to the system that makes the actual location of the data hardware irrelevant. In this scenario, the cloud or grid takes care of meeting certain performance requirements and ensures high availability through data publication and other techniques. The best VNA vendors will be in the forefront of new storage technologies to maintain peak archive performance, while managing growing data volumes.

Benefits of a Cloud-Based VNA

A cloud-based VNA delivers particular advantages in a wide range of applications:

- Cloud computing offers convenient, readily accessible information to practitioners within the same network through an electronic medical record system. The architecture involves minimal management, which allows easier sharing of clinical archiving data, according to the U.S. General Services Administration.
- For some providers in specific specialties such as radiology, cloud computing allows them to access images, tools and resources, and write up reports wherever they are throughout the day, notes *Healthcare IT News*. Gone is the era when doctors and nurses had to sit at one particular desk to document their work.
- Cloud computing is conducive to hospitals of any size, the according to *Healthcare IT News*. Large medical facilities often require a big information framework that can support significant amounts of data. A cloud system can help manage that content. Even small facilities can benefit from the technology when working toward clinical quality control. In the end, it may save them time and money.



Backup, Disaster Recovery, and Business Continuity

Data backup and recovery have always been good practice but are now federally mandated under HIPAA regulations. Many VNA suppliers offer options for this as part of their VNA strategies with geographically dispersed mirrored storage. These offerings remove responsibilities from busy in-house IT departments and often lower costs by capitalizing on the VNA vendor's ability to provide an economy of scale.

Conclusion

Today's growing emphasis on the consolidation and sharing of medical information as a system of comprehensive patient records demands significant changes in most healthcare facilities' existing IT infrastructure. The current patchwork of disparate IT systems, often with proprietary data storage formats, that characterize most medical sites creates major barriers to meaningful information organization and exchange, while elevating the costs of data maintenance.

A VNA, such as TeraMedica's Evercore, provides an elegant, cost-effective and efficient way to overcome these problems. By neutralizing data at the archival level, this advanced technology enables sites to leverage their existing IT applications, while facilitating cross-enterprise data sharing and streamlining the integration of medical images into the patient record.

By contrast, the costs of implementing new applications and their required data conversions to provide a consistent IT platform would cripple many institutions. These changes would likely also create profound cultural changes and potentially temporarily disrupt workflow and patient care.

The VNA provides medical facilities with the ability to leverage their existing investments in IT infrastructure, while granting them full data ownership. Today, hospitals require the freedom to adapt to institutional change, competitive pressures, government intervention, evolving technology and the continued medical science digital revolution. A VNA helps position healthcare providers to meet these challenges.

For additional information on how a VNA can support your healthcare organization's data management goals, please contact us at 866.290.8880 or info@teramedica.com.

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