In the face of new healthcare reform initiatives, regulatory requirements, and growing risks and costs in the delivery of patient care, healthcare providers and payers are being asked to improve clinical and financial outcomes and address growing demand with limited resources. In addition, new models of healthcare delivery—such as home care and specialized services—need to be reconciled with the systems that support those offerings, including digital patient records, coding standards, and appropriate accounting controls. These trends have dramatically boosted interest in not only purchasing risk-limiting clinical applications, but also in deploying these applications meaningfully.

To deliver optimum patient care, healthcare providers need access to a full patient view including conditions, treatments, and outcomes to provide and monitor care. To gain that access, adoption of healthcare standards will drive adoption of a common vernacular through which exchanges of information between healthcare providers involved within a patient care episode can effectively take place. These steps are necessary in the progression from image and information capture, to electronic health records, and finally, to achievement of a comprehensive Health Information Exchange (HIE) and Accountable Care.

**EMC: ADDRESSING GLOBAL HEALTHCARE ISSUES**

As a healthcare industry leader with over 30 years of experience, EMC has developed solutions that leverage patient information to deliver more complete patient care. EMC® solutions enable healthcare providers and payers to simply and efficiently utilize information to make more informed clinical, operational, and financial decisions. These offerings can play a critical role in an environment where the volume and types of sensitive, secure patient information is constantly increasing. Making information-enabled decisions requires health IT departments to maximize the efficiency of their information infrastructure to keep pace with EHR adoption and other regulatory demands—all with fewer resources and increasing cost pressures. EMC also has long-standing partnerships with leading EHR, HIS, PACS, and Ambulatory Care ISVs that result in joint engineering development to integrate, test, and certify partner applications with EMC hardware, software, and services. Simply put: EMC advances information-enabled healthcare decisions to help healthcare organizations migrate toward the world of evidence-based medicine.

Specifically, EMC solutions enable healthcare providers, payers, and government agencies to:

- Accelerate EHR adoption
- Manage risk and compliance
- Leverage and share predictive data
- Reduce IT costs and complexities
ACCELERATE EHR ADOPTION

Over the last few years, EHR system-related purchases grew substantially as healthcare providers invested in Accountable Care, HIE, and various health IT initiatives. According to IDC Health Insights, EHR spending recently grew 14 percent. Now, the question is how to accelerate the adoption of that EHR in a secure and meaningful manner. EMC products, services, and solutions help to accelerate EHR adoption by providing an integrated information infrastructure that enables immediate access to patient information, drives IT efficiencies, and improves clinical and business workflows throughout the enterprise, thus allowing healthcare organizations to focus on improving patient care and making informed decisions.

With EMC healthcare solutions, products, and services, healthcare providers, payers, and government agencies can capture information at the point of care, store it so it’s searchable and retrievable when needed, and secure it so that only those with authorization have access. In addition, with EMC’s phased approach to developing a cloud-based infrastructure, a healthcare organization’s EHR can become available to more stakeholders, more quickly, and at a lower total cost.

INFORMATION INTELLIGENCE

EMC Information Intelligence helps healthcare organizations become more agile, responsive, and competitive by getting the most out of their information. It ensures that information is accessible and properly managed, stored, and secure. From processing incoming orders via fax or matching invoices in accounts payable to filing medical records or claims from out-of-network payers or providers—intelligent enterprise capture with EMC Captiva® can automate many of the manual, time-consuming tasks that commonly plague the administrative processes of healthcare organizations. Once documents are digitized and stored in a single repository with EMC Documentum® for traditional content management, critical data can be quickly accessed and intelligently processed. Through federation, intelligent access technologies can use and manage data from multiple applications while the data remains under the control of the application that created it. With the EMC Documentum xCelerated Composition Platform (xCp), organizations can create virtual folders and aggregate information to provide a consolidated view of patient records. Using the seamless, standards-based integration through the EMC Healthcare Integration Portfolio (HIP), EHR applications can leverage this virtual repository and technologies such as content management, business process management (BPM), records management, collaboration, intelligent capture, customer communications and comprehensive reporting in their new comprehensive workflows.

MANAGE RISK AND COMPLIANCE

EMC solutions can help provide a secured patient-centric environment which is critical to minimizing data breaches, reducing the risk of litigation, and preserving professional reputations. Healthcare organizations can ensure 24x7 access, anytime, anywhere, with zero downtime for mission-critical applications with fully automated recovery in the event of unplanned interruption or downtime.

SECURING CRITICAL ASSETS

An EMC information-centric security strategy enables healthcare organizations to cost-effectively secure and protect critical information assets at every stage of the information lifecycle. The information infrastructure connects people to data, playing a key role in managing the security of the interactions between the two. To secure users, healthcare organizations can establish, and then assure peoples’ identities using authentication, identity, and access management solutions. For securing the data itself, encryption and key management solutions can be deployed. The union of RSA®, Network Intelligence, and EMC
makes it easier for healthcare organizations to manage, store, protect, and secure their patient information seamlessly and cost effectively.

**COMPLIANCE SOLUTIONS**

EMC Compliance Solutions for healthcare facilitate the protection, security, and retention of critical information, including point-of-care systems, clinical IT, lab information systems, pharmacy management, clinical research, and insurance claims. From simple, low-cost, backup-to-disk solutions to state-of-the-art local and remote replication capabilities, your healthcare organization is prepared to achieve regulatory compliance and ensure high availability of information. The EMC Archer Policy Management Solution also offers the ability to author policy content, communicate it to end users, conduct training campaigns, and view exceptions—all from a single web portal.

In addition, this solution reduces the time and effort required to create and update policies, manage exceptions, and demonstrate compliance with multiple regulations. Archer’s workflow capability also allows the distribution of content to appropriate subject-matter experts for review and approval. You can report on your policy management program and utilize real-time reports and dashboards to display policies and control standards mapped to specific regulatory requirements, identify gaps between your policies and the authoritative sources that govern your business, and monitor policy exceptions enterprise-wide.

**LEVERAGE AND SHARE PREDICTIVE DATA**

In the healthcare provider and payer settings, better decisions lead to better patient outcomes, and better decisions come from having better information. This is what is meant by evidence-based medicine or information-enabled healthcare decisions. The EMC Virtual Desktop Infrastructure Solution for healthcare improves clinical workflows and patient safety by providing immediately accessible, always available desktops that follow clinicians wherever they go. Applications and patient data can be securely accessed from any device with instant login and authentication, increased data security, and reduced operational costs. The EMC Virtual Desktop Infrastructure Solution partners EMC Infrastructure and VMware® View® to enable clinicians to access all applications and patient data from any device and from any location with a consistent, high-quality user experience. Client images and patient data stay in the data center and are managed centrally for strong security and compliance. There is also secure tap-and-go log-in, log-out, and authentication capabilities with single sign-on (SSO). Integration with RSA, the security division of EMC, provides strong data protection and security/compliance monitoring.

With EMC infrastructure and VMware View, data visibility is improved, and management is automated from the desktop to the data center. Provisioning, patches, and updates are simplified and centralized to reduce costs and improve IT responsiveness. EMC Consulting professionals can help your organization deploy virtual desktops cost effectively and with confidence to achieve desired results, both clinically and financially.

**MASTER ‘BIG DATA’**

“Big data” is the result of massive amounts of patient-related data. This data is being generated by clinical and imaging applications that are driven by advances in technology—which is emerging more quickly than ever before in the healthcare industry. In a recent report, IDC Health Insights predicted that over the next 10 years, the amount of digital data created annually will grow 44 fold. Healthcare organizations are increasingly turning to new architectures and tools to help make sense of this big data phenomenon. Additionally, big data requires people capable of interpreting the data in the rapid, predictive manner required in healthcare. Specialized tools will be needed to help them analyze the resulting Petabytes of information. As a result, investment in analytics has increased sharply in recent years as companies use more powerful technology to organize and analyze the sheer volume of the data being generated.
CLOUD MEETS BIG DATA

Since big data is different in scale and significance, it demands a new approach to health IT. Cloud computing, which provides an elastic pool of resources to handle its massive scale, makes big data possible. Through cloud computing, IT resources are more efficient, and health IT teams are more productive, thus freeing up resources to invest in big data and capitalize on opportunities that can transform business through strategic insight. To fully capitalize on this opportunity, organizations need a big data storage platform and a way to drive “Action from Insight,” (see figure 1) and to make information-enabled healthcare decisions. To get to big data scale, organizations need a fully automated, scale-out storage platform that allows them to add capacity at zero capital cost and scale performance and throughput linearly. EMC Isilon® and EMC Atmos® are such big data storage platforms. EMC Atmos products are optimized for global distribution of big data. EMC also offers the new VNX™ unified storage platforms—our best unified storage ever—including our cost-efficient VNXe™ series. EMC Infrastructure Solutions include everything needed to manage cloud data centers and Infrastructure-as-a-Service.

To achieve big data insight, you also need a big data analytics platform that integrates structured and unstructured analytics with real-time feeds and queries through a self-service interface and built-in collaboration. Following the acquisition of Greenplum®, EMC launched a new data computing division that integrates EMC’s best-in-class backup and recovery solutions, Greenplum’s shared-nothing, MPP analytical database technology, and VMware’s virtualization platform into a single data warehouse platform. EMC’s data computing division is purpose-built for big data analytics delivering data in context as a part of all healthcare decision-making processes.

EMC employs its core assets to transform data warehousing into “data computing.” EMC defines data computing as a new data warehouse paradigm which moves processing dramatically closer to the data and analysis closer to the people who need insight. Data computing has the potential to be the next transformative step in data warehousing, which is what is needed in order for healthcare organizations to obtain big data insight and to be able to make information-enabled healthcare decisions.

Instead of a pre-configured data repository, EMC offers a more dynamic device. The EMC Greenplum Data Computing Appliance (DCA) is based on increased flexibility and global control of data management. Loading and query times are simplified to enable easier end-user access to data and improve speed and performance in the face of increasing data volumes.

In addition, security, resiliency, compatibility, and high availability are key dimensions that EMC can deliver that are “must-haves” in a data warehouse device. The device also plays to EMC’s strengths in virtualization and cloud infrastructure. Finally, the device is agnostic at the application and analytics layer providing flexibility to end users who want a choice of vendors rather than standardizing on a single vendor.

Figure 1. EMC’s comprehensive healthcare IT infrastructure portfolio.
CUT IT COSTS AND COMPLEXITIES

As healthcare organizations deploy new technologies and develop growth strategies, EMC products, services, and solutions will dramatically reduce operating and capital expenditures by creating a virtualized pool of resources driving up utilization with less complexity and more automation. Cost savings, centralized management, control, and improved service are all factors contributing to increased interest in virtualization and the cloud. Yet, we know even with client virtualization, when thousands of medical images are stored centrally, storage costs quickly grow. EMC is the #1 choice for virtualization (according to Global Investment Firm Goldman Sachs), thanks in part to award-winning backup and recovery systems from EMC Data Domain®, FLASH drives, and automated tiering of our unified storage family. We help you cut costs and complexity out of the virtualized environment and the cloud.

Last, EMC’s healthcare solutions combine a scalable infrastructure with a healthcare standards-enabled electronic healthcare record archive that provides IHE-compliant data sharing and intelligent information management for digital patient information that can help reduce health IT costs and complexities. EMC’s healthcare solutions make up a scalable, IHE standards-based, secure platform for all medical documents/records/images and applications that can be virtualized.

Using best-in-class applications on a converged hardware platform, the fully virtualized stack creates a medical image and document management environment offering encryption, deduplication, and compression without changing the original file (non-DICOM; TCS and CSS) and deduplication of DICOM files. It archives, secures, retains, migrates, and reconciles all types of content across applications based on clinical business rules. Automated monitoring, 24x7 support, provisioning capabilities, high availability, and disaster recovery are also configured as part of the solution stack.

ADVANCING INFORMATION-ENABLED HEALTHCARE DECISIONS

In the face of ever-growing costs, healthcare providers, payers, and government agencies are being asked to improve clinical and financial outcomes and address growing demand, with limited resources. Meeting these challenges requires a balance of automation, analysis, insight, and strategic innovation, and it is no surprise that healthcare organizations are seeking IT solutions to meet these business needs.

Cloud computing transforms healthcare IT because it increases overall IT efficiency, increases business agility, enables access to multiple care opinions, and enhances secure access to patient history to enable informed healthcare decision making. Cloud computing can also decrease costs and increase accessibility of medical images. A “PACS-in-the-cloud environment” can also easily enable collaboration to increase productivity and quality of patient-related healthcare decisions. Managing big data, whether it is from medical images, patient-centric analyses, clinical research studies, or translational research, is paramount in today’s healthcare IT ecosystems. Clouds can enable healthcare organizations to capitalize on the big data phenomenon to change the way in which value is created from patient-related information. At the same time as big data is transforming business and changing the world, healthcare organizations can harness it to improve their strategy and execution in order to distance themselves from their competitors.

Healthcare IT is at the center of a transformation that will necessitate shared patient records, integrated delivery networks, and an increased dependence on clinical analytics to enable better financial, operational, and clinical decisions. EMC is committed to your success—supporting your need for information-enabled healthcare and evidence-based medicine.