Hospitals are grappling with an onslaught of data growing at exponential rates— with no sign of waning. In addition, they must comply with regulations that have one thing in common: They require massive changes in the volume, integration and management of data.

Couple this with a capricious healthcare environment, ripe with acquisitions, data consolidation, electronic medical records (EMRs), cloud computing, telemedicine, patient online access and more.

The tumultuous mix has healthcare IT shops looking for better ways to manage data. The reason: Effective data management is considered a key driver for improved patient outcomes and reduced costs over the next five years.

Yet, a report from software firm BridgeHead noted a lack of healthcare providers having a migration strategy for either transferring data or moving older data, that is seldom accessed, from primary storage to less costly storage tiers.

It is true that data migration can be a herculean task to handle manually. Fortunately, there are effective technology solutions to help IT decision-makers manage the complex issues regarding hospital data migration.

Data Challenges
Regulations and marketplace trends are requiring healthcare organizations to deal with a number of daunting data management challenges:

Exploding Data Volumes: As the massive volumes of everything from structured and unstructured data, digital imaging and video content increase, healthcare organizations must find efficient and effective ways to store, manage and protect much larger data volumes than in the past.

Content Management: The need to make unstructured information, generated outside the EMR, accessible to clinicians within the EMR interface is increasing exponentially.

Data Privacy and Security: Patient portals and mobile access present new challenges for maintaining patient privacy, data security and data availability.

Data Migration: Think Long Term
Data migration consists of the transfer of data between storage types, storage formats and/or computer systems. It is typically performed programmatically in order to achieve the efficiencies of automated migration.

While effective migration could be considered the linchpin for assuring timely, accurate and quality data, it is not disaster recovery, data center relocation or data consolidation. However, it can work in concert with these initiatives.

“Many people see data migration as a relatively simple, straightforward process,” says Rocky Standifer, CDW manager for systems and storage. “In practice it’s anything but straightforward.”

Planning is perhaps the most crucial step for achieving data migration success. For healthcare organizations grappling with evolving trends and Meaningful Use requirements, long-term planning is particularly important.

“I always advise IT managers to take a step back and look strategically five years down the road,” says Phil Salm, solution architect for CDW’s IBM software practice. “They will want to consider all the ways their organizations will engage patients.”

Planning a viable long-term strategy requires an expert team that includes not just IT but members from the patient care and legal parts of the organization, with a good feel for day-to-day processes and workflows.

“Try to find practicing physicians and other patient care providers who also have some technical and IT know-how,” says David Lee Scher, owner and director, DLS Healthcare Consulting. “While there aren’t many of them, they do exist.”

Estimating short- and long-term storage needs effectively is also critical. If switching vendors or storage protocols, or upgrading electronic health records (EHRs) and other applications, ultimate storage needs may end up being far greater than they would be in the current environment. Many organizations will probably want to consider getting
some outside expertise to help with this part of the planning process.

**Migration Planning Stage**

Other items should also be considered during the migration planning stage.

**Virtualization:** With any data migration, organizations should strongly consider moving to virtualized servers and storage – and possibly even a private cloud. This will help to cut cost and enhance scalability, efficiency and agility. Storage virtualization is an essential enabler of a smooth data migration process with minimum downtime, as well as the advanced disaster recovery and business continuity strategies today’s healthcare organizations require.

**Vendors and Protocols:** To facilitate greater storage volumes and enhanced performance, IT shops may have to move to new storage vendors, products and protocols. Migrating databases and applications is also more complicated than migrating files.

Organizations need to plan carefully how they will move data across systems from different vendors and from, say, Fibre Channel to iSCSI or Fibre Channel over Ethernet (FCoE), or from file-based to block-based data structures. Existing and new equipment may have bridging capabilities that aid the process. Any of these transitions will likely complicate and lengthen the time it takes to do the migration.

**Data Storage Tiering and Archiving:**

As data volumes grow, it will become increasingly expensive and unmanageable to store huge volumes of patient information on high-performance storage. Organizations should consider how much and for how long data has to be stored on expensive storage and how much can be moved and archived, at what times, to other less expensive and lower performing storage tiers.

Automated tiering solutions from major storage vendors such as EMC and IBM migrate data across storage tiers intelligently and can cut storage costs significantly.

**Downtime:** In any data migration there’s a tradeoff between downtime and cost. IT decision makers must determine how much downtime the organization can tolerate and plan a migration schedule that takes tolerance into account. Migrating different applications or parts of applications and data at different times may be advisable.

Some applications and data may be migrated during night hours when only emergency rooms are operating and can get by with read-only access. Other data and applications may have to be migrated live as they’re still being accessed.

**Planning and Design**

The next step is a careful design of the migration methodology, scheduling and tools. Planning carefully for the long term allows IT managers to draw up a feasible plan that works for everyone – even if it’s not ideal.

This is where to determine if third-party migration tools will be needed, such as EMC SAN Copy, Quest Secure Copy or dedicated migration appliances from QLogic, Vicom Systems and other vendors, or whether the current or new storage vendors provide the migration tools needed.

**Preparation:** In this phase, prepare the old environment for migration and install while configuring the new environment to mimic the current one. When moving storage geographically, strongly consider doing the migration onsite and then moving the equipment, as migration across a WAN can be time-consuming and error-prone.

**Migration:** If the plan and design are effective, this should proceed in a somewhat predictable fashion. However, always expect the unexpected.

**Validation and Cutover:** Migration teams should consult with various healthcare departments to determine exactly when to cut over to new systems and storage once they have been migrated. It may make sense to do so at the end of a shift or a weekend, for example. Also required will be a viable plan for effective validation of systems and data, by key IT staff and medical professionals, before the cutover takes place.

**Data Migration Risks**

As with all technology operations, data migration does have some risks. These include:

- Scope creep (additional machines)
- Schedule slip (network outage/bandwidth issues)
- Planned outage/maintenance window limitations
- Resource backup/unavailability
- Hardware failure
- Poor qualification/due diligence/design (storage data sizing/capacity)
- Data corruption

**The Migration Services Alternative**

Data migration can be daunting without the staff expertise to plan and implement the process effectively. Consequently, many healthcare organizations choose to go with an experienced third-party service provider in order to minimize disruption. CDW offers three levels of migration services.

**Basic (Like-to-Like) Migration**

This involves a migration of up to 25TB, across the same storage platform, to up to two locations.

**Standard Migration**

This is the most widely used service for migrations up to 500TB. It includes migration across different platforms and two locations as well as moving some databases and applications.

**Custom Migration**

This offering includes just about any migration scenario and storage volume.

Organizations can expect help with each step to ensure data migration goes as smoothly as possible.