

InsidePerspective

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Technology Planning for 6.0

Jim Fitzgerald, CTO, MEDITECH Solutions Group & Sara Schaeffner, General Manager, Technology Integration

There is a lot of discussion these days about infrastructure requirements relating to the prospective migration of the MAGIC and Client/Server (C/S) 5.X community to MEDITECH's 6.0. In our experience, most of these discussions focus on the potentially significant capital investment that hospitals currently running MAGIC are facing. While there is no doubt that an investment in IT infrastructure will be required for most hospitals to migrate to 6.0, some careful thinking and advanced planning can significantly ease the transition. It is also important to understand that there are really two layers of investments hospitals will make related to a migration to 6.0. The first layer comprises necessary investments to make technology infrastructure reliable enough to support advanced clinical software. These investments are being made across the global healthcare community, without regard to software revision level. The second layer comprises specific investments to support 6.0, and is relatively modest compared to the first layer.

HCIS as we know it.

MAGIC has helped hospitals for years to provide better care at lower cost of ownership because it just works. You set it up on modest technical infrastructure, back it up nightly, and it runs and runs well. HCIS systems implemented in the late 1980's and early 1990's were considered successful when the HCIS worked reliably, helped you gather charges, collect the bills more efficiently, and kept everyone on the same page about lab results, medication, and inpatient care data. In this environment, there was little discussion of recoverability and availability. Most hospitals still used paper records and could continue providing care during a computer downtime.

HCIS Evolved.

Client/Server 6.0 signifies much more than a new version of MAGIC from the wizards at MEDITECH. It fluidly automates the hospital's "back office" as MEDITECH always has done, and goes so much further. A casual glance at an iPhone lets a physician know how their patients are doing. It anticipates clinical workflows to make the HCIS more intuitively part of the physician and nurse's routines. It can easily incorporate evidence-based medicine and a variety of patient safety-enhancing clinical practices. It is extensible through the web. It can be built for 5 9's of availability and very fast RPOs (recovery point objectives) to assure that IT-assisted clinical processes are never interrupted for technology reasons.

The HCIS Paradigm Shift.

In simple terms, computing infrastructure to support clinical decision-making has to be held to the same availability principles as infusion pumps and portable CT scanners because we have reached the stage in the evolution of the HCIS where we are ready to let it be the silent assistant in each patient's daily care. This change was coming whether or not MEDITECH released 6.0. Much of the technology work we have done in the last several years for existing MEDITECH customers has been around the theme of building availability and recovery strategies to protect the adoption of advanced clinical software. From one perspective, some MEDITECH customers may perceive the cost of solidifying their IT infrastructure for the future of healthcare computing as daunting. From another perspective, however, MEDITECH's

perpetual licensing structure helps customers underwrite this necessary upgrade of their computing platform while providing significant new capabilities in 6.0.

As you analyze requirements for a migration to 6.X, we think it's important to separate potential investments and upgrades into different categories and then put them on a time horizon which may have different levels of priority.

Common IT considerations which are not directly related to 6.X, but may be part of your strategic plan could include:

- *Basic data center upgrades.* To be sure your physical plant is aligned with your organizational goals around advanced clinical computing you may be considering space, power, cooling, and even network upgrades. Best practices suggest building to either a Tier 3 (n+1) or Tier 4 (2n or n+2) level of physical and network redundancy. These costs are baseline infrastructure investments that do not relate to software version and should be considered separate from the investment to migrate to 6.X.
- *Recoverability upgrades.* Over 100 hospitals running advanced clinicals under 5.X are using our JSite recovery service or have established secondary recovery sites within their own campuses or extended footprint in the last several years. Some concerned about maintaining patient records in case of a geographic disaster, do both. The well-worn path to rationalizing these investments is to assess the risk of the business and clinical impacts of downtime on your organization and determine a budget and timeline for establishing your plans. Improvements in your RPO (recovery point objective) and RTO (recovery time objective) should not be linked to the cost to migrate to 6.X, as these decisions are being driven by the growing use of HCIS technology to assist in patient care, and not by the version of software you are using. We are generally opposed to "swallowing the elephant" so we would attempt to dissuade most customers from implementing an operational/disaster recovery project at the same moment in time as 6.X. If 6.X is several years away, now is the time to consider your risk tolerance and make appropriate plans. If 6.X is coming in the next 12 months, then any disaster/operational recovery investments might be best aligned with your clinical go-live.
- *Availability upgrades.* Many hospitals are interested in the holy grail of "Zero Downtime". Tools exist today in the MEDITECH world to achieve this state from an infrastructure perspective with IDR (Integrated Disaster Recovery), SAN Mirrors, and Stratus Servers. These tools can apply to any version of MEDITECH. In 2009, MEDITECH is expected to announce support for Windows Clustering as an option for 6.x. These technologies are a luxury for many and a requirement for some, but they are not a requirement to implement 6.X.
- *Data management upgrades.* The growth of data sets, escalation of compliance requirements, and sheer volume of online medical records are driving a rethinking of data management that is not specifically connected to 6.X. To the best of our knowledge over 390 sites were running either Valco or Blue Chip and 227 sites had signed up for MEDITECH's Scanning & Archiving module before 6.0 was even announced. Careful investments in archiving technologies and management tools can reduce the stress on your production system and your backup and recovery infrastructure while meeting your compliance goals. If your time window allows, developing a plan for implementing or modernizing your archiving capabilities prior to implementing 6.X makes a lot of practical sense. It is true you may have to expand your data stores if you decide to use your archives as a means of warehousing legacy system data, but many sites are opting to use 6.X as a fresh start in which case Archiving remains in its normal role as an important element of HCIS strategy regardless of version level.
- *Virtualization.* Whether virtualizing servers, storage, or networks, virtualization is a powerful tool for enhancing the manageability of your IT resources, reducing your system, power, maintenance, and cooling footprint, and enhancing your recoverability. In TCO terms, virtualization efforts often pay for themselves in 6-9 months. MEDITECH customers at all technology and version levels are making these investments and realizing the benefits for both MEDITECH and non-MEDITECH applications. Virtualizing today is not by any means a

pre-requisite for moving to 6.X, but can provide immediate benefits in your existing infrastructure *and* decrease the future investments required to go-live with 6.X

IT considerations related to 6.X can include:

- **Servers:** If you are already running Client/Server, it is likely your requirements will increase modestly. 6.X uses a new category of servers for journaling transactions, but beyond this, requirements are substantially similar to existing C/S 5.X sites and may actually be somewhat less in the area of CITRIX or MEDITECH Application Servers. Some MAGIC shops will need about the same number of file servers but they will be a bit more powerful and you will need a few more servers for transactions and background jobs. Some timing of these investments can be done as you ramp up new 6.X. Implementing virtualization prior to 6.X can significantly reduce the number of physical servers required to support the "parallel run" and then the 6.X go-live.
- **Storage:** It is an inevitable fact that as the applications get richer and the compliance requirements get deeper, the storage gets bigger. You will likely see a 30-40% increase in storage requirements for departmental applications and a 100% increase in storage requirements for clinical applications. These increases are generally offset by the increasing sizes and falling prices of disk drives for modern storage arrays. You will need a SAN if you do not have one now, although the upfront expense of getting into a SAN can often be offset over time as you share it across multiple servers and applications and centralize your storage management.
- **Backup:** 6.X uses ISB (Integrated Serverless Backup) to more efficiently backup and recover system volumes. If you are still using MAGIC Backup, you will need to plan for this incremental cost. If you already have ISB, you may simply need to acquire licensing from BridgeHead or EMC to cover additional servers and storage resources.

Another view considered.

Many industry pundits, including Nicholas Carr, author of *Does IT Matter?* and *The Big Switch* would suggest that in-house data centers are on their last generation, and that soon all IT services and software will be efficiently hosted "in the cloud". If this is a 5-year transition for the commercial market experience tells us that it will be a 10 year (or more) transition for healthcare, especially given the extensive customization that will make it hard to stand up HCIS applications in the software-as-a-service model. On the other hand there can be immediate benefits to considering managed services for hosting MEDITECH applications, disaster recovery, and archives. Capital outlays are greatly reduced, operating costs become predictable, and IT staff can focus on the success of your clinicians and administrators with the MEDITECH software. As part of Perot Systems, the MEDITECH Solutions Group is in a position to help you explore all your options, whether through building your own infrastructure or leveraging a managed service.

What is the experience of the MEDITECH Solutions Group at Perot Systems with 6.X?

MEDITECH has chosen to maintain complete focus on creating robust, scalable, supportable, state-of-the-art HCIS applications completely in house. We work next to their executives and senior technologists when new applications are being developed and new technical requirements are being considered. Our consultants train next to their peers at MEDITECH to enhance their understanding of MEDITECH applications. Our project and support teams are in constant contact with each other. Over the course of the last three years, we have worked with MEDITECH to develop, monitor, tweak, and enhance technology infrastructure for 6.0. Our investment in 6.0 is technical (thousands of hours of planning, development, and direct engagement), financial (millions of dollars), and personal. We will stay up all night with you when you go-live. We will adjust things on the fly. If we make a mistake in your technical infrastructure as specified by MEDITECH we will make it right at no cost to you. At your discretion, we will monitor your system and recommend performance tweaks over time. At the end of the day, we will do everything it takes to make you successful with MEDITECH and to help you maintain the long-term, excellent TCO that is the hallmark of every carefully-planned MEDITECH implementation. It is what we do.

Sara Schaeffner and Jim Fitzgerald welcome your direct feedback or personal inquiries at sara.schaeffner@ps.net, james.fitzgerald@ps.net, or at 781-575-1100.

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