A New Look at IT Based on the Current Healthcare Initiatives

Remember When...

• “By computerizing health records, avoid dangerous medical mistakes reduce costs, and improve care.”
  —President George W. Bush, State of the Union Address, January 20, 2004

• Great in Concept
Overview

- Healthcare IT:
  - Must be approached as a ecosystem to get it “right”
  - Is only getting more complex, due in part to government regulations and reporting requirements such as Value Based Purchasing and Meaningful Use
  - Will require continual innovation, efficiencies and automation just to maintain the status quo
  - Is moving from “best of breed” to enterprise-wide clinical systems

IT Challenges

Government, commercial and finance all have their own IT challenges but few have as many challenges, obstacles and regulatory requirements as healthcare IT

- Stringent security and privacy requirements
- High availability to meet the “nines”
- Budget pressure
- Finding and retaining qualified IT staff
- Reporting on one platform for many heterogeneous applications

It’s not the pea. It’s the mattresses that are killing my back!
Network Infrastructure Demands

- Increased demand due to:
  - Uninterrupted high bandwidth demand
  - Uninterrupted roaming ability (wireless)
  - Large file transport
  - EMR
  - High-speed wired and wireless networks
  - Seamless and converged networks

Meeting Network Demands

- Must have wired and wireless infrastructure capable of supporting high bandwidth data, video and files without delay
- Extend support of the latest 10GigE outside of the Datacenter walls
- Take control of your WAPs and control their behavior
- Perform a spectrum analysis to find the hidden gremlins
- Model a simple, integrated network—convergence has value
  - Some healthcare facilities have realized up to a 20% savings in time and labor costs simply by implementing an IP converged network
Compute Demands

- Compute infrastructure must exceed the availability expectations of the EMR application
  - Failover
  - Clustering
  - Geographic High Availability
  - Demand based auto provisioning
  - Zero down time incident response
- Compute infrastructure must be self diagnostic and to a certain extent self-healing and repairing

Meeting Compute Demands

- Enterprise class, redundant components
  - Smart use of options made available to you
- Automation and monitoring
  - Utilizing enterprise class agents that report on defined thresholds or actions.
  - Predictive analysis and action based logic
  - Event consolidation and triggers into ITSM Package
- Virtualization
  - Enables highest availability options for mission critical applications
  - Pre-certified and tested with major infrastructure partners (Cisco, EMC, Dell, etc...) reducing risks of deploying virtual infrastructures
  - Achieves economies of scale
- Geographic Diversity and Smarts

Dual power into a single PDU is false security
Storage Infrastructure Demands

- High performance for transactional data (DB)
  - Patient Medical Record
  - Demographic Data
- Fast and reliable access for fixed content data
  - Medical Images
  - Audio Files
  - Video Files

Meeting Storage Demands

<table>
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<tr>
<th>Flexibility</th>
<th>Regardless of the application or file types of today, the storage requirements of tomorrow are widely unknown. Having a flexible storage architecture will reduce those risks</th>
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<tbody>
<tr>
<td>Storage Virtualization</td>
<td>Abstracting the physical layer of your storage array(s) is one way to be flexible. Multiple NAS and SAN devices can present to the consumer as a unified pool and present to the engineers under unified management</td>
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| Performance and Storage Tiering | - Maintain performance as infrastructure grows on a high speed converged network  
- Deploy and manage to storage tiers by examining business use cases and data access requirements |
| Cost Control | - Data sets that grow without limits, coupled with regulatory requirements to keep data for long terms create an expensive proposition.  
- Data’s access requirements change over time, move the data according to its access requirements (online, near line, offline)  
- Data Deduplication |
Datacenter Demands

- Data centers in general are at capacity
- Higher density often means more power
- Low priority for C-Suite (clinical space generates revenue – IT department doesn’t... or does it)
- Colocation may make sense
- Once considered a burdensome operational cost is now a critical component to safe and quality care.

Meeting Datacenter Demands

- Be proactive, growth should not lead to pain
  - Federal Regulations. HIPPA already forces health records to be stored for a significant amount of time, consider a single MRI is 100+ megabytes
- As BYOD expands in the marketplace, so does the infrastructure required to support it.
- Before technology is procured answer the questions if the data center can provide the physical infrastructure (power, cooling, floor space, etc.) necessary to support the technology.
End User Device Demands

- Nurses to doctors, patients to providers – there is a demand for reliable onsite and offsite access to data
  - Access to Information and Functionality
  - Efficient and Secure
- Affordable and manageable release management
- Wired, wireless and mobile devices (smartphones and tablets)
- Real time monitoring and remote sanitization of devices

Meeting End User Device Demands

- VDI is becoming a reality
  - Hybrid deployment until ancillary devices fully integrate
- Managed full OS deployments
- Unpopular policies
- Wireless Network usability enhancements
  - Mobile Devices and Computing
  - Medical Devices and Collectors
Demands for BI and Analytics

- As payment models shift from fee for service (FFS) to value based purchasing (VBP), the need for BI & analytics becomes paramount
- Currently, data out of our health systems is focused on basic reporting
- There’s a lack of integration between multiple clinical and financial systems
- Difficult to support process improvement for chronic conditions
- Implementing BI & Analytics is required to submit eMeasures electronically and improve performance
  - Quality
  - Cost
  - Compliance

Demands for BI and Analytics

The BI fairy provides user-friendly dashboards with the flick of a wand.
Meeting the Demands of BI & Analytics

- Become a data driven, data accountable organization
- Data identification to harmonize the reporting data across your organization
  - Data map elements to defined events within workflows
  - Ensure collection of data supports reimbursement model and performance improvements
- BI applications to support your healthcare organization and Support electronic submission to regulatory agencies
- Institute a Data Governance Committee in your healthcare organization, supporting the committee with analytic dashboards for compliance with VBP and quality initiatives

Service Desk Demands

- Expanded range of callers demanding a higher First Call Resolution (FCR) rate
- Increased demand for clinical application support
- Immediate access to non-technical SME
- Remote support; credentialed support

The Queen’s subjects suffered under unrealistic help desk expectations.
Meeting Service Desk Demands

• 24x7 access to a multi-tier service desk
  – Entry and exit point
  – Dedicated physician line
• A fully integrated IT service management toolset
• Minimum adaptation of ITIL standards for incident, request, change and problems

What Does All This Mean?

• Implementing a EHR is just one piece of a larger initiative
• Invest in the right technology
• Attract skilled but affordable IT personnel and provide career path options
• Identify if cloud is right for you
• CSO to ensure all security, regulatory and privacy compliance
• Prepare for mobile technology (BYOD)
Uninterrupted EHR Service Requires:

Reliability, Resiliency and Availability

- Network Services
- Compute Services
- Storage Services
- Data Center Operations
- Desktop Services
- End User Support Services
- Event Consolidation & Service Management
- Service Desk
- Process
- Procedures
- Methodologies

Qualified IT Staff Automation

Process Methodologies Procedures

Thank You