

High Availability: the People, Process, and Technology Considerations That Will Help Maintain Sufficient Uptime



**SISTERS OF MERCY
HEALTH SYSTEM**

Deloitte.

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The Business Situation

The Case for Change

Our Approach to High Availability

The Roadmap for Change

Questions & Answers



The Business Situation

The Reality of Healthcare

Clinical Complexity

- Over 10,000 unique diseases

Complexity of Knowledge

- Highly dynamic and rapidly expanding: over 460,000 new additions to medical literature in 2003

Operational Complexity

- Multiple players in the healthcare chain – hospitals, physicians, health plans, pharmacy benefit management companies (PBM), disease management companies, commercial laboratories, etc.. all combined translates into a navigational nightmare for a consumer (Patient, Member, Customer)

Technological Convergence

- Medical devices/equipment and software applications are converging to create new technological innovations

Mercy Health Profile

Hospitals

- 18 acute care hospitals
- 1 heart hospital
- >4,100 licensed beds
- ~150,000 discharges
- >425,000 ER visits
- ~5,000,000 outpatient visits

Physicians

Integrated

- >800 employed physicians
- >150 clinics
- ~ 3 million office visits

Non-integrated

- >3,100 medical staff members

Health Plan

- >246,000 members in Missouri, Illinois, and Texas
- Developing presence in Arkansas (50,000)
- Mercy-wide TPA for all co-worker claims
- Commercial, Medicare, Medicaid, MyChoice



**SISTERS OF MERCY
HEALTH SYSTEM**

Can our integrated structure work to our advantage as we become information-enabled?

Operational Evolution

Standardization

- Clinical and Financial Applications
- Service Teams
- Framework for Quality
- Medication Transformation (Mercy Meds)
- Philanthropy and Major Gift Campaigns

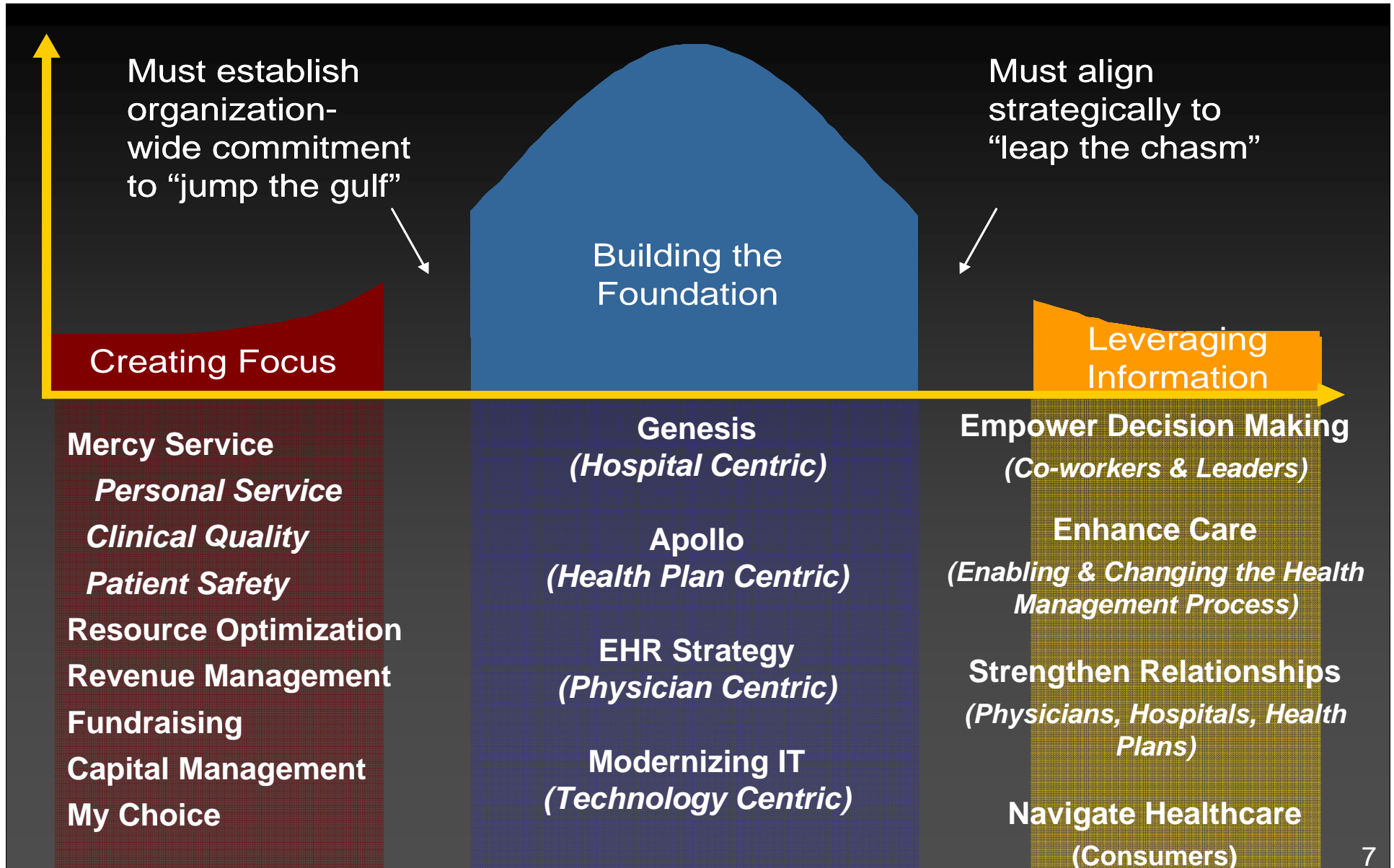
Centralization

- Mercy Information Services Division
- Supply Chain Management
- Group Purchasing
- Capital Management
- Revenue Management

Integration

- A step on the road to becoming “information-enabled” is to integrate information and operational processes between hospital, clinic and health plan

Becoming an “Information-Enabled” Organization



Leveraging Information: Strengthen Relationships

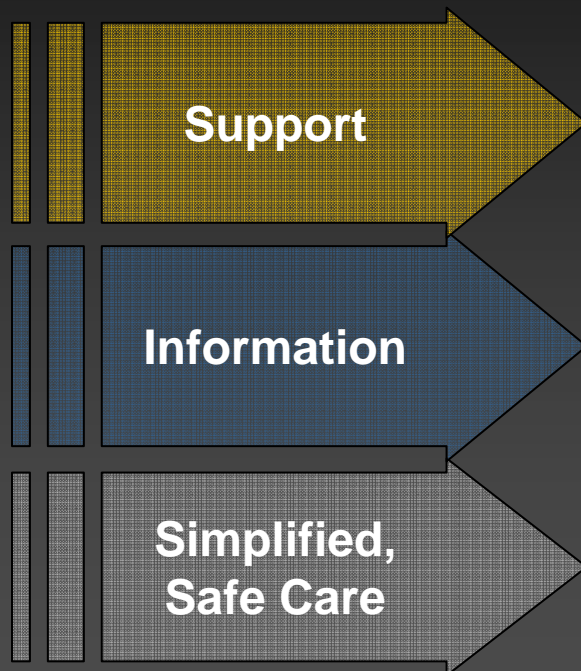
Premise: By utilizing technology and information, we can facilitate more efficient and effective interactions between healthcare stakeholders. ***It is ultimately these capabilities that will drive customer loyalty and improved health status.***

What is Needed

Physicians

Patients

Employers



Cost-effective
access to
technology

Active
Health
Management

Manage
Healthcare
Costs

Timely,
Accurate,
Efficient

What,
How,
When

Bring Focus to
Patient
Management

Knowledge
Based
Medicine

Help
with
Navigation

Demonstrate
Value

Driven by readily available and integrated EMR, EHR, and PHR.



The Case for Change

Background

Many organizations embark on investments in EHR / other clinical systems without sufficient analysis and investment in High Availability (HA) - the people, process, and technology considerations that will help maintain sufficient "uptime" to sustain clinical workflow in both the ambulatory and inpatient environments.

- Evolution to an EHR environment significantly increases the reliance on the underlying technology**
- The underlying technology, including data centers, networks, storage, servers, desktop, and disaster recovery, must be available when needed by any EHR applications**
- The IT processes and staff managing and supporting the technology are also critical to delivering availability**

Background (cont.)

The challenges of High Availability are not limited to what is directly controllable by IT. Two other key influences include:

- The ability of software to operate in a High Availability environment**
- The ability of commercial hardware to operate in a High Availability environment**

Background (cont.)

While often seen as a technical issue and solution, according to Gartner, up to 80% of outages are caused by people and process issues, not the underlying technology:

- **Strong operational change management can deliver significant benefits to enterprises that care about IT efficiency, quality, and service.**
- **So what does this mean? It means that High Availability is NOT just a product of a strong technical infrastructure, but is the product of a robust set of IT processes, technology infrastructure, and the resources in a culture that is “obsessed” with availability.**

Quotes From The Field

- **“I am not worried about the overall implementation of Epic...having High Availability is what keeps me up at night.” – Implementation Team Sponsor**
- **“There shouldn't be downtime.” - Hospital CEO**
- **"Users need to be able to use a PC anywhere within a Mercy facility during any time of day and be able to get access to what they need." - Mercy Physician**
- **"We want Mercy to be THE place that physicians want to come and work. We cannot do this without having high availability." - Hospital COO**



**Our Approach to High Availability ...
Assessment and Improvement**

People, Process, and Technology

In order to increase availability and prepare for our clinical systems implementations, IT and the overall support model needed to be assessed from three angles; People, Process, and Technology.

Discipline area	Description
People	Having the right people/mix of people, skill set, attitudes, roles and responsibilities, and leadership abilities in place to be successful in achieving expected results.
Process	To achieve high availability we need to consider processes, specifically whether they are appropriately documented, followed and enforced, able to be measured and reported on, reasonable for all parties, have clear ownership, and are trained, communicated, and updated accordingly.
Tech.	Technology needs to demonstrate redundancy, resilience, repeatability, flexibility, capacity in order to support our goals for achieving high availability. In addition, technology needs to always be on/available and be easily supported and maintained.

Components such as Balance, Change Leadership, and Business focus were considered across all three dimensions.

Scope of HA Assessment

	Process	Technical Infrastructure	Business/Clinical Integration
People	<ul style="list-style-type: none"> • Appropriate roles and responsibilities for processes • Clearly delineated rules of engagements between processes • Skill set alignment 	<ul style="list-style-type: none"> • Becoming Business Partner • Skill set alignment (Genesis and other systems) • Customer Service Focus 	<ul style="list-style-type: none"> • Governance • Transitional and end-state roles to support Genesis (Shared service organization) • Becoming a 24/7 support organization • Skill set alignment
Process	<ul style="list-style-type: none"> • Availability Management • Capacity Management • IT Service Continuity Management • Service Level Management • Systems Operations • Release Management • Service Desk • Incident Management • Problem Management • Change Management • Configuration Management 	<ul style="list-style-type: none"> • Addressed under Process thread 	<ul style="list-style-type: none"> • Service Level Management • Release Management • Service Desk • Incident Management • Problem Management • Change Management • Configuration Management
Technology	<ul style="list-style-type: none"> • Tools to automate MISD processes • Inter-process interfaces 	<ul style="list-style-type: none"> • Network • Storage • Servers • Databases • Desktop • Infrastructure Monitoring • Facilities • Applications • Disaster Recovery 	<ul style="list-style-type: none"> • DBMS • Interfaces and monitoring • Web infrastructure • Applications most sensitive to loss of availability

Typical High Availability Focus Areas

A High Availability Assessment should identify several focus areas to be addressed to optimize availability:

- 1. Project Management:** use a rigorous and consistent process within IT, including vendor management and procurement
- 2. Disaster Recovery/Business Continuity/Redundancy:** provide solutions that address operations continuity under a variety of adverse events
- 3. Incident/Problem/Event Management:** implement a consistent, reasonable enterprise-wide environment for monitoring components, reporting events, managing incidents and problems through resolution
- 4. Change, Configuration, and Release Management:** use a consistent reasonable enterprise-wide process for performing QA, QC and testing, then managing change, configuration and releases into production through completion
- 5. Business and IT Integration:** clearly define how the business and IT will work together to design and build the application, and support it post-production, to include staffing, skills definition and assessment, on-boarding, and change leadership

Typical High Availability Focus Areas (cont.)

6. **Human Resources:** address staffing, skills definition and assessment, on-boarding, and change leadership
7. **Service Delivery:** implement reliable service delivery for the business (application tiers, SLAs, capacity management)
8. **Data Center Strategy:** define a strategy for data centers and the roadmap to implement the strategy
9. **Storage and Information Management:** develop a strategy and process for managing and using storage in support of information
10. **Technology Infrastructure:** identify and remediate any current issues with current technology infrastructure elements



The Roadmap for Change

Making the Change to High Availability

The evolution to a High Availability environment requires that an IT organization proceed down two concurrent paths:

- Internal: build the case and action plan for evolving towards High Availability
- External: leverage available resources to nudge vendors in the direction you want them to go regarding product development and enhancements

Move towards High Availability at your own pace, but recognize that influences beyond your control may force you to move quickly.

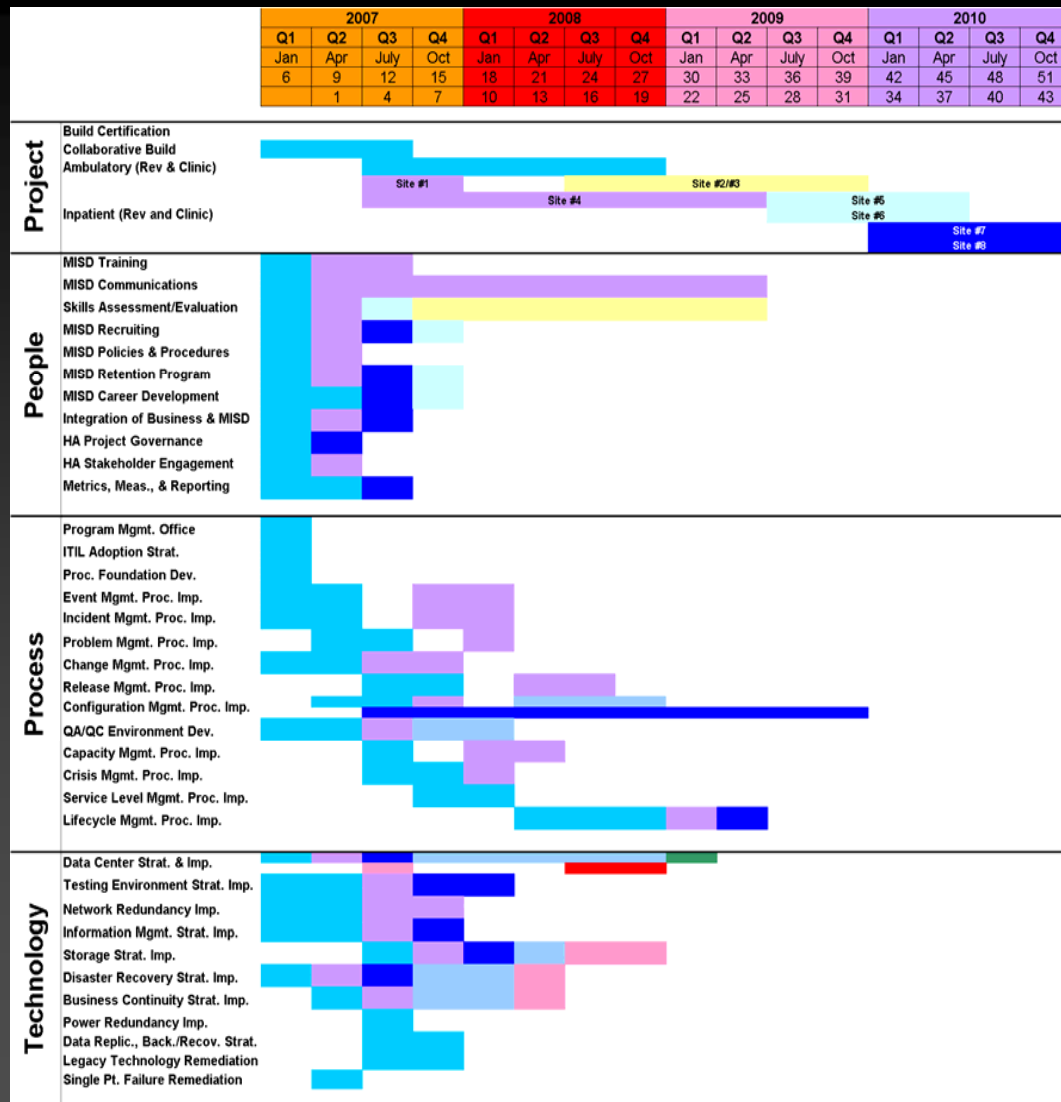
Areas Internal to IT

We are balancing a variety of needs with the costs to implement.

People	Process	Technology
<ul style="list-style-type: none"> • Recruit and Retain the very best people • Improve Training Curriculum • Improve Career Development • Establish strong communication plan • Establish rigorous policies and procedures related to overall IT support with an emphasis on HA • Actively push a culture that integrates business and IT to provide joint accountability and joint reward for HA and overall application support • Establish a rigorous and measurable set of staff metrics related to HA 	<ul style="list-style-type: none"> • Leverage ITIL and other process improvement techniques to enhance all IT processes • Improve IT capabilities ... and then teach the business and all support areas • Build a robust and empowered HA program office to prioritize and manage HA activities • Make HA the top priority initiative in the organization – projects need to be able to answer “How will this positively impact HA?” • Provide the technology tools to automate processes appropriately 	<ul style="list-style-type: none"> • Set plans for a new overall data center • Plan for synchronous vs. asynchronous redundancy • Determine the redundant “footprint” of applications needed for HA • Look at wireless, LAN, and WAN for potential failure points, etc. • Identify and replace technologies that are difficult to support • Define and implement standards for mobile computing platforms that meet business needs

Integrated IT Roadmap

The roadmap sequences the IT-related High Availability activities to the overall implementation plan.





Questions & Answers

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