Health Information System
“Our Way Forward”

8/19/2014
Bill Kim, CIO
Strategy to Meet the Future (& Estimated Timeline)

- **Strong Infrastructure Foundation**
  - 2014-2015
  - Basic Medical Grade Infrastructure in place to start Implementation of EHR

- **Effective IT and Clinical Support Teams & Due Diligence and Planning**
  - 2014-2015
  - Next Generation Electronic Health Record System Functions
    - 2016-2017
    - Integrated Health Information System Across Continuum of Care
      - 2018+

- **Mature Medical Grade Infrastructure in place to Roll-out EHR**
• Equity in Access
  • Financial Long-term Viability
  • Excellence in Healthcare
  • Population Wellness Management

• Innovation
  • Seamless Collaboration
  • Integrated Care Across Continuum of Care

• Interoperability across all systems (EHR, TeleHealth, Communication, Business Analytics, etc.)
  • Unified Electronic Health Records System

• Right Solutions “Blue Print”
  • Value “Add” Processes (LEAN and IT Service Delivery Model)
  • Workflow and Requirements Assessment

• Reliable and Cost Effective IT Infrastructure (Network, Servers, End User Devices)
Prerequisites

1. Reliable and Cost Effective IT Infrastructure (Network, Servers, End User Devices)

2. Effective IT Operations & Project Management
   - Interoperability across all systems (EHR, TeleHealth, Communication, Business Analytics, etc.)
   - Unified Electronic Health Records System
   - Right Solutions “Blue Print”
   - Value “Add” Processes (LEAN and IT Service Delivery Model)
   - Workflow and Requirements Assessment

3. Clinician Training & Optimization (Clinical Informatics)
   - Value “Add” Processes (LEAN and IT Service Delivery Model)
Expediting Change Approach: People, Processes, Technologies

Effective Reliable Medical Grade IT Services
"Establish industry standard Medical Grade Infrastructure foundation to meet today’s and tomorrow’s needs."

- **Converged**
  - Integrated and simplified data, video and voice communication technologies

- **Stable**
  - Uninterrupted Systems and information availability

- **Responsive**
  - Faster Information access

- **Secure**
  - Protected confidential data

- Reliable and Cost Effective IT Infrastructure (Network, Servers, End User Devices)
Network Objective:
Right Sizing for Today and Tomorrow

Wide Area Network Connection Compared
1 Gbps (gigabit per second) = 1000 Mbps (megabits per second)

We are not sized for today!
Understanding the Dashboard

Initiative Scope
Objective
Status or Estimated
Delivery Date

• Interim Plans and Actions prior to final objective state
• Status and dependencies related to Objective

Color Coded “Quick Status” Box

Green - Completed
Yellow - Active planning, design or implementation
Red - No Action to Date or Delayed due to dependency
## Wide Area Network: Communication Between Sites

<table>
<thead>
<tr>
<th>Primary Sites (3 DPH Data Centers)</th>
<th>10 Gbps Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No single point of failure (SFGH-LHH-1380)</td>
<td></td>
</tr>
<tr>
<td>• Auto failover to independent AT&amp;T fiber optic connections at 250 Mbps-500 Mbps</td>
<td></td>
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<table>
<thead>
<tr>
<th>Dual Path to CCSF DT</th>
<th>10 Gbps Target Dec 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In design phase with DT, ETA pending</td>
<td></td>
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<tr>
<td>• Dependency for offsite server virtualization initiative</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Remote Sites (TeleHealth)</th>
<th>1 Gbps Dec 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1 Gbps redundant connections in implementation</td>
<td></td>
</tr>
<tr>
<td>• 10 Gbps connections pending CCSF fiber optics rollout</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Remote Sites (Fiber Optics Ready)</th>
<th>1 Gbps Dec 2014</th>
</tr>
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<tbody>
<tr>
<td>• 1 Gbps connections in implementation</td>
<td></td>
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<tr>
<td>• 10 Gbps redundant connections in due diligence phase, ETA pending CCSF fiber availability</td>
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<table>
<thead>
<tr>
<th>Remote Sites (No Fiber Optics)</th>
<th>100 Mbps-1 Gbps Dec 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Leased commercial 100Mb to 1 Gbps connections in planning, ETA pending</td>
<td></td>
</tr>
<tr>
<td>• 10 Gbps redundant connections in due diligence phase, ETA pending CCSF fiber availability</td>
<td></td>
</tr>
</tbody>
</table>
### Local Area Network: Communication Within Each Site

<table>
<thead>
<tr>
<th>Location</th>
<th>Status and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>New SFGH Medical Grade Network</td>
<td>June 2015 In planning phase, Part of “SFGH Rebuild” effort, Reference model for rest of DPH</td>
</tr>
<tr>
<td>Laguna Honda Hospital Medical</td>
<td>Late 2016 Network simplification in due diligence, targeting Feb 2015, Medical Grade Network, targeting late 2016</td>
</tr>
<tr>
<td>Grade Network</td>
<td></td>
</tr>
<tr>
<td>1380 Howard Street* Medical</td>
<td>Late 2016 Network core risk mitigation and redundancy complete, *Medical Grade Network, targeting late 2016-Pending final occupancy plan</td>
</tr>
<tr>
<td>Grade Network</td>
<td></td>
</tr>
<tr>
<td>Remote Sites (TeleHealth)</td>
<td>Late 2016 Disparate network integration in implementation, ETA Dec 2014, Medical Grade Network, targeting late 2016</td>
</tr>
<tr>
<td>Medical Grade Network</td>
<td></td>
</tr>
<tr>
<td>Remote Sites (Fiber Optics Ready)</td>
<td>Late 2016 Medical Grade Network, targeting late 2016</td>
</tr>
</tbody>
</table>
Local Area Network: Communication Within Each Site

Remote Sites (No Fiber Optics)
Medical Grade Network Late 2016

• Medical Grade Network, targeting late 2016
Servers (Data Centers) Objective: Reliability, Efficiency, and Flexibility through Consolidation and Simplification

Current DPH
500+ Servers

Future DPH
50% Less Servers
Fully Redundant

For On Premise Only Systems
Mirror Set

SFGH
LHH

State of CA
Backup in Sacramento

CCSF
<table>
<thead>
<tr>
<th>Location</th>
<th>Overview</th>
</tr>
</thead>
</table>
| New SFGH Medical Grade Data Center (Mirrored) June 2015 | - In planning phase  
- Part of “SFGH Rebuild” effort  
- Reference model for LHH (future mirror site)  
- Disaster Survival required systems location |
| Leverage CCSF Dept of Technology Virtual Server Farms Nov 2014 (Start Migration) | - In planning phase  
- Non Disaster Survival systems location  
- Behavior Health and Population Health systems future home |
| Laguna Honda Hospital Medical Grade Data Center (Mirrored) Late 2016 | - Planned mirror site to SFGH for full redundancy |
| 1380 Howard Street Decommissioned Mid 2017 | - Data center to be decommissioned  
- System to migrate to SFGH, LHH and CCSF |
End User Devices Objective:
Reliable, Seamless, and Secure Health Information Access and Communications
## End User Devices: Collaboration through Uncomplicated, and Ubiquitous Communication

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| DHP Wide Virtual Desktops    | • Replace stand alone desktop computers  
                                • *Single Sign-on with Session* that follow clinicians  
                                • Virtual Desktop Servers at SFGH and LHH in implementation, ETA Dec 2014 |
| DPH Wide Wireless Phones     | • Voice over IP wireless phones  
                                • Pilot at SFGH expansion in planning  
                                • Medical Grade Network dependent for full function |
| DPH Wide Video Conferencing  | • Anywhere video conferencing  
                                • Medical Grade Network dependent for full function |
| DPH Wide Telemedicine        | • Phase 1 (17 locations) in implementation, ETA Dec 2014  
                                • Medical Grade Network dependent for full function |
“Way Forward”
People and Capabilities

“Become a World Class IT Organization to help our business succeed.”

Effective IT Operations & Project Management

**Adopt**
- Learn from industry standard in good practices and turn them into best practices to adopt to your changing business

**Talent**
- Strategically and tactically manage skills & capabilities through training, mentoring, recruiting and retaining

**Align**
- Align all IT effort to the business strategy and goals

Clinician Training & Optimization (Clinical Informatics)
<table>
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<tr>
<th>Category</th>
<th>Status</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>Training &amp; Certification of all IT Staff</td>
<td>On-going</td>
<td>Started, existing staff completion Dec 2014</td>
</tr>
<tr>
<td>Incident Response</td>
<td></td>
<td>Adopted best practices, such as Incident Response</td>
</tr>
<tr>
<td>Security and Compliance Services</td>
<td>Complete</td>
<td>IT Business Support Services (HR, Finance, Contracting, Procurement)</td>
</tr>
<tr>
<td>IT Business Support Services (HR, Finance,</td>
<td>Complete</td>
<td>Program Management Organization/Project Management Office ETA Nov 2014</td>
</tr>
<tr>
<td>Contracting, Procurement)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centralize education program</td>
<td>Complete</td>
<td>Certification or proficiency assessment test required for all training</td>
</tr>
<tr>
<td>Mentoring program</td>
<td>Planning</td>
<td>Program in planning phase</td>
</tr>
<tr>
<td>IT Business Support team</td>
<td>Active</td>
<td>Working with HR to fill vacancies</td>
</tr>
<tr>
<td>Paid IT internship program</td>
<td>Planning</td>
<td>Program in planning phase</td>
</tr>
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</table>
### People and Capabilities: Clinician Training & Optimization (Clinical Informatics)

#### DPH Wide Clinical Informatics (CI) Team ETA Pending
- CMIO Committee reboot complete
- CI Team reporting and governance structure complete
- CI Director position funding complete
- CI Team staffing and funding in planning

#### DPH Wide Clinician Training Program ETA Pending
- Training continues to be provided as before
- Pending Clinical Informatics Team

#### DPH Wide Clinical System Optimization Program ETA Pending
- Pilot optimization project using outside consultants in planning, ETA Dec 2014
- Pending Clinical Informatics Team
“Way Forward”
Right Solutions “Blue Print”

“Right Electronic Health System, defined by the people who will use it.”

Engage
- Business must own and actively participate in the EHR initiative to have a solution that works for the business

Adopt
- Ready to accept best practices and give up old processes and preconceived ideas

Whole
- Solution that serves the continuum of care across DPH

- Right Solutions “Blue Print”
- Value “Add” Processes (LEAN and IT Service Delivery Model)
- Workflow and Requirements Assessment
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<th>Topic</th>
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<tr>
<td><strong>DPH Wide</strong>&lt;br&gt;Current State Workflow&lt;br&gt;June 2015*</td>
<td>- KPMG (CI and Project Team) in planning and negotiation&lt;br&gt;- Require active engagement by DPH staff&lt;br&gt;- *Significant risk, especially due to SFGH staff availability &amp; new SFGH opening in Dec 2015</td>
</tr>
<tr>
<td><strong>DPH Wide</strong>&lt;br&gt;Future State Workflow &amp; Use Case&lt;br&gt;June 2015*</td>
<td>- KPMG (CI and Project Team) in planning and negotiation&lt;br&gt;- Require active engagement by DPH staff&lt;br&gt;- Minimum requirements for RFP&lt;br&gt;- *Significant risk, especially due to SFGH staff availability &amp; new SFGH opening in Dec 2015</td>
</tr>
<tr>
<td><strong>DPH Wide</strong>&lt;br&gt;New EHR RFP &amp; Selection&lt;br&gt;Dec 2015*</td>
<td>- Bidder must demonstrate actual use of product based on “Use Case”&lt;br&gt;- Bid must have minimal capital outlay investment&lt;br&gt;- *Significant risk, especially due to SFGH staff availability &amp; new SFGH opening in Dec 2015</td>
</tr>
<tr>
<td><strong>DPH Wide</strong>&lt;br&gt;New EHR Implementation&lt;br&gt;Mid 2016 (Start)*</td>
<td>- *Pending funding and contracting</td>
</tr>
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</table>
Health Information System that is “Fit for Purpose”

**Infrastructure**
- Stable
- Fast
- Available

**Organizational Structure**
- Nimble
- Accountable
- Effective

**Unified Health Systems Capabilities**
- Coordinated Care Across Continuum of Care
- Single System or Multiple Integrated Systems
- Meet DPH Needs