The Evolution of Smart for Healthcare Facilities
5,564 acute care hospitals in the United States

1,460 in Canada
4,466 in Mexico

United States
- 20.2% a state-owned
- 58.5% not for profit
- 21.3% for-profit
Healthcare Mega Trends

- Pandemic Response
- Patient Centered Care
- Regulatory Compliance
- Finance
- Cybersecurity
- Technology
Path to Convergence

- Systems running on same network infrastructure
- **Systems Integration** within each “silo”
- Convergence of Building, Clinical and Business Systems
- HL7 (Health Level 7)
Converged Systems Concept

Maximize your Technology Investment with Integration!

Traditional Low Voltage Systems

Clinical Applications
Healthcare “Smart Building” Evolution

System Integration
Facility/Clinical/Business Convergence

Data Aggregation

Automation and Response

Intelligent and Adaptive True AI
Leveraging all the Data – IOT and AI

Enterprise Data Intelligence

Applications

Analytics & AI

OT (Operational Tech)
- HVAC
- Fire Safety
- Security
- BAS
- Lighting
- Power

CT (Clinical Tech)
- EMR
- Nurse Call
- Clinical Coms
- Pharmacy
- Lab
- EVS
- Bed Mgmt
- BioMed

IT (Information Tech)
- 5G
- Hyper Converged Infrastructure
- Network Infrastructure
- IT Applications

- Predictive Analytics
- Intelligent Alerting
- Event Response Automation
- Intelligent Workflow
- Simplified Integration
Intelligent Code Blue

The patient rooms will respond to the code blue event by automatically preparing the room to save a life.

- Building Automation System "listens" to Nurse Call for Code Blue event and room number
- Lights turned on
- Blinds adjusted
- TV turned off
- Thermostat override – Maximum cold air sent to room immediately
- Display relevant patient clinical data on screen in room
Integrated Staff Duress

1. Staff member pushes duress button on RTLS staff tag
2. Security notified of exact location of duress (and who is needing assistance)
3. Simultaneously the 10 physically closest staff members get an alert on their mobile devices with exact location of event
4. Nurse call system lights flash near location of duress and ring alarm at closest nurses station
The Smart Patient Room

BYOD Application  Patient/Family Control

- Room Temp Control
- Lighting Control
- Blind Control
Voice Activated Smart Room Control

Voice activated room control
- Temperature
- Lighting
- Blinds
- Music

Non-Clinical Requests
- Blankets
- Water
- Ice
- Pillow
Command Center

Each patient encounter is smooth and pleasant due to unified command center (Facilities, Clinical and IT). Key service areas are monitored and managed in real time and care is coordinated.
Contact Tracing

- Critical for management and containment… A look back in time
- RTLS (Real Time Locating System)
- Utilizes “tags” for staff, patients, assets
- Infrared, Ultrasound, UWB, WiFi, Bluetooth
TeleNursing

- CCTV cameras in patient room
- Reduces clinician exposure risk
- Integrated to Nurse Call
- Enhances observation and safety
- Reduces PPE consumption
- Increases patient satisfaction
- Not-recorded due to HIPAA
Thermal Imaging Solutions

• Thermal cameras
• Thermal Kiosks
• Integration to access control
• Facial recognition
• Enhances observation and safety
• NDAA/FDA certifications required!
“Pandemic Mode” – Flexible Patient Room Configuration

- Convert individual rooms or entire wings/wards to Negative Pressure
- Dynamic configuration options
- Quickly respond with flexible space
  - Step Down Units (Acuity Adaptable)
  - Triage and non-clinical space conversion
  - Capacity Expansion (Adding additional beds)
  - Increased infrastructure (wired/wireless)
Where do you start?
Best Practice Approach

1. Baseline Review
2. Needs Assessment
3. Design
4. Integrated Delivery
5. Technology Commissioning Assistance/ Day 2 Support
Redefining the Patient Experience Through Technology Convergence

Experience Tim’s seamless and efficient healthcare appointment thanks to the integration of technology.

Automated Patient Satisfaction Management

- Notify care team of possible patient satisfaction issues due to excessive wait time. (Real Time)
- Notify patient satisfaction team/call center to manage issue (Post Visit)

Patient waited over 30 minutes alone

1st Appointment Arrival

The Greeter walks Tim to his first appointment to check-in with the Ambassador. Simultaneously, his RTLS band has alerted his second appointment Ambassador.

Technology Navigation • Day In the Life Deliverable
More Testing = Less Drama (and cost!)

Integration Testing Labs (ITL)

- Critical Integration Testing
  - Infrastructure testing
  - Application testing
  - Interoperability
  - Capacity analysis
- Measurement & Analysis of customer-defined outcomes
- Guidance on Future Technology Roadmap
- Active in Standards Development

More Testing = Less Drama (and cost!)
The Big Picture