

Welcome to Lexington

**HTM Equipment Integration Challenges
Working with Information Technology**



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GREGORY GOLL BS CHTM CBET

MANAGER, PROJECTS AND MEDICAL IMAGING SERVICES DEPARTMENT

WELLSTAR HEALTH SYSTEM

MARIETTA, GA

Wellstar Demographics

- ▶ 13 Hospitals
- ▶ 21 Imaging Centers (growing)
- ▶ 17th Busiest Emergency Room in country,
- ▶ 2nd Busiest Emergency Room in Georgia
- ▶ One of the largest healthcare providers in Georgia

Something to think about:

“You never fail until you stop trying.”

Albert Einstein

Background

- ▶ 1985 University of Michigan Health System, Ann Arbor, Michigan
- ▶ 2001 Supervisor at Erlanger Health System, Chattanooga, Tennessee
- ▶ 2015 McLaren Health System, Mount Clemens, Michigan
- ▶ 2017 Wellstar Health System, Marietta, Georgia

Adapting to surprises

- ▶ The Covid 19 Pandemic
- ▶ Shutting of a major hospital
- ▶ Acquiring a new hospital network
- ▶ Expansion of a service line

Things to ponder- The ever changing world of IT

- ▶ BYOD- Bring Your Own Device, is now a common requirement for many new employees
- ▶ BYOD can be dangerous to organizations, as mobile devices may carry malware.
- ▶ Device Mobility can reduce operation costs by 40%
- ▶ The average cost of a healthcare data breach is now \$10.93 million, up from \$10.10 million in 2022,
- ▶ 95 percent of cybersecurity breaches are caused by human error.
- ▶ 43 percent of all breaches are insider threats, either intentional or unintentional.

PACS and EMR there is a difference

- ▶ **PACS - Picture Archiving and Communication Systems.** A system based on the universal (Digital Imaging and Communications in Medicine) standard, which uses a server to store and allow facile access to high-quality radiologic images, including conventional film images. Basically PACS stores pictures and associated information.
- ▶ **EMR - Electronic Medical Records,** which are the digital equivalent of paper records, or charts at a clinician's office. EMRs typically contain general information such as treatment and medical history about a patient as it is collected by the individual medical practice. EMR basically is vital signs and associated information.

Types of Device Security

- ▶ **Physical security-**
- ▶ Limit physical access to a device or system
- ▶ Lock a device to prevent removal
- ▶ Controlled access to areas
- ▶ **Virtual Security**
- ▶ Document OS of system/device
- ▶ Anti-virus
- ▶ **Other issues**
- ▶ Any camera used in a hospital environment

Getting Started: Checking your inventory

- ▶ Internal Inventory
 - ▶ Your Educational Background
 - ▶ Experience
 - ▶ Educational Background of Staff
 - ▶ Current and Prior Experience of not only your staff, but other departments working with you
 - ▶ Certifications

Understanding Basic Components

- ▶ Software
 - ▶ Anti-Virus software local and network administered
- ▶ Hardware
- ▶ Interface Issues
- ▶ Network Limitations
- ▶ Network Components
- ▶ Network Designs / Topography

Common Ways to expose your equipment and network

- ▶ Outdated and unsupported software will always necessitate additional security considerations, but saying that all obsolete software is a security risk is wrong.
- ▶ **Third-party vendors do not utilize the same protection measures**
- ▶ Medical Devices with open access to internet
- ▶ Unencrypted USB drives
- ▶ Open USB ports on any device
- ▶ Unauthorized software installations
- ▶ Social Media
- ▶ Unsecured Laptops (not locked down)

Ways to protect equipment

- ▶ Never share service/configuration passwords with users.
- ▶ Insure only proper access levels with users.
- ▶ Limit access outside hospital network. No Internet unless absolutely necessary on clinical equipment.
- ▶ Create an exception list of all IP addresses of Clinical Equipment, this will minimize risks of automatic software updates.
- ▶ Lock USB ports either physically or by software.

Physical Locks for RJ45/USB

www.connectivitycenter.com



Understanding Your Departments Internal Boundary

- ▶ How far does your department currently work in the Information Technologies Environment?
- ▶ Is your IT services in-house, contracted or a mixture?
- ▶ What are the limitations of your access into the IT Environment?
- ▶ What is your relationship with your IT provider?
- ▶ What is you employers limitations into the IT Environment?
(do they pull their own cables/ install networks)
- ▶ Who assigns/controls IP addresses

Meeting attendance

- ▶ Find out what routine IT planning meetings occur
- ▶ Are there other issues connected to these planning meetings?
- ▶ Understand the topic of the meeting and how it does or does not impact Imaging devices.
- ▶ Get engaged with especially IT security.

Process for requesting IT support/ project involvement

- ▶ Is there a formal process for requesting IT support in a project/installation.
- ▶ Who determines the priority of a request?
- ▶ What is the process for requesting cable pulls or network jack activation. Who actually pulls cables?
- ▶ Is there a lead time for building interfaces?
- ▶ Does IT create their own separate budget?

Software/ IT information Support

- ▶ Secure any software and license documentation immediately.
- ▶ Any loss of software licenses can directly effect future vendor support and potential additional cost.
- ▶ Storage area should have limited access/ ideally securely locked.
- ▶ Make a backup copy of any software if possible and create a secondary storage area, separate from primary storage area.
- ▶ Document software revisions, IP address, anti-virus type, and any other important information in equipment record.
- ▶ Document as many of the network relationships as possible.

System Requirements

- ▶ Specifications in writing
- ▶ Operating System Software
- ▶ How much space is needed?
- ▶ Issues of using OEM and alternative suppliers (Cisco verses Nortel)
- ▶ Mix and match components
- ▶ Can identical components be purchased through hospital sources verses vendor (example printers)

Vendor Security

- ▶ What is the process needed to add a vendor to your accounting/purchasing department?
- ▶ Who is in charge of processing agreements with a vendor?
- ▶ Insure vendor and any staff are properly registered with your hospital.
- ▶ Who is in charge of processing agreements with a vendor?
- ▶ Make sure there is an agreement as to what information a vendor/provider can access.

Security- ask the questions (HIPAA)-

Health Insurance Portability and Accountability Act

- ▶ Will there be any interface to a PACS / EMR?
- ▶ Will patient data with unique identifiers be stored on the devices?
- ▶ Is remote physician access needed?
- ▶ Who owns any computers used for remote access?
- ▶ What is the hospital policy for remote access to patient information by clinical staff?

In House Testing

- ▶ Purchase test equipment
- ▶ Development of in house testing area
- ▶ Allow others to use the area if needed
- ▶ Request network connections
- ▶ Obtain secure location for any important information
- ▶ Define process for securing copies of software and backup configurations
- ▶ Look to reuse important components to save cost

Testing area example



The difference between opportunity and a dead end.

- ▶ Most common pitfalls of ending up supporting IT the wrong way.
 - ▶ Supporting devices which are not directly connected to a patient or providing support to a physiological system.
 - ▶ Assuming support roles without supporting funding.
 - ▶ Working as a system administrator, focused on the clinical side of application. Assigning logins, fixing connection issues, etc.
 - ▶ Taking on any support outside the skill set of your staff, never assume you can find a perfect new employee.

Watch for Good Opportunities

- ▶ Solarwinds – network monitor
- ▶ Palo Alto - network monitor
- ▶ BrainsGate – stroke treatment system
- ▶ Future opportunity- risk being a beta site

Planning Stages

- ▶ What is the purpose of the equipment being replaced?
- ▶ Has anyone involved clinical staff?
- ▶ What is the support requirements of the new equipment?
- ▶ What is the budget for the equipment and on going support?
- ▶ How critical is the equipment to daily operation?
- ▶ Are there any long term support issues?
- ▶ Data storage needs?
- ▶ Has a system administrator been determined?

There is no such thing as a free puppy, beware of reuse!

- ▶ Be absolutely certain of condition of any device you plan to reuse.
- ▶ Make sure the technology is current.
- ▶ Watch for free left over equipment, will it meet all of the current and future needs.
- ▶ Just because you can does it mean you should? (reusing similar components from different vendors)

Budget Issues

- ▶ Has the budget already been set?
- ▶ Early involvement in the Budget process, define your internal issues/costs.
- ▶ Define all components of support, Software License, Installation requirements for hardware, and any changes required to facility including network connections and network closets.
- ▶ Data conversion requirements for legacy data.

Vendor Software/Support

- ▶ What is the installation requirements. (Hardware)
- ▶ Is vendor remote access needed?
- ▶ What is the operating system (OS)?
- ▶ How long has this been used? Any pending end date for OS?
- ▶ Any future plans for future upgrades to OS?
- ▶ What is the anti-virus, in any installed? (Hospital update process)
- ▶ Upgrade path/ever green to keep current.
- ▶ **Remediation of software conflict issues.**
- ▶ Annual support costs? Hourly Time/Materials cost?
- ▶ License costs for expansions?

Disposal Concerns

- ▶ How is patient data removed completely from a retired device/system?
- ▶ Are medical device CPU's uniquely identified?
- ▶ How is disposal of a retired hard drive managed?

Tools for Wireless Spectrum Survey

- ▶ Metageek-Chanalyzer Pro/cost \$500
- ▶ Signal Hound/cost \$1000
- ▶ Spectrum Analyzer/ cost \$8000 – \$30,000

Site Survey- expect surprises

- ▶ Verify all locations that require coverage
- ▶ Who else is functioning in the area?

In House Site Survey

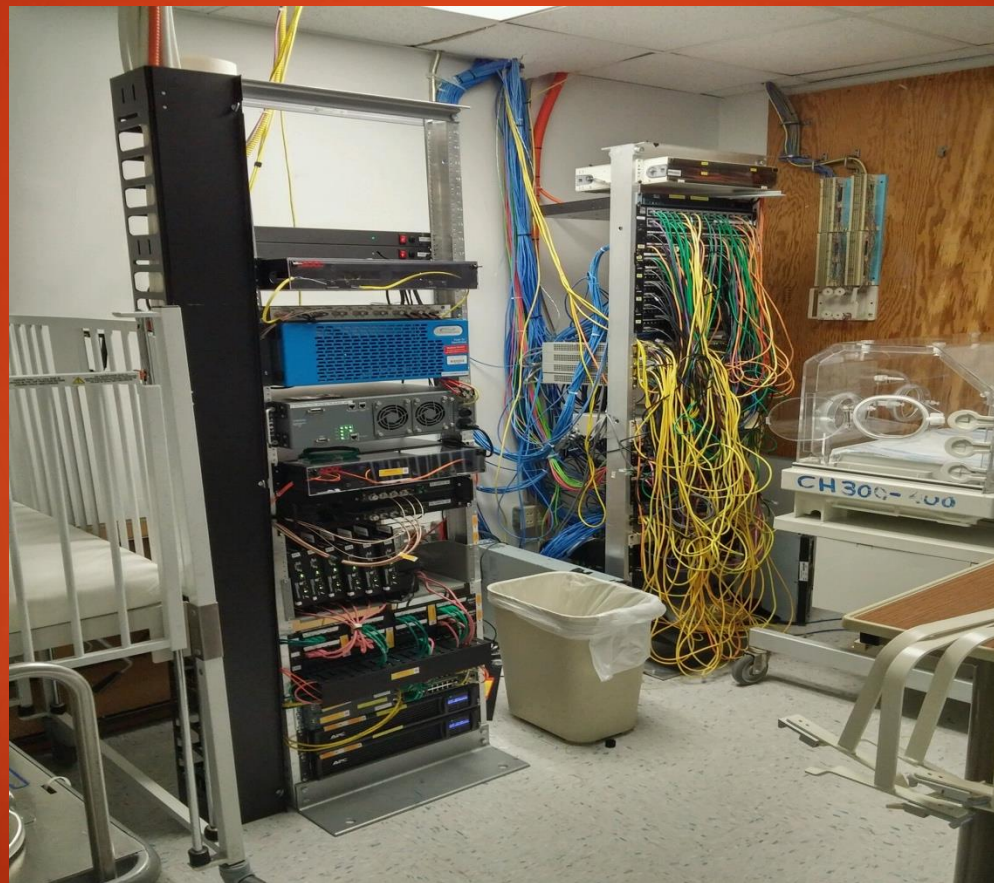
- ▶ Insure all Blueprints are the latest version and that all people involved in the process have the same version.
- ▶ Define Locations of all Network Closets
- ▶ Make sure each person at this stage has the power to make decisions.
- ▶ Locate challenging areas

Network design considerations

Redundant coverage

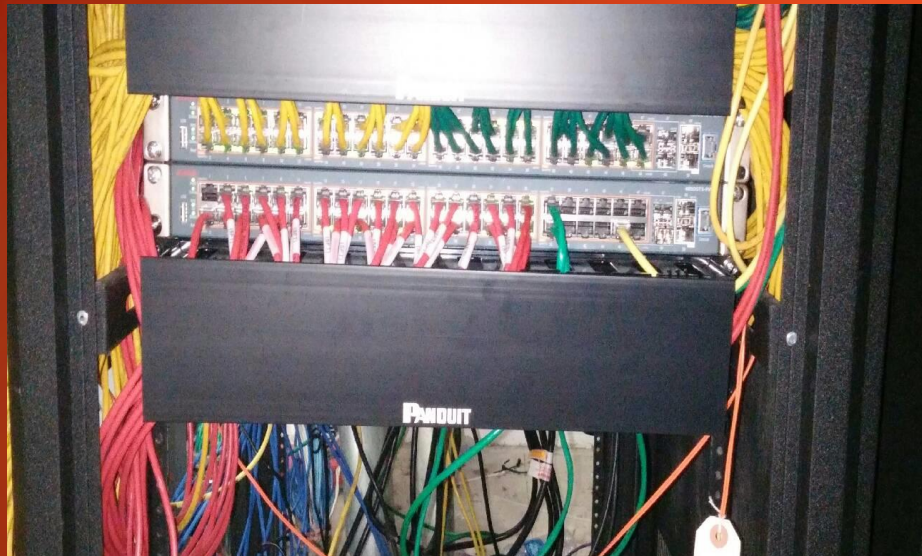
- ▶ How critical is this for patient care?
- ▶ Is this a critical business application?

Beauty and the Beast

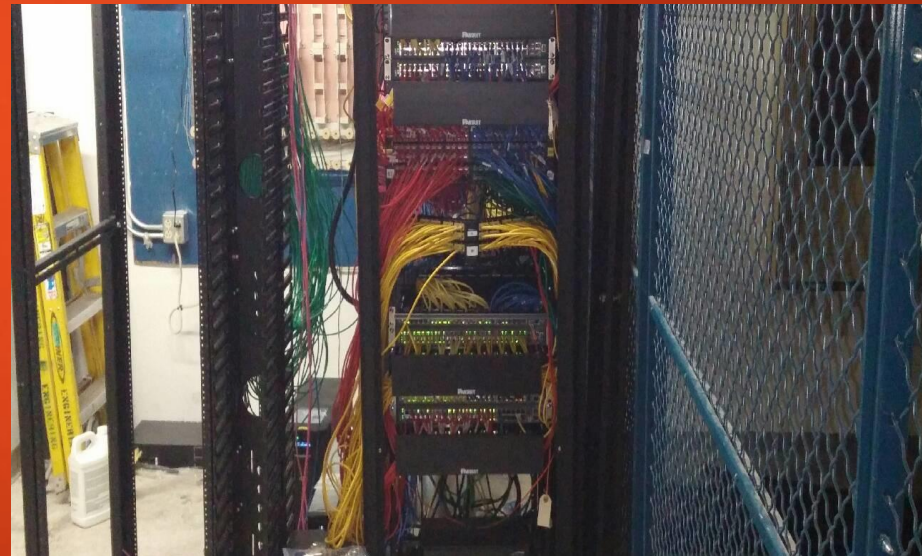


Network Setup Details

Patch Panel Details



The complete rack



Challenging Area

- ▶ Make sure all areas impacted are identified.

Questions

▶ Thank You for Attending

