

Reduce Total Cost-of-Ownership by 35% while increasing Network Performance and reducing Patient Risks with Category 6A Cabling

The Financial Case for Category 6A Cabling in Healthcare Facilities: A Belden White Paper for Healthcare

Executive Summary

Belden's comprehensive cost study and Total Cost-of-Ownership analysis for Category 6A, Category 6 and Category 5e cabling in new hospital construction makes a compelling case for the use of high-performance Category 6A cabling systems.

Modern healthcare facilities are facing many complex challenges. In a recent study, market researchers Frost & Sullivan™ suggested that some of these challenges might be simplified and distilled down to two fundamental issues: 1) the increasing costs of the healthcare delivery process; and, 2) the need for the efficient delivery of reliable healthcare services to a population base that is growing in numbers and living longer at the same time.

Driven by financial, operational and clinical challenges as well as changing regulatory requirements, the healthcare industry has turned to technology to resolve or mitigate these issues.

The result is a vision and strategy that is taking the industry towards technology-driven 'Digital Hospitals' to improve patient care, increase productivity, increase revenues and reduce costs.

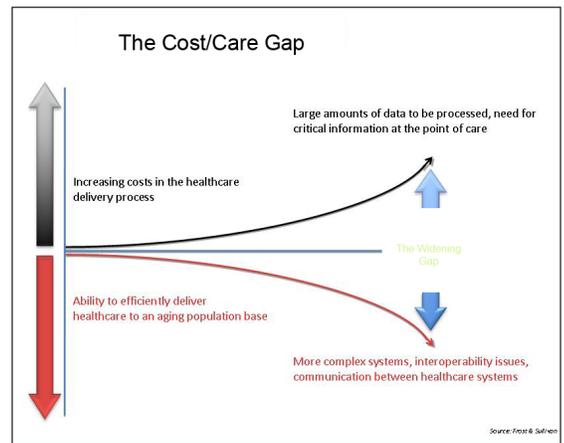
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And while the move towards digital hospitals will likely provide the desired benefits, the Frost & Sullivan model predicts that the tremendous increases in technology-generated information along with growing complexity in systems, interoperability issues and communications may contribute to a widening gap between cost and care.

One of the keys to solving the interoperability and communications issues lies in building robust, high-performance cabling infrastructures that provide reliable, sustainable foundations for the current and future IT and clinical technologies that drive modern healthcare facilities.

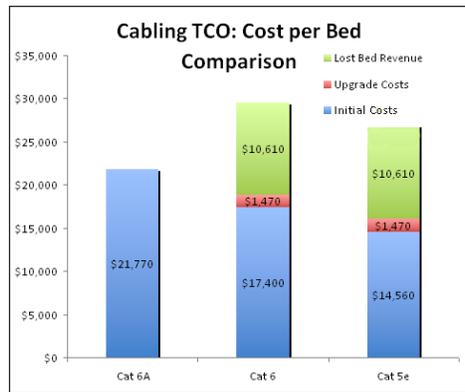
As with any infrastructure system, extending operational lifespan and avoiding costly upgrades are the keys to reducing Total Cost-of-Ownership (TCO) and increasing Return-on-Investment (ROI). In turn, the keys to controlling these factors lie in understanding the initial deployment costs and the projected upgrade costs for the different types of cabling that may be used in healthcare facilities today.



Until now, detailed cabling costs for new hospital construction have not been readily available. For the benefit and decision-support of our end-customers, the consultant community, and our business partner network, Belden has completed a thorough study of these costs. The results are provided in this white paper, along with a comparative analysis of the TCO for an infrastructure based on ANSI/TIA Category 6A, Category 6 and Category 5e cabling technologies.

Our study started by developing and defining a 'typical hospital model' as a 103-bed short term acute care facility, and then went on to design and cost a typical low-voltage cabling system for the facility as commonly deployed in new construction projects today.

The study established that data cabling is the largest of six major cabling cost centers found in the typical hospital network, and then goes on to quantify and compare the impact on initial costs and TCO when Category 6A, Category 6 and Category 5e cabling solutions are used for the data cabling requirements. With these baselines established, we forecasted that the continuous advancement of both IT and clinical system technologies would inevitably require upgrades to at least some portion of the Category 6 and Category 5e-based network designs over their installed lifetime. Adopting a conservative approach, we projected that a realistic upgrade scenario would involve three (3) upgrade events, with each event affecting a 12-bed unit and supporting areas within the hospital (resulting in upgrades to a total of 36-beds, or slightly less than 35% of the model facility's total of 103-beds). Our study carefully calculated the direct costs (material & labor), and indirect costs (lost revenues due to bed closures during upgrade work) for the upgrades to higher performance Category 6A data cabling, and then factored these costs into our total cost of ownership analysis.



The results indicate that implementing a Category 6A-based cabling plant, despite its higher initial cost, will significantly reduce (improve) TCO when compared to Category 6 or Category 5e-based systems and their respective upgrade costs over time.

Key Drivers in Healthcare Cabling System Design

Financial considerations, albeit critically important, are just one element in an effective cabling infrastructure design process. Other key design elements include technology and regulatory issues, compliance with industry standards, and network cabling best practices, and these drivers should be well considered in the design process. While this paper focuses on our cost study of healthcare cabling systems, this section will provide a brief overview of these other drivers to provide a context for the financial data and analysis. These non-financial drivers are developed in greater depth in other Belden documents listed in the Related Publications section of this paper and are available at www.belden.com.

Specifically, our analysis concludes that an initial investment in a Category 6A-based cabling infrastructure will:

- **Reduce (improve) Total Cost of Ownership by 35%** compared to Category 6-based cabling, and by 22% compared to Category 5e-based cabling.
- **Eliminate more than \$1M in revenue losses** (in the model studied) due to bed closures during cabling upgrades.
- **Provide Category 6A performance to 100% of the data network from 'Day 1'**, while initial deployments of Category 6 or Category 5e will only achieve Category 6A performance in 35% of the data network (in the model studied) following a series of costly physical cabling upgrades.

Technology and Regulatory Factors

- **New and evolving applications drive higher network speeds, increased traffic and data volumes:** Diagnostic imaging procedures are growing at ~6-8% per year, with new imaging technologies doubling or tripling image file sizes and driving ~20-25% growth in networked storage volume¹. Healthcare specific technologies like Nurse Call, Telemetry, Infant Abduction, Wireless Telephony and Mobile Devices all bring more traffic and volume to the core network.
- **New patient and visitor-oriented services/applications:** Patient entertainment, beside-computing, digital signage, security/access control and building automation are network-based and converging towards IP-based protocols.
- **Explosive growth of wireless applications and devices:** Wireless transmission of medical records, voice communications, mobile devices, and RTLS and RFID systems for patient and asset location are growing rapidly, bringing more traffic to the core network.

¹ Hewlett-Packard

- **Migration to EMR (Electronic Medical Records) systems:** Fueling heavy investment in new IT systems and bringing new traffic to the network.
- **Healthcare Reform Legislation:** Driving adoption and deployment of new network-based technologies and applications.

Industry Standards

- **The new ANSI/TIA-1179 Healthcare Facility Telecommunications Infrastructure Standard:** Based on the ANSI/TIA-568-C series of standards for commercial premises, the new TIA-1179 standard specifies additional requirements for healthcare network cabling infrastructures.
- **ANSI/TIA-1179 Key Recommendations:** Larger Equipment Rooms (ERs) and Telecommunications Rooms (TRs) for growth; diverse pathways for increased reliability/availability in critical care areas; increased 'work area' outlet densities (from 2 to 14 outlets per work area, depending on function of area); considerations for areas subject to Infection Control Risks (ICR); security and segregation practices to protect life and safety protocols; and, special practices for harsh environments.
- **ANSI/TIA-1179 Recognized Transmission Media:** Recommends use of highest performing media whenever possible and specifies Category 6A cabling for all new healthcare installations.

Network Design Strategies & Best Practices

Network design is a complex subject in its own right. For purposes of this financial-oriented white paper, we will simplify the discussion by focusing on the high-level design strategies favored by today's leading cabling consultants and designers. These key strategies include adopting a holistic network design viewpoint,

designing a unified cabling infrastructure that supports both IP-based and legacy/proprietary applications, and providing migration paths for future IP conversions.

- **IP Convergence:** More and more healthcare applications are or will be IP-based allowing for consolidated operation across a unified cabling infrastructure. Category 6A cabling is required to support 10Gb Ethernet (IEEE 10GBASE-T) and provides the highest performance and greatest capacity for future growth and future IP migrations.
- **Building and Safety Codes:** Regulations for life safety applications such as Nurse Call and Fire Alarms will likely continue to require dedicated infrastructures, even if/when they become IP-based.
- **Cost Reduction:** Some healthcare facilities have realized as much as 20% savings in network operating costs by implementing an IP-converged network and cabling system.

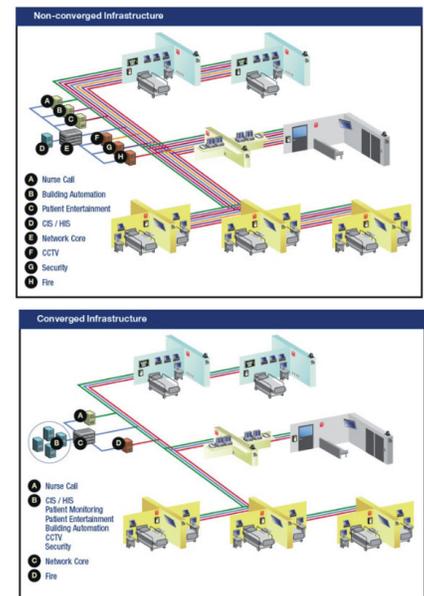
The Financial Study and Analysis

Methodology

Using American Hospital Directory (AHD) data, we first defined the 'typical hospital model' to be used in the study as a 103-bed Short Term Acute Care Hospital, located in a major urban center. The AHD data indicated that 61% of all hospitals are located in urban centers, with 65% operating 150 beds or less, and 31% operating between 50 and 150 beds.

Our typical hospital contains the usual set of applications found in modern healthcare facilities, including: Voice, Data, CATV, CCTV, Security/Access Control, PBX, Nurse Call, Fire, Display, WLAN, Building Automation, Servers and Storage arrays.

With the typical hospital defined and network parameters set, we contracted a recognized expert healthcare network consultant to



The non-converged layout depicts seven dedicated infrastructures supporting seven systems. The converged diagram shows five of the systems on an IP-based Ethernet infrastructure, while the Nurse Call and Fire systems remain on dedicated infrastructures to comply with regulations.

develop the cabling design and product specifications to support the applications throughout the 103-bed facility. The project scope included horizontal distribution and backbone cabling including all racks, patch panels, cable management and conduit as required in ERs, TRs, and above-ceiling spaces. The 'design philosophy' focused on optimizing patient care, reducing clinician 'footsteps' and improving productivity while optimizing cabling and network reliability, maintainability and operations.

Initial Cost Analysis

The total initial cabling cost for the benchmark Category 6-based infrastructure across the 103-bed facility was \$1.8M. Cabling the same facility initially with a Category 6A-based cabling plant would cost \$2.2M, or 25% more

than Category 6; while a Category 5e-based solution would cost \$1.5M initially, or 16% less than the Category 6-based benchmark.

The largest cost center in the hospital network infrastructure is data cabling, representing 25-28% of the total project cost (labor and materials).

Cost Centers (000's)

	Cat 6A	Cat 6	Cat 5e
Data	\$632	\$471	\$369
Cable Mgmt.	\$441	\$392	\$359
Voice	\$348	\$274	\$225
CCTV-Security	\$153	\$151	\$150
Nurse Call	\$181	\$139	\$113
Other*	\$487	\$365	\$284
Total	\$2,242	\$1,792	\$1,500
Cost vs. Cat 6	+25%		-16%

*Building Automation (BAS), Power-Data, Overhead Paging

The largest cost center in the hospital network infrastructure is data cabling, representing 25-28% of the total project cost (labor and materials).

The next largest cost center is cable management, accounting for 23-28% of the total project cost. Some might be surprised by the costs of cable management, however it should be noted that the cable management system includes all above ceiling management, all conduit required to meet smoke/fire regulations and building codes, and all vertical/horizontal cable management and racks in TRs/ERs. Furthermore the cable management system must have the capacity and capability to support other low voltage cabling and network equipment in the hospital, including specialty systems such as fire, wireless telemetry and building automation.

Cost per Bed

	Cat 6A	Cat 6	Cat 5e
Data	\$6,100	\$4,600	\$3,600
Cable Mgmt.	\$4,300	\$3,800	\$3,500
Voice	\$3,400	\$2,700	\$2,200
CCTV-Security	\$1,500	\$1,500	\$1,500
Nurse Call	\$1,800	\$1,300	\$1,100
Other*	\$4,700	\$3,500	\$2,800
Total	\$21,800	\$17,400	\$14,700

*Building Automation (BAS), Power-Data, Overhead Paging

For reference, this table restates the totals by Cost Center as per-bed costs for the 103-bed facility.

Labor/Total Cost Ratio

	Cat 6A	Cat 6	Cat 5e
Data	33%	45%	57%
Cable Mgmt.	23%	26%	28%
Voice	37%	47%	57%
CCTV-Security	50%	50%	51%
Nurse Call	27%	35%	43%
Other*	78%	77%	76%
Average	42%	47%	52%

*Building Automation (BAS), Power-Data, Overhead Paging

Installation labor costs represent an average of 42-52% of total initial costs, depending on the category and type of cables deployed.

The Costs of Upgrades

Definition of the 'Typical' Hospital and Other Design Variables used in this Study	
Type	Short Term Acute Care Facility
Location	Major Urban Center
Capacity	103 Beds
Cabling Applications	Data, Cable Management, Voice, CCTV-Security, Nurse Call, Fire, Overhead Paging, Building Automation.
Cabling Types	Category cables for voice and data, access control and overhead paging; coax for CATV; 12-strand 50µ fiber backbones, coax with 2-pair power for CCTV; and a combination of specialty and Category cables for Nurse Call systems.
Flame Rating	Plenum-rated (CMP) cables were specified for all applications and distributor quotations. Cables with other flame ratings (CMR, CM, LSZH, etc.) might be used subject to applicable building and fire codes. Some of these cables are typically less expensive than their CMP counterparts, which would reduce some of the actual costs quoted in this study, however comparative ratios would not be affected by cable flame-ratings under identical design and deployment factors.
Industry Average Pricing for Products	The independent consultant worked directly with distribution to obtain quotes for the Project Bill of Materials; four major structured cabling brands (including Belden) were quoted and the results averaged to determine Industry Average Pricing.
Labor Rates	The labor rates used represent an average of union and non-union rates in several major U.S. cities, for experienced structured cabling technicians.
Cost Comparison Benchmark	Category 6 cabling was set as the cost benchmark as it the most commonly used data cabling in healthcare facilities today.
Upgrade Scenario	A conservative forecast of three (3) upgrade events, each affecting a unit of 12-beds (for a total of 36-beds) was applied. Each upgrade event included the demolition and removal of existing Category 6 or Category 5e cables and their replacement with Category 6A cabling, and each upgrade event was projected to take 11.5 days.

The study makes a conservative projection that an initial installation using Category 5e or Category 6 data cabling would likely require a minimum of three (3) cabling upgrades to Category 6A (driven by new/evolving technologies), with each upgrade affecting a 12-bed unit (for a total of 36 beds or 35% of the hospital's 103-bed capacity) and requiring 11.5 days to complete.

To understand the impact of these upgrades, we need to examine them in terms of direct costs, indirect costs, and additional risks.

1) Direct Costs

The direct costs of the three upgrade events affecting a total of 36-beds (and supporting areas) are fairly simple to quantify and calculate.

First, the existing cables must be removed and disposed of, requiring the removal of ceiling tiles to gain access to the targeted cables, clearing conduit of any fire caulking and removal of any cable ties.

Next, the replacement Category 6A cables and connectivity are installed in patient rooms and supporting areas such as the nurse station, supervisor and administration offices, examination rooms and dispensaries. Whenever possible, existing cable management, conduits, outlet boxes and faceplates are re-used.

Upgrade Direct Costs			
	Material	Labor	Total
Demolition	--	\$6,000	\$6,000
Installation	\$24,000	\$16,000	\$40,000
Project Mgmt.	--	\$4,000	\$4,000
Freight/Misc.	\$500	--	\$500
Total/Event (12 Beds)	\$24,500	\$26,000	\$50,500
Total 3 Events (36 Beds)	\$73,500	\$78,000	\$151,500

*Removal of ceiling tiles, cable ties, cables, fire caulking, etc.

Cabling Upgrade Scenario	
Triggers	<ul style="list-style-type: none"> New/evolving clinical and/or administrative and/or operational systems require more bandwidth and faster networks. Current network response time and throughput limitations are negatively impacting patient care and clinician productivity. Migrations to IP-based networking for legacy systems. Upgrades to 10GBASE-T Ethernet switches.
Upgrade Action	Replace all existing Category 5e or Category 6 channels in the targeted area with high performance Category 6A cabling and connectivity.
Beds affected per Upgrade Event	Each upgrade event affects a 12-bed unit, including related support areas.
Number of Upgrade Events	Three (3) upgrade events over the operational lifespan of the cabling infrastructure (affecting three 12-bed units for a total of 36-beds, or 35% of the facility's 103-bed capacity)
Time required to complete each Upgrade Event	Each upgrade event is projected to last 11.5 calendar days, including demolition, installation, testing, documentation, cutover and cleanup.

The new cabling channels are then tested and documented, fire stopping is replaced and ceiling tiles are re-installed. The total direct costs of the Category 6A cabling upgrades to 36-beds (and supporting areas) are \$151,500 including demolition, materials, installation and testing.

2) Indirect Costs

The indirect costs of cabling upgrades are primarily related to the loss of revenues due to bed closures in the upgrade area. To understand and calculate these indirect costs, we must first establish the revenue/bed/day in the type/size of hospital under study.

	Revenue/Bed/Year				Revenue/Bed/Day		
	<100 Beds	100 - 250 Beds	251-500 Beds		<100 Beds	100 - 250 Beds	251-500 Beds
Short Term Acute Care	\$1,667,000	\$1,891,000	\$2,281,000	Short Term Acute Care	\$4,600	\$5,200	\$6,200
Children's	\$1,431,000	\$2,591,000	\$2,899,000	Children's	\$3,900	\$7,100	\$7,900
Critical Access	\$1,200,000	\$400,000	--	Critical Access	\$3,300	\$1,100	--
Long Term	\$1,010,000	\$837,000	\$436,000	Long Term	\$2,800	\$2,300	\$1,200
Rehabilitation	\$552,000	\$648,000	\$672,000	Rehabilitation	\$1,500	\$1,800	\$1,800
Psychiatric	\$403,000	\$302,000	\$86,000	Psychiatric	\$1,100	\$800	\$200
Average	\$1,219,000	\$1,631,000	\$2,138,000	Average	\$3,300	\$4,500	\$5,900

These tables are based on American Hospital Directory (AHD) data and summarize the average gross revenues per bed for different types and sizes of hospitals on an annualized (above) and daily (below) basis.

The AHD revenues per bed data are corroborated by similar findings published in "Hospitals in Rhode Island: Fiscal Overview (March 24, 2011)", which reported 1.4M\$ revenue per bed/year for the Miriam Hospital, a 247-bed General Acute Care Hospital located in Providence, RI.

Revenue/Bed at 80% Occupancy Rate

Gross Revenue/Bed/Day	\$3,300
× Occupancy Rate	80%
= Net Revenue/Bed/Day	\$2,640

To calculate the indirect costs of lost revenues due to bed closures during cabling upgrades, we adopted a conservative approach and used the lowest average Revenue/Bed/Day value of \$3,300 from the study and then applied an occupancy factor of 80% to arrive at a Net Revenue/Bed/Day amount of \$2,640.

Lost Revenue Days due to Upgrades

Number of Beds Closed	12
× Days to complete Upgrade	11.5
× Number of Upgrade Events	3
= Total Lost Revenue Days	414 Days

To calculate the total number of Lost Revenue Days, the twelve (12) beds affected in each upgrade event were multiplied by an estimate of 11.5 days required to complete the upgrade. This result was then multiplied by three (3) upgrade events yielding a total of 414 Lost Revenue Days.

Total Lost Revenue due to Upgrades

Net Revenue/Bed/Day	\$2,640
× Total Lost Revenue Days	414 Days
= Total Lost Revenue	\$1,092,960

To complete the calculations, the Net Revenue/Bed/Day value of \$2,640 was multiplied by 414 Total Lost Revenue Days to arrive at a value of \$1,092,960 for Total Lost Revenue due to Upgrades. This represents the indirect costs of performing cabling upgrades to a total of 36-beds and supporting areas within the facility.

3) Other Risks

In any upgrade scenario, there are risks that go beyond financial losses. The demolition process can result in unintended damage to adjacent cables and cable management, human error in patching and re-configuring hubs and switches can disrupt users and services, and poor records or previous maintenance work can make upgrades time consuming, frustrating and risky undertakings.

In addition to these general risks, healthcare facilities must also deal with increased Infection Control Risk (ICR) related to cabling system upgrades:

- The Institute for Medical Microbiology and Hospital Epidemiology in Hannover, Germany reported that construction or demolition work in patient areas was often (49.1% of cases) considered to be the probable or possible source of infectious disease outbreaks (e.g. nosocomial aspergillosis), with an alarming fatality rate of 57.6% reported for those infected.
- Canadian Standards Association (CSA) Standard Z317.13-3 was developed in response to evidence from many healthcare facilities indicating that serious health risks for patients, staff, and visitors are created during construction and renovation activities

through the dispersal of dust particles contaminated with bacteria and fungi. The Standard cites fatality rates of 65-100% for Aspergillosis and 24-80% for Legionnaires' disease, even when such infections are recognized and treated. The Standard goes on to specifically rank "activities that involve heavy demolition or removal of a complete cabling system" amongst the most severe of four types of construction/renovation activities, creating the greatest risk across all population groups in the facility and requiring the highest levels of precautions and preventative measures.

The Case for Category 6A Cabling in Healthcare Facilities

Reduced Total Cost of Ownership

The results indicate that implementing a Category 6A-based cabling plant, despite its higher initial cost, will significantly reduce (improve) TCO when compared to Category 6- or Category 5e-based systems and their respective upgrade costs over time.

Cost of Ownership

	Cat 6A	Cat 6	Cat 5e
Initial Costs	\$2,242,000	\$1,792,000	\$1,500,000
+ Upgrade Costs	--	\$151,500	\$151,500
+ Lost Revenues	--	\$1,093,000	\$1,093,000
Total	\$2,242,000	\$3,036,500	\$2,744,500
Additional Cost	0%	+35%	+22%

Specifically, our analysis concludes that an initial investment in a Category 6A-based cabling infrastructure will:

1. Reduce (improve) TCO by 35% compared to Category 6-based cabling and by 22% compared to Category 5e-based cabling.
2. Eliminate more than \$1M in revenue losses (in the model studied) due to bed closures during cabling upgrades.
3. Provide Category 6A performance to 100% of the data network from 'Day 1', while initial deployments of Category 6 or Category 5e will only achieve Category 6A performance in 35% of the data network (in the model studied) following a series of costly physical cabling upgrades.

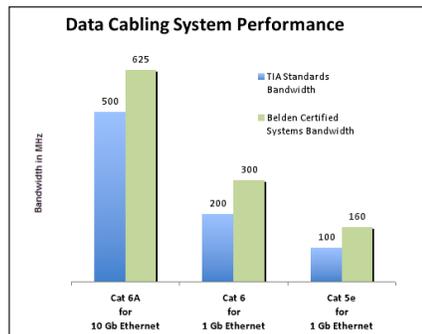
Up to 500% More Bandwidth across 100% of the Cabling Infrastructure

While the financial justifications for Category 6A are compelling in themselves, it is also important to understand the significance of Category 6A performance versus Category 6 and Category 5e, and the relative penetration of Category 6A technology throughout the cabling infrastructure in each scenario.

In terms of performance, Category 6A cabling channels provide 250% more bandwidth than Category 6 channels, and 500% more bandwidth than Category 5e channels. As a result, Category 6A cabling channels are capable of supporting 10Gb Ethernet (IEEE 10GBASE-T), operating at up to 10 times the speed and throughput of Category 6 and Category 5e channels that are limited to 1Gb Ethernet (IEEE 1000BASE-T) applications.

For a simple example of how the performance of a Category 6A cabling plant operating 10Gb Ethernet compares to that of a Category 6 plant operating 1Gb Ethernet, consider the time required to download a 9Gb medical

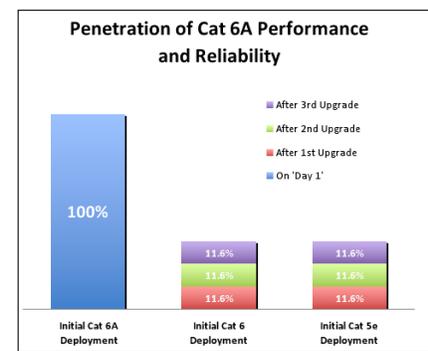
image file. Under normal network operating conditions, the file would take over one minute to download on the Category 6/1Gb Ethernet infrastructure, but only about 7 seconds on the Category 6A/10Gb Ethernet infrastructure. From a clinical viewpoint, consider the potential impact that those fifty-or-so saved seconds might provide in the treatment of a critically injured patient. From an operational viewpoint, consider the productivity gains and cost savings that could be realized when the four likely viewers of an image file (technician, radiologist, doctor, nurse) each save a few seconds every time they download an image file.



For perspective in this, consider that Henry Ford Wyandotte Hospital, a 379-bed acute care facility in Wyandotte, MI., reports performing more than 200,000 radiology procedures per year; an average in excess of 548 per day. A few seconds saved by each clinician viewing this volume of files on a daily basis translates into more than 30 hours of high cost clinician time saved every day. This is just one example of how a higher performance Category 6A cabling infrastructure can have a direct, beneficial impact on operating costs and employee productivity in healthcare facilities today.

A Category 6A cabling plant offers higher performance and greater capacity, and the additional guaranteed performance

and quality of a Belden Certified 10GX™ Category 6A Cabling System provides added value in the form of superior reliability, an extended operational lifespan, and a hedge against early obsolescence.



In terms of penetration of Category 6A performance and reliability in the cabling plant, a Category 6A initial design will obviously provide full Category 6A performance and 10Gb Ethernet support throughout 100% of the data network from 'Day 1', while initial deployments of Category 6 or Category 5e will only achieve Category 6A performance in 35% of the data network (in the model studied) following a series of costly physical cabling upgrades.

A Valuable Bonus: Powering Remote Devices through the Data Cabling Network

Healthcare facilities are saturated with all manner of remote devices, from patient monitoring devices and infusion pumps to wireless LAN access points, security cameras, access control points and building automation sensors and controls. Most are currently available as Ethernet/IP-enabled devices or soon will be, providing the opportunity to power many of these devices directly through the data cabling network. The resulting benefits in

healthcare facilities are significant, including: Centralization of power requirements, including UPS/emergency back-up, allowing for a simplified, more manageable power distribution model with greater availability and up-time for remote DTEs.

- Reduces costs by eliminating or reducing the number of AC power circuits/outlets required for remote devices.
- Reduces/eliminates the need for power transformer 'bricks' with a corresponding reduction in system 'points of failure'.
- Reduces cable/cord quantities and congestion and reduces tripping hazards to personnel.
- Simplifies deployment and operation of many kinds of remote devices including BAS controls, CCTV cameras and security control devices, and WLAN access points.

A data cable's power carrying capacity is influenced by the gauge of its conductors (larger is better) along with its overall size and heat dissipation properties. For power delivery, Category 6 cables are superior to Category 5e cables, and Category 6A cables are superior to both; meeting and often exceeding IEEE's original Power-over-Ethernet (PoE) standard (IEEE802.3af-2003) and the more recent, more demanding PoE+ standard (IEEE802.3at-2009). As a result, Category 6A cabling is able to carry more power to support a wider variety of remote devices - a valuable bonus to in healthcare environments.

Conclusion

In conclusion, the data and results are compelling. An initial investment in Category 6A cabling will reduce (improve) total cost-of-ownership; provide superior network performance; eliminate the need for upgrades with their related bed closures and lost revenues; and, contribute to improved patient care while reducing operating costs and improving employee productivity.

Related Publications

- TIA-1179 and Beyond: Addressing Information Technology Needs for Evolving Healthcare Facilities – *Belden White Paper*
- Converged Solutions for Healthcare Communication Infrastructures – *Belden White Paper*
- Common Pitfalls in Healthcare Cabling Infrastructure Deployment – *Belden White Paper*
- IT System Convergence: A cost saving strategy for hospitals – *Belden article appearing in 'Healthcare IT News'*
- Taking Healthcare and IP Convergence to a New Level: St. Peter's Hospital – *Belden Success Story*
- Infrastructure Solutions for Healthcare – *Belden Solutions Brochure*