



665TB Average amount of data that each hospital will generate in 2015 ¹

\$949,000 Average revenue per hospital bed in the U.S. In 2011 ²

20-40% Growth rate of medical imaging archives ³

¹ NetApp WP-7169 Delivering Excellence in Patient Care with Ready Access to Clinical Data

² American Hospital Association's 2013 edition of AHA Hospital Statistics

³ datasciencseries.com/assets/blog/The_Age_of_Data-Driven_Medicine.pdf (page 9)

Data Centers in Healthcare Facilities

With Growth Comes Challenge

Rapid technological advancements, increasing government regulations for patient records and privacy, and accelerating special healthcare service needs of an aging population are driving unprecedented growth in hospitals in both information processing and patient care capacity.

Because patient care and laboratory support are the primary revenue generators in a hospital, the needs of these critical functions take priority in space and facility decisions, which impacts funding and authorization for data center expansions.

Power and cooling infrastructure within a hospital is often shared and managed by Building Facilities, diminishing the priority of data center uptime

These factors give rise to the need for flexible and unique ways to deploy data center expansions. Prefabricated Data Centers by Schneider Electric are suited to meet the challenges today's health care facilities face.

Demand and Growth

Hospitals and healthcare facilities continue to expand to manage the needs of an aging population. It's common to see construction cranes at a hospital adding or upgrading outdated infrastructure

In addition to physical growth, healthcare systems are experiencing a boom in technology and digitization. According to research by NetApp the average amount of data a hospital will generate in 2015 is 665TB. In addition, it is estimated that the current growth rate of imaging is 20-40%.

Three-dimensional imaging and electronic patient records are quickly changing how hospitals operate. Labs have more access to patient data and can analyze information and test results instantly; doctors can see changes in a patient's condition and vitals on a real-time basis; and laboratories can model and predict stages of ailments of those in their care. The ability to make this data accessible to multiple departments and different devices throughout the hospital system drives the needs for more storage capacity, faster network response time, and an increase in the data center infrastructure capacity.

The Cost of Space

Patient care and comfort, along with maintaining building operations 24 hours a day are the essential goals for any hospital. Although a hospital's data center can be key in meeting these goals, historically it has been treated merely as a support cost function. Expansion within the existing building comes at the cost of yielding bed space for the data center. According to AHA statistics from 2011, the average annual revenue per hospital bed in the U.S. was \$949,000.

An alternative to expanding the data center internally would be to add on to the existing building or build an independent space. Unfortunately, this can be more costly option. This adds to the typical challenges that IT management faces when trying to justify capital investment in data center expansion. Outsourcing is rarely a viable due to patient privacy regulations.

The Solution

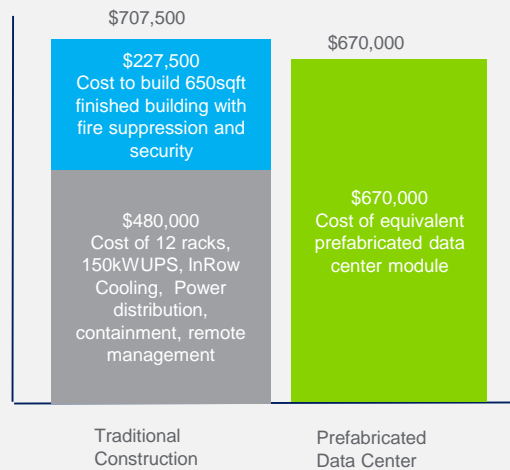
Schneider Electric can provide an alternative to constructing a new room or building. Prefabricating the data center infrastructure off-site and delivering it as a complete solution within a robust, weather-rated structure, eliminates the need for a dedicated space or building. This provides a viable solution for healthcare facilities needing to add capacity that is cost effective and more simple. Prefabricated modules can be placed indoors or outside and provide a functional data center that mimics typical rack layouts and space found in traditional server rooms. In addition to space preservation, these modules require minimal site prep, and eliminating construction disruption and minimizing interoperability risk.

Mackenzie Health

In 2013 Mackenzie Health, a hospital in Toronto, Ontario, started searching for a solution for expanding their data center capacity to meet their growing information demand. The existing data center was out of capacity in terms of power, cooling, and floorspace. It was determined that valuable hospital space could not be sacrificed to enlarge the current room – the only other alternative was to build a new structure outside of the current building.

Schneider Electric's valued data center services partner, Cesium, offered another solution... an All-in-one SmartShelter data center module that included 12 racks, In-Row DX cooling, 150kW UPS, 2N power distribution, fire suppression / detection, and remote monitoring, all prefabricated and ready to be delivered in less than 16 weeks.

This solution proposed a cost-effective installation that did not require design and construction of a new building. The illustration below provides a comparison of traditional construction and prefabricated data center infrastructure costs very similar to the Mackenzie project.



Although the prefabricated solution shows a cost savings, it is important to note the real value for the customer was the following:

1. No disruption to existing data center and no loss of valuable hospital space
2. Simple planning and implementation of new data center resulting in minimal cost overruns and no on-site changes to intended design.
3. Easy justification of ROI, with the new data center operational within 6 months of PO.