

# Azure Solutions

## Case Study

## Otsego Memorial Hospital Gains the Power of Mobile Delivery without “Rip and Replace” as a Plan for Growth and Expansion

### EXECUTIVE SUMMARY

#### Otsego Memorial Hospital

Otsego Memorial Hospital (OMH) is located in Gaylord, Michigan, 230 miles northwest of Detroit. It is the only hospital in Otsego County (population 24,000), a very popular rural vacation community, and has a 900 square mile service area.

OMH, founded 1951, is a 53-bed, not-for-profit community hospital that offers a complete range of basic medical services you would find in urban hospitals. It has been named among the 100 Top Hospitals in the nation three times since 1999 and is one of only 20 community hospitals in the nation to receive this award. OMH was also named among the 2008 and 2009 Top 25 Most Wired - Small & Rural hospitals and the 2010 Top 100 Most Wired hospitals by Health & Hospital Networks magazine.

#### Challenge

Continuing its quest to improve the level of staff efficiency and healthcare provided to its community, OMH realized the need to implement a secure mobile delivery platform to support its healthcare information and patient care management systems, mobile IP telephony and provide guest Internet access, as well as support future healthcare information technology applications.

OMH also wanted to find a way to deploy the mobility platform as budgets permitted, with a design providing for the initial installation meeting current requirements as well as a blueprint for improving the platform performance as additional applications were rolled out.

#### Solution

OMH contracted with Azure Solutions to design a wireless local area network that accommodated OMH's current and future application requirements for mobile application delivery and permitting an interruption- and obsolescence-free phased implementation.

Leveraging equipment from Aruba Networks, Azure was able to provide OMH a secure and reliable mobile delivery solution that offers an enhanced user experience and also meets the technical application requirements of OMH. The mobile delivery platform is very easily managed and enforces user policies and access to specific applications and resources.

#### Value

- A mobile delivery strategy permitting deployment to meet current application requirements and scalability to meet future requirements without interruption to existing applications or obsolescence of previously-deployed network elements.
- Highly secure, HIPAA-compliant, robust mobile delivery platform capable of supporting advanced services.

**Acute care hospital provides mobile delivery for new healthcare information management systems with Azure Solutions wireless network design strategy that provides for interruption-free enhancement to support future applications.**



### CHALLENGE

Consistently recognized as one of the Top 100 Hospitals in the United States, Otsego Memorial Hospital (OMH) of Gaylord, Michigan continuously looks for innovative ways to improve its operations and the level of care it provides to its community and patients.

The 53-bed, not-for-profit community hospital recognized that it would need a mobile delivery platform that would help it realize the maximum benefits from its innovative technological investments like a new integrated healthcare information system from Meditech, mobile IP telephony and InTouch telemedicine robots. OMH also wanted to provide guest wireless access services to patients, visitors and others without jeopardizing the security of patient and hospital information.

“The implementation of Azure's wireless network infrastructure has provided Otsego Memorial Hospital with the capabilities and technology to be named to Hospitals and Health Networks (H&HN's) Most Wired - Small and Rural for 2008 and 2009 and Top 100 Most Wired in 2010.”

Tim Hella  
CIO  
Otsego Memorial Hospital

OMH anticipated future implementations of other systems that would require mobile delivery and the potential use of the network for demanding applications such as voice and asset location and tracking services. The hospital was also aware of the experiences of other organizations who had implemented wireless networks and found that, over time, as more and more applications were enabled for mobility, the platform proved to be unable to provide the capacity required by or otherwise support the applications. OMH wanted to ensure that its new network would be robust enough to support such future uses without obsolescence. The hospital had, in fact, previously implemented a wireless network to provide wireless connectivity throughout about 30% of the hospital, in emergency and other clinical areas and found itself needing to replace that network as it did not support application requirements.

To address capital spending budgets, OMH desired a strategy for enhancing its wireless network over time, constructing the system as budgets allowed and applications required. Ideally, the network could be implemented in phases, with coverage and capacity growing as required, with no obsolescence to equipment required for previous phases and no interruption to existing applications during periods of expansion.

### SOLUTION

#### **A Budget-Conscious Strategy for the Mobile Delivery of Healthcare Applications**

OMH began investigating options for its new wireless network and identified Azure Solutions of Rochester Hills, MI as an experienced provider in the mobile delivery of healthcare applications. Not only did Azure have extensive experience in healthcare, having provided solutions and services to hospitals across the U.S., but it had a demonstrated understanding of designing wireless networks specifically to support healthcare applications and advanced services such as Citrix-based session persistent-sensitive applications and mobile IP telephony.

OMH was also intrigued by Azure's innovative strategy for designing networks that could grow to meet an enterprise's future needs without interruption to applications already supported by the mobile delivery platform.

Azure had witnessed a growing number of healthcare providers and enterprises whose mobility platforms, originally designed to provide coverage with little regard to the capacity required to support applications added over time, was proving incapable of serving as a delivery platform for current application loads. These organizations had required a complete redesign and new installation, and Azure developed a scalable design method that would allow enterprises to expand their mobile delivery platforms as applications required and budgets allowed while ensuring that such expansion would not disrupt communications for existing applications that relied on mobile delivery.

"With Azure's wireless network design, we were able to implement a wireless network as our requirements and budget allowed and were assured it could be expanded to support the most demanding applications without interruption to application use or obsolescence of any of the previously-deployed network."

Tim Hella  
CIO  
Otsego Memorial Hospital

“After a few years, early adopters of mobility platforms are recognizing that their current wireless networks are not well-suited to supporting long-term goals and requirements. Early wireless networks were designed to provide coverage for portable network access and are not readily upgraded to provide additional capacity or support applications that require true mobility and roaming, such as mobile voice and point-of-care sessions. Our methodology enables healthcare organizations to cost-effectively meet the requirements for the mobile delivery of healthcare application without having to shut down the network or applications and disrupt the quality of care in order to improve network coverage or capacity when new applications are added,” said John Polakowski, president of Azure Solutions.

OMH realized that Azure’s design would provide a blueprint of a wireless network that could be implemented to meet existing requirements and be expanded as required for new applications as budgets permitted. The design would not only provide a design for mobile delivery that would support OMH’s most demanding anticipated services, mobile IP telephony, point-of-care sessions and staff or asset tracking, but also provide a design for a mobile delivery system that could initially utilize a subset of the “voice-ready” solution, configured to meet current coverage, users and capacity requirements in the event that budget limitations precluded the complete rollout of the network. OMH would be able to deploy a strategy that would be within current budget limitations, support its existing healthcare information systems and be capable of expansion without interruption.

Azure approached the project with a consultative approach, striving to learn of OMH’s current and future plans for mobile delivery and the impact of the applications that OMH intended to deploy over time. Meetings were held with stakeholders from across the OMH organization, with the goal of gaining an understanding of all of the hospital’s current and planned mobile applications requirements so that the planned network would be capable of supporting each of the hospital’s departmental initiatives that required mobile delivery.

After gaining an understanding of these requirements, Azure performed a design and site survey for a network that would accommodate all of the current and planned mobile applications. As OMH’s plans included wireless telephony and Citrix-based healthcare information systems, the network was designed to stringent standards with access points providing high signal levels throughout small coverage areas required to support capacity requirements, access point cell overlap sufficient to provide redundancy and to support fast roaming and adequate separation between same channel cells to eliminate detrimental co-channel interference. At the conclusion of the onsite activities, Azure presented and reviewed its design, which included coverage maps, spectrum analysis and detailed configuration data for network elements.

“The ability to extend secured wireless connectivity throughout the remote clinics was very beneficial to us. The clinics have mobile access to appropriate information and their secure connectivity is automatic. The remote access points in the clinics are centrally controlled by the controller in the hospital, which handle authentication, policy enforcement and encryption from a centralized location, minimizing capital expenditures and IT staff support.

Aaron Goodrich  
Network Administrator  
Otsego Memorial Hospital

### **OMH's Mobile Delivery Platform - A Foundation for the Future**

Upon completion of its design, Azure provided OMH with a review of potential suppliers' mobile architectures, capabilities, strengths and weaknesses. Of paramount importance to OMH was understanding how the offerings satisfied its key requirements, particularly in regards to scalability and ease of management.

Ultimately, Azure provided OMH with proposals for two different manufacturers' solutions. After further review and analysis, OMH elected to proceed with the system manufactured by Aruba Networks. The Aruba solution was selected for its ease of management, scalability and ability to unlock additional functionality through software modules:

#### *Policy Enforcement Firewall Module*

The ICSA-certified firewall enforces user-based network access and application priority policies. As policies can be centrally defined and enforced on a per-user basis based on user role and authorization levels, the firewall allows OMH to change mobile network access policies and architecture without having to change wired network configuration. The firewall provides WPA2 authentication against Active Directory and also provides the functionality for guest access through a portal displaying an acceptable use policy.



#### *Wireless Intrusion Protection Module*

This module protects the network against wireless threats to network security by incorporating wireless intrusion protection into the network infrastructure and eliminating the need for a separate system of RF sensors and security appliances. The WIP module provides unmatched wireless network visibility to administrators, and thwarts malicious wireless attacks, impersonations, and unauthorized intrusions.

#### *Voice Services Module*

This module provides extensive voice management capabilities with graphical displays, statistical analysis, historical tracking, and powerful troubleshooting tools for OMH's SpectraLink wireless telephone system. Among its many functions, this module enforces Quality of Service policies and provides call admission control that optimizes voice call quality.

#### *Remote Access Point*

With five remote clinics connected by leased circuits, OMH was able to securely extend connectivity to locations not connected by a traditional dedicated WAN and leverage its mobility infrastructure investment. With Remote Access Point, OMH was able to extend network security policies to the remote sites from its existing centralized controller, reducing total cost of ownership by eliminating additional hardware and ongoing IT support requirements.



HIPAA security requirements are met with the system's ability to support industry standard methods, and the users' experience is enhanced with the network's ability to provide secure access seamlessly and providing the reliable availability that is demanded for successful application use.

### VALUE

Otsego Memorial Hospital implemented a highly secure, HIPAA-compliant mobile delivery solution that provided mobile caregiver access to its healthcare information systems, wireless telephony and wireless Internet services to patients, family members and visitors.

The hospital expects to realize improved patient care and patient satisfaction, with caregivers gaining efficiency by being able to spend more patient-facing time and making more timely assessments of patient conditions as a result of the immediate, mobile access to the information provided by the new healthcare information systems applications.

As a result of the improved levels of patient care, the hospital anticipates that it will also realize improved patient throughput from faster patient recovery resulting from the improved care levels and patient satisfaction and increased caregiver efficiency.

The hospital was able to implement Azure's design strategy, within budget, that provided coverage and capacity sufficient for supporting current applications and capable of being enhanced to support the most demanding applications without interruption to applications. The mobile delivery solution will simplify the user interface to applications and the administration tasks for Ohm's information technology staff. Going forward, Azure Solutions' design blueprint will provide for efficient, orderly and interruption-free expansion of the mobile delivery of the most demanding future applications.

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