Should I Build or Buy My Telehealth Solution?

Key Considerations and the Total Cost of Ownership for Developing a Telehealth Network

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Background

As telehealth increasingly becomes mainstream, health systems looking to implement telehealth are faced with a difficult decision: whether to build their own telehealth network or buy one from a telehealth provider. Over the last 15 years, Greg Brallier has helped launch over 130 telehealth networks and has learned some valuable lessons about what to consider along the way. Health systems frequently ask Brallier to consult on decisions related to building or buying a telehealth network. In this article, Brallier highlights what he thinks the most important considerations are for "build vs. buy," along with highlighting some of the challenges he has encountered in creating telehealth networks to scale across the continuum of care.

Key Considerations for Developing a Telehealth Network

Deciding whether to build or buy a telehealth network isn't a simple decision. There are seven key considerations health systems often overlook during this process:

1. Telehealth is global
While it seems obvious, IT groups are oftentimes focused on their immediate WAN/LAN and overlook the difficulties that come with supporting access to patients and providers outside of their infrastructure. For example, if a health system is building a telehealth network to serve rural community hospitals with a shortage of specialists (also referred to as Rural Community Hospital outreach service), then how will it deploy, service, and support the required equipment and services when the IT resources at that remote facility are not owned or controlled by the health system? How will the health system ensure that the chosen technologies are highly available for acute situations? Who will be contacted "off hours" when users have difficulties accessing patients? Even if a health system can solve individual location access via VPN or leased lines, how will that scale

into building a telehealth network with hundreds of locations, and how cost effective will that solution be? Health systems also need to be aware that their telehealth stakeholders may want to bring in external providers to support an internal specialist shortage, so inside-outside and outside-in connectivity needs to be considered.

Here is a short list of **remote site infrastructure** considerations when building a telehealth network:
  a. Telecommunications technologies and gateways
  b. Firewalls and routers
  c. Technology redundancy and failover
  d. 24/7 support staff to address users' technical issues
  e. Technology refresh and software updates
  f. Monitoring and alerting on technology status
  g. Access control and provider licensure

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2. If you didn't document it, then it didn't happen
In order for providers to treat patients in any model of healthcare, their visits and treatments must be documented in the patients' records (not to mention billing and reimbursement). This now creates a new wrinkle in the telehealth continuum: documenting clinical visits when the Electronic Medical Records systems (EMRs) on the provider and patient sides are different. In the example above of the Rural Community Hospital (RCH) outreach service, the provider needs to document that visit, but how does

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he get access to the RCH's EMR? Some may say, "By VPN." The provider could log into the RCH's VPN and then log into the EMR with credentials provided by the remote site's IT group, but how does that scale? With this as the solution, the clinician now needs to access X number of other RCH's EMRs and remember the login credentials of X number of VPNs and EMRs. Not only is access to EMRs an issue, but now the hospital providing telehealth services is faced with getting that patient data from the remote EMR into the hospital's EMR in a secure and HIPAA-compliant manner.

Here is a short list of **remote site documentation** considerations when building a telehealth network:
  a. EMR access
  b. Data integration software and protocols (HL7, FHIR, etc.)
  c. Provisions for digital signatures
  d. ePHI handling and security

3. A picture is worth a thousand dictations
Getting remote access to radiological imaging, like CTs and MRIs, that reside on remote site PACS can be challenging, especially for highly acute service lines like stroke where "time is brain" and speed to access is paramount. Copying CTs to a cloud-based service is an option, but remember that upload times of 15 minutes or more should be expected and may not be acceptable to users.

Here is a short list of **remote site imaging** considerations when building a telehealth network:
  a. PACS access
  b. Image (CT/MRI) upload times
  c. ePHI handling and security

> Getting remote access to radiological imaging, like CTs and MRIs, that reside on remote site PACS can be challenging, especially for highly acute service lines like stroke where "time is brain" and speed to access is paramount.

4. Use the right tool for the job
Access to patient-side peripherals will be required for many telehealth service lines. Depending on what service lines a health system's telehealth network will be supporting, the remote provider may need access to stethoscopes, dermatoscopes, and otoscopes, just to name a few. How will the providers see the output of these devices remotely in order to make clinical decisions?

Here is a short list of **remote site peripheral** considerations when building a telehealth network:
  a. Remote access to peripherals needed for specific service lines
  b. Technology choices for peripheral image transmission to provider
  c. Peripheral image transmission security

5. You can't manage what you can't measure
Collecting the analytics for a telehealth program is one of the most important features of the system. Users will want to know what providers connected to which patients and at what times for many service lines so that they can manage their programs effectively. Aggregating this data across a myriad of locations requires careful consideration. A centralized data warehouse may be required to house this data for Key Performance Indicator (KPI) reports and metrics. In order to determine how a telehealth system is performing, hospitals need this business intelligence data.

Here is a short list of **remote site business intelligence** considerations when building a telehealth network:
  a. Utilization data collection for all locations by user, location, and service lines
  b. KPI/metrics provisioning and access to measure performance and growth
     i.   Number of consults
     ii. Speed/time to access a patient
     iii. Door to needle times (clinical outcomes data)
     iv. Many more!

6. Security is paramount
If a health system plans on providing telehealth services to locations outside of its organization's infrastructure, the health system is responsible for investigating and implementing, as applicable, security and regulatory requirements that come with building a homegrown telehealth network.

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Telehealth carts built by a hospital's IT staff and deployed outside of the organization may be subject to the scrutiny of the remote facility's security reviews and potential regulatory compliance. This is no small matter and requires some careful thinking and planning. Even though the 21st Century Cures Act redefined the level of oversight for some medical devices, there still may be regulatory implications when these devices are paired with other FDA regulated devices.

Also, the security teams at those remote hospitals will require the health system who built the telehealth network to complete the same Information Security Questionnaires that they task their vendors with fulfilling.

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Here is a short list of **remote site security/regulatory** considerations when building a telehealth network:
  a. Security planning and vulnerability remediation
  b. Staffing for ISQ and ISA completion and compliance
  c. Encryption in transit and at rest (ePHI)
  d. Regulatory implications

7. Physician adoption and patient satisfaction
Perhaps the most important consideration to take into account when deciding on a telehealth platform is whether those who will use it the most – patients and providers – will get value from the system. If physicians find the platform unreliable, not user friendly, or too cumbersome, they will likely not use it.

Likewise, if satisfaction or enthusiasm is lacking around the telehealth platform on the patient side, enterprise wide adoption will suffer as providers are less inclined to use a tool that doesn't help drive patient satisfaction. Regardless of other features and benefits the telehealth platform may offer, health systems will not get the ROI they expected to receive if physicians or patients are not satisfied and do not use the tool. Therefore, a seamless solution with a simple user experience for both patient and provider that is reliable and robust is required to ensure adoption, and ROI, are achieved.

Here are two **physician adoption and patient satisfaction** considerations when building a telehealth network:
  a. Ease of use both patient-side and physician-side
  b. Network reliability and connection success rate

The Telehealth Total Cost of Ownership

With an understanding of the core considerations and components of building a telehealth network we can look at the costs associated with each, and compare those to buying a telehealth network through a telehealth managed services provider (vendor).
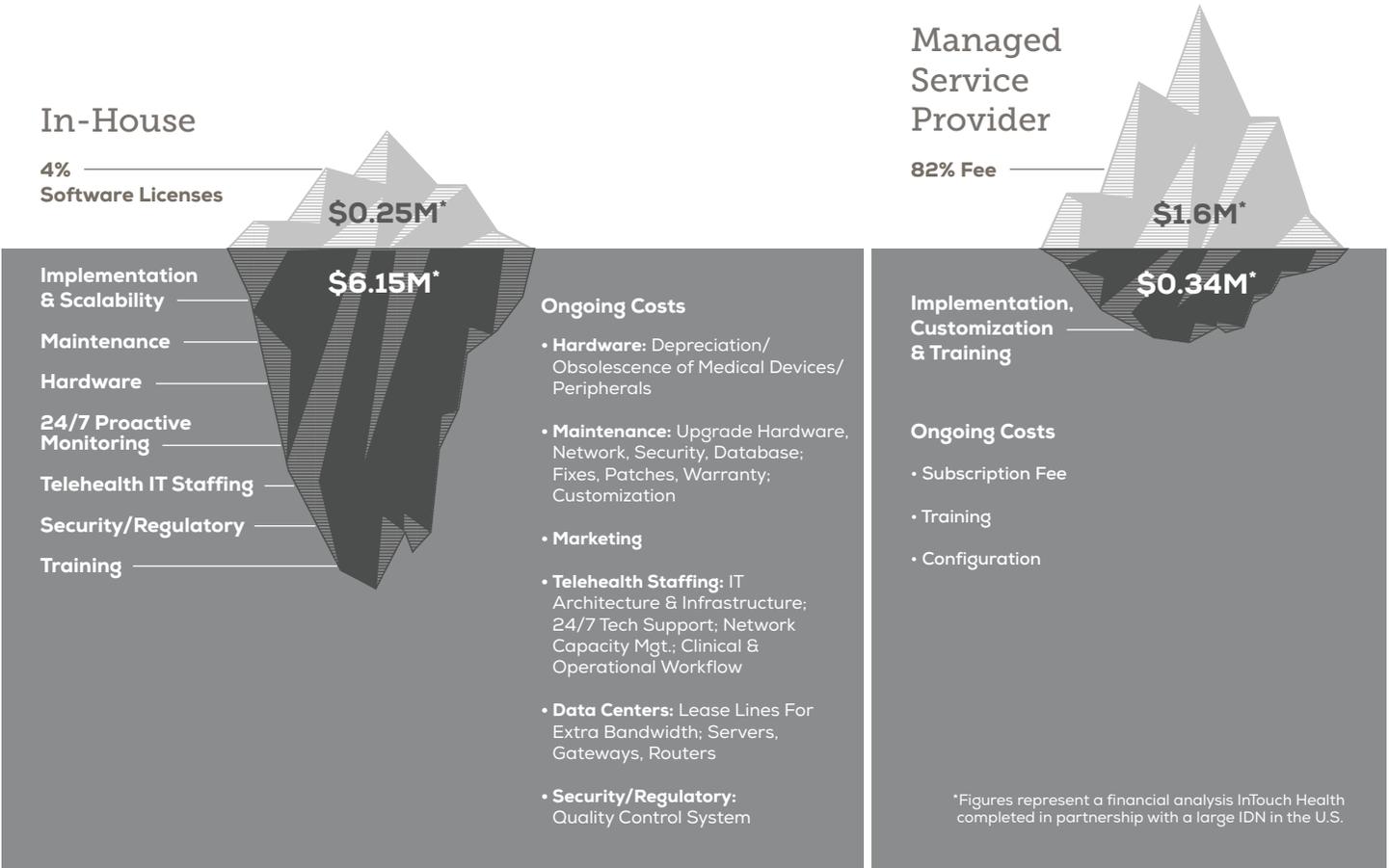
According to the research and advisory firm Gartner, total cost of ownership (TCO) is "a comprehensive assessment of information technology (IT) or other costs across enterprise boundaries over time. For IT, TCO includes hardware and software acquisition, management and support, communications, end-user expenses and the opportunity cost of downtime, training and other productivity losses."[1]

InTouch Health conducted a TCO in partnership with a large integrated delivery network (IDN) in the United States to understand the costs associated with building a homegrown telehealth network compared to buying a telehealth network through a telehealth managed service provider (MSP).

[1] Gartner IT Glossary

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In-House

4%
Software Licenses

$0.25M*

$6.15M*

**Implementation
& Scalability**

Maintenance

Hardware

**24/7 Proactive
Monitoring**

Telehealth IT Staffing

Security/Regulatory

Training

Ongoing Costs

• **Hardware:** Depreciation/
Obsolescence of Medical Devices/
Peripherals

• **Maintenance:** Upgrade Hardware,
Network, Security, Database;
Fixes, Patches, Warranty;
Customization

• **Marketing**

• **Telehealth Staffing:** IT
Architecture & Infrastructure;
24/7 Tech Support; Network
Capacity Mgt.; Clinical &
Operational Workflow

• **Data Centers:** Lease Lines For
Extra Bandwidth; Servers,
Gateways, Routers

• **Security/Regulatory:**
Quality Control System

Managed Service Provider

82% Fee

$1.6M*

$0.34M*

**Implementation,
Customization
& Training**

Ongoing Costs

• Subscription Fee

• Training

• Configuration

*Figures represent a financial analysis InTouch Health
completed in partnership with a large IDN in the U.S.

The iceberg: Expected and unexpected costs

As previously outlined, there are seven key considerations health systems often overlook when deciding whether to build or buy their telehealth network. For homegrown telehealth networks, the costs that tend to get overlooked – or fall below the waterline on the iceberg – include:

- Implementation and scalability
- Maintenance
- Hardware
- 24/7 proactive monitoring
- Telehealth IT staffing
- Security/regulatory compliance
- Training
- Ongoing costs:
  - Hardware
  - Maintenance
  - Marketing
  - Telehealth staffing
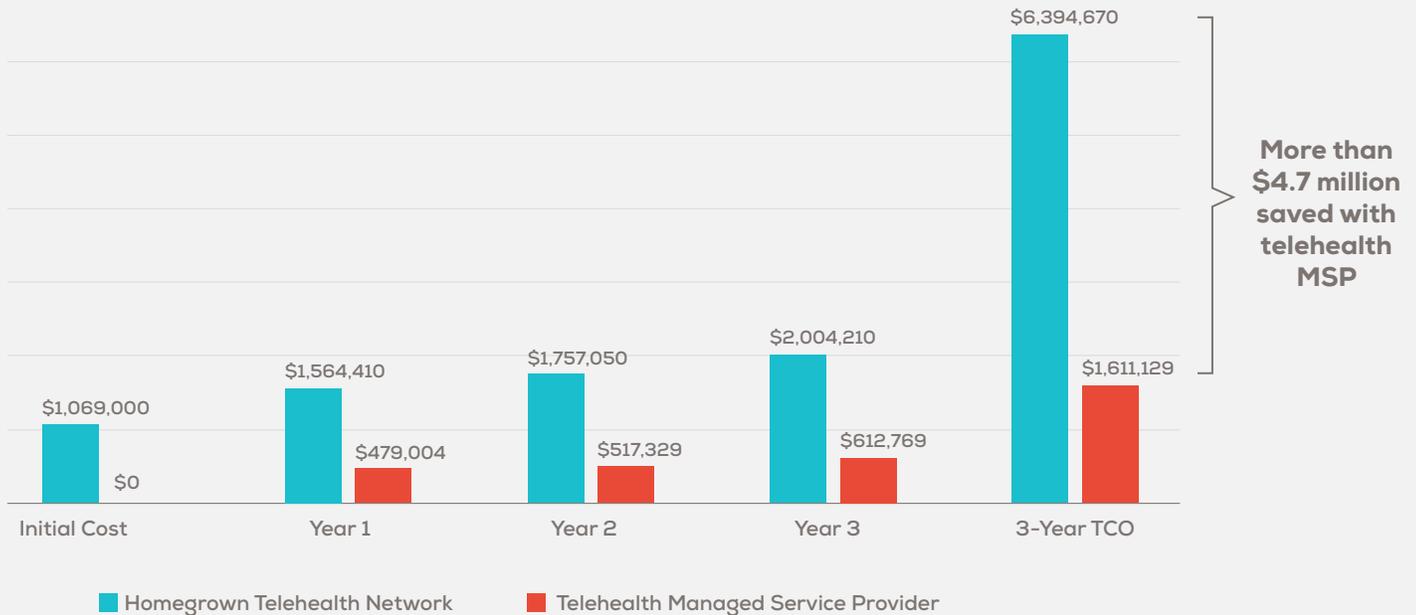 - Data centers
  - Security/regulatory compliance

However, there are far fewer costs that fall below the waterline when partnering with a telehealth MSP, including:

- Implementation, customization, and training
- Ongoing costs:
  - Subscription fee
  - Training
  - Configuration

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Three-Year Operating Cost of a Homegrown Telehealth Network vs. a Telehealth Managed Service Provider

More than $4.7 million saved with telehealth MSP

- $6,394,670
- $1,611,129
- $2,004,210
- $1,757,050
- $1,564,410
- $1,069,000
- $612,769
- $517,329
- $479,004
- $0

Initial Cost | Year 1 | Year 2 | Year 3 | 3-Year TCO

■ Homegrown Telehealth Network   ■ Telehealth Managed Service Provider

Source: Financial figures represent a TCO analysis InTouch Health completed in partnership with a large IDN in the U.S. Costs not included: QA engineer, marketing costs, selling costs, continuous staff training, and potential additional costs as yet undefined (i.e. cost overruns, etc.).

Telehealth total cost of ownership: Homegrown vs. MSP

Because there are many aspects to building a telehealth network that some health systems may overlook in the planning process, that means there are also unforeseen costs that directly impact the TCO.

In the TCO analysis InTouch Health completed with a large IDN, by year one alone, those who will build a homegrown telehealth network can expect to spend more than $1.5 million, compared to just under $500,000 if partnering with a telehealth MSP. By year three, health systems who opt for a telehealth MSP can expect to invest a little over $1.6 million for TCO. Contrast that with the nearly $6.4 million investment made by those who build it themselves, a telehealth MSP could save health systems more than $4.7 million over three years.

Conclusion

When faced with the decision of building a telehealth solution for the enterprise vs. buying that solution, IT leaders are faced with a wide array of challenges. Those challenges range from the very obvious, to the overlooked. Oftentimes IT groups confuse telehealth with video conferencing and fail to notice some important challenges that keep clinicians from accessing patients in an extensible way.

Telehealth is more than just the provisioning of healthcare remotely by means of telecommunications technologies. It also includes the ability to treat patients in the same manner as if the provider were in the room or clinic. This includes not only the audio/video consult, but the ability to

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document the visit, adhere to clinical workflows, access remote imagery (CTs/MRIs), and utilize patient-side peripherals.

Building a telehealth network is an expensive proposition that can take more time than an organization can accept or afford. Using a telehealth managed service provider may be a faster and less expensive way to quickly deploy, scale, and support a health system's telehealth requirements. Consider that based on a TCO analysis, going with a telehealth managed service provider saved one large U.S.-based health system more than $4.7 million by year three. Depending on a health system's needs, it's clear that to enable a secure, reliable, and scalable telehealth network, organizations should choose to buy their solution. Be sure to evaluate telehealth MSPs using the seven principles outlined in this white paper and see if they pass the test.

About the Author

Greg Brallier, Vice President, Technical Service, at InTouch Health, has led the design, installation, configuration and administration of InTouch Health's private cloud network since its creation over 10 years ago. He also leads clinical data integration solutions, HIPAA compliance, and our 24/7 technical support function which provides instantaneous support to all platform users. With a background that includes developing and implementing database architectures and schemas for remote monitoring of computer-driven devices, he was an early stage employee at Computer Motion, Inc., where he worked for 11 years as the Director of Information Systems, and received his Bachelor of Science degree in Computer Science from the University of California, Santa Barbara.

About InTouch Health

InTouch Health provides its world class 24/7 monitored InTouch Telehealth Network, comprised of telehealth systems, clinical workflow solutions and software, and managed services to hospitals and health systems for the delivery of clinical care, anytime, anywhere. Today, InTouch Health supports more than 130 health care systems, 5,800 network users and 1,600 care locations around the world as they deploy telehealth programs across their enterprises. InTouch Health has surpassed 850,000 network sessions, and 760,000 potentially life-saving telehealth sessions over the InTouch Telehealth Network, and is forecasted to manage more than 270,000 clinical sessions in 2017.

Visit us at **www.intouchhealth.com** to learn more about
how InTouch Health works with more than

130 health systems
as their telehealth MSP.