



# **Pioneering Patient-Centric Care: A Digital Transformation Journey in Healthcare.**

We built the open-source telecom stack that powers Five9, Amazon Chime, Zoom Phone, Dialpad, and multiple billion-dollar exits. With SignalWire, we've reimaged the core of FreeSWITCH, radically improved and extended it, and scaled it across every cloud.



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# Telehealth and the Evolution of the Patient Experience

Factor of  
10

Telehealth under Medicare increased by 10x in less than a year.

**The healthcare industry has widely leveraged telecommunications technologies since the middle of the 20th century to enhance communications, improve patient care and reduce costs.**

One of the earliest known examples occurred in the late 1950's, when the Nebraska Psychiatric Institute and Norfolk State Hospital established a closed-circuit television link for psychiatric consultations<sup>1</sup>. In the 1960s, the Mayo Clinic in Rochester, Minnesota, was one of the first major health systems to use electronic health records (EHR) to assist with patient billing and scheduling<sup>2</sup>.

But despite the success of these early use cases, barriers related to regulation, data privacy and security slowed the healthcare industry's adoption of telecom. However, that changed during the COVID-19 pandemic, as healthcare organizations across the country were forced to accelerate their adoption of telehealth services to care for patients while trying to restrict the spread of the virus.

According to the U.S. Government Accountability Office, telehealth use under Medicare increased by a factor of 10, from

about 5 million services from April to December 2019, to more than 53 million services from April to December 2020. Spending on telehealth services also increased dramatically—from about \$306 million to about \$3.7 billion during those time periods<sup>3</sup>.

Unfortunately, this large investment in telemedicine software solutions were largely piecemealed together and didn't guarantee patient satisfaction. Years later, providers are still struggling with deploying effective omnichannel communication solutions that serve the most patients across multiple channels. In fact, one study concluded that patient satisfaction fell 13 percentage points during the early stages of pandemic<sup>4</sup>.

In order to maintain effective, HIPAA-compliant patient communication and attempt to offset the disruption caused by the pandemic, healthcare organizations realized the need to pivot away from avenues of siloed communication in favor of deploying technology that would foster communication across multiple channels.

<sup>1</sup><https://www.ncbi.nlm.nih.gov/books/NBK207141/>

<sup>2</sup><https://www.beckershospitalreview.com/healthcare-information-technology/a-history-of-ehrs-10-things-to-know.html>

<sup>3</sup><https://www.gao.gov/blog/telehealth-pandemic-how-has-it-changed-health-care-delivery-medicare-and-medicare#:-:text=To%20prevent%20the%20spread%20of.appointments%20boomed%20during%20the%20pandemic.>

<sup>4</sup>[https://engage.stericyclecommunications.com/patient-engagement-covid-consumer-survey?hs\\_preview=uQRnQWyy-41936419607](https://engage.stericyclecommunications.com/patient-engagement-covid-consumer-survey?hs_preview=uQRnQWyy-41936419607)

# The Pursuit of an Omnichannel Patient Experience

61%

According to 2022 data from Actium, 61% of healthcare consumers revealed the desire to hear more from their doctors.

**An omnichannel patient experience is one that enables patients to access information, services and care through a variety of methods, including video conferencing, interactive chat, SMS/MMS, email and phone. These methods need to seamlessly integrate into a healthcare organization's systems to enable and ensure consistent communication and engagement.**

Providing an omnichannel patient experience is crucial for several reasons:

## **1. Patients expect communication on their terms.**

As technology continues to improve and refine the convenience and accessibility of everyday consumer services in retail, hospitality, entertainment, finance, etc., consumers expect the same ease-of-use and service levels in healthcare.

In a recent survey from The Beryl Institute, 76% of Americans said they haven't had a positive patient experience in the past three months, while 60% reported an outright negative healthcare experience<sup>5</sup>. Over half of the

survey's respondents (57%) said poor communication from doctors and healthcare staff eroded their extent of trust in healthcare.

Communicating with healthcare providers through preferred channels is no longer a novelty for consumers; it's a requirement. And, if healthcare organizations cannot meet their patients' expectations, they'll be fighting an uphill battle for their trust and loyalty.

## **2. Better engagement leads to improved outcomes.**

An omnichannel platform consisting of customized, HIPAA-compliant communications is a great tool that healthcare providers can implement to improve patient satisfaction and outcomes. Appointment reminders for patients, text messaging, online scheduling and virtual waiting rooms are proven methods that reduce wait times, promote communication, increase access to care and improve engagement.

According to 2022 data from Actium, 83% of healthcare consumers said they are ready to make health and wellness improvements, and 61% revealed the desire to hear more from their doctors<sup>6</sup>.

<sup>5</sup>[https://cdn.ymaws.com/www.theberylinstitute.org/resource/resmgr/pxpulse/TBI\\_PXPulse\\_Q3\\_Nov2022.pdf](https://cdn.ymaws.com/www.theberylinstitute.org/resource/resmgr/pxpulse/TBI_PXPulse_Q3_Nov2022.pdf)

<sup>6</sup><https://actiumhealth.com/reports/tracking-american-sentiment-managing-healthcare-is-hard/>

Studies show patients want their healthcare providers to be more active participants in their health journeys. This involvement and engagement encourages patients to comply with their treatment plans, stick to their medications and follow through on appointments—which result in a more positive healthcare experience and better health outcomes.

### 3. More channels means less costs.

According to the Centers for Medicare & Medicaid Services, physician and clinical services expenditures grew 5.6% to \$864.6 billion in 2021<sup>7</sup>, and PwC's Health Research Institute (HRI) is projecting a 6.5% medical cost trend in 2022<sup>8</sup>. The medical cost trend reflects an increase in the cost to treat patients from one year to the next, assuming benefits remain the same.

These numbers indicate that it's becoming increasingly expensive to treat patients, and implementing an omnichannel patient experience is one way for healthcare organizations to reduce costs and increase efficiency. For example, comprehensive virtual care options enable healthcare organizations to alleviate the dependence on in-person visits for routine care, saving time and money for both patients and providers.

Additionally, improving the appointment process with [auto-scheduling software](#), [SMS reminders](#) and [conversational AI](#) can save a healthcare organization considerable money, especially when the annual total cost of missed healthcare appointments in the U.S. is an astronomical \$150 billion<sup>9</sup>.

## Overall Benefits of an Omnichannel Patient Experience



**Increase Patient Satisfaction**



**Improves Patient Outcomes**



**Reduces Cost and Increases Efficiency**

<sup>7</sup><https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nhe-fact-sheet>

<sup>8</sup><https://www.pwc.com/us/en/industries/health-industries/library/behind-the-numbers.html>

<sup>9</sup><https://www.hcinnoationgroup.com/clinical-it/article/13008175/missed-appointments-cost-the-us-healthcare-system-150b-each-year>

# Omnichannel Success Story: Phoenix Children's Hospital

Phoenix Children's Hospital sought a more effective way to reach patients and employees, aside from applications and portals. The answer? Texting. The hospital implemented SignalWire SMS to send one-way text messages with important updates, such as lab results. The staff also incorporated two-way communication which enabled doctors to text with their patients. After adopting SignalWire short codes in 2019, the hospital saw a significant increase in their throughput—at a price point that worked well with the non-profit organization's budget.



**Phoenix  
Children's®**

*"Compared to our other solution, the throughput is much higher. I can push half a million text messages a month and a couple hundred thousand a day. And, those messages go out very quickly because of the fast turnaround time."*

- David Higginson, Chief Innovation Officer, Phoenix Children's Hospital

# Self Service Is a Necessity for Providers and Patients

# 47%

According to Elsevier Health, nearly half (47%) of U.S. healthcare workers plan to leave their positions by 2025.

**In addition to the COVID-19 pandemic's lasting effect on communication, it also worsened long-standing labor shortages in the industry. According to Syntellis' Hospital Vitals report, total contract labor expenses shot up 258% from 2019 to 2022<sup>10</sup>, and the median contract wage rate paid to staffing firms increased by 57% during the same time period.**

Unfortunately, the combination of the country's aging population and increasing demand for healthcare services will continue to make it difficult for healthcare organizations to meet staffing demands. The Bureau of Labor Statistics projects overall employment in healthcare occupations will grow 13% from 2021 to 2031, which translates to about 2 million new jobs over the decade<sup>11</sup>.

In addition to new job growth, healthcare organizations must also account for opportunities that arise from workers leaving their occupations permanently. According to Elsevier Health, nearly half (47%) of U.S. healthcare workers plan to leave their positions by 2025<sup>12</sup>.

As much as patients want to leverage auto-scheduling software to manage appointments, take advantage of telemedicine solutions, etc., giving patients access to self-service options will greatly benefit healthcare providers, as well. And, it's what healthcare workers want. According to Microsoft's 2022 Work Trends Index, technology ranks third on the list of factors that frontline workers say could help reduce workplace stress<sup>13</sup>.

<sup>10</sup>[https://www.syntellis.com/resources/report/hospital-vitals-financial-and-operational-trends-0?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=aha-today&mkt\\_tok=NzEwLVpMTC02NTEAAAGKYjif7nbZ-YzYFzv22VTXS44dDm1G54X3FyUUdzMnyu7wKklfwUW4xP-xsMEUsZP7kAuw8QP9tClhhI6DFv2lmOIB8D5H3PKxtcBOTdjK8BBQ](https://www.syntellis.com/resources/report/hospital-vitals-financial-and-operational-trends-0?utm_source=newsletter&utm_medium=email&utm_campaign=aha-today&mkt_tok=NzEwLVpMTC02NTEAAAGKYjif7nbZ-YzYFzv22VTXS44dDm1G54X3FyUUdzMnyu7wKklfwUW4xP-xsMEUsZP7kAuw8QP9tClhhI6DFv2lmOIB8D5H3PKxtcBOTdjK8BBQ)

<sup>11</sup><https://www.bls.gov/ooh/healthcare/home.htm#:~:text=Overall%20employment%20in%20healthcare%20occupations,new%20jobs%20over%20the%20decade>

<sup>12</sup>[https://www.elsevier.com/\\_data/assets/pdf\\_file/0004/1242490/Clinician-of-the-future-report-online.pdf](https://www.elsevier.com/_data/assets/pdf_file/0004/1242490/Clinician-of-the-future-report-online.pdf)

<sup>13</sup><https://www.microsoft.com/en-us/worklab/work-trend-index/technology-unlocks-a-new-future-for-frontline>

# Use Cases for Real-Time Communications APIs

Here are just a few use cases for how you can use secure, scalable APIs for building an advanced, cloud-based healthcare communications platform



### Appointment reminders:

Enhance patient support with messaging and voice APIs that automatically alert patients of upcoming appointments, and even allow conversational, back-and-forth chat abilities.



### Virtual Appointments:

Create an unparalleled HIPAA-compliant telehealth experience for patients to offer an alternative to an in-person visit or enable staff to work remotely. Low-latency video helps provide more natural and real conversations as if it were an in-person visit.



### Patient Relationship Management:

Encourage wellness by automating notification updates and educational insights with messaging. Build stronger relationships with automated, self-service and same agent handling with voice routing and human-like AI interactions.



### Omnichannel Patient Care:

Build multiple paths for patients to engage and route calls to the right department or individual. Integrated APIs offer patients more ways to communicate and get information securely via text message, chat, recorded phone messages, or via video.



# How to Create a Transformative Omnichannel Platform in 6 Steps

Building an omnichannel patient platform on their own isn't an easy feat for healthcare organizations. It requires them to spend time upfront analyzing their data to learn which services to use and how to use them effectively. On top of that, they must figure out how to seamlessly integrate new technologies to create a cohesive platform—with minimal service interruption.

Here is a step-by-step guide for creating and deploying an omnichannel patient platform:



## 1. Map out your patient journey:

Development on the platform cannot begin without identifying your organization's specific needs. Start by charting the various touchpoints in a patient's interaction with your organization, and map out where you can integrate technology to improve the patient experience. In addition, conduct internal and external research, like surveying patients and meeting with employees, to get a thorough perspective on how technology can improve their experiences.



## 2. Choose the right technology solutions:

As you map out the various interactions between patients and your organization, you'll identify areas where technology solutions can simultaneously improve the patient experience and business outcomes.

For example, deploying an interactive voice response (IVR) system that shares pre-recorded information can cut back on patient hold times and reduce the number of calls that need to be routed to a human. Additionally, IVRs significantly reduce the time it takes to direct patients to the correct person or department, which is always a boon to their experience.

Another technology solution that improves efficiency and reduces costs are SMS appointment reminders, which have been shown to reduce no-shows by as much as 38%, according to one study<sup>14</sup>. Also, SMS appointment reminders are especially effective if you are dealing with an older patient demographic, because they work well on older phones and do not require the user to interact with your app.

Picking the right technology solutions is one thing, but you also need to consider how you're going to integrate each solution so data flows between them and they can co-exist successfully in the platform without having to replace your existing infrastructure.. That's where APIs come in.

<sup>14</sup><https://bmcoophthalmol.biomedcentral.com/articles/10.1186/1471-2415-8-9>



### 3. Integrate with existing platforms:

APIs allow you to integrate communication capabilities easily while retaining your existing infrastructure.



### 4. Omnichannel capabilities:

APIs allow you to easily build and extend omnichannel capabilities into your existing investment, saving you the effort and aggravation of ripping and replacing your existing infrastructure. They also allow:

**Customization:** Communication APIs don't box you into off the shelf feature sets. You have the ability to customize a proprietary and differentiated experience for your customers.

**Scalability:** The cloud-based, elastic nature makes it easy to scale as needed based on patient demand. Plus, avoid overage charges and only pay for what you use.

### Simplified Deployment:

When it comes to integrating and deploying communications APIs, both low-code and no-code platforms can be used to create the applications that leverage these APIs.

No-code platforms allow users without any coding knowledge or experience to create and deploy applications. These platforms typically provide pre-built components and drag-and-drop tools. Low-code platforms require some coding knowledge or experience, but provide a higher level of customization. Low-code platforms provide pre-built components and drag-and-drop tools, but they also allow users to write custom code for more complex integration.



### 5. Testing, testing:

Once the system is in place, it's important to test it thoroughly to make sure the APIs can handle multiple requests and are secure and protected against potential threats. It's also a good idea to conduct usability testing and gather feedback from patients and staff to identify areas for improvement.



### 6. Monitor and refine:

Finally, it's important to continuously monitor your system for performance and security, and audit the platform regularly to ensure it meets the evolving needs of your patients and your staff.

# The Advantages of Communications in the Cloud

From bolstering a legacy system with modern telecom services in a hybrid cloud architecture, to building a new platform with full-cloud infrastructure, healthcare organizations should work with a partner that provides flexible deployment options and knows how to limit the cost required to develop and non-developers, maintain and scale a communications infrastructure.

Additionally, the cloud infrastructure should foster and empower rapid application development without complexity. Prioritizing low-code, no-code functionality allows developers and non-developers with a wide range of skill sets to create advanced capabilities with versatile, robust communications APIs.

## Be Proud of Your Cloud

An omnichannel platform cloud should have several important characteristics, including:

### Low Latency

High network latencies will erode the quality and performance of your platform, and make it much more difficult to deploy new solutions.

### Scalability

The cloud should be designed as a distributed system with nodes that are built to run across multiple cloud providers, ensuring maximum performance and scalability—so the platform can grow as the business grows.

### Data Sovereignty

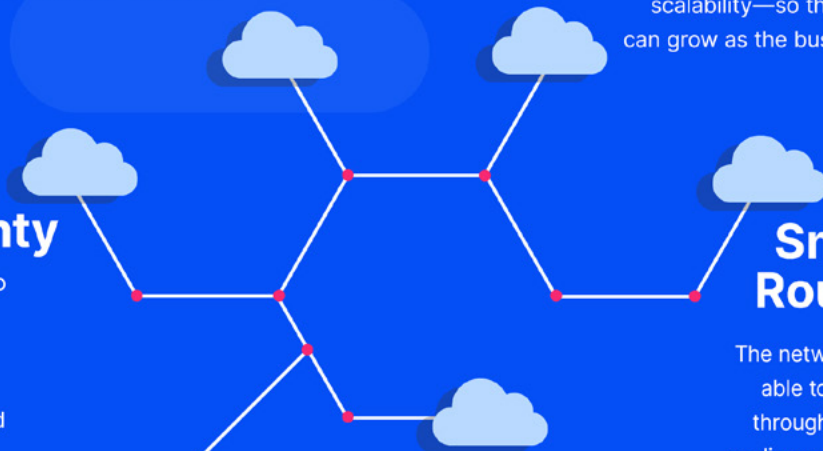
The cloud should not have to rely on external services or proxies to manage the provisioning state. This ensures better resiliency and cross-cloud support.

### Smart Routing

The network should be able to route data through the closest media server, the closest endpoint and to multiple PSTN providers.

### Reliability

A cloud is only as good as its uptime.



# Building the Omnichannel Experience Your Patients Deserve with **SignalWire**

Executives in the healthcare industry know that improving patient experience has a quantifiably positive effect on the reputation and profitability of their businesses.



Researchers from Press Ganey discovered a considerable 1% increase in net operating profit margin for every five-point increase in hospital rating<sup>15</sup>.

The healthcare industry is competitive, and healthcare organizations need to do everything they can to improve the quality of their patients' experience. A great place to start is with SignalWire, developers of the leading open-source communications platform in the world, [FreeSWITCH](#).

With [SignalWire's](#) HIPAA-compliant, fully customizable APIs, your healthcare organization can build an integrated omnichannel patient experience that will help provide unparalleled care and give your business a competitive edge.

To learn more about SignalWire's solution for Healthcare, visit: <https://signalwire.com/solutions/healthcare>.



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<sup>15</sup><https://hbr.org/2019/05/when-patient-experience-and-employee-engagement-both-improve-hospitals-ratings-and-profits-climb>