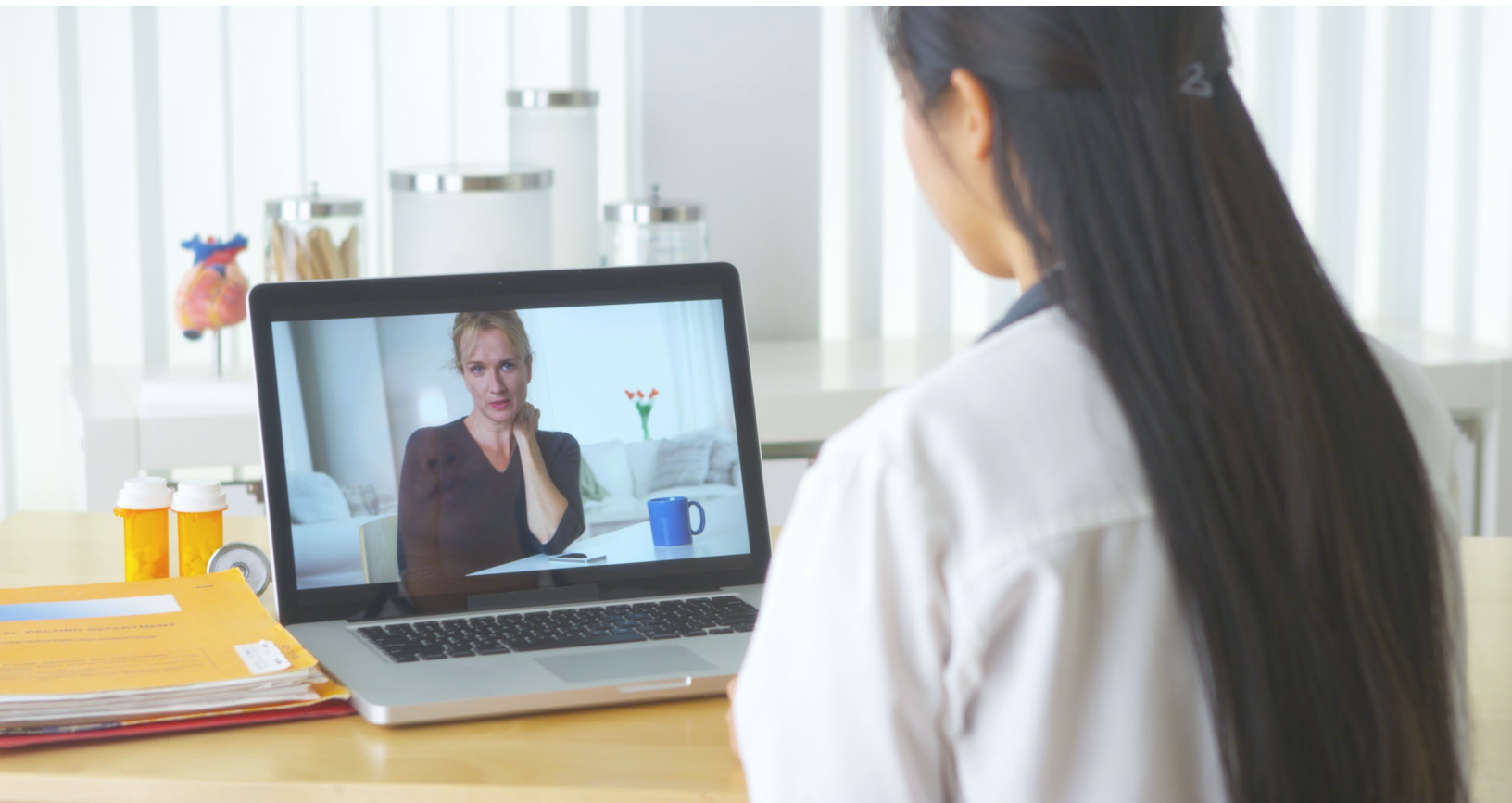


# White Paper

# Telehealth Trends with Enhanced Live Video



# Video conferencing at the frontier of telehealth

The landscape of healthcare and telehealth is constantly changing, its evolution driven by factors such as technological advances, regulatory changes, and escalating operational costs which bring with them new challenges and new opportunities. At the forefront of this operational transformation is video conferencing. With 77% of providers polled reporting current investments in virtual health applications and 93% anticipating investing in such applications within the next 5-10 years<sup>1</sup>, it is no surprise healthcare executives globally are looking to convert existing infrastructure into digital platforms to support patient care systems and electronic medical peripherals.

This white paper will outline some of the key items healthcare executives are considering when planning the implementation or upgrade of their telehealth platform.

- Present challenges facing telemedicine adoption
- Providing improved patient care while cultivating administrative efficacy
- Video platform selection best practices to effectively facilitate telemedicine

“77% providers polled reporting current investments in virtual health applications and 93% anticipating such an investment within the next 5-10 years.”

Source: Virtual Health: A Look at the Next Frontier of Care Delivery, McKinsey & Company, June 11, 2020

# Telehealth Growth Momentum

With increasing support and funding from government agencies and industry insurance organizations, the healthcare sector has significantly advanced the accessibility of telehealth and telehealth-related initiatives, resulting in farther-reaching patient care and improved patient care outcomes.

In the United States, for example, Medicaid and Medicare both broadened their policies regarding reimbursement eligibility for telehealth in March 2020<sup>1</sup>. In June of that same year, 37 states passed telehealth parity laws mandating that healthcare providers be reimbursed by private healthcare insurance companies for care delivered remotely via telehealth platforms<sup>2</sup>. These new telehealth parity laws removed a significant hurdle in terms of cost ramifications for healthcare providers translating into greater opportunities towards telehealth adoption.

## 2/3

**Surveyed executives** thought that removing regulatory and payment barriers would **accelerate virtual health adoption**.

(The Future of Virtual Health, Deloitte Insights, April 30, 2020)

## 76%

**US hospitals connect with patients through video**.

(Fact Sheet: Telehealth, American Hospital Association, February 2019)

## 83%

**Patients expect to use telehealth** after the pandemic ceases.

(Four New Statistics That Prove That Telemedicine Isn't Just a Pandemic Fad, Medical Economics, July 8, 2020)

<sup>1, 2</sup> Telehealth: How Primary Care Is Changing, Primary Care Development Corporation

# Top-of-mind Considerations in Telehealth Adoption

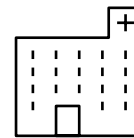
Web and mobile-enabled telehealth is a complex venture. The move towards developing a solid telehealth platform requires the successful navigation of the realities of modern-day healthcare.

No two healthcare systems are alike. Different healthcare organizations have varying inventories of existing legacy equipment as well as a diverse set of existing systems from previous deployments. Therefore, many out-of-the-box telehealth solutions are insufficient as they are unable to broadly satisfy the unique exigencies of these often disparate systems. “Out of necessity during COVID, many health systems used multiple telehealth platforms in order to meet the need and the demand at the moment,” notes Brian Kalis, MBA, Managing Director of digital health and innovation in the health practice of consulting firm Accenture. “We’re starting to see health systems step back and think through what strategic platforms they need for telehealth going forward.”

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## Considerations per each level of the care delivery model



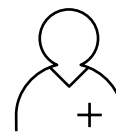
### Hospital System

EMRs/EHRs, system integrations, billing



### Physician

Video snapshots, medical peripherals



### Clinician

Ease of use, maximum efficiency, remote monitoring

## Evolving Healthcare for Better Clinician Care

Historically, telehealth has typically been asynchronous and often expensive, which has discouraged healthcare organizations from investing in the transformation of their existing infrastructure towards an environment that supports a virtual model, including video conferencing. However, as the prevalence and capabilities of mobile devices and high speed internet increases, the adoption and distribution of synchronous (real-time) audio/video-based telehealth is becoming a growing priority in healthcare management and patient care strategy.

At the clinical level, there are two conflicting drivers. On one side, patients have high expectations for immediate access to their primary caregiver, and on the other, physicians and clinicians have never had to multitask more than they do today. Furthermore, on-site specialist attendance is often cost-prohibitive, which has negatively affected the quality of patient care.

# Examining Key Questions and Best Practices

Below, providers and hospital systems from around the world offer their insight into best practices and takeaways for successful telehealth platform capability assessment and selection.

## BEST PRACTICE

### Security

Protecting patient data at all points throughout the online consultation process is a mission critical requirement for all providers. HIPAA compliance is a must-have, yet the platform must be easily accessible by physicians, clinicians, and patients.

## TAKEAWAYS

- ✓ Choose a solution that **can be integrated with existing user management and authentication systems.**
- ✓ **Ensure all the right security is applied** — SSL, TLS, DTLS, with 256 bit encryption.
- ✓ **Check for HIPAA compliance certification.**
- ✓ Select a solution that **stores/transmits data within your allowed network** (often regulated by region).

## BEST PRACTICE

### Medical Peripheral Device Integration

Consistent positive outcomes have tended to favour telehealth platforms that are able to integrate with existing medical peripheral devices (such as stethoscopes, glucometers, otoscopes, ECGs, pulse-oximeters, etc.) while offering the potential to support future devices.

## TAKEAWAYS

- ✓ Ask your telehealth solution provider about **current & future peripheral device support.** Can custom connectors easily be built for new devices so you will be able to livestream ultrasounds, ECGs, multiscopes, etc.?
- ✓ Carefully investigate the **datachannel API and its capabilities** of prospective solutions. Can the solution be used to broadcast to multiple viewers at once, and what are the limits in using that solution?

## BEST PRACTICE

### Browser and Device Compatibility

Many healthcare organizations shared that they currently lean towards a “Bring Your Own Device” strategy, wherein various browsers, mobile phones and tablets are used by patients. We have seen greater success when a video conferencing solution allows for across-the-board browser and device compatibility.

## TAKEAWAYS

- ✓ Find a video solution provider that **supports the widest range of operating systems, platforms, and browsers.** Better platform support means better options for patient and clinician access, increasing quality of care.
- ✓ Understand the difference between **support for an application (typically downloaded from an app store) and browsers-only support.** Can the platform support both, providing a progressive experience from web to app?

## BEST PRACTICE

# Session Scalability

When providing care remotely using a telehealth platform, physicians and clinicians often require the ability to consult with multiple parties beyond just 1-to-1 video conferencing.

- Adding an external remote specialist
- Inviting multiple family members to join remotely
- Broadcasting to teams/training sessions

## TAKEAWAY

- ✓ **Avoid video conferencing solutions that rely solely on peer-to-peer networking**, as they are inherently limited.
- ✓ Ask potential solution providers about **the size and types of video conferencing they support and about the performance of conference participants' devices at those scales** (an often-hidden side effect of larger sessions is a decrease in performance and an increase in latency).

## BEST PRACTICE

# Integration Options

We find that successful telehealth platforms are those that have the capability to integrate with existing systems, most notably with:

- EMRs / EHRs
- Existing communications (Cisco, Avaya, Polycom, etc.)
- PSTN phone systems

## TAKEAWAY

- ✓ Choose a video solution that **easily exposes the underlying session data and provides mechanisms to transmit that data via HL7 & FHIR**.
- ✓ Ensure the solution you choose has a mechanism for **SIP integration** for existing infrastructure and PSTN.
- ✓ Be careful **not to box yourself into an out-of-the-box platform**.

## BEST PRACTICE

# Recording

Physician and clinician teams are looking to elevate patient care by using a telehealth platform with the ability to record aspects of synchronous consultations.

## TAKEAWAY

- ✓ **Ask how and where your recordings are stored**. Gain peace of mind with **end-to-end control** of your data for HIPAA compliance.
- ✓ Verify that the recording package **supports individual video stream recording and flexible mixing of multi-party sessions**. This ensures each patient's data can be uniquely identified for safe, HIPAA-compliant storage.

## BEST PRACTICE

# Operating Expenses

Many healthcare organizations are seeking to minimize ongoing operating expenses related to the implementation of a telehealth platform.

## TAKEAWAY

- ✓ Verify that your video solution is capable of **dynamically choosing the most cost-effective connection type**.
- ✓ If you need to scale to the public, select a solution capable of **automatically growing and shrinking its infrastructure on demand**.
- ✓ Understand that **bandwidth will be a significant component of your operating cost**.
- ✓ Consider the **potential cost savings** of operating your own infrastructure on-premises or in a self-hosted cloud.

#### BEST PRACTICE

## Remote Areas and Poor Networks

The right telehealth platform solution is one that flexibly handles patients who are connecting from locations with poor broadband connectivity or are using older-model underpowered tablets or computers.

#### TAKEAWAY

- ✓ Choose a video solution that is capable of **continuous adaptation to network bandwidth changes**.
- ✓ Ask your solution provider about how their **product/service identifies and handles patients using legacy devices**.

#### BEST PRACTICE

## Complex Workflows

Highly capable telehealth platforms address complex care workflows and provide unique features that optimize the patient experience and streamline care.

- Virtual waiting rooms
- Breakout rooms (telepsychiatry)
- Multi-camera scenarios
- Patient data sharing (screen sharing, annotating x-rays, live medical telemetry)

#### TAKEAWAY

- ✓ Consider that **standard cloud and whitelabelled video platforms have limited capabilities**.
- ✓ Build your telehealth solution **on top of a SDK (Software Development Kit) with the most powerful API possible**.

"In an age where the average consumer manages nearly all aspects of life online, it's a no-brainer that **healthcare** should be just as **convenient, accessible and safe** as online banking."

Jonathan Linkous, former CEO of the American Telemedicine Association

#### BEST PRACTICE

## Future-proof Telehealth

Evolving patient care strategies and on-going competitor differentiation is driving providers to prepare for the future.

#### TAKEAWAY

- ✓ Look for video conferencing software that is **extensible with a fully featured API**.
- ✓ Choose a video solution that has been architected to be **completely customizable by your software development team or a trusted supplier**.
- ✓ Ask how **augmented and virtual reality can be supported** in the video solution.

## Key Steps

**Determining the scope** of a telehealth project may be overwhelming; however, the following key steps can help ease the process and develop a manageable, straightforward action plan that can make telehealth transformation a reality.

- 1 Evaluating Current State**  
Who, how, what, when, why
- 2 Future State Visualization**  
Access needs for future capabilities
- 3 Mapping Requirements**  
Determine features, infrastructure, architecture gaps
- 4 Converting to New Technology Platform**  
Manage changes, close gaps
- 5 Release in Production**  
Build, launch, deploy



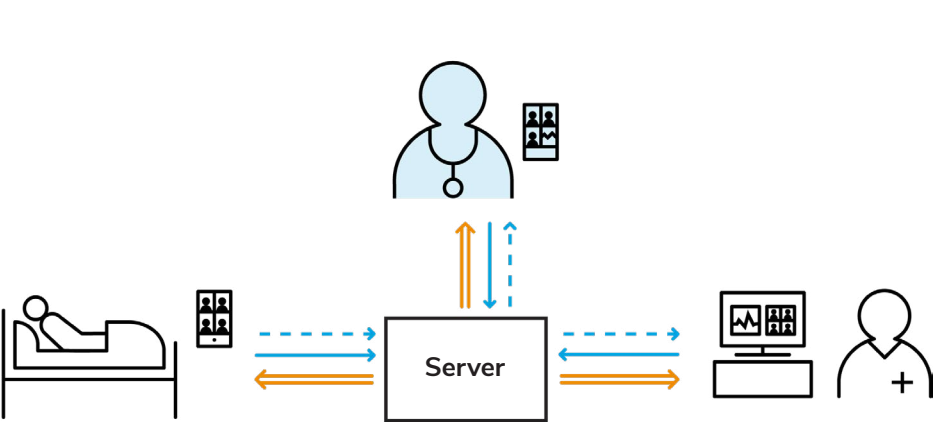
# Case Study

Below, let's take a look at how a holistic video-enabled patient care session with a particularly challenging complex workflow could operate when powered by a highly capable video platform such as LiveSwitch.



A nurse remotely monitoring a patient is notified when an abnormality in the patient's vital signs are detected, prompting the nurse to begin a video call with the patient.

- ✓ Integrate medical peripheral device data
- ✓ Ensure secure audio/video via SSL, TLS, DTLS with 256 bit encryption



Noting the system's indications of the patient's vital signs and the nature of the conversation with the patient, the nurse determines the need to include the patient's primary physician and establishes a video consultation with the physician.

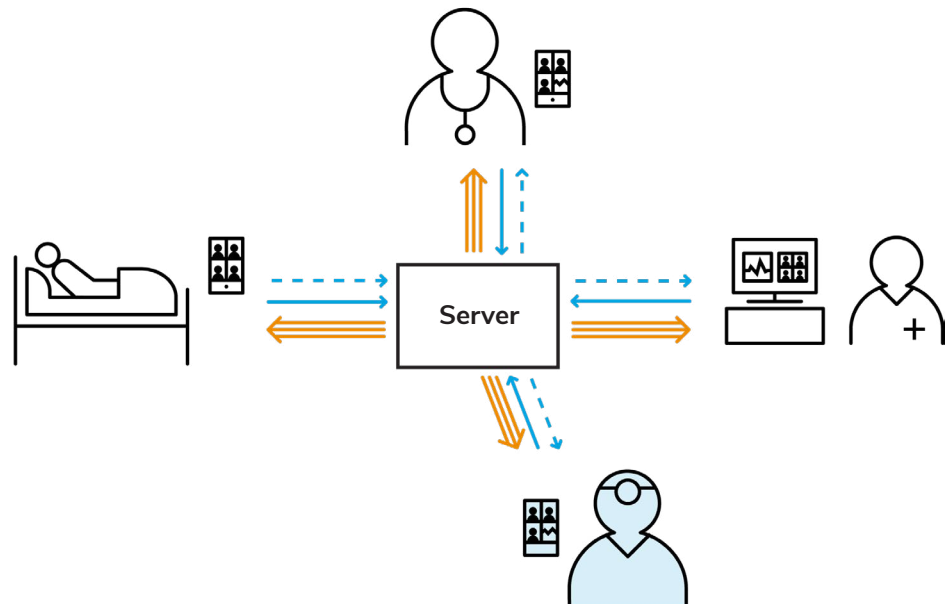
- ✓ Record any audio/visual stream

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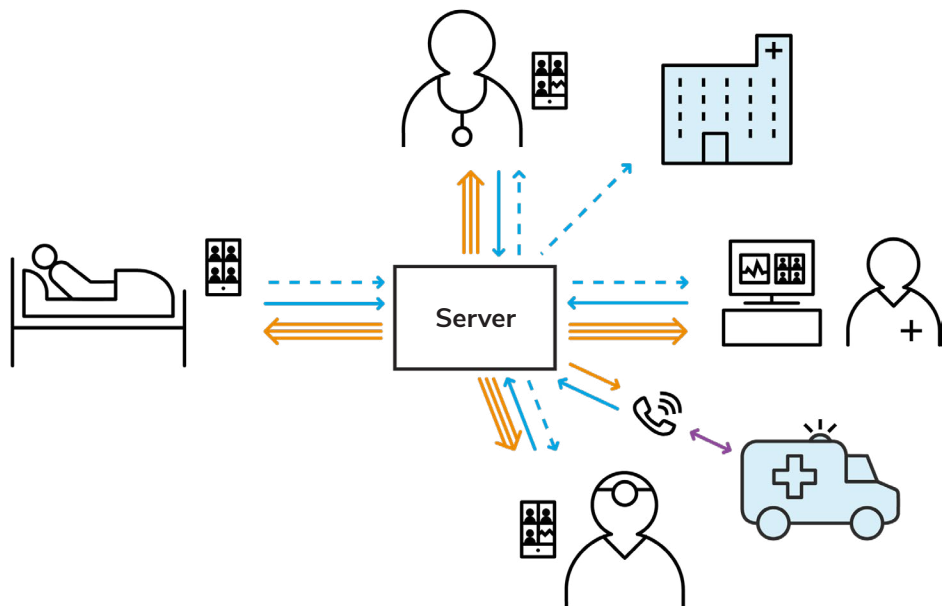
Recognizing that the patient's status requires a more specific assessment, the primary physician consults with a specialist for advice while the nurse observes.

✓ **Handle complex workflows**



The specialist's evaluation suggests the patient needs to be transferred to the hospital for additional testing.

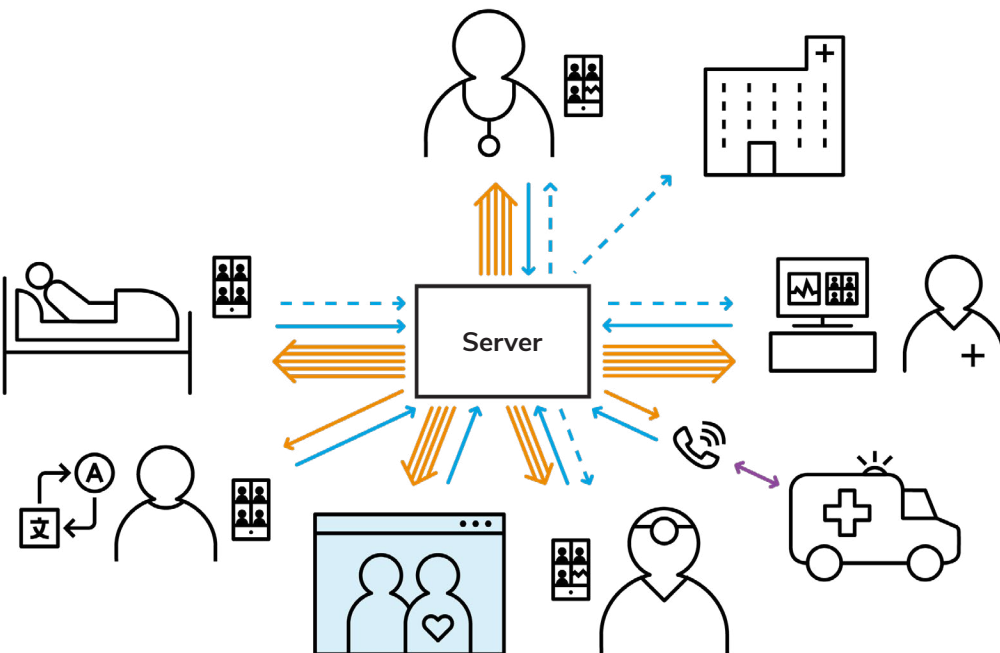
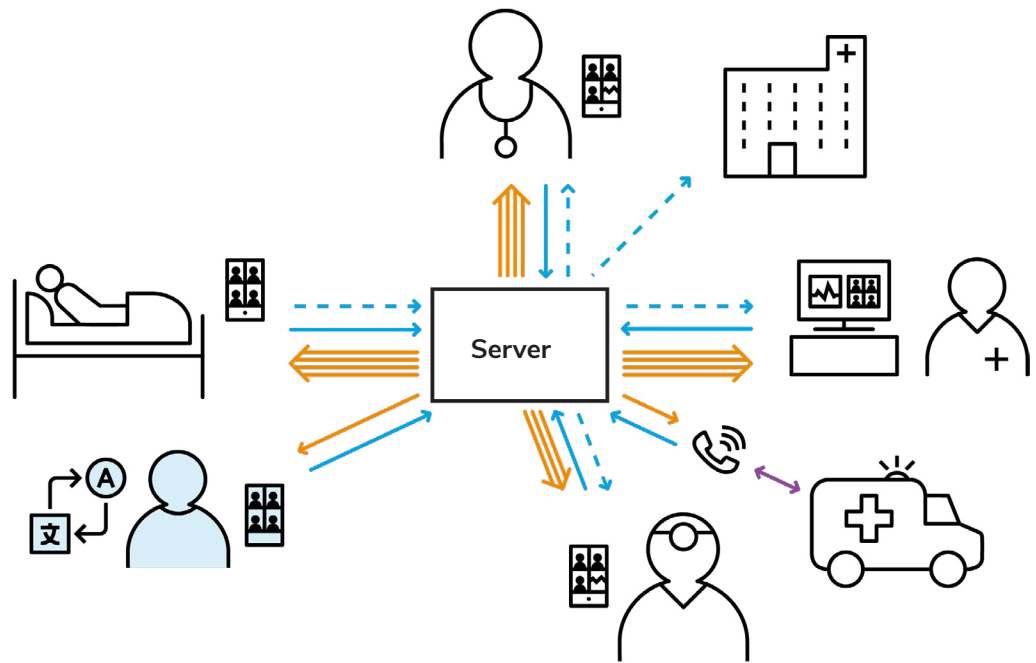
✓ **Integrate with existing EHR and legacy systems**



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The medical team is aware the patient needs translation assistance, and a remote translator in a rural community joins the conversation.

✓ Handle poor networks in distant locations

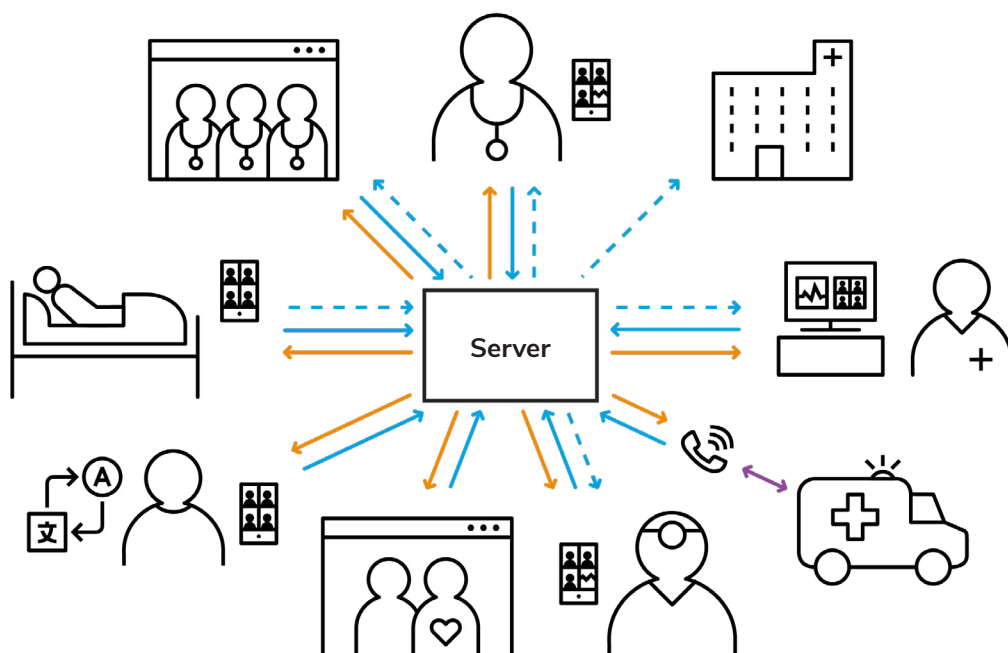
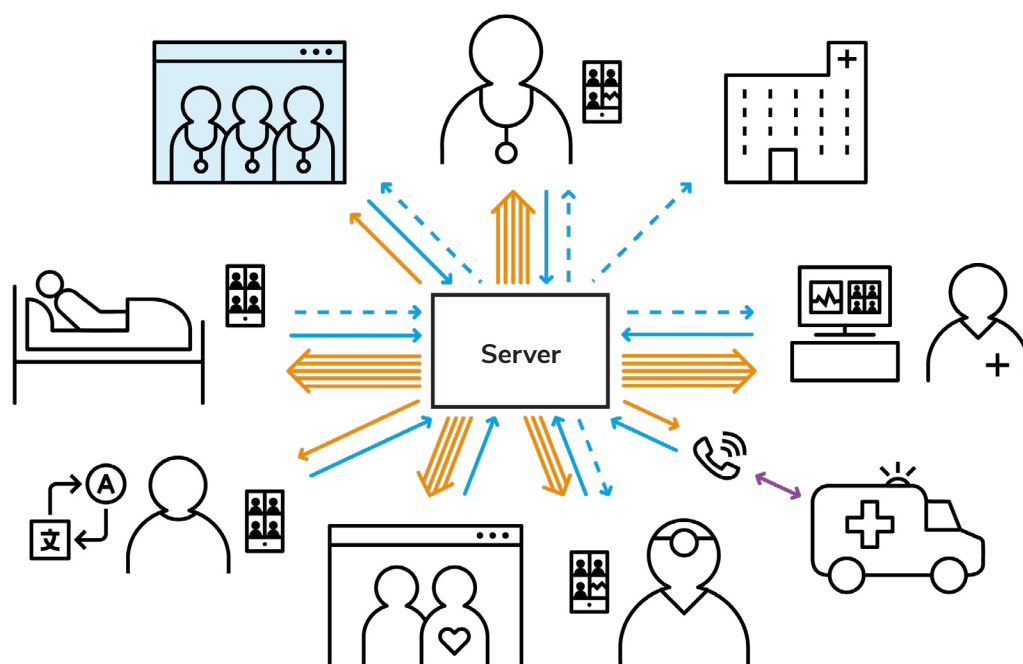


To ensure maximum patient support, the patient's next-of-kin is apprised of the situation, and the patient's family joins the video conference via web browser.

✓ Maximize browser and device compatibility

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- ✓ Scale to large audiences and multiple simultaneous sessions



- ✓ Facilitate cost optimized connection architecture

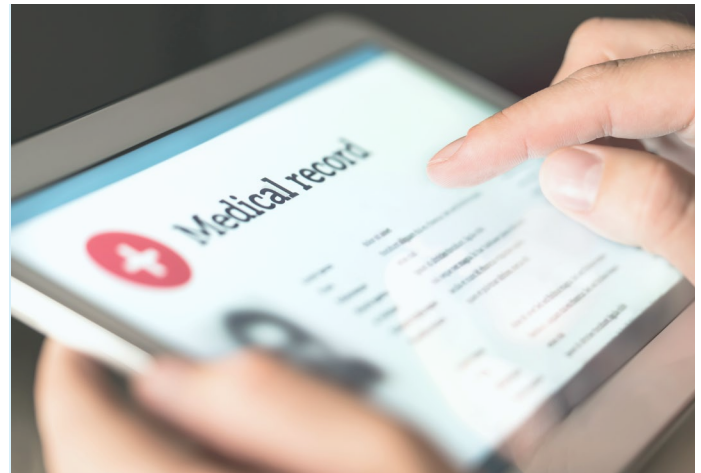
Frozen Mountain Software Ltd.

# Summary

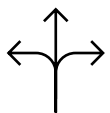
**Now more than ever it is imperative that healthcare executives look to the future** when evaluating means of implementing cost-effective infrastructure upgrades and optimizing patient care outcomes. While making these necessary evaluations, taking into account multiple key factors is conducive to performing sufficient due diligence:

- ✓ Demonstrated upward momentum continues in telehealth due to increased funding and investment from government agencies and industry insurance organizations.
- ✓ Progressive opportunities and challenges exist in the arenas of patient care models and healthcare administration where the adoption of telehealth is concerned.
- ✓ Proper identification of best practices and key questions to ask prospective vendors in order to source the right technological solutions and digital platform to be built is essential.
- ✓ A synchronous telehealth platform, including video conferencing, that meets all requirements in providing optimal in-depth patient care outcomes and system efficiency is possible.

By following best practices that address the growing needs of the present healthcare climate with a focus on providing consistent, high-value patient care and maximizing organizational efficiencies, telehealth is guaranteeing itself a healthy future.



## Future-proof telehealth with flexible live video.



**Increase end-user adoption with limitless design**

- Integrate with legacy infrastructure (telephony systems, data centers, etc.)



**Provide optimal physician & clinical care**

- Integrate with EMRs & EHRs
- Capture high-res video snapshots
- Add medical peripherals



**Eliminate technology risk with a team of experts**

- No plugins or downloads = simple for patients

Interested in implementing  
any of these best practices?  
**Contact us today.**  
**We can help!**

#### Professional Services

- **Discovery Assessments**  
Provide an architecture assessment and a complete project plan with budget.
- **Bootcamp**  
Receive training from our senior developers to accelerate your application development.
- **Projects**  
Upgrade and enhance your telehealth platform, from design and development to implementation.

#### Contact

sales@frozenmountain.com  
1.888.379.6686  
www.frozenmountain.com

#### About Frozen Mountain



With 10+ years of experience and a passion for innovation, we pride ourselves on providing our clients with the very best in real-time communications technology. We work closely with our clients and partners all around the world to help them build world-class applications that exactly match their specifications and use cases. No matter how unique or complex your requirements, our full suite of flexible products, including LiveSwitch, has you covered!

#### About Our Products



Build live video streaming applications for complex workflows with a flexible cross-platform API designed for developers and leading healthcare providers.



Break the boundaries of typical live video with unparalleled flexibility and massive scalability.