



Efficiently Supporting and Safeguarding Telemedicine

Superior Patient Experience With NETSCOUT



Telemedicine programs are skyrocketing in popularity with patients, providers, and payers.

A recent Mordor Intelligence report predicts the virtual health market will be a \$66 billion-dollar industry by 2021.

Source: The Truth About Telemedicine Revenue and Reimbursement.

Healthcare delivery is now in a paradigm shift, as the current pandemic is also accelerating change. There is a distinct unfulfilled need to create new delivery models for providing affordable and prompt healthcare services to an ever-increasing world population and particularly now with the COVID-19 pandemic. Augmentation of the traditional clinic and hospital-based model of healthcare with models that incorporate new technologies is the core need. This shift must happen while optimizing the patient experience.

Healthcare is transforming as providers and health systems experience unprecedented daily visit volumes in the United States as the novel coronavirus continues to spread globally. Patient visit volumes continue to rise. But beyond this global pandemic, when handling visits and health concerns like peak flu volumes, telemedicine continues to grow.

Put simply, telemedicine is a two-way, real-time interactive communication between the patient and the physician at a remote site. The delivery mechanisms include networked programs to link hospitals and clinics, point-to-point connections to deliver services directly or outsourced to independent providers; monitoring center links for in-home monitoring and other patient care services; and web-based e-health patient service sites for consumers. Telemedicine is a critical and central area of concern showing increased utilization in healthcare for NETSCOUT® customers.

Further, telemedicine is the telecommunications systems that link healthcare organizations and patients from diverse geographic locations and transmit text, data, and images for (clinical) consultation and treatment. Telemedicine presents challenges for healthcare providers in ensuring that integrity and confidentiality persist.

For telemedicine to continue to function effectively, the IT infrastructure undergirding these systems must be made sound with proactive problem-solving. NETSCOUT is a valued partner in supporting telemedicine and healthcare as customers experience increases in use and volume.

NETSCOUT assists in terms of solving problems and issues that impact one or more of the following questions. e.g., when will we know if a program and application in telemedicine is successful? When it comes to telemedicine functioning well to support patients, ultimately, there are some fundamental questions to ask. Was the patient, family, or caregiver experience supported in a way that the care team member experience was also efficient to the end of promoting an overall community experience? This is, of course, a complicated question. These are the other fundamental questions NETSCOUT helps to answer.

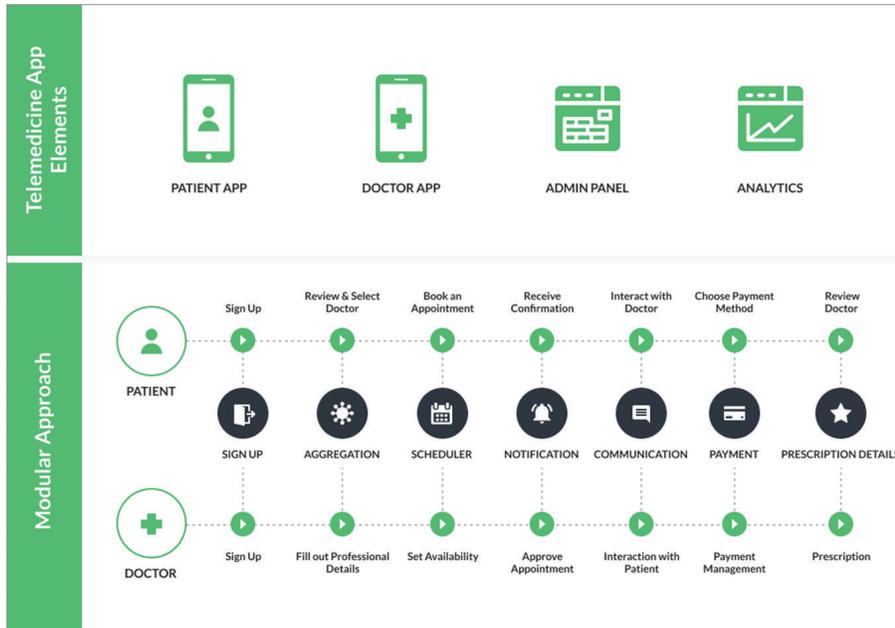
1. Has telemedicine improved access to care by patients and clinicians in your areas of concern?
2. Have cost reductions been realized in support of overall objectives?
3. Was the patient experience supported and improved?
4. Were clinicians and healthcare providers satisfied and productive?

Source: http://www.qualityforum.org/Publications/2017/08/Creating_a_Framework_to_Support_Measure_Development_for_Telehealth.aspx

“In the onslaught of the COVID-19 pandemic, many small medical practices, community hospitals, federally-specialty practices, qualified health centers, rural health clinics, critical access hospitals, mental health practitioners face the challenge of quickly establishing telehealth services.”

Source: ATA'S Quick Start Guide to Telehealth During a Health Crisis.

Keep in mind that the telemedicine process flow is relatively straightforward but deceiving in complexity from an application development and support process. The challenges for delays, dropped communications, and issues can vary widely across the following domains:

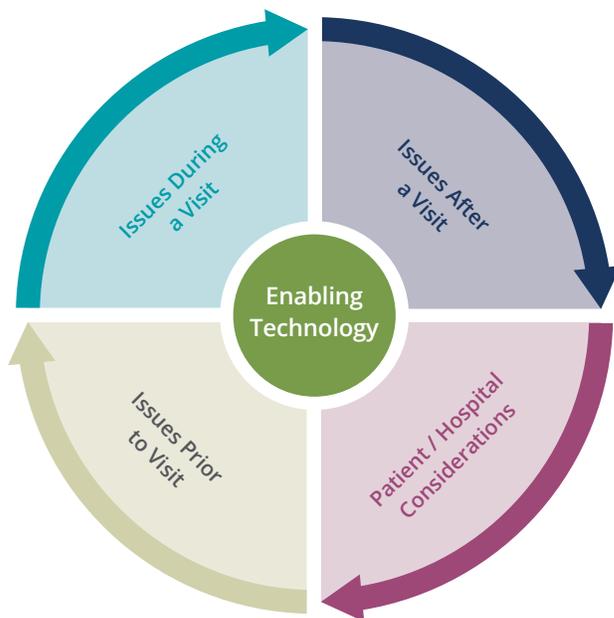


“Telehealth is the use of a technology-based virtual platform to deliver various aspects of health information, prevention, monitoring, and medical care. The fastest-growing sector of health care, telehealth’s largest segment, is telemedicine. Narrowly, telemedicine is defined as the practice of medicine via a remote electronic interface. There are distinctions within telemedicine delivery.”

Source: National Center for Biotechnology Information (NCBI), synopsis of telemedicine services.

Source: Telemedicine App Development: Trends, Challenges, Features, and Cost
<https://msdev.com/blog/telemedicine-app-development>

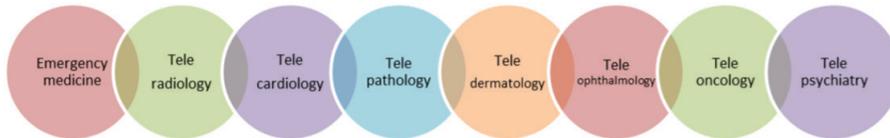
NETSCOUT customers are grappling with complex issues in healthcare. As part of NETSCOUT’s continued commitment to healthcare leaders in IT as well as clinicians, we wanted to explore telemedicine through the lens of following approach / 5 areas:



First, let's explore some simple definitions to gain focus on telemedicine.

In addition to improved access, the NCBI estimates that telehealth could save the United States health care system more than \$4 billion annually. NETSCOUT also recognizes that this is about patient experience, public safety, and, ultimately, patient health. We've been at the forefront of helping healthcare customers achieve these crucial imperatives.

Telemedicine areas of focus include the following and more:



Source: Roadmap for Telemedicine, https://www.ghdonline.org/uploads/road_map_for_telemedicine_iwg_asia_2014.pdf

It doesn't matter the area of focus or application of telemedicine, NETSCOUT is here to help. Now let us explore some key considerations when providers and hospitals are leveraging telemedicine during this pandemic and after.

Before a Consultation or Visit With Healthcare Provider

Patient Scheduling

Supporting visits and consultations through telemedicine requires that appointments are scheduled as conveniently as possible for both patient and provider. Always on, and available portals to schedule interactive sessions is a critical component. If a Patient or Healthcare worker cannot schedule appointments or follow-on appointments, delays, and inconveniences can damage patient experience.

NETSCOUT's healthcare customers and IT professionals require the ability to monitor the status of Patient portals, validating both uptime and performance. Through root cause analysis and problem-solving, performance problems and outages can be solved through troubleshooting to preserve the patient experience.

Insurance Validation

The necessary step of patient insurance validation is critical in telemedicine. Inconveniencing patients through delays and extra steps, like forcing appointment rescheduling, can be a real detriment to the continued adoption and satisfaction of telemedicine. But beyond that, as healthcare providers continue to see growth in these types of consultations, treating an insured as an uninsured can force paying in advance and damage patient experience overall.

Interruptions in the patient experience can harm patients in minor or even significant ways. Detailed and efficient knowledge of patient insurance policies must be at your fingertips. Knowledge of approved services and treatments for patients must always be connected and ready.

During a Consultation or Visit With Healthcare Provider

HTTP Monitoring and Troubleshooting

As the application protocol for distributed telemedicine models, HTTP is the face and entryway for telemedicine when connecting to patients. Patients must experience high-quality connections for scheduling doctor visits, reviewing test results, or accessing medication.

As the front end to most telemedicine applications, it is critical to view the status of the web front end of systems. When monitoring and troubleshooting issues with telemedicine systems, it is required to have visibility across web connections and through firewalls and load balancers, for example. This is how business continuity within healthcare is achieved while protecting patients.

Voice Analysis

In many cases, patients have higher expectations about being able to hear and communicate clearly via telemedicine. When health and peace of mind are at stake, patients require superior call quality, fewer dropped or misdirected calls, and exceptional overall experience when speaking to their health care provider.

NETSCOUT helps by providing the ability to monitor live VoIP conversations, validate signaling and call quality, and troubleshooting any performance issues rapidly.

Video Analysis

Most significantly, doctor/patient interactions require the highest quality experience via video. NETSCOUT empowers IT and network operations staff to monitor and troubleshoot high-resolution video delivery to help minimize issues.

After a Consultation or Visit With Healthcare Provider

Patient Record Access

Maintaining secure and consistent access to patient record data is very important to successful telemedicine systems. In the absence of this access, and the capacity to monitor connections, multiple risk factors can manifest, e.g., pertinent patient history, current medications, known allergies, past procedures, family history, and prior treatment success failure.

Multiple risk factors may subject you to negligence – pertinent patient history, current medications, known allergies, past procedures, family history, and prior treatment success failure.

ePharmacy Access and Troubleshooting

ePharmacy or Telepharmacy represents a way of delivering pharmaceutical products and care utilizing telecommunication to different patients. When access is delayed or interrupted, troubleshooting must take place. For example, patients unable to receive their medication delivery on time may cause delays in the renewal of prescriptions forcing patients to use a third-party pharmacy.

Patients need expert care and cost-effective options to achieve their best health, and IT performance monitoring from NETSCOUT can help. For instance, Mail Order Facilities (MOB) traffic has increased with the ramp-up in the number of patients ordering prescriptions via Telehealth, Service Provider apps, Service Provider Web interfaces, and phone. These systems need to be up and running to capacity. Even the label printing processes need to be monitored to ensure that they do not exceed the five-second thresholds, for example.

HIPAA Compliance for Medical Records

Health Insurance Portability and Accountability Act, also known as HIPAA, is a U.S. legislation that provides security provisions to safeguard medical information. Telemedicine needs to be delivered in ways that protect patient privacy through compliance with HIPAA. Similarly, the technology used for privacy in telemedicine needs to treat potential breaches preventatively.

HIPAA compliance entails an organized set of secure, monitored, and documented practices within and between covered entities. Though products cannot ensure compliance, some products may contain elements or features that allow them to be operated in a HIPAA-compliant way.

When unable to comply with the areas that HIPAA comprises, financial penalties can result. Any failure to renew a HIPAA compliant business associate agreement can lead to significant issues.

Drilling-down on HIPAA, we see three areas (i.e., Administrative, Physical security, and Technical security) required when protecting patient data. NETSCOUT is a critical service provider in terms of solutions that assist NOC and Network security teams (TRO) to ensure all connectivity is encrypted, and no data is lost.

Billing

Billing should follow the same standards as in-person medical services. This fundamental need to achieve billing efficiency can be compromised through an inability to effectively execute insurance and HSA (Health Savings Account) validation. Any resultant delay in treatment (doctor visit or medication) is highly problematic for patients.

Ensuring seamless access to insurance and HSA systems must be monitored and assured since they are a critical part of the doctor's visit and treatment (medication) plans.

Enabling Technology for Telemedicine Delivery and Support

Security Edge Validation (Firewall configuration)

Blocking unauthorized communications between external networks and a provider's computer network is vital when delivering telemedicine. But beyond that, telemedicine conference calls can encounter myriad issues: running slow, losing signal, voice-only with lost video, choppy video, dropping entire calls. Many potential hurdles may cause doctors, nurses, and patients delays that can impact treatment.

Telemedicine may also be deployed as a SAAS solution (Pexip/Azure). NETSCOUT instrumentation is set outside and inside the firewall at the edge of the SaaS solution. Firewall traffic should have 99% equal loads inside and outside the firewall. Detecting discrepancies in traffic is an ongoing problem with SaaS solutions. When ramping-up the volume of overall calls for telemedicine, NETSCOUT is there to ensure these problems don't go unchecked.

DDoS Detection and Mitigation

Patients need to have uninterrupted access to their health care provider, without the fear of a hacker attack bringing down the system or preventing timely access. Speed of reaction is critical when detecting and mitigating against DDoS attacks when a patient's health is at stake.

Network security teams and SOC operators can proactively detect and mitigate incoming attacks, be they volumetric, state exhaustion, or application-directed in a telemedicine setting.

“But as the National Policy Telehealth Resource Center notes, ‘Compliance with the Health Insurance Portability and Accountability Act (HIPAA) is more complex than simply using products that claim to be ‘HIPAA-compliant.’ Not only does the telemedicine platform need to be compliant, all providers, patients, and staff using the tool need to ensure they are in compliance with HIPAA. A telemedicine software vendor, for instance, not only needs to build a secure product, but also ensure their telemedicine company is operating in accordance with HIPAA.”

Source: The Ultimate Telemedicine Guide | What Is Telemedicine? <https://evisit.com/resources/what-is-telemedicine/>

DNS Analysis

DNS (Domain Name Service) is a critical enabling service to most healthcare environments, including telemedicine modalities. DNS allows healthcare organizations to perform Web-based activities to support telemedicine. NETSCOUT assists in helping providers to understand whether DNS is causing patient connection problems with telemedicine applications or not to resolve issues rapidly. Patients require immediate access to telemedicine so they can find a resolution to health-related difficulties. NETSCOUT helps by solving problems faster.

Maintaining visibility into what is being queried from a Security standpoint is a critical issue in understanding the performance of telemedicine applications. Things like malicious queries or application performance issues to successful or failed queries must be understood.

Data Protection and Record Integrity

The use of telecommunication technologies to prevent and treat illness and promote the health of individuals and populations carries some inherent risk as it relates to the treatment of patient data. Patients need to feel secure in the knowledge that their vital and personal medical information is protected and safe from exploitation when using telemedicine.

With NETSCOUT, Network Security Teams and SOC operators can detect and block outgoing data exfiltration of valuable patient records. This level of protection can put patients and clinicians at ease.

SSL/TLS Decryption

Secure Sockets Layer (SSL) and Transport Layer Security (TLS) are technologies to ensure data is scrambled or “encoded” to protect communications over networks during telemedicine. Jeopardizing the authenticity of patient data can be a profound detriment to telemedicine and healthcare IT in general. With Patient PII, through telemedicine applications, we need to be able to differentiate between authentic and malicious data to protect the patient. This risk is why decryption is vital and where NETSCOUT helps.

NETSCOUT helps healthcare customers in telemedicine by maintaining visibility into application error codes and content to better understand overall performance. From a Security perspective, NETSCOUT also ensures that providers engaging in telemedicine can decrypt where necessary to understand vulnerabilities.

Further Hospital and Patient Considerations

Meditech Application Support

Achieving and then maintaining patient involvement in care is the foundation of a positive and lasting patient experience. This high level of engagement also applies to health workers engaged in telemedicine. Participation on both sides leads to high-quality experiences. Increased wait times when accessing information can lead to delays in billing. But this is just one issue, as delayed billing has financial implications upon hospitals, for example. Patients experiencing long wait times for test results can lead to frustration and diminished engagement. Beyond the central issue of patient care, certainly, this can also negatively impact revenue for hospitals.

IT and Network teams that spend hours locating issues and problem-solving cannot be proactive. This intrinsic time lag will lead to pressure from patients and health workers. Ultimately this dynamic of delay and seeming inaction will become apparent to Director-level or even C-level staff. When connectivity and overall performance quality problems in telemedicine can be remedied quickly, the value of investments can be proven, and more budgets potentially made available.

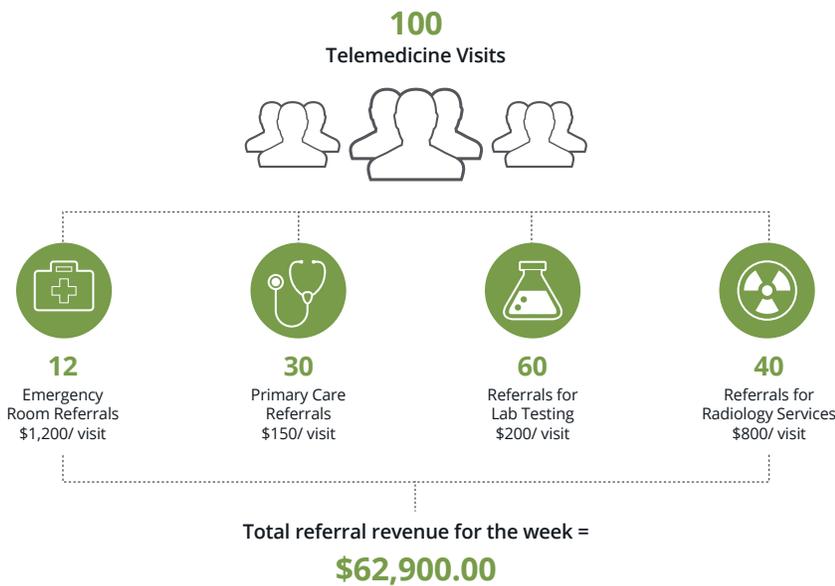
Helping customers deliver a superior overall patient experience through telemedicine is a pivotal part of supporting customer communities for NETSCOUT in healthcare. For patients, families, or caregivers, “experience” refers to their ability to use technology for telemedicine with minimal negative impact or delay. When experiencing care through telemedicine, patients expect the same quality of care and service that they would receive during an in-person encounter.

The bottom line, if the patient experience isn't optimized, it can be challenging to grow in telemedicine in maturity, visits, and consults. Even if you look at referrals, NETSCOUT can be that insurance policy to ensure referrals happen consistently and the health of patients improve over time. Service assurance for telemedicine can help make the right decisions as patient experience improves.

LEARN MORE

For more information about NETSCOUT solutions visit:

<https://www.netscout.com/>



Telemedicine is already influencing patient expectations, provider economics, and healthcare outcomes. As technology continues to intersect with medicine, and patients demand greater convenience in care delivery, we're moving into a future where virtual services are not just appreciated but expected. Providers that invest in telemedicine today will lay the groundwork for a more profitable career and reap both personal and financial dividends tomorrow.

NETSCOUT Is Here to Help!



Corporate Headquarters
NETSCOUT Systems, Inc.
Westford, MA 01886-4105
Phone: +1 978-614-4000
www.netscout.com

Sales Information
Toll Free US: 800-309-4804
(International numbers below)

Product Support
Toll Free US: 888-357-7667
(International numbers below)

NETSCOUT offers sales, support, and services in over 32 countries. Global addresses, and international numbers are listed on the NETSCOUT website at: www.netscout.com/company/contact-us