Accelerate Healthcare Transformation and Clinician Workflows with a Secure Digital Workspace

Give clinicians the mobility they need to provide better care without impacting security.
Healthcare professionals are highly motivated to provide great care to patients. But imagine how much more effective and productive they could be with a truly mobile, anywhere, anytime, digital workspace. Fortunately, this is no longer a distant dream. Healthcare is already going mobile, and that provides the opportunity to not only reduce the costs of end point devices but also to improve care services, outcomes, and the patient experience itself.

Today it’s routine for doctors to roam from one shared workstation to another, carry tablet devices on their rounds, and then finish “paperwork” at home on a personal computer. Taking mobility further to allow clinicians to securely access patient information and seamlessly collaborate with specialists and patients from anywhere and on any device has the power to transform the way care is delivered. It can also enable the business to respond faster to changes and drive new levels of efficiency. Doing so requires technology that is designed to simplify and accelerate clinician workflows, reduce IT overhead, and ensure data protection even beyond the four walls of the hospital.

This paper offers guidance for healthcare organizations seeking the benefits of a digital workspace. It also presents scenarios that illustrate the proven, positive impacts this solution can have on how clinicians, patients, business managers, and IT staff interact in a care environment.

Scenario 1: A more flexible, productive day in the life of a surgeon
Let’s consider how mobility might impact the personal productivity and flexibility of a surgeon (see figure 1). “Dr. Allen” receives a middle-of-the-night phone call from the hospital that a patient’s condition is worsening. After the call, he logs in to his home desktop and accesses the patient’s electronic medical record (EMR). Based on that immediate information gathering, Dr. Allen then accesses the operating room scheduling application and schedules surgery for the patient in the morning.

The next morning, he takes the train into the city. During his commute, he logs onto his tablet to review the patient’s MRI. After arriving at the hospital, Dr. Allen logs in to his work desktop to check status and maybe even takes a telemedicine consult via video conferencing software to prep for the surgery. He performs the surgery. Later, on his way home from the hospital on the train, Dr. Allen logs in to his tablet to review the patient’s post-op status and plans for post-discharge, follow-up care.

Note that it didn’t matter which device Dr. Allen used, whether it was the smartphone he received the initial alert on, the desktop PC he worked on at home to access the EMR and other critical applications, or the tablet he used on the train ride to and from the hospital and his home.
1 a.m. “Dr. Allen” receives a phone call from the hospital and schedules an a.m. surgery for the patient from the home laptop.

8 a.m. Logs onto tablet to review patient’s MRI during the commute to the hospital.

10 a.m. Arrives at hospital and logs into work desktop to check status and prep for surgery.

6 p.m. Reviews patient’s post-op status on tablet during the return commute home.

**Figure 1:** The digital workspace in action

It also didn’t matter what task he performed or what resource he needed to access. Using a single set of credentials, the surgeon quickly gathered everything he needed from a single, personalized, and secure digital workspace that followed him from one device to another across locations throughout the day. That consistent experience and ease of use characterize the way people need to work now, free from having to care about where they are, what device they’re using, or how they’re connected.

**Scenario 2: Better management of the new business of healthcare**

Today’s hospitals are under rising financial pressures to deliver care more efficiently and ensure better outcomes that reduce the rate of hospital readmissions, one of the biggest drivers of healthcare costs. Let’s look at how a digital workspace solution can help healthcare business managers provide cost-effective services in response to these business demands.

Susan, general manager of a midsize healthcare services provider, has to ensure both cost effective and high-quality patient care over an organization that spans more than 2,000 locations. And they’re not all the same type of facility, but include long-term acute care hospitals, inpatient rehabilitation hospitals, nursing and rehabilitation centers, and even hospice and home care locations.

Susan recognizes that the physicians, nurses, medical specialists, and even the patients that use her company’s healthcare technology are not IT people. Therefore, it’s essential to give them access to the applications they need when and where they need them without them having to worry about logging into multiple technology platforms. That’s why she has begun equipping her clinicians across diverse healthcare environments with digital workspace solutions. This gives them uniform and secure access to corporate resources and gives Susan the ability to reduce PC refresh costs by allowing physicians to use whatever device they choose. Susan also spends a lot of her time recruiting, training, and retaining younger generations of clinicians, who typically expect to be provided with the same advanced mobility solutions that they’ve become accustomed to in their education and private lives. Bring-your-own-device (BYOD) and telework are the new normal for the born-digital generation, and they have little interest in joining organizations constrained by outdated, rigid infrastructures and IT policies. A digital workspace solution helps her meet these expectations and enables her to attract better clinicians.

**Scenario 3: A simplified approach to provisioning new services**

In a volatile healthcare environment characterized by rapid growth, market shifts, mergers and acquisitions, planned and unplanned operational disruptions, and constantly evolving regulations, competing effectively demands the ability to enable productivity instantly for people anywhere in the world. This task often falls to the IT manager. Let’s call him Dillon.
One of Dillon’s biggest responsibilities is helping to enable his organization’s rapid growth. New practices are being acquired, new facilities are being constructed, new partnerships and business relationships are being created, and medical services are expanding.

Dillon has turned to a digital workspace as an essential tool for on-boarding new employees as soon as they become part of the organization. The deployment of uniform digital workspaces helps him bring the employees of partner organizations and newly acquired companies into his computing environment quickly and securely. He can then provide them with access to all of the company’s resources they need to immediately become productive members of the workforce.

Digital workspaces also enable Dillon to quickly and cost-effectively provision new IT services and application updates across the organization. In the past, Dillon and his staff had to devote a considerable amount of time installing and integrating new applications, desktops, and devices.

And the problem grew as the number and diversity of mobile devices increased. But implementing a digital workspace solution now enables him to deliver mission-critical mobile apps across the entire organization simultaneously—to whatever device his organization owns or plans to invest in for different locations and functions. The centralized control and management provided by digital workspace solutions makes it simple for Dillon to give employees access to the systems their work depends on while enforcing IT policies regarding how and where these resources can be used. In addition, a centralized approach to managing the IT services in a workspace makes upgrades, device management, and even password resets much easier, which reduces help desk costs.

With a digital workspace, fewer IT people can now service more users and manage a growing number of devices. And even in a BYOD environment where personal content could be on mobile devices, Dillon is able to maintain control and achieve his primary mission of ensuring seamless continuity of care across all the services his company provides to patients while keeping the entire organization operating at its peak.

Scenario 4: A new experience for patients and their families

While the scenario above shows the impact of a digital workspace on the productivity of a single clinician, imagine how that same solution, when offered to caregivers and staff, can impact the patients themselves. In particular, think about how it could improve the patient experience and treatment outcomes, which are critical for delivering better care and reducing the costs of providing it.

Now let’s consider John, who is experiencing sudden pain in the abdomen. He rushes to the emergency room. While he waits to be admitted, a receiving nurse uses a tablet to access her digital workspace and create an electronic patient profile (EPP) that captures John’s contact information, insurance, medications, and basic health metrics. From that point forward, every clinician whom the patient comes into contact with can access this information from their own workspace rather than forcing the patient to repeat it at every step.

The admitting physician, working from her secure digital workspace on a shared, zero-client based workstation, evaluates John, updates the EPP, and schedules an operating room (OR). Other clinicians select an on-call surgeon, notify him of the procedure through an alert to his smartphone, and direct him to the correct OR. All members of the surgical team are similarly notified and gain immediate access to John’s patient information from whatever device they happen to be working on at that time.
Patient information is not limited to what was gathered at the initial check-in; it’s continuously updated with more complete EMR information from the patient’s primary caregiver and other clinicians, lab results, vital imagery, and even voice recognition-based clinician notes as the patient moves through the system. If the surgery is “bumped” from the original OR to another one, everyone is immediately updated.

The ease of secure access to the central healthcare information system makes it easier and faster to keep critical patient data up to date. That efficiency reduces stress in an inescapably stressful situation and vastly improves the patient experience.

Another benefit of secure clinical mobility is that John’s family can be kept informed as the surgery and recovery progresses. They are, in effect, made part of the healthcare team, as is the patient.

Before discharge, for example, a doctor can use an imaging viewer at the patient’s bedside to show the family an updated scan that informs them of the progress of treatment and illustrates objectives for ongoing care. In addition, providing a hospital-owned mobile device to the patient and the family after they leave the hospital can ensure proper home monitoring and follow-up care, and avoid costly hospital readmissions.

Enabling a new era of healthcare mobility

To fulfill this vision for true healthcare mobility, clinicians and staff need the flexibility to work from wherever they may be at a given moment—from a home office to an examination room to the back seat of a taxi. They must be empowered to provide care and get their work done on any device, from a hospital laptop or zero client, to a tablet in transit, to a home desktop. They need seamless, secure self-service access to all healthcare resources—even on the same devices that hold their personal content—including applications, sensitive patient data, and collaboration tools.

By achieving secure clinical mobility, the healthcare organization as a whole gains new levels of agility and performance while providing better patient experiences and outcomes. It also becomes simpler to maintain security and compliance. But all of this demands that you have the right solution in place.

The Citrix digital workspace: leading digital transformation in healthcare

A Citrix digital workspace delivers secure access to apps, desktops, data, and services from any device, over any network, to empower mobile clinicians with the freedom and flexibility to choose how they work. For IT, a Citrix digital workspace breaks down the technology silos of desktop and mobile computing, and centralizes the approach to service delivery, making it possible to reduce costs while delivering the experience people demand and the agility the business requires.

The Citrix digital workspace is a portable, always-on workspace that:

• Provides real-time, single-click access to desktops, clinical, and business applications—whether mobile, web, or Windows—and files from a branded enterprise app store

• Secures protected health information (PHI) and other sensitive data in your data center, in the cloud, and on the device

• Works on any device, including low-cost thin clients, and automatically optimizes the experience of apps and desktops for mobile

• Integrates with essential peripherals like tap-and-go authentication devices, dictation microphones, and barcode or ID scanners

• Enables centralized, instant app updates to ensure minimal downtime for every 24x7x365 facility and drastically reduce operational costs
Only Citrix provides a comprehensive, integrated, familiar solution that’s purpose-built for the time-sensitive and mobile nature of healthcare. Whether you’re just beginning your mobility journey in healthcare or you’ve already taken the first steps—however large or small—the Citrix workspace is designed to build on and extend solutions you have already implemented, such as virtual private networks (VPNs), mobile device management (MDM), or virtual apps and desktops, to deliver an end-to-end approach to secure clinical mobility. Complementary technologies such as high-definition video conferencing and remote support, as well as partner technologies such as single sign-on, voice dictation, and zero-clients let you seamlessly enhance your solution to help clinicians become even more productive and provide a better patient experience, without compromising regulatory security and compliance. A digital workspace isn’t just mobile across locations; it also follows doctors from device to device, allowing them to shift seamlessly among the personal and organizational devices that best suit their needs. Most clinicians now use more than three devices in a given day. With a digital workspace, a task begun on a laptop in the office can be resumed on a tablet at lunch, completed on a home office PC, and then sent to a colleague for review from a smartphone while on the go. Technical details like network connectivity, access control, and app optimization are handled automatically, freeing medical professionals to focus on providing better patient care, no matter the context.

Windows app security and delivery with Citrix XenApp
High-performance virtual desktops with Citrix XenDesktop
Mobile application and device management (MAM and MDM) with Citrix XenMobile
Secure productivity apps with Citrix Worx Mobile Apps
Access, sync, and share data with Citrix ShareFile
A unified app store
A secure mobile gateway
WAN optimization

Figure 2: Components of a digital workspace

The components of a digital workspace from Citrix
A Citrix digital workspace provides everything you need to get started with your clinical mobility strategy (see figure 2). The solution incorporates complete, integrated technologies for:

Secure Windows app delivery with Citrix XenApp® with an optimized experience on any device—including adaptive controls and interface elements, such as enlarged buttons and automatic keyboard pop-ups, when used on a touchscreen device such as a tablet. Apps are managed in the data center to enable centralized data protection, compliance, access control, and user administration regardless of where people work or how they access their apps.

High-performance virtual desktops with Citrix XenDesktop® provide on-demand delivery of standard images to help provision new locations and work teams quickly and accurately. IT can deliver the right kind of desktop for each use case, from personalized desktops for information workers, to standardized, locked-down environments for shared use, to client-side virtual desktops for secure offline use.
Enterprise mobility management (MAM and MDM) with Citrix XenMobile® to ensure security for corporate resources accessed on any corporate or personal mobile device. Corporate apps and data are kept separate from personal content to prevent data leakage and simplify management, including the ability to wipe corporate content remotely while leaving personal content untouched. End-to-end control and protection across devices, people, and locations minimize risk, and granular application-level controls let IT enforce device security policies without compromising employees’ personal apps and data on mobile devices.

Mobile productivity apps including secure email, browsing, calendaring, and data sync and sharing. Citrix mobile productivity apps provide an enterprise-grade alternative to unsecure consumer apps and services while offering a superior user experience including features that simplify business workflows, such as the ability to launch an online meeting with a single click from the calendar.

Secure data access, sync, and share from anywhere with Citrix ShareFile®. Healthcare professionals can easily access and edit all the data they need to get their jobs done, including files on their desktop, in Microsoft SharePoint, enterprise content management (ECM) systems, and network drives. Clinicians and staff can securely share any file within and outside the organization. The solution also provides complete access controls, auditing, and archiving features through flexible data storage options—on premise, in a dedicated healthcare cloud, or a combination of both—to help you maintain data security, compliance, performance, and cost requirements.

A unified app store providing a single point of access and provisioning for any type of Windows, mobile, SaaS, or web app on any type of device, including all tablets, smartphones, PCs, Macs, and thin clients. People can easily find the apps they need, while IT gains a single point of control and administration for identity-based provisioning, automatic account deprovisioning for terminated employees, and remote wiping for data and apps on lost devices.

Citrix NetScaler® provides a secure mobile gateway for access to corporate resources hosted in any cloud, over any network and SD-WAN technology to deliver a great experience to those working in branch offices and other remote locations. IT can connect and accelerate applications, optimize bandwidth utilization across third-party public clouds and private networks, and achieve full visibility into application performance to aid troubleshooting and management.

Healthcare IT solutions from Citrix empower a new era of efficiency
Providing cost-effective patient care and outcomes is no longer about the hospital that people visit. It’s about providing the best care delivery—wherever, whenever, and however that is achieved. A digital workspace is now a critical requirement for healthcare, providing full access to apps, desktops, data, and services that follow people—both clinicians and patients—across locations and devices for truly seamless caregiving.

Citrix is the trusted solution partner of 90% of the largest healthcare providers, all of the US News & World Report top hospitals, and the top health information technology vendors. Millions of caregivers and staff rely on healthcare IT solutions from Citrix to enable healthcare mobility and deliver seamless, secure, instant access to patient information as they roam across facilities, devices, and networks. With Citrix, healthcare providers can focus on what matters most: patients and their families.

Designed specifically for the way people and organizations need to deliver care today, a digital workspace lets you meet the expectations and demands of your patients for a mobile, flexible, and high-performance experience while satisfying organizational requirements.
for security and control. Comprehensive technologies make it possible to deliver tools that clinicians need to provide care, from apps and data to collaboration tools and network optimization, through a single, fully integrated solution.

A Citrix digital workspace is supported by a wide range of global solution partners and clinical software providers. Healthcare organizations can empower individuals to work and collaborate from anywhere, from the hospital to home offices to the patient’s home, and even in transit, to drive better outcomes. With Citrix solutions for healthcare, your care teams can work smarter, not harder.

**Additional resources**
For more information, please look at these additional resources.

- **Web:** [Citrix IT Solutions for Healthcare](#)
- **Video:** [Citrix Clinical Workspace Demo](#)
- **Customer Story:** [Southcoast Health](#)