Virtual desktops in hospitals: streamlining clinical workflows

How providers leverage Citrix and Imprivata solutions to optimize clinical workflows – improving quality of care, while complying with industry regulations.
Hospitals are adopting desktop virtualization technologies at a rate that matches ‘early-adopting’ industries – despite healthcare’s reputation as a slow-moving industry. Desktop virtualization initiatives are often driven by IT organizations struggling to support applications on diverse client environments. But the IT benefits alone do not explain why desktop virtualization has such widespread acceptance in the clinical community once it’s deployed.

The answer lies in the potential for desktop virtualization to enhance and streamline patient care. The more your virtual desktop environment supports those objectives, the better the adoption rate and the greater the payback in terms of productivity and clinical satisfaction as well as improved availability and security.

New technologies, with their incumbent security and compliance concerns, can be seen as barriers to patient care in the fast-moving hospital environment. But the integrated deployment of XenDesktop with Imprivata OneSign® overcomes those barriers by streamlining clinical workflow with No Click Access™ to a smooth roaming desktop. Security and compliance are ‘built into’ the desktop environment rather than imposed on the care provider. The result is a healthcare environment that reclaims time and focus from technology so it’s available for patient care.

**Background: the groundswell of desktop virtualization in hospitals**

In 2014, Imprivata sponsored its 4th annual research study into desktop virtualization trends in the US healthcare industry as compared with other US industries. This research confirmed informal observations from our customers: the healthcare industry is surpassing other, typically ‘early adopting’ industries when it comes to desktop virtualization.

**Desktop Virtualization Adoption Rates by Industry**

![Bar chart showing desktop virtualization adoption rates by industry in the U.S. in 2014.](chart)

Source: Imprivata, 2014
Among the findings:

- 52% of healthcare respondents were using desktop virtualization today – an adoption rate rivaling early adopting industries such as financial services.
- Once healthcare organizations start deploying VDI, adoption within the organization is very high. Healthcare respondents who are using VDI estimate that, on average, approximately half of their total employee population will be using virtual desktops by 2015 – a rate much higher than other industries.

These findings may come as a surprise, given the healthcare industry’s reputation for being conservative in technology adoption. Even the federal government feels that the healthcare industry needs strong, ‘carrot and stick’ motivations like Meaningful Use incentives to adopt new technologies. However, as you dig into the data, it’s clear that desktop virtualization offers unique benefits to healthcare that are key to its success.

**What’s driving VDI adoption in healthcare?**

IT objectives are typically the driving force behind desktop virtualization in healthcare industries. The most commonly cited benefits of desktop virtualization technology are as follows:

- Ease of rolling out and administering Electronic Medical Records systems
- Securing Protected Health Information (PHI) in the datacenter
- Reduced IT costs

**Reported Primary Benefit of Desktop Virtualization in Healthcare**

![Chart showing the reported primary benefits of desktop virtualization in healthcare.]

- Reduced IT Costs: 32%
- Ease of application deployment: 43%
- Increased Security: 3%
- Other: 22%

Source: Imprivata, 2014

The IT-related goals alone don’t explain the widespread acceptance of desktop virtualization. For that, you need to look into the reported benefits that extend beyond the IT organization:

- Desktop roaming for easier access to clinical applications on-the-go
- Better user satisfaction with EMRs and workstation functionality
- Simplified and improved workflows
- Reduced help desk calls
From the care provider perspective, or even the patient perspective, the big story lies in user satisfaction and user workflow.

What happens when it’s easier for care providers to do their jobs? Care providers are happier, more efficient and the quality of patient care should improve. Anything that improves clinician satisfaction and enhances patient care will succeed in the healthcare environment.

Although IT may be the driving force behind implementing desktop virtualization, the care providers are essential to its widespread adoption. If you want a successful desktop virtualization deployment, you need to focus on the core benefits outside IT, including:

• Simplifying care provider workflows
• Improving care provider satisfaction
• Enhancing patient care

**Barriers to technology adoption in healthcare**

Care providers have been asked to make radical changes in recent years, moving from paper records to electronic medical records. With Meaningful Use requirements and HIPAA regulations, care providers are under pressure to handle a changing and growing technology environment. Desktop virtualization can either be seen as something that alleviates the increasing burden of technology or another layer of complexity in patient care.

Each new technology added to the patient care environment presents new hurdles or barriers for the care providers. For example:

• **Logging in:** Each new application (including a virtual desktop) requires its own login. As care providers move between locations throughout the day, they can perform up to 70 logins per day.

• **Security and HIPAA compliance:** The privacy and security of patient records mandates password policies requiring complex passwords, unique passwords for different applications and frequent password changes. When you add this to the high number of logins, care providers spend significant time and attention on accessing patient data and applications.

• **Shared workstations:** The shared workstations common in hospital environments pose extra security and compliance barriers. When approaching a shared workstation, care providers must make sure that the previous user is logged off to avoid entering data in the wrong patient record. And when leaving a shared workstation, they need to remember to log out so a patient record is never left unattended and open.

• **Inflexible locations and devices:** A growing number of physicians want to use tablets like iPads in the delivery of care. Using a tablet helps the care provider interact more directly with the patient, perhaps showing them something on a screen at the bedside rather than sitting at a distant workstation. Yet mobile and remote access is a challenge for most healthcare environments.
The problem: stealing time and attention from patient care
If you follow a nurse or physician through a hospital during the day, it’s easy to see where this influx of technology has taken them, and how it can potentially drain focus from patient care.

Consider the case of a physician, Dr. Smith. Taking only a short slice of the day, we’ll encounter her in the physicians’ lounge before visiting a patient.

Dr. Smith sits down at a shared workstation in the physicians’ lounge, logs into the workstation with one password, logs into the EMR using another password, and looks up her patient’s record. She opens her email with another password to retrieve correspondence with a colleague related to the patient’s condition. She thinks about a new treatment option that she wants to discuss with the patient.

She remembers to log off of that shared workstation and makes her way to the patient room. The nurse has been there and is logged on to the workstation in the patient room. The physician asks the nurse to log off, and then logs back into her own account. Once again she goes through the multiple logins then searches for the patient record and her email.

At last she can have the discussion she has been planning with the patient about the new treatment. She then turns back to the machine and orders a medication, typing in her password again for the medication order.

She remembers to log off the shared workstation in the patient room, then proceeds down the hall to a dictation station. Here she logs in yet again to the workstation and the EMR, finds the patient record, and opens the dictation software to make notes on the visit.

In this short window of time, we’ve seen the physician juggling and typing 5 different passwords, authenticating 10 times, remembering to log out to protect patient records and her own email, and simply waiting for workstations and/or applications to load. The ongoing thought process about the patient treatment has been continually interrupted by these actions. Magnify this process by the typical physician workload, and some troubling patterns emerge:

• Wasted time: With as many as 70 distinct logins a day, a clinician care provider spends a great deal of time simply waiting. In the hospital, care providers may spend between 30 to 60 minutes each day simply logging into workstations and applications.
• Cognitive disruption: Coming up with the right account and password, waiting for an application to load, finding the patient record and remembering to log off – each action interrupts the focus on the patient.
• Frustration: When you add complex passwords and frequent password change policies, it’s easy to imagine physicians becoming frustrated with the technology. Security and compliance requirements typically pit care providers – who need fast access to patient data – against IT and compliance officers, who need to protect authentication and track access.

Desktop virtualization can help alleviate many of these problems if it addresses these key barriers head-on.
Imprivata and Citrix: smooth roaming with No Click Access™

By combining strong authentication and single sign-on from Imprivata OneSign with desktop and application virtualization using XenDesktop and XenApp, hospitals can implement desktop virtualization in a way that speeds care provider adoption and enhances patient care.

XenDesktop and XenApp offer care providers personalized desktops and applications that retain their state even as physicians and nurses change locations and workstations (a smooth roaming desktop). The care provider experiences a consistent user interface, no matter what client they use to connect. This is particularly important in the hospital environment, where care providers work from many different devices and locations.

Imprivata OneSign adds several essential capabilities to the XenDesktop environment:

• **Strong authentication**: Imprivata OneSign has built-in support for multiple authentication technologies, including fingerprint biometrics, smart cards and proximity cards. This makes it easy for hospitals to require strong, two-factor authentication for the initial login to the virtual desktop.

• **No Click Access™**: Once someone has logged into their virtual desktop, they can retrieve it from any location with No Click Access; just the tap of a badge or swipe of a fingerprint. This eliminates time spent remembering and typing passwords.

• **Single sign-on**: With integrated single sign-on, care providers do not have to log on individually to each application they want to use – the single login connects them to everything they need.

• **Secure walk-away**: When care providers leave shared workstations, OneSign automatically locks the session, using facial recognition to restart seamlessly if the same, authenticated user reappears at the workstation.

• **Signing**: Another tap of a badge or swipe of a fingerprint can serve to sign medication orders or e-prescriptions.

Imprivata uses a Citrix Application Programming Interface (API) to work with XenDesktop and XenApp. For hospitals, this means that the joint solution is tested and supported, and will continue to work through new revisions of the Citrix software.

Use Case: No Click Access to patient data

The best way to understand the power of this combined solution is to see it in action. Let’s take the same example from before, with the new virtual desktop environment:

• Dr. Smith is in the physicians’ lounge. She walks up to the shared workstation, taps her badge and retrieves her existing desktop as she last left it in her office, with her email open.

• She checks her email and opens the EMR application, without having to type any accounts or passwords. She finds the patient record and thinks about treatment options, then walks away from the workstation in the lounge. It automatically locks when she leaves.
In the patient room, she taps her badge to a reader and her desktop reappears, in its current state, with the patient's record open. She consults with the patient, orders the medication, signs the order by simply touching her badge, and again walks away – the shared workstation locks automatically.

She moves to a dictation workstation and touches her badge. Her desktop is open with the patient record, so she can start dictating immediately, while everything is fresh in her mind.

This simple example shows the potential benefits from the clinician's perspective – significant savings in time and attention. Dr. Smith can focus on patient care, not on retrieving records and remembering passwords. If she had a mobile tablet, she could use that as well.

**Delivering the benefits of desktop and app virtualization**

The combined Imprivata/Citrix solution delivers all of the benefits of desktop virtualization cited in the research, including:

- **Improved desktop availability**: With virtual desktops maintained within the data center, IT can more easily support, upgrade and protect the desktop environment from failures and outages
- **Better user satisfaction**: With No Click Access and single sign-on, care providers no longer have the burden of remembering and entering numerous passwords
- **Simplified workflow**: Care providers can simply touch or tap at a workstation to retrieve their current, roaming desktop, saving significant time and mental energy
- **Reduced help desk calls**: Single sign-on virtually eliminates password-related help desk calls
- **Security and compliance**: Security and compliance are not additional tasks or burdens imposed on the care providers

Instead, they are built into the solution:

- No patient data ever resides on endpoints, but remains safely within the virtual desktop in the datacenter
- Two-factor authentication secures access to patient data by requiring more than a password to authenticate – but when combined with single sign-on and a roaming desktop, it's quite easy for care providers to handle
- Imprivata OneSign tracks and audits all application access in a central location for simplified compliance reporting
- Secure walk-away protects patient data on shared workstations

For the IT organization, the greatest benefit may be an intangible one: the improved relationship with the clinical community. By including clinical leadership in the implementation and working with care providers to profile their application usage and access, IT can deliver something that measurably improves the care provider's experience.
Returning to the research, it’s clear that when an investment is made in desktop virtualization, it is widely adopted by those in care provider roles. Success is all about supporting them in their delivery of care. Pairing single sign-on and authentication with desktop virtualization is a critical step to providing that level of support. The market data shows that hospitals are recognizing this fact, while over half of the market has already paired the solutions, projections show that over 80% plan to pair the solutions in the next 24 months.

Freeing up care provider time and mental energy has the welcome side effect of enhancing patient care. A physician that can focus on the patient, rather than the technology, will deliver a higher level of care.

**Making the transition to virtual desktops in healthcare**

The joint Imprivata/Citrix solution described in this paper gives you a flexible, powerful platform for handling the constant change in healthcare.

- By supporting many different clients with a single desktop interface, the virtual desktop removes much of the client support burden from IT
- The combined solution supports a nearly limitless combination of applications; it is easy to add new applications to the virtual desktop environment as your needs change
- With integrated authentication and single sign-on, you can securely deploy applications to clinical and administrative staff by simply adding them to their desktop images
- While you make the transition to virtual desktops, or if you’re using a hybrid environment with both physical and virtual desktops, Imprivata OneSign gives you one place to track, monitor, control and report on access to applications containing patient data

By streamlining care provider workflows and reducing the burden of application access, the joint solution supports physicians, nurses and other clinical and administrative staff enhancing patient care.
About Citrix
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About XenApp & XenDesktop
XenApp is the industry-leading solution for virtual application delivery, providing Windows apps to workers on any device, anywhere. By centralizing control with XenApp, companies can give their team the freedom of mobility while increasing security and reducing IT costs. XenDesktop is a desktop virtualization solution that makes businesses borderless by giving employees the freedom to work from anywhere while cutting IT costs. With XenApp built in, XenDesktop can deliver full desktops or just apps to any device.

About Imprivata OneSign virtual desktop access
With more than 4 million users and 1200 healthcare customers, Imprivata is the #1 provider of secure access and collaboration solutions for healthcare. By strengthening user authentication, streamlining application access and simplifying compliance reporting across multiple computing environments, customers realize improved workflows, increased security and compliance with government regulations.

One of the first solutions to integrate with the Citrix Fast Connect API and certified as Citrix Ready, Imprivata OneSign Virtual Desktop Access offers care providers a seamless authentication experience and can be combined with single sign-on for No Click Access to desktops and applications.