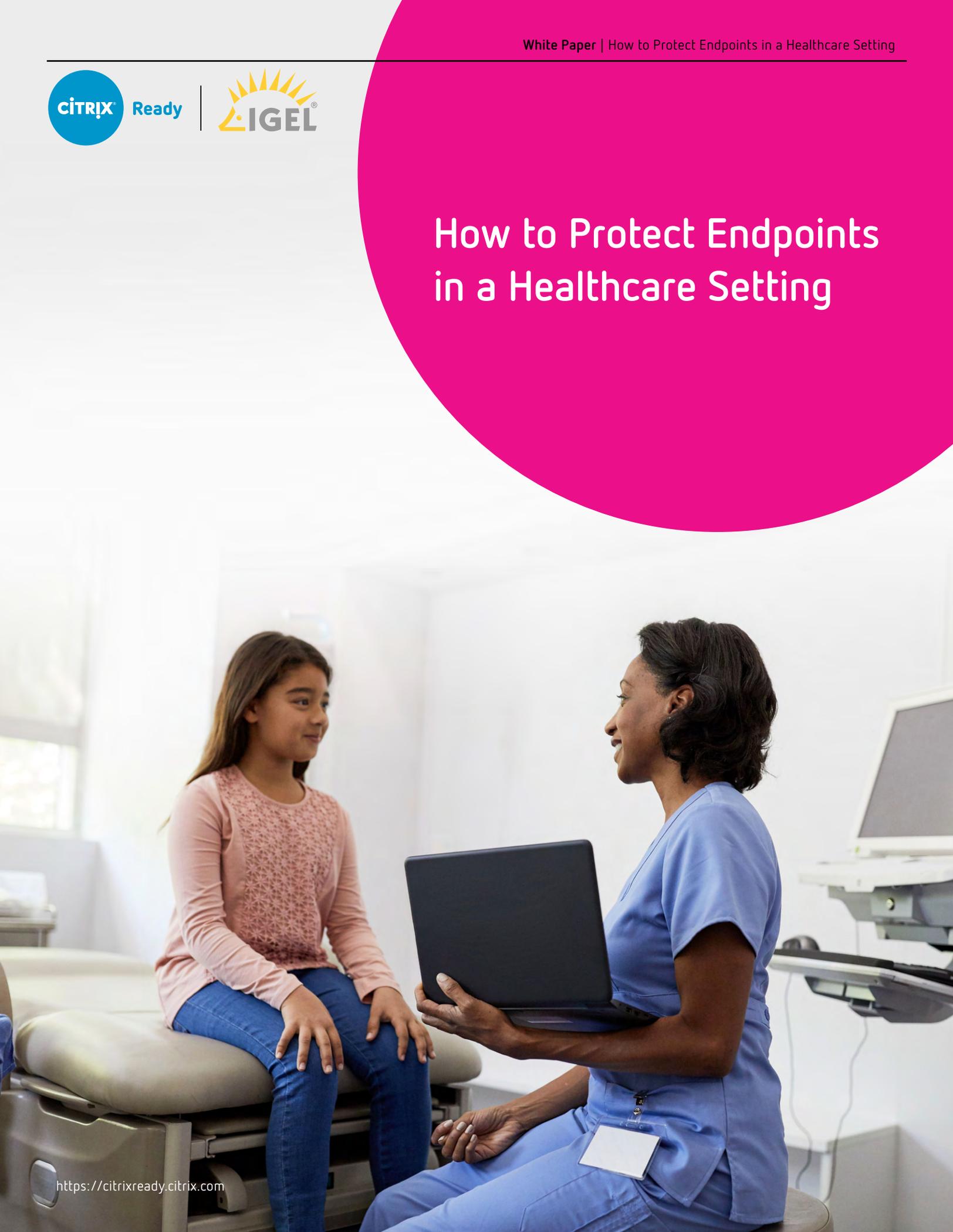




How to Protect Endpoints in a Healthcare Setting





Hospitals are busy places, and clinicians are busy people. Healthcare IT administrators are also overworked, with far too much on their plates. Much of that “busy-ness” revolves around the clinical workstation, where the real work in a healthcare environment gets done.

Endpoint devices can dictate the speed and efficiency with which clinicians can perform their jobs — significantly impacting the quality of service they are able to provide to their patients. Endpoints represent the weakest links in healthcare organizations’ data security.

Endpoint management is critically important in a healthcare environment. It is not a stretch to state that security, profitability and quality of care may all hinge on the effectiveness with which a healthcare organization manages its endpoints. There may be no other single area of focus that holds so much potential to simultaneously strengthen the security of patient data, improve patient and clinician experience, and slash administrative burdens — all while reducing operational costs.

IGEL focuses on the security and performance of the endpoint device. Citrix is the world leader in the secure delivery of applications and virtual desktops for healthcare, enabling easy, fast and seamless access to clinical records and other desktop applications, anywhere, from any device. Together, IGEL and Citrix offer a solution for IT that is easy to manage and ensures clinical staff can access patient data without unnecessary hardships or delays.

This paper outlines solutions for endpoint management that enhances device security and performance, while simultaneously helping IT administrators manage their endpoints with greater ease, and in far less time. Also discussed are the organizational cost savings that IGEL endpoint management solutions can provide.



Business Challenge Summary

Few would dispute that healthcare is facing a time of unprecedented change. Though much the same might be said for many industries, no other sector faces the unique amalgam of pressures that currently impact healthcare. Transitory technologies, legislative instability, and soaring security concerns all contribute to a climate of uncertainty, even fear, for healthcare professionals.

Any discussion that focuses on the challenges facing the healthcare industry may be fueled by a broad array of healthcare-centric problems. But three of these problems, in particular, are the focal points of this paper. Combined, these three challenges impact every professional discipline in the healthcare industry, including hospital and clinic administrators, IT administrators and practicing clinicians.

The **first of these three problems** may seem obscure — though not to IT administrators struggling to cope. Countless healthcare organizations are faced with the challenge of migrating from Windows 7 to Windows 10. It is not a simple upgrade. Most machines currently running Windows 7 in a healthcare environment will require significant hardware upgrades to accommodate the system capabilities required by Windows 10.

The cost is quite significant. One large hospital recently estimated the comprehensive costs of upgrading to Windows 10 at about \$5 million. (Ultimately, hospital administration decided to migrate to IGEL OS instead of Windows 10, saving about \$4 million in the process while enjoying a superior OS for healthcare.) Just to rub a little salt in the wound, healthcare organizations that choke down the costs of migrating to Windows 10 may inherit a

bonus headache: concerns about maintaining HIPAA compliance with Windows 10. Assuring continued HIPAA compliance with Windows 10 may require the disablement of some of the operating system's features.¹

The **second of these key problems** is anything but obscure: IT security. It is common knowledge that the healthcare industry is heavily targeted by cybercriminals. Ransomware attacks, for example, are disproportionately focused on healthcare organizations; the *HIPAA Journal* recently reported that a global security firm found 88 percent of all ransomware attacks occurring in one quarter in 2016 were focused on healthcare.²

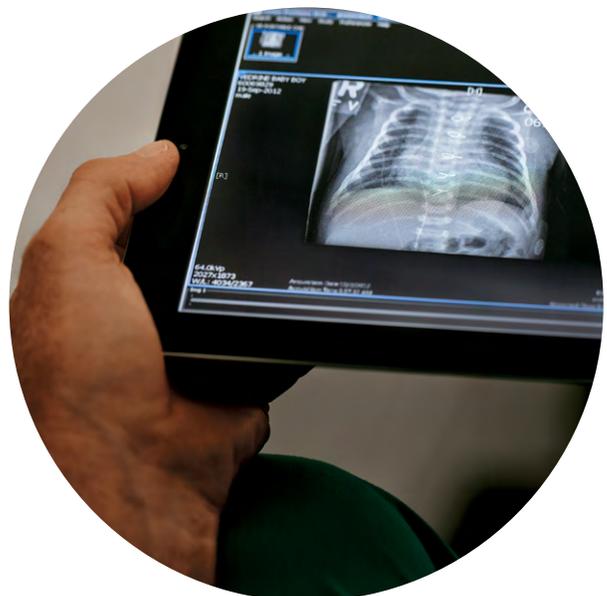
The unfortunate truth is that medical records offer a tempting target for cybercriminals. NBC News has reported that a single hacked medical record can be worth as much as \$60.³ Hacked credit cards, in comparison, are worth only a few dollars each. Given the goldmine that health records offer to criminals, it is no surprise that one in three Americans' records have been compromised, according to the NBC report. Correspondingly, recent HIPAA enforcement actions have reached historic levels, with many multi-million-dollar settlements levied in a single year, including the largest settlement to date: \$5.5 million.⁴

The **third main problem** facing the healthcare industry focuses on practitioners. Technology offers the promise of astounding ease and speed of access to patients' information. Clinicians, in theory, can have any patient data they need, at any time, instantly at their fingertips. But that theory often manifests as a false promise in practice.

Clinicians are frequently forced to endure delays while waiting for patient data to load — a situation embarrassing for clinicians and literally painful for patients. Sluggish systems, long boot times and slow-to-launch apps act as unintentional governors that restrict the speed potential of modern technology.

But clinicians can and should have all the information they need instantly at their fingertips, at any time and any place. The right technology can make instant access a reality.

Finally, the recent healthcare "merger frenzy," as the *New York Times* characterized the trend, has magnified all the problems discussed above.⁵ The record-setting number of healthcare mergers and consolidations in recent years has spawned a complex mix of devices and operating systems in many organizations — a virtual nightmare for IT administrators.



¹ <http://www.hipaalone.com/windows-10-and-hipaa/>

² <http://www.hipaajournal.com/healthcare-industry-accounts-88-ransomware-attacks-3519/>

³ <http://www.nbcnews.com/news/us-news/hacking-health-care-records-skyrockets-n517686>

⁴ <http://www.hipaajournal.com/ocr-hipaa-enforcement-summary-2016-hipaa-settlements-8646/>

⁵ <https://www.nytimes.com/2015/10/30/business/dealbook/health-care-companies-in-merger-frenzy.html>



Overview of IGEL

IGEL provides endpoint management software that assures the maximum possible performance from endpoints while simultaneously enabling security standards that provide the levels of protection that healthcare organizations require.

IGEL OS revolutionizes access to virtualized desktops and applications. The OS standardizes endpoints and provides for adaptive configuration and granular control, while providing users with a familiar workspace. IGEL OS is easy to install, runs on

any 64-bit x86 device, and just one or two people can manage tens of thousands of seats.

For healthcare organizations facing a migration from Windows 7 to Windows 10, IGEL's OS offers an attractive alternative. IGEL OS is more compatible with the needs of healthcare organizations and does not require the investment in additional hardware that Windows 10 requires.

Additionally, IGEL's Universal Management Suite (UMS) has revolutionized endpoint

management for healthcare organizations. UMS provides a single endpoint management solution that offers automated backend control for IT, while delivering a trouble-free environment for users.

The teaming of IGEL and Citrix provides the security and performance that today's healthcare organizations seek. Citrix delivers the desktop and the applications, and IGEL assures that the delivery device provides 100 percent secure, low-cost, high performance.





IGEL's endpoint management software fulfills many of the key objectives of the Citrix Ready Healthcare Program, including the following:

- Enhanced IT Agility, Cost-Effectiveness and Security:** When a new desktop or workstation is deployed, IGEL OS will register itself and automatically configure itself for the environment. The IGEL Universal Management Suite (UMS) makes it easy to customize any IGEL OS-powered endpoint. With simple drag-and-drop configuration, hundreds of templates to choose from, and more than 7,000 parameters to adjust, endpoint management, updating (including firmware) and diagnostics are simple and quick. With UMS, IT's job of managing remote endpoints is significantly simpler.

- Improved Clinician Access, Workflow and Experience:** IGEL OS and UMS give IT administrators backend control of endpoints. And with most workstations' workloads shifted to the data center, users experience greater speed and efficiency, significantly faster logins and application startup, faster database queries, and more consistent operation. Combined with Citrix's Application and Desktop delivery, IGEL solutions provide a superior experience for clinical staff.

IGEL's expansive compatibility ensures optimal clinical staff productivity and reduced frustration levels.

- Stronger Data Security and Compliance:** While the core repository of data is always kept secure within a Citrix VDI, Citrix has no means of assuring

the safety of data accessed through endpoints. IGEL eliminates that security gap. IGEL OS-powered endpoints cannot be compromised through any means, including ransomware, screen scrapers or key loggers. Since IGEL OS is a tightly controlled system presenting a minimal attack surface, malicious apps are prevented from gaining access to the endpoint device.

And IGEL's built-in enterprise security includes two-factor authentication, smart card readers, certificate-based and SSL encryption.

The partnership of Citrix and IGEL maximizes healthcare organizations' security from attacks. Citrix protects data within the VDI while IGEL protects data at all endpoints.

COMPATIBLE PERIPHERALS & VENDORS



SSO AUTHENTICATION

Imprivata, Caradigm, Evidian, SecMaker



SPEECH RECOGNITION

Nuance Dragon, Philips Speech, Grundig, Olympus



SIGNATURE

Wacom, Stepvover, Signotec



PRINTING

Thin Print



USB MANAGEMENT

Fabulatech, DriveLock



UNIFIED COMMUNICATION - HEADSETS

Sennheiser, Jabra



IGEL's solutions offer several innovative and unique features that simply aren't available with any competing product. Features unique to IGEL include:

- **No "Windows Tax":** When IGEL OS is deployed, Windows is needed only in the data center, where it can be maintained, updated and kept secure. Windows 7 Embedded and Windows 10 IoT are no longer required on endpoint devices. Accordingly, the processing power and hardware required to support Windows at each endpoint — the "Windows tax" — is eliminated. The benefits of eliminating the Windows tax are manifested every day through superior endpoint performance. And eliminating the need to upgrade Windows at each endpoint offers massive cost savings to healthcare organizations.
- **True OS Security:** The built-in, enterprise-level security provided by IGEL OS enables healthcare organizations to finally eliminate the weak link in organizational defenses: endpoint security. Installing IGEL OS on each endpoint assures that the core operating system cannot be compromised. Two-factor authentication, smart card readers and trusted execution protocols are included and maintained with the OS. The Linux-based OS is virtually impervious to unauthorized manipulations, and it is extremely resistant to viruses, ransomware, screen scrapers, key loggers, and other forms of malware.
- **Fast, Consistent Logins:** Eliminating the Windows bloat at each endpoint assures that logins will consistently be fast and seamless.
- **Hardware-Agnostic Flexibility:** IGEL OS provides a secure operating system for all x86 machines built with industry-standard components, regardless of manufacturer. IGEL OS is designed to serve as the managed operating system for PCs, laptops, tablets and virtually all 64-bit, x86 devices, including thin clients, all-in-one clients and devices hardened for industrial use cases.





IGEL Solution Detail

IGEL has been selected to participate in the Citrix Ready Healthcare Program because the company’s solutions team with Citrix in easing IT administrative burdens, fortifying the security of patients’ data, and increasing clinicians’ efficiency.

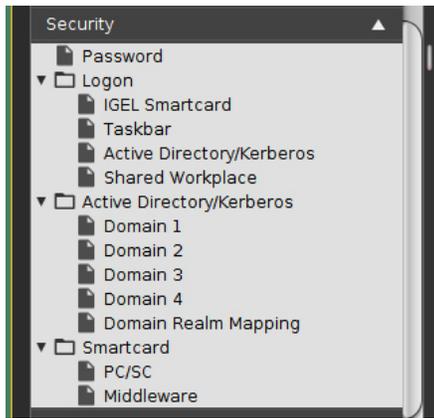


Figure 1: Screenshot to show the security features on UMS

IGEL makes healthcare organizations’ IT departments more agile, providing administrators with simplified accessibility to the controls needed to manage end users most efficiently.

IGEL’s Universal Management Suite (UMS) enables an administrator to build an endpoint configuration file quickly and easily, using a simple point-and-click, intuitive interface to precisely control endpoint behavior. And IGEL provides great flexibility for administrators, with more than one hundred templates and thousands of settings for managing an endpoint. The result is a highly manageable, context-aware device.

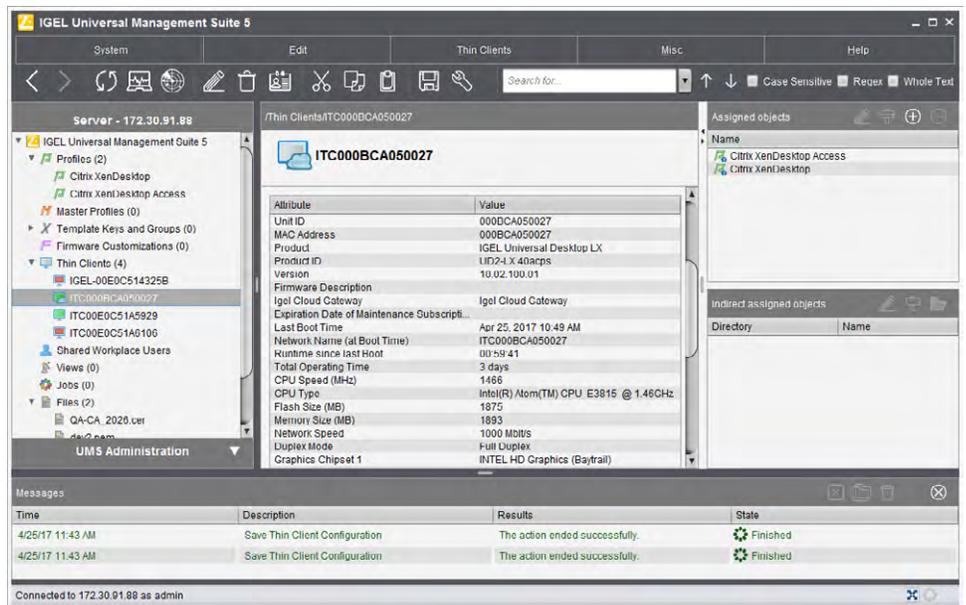


Figure 2a: Build a configuration file quickly and easily with IGEL UMS

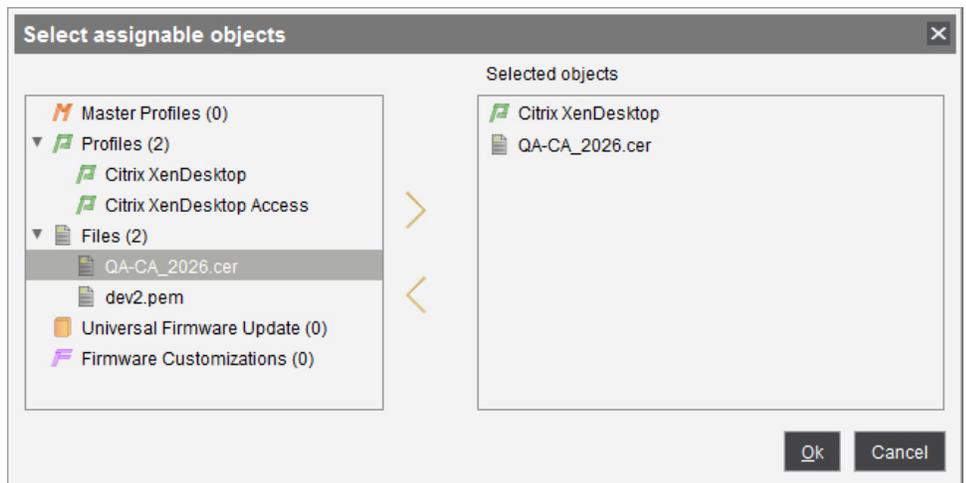


Figure 2b: A simple point-and-click, intuitive interface



The sophisticated settings available on UMS assure universal and automatic adaptability to any conceivable need within a healthcare organization. The IT department, for example, can set up workstations so that keyboards are automatically disabled in operating rooms and enabled in patient rooms. Automated settings, established per IT administrators' directives, adapt to each environment in the organization as workstations are moved around the medical facility.

The kiosk mode ("appliance mode") setting enables IGEL to deliver a vastly different experience to different users, including, as appropriate, turning off all bells and whistles or unnecessary "stuff" on the endpoint — an example of IGEL's ability to adapt to the specialized needs of users.

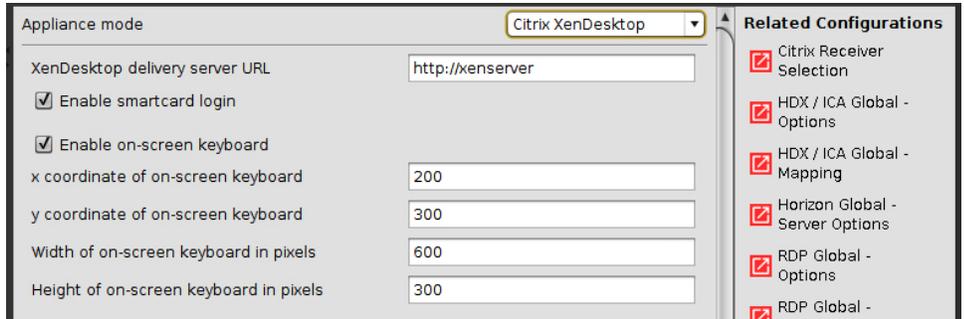


Figure 3: Appliance Mode on UMS

IGEL's verification by the Citrix Ready program assures that devices using IGEL OS and endpoint management have been validated, tested and proven to seamlessly integrate with Citrix solutions. IGEL's extensive integration across a range of Citrix products (e.g. XenApp, XenDesktop, Receiver and StoreFront) works to improve clinician access, workflow and experience through:

- Faster login times: including automated login capabilities,
- Smaller, more agile IT departments: through massively reduced administrative workload, and
- Faster PCs: most PCs found in healthcare environments can run IGEL OS fast (generally much faster than Windows)

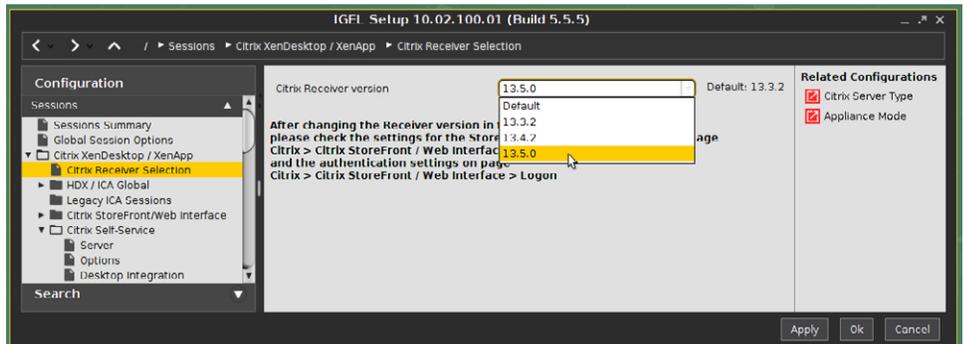


Figure 4: Citrix products on UMS



IGEL can massively enhance IT efficiency in healthcare organizations. It slashes the overhead required to manage endpoint devices. And with IGEL OS eliminating the need to dedicate significant device resources to supporting Windows, endpoint devices are faster and more efficient. As a result, the same work can be done with less endpoint capability: devices that have a 64-bit x86 processor, two gigabytes of RAM and eight gigabytes of disk space are sufficient.

Citrix offers a broad range of solutions for healthcare enterprises. With their great potential for standardization, IGEL perfectly complements Citrix solutions.

Built-in configuration capabilities assure that IGEL solutions easily integrate with Citrix environments. IGEL UMS enables easy assignment and access configuration of Citrix delivered applications and virtual desktops. For example, virtual desktops can easily be

assigned to a given department by means of various group profiles, while another department only obtains access to published applications. Similarly, the IGEL appliance mode for Citrix XenDesktop can be easily enabled with just the click of a mouse.

IGEL PRODUCT OVERVIEW WITH CITRIX VERIFICATION

CITRIX READY							
HDX Premium							
HDX 3D Pro							
	UD3	IZ3 HDX	UD5	UD6	UD9	UD Pocket	UDC
	IGEL Universal Desktop	IGEL Zero Client	IGEL Universal Desktop	IGEL Universal Desktop	All-in One Universal Desktop	Portable Micro Universal Desktop	Thin Client Converter (Software)
Use Case	Multimedia Knowledge Worker		Knowledge Worker	Power User		Depends on the endpoint	
Citrix XenDesktop	•		•	•	•	•	•
Citrix XenApp	•		•	•	•	•	•
Citrix Receiver	•		•	•	•	•	•
Citrix Storefront	•		•	•	•	•	•
Operating System	IGEL OS						
Endpoint Management Software	Universal Management Suite						
Endpoint management in the cloud or DMZ	IGEL Cloud Gateway						
Processor	AMD Quad Core 1.6 GHz		Intel Dual Core 2.5 GHz	Intel Quad Core 2.4 GHz	Intel Celeron Quad Core 2.4 GHz	Depends on the endpoint	
Screens supported	2		2	2	2	Depends on the endpoint	

Note: Citrix verification for UD Pocket and UDC is in progress at time of print.



A Proven Partnership that Secures Endpoints, Enhances Productivity and Lightens Administrators' Burdens

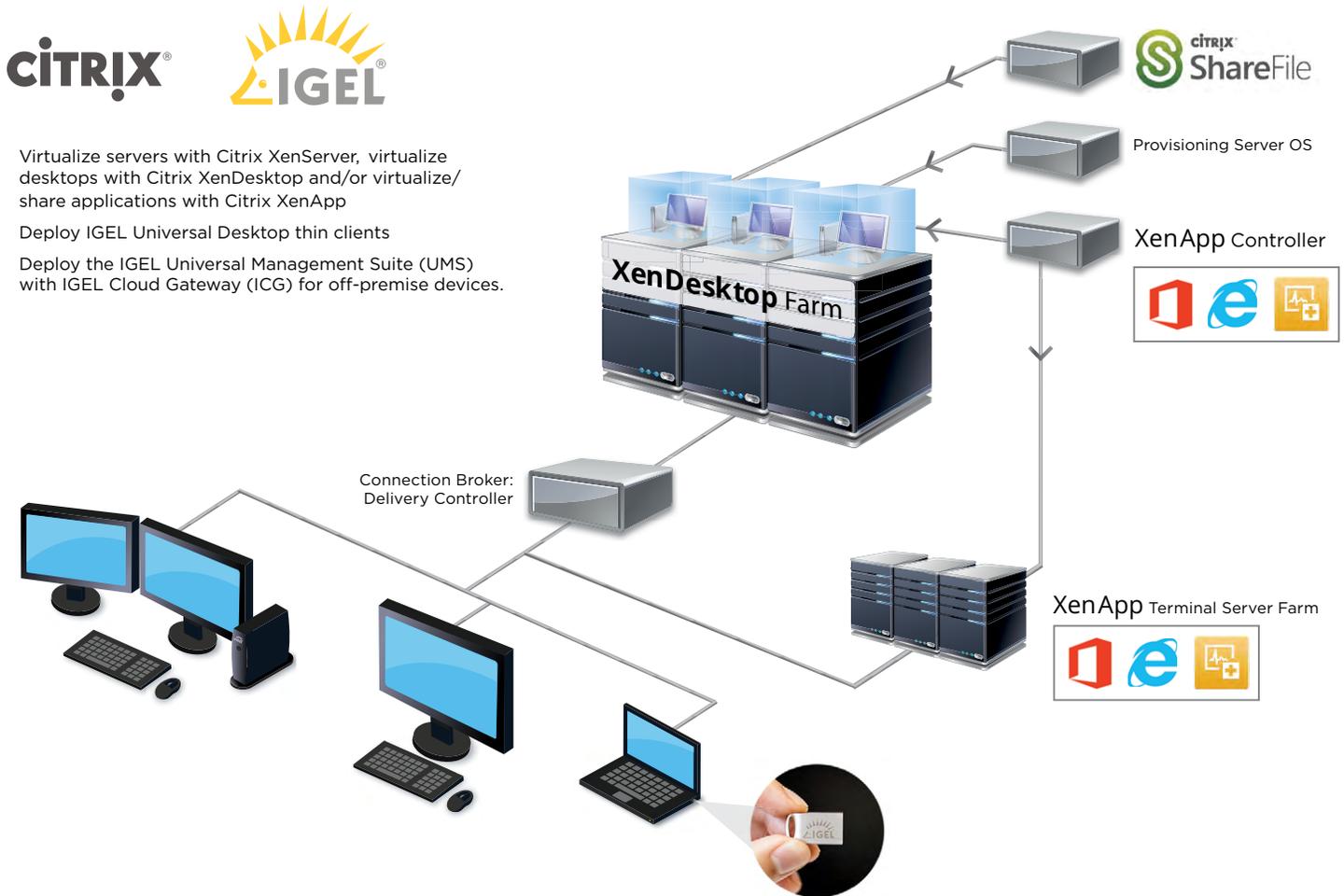
The healthcare industry is facing a time of dynamic change. Fluid government mandates and soaring costs put pressure on organizational leadership to seek out tools to improve operational efficiencies. Security concerns are at historic highs. And for many healthcare professionals, far more is at stake than finding ways to work more efficiently and

securely. Many healthcare practitioners find themselves facing diminished opportunities to perform the very task that motivated them to study medicine: helping patients.

But a solution exists that can address all the above concerns: improving endpoint security and performance. And indeed, this

solution is simple. Deployment of IGEL OS and Universal Management Suite can instantly boost endpoint security, enhance endpoint devices' responsiveness and ease-of-use for healthcare clinicians, and dramatically reduce the administrative burden for healthcare IT departments.

IT-INFRASTRUCTURE MODEL WITH CITRIX & IGEL



- Virtualize servers with Citrix XenServer, virtualize desktops with Citrix XenDesktop and/or virtualize/share applications with Citrix XenApp
- Deploy IGEL Universal Desktop thin clients
- Deploy the IGEL Universal Management Suite (UMS) with IGEL Cloud Gateway (ICG) for off-premise devices.

IGEL's solutions have been proven to integrate seamlessly and easily with the Citrix environments deployed by healthcare organizations worldwide. Any healthcare organization can benefit from teaming Citrix with IGEL as readily as the organizations in these recent examples:

- **University of North Carolina Health Care** needed a thin client solution that would integrate seamlessly with their Citrix VDI initiative (Citrix XenDesktop, along with key Citrix Ecosystem partners including Imprivata, AppSense and PrinterLogic). The organization also wanted to provide physicians with the ability to access its Epic EMR system freely at any workstation kiosk at any time.

The solution was the deployment of IGEL Universal Desktop Converter, IGEL Universal Management Suite, and IGEL UD3 Thin Clients. "The simplicity and superiority of IGEL's management capabilities were a key selling point for us," reported Technical Architect James Cole. The integration of IGEL and Citrix has provided the organization with simplicity, slashing administrative time and enhancing security. And as a nice bonus, the organization saved millions of dollars by eliminating the need to buy new hardware to migrate to Windows 10. ([Read the UNC case study](#))

- **Bend Memorial Clinic** needed to replace aging desktops with modern thin clients that could handle single sign-on

applications in Citrix VDI. The team tested a variety of thin client providers and weren't happy with any of them — until they tested IGEL thin clients at a Citrix-sponsored event. "There were many things we loved about the IGEL thin clients, but there were two major things that won us over," recalled Infrastructure Manager Allen Fox: "IGEL's free Universal Management Suite, and IGEL's Universal Desktop Converter." The team also valued IGEL's support of Imprivata's single sign-on system.

The IGEL and Citrix integration has provided improved desktop performance, faster and easier setups and deployments, and reduced demand for IT support. ([Read the Bend Memorial case study](#))



Appendix

To learn more about the Citrix Ready Program partnership with IGEL, please visit:

<https://citrixready.citrix.com/igel-technology.html>

To learn more about Citrix Ready Healthcare Solutions, please visit:

<https://citrixready.citrix.com/info/healthcare.html>

To learn more about Citrix Ready Thin Clients, please read:

<https://citrixready.citrix.com/content/dam/ready/assets/thin-clients/thin-clients-features.pdf>

To learn more about endpoint security solutions for healthcare enterprises, contact [Citrix](#) and [IGEL](#).

IGEL's selection to the Citrix Ready Healthcare Solutions Program provides healthcare organizations with a proven, reliable solution for enhancing productivity, profitability and security. True to its tagline, IGEL endpoint management software is revolutionary in its simplicity, as [portrayed in this video](#).

For more information about IGEL, please visit: <https://www.igel.com/>

For more information about Citrix products, please visit: <https://www.citrix.com/products/>

Citrix Ready Healthcare Program Overview

The Citrix Ready Healthcare Solutions Program has been launched with the sole objective of building and sharing a library of white papers and case studies that portray the best integrated joint solutions for healthcare. Each of these documents illustrates the teaming of a Citrix partner and Citrix solution in helping healthcare institutions further enhance seamless, instant and secure access to patient information and optimized patient care.

This program will serve to identify and showcase partner technologies such as single sign-on, voice dictation and zero-clients. All spotlighted partner technologies work to seamlessly enhance healthcare solutions that help clinicians become more productive

and provide a better patient experience, without compromising regulatory compliance. All solutions selected to the Citrix Ready Healthcare program support smooth and reliable integration with the latest Citrix XenDesktop and XenApp versions. These solutions address one or more of the below key objectives that have been identified as essential needs for healthcare institutions today:

1. Making IT more agile and flexible
2. Improving clinician access, workflow and experience
3. Enhancing data security and compliance



About Citrix Ready

Citrix Ready identifies recommended solutions that are trusted to enhance the Citrix Delivery Center infrastructure. All products featured in Citrix Ready have completed verification testing, thereby providing confidence in joint solution compatibility. Leveraging its industry-leading alliances and partner ecosystem, Citrix Ready showcases select trusted solutions designed to meet a variety of business needs. Through the online catalog and Citrix Ready branding program, you can easily find and build a trusted infrastructure. Citrix Ready not only demonstrates current mutual product compatibility, but through continued industry relationships also ensures future interoperability. Learn more at citrixready.citrix.com.

About Igel

IGEL delivers powerful unified endpoint management (UEM) software that is revolutionary in its simplicity and purpose-built for the enterprise. The company's world-leading products, including the IGEL Universal Management Suite, IGEL™ OS-powered thin and zero clients, and all-in-one thin client solutions, deliver a smart and secure endpoint management experience that shifts granular control of thin and zero client devices from the end user to IT. This enables enterprises to remotely control all thin client devices from a single dashboard interface. IGEL has offices worldwide and is represented by partners in over 50 countries. For more information on IGEL, visit www.igel.com.

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