ROI CASE STUDY

IMPRIVATA ONESIGN
SOUTH SHORE HOSPITAL

NUCLEUS RESEARCH

THE BOTTOM LINE

South Shore Hospital, a regional healthcare provider based in South Weymouth, Mass., chose to adopt Imprivata OneSign as part of its virtualization initiative. Nucleus found that moving to Imprivata improved clinician productivity by making sign-on faster.

ROI: **695%**

Payback: **1.2 months**

Average annual benefit: **$ 5,690,072**

THE COMPANY

South Shore Hospital is the leading regional provider of acute, outpatient, home health, and hospice care to the approximately 725,000 residents of Southeastern Massachusetts. With its 378 beds, the not-for-profit, tax-exempt, charitable organization provides a full range of acute, emergency, outpatient, home health, and hospice care services. South Shore Hospital's home care division includes South Shore Visiting Nurse Association, Hospice of the South Shore, and Home & Health Resources. The hospital's 900-member medical staff represents all leading medical specialties. South Shore Hospital employs more than 3,800 people supported by a team of 600 volunteers. South Shore Hospital has been ranked among the top three hospitals in Massachusetts, according to the 2012 U.S. News & World Report *Best Hospitals* report, and named a *Top Place to Work* by The Boston Globe.

THE CHALLENGE

South Shore Hospital clinicians and healthcare staff needed a way to quickly, and easily sign-on to their desktops and applications, as well as have more efficient workflows. Although the hospital was using Citrix for remote desktop access, and single sign-on across the enterprise, care providers found it slow and cumbersome to use. In fact, many care providers viewed the sign-on process to a clinical desktop as more of a hindrance than a help to their productivity:

- The nature of their work resulted in users roaming from one workstation to another. If a team member logged into a workstation with a previous session in progress, the previous sessions would be cancelled, and the previous team member's work would be lost.
- Time spent logging into, starting application sessions, and having to redo data entry was impacting efficiency, and causing increasing frustration among care providers.
- Often, clinicians would tie up workstations until their tasks were fully completed, making the workstations unavailable to other team members.
- Each healthcare provider's session time was limited to nine minutes, after which the session would time out and be shut down, and their work would be lost.

To support the demands of the clinicians, South Shore Hospital needed to implement a system that would improve workflow efficiency, reduce authentication and sign-on times, and minimize the time spent redoing data entry in patients' medical records, ordering tests, writing prescriptions, and other patient-related tasks.

THE STRATEGY

As it evaluated how to best meet the needs of its care providers, South Shore Hospital was also aware that its existing Citrix single sign-on environment was at the end of life. In June 2012, the hospital decided to completely re-architect its data center, and include as part of that initiative, the implementation of a private cloud. The first phase was an investment in a Cisco unified computing system (UCS), EMC VNX unified storage, and VMware vSphere virtualization infrastructure to support the environment. The second phase was to implement a virtual desktop infrastructure (VDI) with a roaming desktop, single sign-on, and badge tap (fast login) capability. The fast login capability and VDI were seen as being key to delivering a roaming clinician workspace to the healthcare providers.

South Shore Hospital started the initial implementation of the Imprivata OneSign and VMware View VDI environment in January 2013, taking approximately six months. The faster access and log-in capabilities were enabled by Imprivata OneSign Authentication Management and Single Sign-On. Rather than forcing care providers to do repetitive manual log-ins, the solution enables them to gain instant access to their desktops, clinical application and patient data with just a tap of their badge, and initial password entry.

This was a new approach for the user community, so the hospital started slowly, going through the process of enrolling users, and teaching them how to set up their profiles on the new system. The entire rollout to the hospital's 5,500 healthcare providers was completed in June, 2013.

KEY BENEFIT AREAS

Moving to a single sign-on and roaming desktop environment has enabled South Shore Hospital to support its healthcare providers by streamlining their clinical workflows. The key benefits of the project include:

- Reduced roaming and sign-on time. Clinicians can quickly access their individual desktops, easily log-in to their clinical applications, and initiate sessions on any workstation, without risk of losing any work. The savings in sign-on time, and the reduction in lost work have contributed significantly to the success of the project.

- Increased user productivity. Previously, the clinicians would lock the workstations to maintain their work. Now a clinician can sign out of one workstation, and roam to the next to complete data entry, freeing up the workstation for others to perform clinical order entry, and record other information in the patient's electronic medical record. They are able to be much more efficient, and are no longer required to wait for others to finish their work to free up a workstation.

- Improved security. Clinicians can secure their sessions, and roam from device to device. They are able to readily access client information in a secure fashion.

Types of Benefits

Direct 1% [   ] 99% Indirect

> *"Previously, the clinicians had to physically log in, start each applications, login to multiple applications, and the reverse to log off a workstation, all of which could take up to a minute or more. Multiply that across an entire shift, and that could be up to an hour of time logging in and out of applications throughout the day. Now, they can get to their complete desktop with applications open in less than thirty seconds during the first login of the day, roam their workstations to a different device in under 10 seconds, and reconnect to the same workstation in three seconds. The clinicians are much happier with this solution."*
>
> - Thanh Tran, Director of Technology, South Shore Hospital

KEY COST AREAS

Costs of the project included product licensing, virtual appliances costs, professional services, IT support, personnel time, and ongoing software support and maintenance. Seven full time employees spent 40% of their time in the first six months on the initial implementation of the Imprivata OneSign and VMware VDI environment. Ongoing support averages about two days of IT time per month. As this implementation was part of a much bigger rollout, there was limited training provided to the healthcare providers. The Customer Support Center representatives, Clinical Informatics and Clinical Applications

Analysts did hands-on training as part of the implementation, and did not participate in any formal training.

Cost : Benefit Ratio | **1 : 21.0**

BEST PRACTICES

Large scale data center refreshes can be intimidating for IT departments. Technical staff members often struggle with users who are not necessarily on board with the changes. However, South Shore Hospital's Physicians Advisory Committee (PAC) was the driving force behind the entire project, and championed the changes. It was not just the 2,000 clinicians feeling the pain of the old system, but the entire 5,500 person healthcare provider community at South Shore.

South Shore Hospital's IT department worked closely with the PAC, and kept it involved throughout the entire project. Maintaining constant communication, setting clear expectations, ensuring the benefits were shared with all the healthcare providers, and identifying a few key clinicians and other leaders to make all this happen, were key elements to the project's success.

"Change is hard for any organization, and can be nerve racking to individuals, so it is very important to ensure they can see, and understand the value throughout the entire process."
- Thanh Tran, Director of Technology, South Shore Hospital

CALCULATING THE ROI

Nucleus calculated the costs of personnel, training, software, license maintenance, the initial pilot, virtual appliances licensing, and ongoing support over a 3-year period to quantify South Shore Hospital's investment in its deployment of Imprivata OneSign.

Direct benefits were realized through elimination of previous Citrix licensing costs.

Net Cash Flows

Initial	Year 1	Year 2	Year 3
-488,025	5,852,747	5,852,747	5,852,747
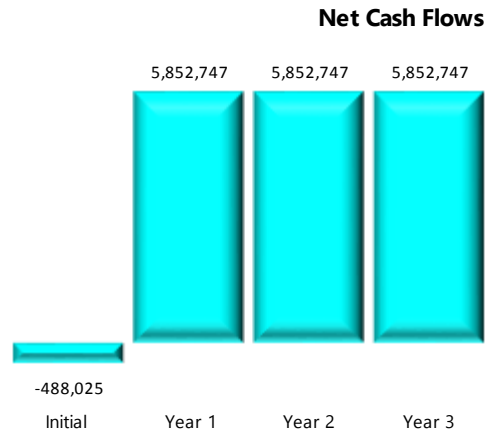
The indirect benefits of employee productivity and reduced roaming time were realized through reduced time spent authenticating to their standard Clinical workstations, logging in to their clinical applications, as well as the reduction in lost work, and time spent with re-entry of data. Nucleus found that the South Shore Hospital clinicians (physicians) were each able to save 15 minutes per day, and the rest of the care providers (nurses and other clinical team members) were able to save 10 minutes per day. This realized an overall organizational saving of 583 hours per day. These productivity savings were quantified based on the average annual, fully loaded cost of an employee, and by using a correction factor to account for the inefficient transfer between time saved, and additional time worked.

FINANCIAL ANALYSIS

Imprivata OneSign

Annual ROI: 695%
Payback period: 0.1 years

ANNUAL BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	45,000	45,000	45,000
Indirect	0	5,929,487	5,929,487	5,929,487
Total per period	0	5,974,487	5,974,487	5,974,487

CAPITALIZED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	445,500	0	0	0
Hardware	500	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	446,000	0	0	0

DEPRECIATION SCHEDULE	Pre-start	Year 1	Year 2	Year 3
Software	0	89,100	89,100	89,100
Hardware	0	100	100	100
Project consulting and personnel	0	0	0	0
Total per period	0	89,200	89,200	89,200

EXPENSED COSTS	Pre-start	Year 1	Year 2	Year 3
Software	0	89,100	89,100	89,100
Hardware	0	0	0	0
Consulting	0	0	0	0
Personnel	16,640	32,640	32,640	32,640
Training	25,385	0	0	0
Other	0	0	0	0
Total per period	42,025	121,740	121,740	121,740

FINANCIAL ANALYSIS	Results	Year 1	Year 2	Year 3
Net cash flow before taxes	-488,025	5,852,747	5,852,747	5,852,747
Net cash flow after taxes	-469,114	3,259,151	3,259,151	3,259,151
Annual ROI - direct and indirect benefits				**695%**
Annual ROI - direct benefits only				0%
Net Present Value (NPV)				8,083,929
Payback period				**0.1 years**
Average Annual Cost of Ownership				284,415
3-Year IRR				693%

FINANCIAL ASSUMPTIONS

All government taxes	45%
Cost of capital	7.0%

By the Numbers

South Shore Hospital's Imprivata OneSign project

Annual Return on Investment **695%**

1.2 months
The total time to value, or **payback** period, for the project

Cost : Benefit Ratio 1 : 21.0

$5,690,072
Average annual benefit

THE PROJECT

South Shore Hospital, a Massachusetts based provider of acute, outpatient, home health and hospice care, chose to adopt Imprivata's OneSign as part of its virtualization initiative. Nucleus found that moving to Imprivata improved clinician productivity by making sign-on faster.

THE RESULTS

Increased health care provider productivity
Reduced roaming costs
Improved security

Number of **users:** 5,500

6 Months
Total time for the company to deploy Imprivata OneSign

"Previously, the clinicians had to log in and start the applications, which could take up to a minute. Now, they can get to their complete desktop in thirty seconds."

- Thanh Tran, Director of Technology, South Shore Hospital