Executive Summary

Imprivata®, the leader in healthcare IT security, completed its second annual Desktop Virtualization Trends in Healthcare survey to identify usage and key drivers that are shaping the use of this technology within hospitals. Last year’s survey found that the healthcare industry, although often regarded as a technology laggard, was leading the adoption in desktop virtualization. While usage figures for desktop virtualization trailed by just a few percentage points, actual deployment of desktop virtualization was broader than in other industries including financial services, government and technology.

In this year’s survey separate desktop virtualization into the two primary technologies which Gartner defines as Server Hosted Virtual Desktops, such as VMware View and Citrix XenDesktop, and Server Based Computing such as Citrix XenApp and Microsoft Remote Desktop Services (RDS).

Headlines:

- Desktop virtualization adoption continues to rise in healthcare - In the next 12 months healthcare organizations forecast a 44% growth in SHVD, leading all other industries surveyed
- 36% of healthcare respondents expect to have more than half of their users using SHVD within 12 months vs. 32% for financial services
- 74% of healthcare respondents identified a strategy of thin or zero clients indicating a move away from traditional fat clients.
- 70% of healthcare respondents use strong authentication (eg. ID proximity badges or fingerprint biometrics) in their SHVD environment
- 50% of respondents are using application single sign-on with a further 17% planning use within 12 months.
- The leading drivers for SHVD within healthcare are desktop manageability (29%), Desktop Roaming (27.5%) and remote access (27.5%)
- The primary benefits of SHVD for healthcare respondents are improved desktop availability (38%), improved user satisfaction (26%) and improved workflow (20%)
- More than 40% of respondents are using SHVD with more than 60% using SBC
- 45% of healthcare respondents cited cost as the major barrier to SHVD adoption

Methodology

A total of 523 IT decision makers in healthcare, government, financial services, technology and other industries were surveyed to understand their adoption rates and reasons for investing in desktop virtualization. Profiles on the 211 respondents from the healthcare industry breakdown as follows:

<table>
<thead>
<tr>
<th>Hospital Size</th>
<th>1-99 beds</th>
<th>100-299 beds</th>
<th>300+ beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of beds (%)</td>
<td>35.3%</td>
<td>21.4%</td>
<td>43.3%</td>
</tr>
</tbody>
</table>

Figure 1: Healthcare respondent breakout by bed size
Key Findings

Desktop Virtualization Trends in Healthcare
In comparison to last year’s response to “Are you using desktop virtualization today”, usage has increased whether measured by Server Hosted Virtual Desktop (SHVD) or Server Based Computing (SBC) (Figure 2).

Figure 2: Desktop virtualization usage by industry segment

All segments forecast a substantial growth SHVD adoption (Figure 3) with healthcare leading the way forecasting an 18% increase in organizations using SHVD over the next 12 months, a growth of 44%.

Figure 3: Server Hosted Virtual Desktop use today and forecast for 2013
SBC has been widely used in the healthcare industry for the deployment of Electronic Medical Records products such as Cerner and Epic. All industries indicate (Figure 4) that this is a technology that they will continue to adopt.

![SBC Usage](image)

**Figure 4:** Server Based Computing use today and forecast for 2013
Healthcare shows a higher level of deployment when compared to other industries (Figure 5), with more than 42% or respondents indicating that more than half of their employees use SBC.

**Figure 5: Percentage of users using SBC today by industry**

Healthcare continues to show strong growth (Figure 6) in the deployment of SBC, with nearly 60% of respondents indicating that more than half of their users will use SBC within 12 months.

**Figure 6: Forecast of SBC users within 12 months by industry**
While the financial services and technology segments lead the way in SHVD deployments among the group of organizations in which more than half of users use SHVD by users today, it does so only by a little over 5% (Figure 7).

Looking at the 12-month forecast (Figure 8), the trend in healthcare is for dramatically expanded deployments, with more than 36% of respondents expecting to have more than half of their users using SHVD. That’s a growth rate of nearly 40%, larger than any other sector.
There have been a great many articles written about the merits and use cases of SBC and SHVD and a mix of the two. The Financial Services sector leads the way in terms of adopting a mixed strategy of SBC and SHVD (Figure 9).

**Figure 9: Use of both SHVD and SBC by industry**

All industry sectors polled in the survey showed a strong move away from the traditional ‘fat’ clients, with 74% of healthcare respondents identifying a strategy of thin or zero client endpoint devices (Figure 10).

**Figure 10: Client device strategy by industry**
Healthcare Data Segmentation
Although there is already a strong SBC presence in healthcare, continued adoption is forecast over the next 12 months (Figure 11).

As several EMR systems are generally deployed using XenApp, it is not surprising that the survey revealed strong use of SBC across the board, but particularly in the larger segments (Figure 12).
Although there is strong usage of SBC, only 42% of respondents said they have more than half of their users using it today (Figure 13). This may be indicative of the deployments of EMR applications being used by physicians and nurses but not by administrative and technical staff.

Despite this, over the next 12 months the number of respondents expecting that more than half of their users will be using SBC grows to almost 60%, with the biggest shift coming from the <25% and <10% categories (Figure 14).
Despite an already strong adoption of SHVD (indicated by over 41% of respondents), survey responses indicate that adoption of SHVD will continue to grow during the coming year (Figure 15). If realized, the usage of SHVD will exceed today’s usage of SBC within 12 months.
Across the hospital size segments, SHVD adoption is understandably stronger in the larger segments (Figure 16). This is likely due to the IT skills required to implement and manage SHVD and its associated network and storage requirements.

![Are you using SHVD technology today?](image)

**Figure 16: SHVD use by Hospital size (by number of beds)**

Survey results showed a smaller adoption by user of SHVD today (Figure 17) – not surprising given that SHVD is still a relatively new technology. This also may be indicative of smaller initial deployments as the technology becomes more proven within the hospital environment.
Over the next 12 months, the largest shift is expected to occur within organizations moving from the <10% category to the 11-25% group, as pilot projects and limited deployments increase in scale (Figure 18). The 100% category is expected to double in size.
The strongest driver for the adoption of SHVD is desktop manageability (Figure 19), closely followed by desktop roaming and remote access. The 2011 survey indicated remote access as a clear driver (39%), followed by desktop manageability (27%) and desktop roaming (14%).

Interestingly, desktop roaming is a much bigger reason for adoption of SHVD in healthcare than in other industries (Figure 20). This is likely due to the inherently mobile nature of healthcare providers’ jobs, which often involve moving between patient rooms, nurses’ stations and physicians’ offices.
Figure 20: Key drivers for SHVD adoption in all industries

Desktop availability is critical in fast-moving healthcare environments and is seen as the largest benefit, followed by improved user satisfaction and improved user workflow (Figure 21).

Figure 21: Key benefits seen from SHVD adoption in healthcare
Improved desktop availability is widely seen as the greatest benefit of SHVD (Figure 22).

Figure 22: Key benefits seen from SHVD adoption in other industries

Whereas in other industries, IT/technical support are the predominant users of virtual desktops, the survey showed adoption across all three primary healthcare roles (Figure 23).

Figure 23: SHVD users in healthcare
The survey showed strong usage in patient care units and emergency departments, areas where care providers are highly mobile and often require access to patient information and EMRs from several different devices and locations (Figure 24).

![In which departments are SHVD desktops used?](image)

**Figure 24: SHVD use by healthcare departments**

Strong authentication, such as ID badges and fingerprints, is already widely deployed with SHVD to ensure compliance with HIPAA regulations and to simplify clinician workflows with easier login to roaming desktops (Figure 25).

![Do you use strong authentication to access your SHVD?](image)

**Figure 25: Use of strong authentication in SHVD environments**
The use of single sign-on is also well established in healthcare with its ability to simplify HIPAA compliance with password requirements for access to applications containing PHI. Though not as widely deployed as strong authentication today, it is projected to match the forecasted 12 month deployment total for strong authentication (Figure 26).

Figure 26: Use of single sign-on within SHVD environments

As seen in the 2011 survey, the single largest barrier to adoption of SHVD remains cost (Figure 27). Many of the comments listed in the other response category also referred to cost in conjunction with complexity. It is interesting that performance is not at all seen as a barrier – a change from the 2011 responses where approximately 10% saw performance as an issue.
Adoption of Cloud Based Services in Healthcare

For desktop and application delivery, the cloud is not yet gaining traction in the healthcare sector. If the forecast responses become reality, 30% of respondents would be using cloud desktop delivery by the end of 2015 (Figure 28).

Figure 27: Barriers to adoption of SHVD in healthcare
There is also little movement today to store PHI in the cloud, with security being the over-riding concern (Figure 29).
As with the results in 2011, security is still seen as the biggest barrier to adoption of cloud services in healthcare (Figure 30)

Are there specific barriers to adoption of cloud based services?

Figure 30: Barriers to adoption of cloud based services
Summary
Desktop virtualization continues to gain traction in healthcare displaying how increased mobility, security and operational benefits meet the goals of an industry undergoing great technological change. At a time of competing priorities and continuing goals around Meaningful Use desktop virtualization clearly remains a priority.

A rise in both server based computing, Server Hosted Virtual Desktops as well as an industry leading strategy of thin and zero client adoption is demonstrating how healthcare is adopting all aspects of desktop virtualization seeing the value to both users and IT.

The associated adoption of strong authentication and single sign-on continue to demonstrate how simplified secure access to patient information combines with desktop roaming to streamline care provider workflows.

About Imprivata
With more than 2 million users and 900 healthcare customers, Imprivata is the #1 provider of secure access 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.

Imprivata has received numerous product awards and top review ratings from leading industry publications and analysts, including a Strong Positive rating in Gartner’s 2011 Marketscope for ESSO, the #1 ranking in the KLAS SSO Performance report and the #1 rating in 2010 Best in KLAS and Category Leaders report. Headquartered in Lexington, Mass., Imprivata partners with over 200 resellers, and serves the access security needs of customers around the world. For more information, please visit www.imprivata.com or follow us on Twitter at @Imprivata.