



## WHITE PAPER

# Understanding the Business Value of Migrating to Windows Server 2012

Sponsored by: Microsoft and Intel

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## EXECUTIVE SUMMARY

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In December 2014, IDC Asia/Pacific undertook a study commissioned by Microsoft and Intel to understand the incremental gains that organizations can potentially achieve by migrating from Windows Server 2003 to Windows Server 2012, especially in light of the upcoming end of extended support which will occur in July 2015.

IDC surveyed 88 organizations that had deployed Windows Server 2012 or the R2 version, and had prior experience with Windows Server 2003 or the R2 version. The Asia/Pacific study covered seven countries: Australia, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, and Thailand.

The findings showed some quantitative positive outcomes across the three key areas of:

- Virtualization density – the number of virtual machines hosted within a single physical server
- Increased levels of automation available within Windows Server 2012
- Man hours per month saved through automation

The study also surfaced some qualitative positive outcomes in the areas of:

- Improved levels of security
- Improved ability to maintain compliance
- Improved manageability
- Improved performance

Efficiency and improved performance stand out as the key takeaways from this study. Efficiencies are delivered in a number of areas across both the technology stack as well as within the end user IT environments. Performance improvements are attributable to three key factors:

- Improvements within Windows Server 2012
- Improvements within the Intel Xeon Processor E5 v3 family providing breakthrough advancements

- Improvements brought about by the adoption of server virtualization, and the ability to increase virtualization density that both these aforementioned technologies provided

Efficiencies are noted in a number of areas, most notably within the performance of systems administrators. The average number of man hours saved through the use of automation is 26 hours, with a number of organizations claiming in excess of 100 hours per month saved through automation. Other areas where efficiency can be found within the new stack are in the power consumption of the Intel Xeon Processor E5v3 family, where the increased performance (3.1 times, according to Intel) does not come with a corresponding power consumption ratio, something that is emerging as a growing concern for many organizations.

## METHODOLOGY

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The study is based on information from 88 organizations, representing 12 industry verticals across seven countries within the Asia/Pacific region. In terms of the respondent profile, 61.1% of the respondents were the decision makers behind the migration to Windows Server 2012; 29.6% were responsible for the implementation; and 9.3% were responsible for tracking the "before" and "after" metrics of the roll out.

The study focused on organizations that run 10 or more physical servers, use Windows Server 2012 or the R2 edition, and have either migrated from or had experience with Windows Server 2003 and the R2 edition. About 90% of all small organizations and 89% of the large organizations were running virtualized environments.

In order to show a more relevant representation, the sample sizes were split into two groups based on organizational size and revenues. The results show that all organizations, regardless of size, have realized significant improvement after the migration.

# RESULTS

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Overall, the results showed that organizations that were leveraging the key features of Windows Server 2012 were able to obtain significant cost and manpower savings. Not all organizations were, however, taking advantage of such features; those that did saw the following benefits.

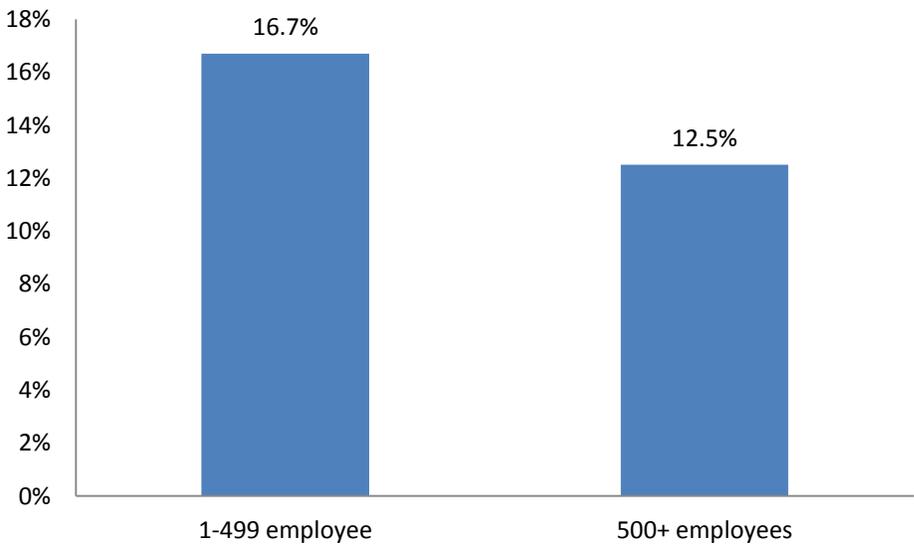
## Server Virtualization

Figure 1 shows the average percentage increase in virtual server density (virtual machines per physical machine) after moving to Windows Server 2012, by organization size. Smaller organizations in the study experienced a greater increase, albeit on a smaller server count.

**FIGURE 1**

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**Average Percentage Increase in Virtual Server Density, by Organization Size**



Source: IDC, 2015

Across the study, server virtualization rates varied quite significantly and not all servers were virtualized. On average, smaller organizations had an average of 20 servers, with the range between 10 and 60 servers. Large organizations had an average of 121 servers, with a few respondents having as many as 1,000 physical servers.

Within this survey pool, smaller organizations had virtualized slightly less than half of their environment, and an average of 8 servers had been virtualized. Others had up to 60 servers virtualized, while in the larger organizations, the average number of servers virtualized was 58, ranging up to 1,000.

Windows Server 2012 provides a massive leap in the ability to increase server virtualization density as compared to Windows Server 2003, and more importantly the Microsoft virtualization technology, Hyper-V, is embedded with the Windows Server since the 2008 edition, whereas with 2003 it was a separate offering. This increased capability, along with deeper integration within the overall server OS, provides for a richer experience for server administrators.

Within the virtual server pool, virtual density averages were 6.3 virtual servers per physical server and 8.0 virtual servers per physical server for small and large organizations, respectively.

Data from the study showed that organizations were able to increase virtual server densities from between 12.5% for larger organizations, to as much as 16.7% for smaller organizations when moving from Windows Server 2003 to Windows Server 2012.

The study revealed that larger organizations had virtualized 47.9% of their environment while smaller organizations had only virtualized 44.5%. This relatively equal split between the two organizational sizes is a clear indication that implementing server virtualization within the Windows environment is not a manpower-intensive process.

IDC acknowledges that Hyper-V, Microsoft's server virtualization product, has improved significantly since its launch in terms of performance in Microsoft System Center and scale, and that it is now embedded within Windows Server is a positive move. However, it should be noted that in order to fully benefit from all that is offered within this software stack, Microsoft System Center, the 2012 product designed to manage the Microsoft environment is a critical component of this overall solution. There is a significant degree of functionality that is included within Microsoft System Center 2012 that would be required to deliver, manage and monitor much of the functionality described within this document and, while IDC did not make any specific research in this area, it is a fact that must be noted.

It also needs to be noted that to be compliant when using some advanced virtualization techniques such as live migration/clustering and to achieve proper flexibility and savings, companies need to select Windows Server Datacenter licenses with the notion that this applies to any virtualization environment which is used to run Windows Server virtual machines.

## Increased Levels of Automation

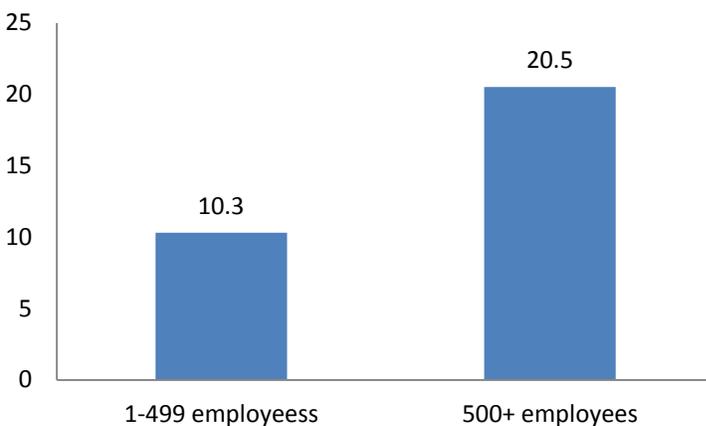
Figure 2 shows the average number of processes automated under Windows Server 2012 through PowerShell by organization size. Larger organizations have automated almost twice as many tasks as smaller organizations which generally have less complexity within their environments.

**FIGURE 2**

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### Automated Processes by Organization Size

Number of processes



Source: IDC, 2015s

One of the key features available within Windows Server 2012 that was not available in the 2003 editions is Windows PowerShell, a task-based command-line shell and scripting language designed especially for systems administration and automation. This feature, built on the .NET Framework, helps IT professionals and power users control and automate the administration of the Windows operating system and applications that run on Windows.

Automation is rapidly becoming a critical tool for IT management in order to meet the ever increasing demands of business users. Although automation adoption levels across the Asia/Pacific region are not particularly high (according to the IDC Semiannual Software Tracker), the value of automation is not just found in the time saved, but also in the ability to automate complex repetitive tasks, thereby eliminating the costs associated with human error.

More than one-third or 37.5% of the smaller organizations are using PowerShell to automate tasks and are running an average of 10.3 automated tasks, but as high as 50 automated processes in some organizations. Prior to the introduction of PowerShell within Windows Server 2012, 15.6% of these organizations had no automation whatsoever.

For the large organizations, 33.9% are using PowerShell to automate an average of 19 tasks, ranging up to 100 automated processes. Almost all or 94.7% of this group already had some levels of automation, as would be expected in an enterprise environment. Microsoft System Center, in many cases, is a wrapper around PowerShell with the user interface (UI) and some databases that store configurations, although PowerShell is the tool by which everything is automated. In fact for every action executed in Virtual Machine Manager, there is a PowerShell command that is executed. There is also significant value to be found in System Center Orchestrator that helps to draw and organize complex automation processes.

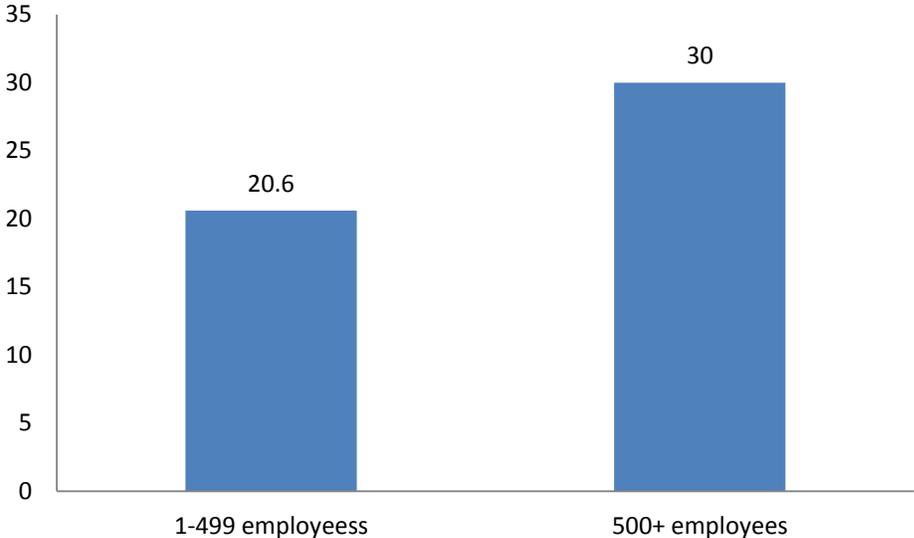
### Man Hours Saved Through Automation

To understand the direct result of automation using Windows PowerShell, IDC asked organizations to assess how much manpower had been saved as a result. The results varied across the study, with as many as 160 man hours per month saved. The average number of man hours per month saved was 20 for smaller organizations and 30 for larger organizations, as shown in Figure 3.

While the savings is reportedly higher for larger organizations compared to smaller organizations, the impact is equally as significant considering that the average revenue of smaller organizations is less than half of larger organizations, making the manpower cost savings higher than the chart might imply.

**FIGURE 3**

#### Average Number of Man Hours Saved Per Month



Source: IDC, 2015

In today's high velocity market, these savings in time are critical. It is less to do with how much was "saved" here, as much as it is that this time can now be better utilized to focus on other, more valuable, roles within the organization.

## HYBRID CLOUD ENVIRONMENTS

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In the current architectural climate, it is important to also consider that the respondents in this study are using a hybrid cloud environment based on the Microsoft Azure platform. The company has touted itself strongly as a cloud player and while their business in this area is growing, the sample study did not capture a significantly large number of users to be valued as a representative sample. That being said, those that were using the Microsoft Azure cloud did exhibit some interesting characteristics that would be worth sharing with other organizations that are faced with the decision to move from Windows Server 2003.

Backup was the single biggest usage scenario for Azure with nearly all the Azure users making use of this process, but all the backup users were subscribing to a number of applications within either the Azure or Office 365 application stack.

Half the Azure users were operating a hybrid cloud environment and for this segment, the range of applications included unified communications, email, Microsoft Office applications and enterprise resource planning (ERP) applications.

The importance of this information, in spite of the small sample size, is to illustrate that the move from Windows Server 2003 and the uptake of both Windows Server 2012 and Systems Center 2012 provide businesses with a range of options that had not previously been available, and such options are what the business is generally seeking in order to be more efficient and more agile.

## SUMMARY SAVINGS AND QUALITATIVE FINDINGS

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While there are some obvious differences in the underlying infrastructure of small and large organizations, the reality is that the introduction of Windows Server 2012 into the environment and, critically, the adoption of the newer technologies found within Windows Server 2012, can lead to some significant financial benefits to both the IT teams and the overall business, as summarized in Table 1. With the upcoming end of extended support for Windows Server 2003, the time to move off this platform is critically imminent and this study shows that Windows Server 2012 is an obvious destination for this migration.

**TABLE 1**

### Overall Impact of Migration on the Business

Organization Size	Virtual Server Density Increase	Automation Processes	Man Hours Saved Per Month
1-499	16.7%	10.3	20.6
500+	12.5%	20.5	30

Source: IDC, 2015

Of the qualitative benefits identified within Windows Server 2012, the key improvements over previous versions were similar regardless of the size of the organization. Table 2 shows the four key areas of improvement – security, compliance, manageability and performance – cited by respondents.

**TABLE 2**

**Key Improvements**

Key Improvements	Percentage of Respondents
Security: Improved security and patch management reducing unplanned or planned downtime	26.7%
Compliance: It was necessary to remain compliant with industry/ government regulations	26.7%
Manageability: Ability to automate more tasks and improve administrator efficiency	23.9%
Performance: Improved specification allows applications to perform faster on existing infrastructure	22.5%

Source: IDC, 2015

## CONCLUSION

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Security and compliance improvements feature heavily as some of the qualitative benefits of moving to Windows Server 2012, due in large part to improved patch management features and processes within the Microsoft software and organizations. This, along with a more robust management toolset that enabled compliance audits to be a far simpler approach on the Microsoft platform, have emerged as key benefits in this migration.

This improved manageability is a key feature of Windows Server 2012 and the ability to introduce higher levels of automation, specifically through the application of Windows PowerShell, is proving to be a serious game changer for those with the skills and capabilities to do so.

The improved performance observed within Windows Server 2012 is a result of two factors;

- Improvements made by Microsoft within the Windows Server 2012 software
- Improvements made by Intel within the Intel Xeon Processor E5 v3 family providing breakthrough advancements

The alignment of Microsoft and Intel's engineering has permitted many organizations to now achieve significant performance improvements. Microsoft has updated Windows Server 2012 to be able to address more physical hardware both in terms of CPU and memory, as well as to become much more dynamic within the virtual environments. Intel has also steadily improved the performance and power consumption of their underlying chipsets to ensure that performance continues to improve at a reasonable price point.

The combination of Windows Server 2012 on the Intel Xeon Processor E5 v3 today provides a logical destination for any migration from any legacy Windows Server platform.

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