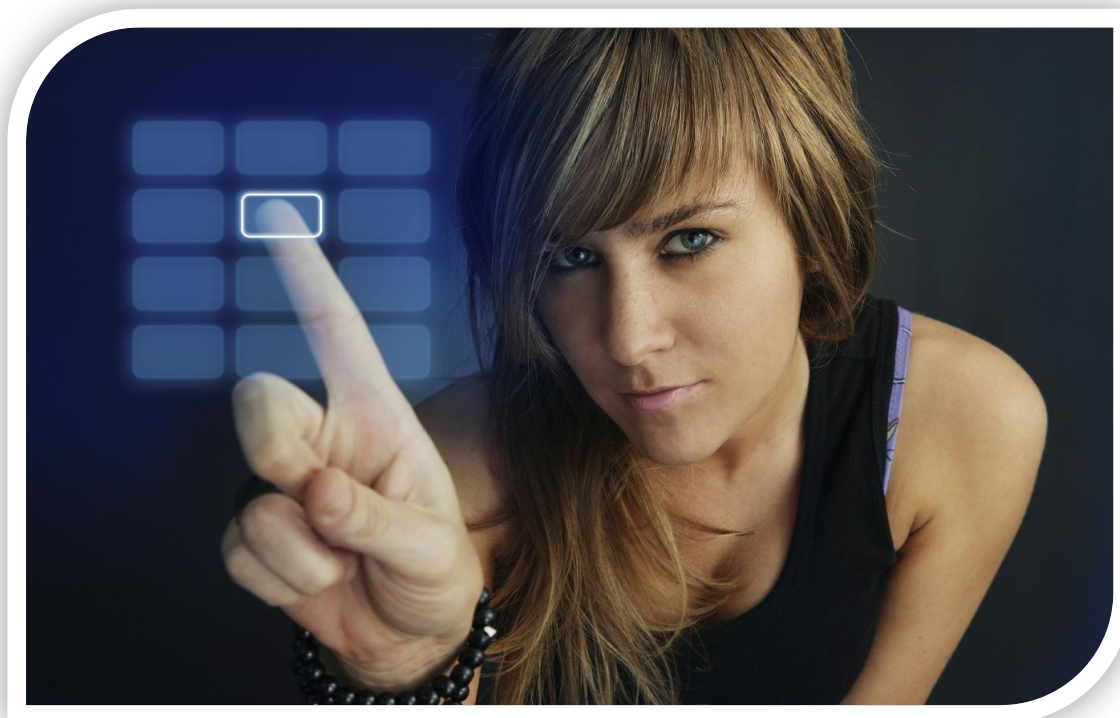


# Project Virtual Reality Check

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## Project VRC: Survey

### *State of the VDI and SBC union 2013*

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Version: 1.0  
Date: March 2013

**Log.in**  
consultants



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## 1. SUMMARY

Project 'Virtual Reality Check' conducted a worldwide survey from September 26<sup>th</sup> until November 11<sup>th</sup> 2012. The survey is focused on IT Executives and IT Professionals active in the desktop virtualization industry.

79,48% of the total 662 (n=662) responders are IT Professionals and 20,52% of the respondents are IT executives. The total amount of employees in the organization of the responders is 4.922.459. The total designed capacity of concurrent desktop sessions for both VDI and SBC is 1.111.730.

The primary HQ of the organization is for 61,70% located in Europe, North America it's 24,58% and 13,72% is other. 25,85% of the respondents is working in a small organization with 1-249 employees. 28,57% is working in a medium organization with 250-2499 employees while 45,58% of the people is working in an enterprise organization with 2500-100.000 employees.

Most of the diagrams speak for themselves. We extracted a few conclusions here:

### **VDI market is still very early stage. Manageability and flexibility will fuel growth**

- The majority of people (31,91%) is using VDI in pre-production, or early production (34,92%). 33,17% of the people is using VDI for more than one year in production.
- High growth of VDI is expected in the next 2-3 years in enterprise, large and medium organizations. No expected growth in small organizations.
- Manageability and business flexibility are the most important goals which drive the VDI environment. Lower energy consumption, support for off-shoring are the least important goals.

### **VMware is the dominant hypervisor for VDI. This position will probably not change**

- Majority of respondents is using VMware vSphere, ESX or ESXi (59,85%) followed by Microsoft (10,22%) and Citrix (15,43%) as hypervisor for VDI. Interesting is that 3,53% is already using Windows Server 2012 with Hyper-V.
- 50,75% of the respondents have no plans for changing the hypervisor the next 2-3 years. 27,86 is investigating the options while 10,28% is sure about migrating to Microsoft Hyper-V.

### **Citrix XenDesktop is the dominant connection broker. VMware View strong second**

- Majority of respondents is using Citrix XenDesktop (44,37%) and VMware View (26,53%). Microsoft VDI (5,73%) and Quest vWorkspace (2,76%) are minor compared to Citrix and VMware.
- 62,33% of the respondents have no plans for changing the connection broker the next 2-3 years. 25,86% is investigating the options.

**The use of stateless VDI seems larger than most analyst projections**

- 31,82% of the people is using stateless virtual desktops as their common scenario. 36,36% of the respondents is using stateless VDI as their minor scenario. The use of stateless VDI seems bigger than most analysts projected.

**WAN optimization and Unified Communications are not widely used in VDI**

- The majority of people, 47,47%, isn't using WAN optimization in desktop virtualization environments at all. Citrix, Cisco and Riverbed are the commonly used solutions followed by F5 and Juniper.
- The majority, 34.91%, isn't using Unified Communications in Desktop Virtualization and has no plans for the future. 34.36% has plans to use Unified Communications within Desktop Virtualization in the future and only 9,45% is using Unified Communications with audio and video today.

**HP is the dominant server for VDI workloads, Dell is strong second**

- HP (42,78%) and Dell (20,47%) are the commonly used servers for VDI workloads. Cisco takes an interesting 5<sup>th</sup> place in this survey with 8,14%.
- HP is the dominant server brand for Server Based Computing workloads with 52,26% followed by Dell with 19,95% and IBM with 12,59%.
- 21,57% of the people is mixing VDI with other workloads on the same server.

**Most infrastructures deploy 1vCPU per VM, while 2vCPU is a best practice**

- 55,83% of the people is using 1vCPU for each desktop VM. 2vCPUs is a best practice while using multimedia, Flash, Unified communications or Windows 8 as guest OS. Keep in mind that 2vCPU has substantial impact in sizing your VDI infrastructure as analyzed and concluded in earlier Project VRC tests.

**Antivirus is widely used with VDI, but usage of VDI optimized solutions is still rare**

- The majority of people is using traditional endpoint protection solutions from McAfee, Symantec, Microsoft or TrendMicro within VDI. The VDI optimized solutions TrendMicro DeepSecurity and McAfee MOVE are used in total by 11,97% of the respondents.

**User Environment Management solutions are not widely used in VDI, Microsoft SCCM dominant as Client Management solution.**

- The majority of people isn't using 'User Environment Management' solutions. Only 15,84% of the people are using AppSense or RES Software as a solution. The majority is using Group Policy objects or scripts to 'manage' their user environment in VDI.
- 38,46%, is installing and updating applications in the master image. Microsoft System Center Configuration Manager (ConfigMgr) is dominant as Client Management solution for application installation and management in VDI, 24,65%. All the other Client Management solutions have very low usage in VDI.



**The majority uses Windows 7 x64 as desktop VM. Which may cause performance sizing and application readiness problems.**

- More than 34% of the people is using Windows 7 x64 as a guest OS. The industry should really start educating again on the benefits and downsides of a 64bit operating system in VDI scenario's.

**Application Virtualization is used widely with VDI, Microsoft is dominant.**

- Microsoft App-V is with 31,22% the most commonly used application virtualization solution, followed by VMware ThinApp and Citrix Application Streaming. Interesting to see that 25,41% of the people isn't using application virtualization at all.

**Storage use is still mostly central, established large vendors are still dominant here.**

- 32,37% of the respondents is using a standard storage solution for VDI while 41,58% is using a dedicated storage solution for desktop virtualization workloads.
- Central storage is being used by 71,91% of the respondents. 28,09% is using local storage solutions. 82,06% of the respondents is using storage from industry leaders while 17,94% is using less known solutions.

**SBC market is very mature in comparison to VDI. Citrix XenApp is very dominant.**

- 68,87% of the people is using Server Based Computing for more than two years in production. Only 12,97% of the respondents is building and testing Server Based Computing in a pre-production environment.
- Citrix XenApp has 67,62% market share, the Microsoft SBC solution is used by 19,29%. 4,36 of the respondents is using Oracle as connection broker for Server Based Computing.

**User experience/performance is the key innovation area for SBC/VDI adaption.**

- Looking at the future customer roadmap in the VDI/SBC world, it's all about 'User Experience'. The first four 'most important topics' in figure 67 make clear that customers see this as the most important vital innovation area.
- The majority of the respondents do tests, mostly for capacity planning (25%) and load testing (to evaluate optimizations and tuning) (22%). Stability testing, change impact, and benchmarking all score about 10%. For the minority (20%) of the respondents that do not execute performance tests, time and budget restrictions are the most common cause mentioned.

## 2. INTRODUCTION

Welcome to “Project: Virtual Reality Check (VRC)”!

PQR and Login Consultants started this unbiased and independent R&D project early 2009. The goal of Project VRC is to analyze the developments in the Application- and Desktop Virtualization market and to objectively present the results. In the haze of the extreme rate of innovation in the virtualization market and corresponding marketing promises this information is appreciated. Therefore we published our methods and conclusions in various whitepapers which can be downloaded from [www.projectvrc.com](http://www.projectvrc.com)

### 2.1 SURVEY GOAL

The goal of the survey executed by Project Virtual Reality Check is to share insights about usage, configuration and trends in the Virtual Desktop Infrastructure and Server Based Computing industry, ‘the state of the VDI and SBC union’.

Past 4 years Project ‘Virtual Reality Check’ was, and still is, focused on executing tests, finding insights,- deep technical best practices and performance analysis in the server hosted desktop industry. The results are reported in multiple whitepapers that (after registration) were made free to download for everyone. The registration resulted in a large database of people focused on desktop virtualization solutions, best practices and performance analysis. We used this database to execute the ‘state of the VDI and SBC union, 2013 edition’.

### 2.2 SURVEY RESPONDENTS AND METHODOLOGY

Project ‘Virtual Reality Check’ conducted a worldwide survey from September 26<sup>th</sup> until November 11<sup>th</sup> 2012. The survey is focused on IT Executives and IT Professionals active in the desktop virtualization industry. Total 958 people responded to the survey and could fill-in 85 questions. We sanitized the survey, using only completed survey results and removed the vendor entries which resulted in 662 valid entries of the survey.

79,48% of the total 662 (n=662) sanitized responders are IT Professionals and 20,52% of the respondents are IT executives, decision makers and influencers. The total amount of employees in the organization of the responders is 4.922.459. The total designed capacity of concurrent desktop sessions for SBC is 653.861 and for VDI it is 457.869 which results in 1.111.730 concurrent server hosted virtual desktops.

The primary HQ of the organization is for 61,70% located in Europe, for North America it’s 24,58% and 13,72% is other. 25,85% of the respondents is working in a small organization with 1-249 employees. 28,57 is working in a medium organization with 250-2499 employees while 45,58% of the people is working in an enterprise organization with 2500-100.000 employees.



We have collected the survey results with a Software as a Service solution [www.surveymonkey.com](http://www.surveymonkey.com) and imported the information in our on-premise database and reporting services. With advanced automation and analysis we are able to create interesting graphs and results with different cross connections. When you have demand for custom reports or findings please let us know: [team@projectvrc.com](mailto:team@projectvrc.com)

## 2.3 BETTER TOGETHER

“...The two largest and most focused competitors in the Dutch Virtualization, Application Delivery and Enterprise Mobility market space are working together on Project Virtual Reality Check...” PQR and Login Consultants started this joined-venture in 2009 to share insights with the virtualization community with Project Virtual Reality Check (Project VRC). There are several reasons for PQR and Login Consultants to execute this project together:

- The Project leaders, Ruben Spruijt and Jeroen van de Kamp have known each other for a long time from the virtualization community and share the same passion for these technologies.
- Project VRC is a huge undertaking, PQR and Login Consultants individually do not have the resources, or time, to execute this project on their own. Thus is it logical to cooperate, share the workload and deliver the results together.
- Both organizations share the same technical vision, which is critically important in complicated projects like these.

## 2.4 CONTACT

All information about Project Virtual Reality Check can be found at [www.projectvrc.com](http://www.projectvrc.com). Contact details of the participating organizations are:

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We try to provide accurate, clear, complete and usable information. We appreciate your feedback. If you have any comments, corrections, or suggestions for improvements of this document, we want to hear from you! Please send an email to Jeroen van de Kamp ([j.kamp@loginconsultants.nl](mailto:j.kamp@loginconsultants.nl)) or Ruben Spruijt ([rsp@pqr.nl](mailto:rsp@pqr.nl)). Please include the title of the document, the version number, and the page that you refer to, in your message.

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### 3. VDI AND SBC: COLLECTIVE RESULTS

#### 3.1 HYPERVISOR INFRASTRUCTURE USED FOR NONE VDI AND SBC WORKLOADS

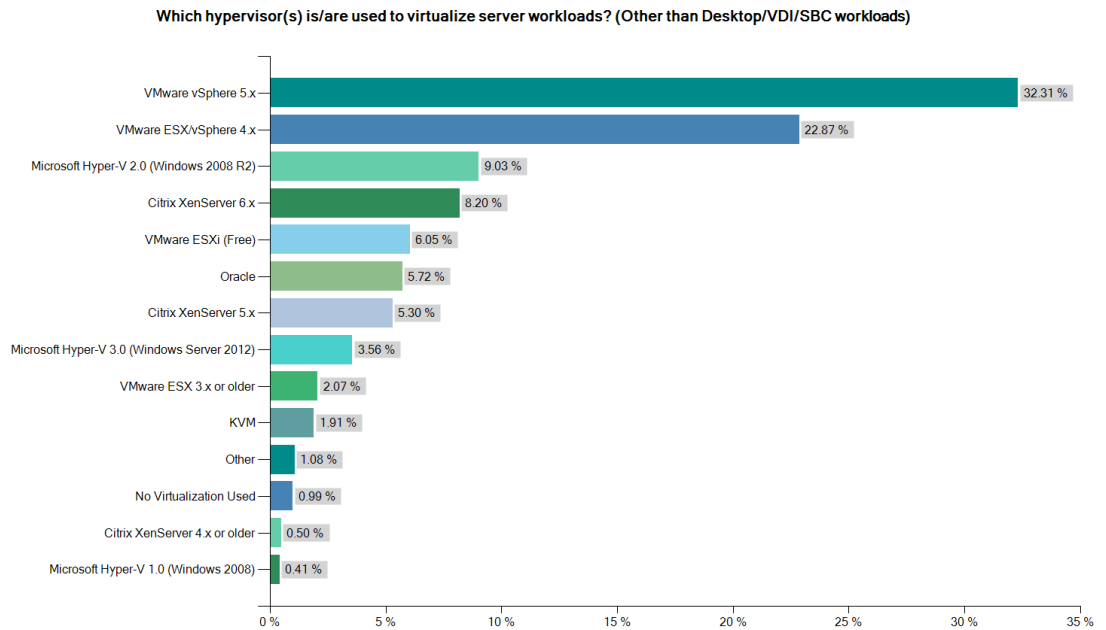


Figure 1, Which hypervisor(s) is used to virtualize server (none VDI/SBC) workloads?

The majority of respondents is using VMware vSphere, ESX or ESXi, total (63,30%) followed by Microsoft (12%) and Citrix (14%). Interesting to see is that 3,56% is already using Windows Server 2012 with Hyper-V for none VDI/SBC workloads.

### 3.2 WAN OPTIMIZATION USED IN VDI AND SBC

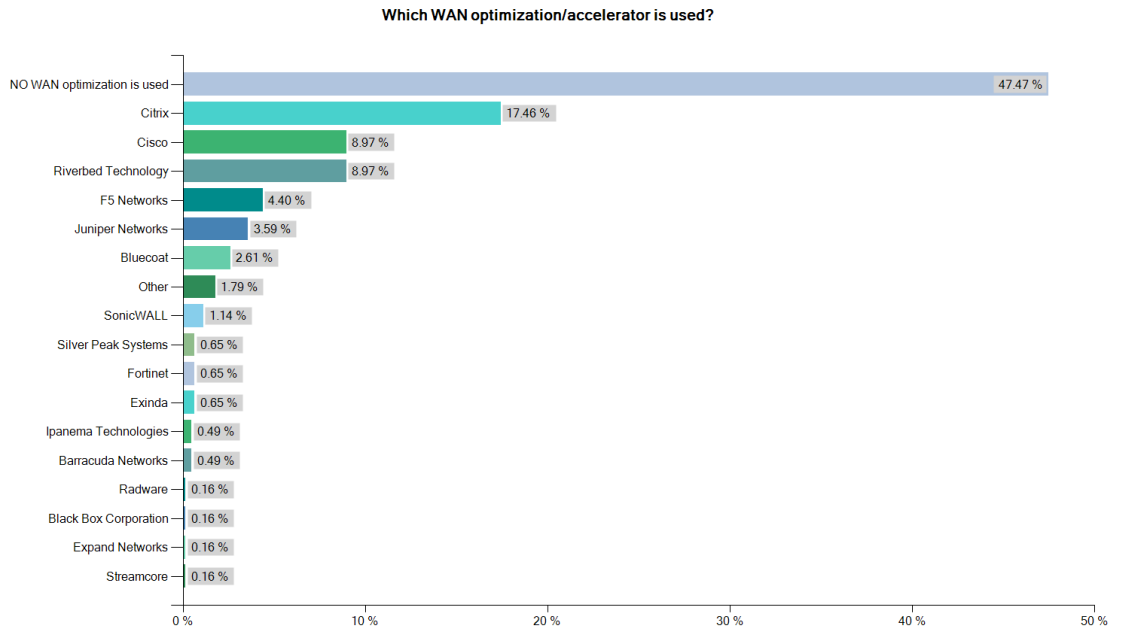


Figure 2, Which WAN optimization/accelerator is used?

The majority of people, 47,47%, isn't using WAN optimization in desktop virtualization environments at all. Citrix, Cisco and Riverbed are the most commonly used solutions, followed by F5 and Juniper.

### 3.3 UNIFIED COMMUNICATIONS USED IN VDI AND SBC

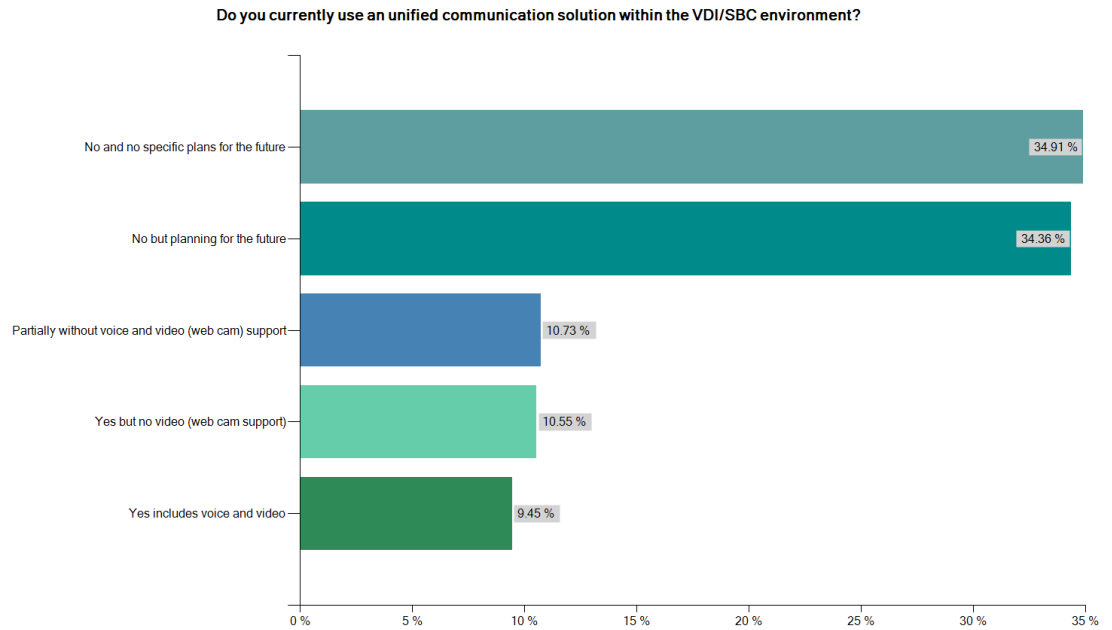


Figure 3, Do you currently use an unified communication solution within the VDI/SBC environment?

The majority, 34.91% isn't using Unified Communications in Desktop Virtualization and has no plans for the future. 34.36% has plans to use Unified Communications within Desktop Virtualization in the future. Only 9,45% is using Unified Communications with audio and video.

### 3.4 PERFORMANCE TESTING EXECUTED IN VDI AND SBC

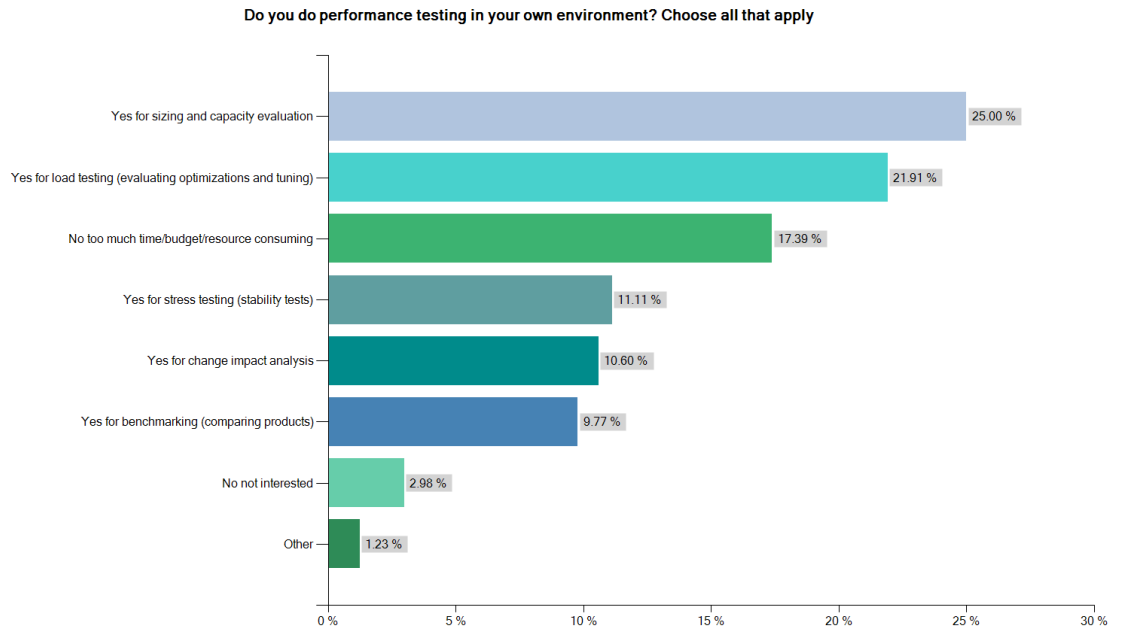


Figure 4, Do you do performance testing

20% of respondents do not execute performance tests. Time and budget restrictions being the most common cause for this.

Of the respondents that do tests, the majority is performing tests for capacity planning (25%) or load testing (to evaluate optimizations and tuning) at 21,91%. Stability testing, change impact, and benchmarking all score about 10%.



## 4. VDI SPECIFIC RESULTS

The chapter reflects the results of answers on VDI focused questions.

### 4.1 VDI: PHASE, USAGE, REGIONS, USER TYPES, GOALS

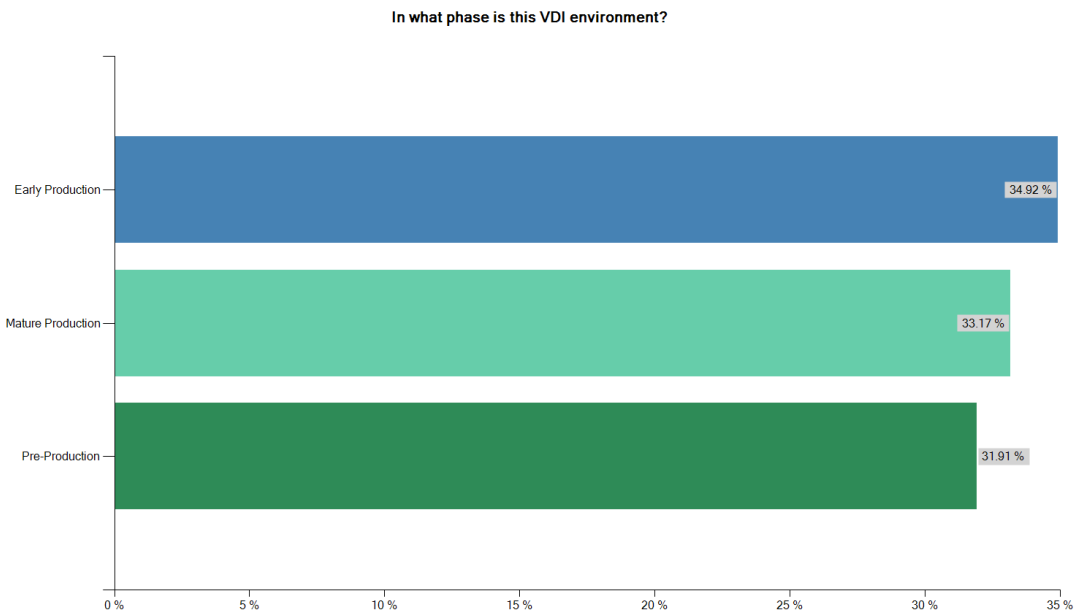
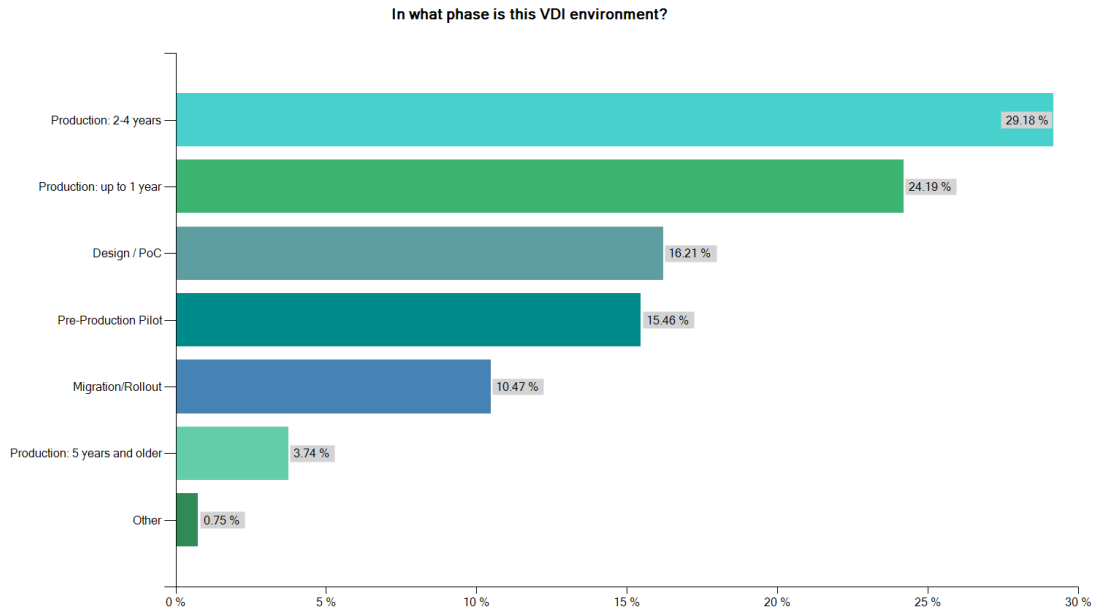


Figure 5, In what phase is this VDI environment?

The majority of people is using VDI in pre-production, 31,91% or early production 34,92%. 33,17% of the people is using VDI for more than one year in production.

How is this VDI environment used/considered within the organization? (choose best fit answer)

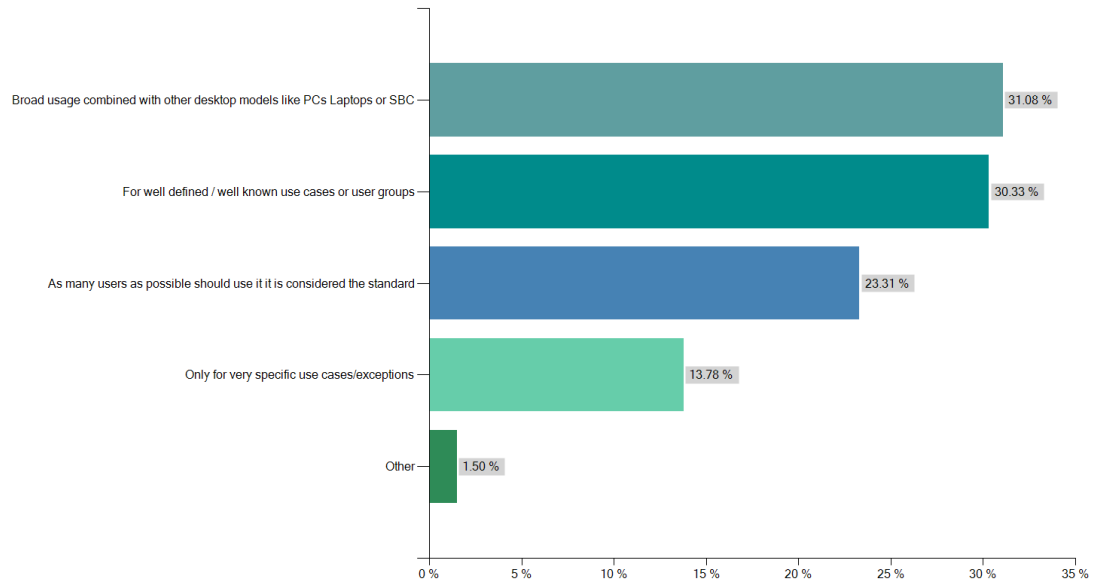


Figure 6, How is this VDI environment used/considered within the organization?

Which are the most important user types (max 3) intended to use this VDI environment?

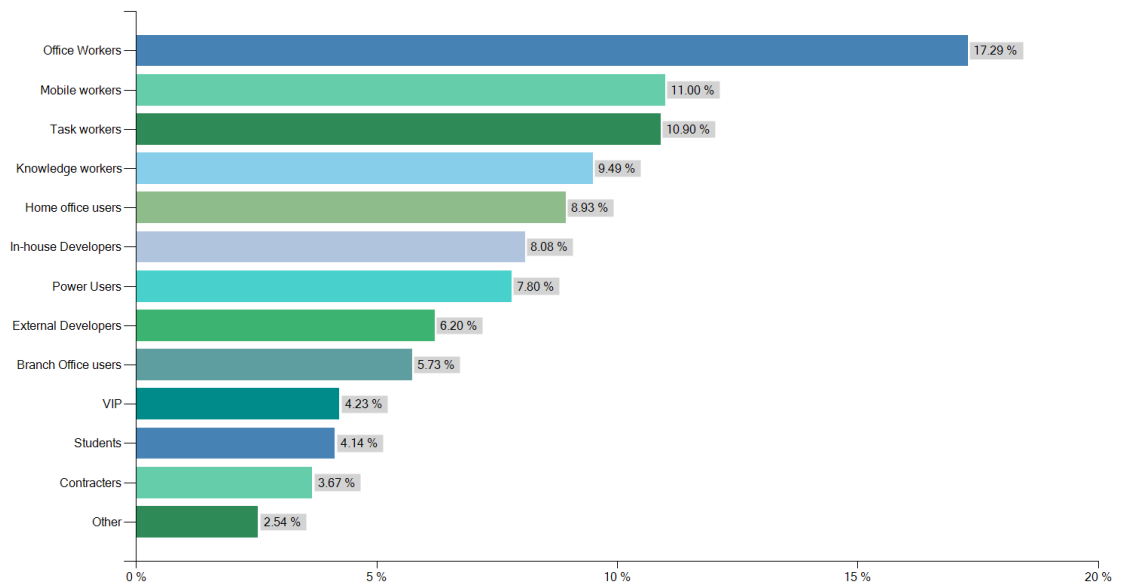


Figure 7, Which are the most important user types (max 3) intended to use this VDI environment?

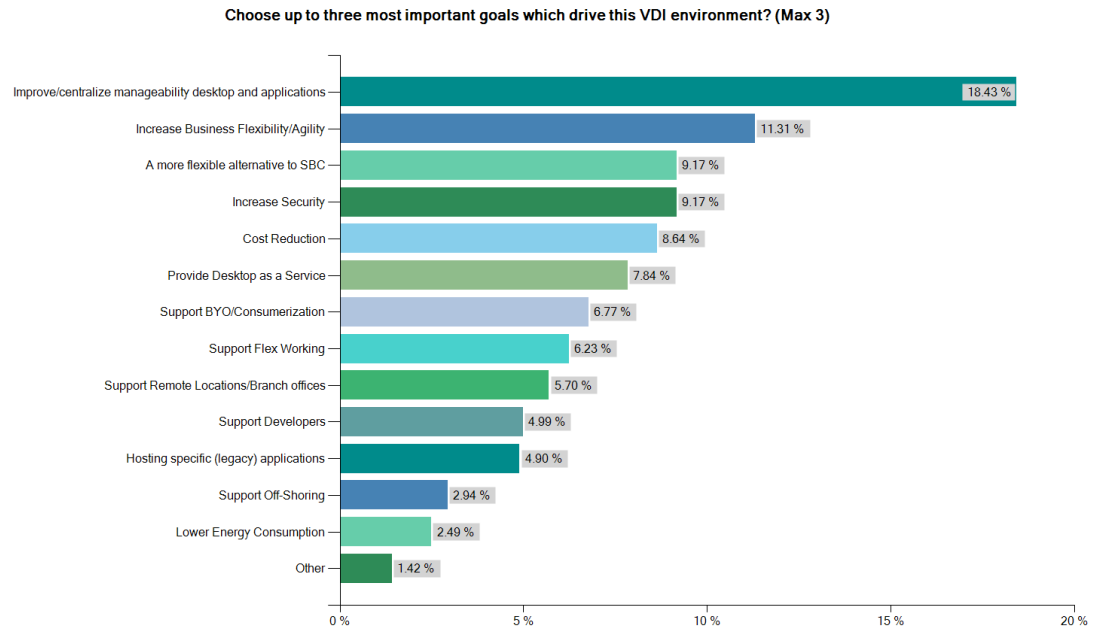


Figure 8, Choose up to three most important goals which drive this VDI environment?

Manageability (18,43%) and business flexibility (11,31%) are the most important goals which drives the VDI environment. Lower energy consumption (2,49%), support for off-shoring (2,94%) are the least important goals.

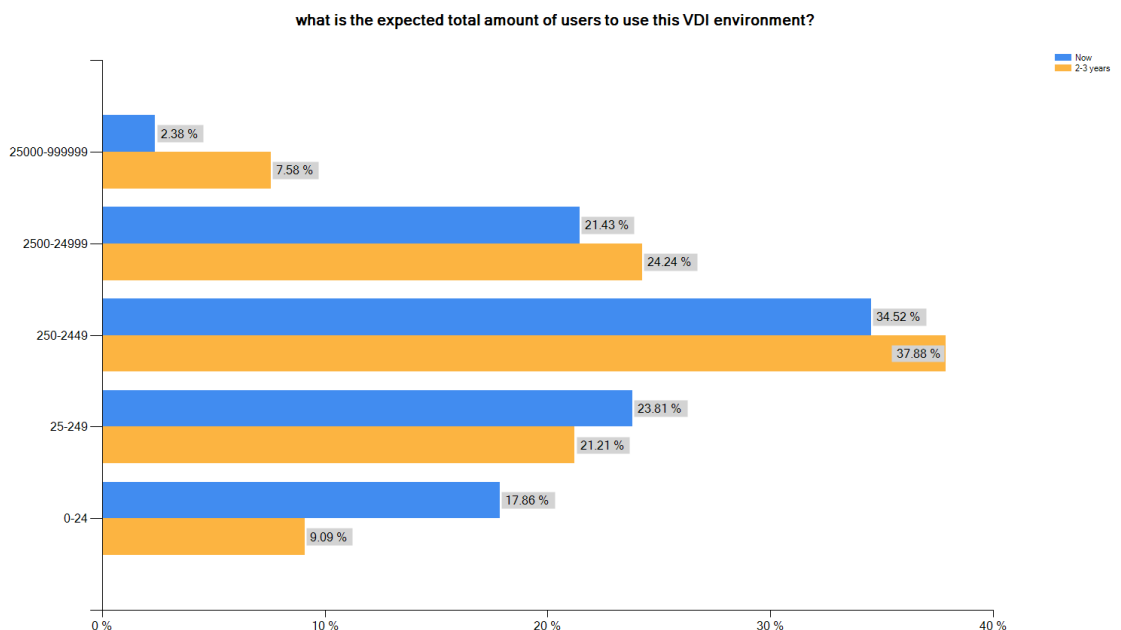


Figure 9, What is the expected total amount of users to use this VDI environment

Respondents expect high growth of VDI in the next 2-3 years in enterprise, large and medium organizations. No expected growth in small organizations.

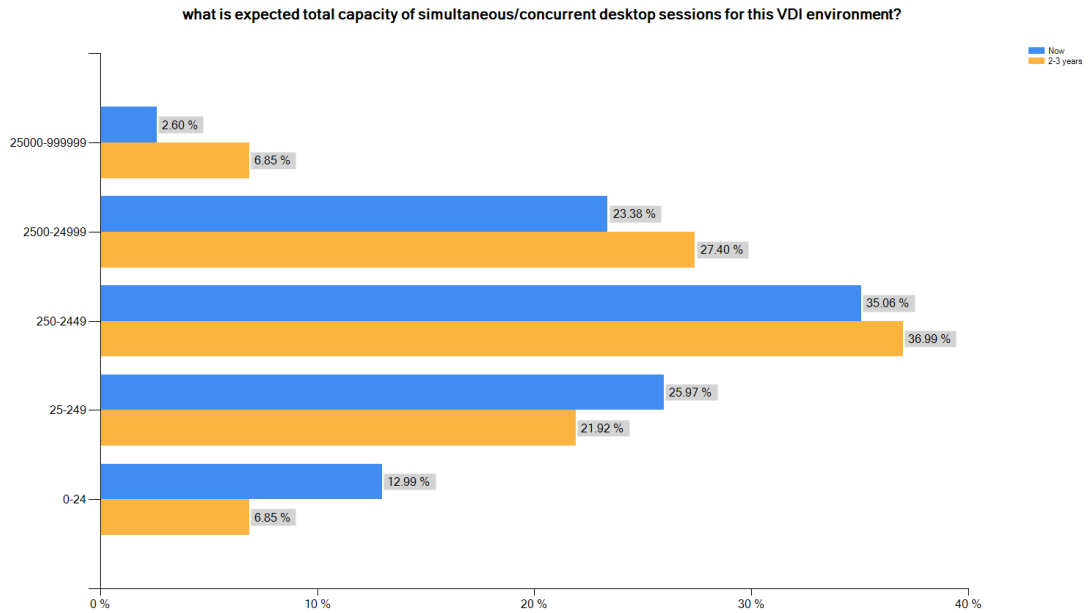


Figure 10, Expected total capacity of simultaneous/concurrent desktop sessions for the VDI environment?

## 4.2 VDI: STATELESS - STATEFUL VIRTUAL DESKTOP

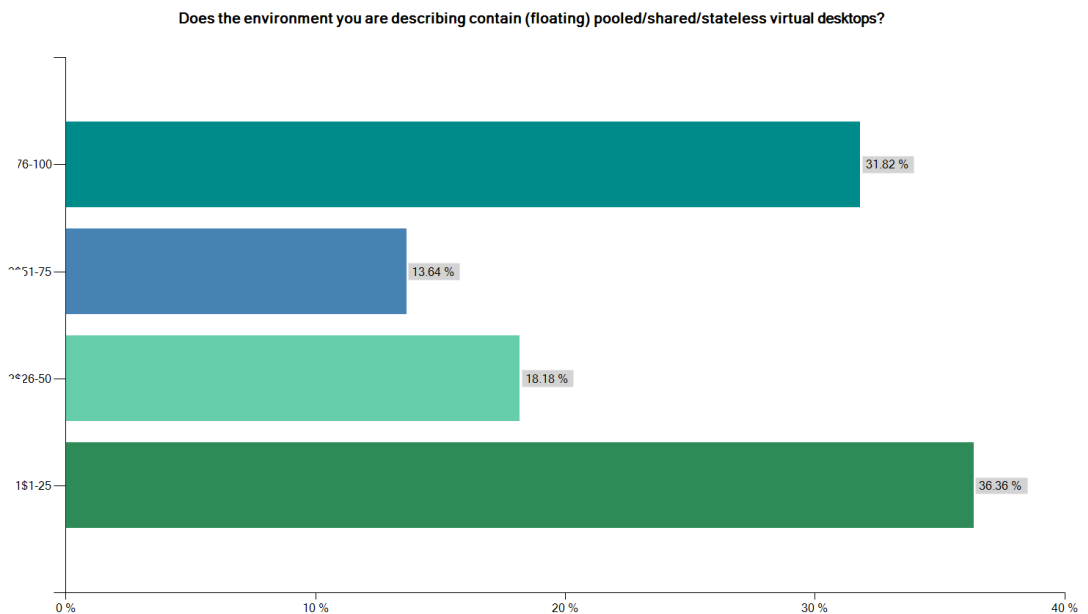


Figure 11, Does the environment you are describing contain (floating) pooled/shared/stateless virtual desktops?

31,82% of the people is using stateless virtual desktops as their common (76-100%) scenario. 36,36% of the respondents is using stateless VDI as their minor scenario. Our conclusion is that stateless VDI is bigger than most analysts projected. In another whitepaper we will differentiate the people by region.

### 4.3 VDI AND HYPERVISORS

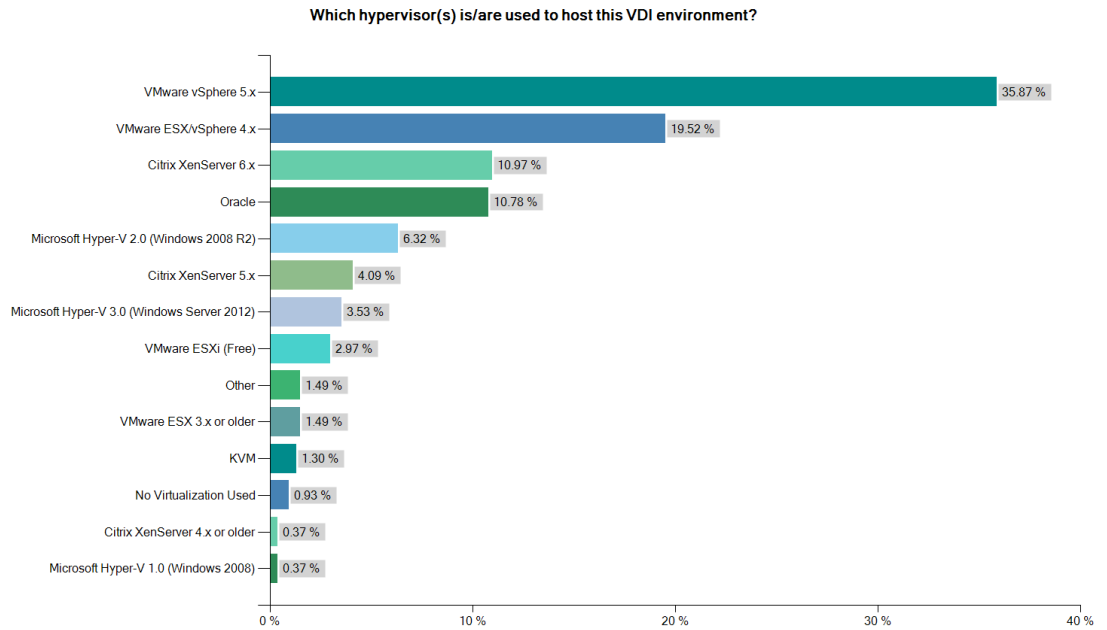


Figure 12, Which hypervisor(s) is/are used to host this VDI environment?

Majority of respondents is using VMware vSphere, ESX or ESXi (59,85%) followed by Microsoft (10,22%) and Citrix (15,43%) as hypervisor for VDI. Interesting to see is that 3,53% is already using Windows Server 2012 with Hyper-V

#### 4.4 VDI AND CONNECTION BROKERS

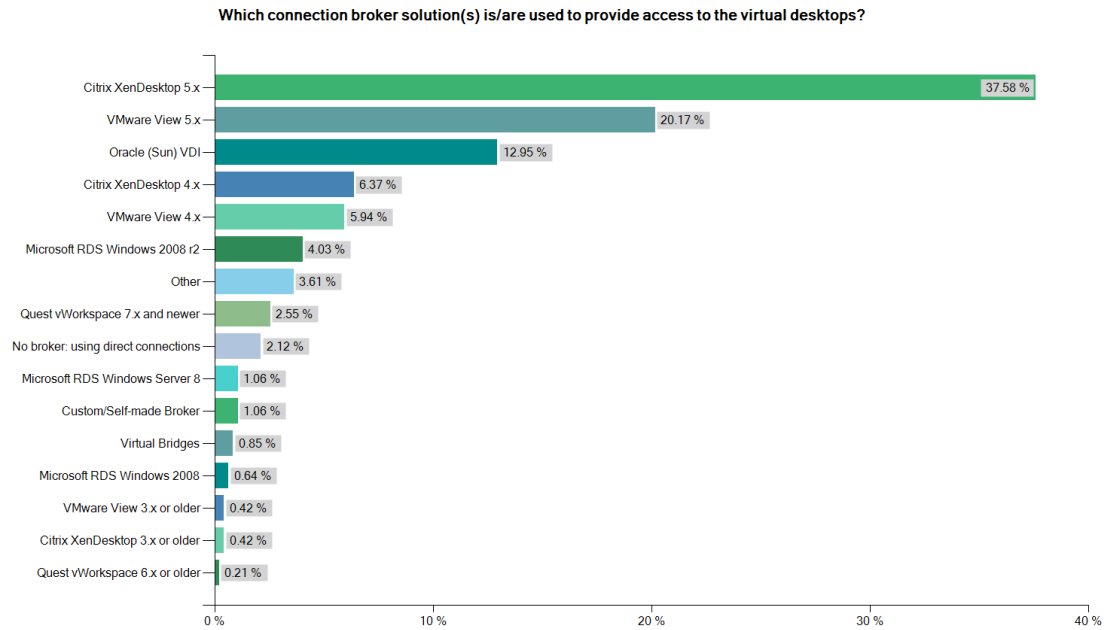


Figure 13, Which connection broker solution(s) is/are used to provide access to the virtual desktops?

Majority of respondents is using Citrix XenDesktop (44,37%) and VMware View (26,53%). Microsoft VDI (5,73%) and Quest vWorkspace (2,76%) are minor compared to Citrix and VMware.



## 4.5 VDI AND SERVER CONFIGURATIONS

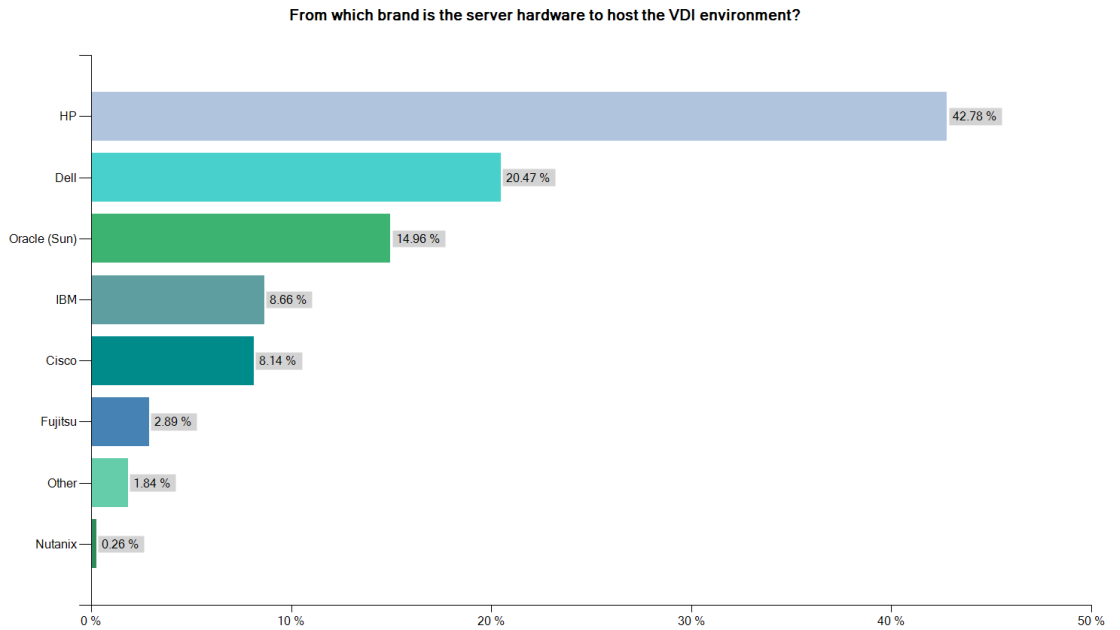


Figure 14, From which brand is the server hardware to host the VDI environment?

HP and Dell are the commonly used servers for VDI workloads. Interesting to see Cisco with 8,14% ranking the 5<sup>th</sup> place in this survey.

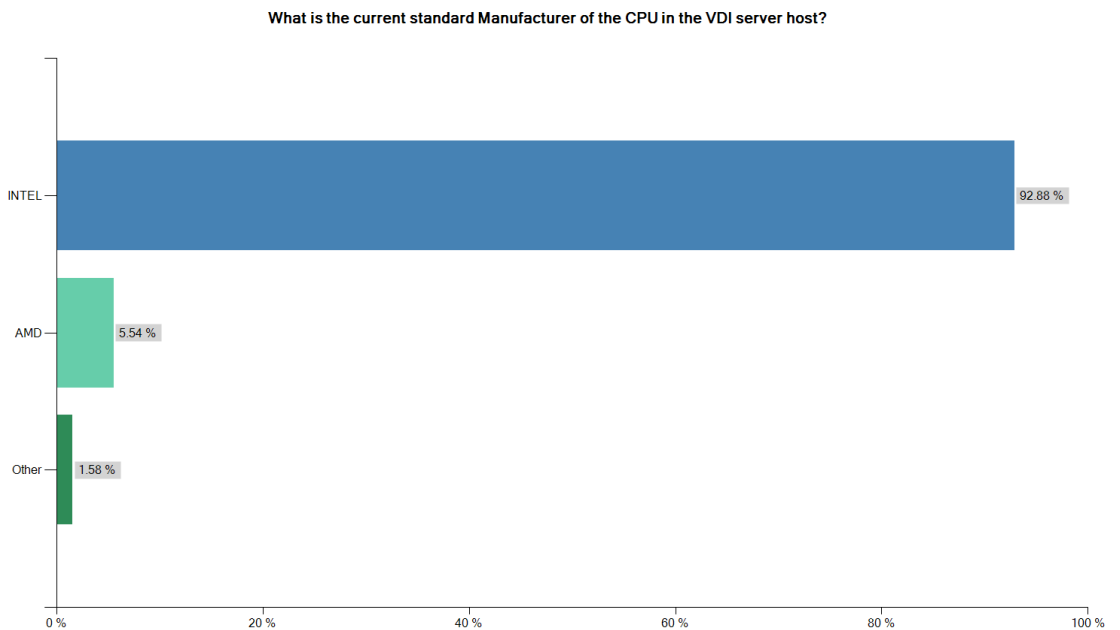


Figure 15, What is the current standard Manufacturer of the CPU in the VDI server host?

What is the typical (current standard) amount of CPU's (sockets) per server?

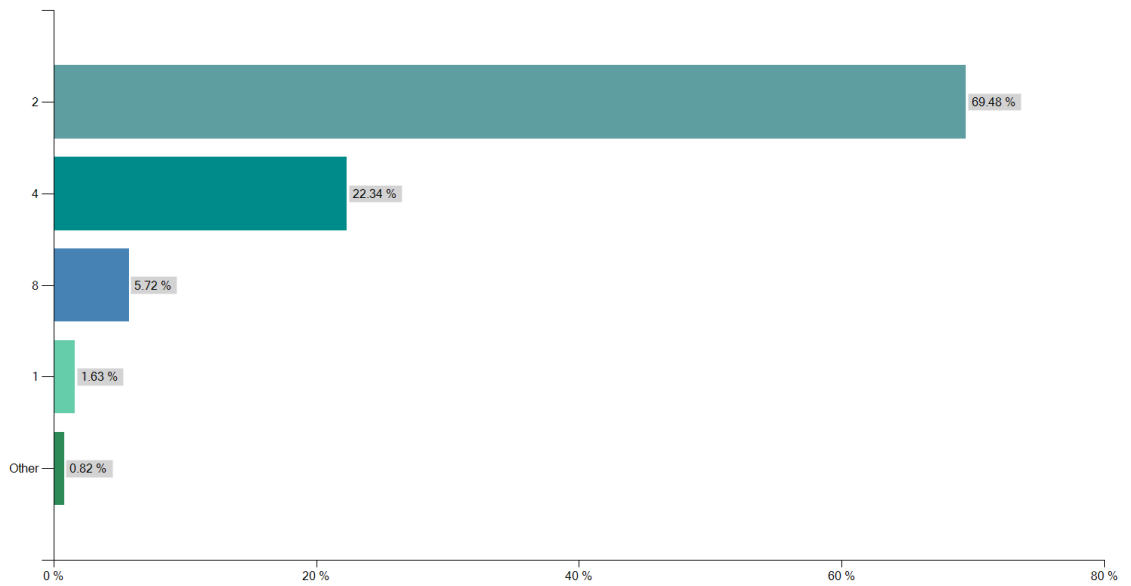


Figure 16, What is the typical (current standard) amount of CPU's (sockets) per server?

What is the current standard amount of cores (excluding hyper-threading processors) per CPU in the server host?

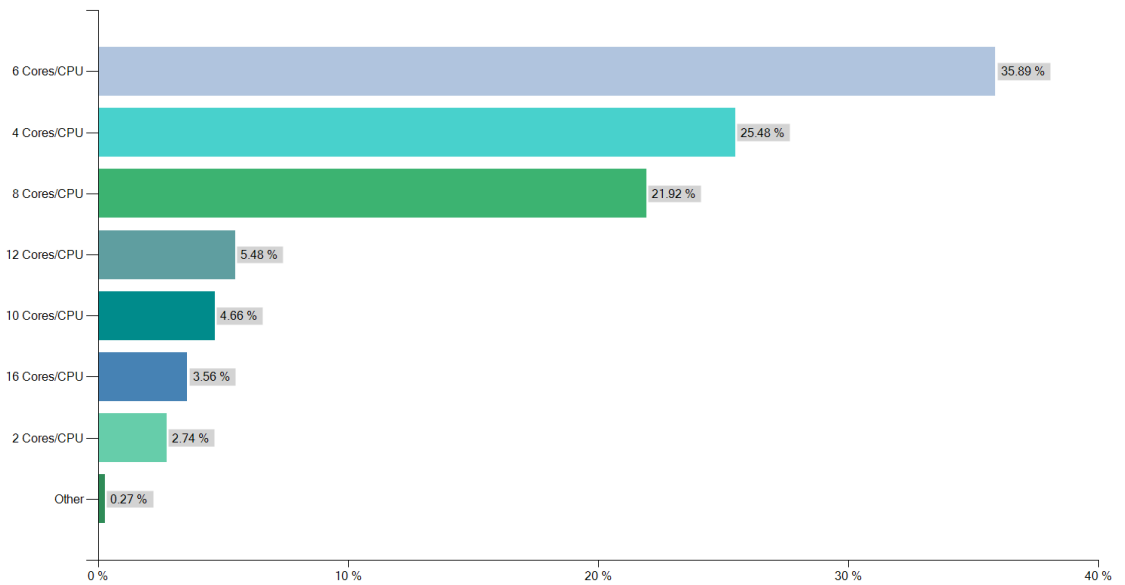


Figure 17, What is the current standard amount of cores (excluding hyper-threading processors) per CPU in the server host?

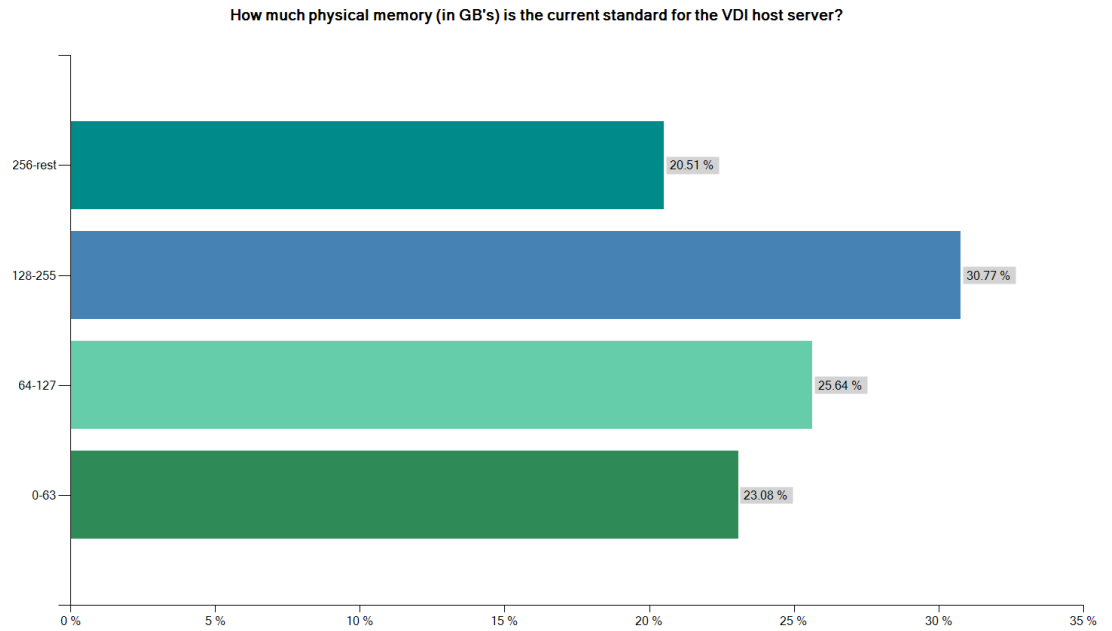


Figure 18, How much physical memory (in GB's) is the current standard for the VDI host server?

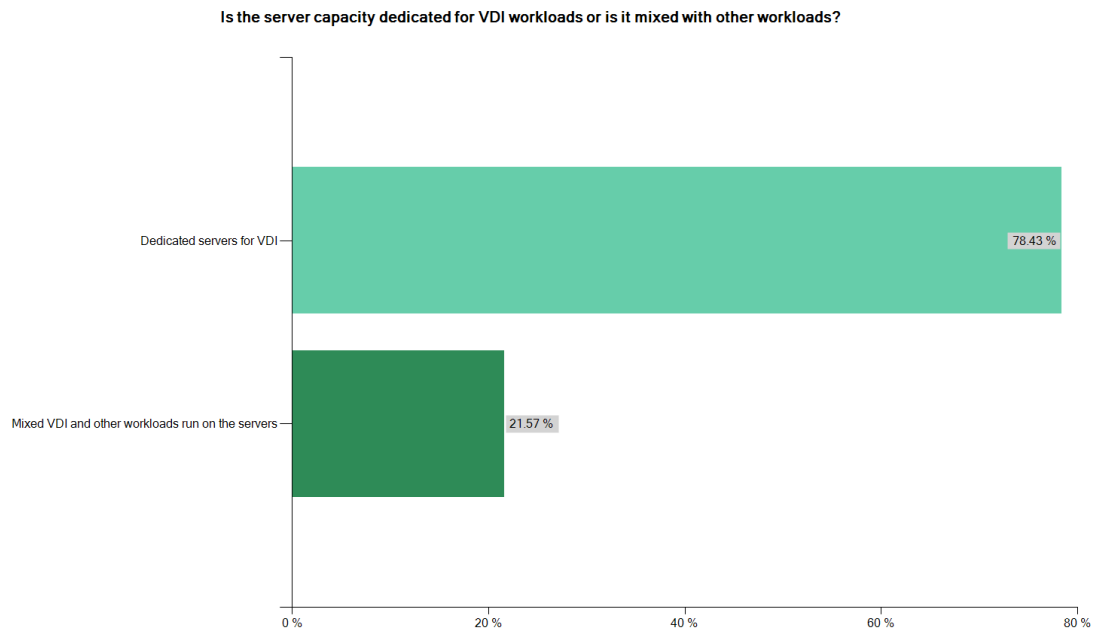


Figure 19, Is the server capacity dedicated for VDI workloads or is it mixed with other workloads?

Interesting to see that 21,57% of the people is mixing VDI with other workloads on the same server.

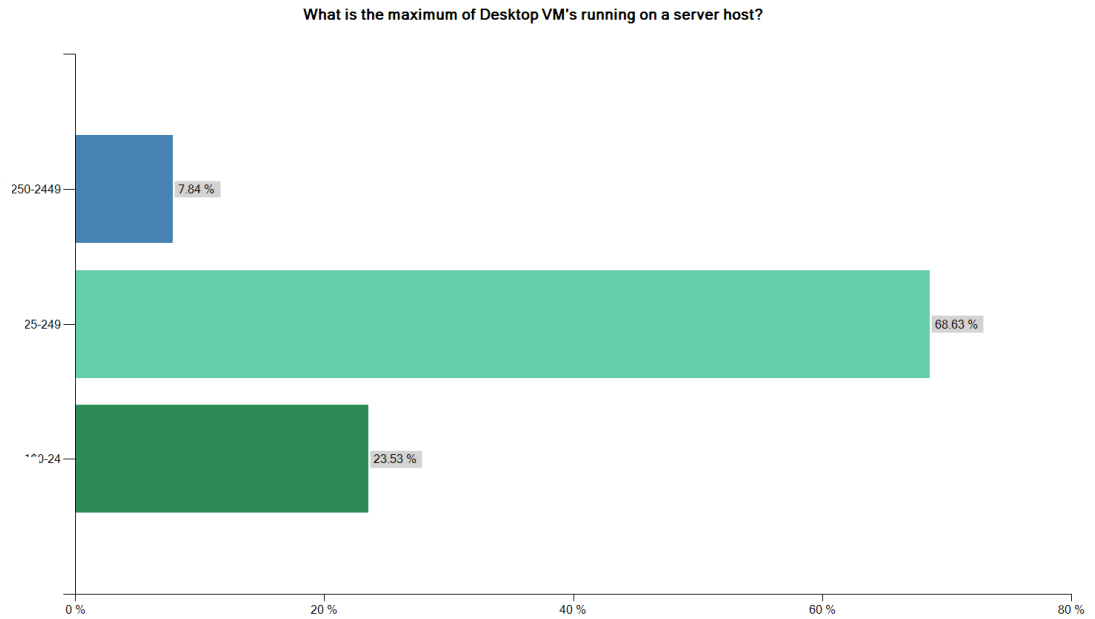


Figure 20, What is the maximum of Desktop VM's running on a server host?

## 4.6 VDI AND ANTIVIRUS

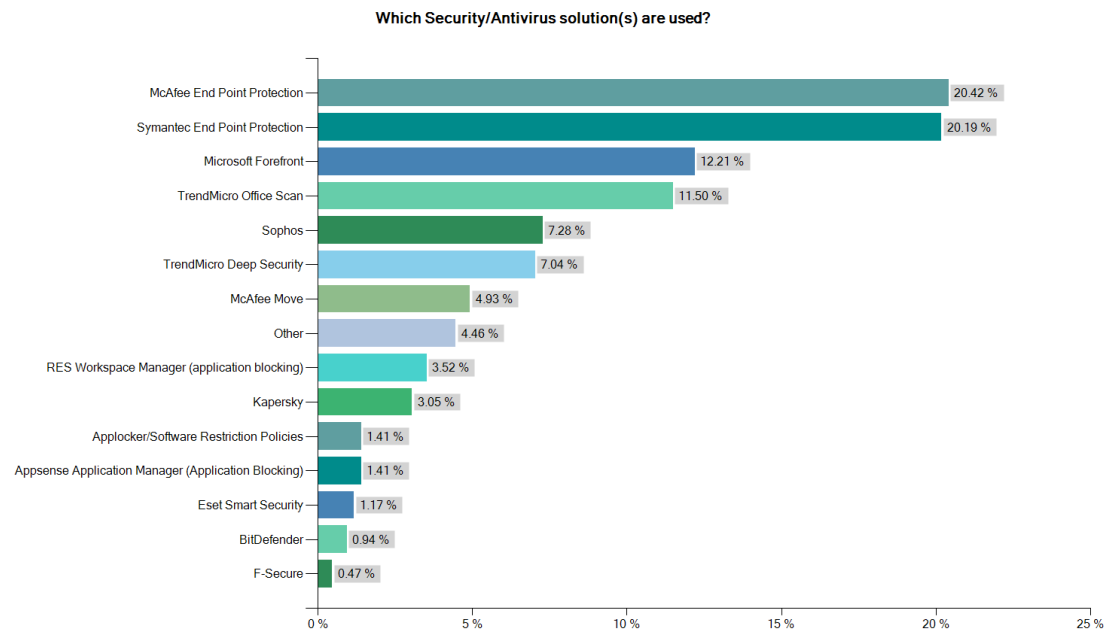


Figure 21, Which Security/Antivirus solution(s) are used?

The majority of people is using traditional endpoint protection solutions from McAfee, Symantec, Microsoft or TrendMicro within VDI. The VDI optimized solutions TrendMicro DeepSecurity and McAfee MOVE are used in total by 11,97% of the respondents.

## 4.7 VDI AND REMOTE DISPLAY PROTOCOL, HARDWARE ENCODING

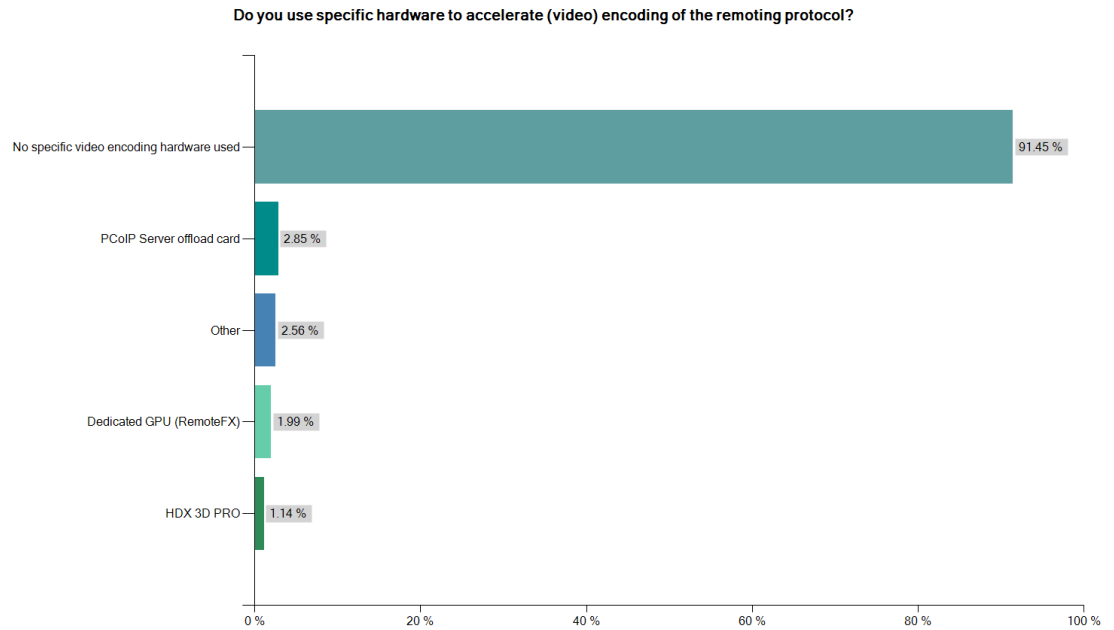


Figure 22, Do you use specific hardware to accelerate (video) encoding of the remoting protocol?

## 4.8 VDI LICENSING

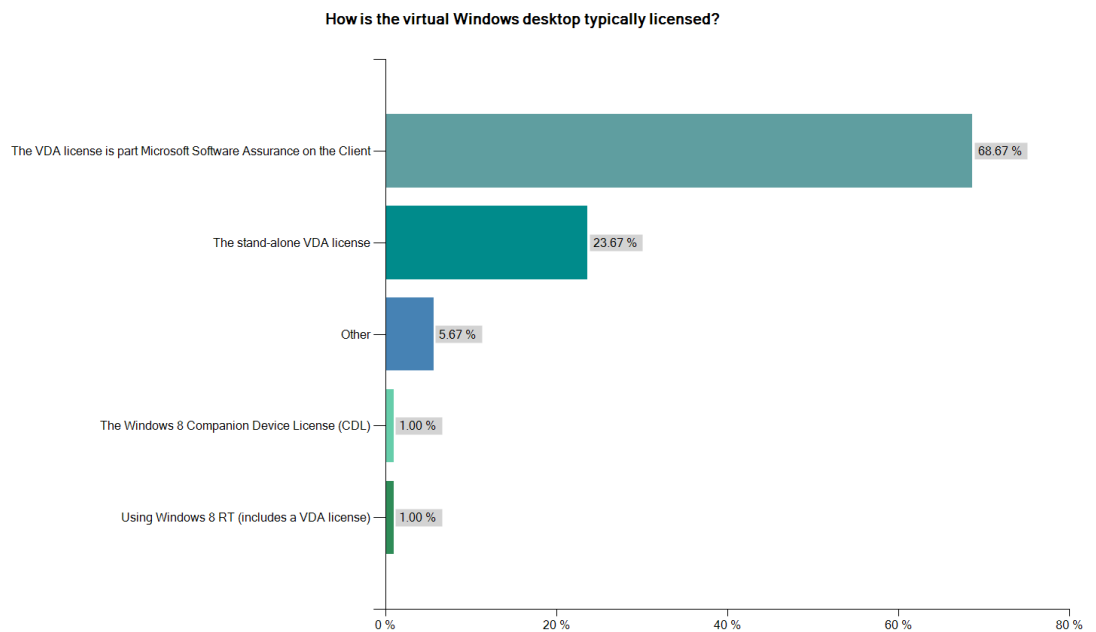


Figure 23, How is the virtual Windows desktop typically licensed?

## 4.9 VDI AND DESKTOP IMAGE DEPLOYMENT

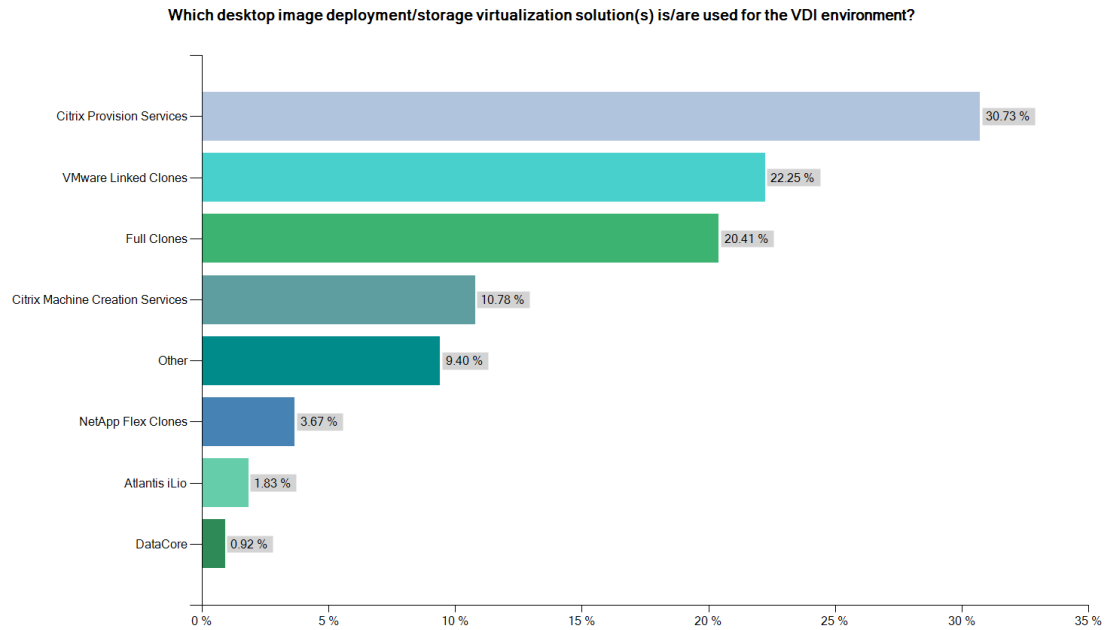


Figure 24, Which desktop image deployment/storage virtualization solution(s) is/are used for the VDI environment?



## 4.10 VDI AND USER ENVIRONMENT MANAGEMENT

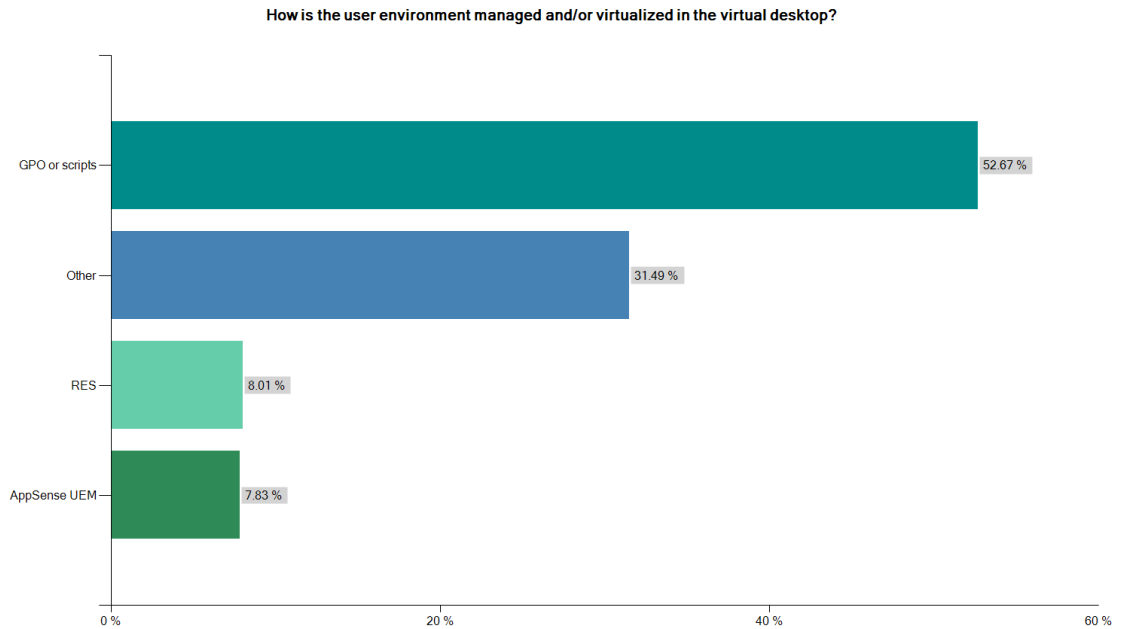
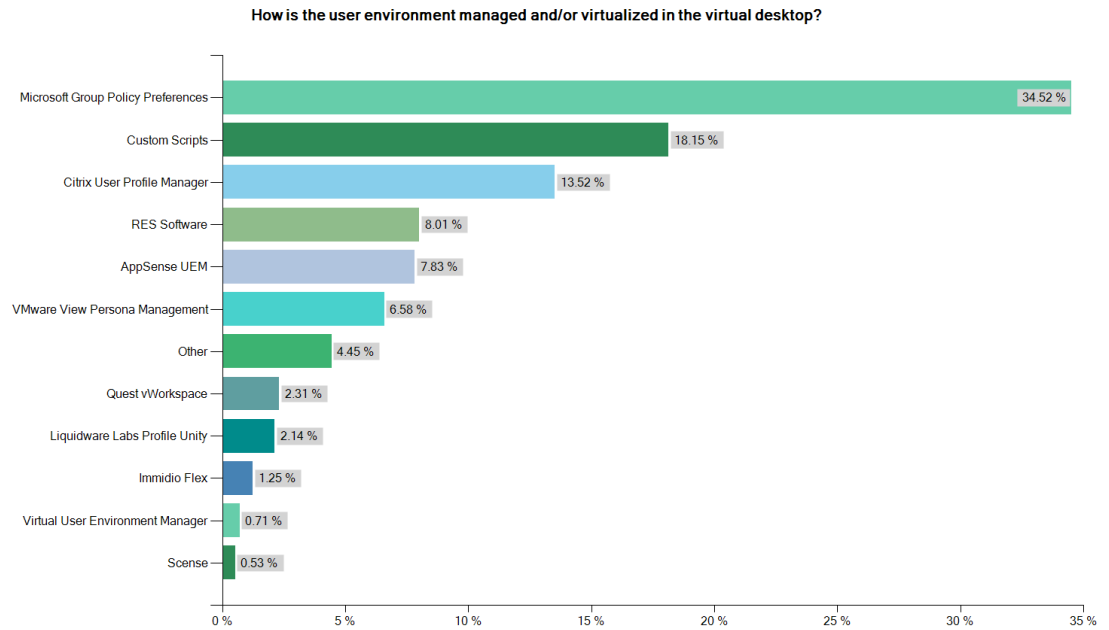


Figure 25, How is the user environment managed and/or virtualized in the virtual desktop?

The majority of people isn't using 'User Environment Management' suite solutions. Only 15,84% of the people are using AppSense or RES Software as a solution. The majority is using Group Policy objects or scripts to 'manage' their user environment.

## 4.11 VDI AND CLIENT MANAGEMENT

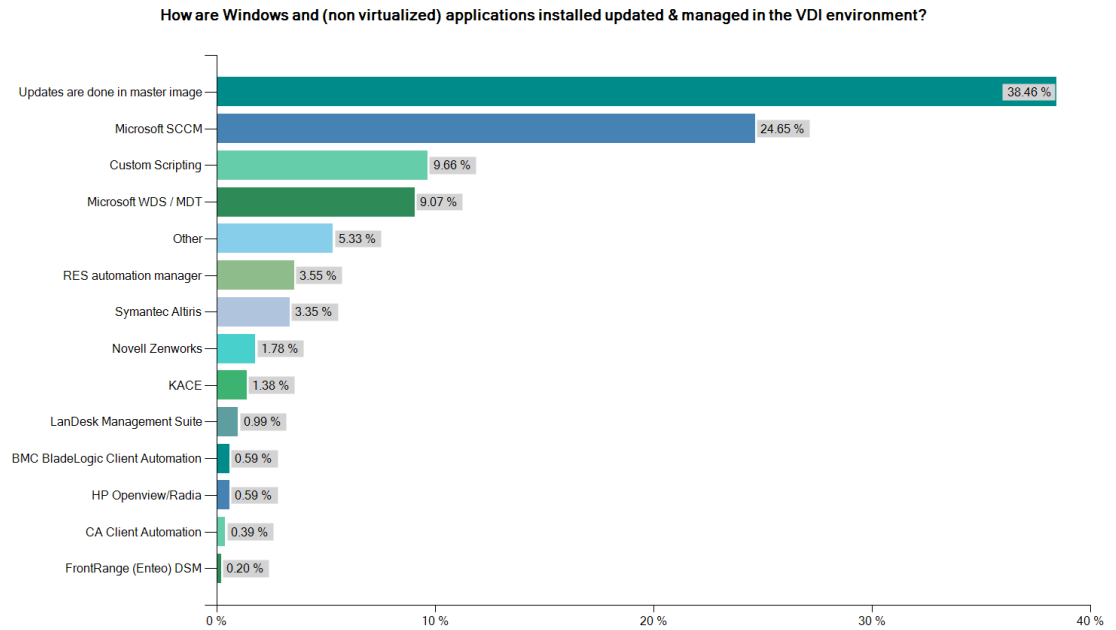


Figure 26, How are Windows and (none virtualized) applications installed updated & managed in the VDI environment?

The majority of respondents, 38,46%, is installing and updating applications in the master image. Microsoft System Center Configuration Manager (ConfigMgr) is dominant as Client Management solution for application installation and management in VDI. All the other Client Management solutions have lower than 5% usage each.

## 4.12 VDI AND GUEST OS CONFIGURATIONS

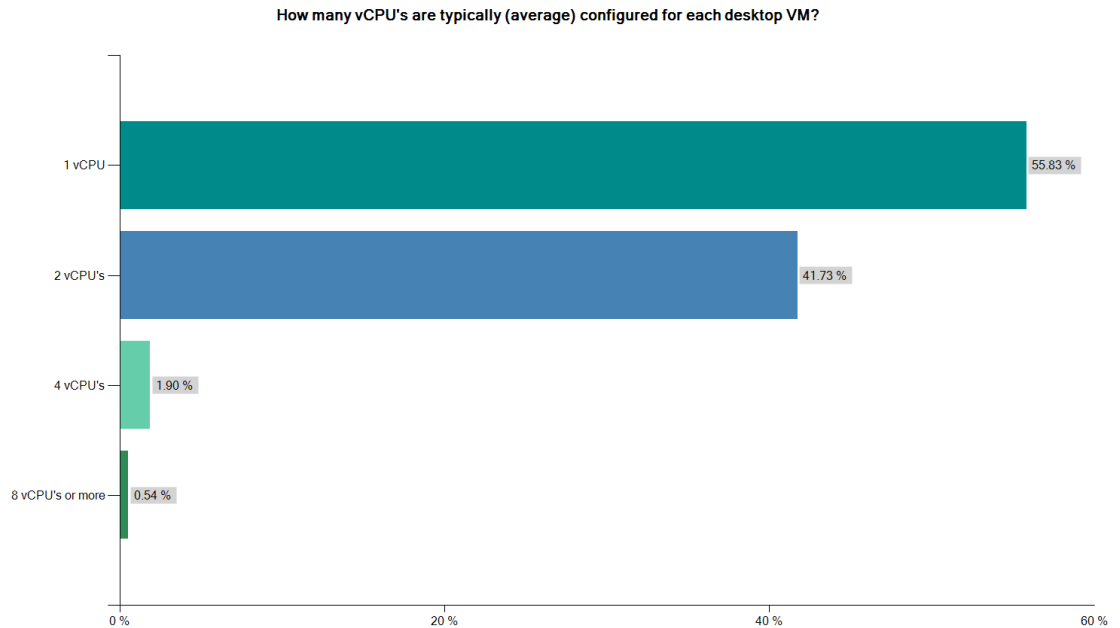


Figure 27, How many vCPU's are typically (average) configured for each desktop VM?

55,83% is using 1vCPU for each desktop VM. 2vCPUs is a best practice while using multimedia, Flash, Unified Communications or Windows 8 as guest OS. 2vCPU has substantial impact in sizing your VDI infrastructure as analyzed and concluded in earlier Project VRC tests.

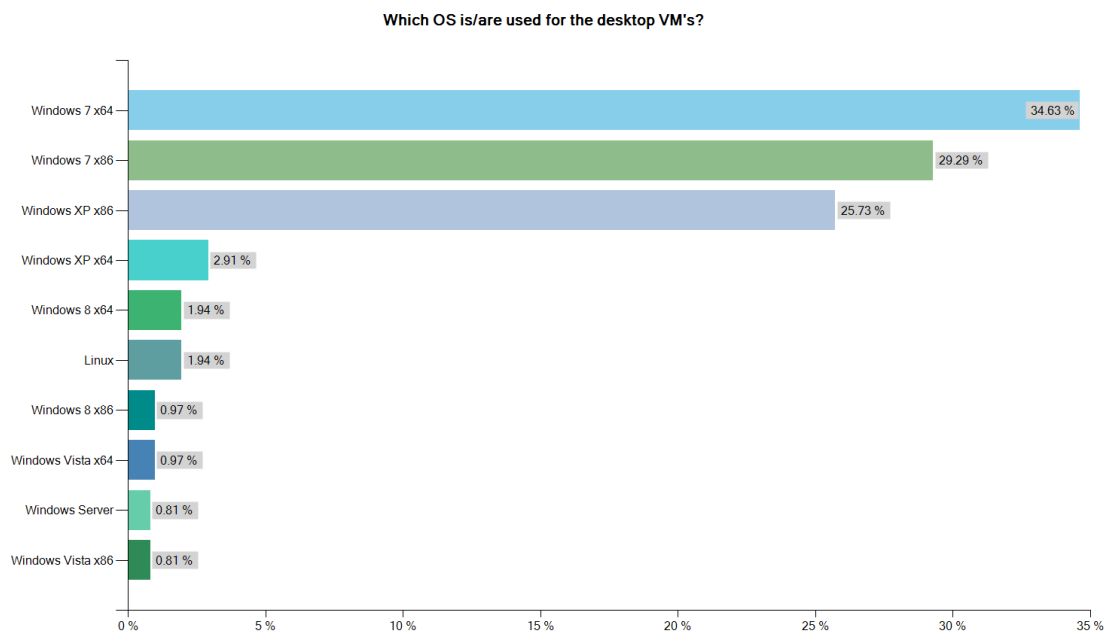


Figure 28, Which OS is/are used for the desktop VM's?

More than 34% of the people is using Windows 7 x64 as a guest OS. The industry should really start educating again on the benefits and downsides of a 64bit operating system in VDI scenario's. Running 32bits applications on a 64 guest OS will increase CPU, memory and in various scenario's IOPS consumption and has minor benefits for a small set of applications and use-cases.

#### 4.13 VDI AND APPLICATION VIRTUALIZATION

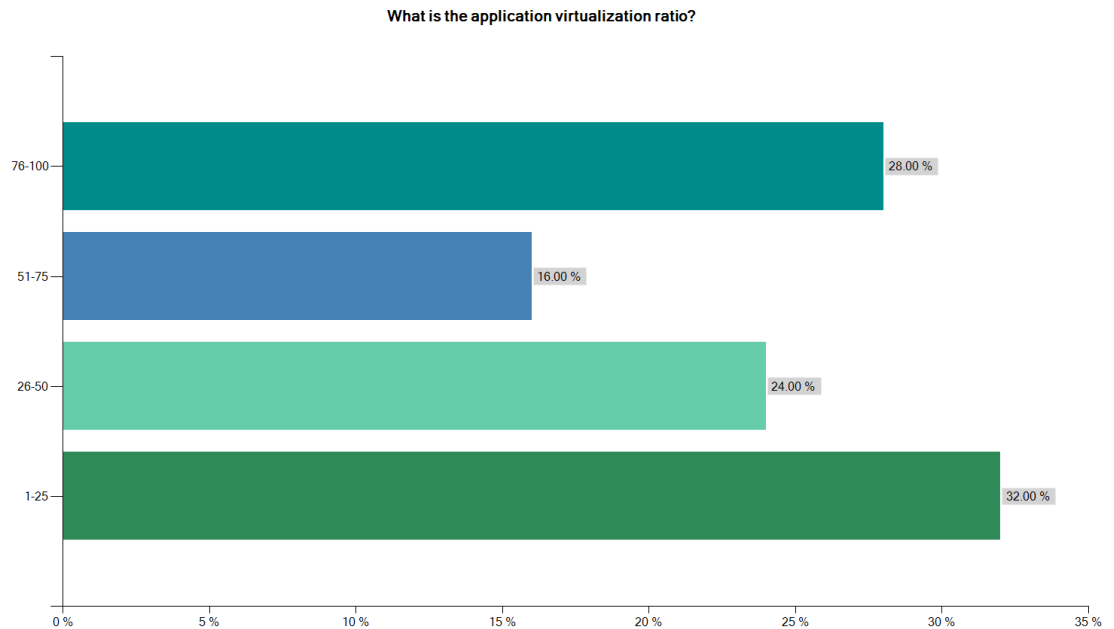


Figure 29, What is the application virtualization ratio?

28% of the respondents is using application virtualization in environments where between 76% and 100% of the applications are virtualized.

32% of the respondents is using application virtualization in environments where between 1-25% of the applications are virtualized.

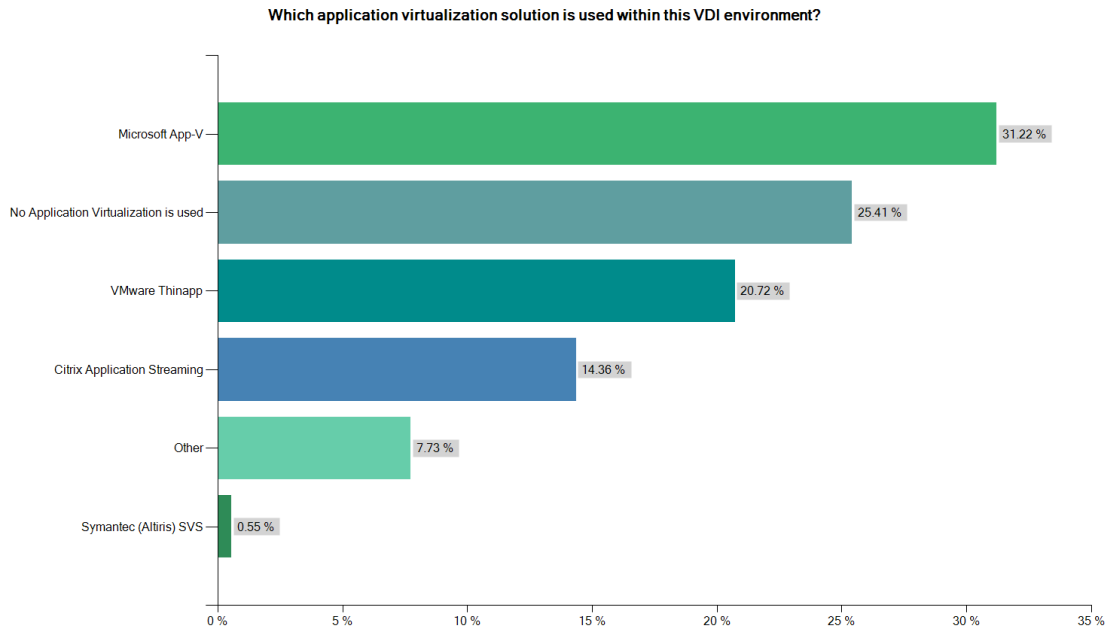


Figure 30, Which application virtualization solution is used within this VDI environment?

Microsoft App-V is with 31,22% the most commonly used application virtualization solution, followed by VMware ThinApp and Citrix Application Streaming. Interesting to see that 25,41% of the people isn't using application virtualization at all.

#### 4.14 VDI: APPLICATIONS, WINDOWS AND WEB-BASED

How many Windows applications are used in this VDI environment?

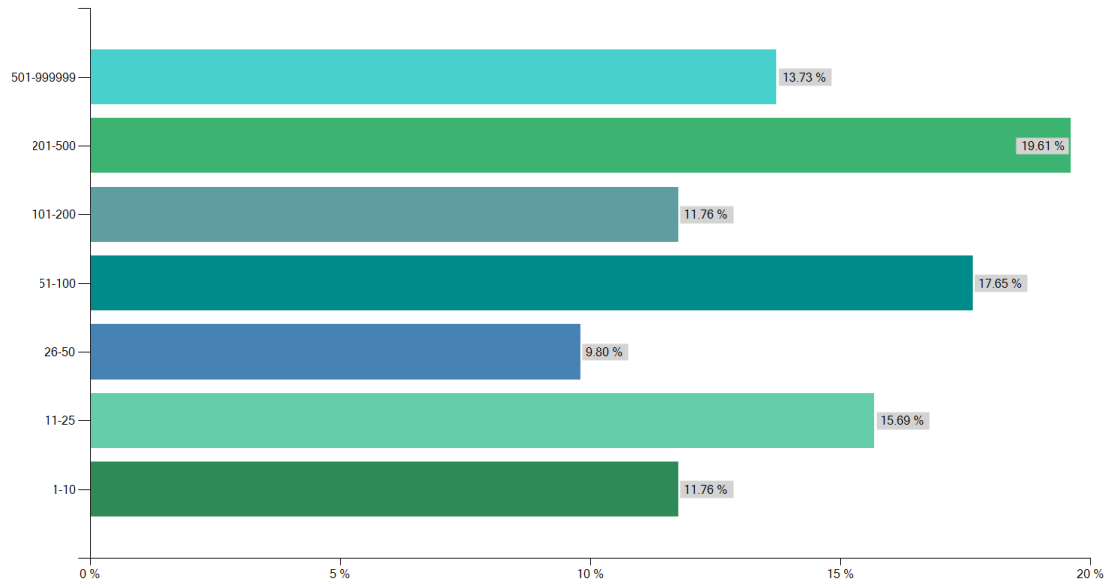


Figure 31, How many Windows applications are used in this VDI environment?

19,61% of the respondents is using between 201 and 500 Windows applications in their VDI environment. 11,76% of the people is using between 1-10 Windows applications in their VDI environment. 13,73% of the respondents is using more than 500 Windows applications in their VDI environment.



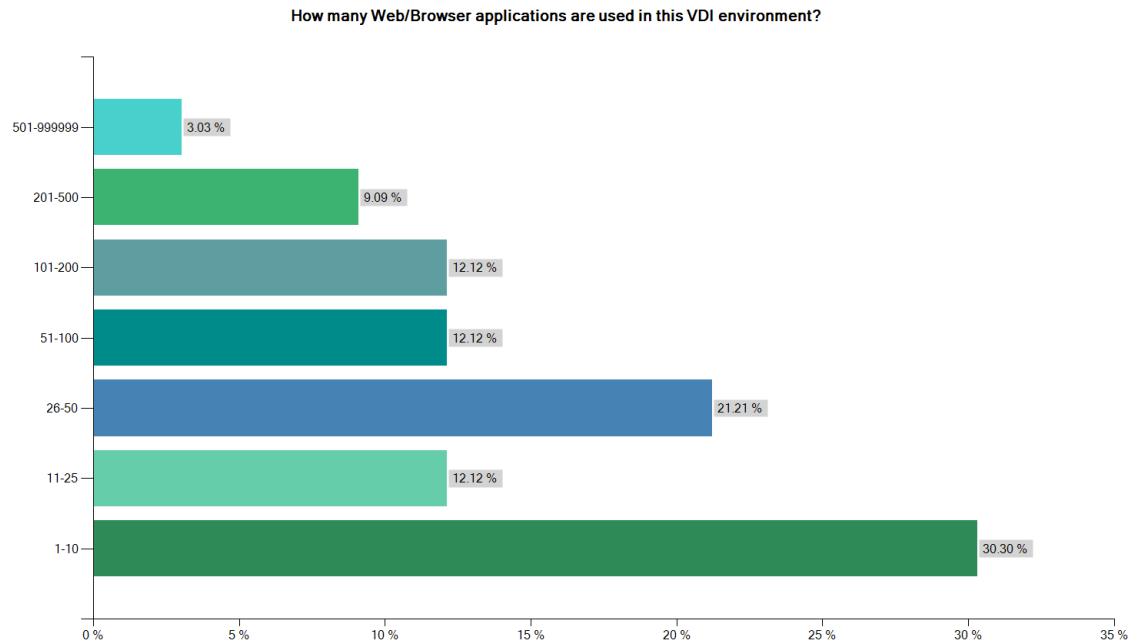


Figure 32, How many Web/Browser applications are used in this VDI environment?

30,30% of the respondents has between 1-10 web-based applications in VDI. 21,21% is using between 26-50 web-based applications in VDI.

#### 4.15 VDI AND STORAGE

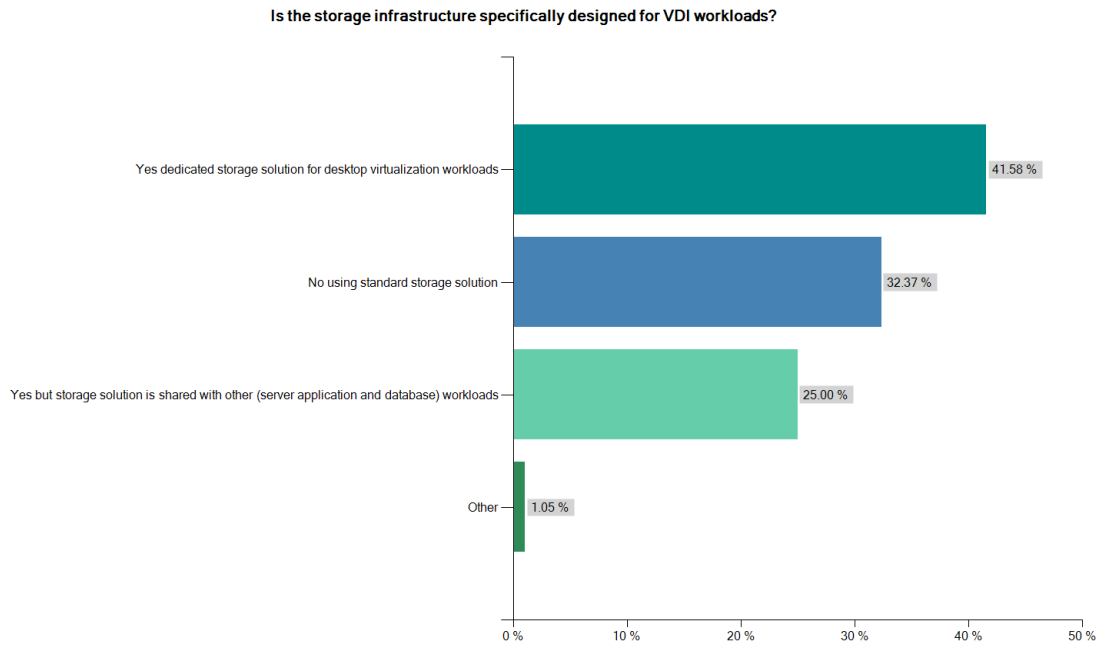
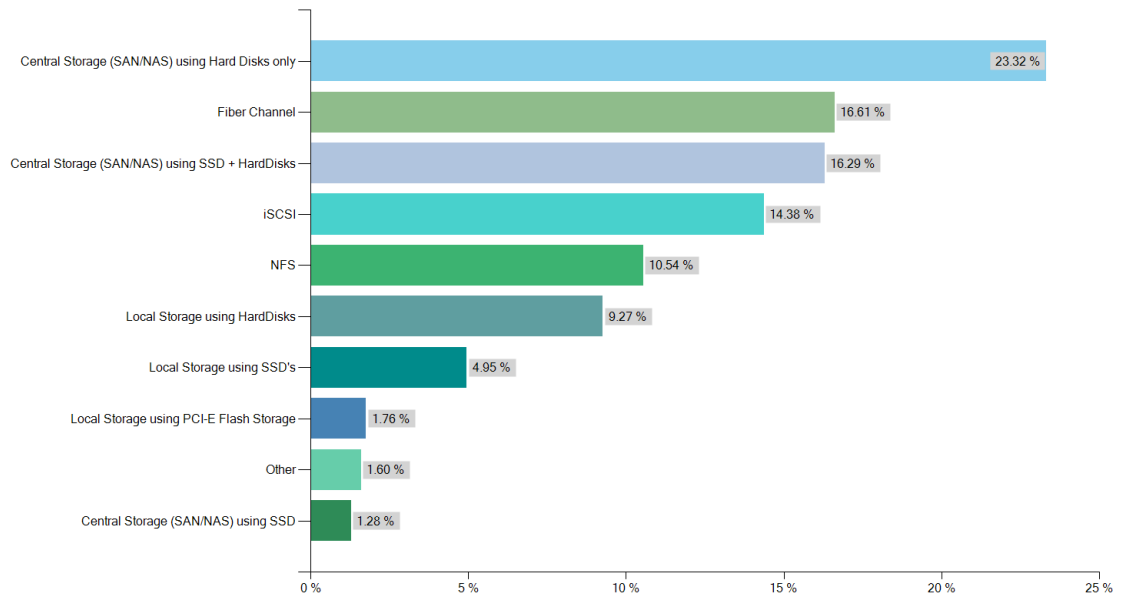


Figure 33, Is the storage infrastructure specifically designed for VDI workloads?

32,37% of the respondents is using a standard storage solution for VDI while 41,58% is using a dedicated storage solution for desktop virtualization workloads.

Which storage technologies are used to host these desktops? (choose all that apply)



Which storage technologies are used to host these desktops? (choose all that apply)

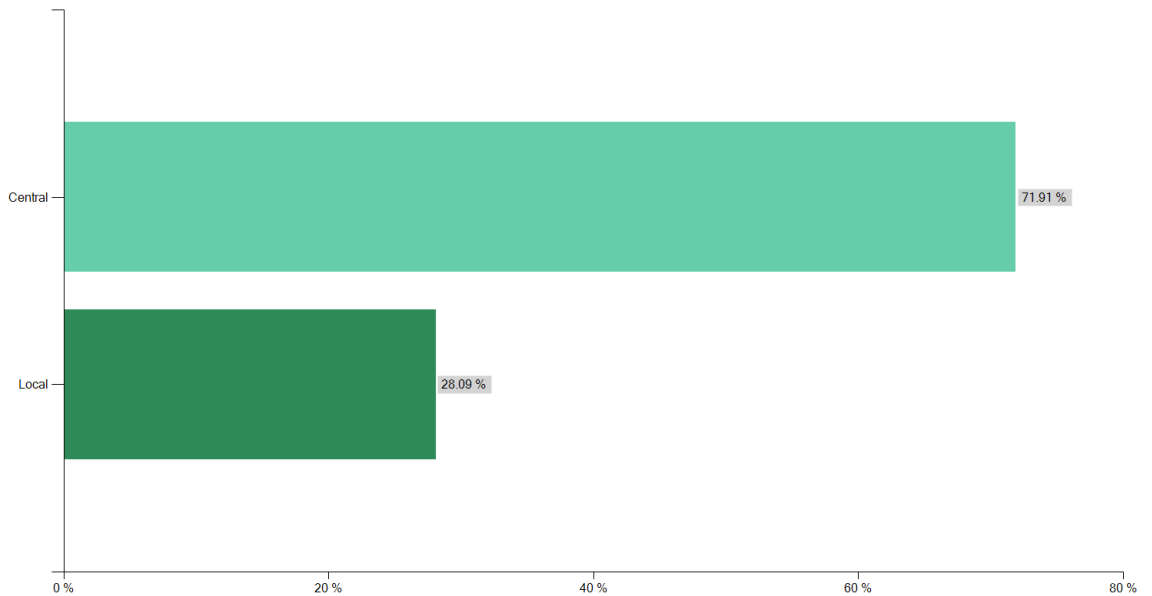


Figure 34, Which storage technologies are used to host these desktops? (choose all that apply)

Central, shared, storage is being used by 71,91% of the respondents. 28,09% is using local storage solutions.

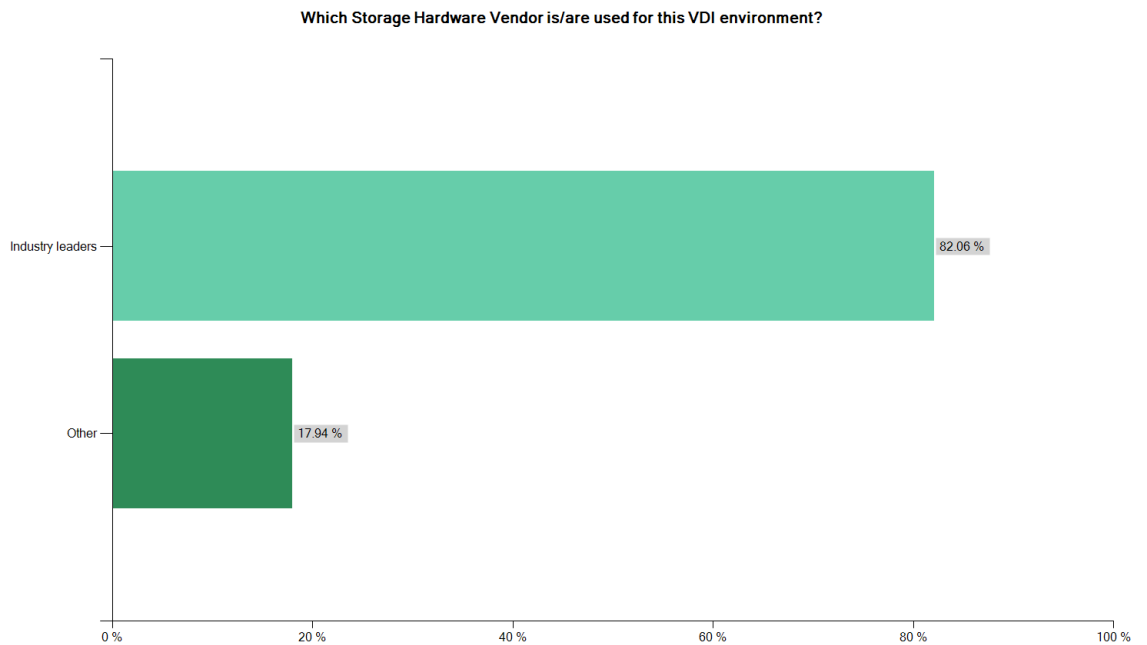
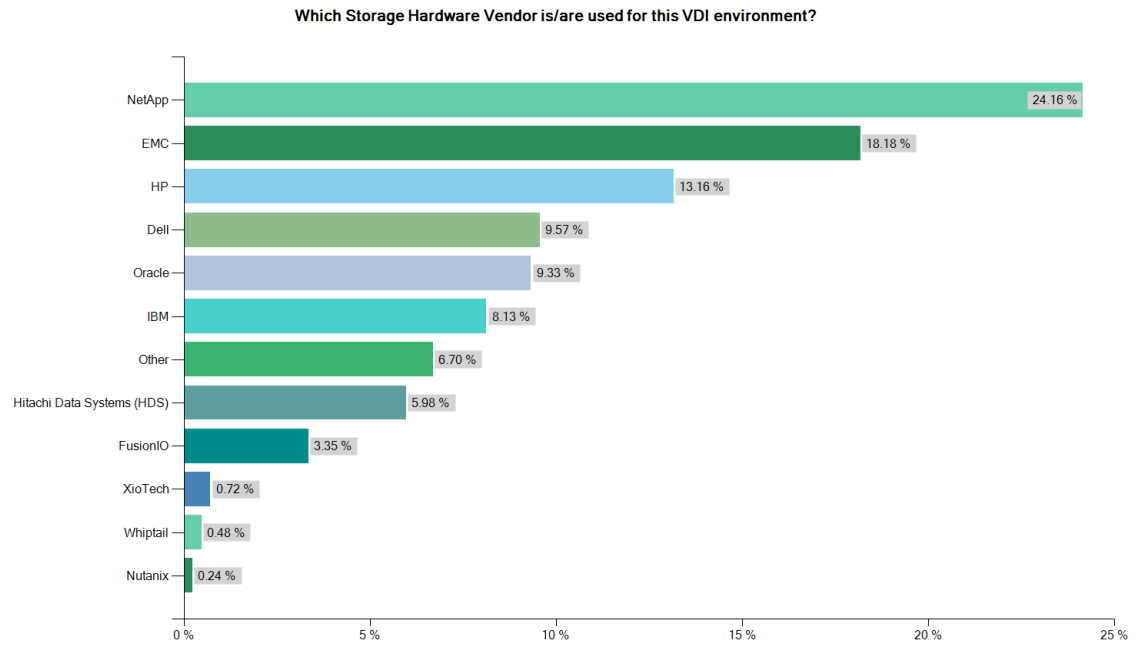


Figure 35, Which Storage Hardware Vendor is/are used for this VDI environment?

## 5. SERVER BASED COMPUTING (SBC) RESULTS

### 5.1 SBC: PHASE, USAGE, REGIONS

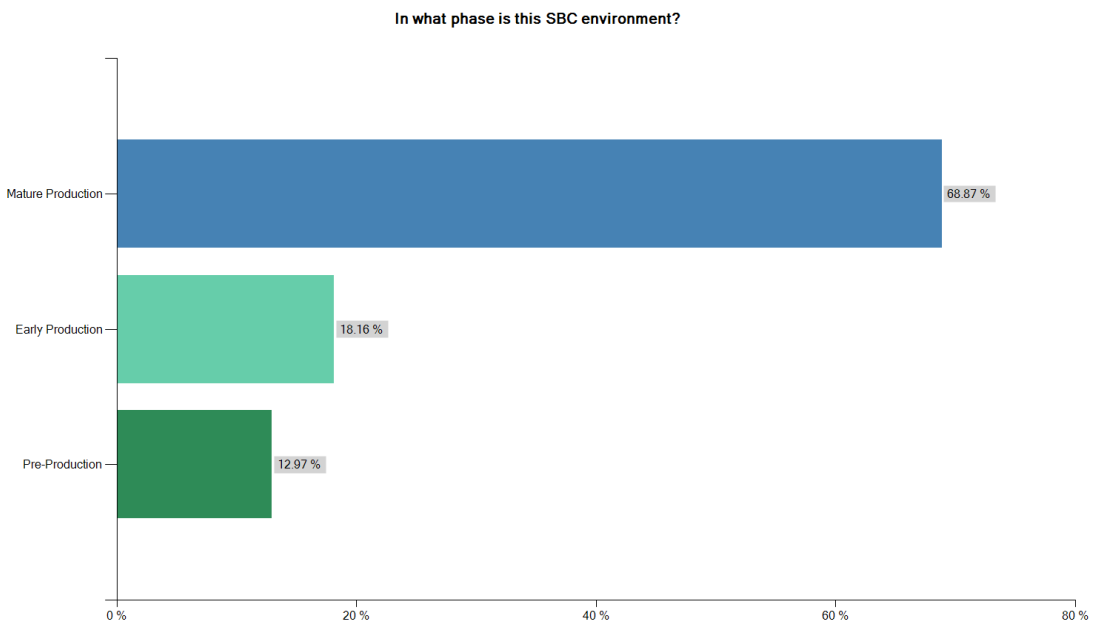
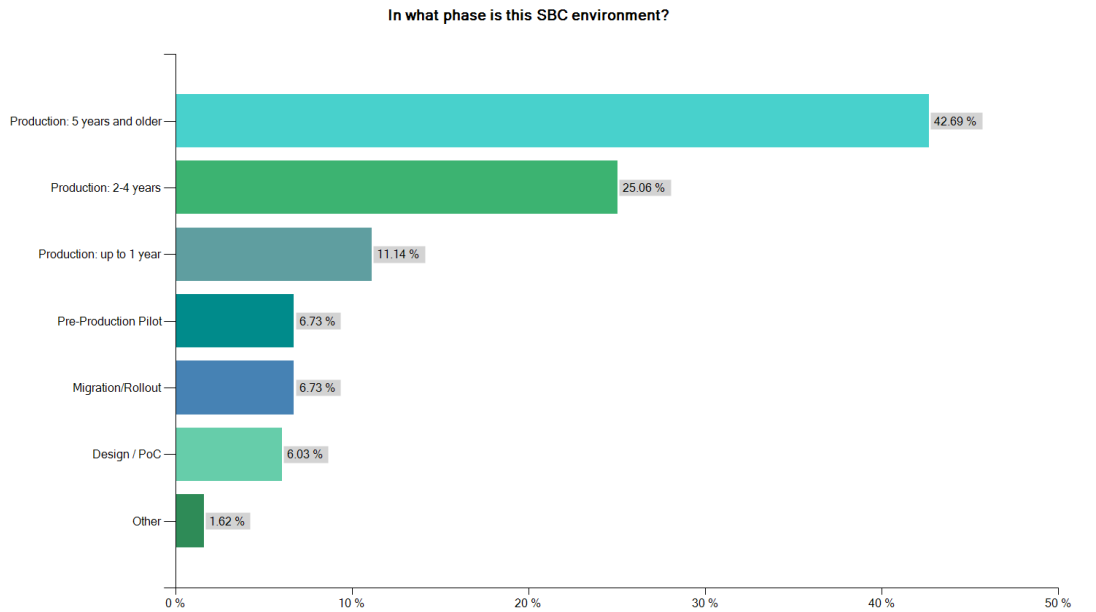


Figure 36, In what phase is this SBC environment?

68,87% of the people is using Server Based Computing for more than two years in production. Only 12,97% of the respondents is building and testing Server Based Computing in a pre-production environment.

How is this SBC environment to be used/considered within the organization? (choose best fit answer)

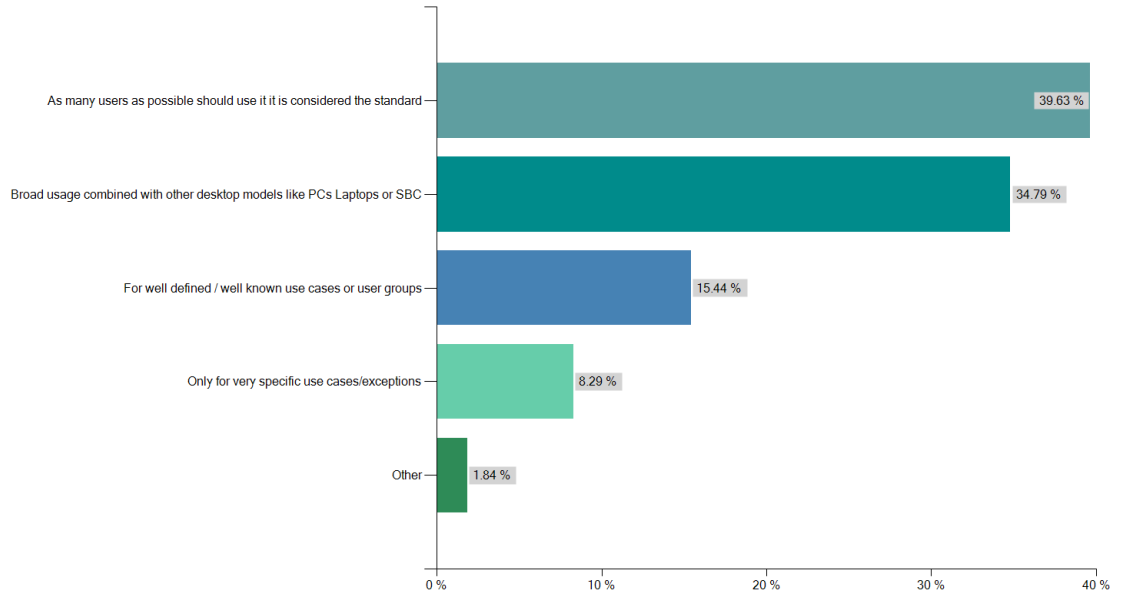


Figure 37, How is this SBC environment to be used/considered within the organization?

## 5.2 SBC: USER TYPES AND GOALS

Which are the most important user types (max 3) intended to use this SBC environment?

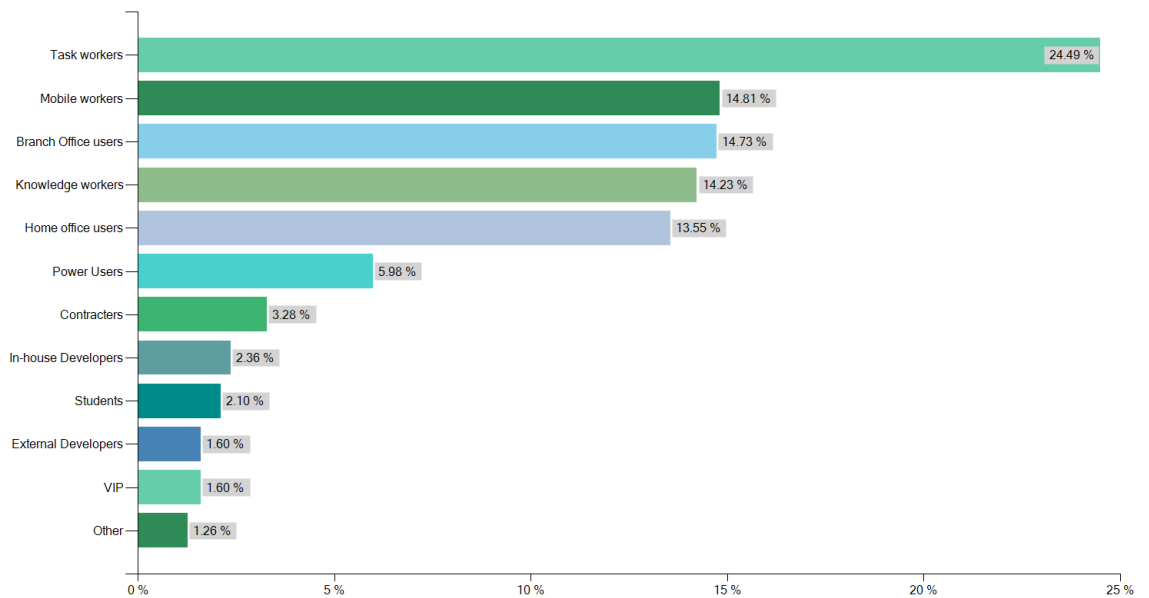


Figure 38, Which are the most important user types (max 3) intended to use this SBC environment?

Server Based Computing is commonly used by task workers, 24,49%

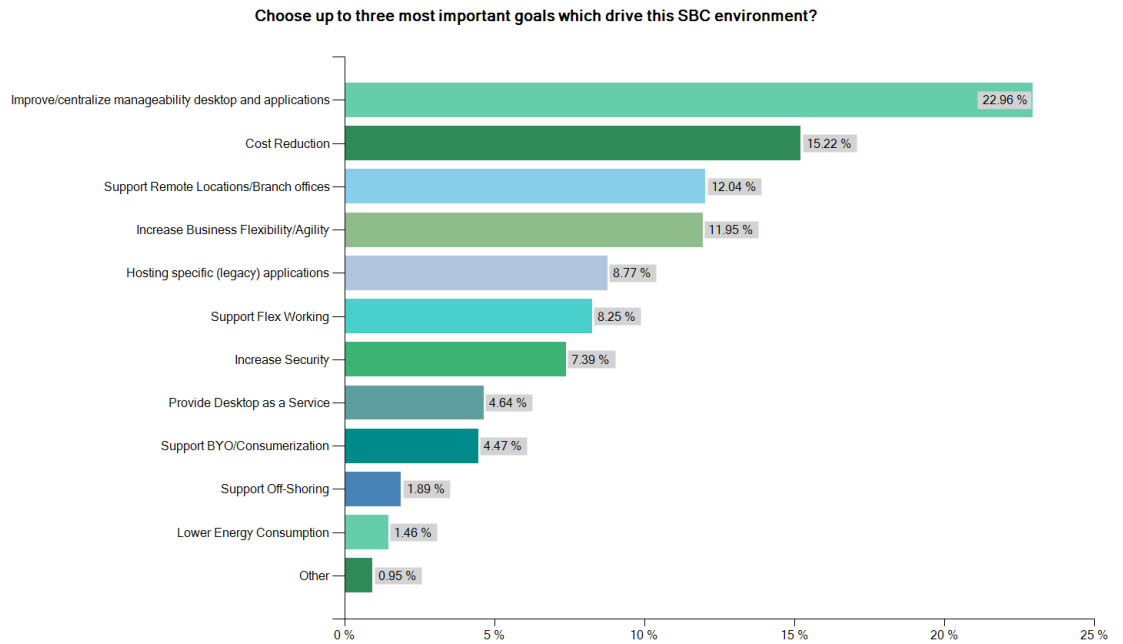


Figure 39, Choose up to three most important goals which drive this SBC environment?

Improve manageability is the most important goal for using SBC with 22,96% of respondents, followed by cost reduction with 15,22% of respondents.

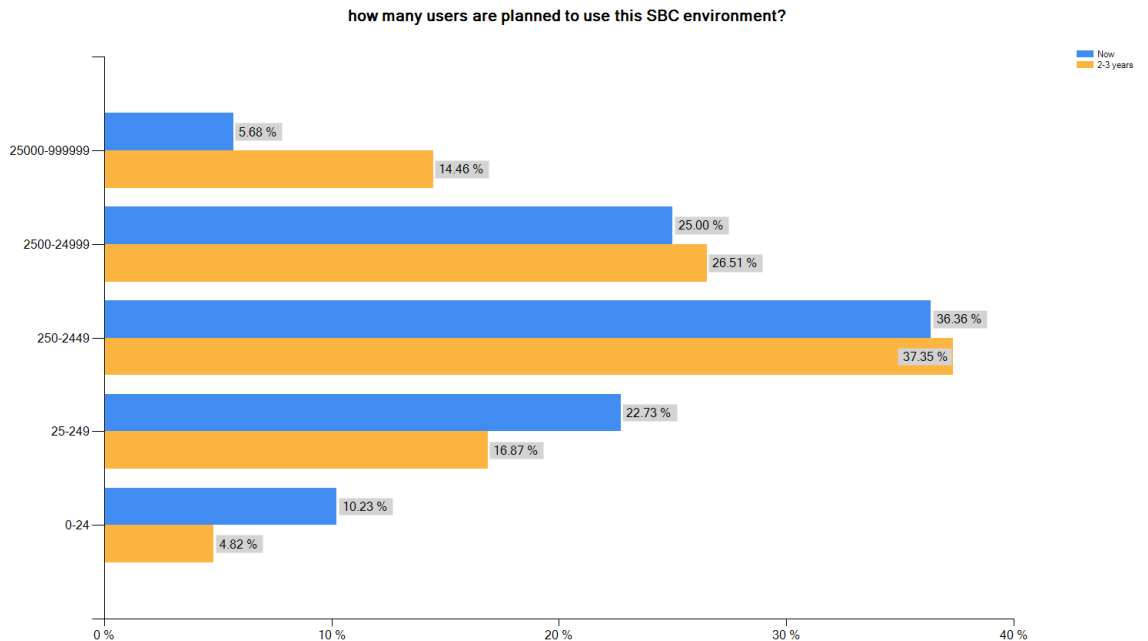


Figure 40, How many users are planned to use this SBC environment

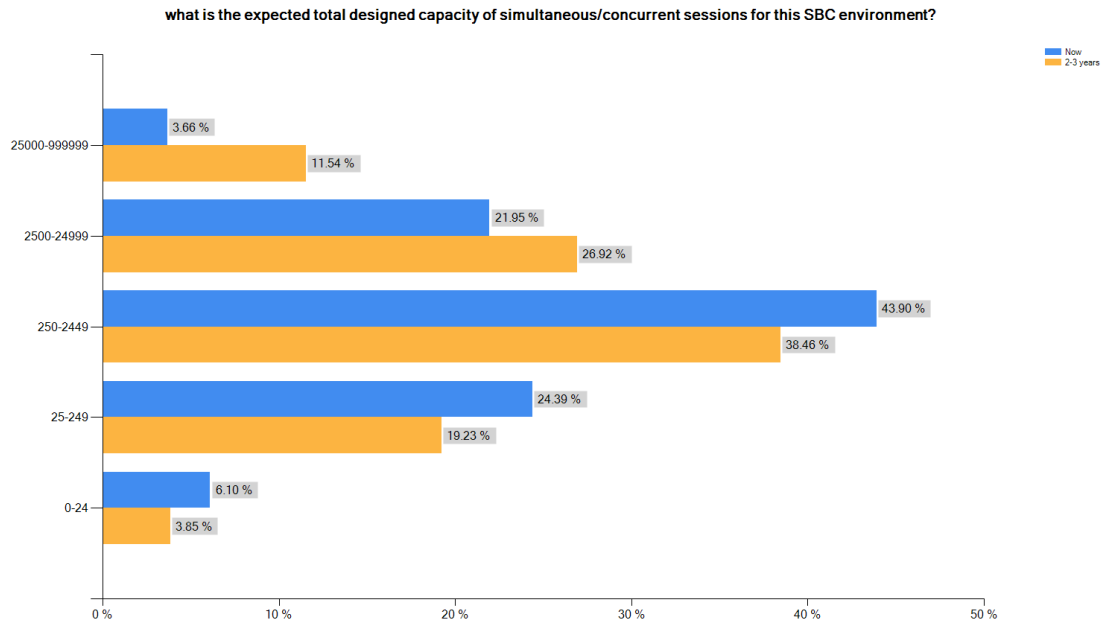


Figure 41, Expected total designed capacity of simultaneous/concurrent sessions for this SBC environment

### 5.3 SBC AND CONNECTION BROKERS

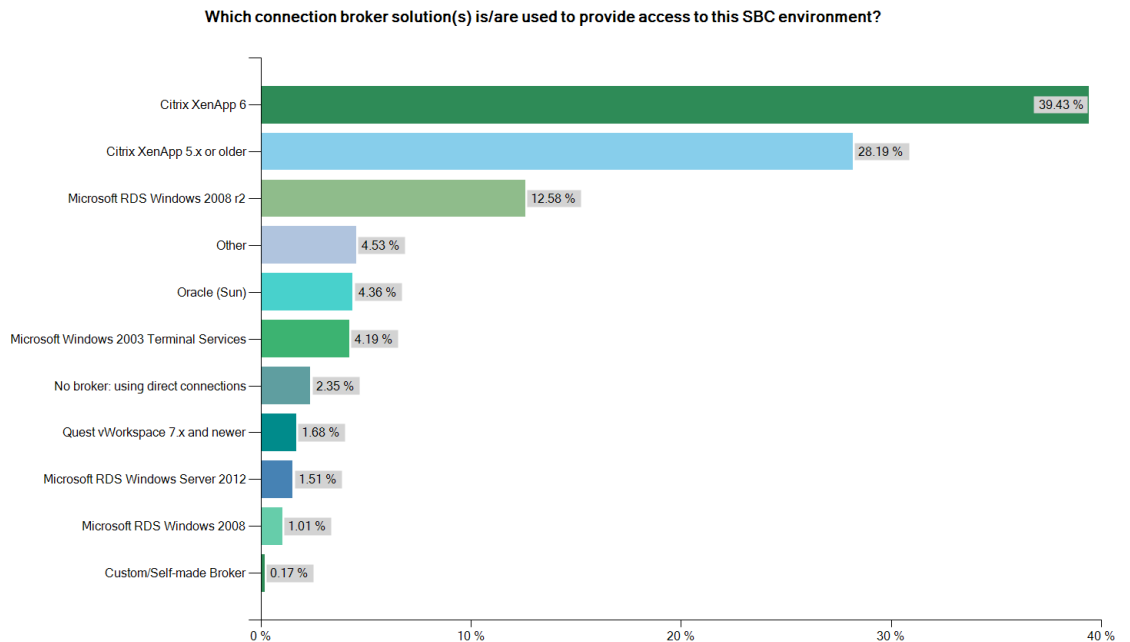


Figure 42, Which connection broker solution(s) is/are used to provide access to this SBC environment?

Citrix XenApp v5 and v6 take 67,62% market share, Microsoft RDSH solution is used by 19,29%. 4,36 of the respondents is using Oracle as connection broker for Server Based Computing. Remark Oracle marketing [here](#)



## 5.4 SBC AND SERVER CONFIGURATIONS

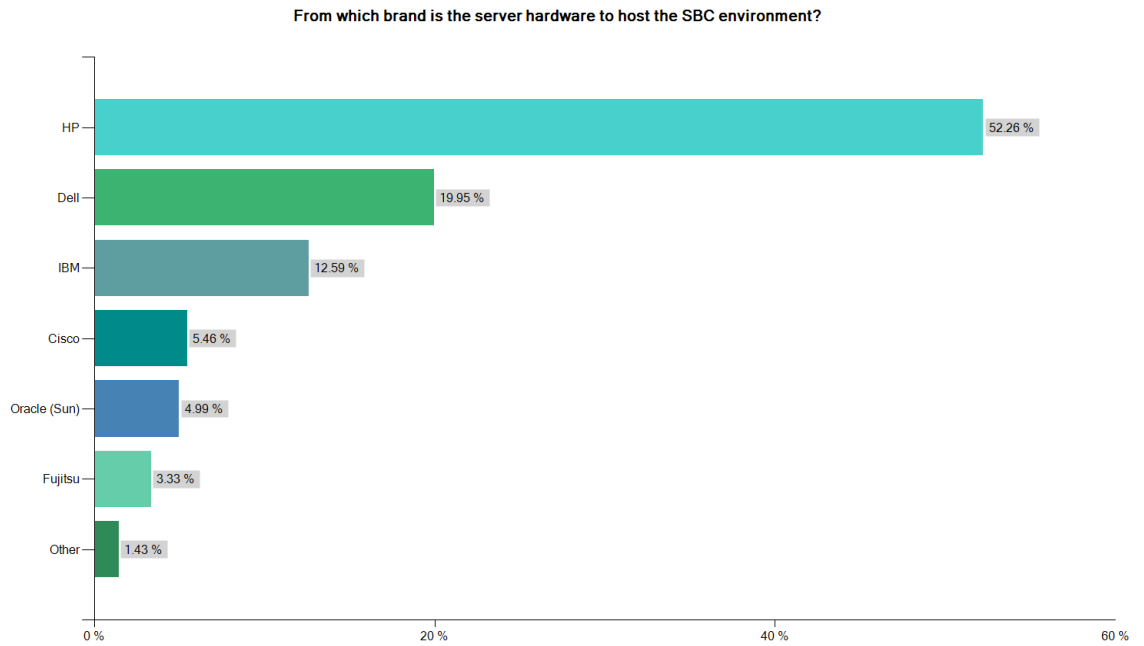


Figure 43, From which brand is the server hardware to host the SBC environment?

HP is the leading server brand for Server Based Computing workloads with 52,26% followed by Dell with 19,95% and IBM with 12,59%

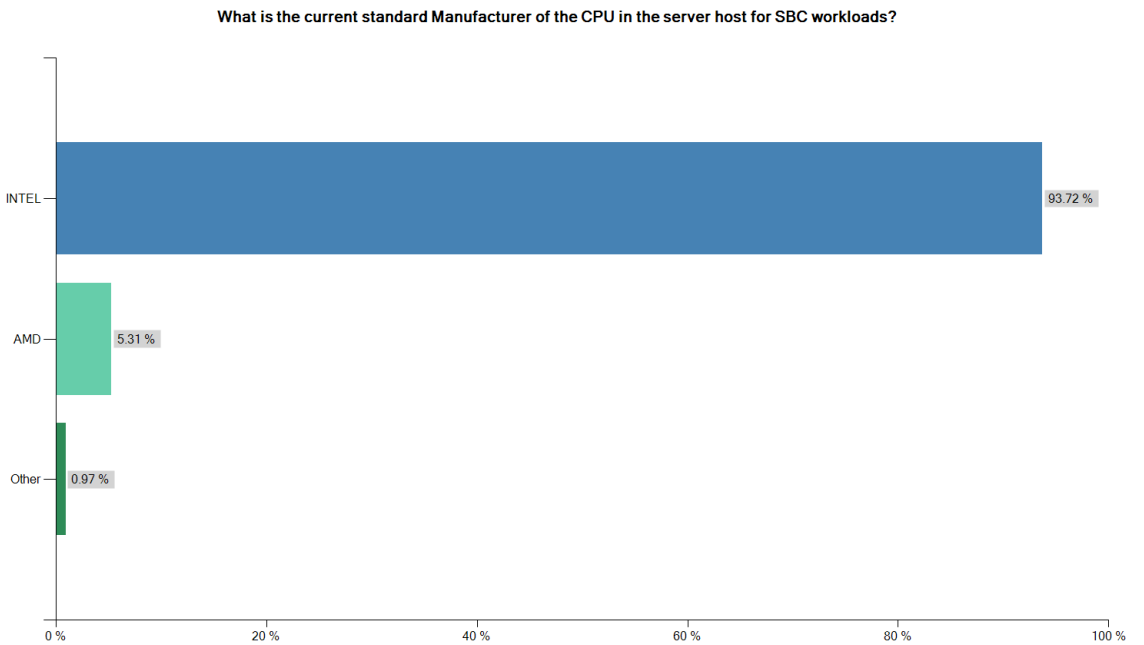


Figure 44, What is the current standard Manufacturer of the CPU in the server host for SBC workloads?

What is the typical amount of physical CPU sockets per server for SBC server host?

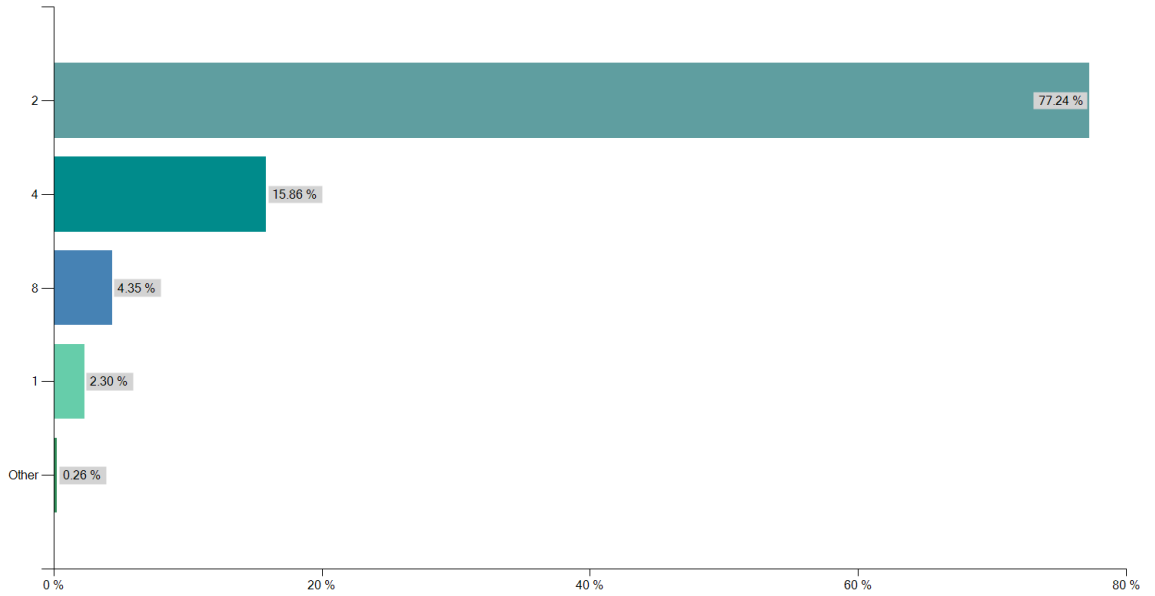


Figure 45, What is the typical amount of physical CPU sockets per server for SBC server host?

What is the current standard amount of cores per CPU (excluding Hyper-Threading cores) in the server host for SBC workloads?

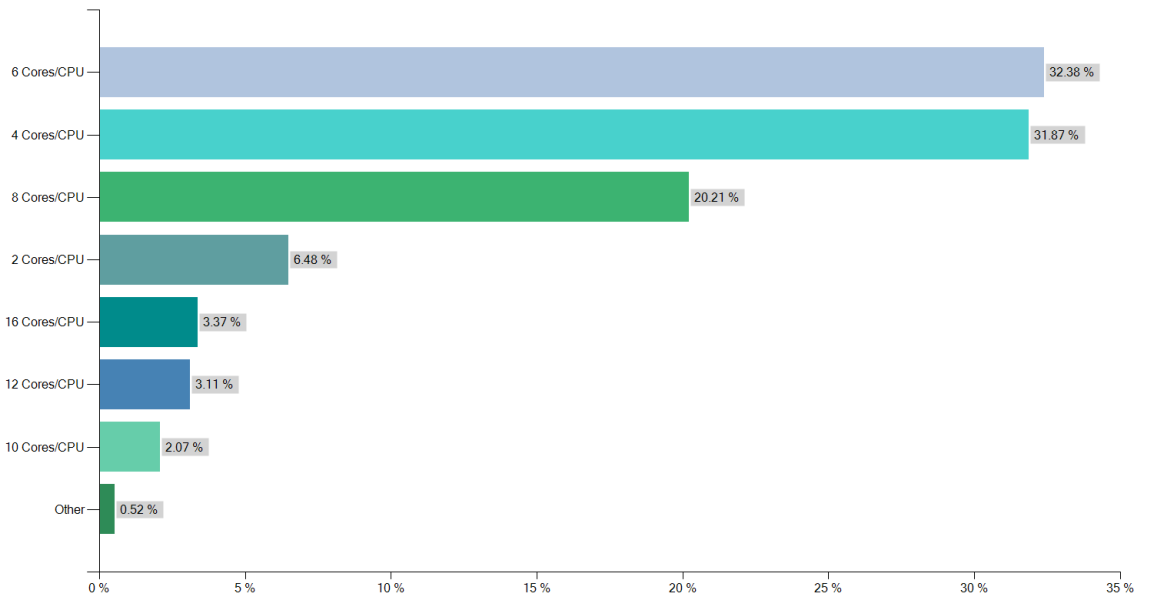


Figure 46, What is the current standard amount of cores per CPU (excluding Hyper-Threading cores) in the server host for SBC workloads?

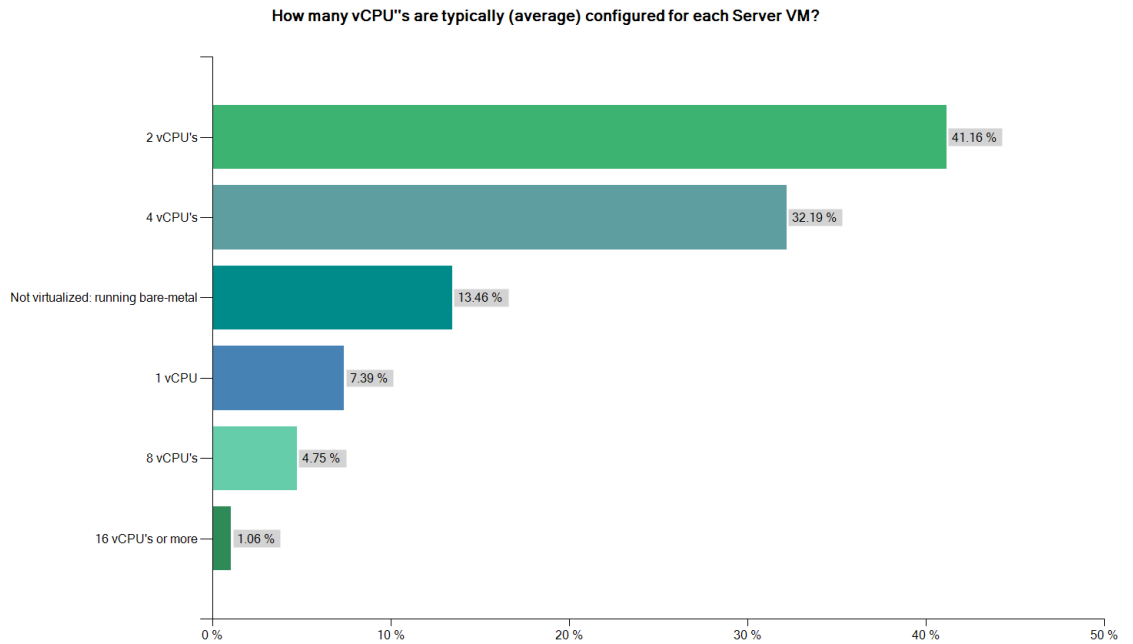


Figure 47, How many vCPU's are typically (average) configured for each Server VM?

13,46% of the respondents is using SBC running bare-metal, not virtualized. The majority of people is using 2vCPUs for each server VM, 41,16%

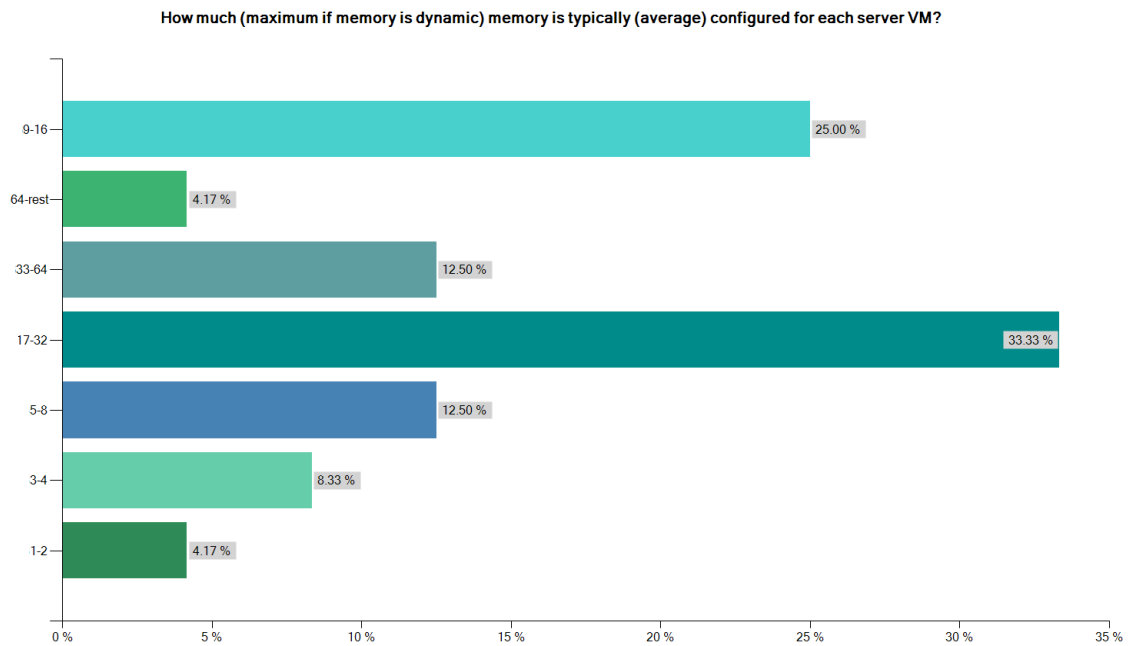


Figure 48, How much (maximum if memory is dynamic) memory is typically (average) configured to each VM?

## 5.5 SBC AND ANTIVIRUS

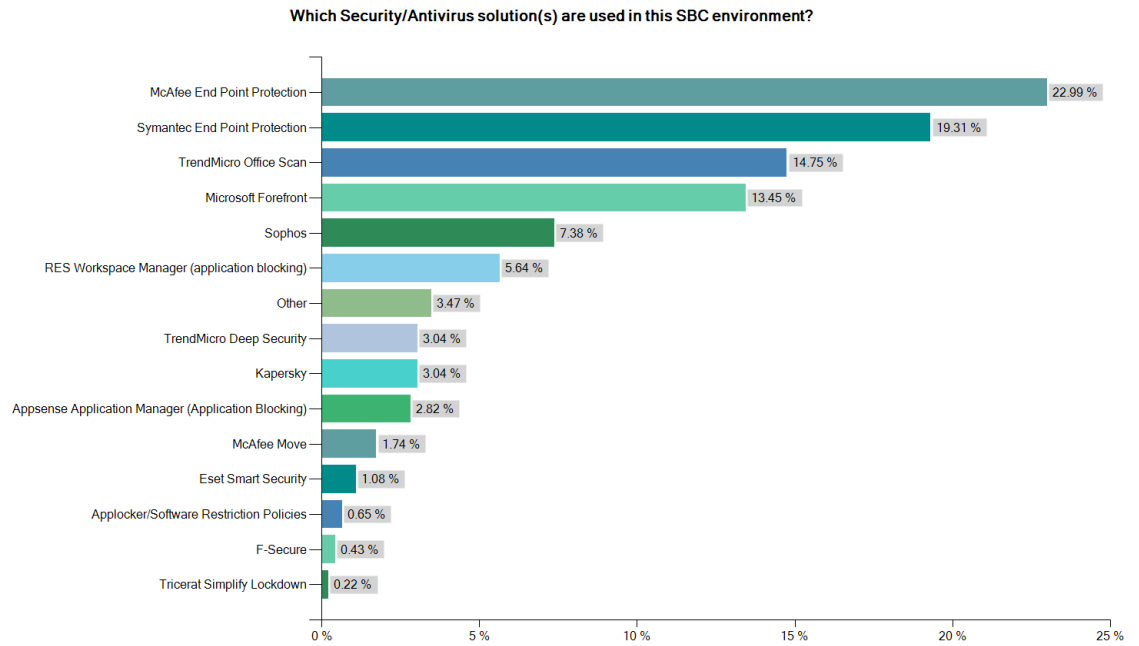


Figure 49, Which Security/Antivirus solution(s) are used in this SBC environment?

The majority of people is using traditional endpoint protection solutions from McAfee, Symantec, Microsoft or TrendMicro within SBC with a total of 70,50%

## 5.6 SBC AND OPERATING SYSTEM

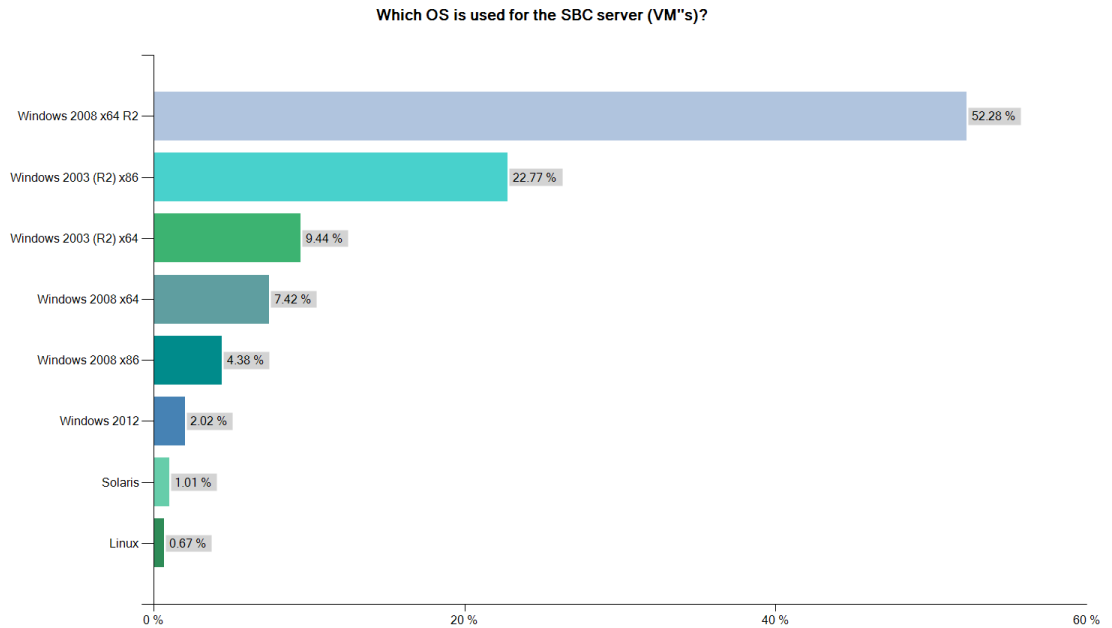


Figure 50, Which OS is used for the SBC server (VM's)?

## 5.7 SBC AND USER ENVIRONMENT MANAGEMENT

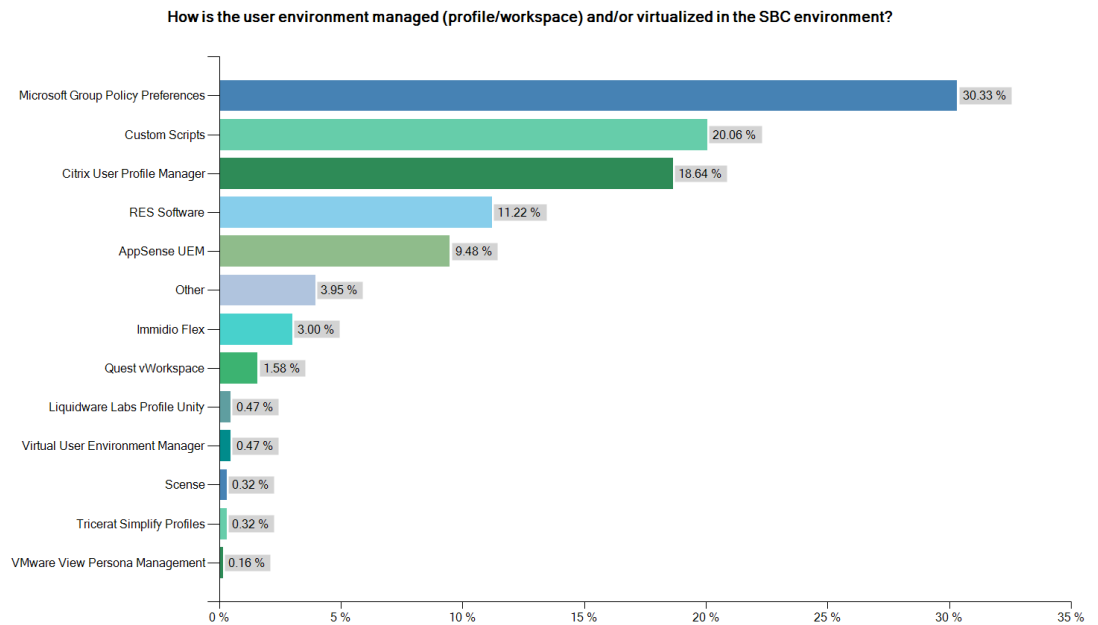


Figure 51, How is the user environment managed (profile/workspace) and/or virtualized in the SBC environment?

Microsoft Group Policy preferences is used by 30,33% of the respondents while 20,06% is using custom scripts as 'user environment management' solution for SBC.

## 5.8 SBC: APPLICATIONS, WINDOWS AND WEB-BASED

How many Windows applications are used in this SBC environment?

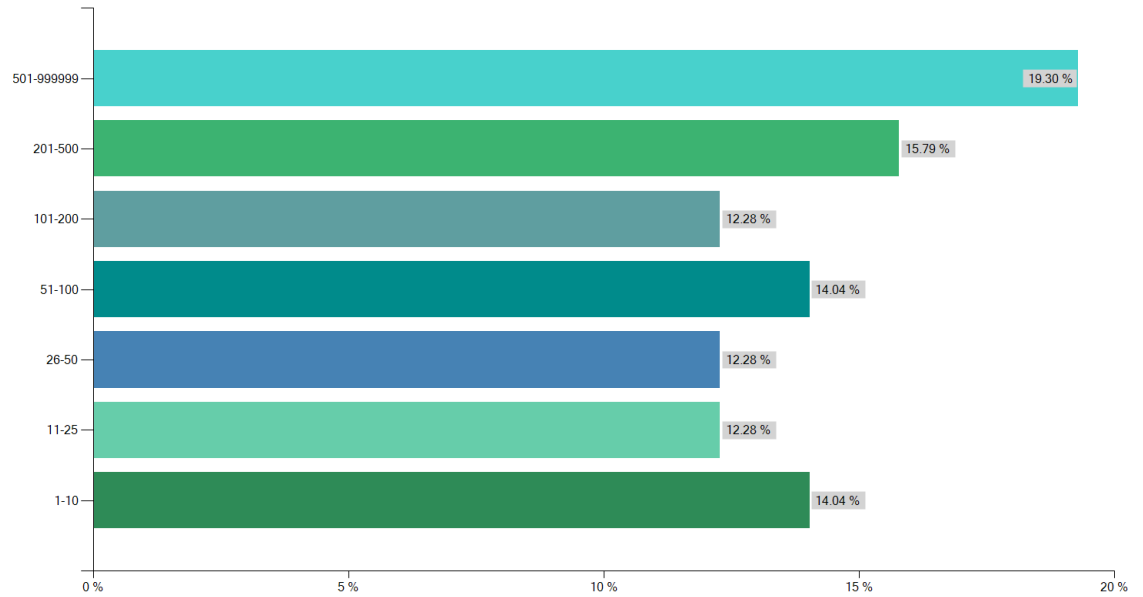


Figure 52, How many Windows applications are used in this SBC environment?

How are windows and applications installed updated & managed?

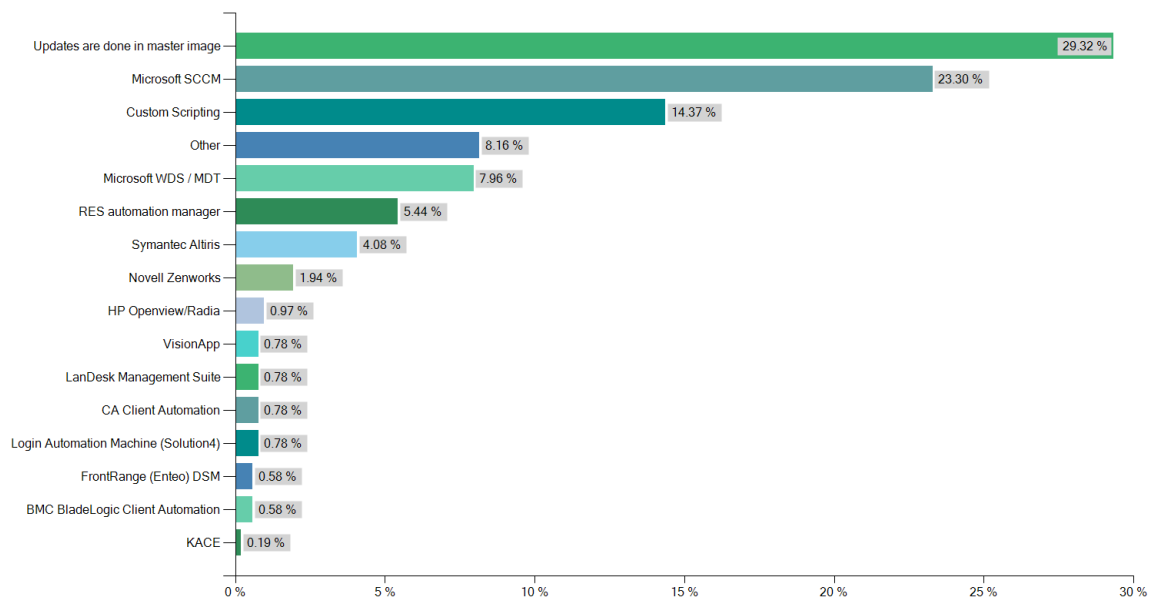


Figure 53, How are windows and applications installed updated & managed?

29,32% of the respondents is installing and updating applications using the master image while 23,30% is using Microsoft System Center Configuration Manager (ConfigMgr) to install and update applications in SBC.

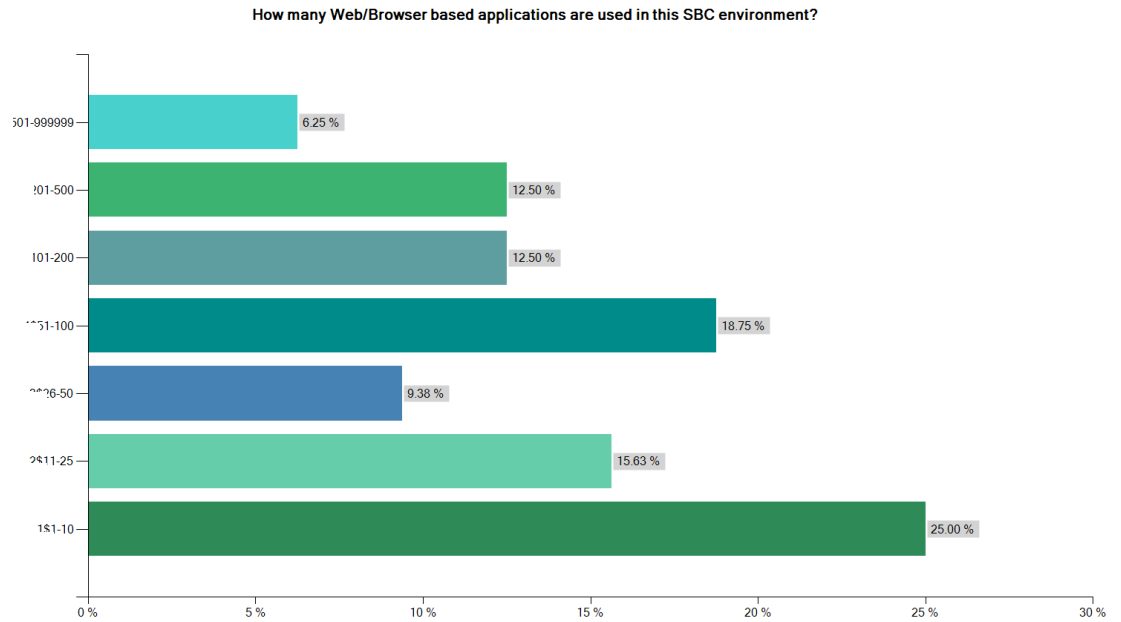


Figure 54, How many Web/Browser based applications are used in this SBC environment?

### 5.8.1 SBC AND APPLICATION VIRTUALIZATION

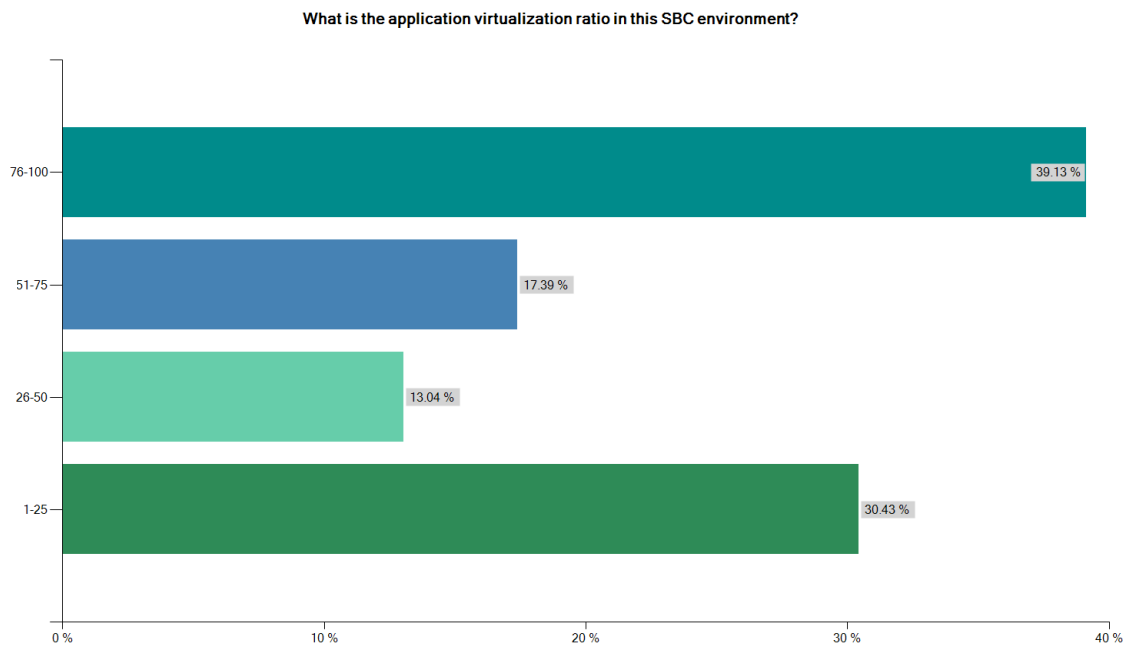


Figure 55, What is the application virtualization ratio in this SBC environment?

39,13% of the people is using application virtualization while virtualization 76%-100% of the application set. 30,43% of the respondents is using application virtualization with 1-25% of the applications being virtualized.

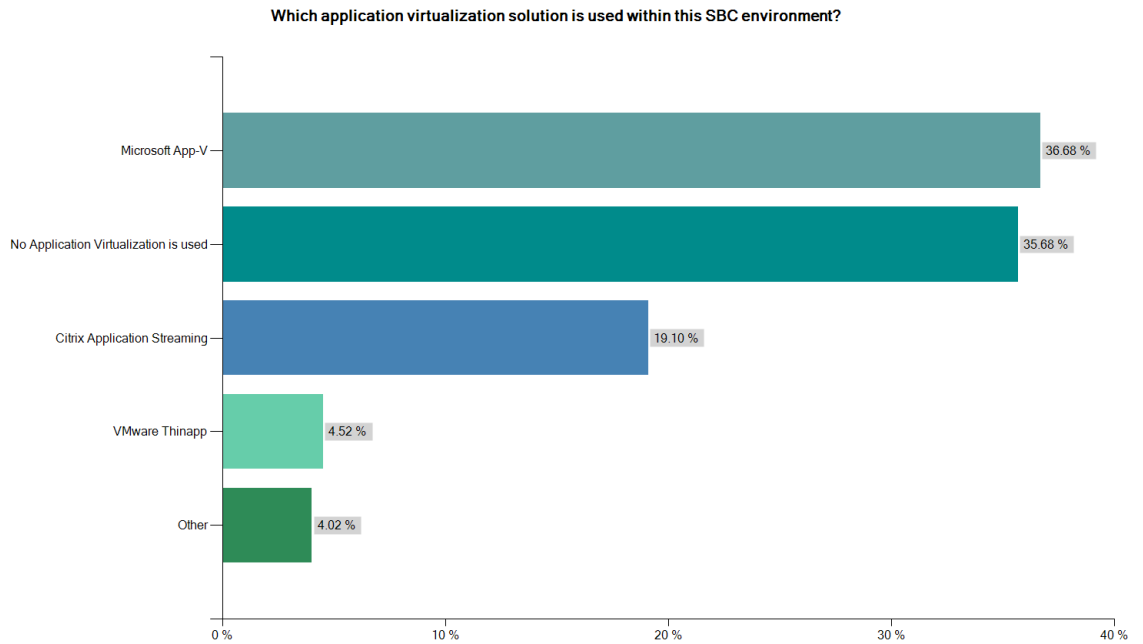


Figure 56, Which application virtualization solution is used within this SBC environment?

Within SBC 36,68% of the respondents is using Microsoft App-V, 35,68% isn't using application virtualization while Citrix Application Streaming is used by 19,10%. VMware ThinApp adoption is small with just 4,52%



## 5.9 SBC AND STORAGE

Is the storage infrastructure specifically designed for SBC workloads?

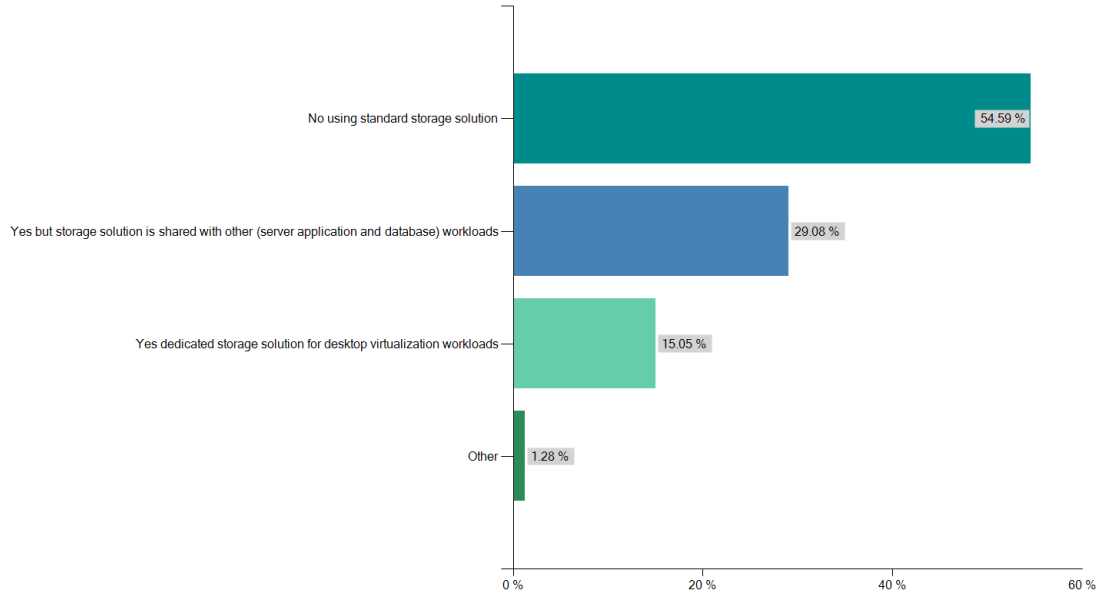


Figure 57, Is the storage infrastructure specifically designed for SBC workloads?

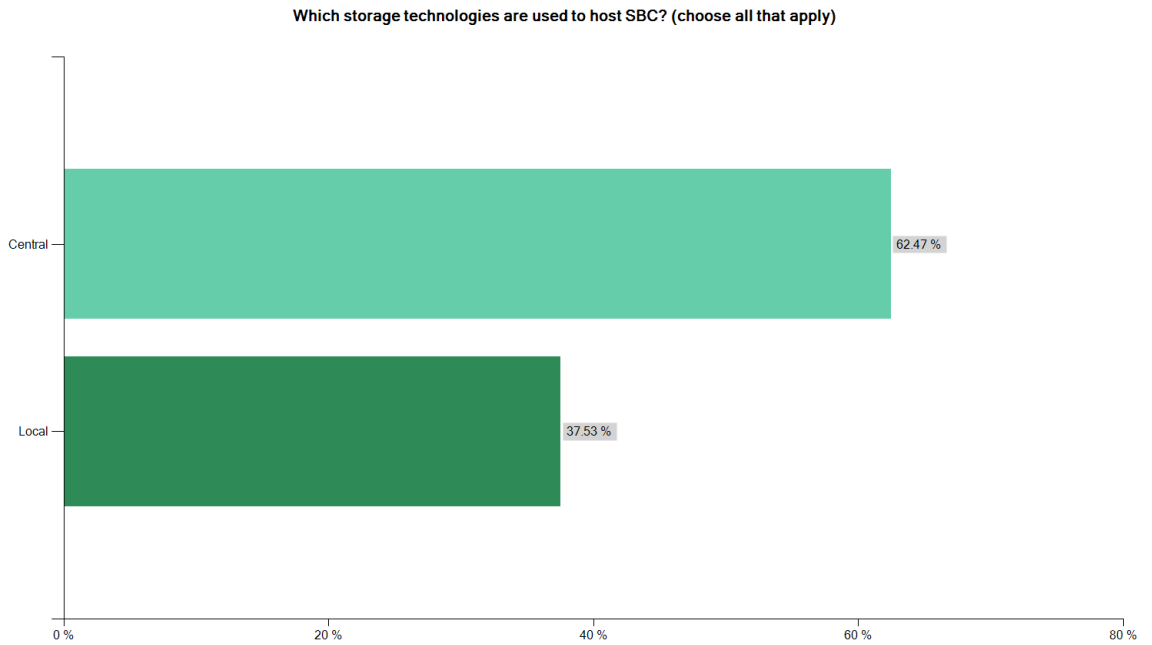
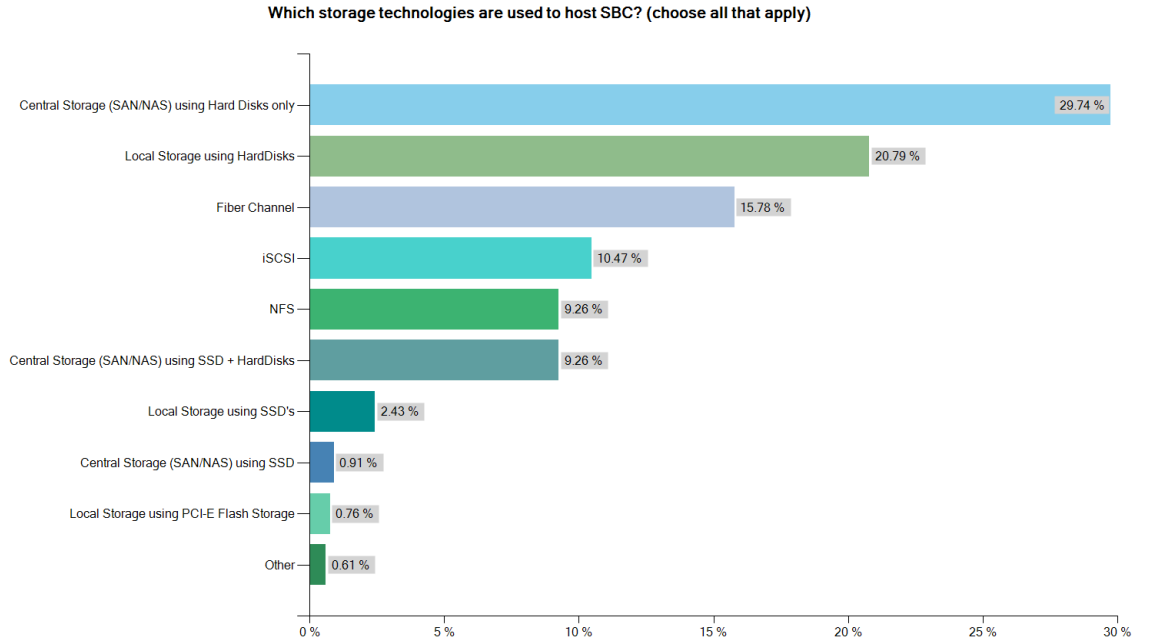


Figure 58, Which storage technologies are used to host SBC? (choose all that apply)

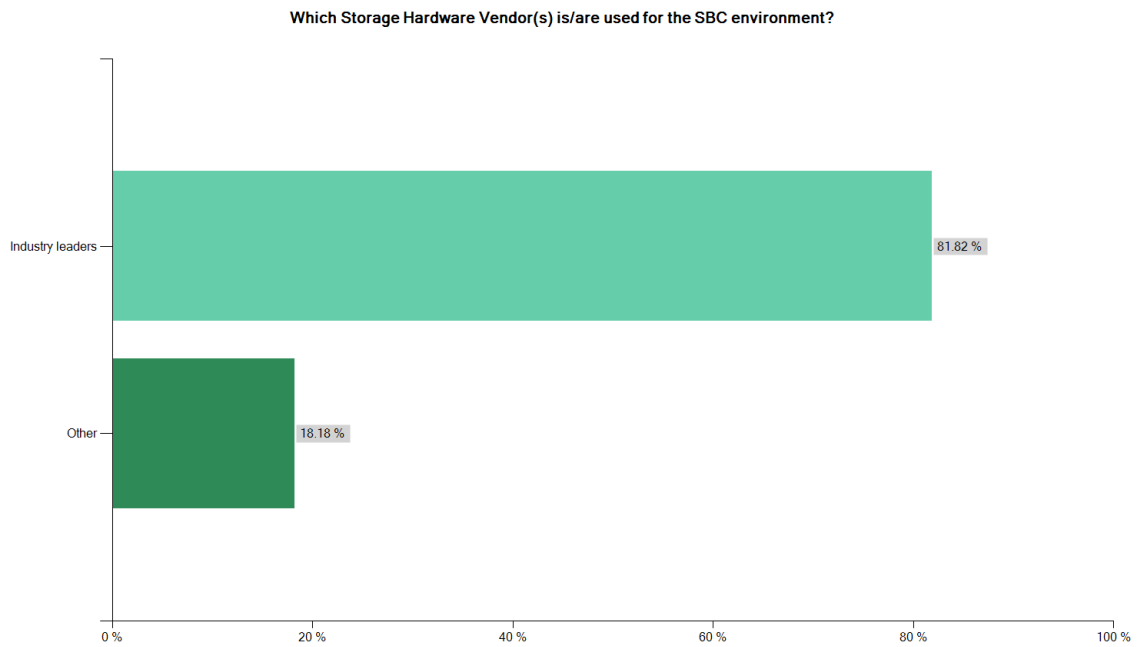
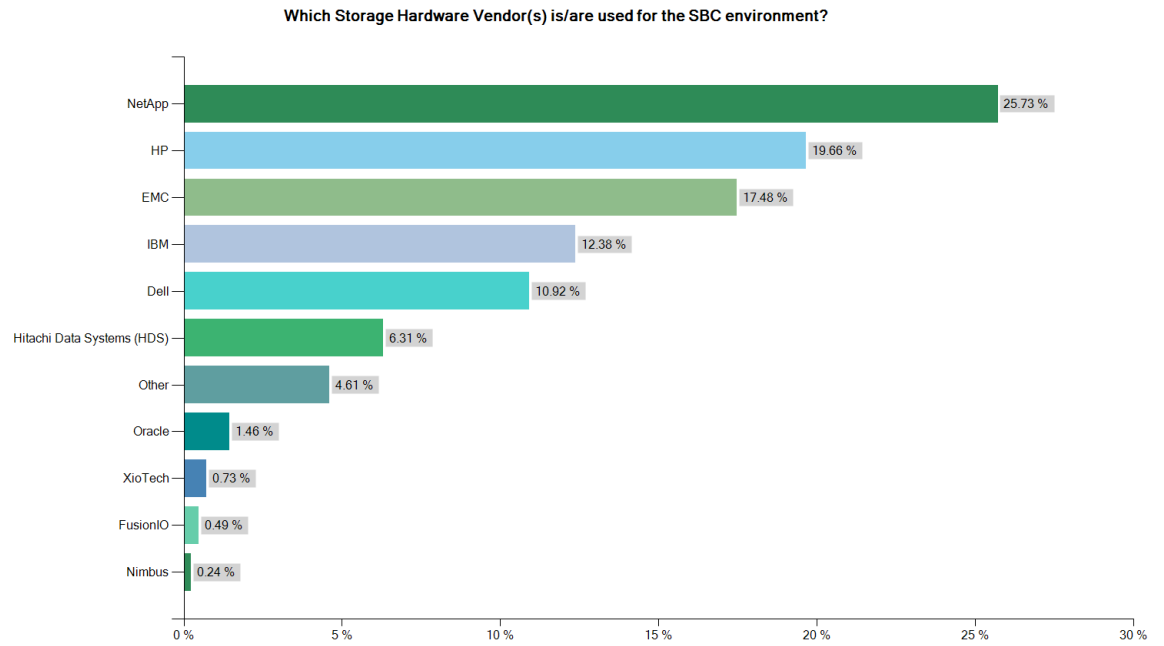


Figure 59, Which Storage Hardware Vendor(s) is/are used for the SBC environment?

## 5.10 SBC AND IMAGE DEPLOYMENT

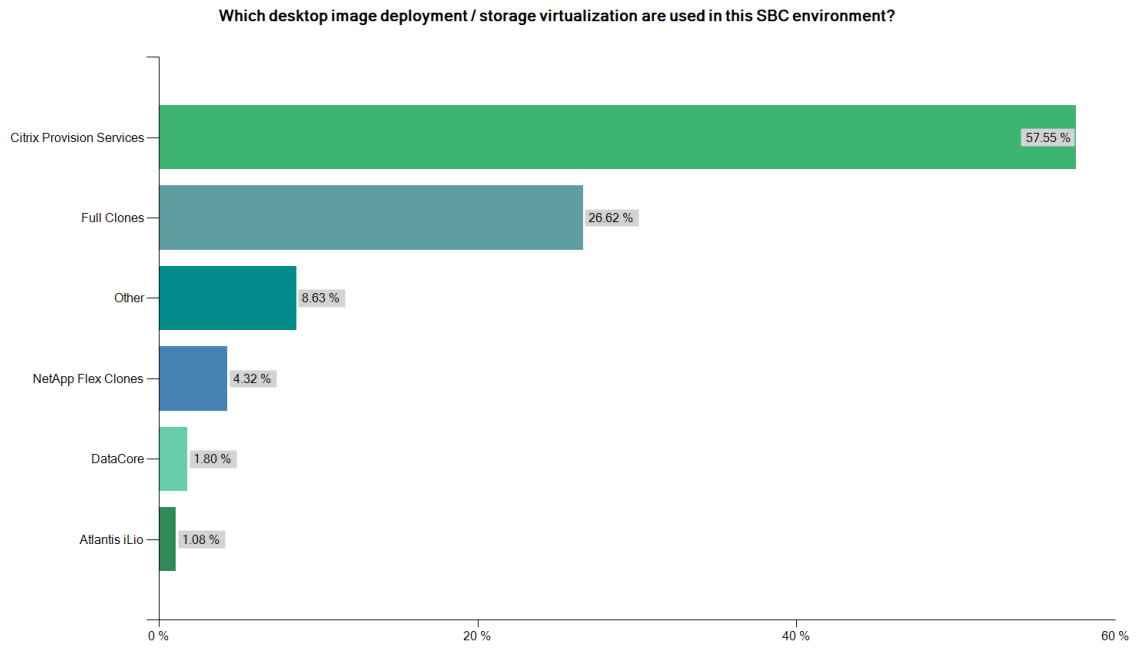


Figure 60, Which desktop image deployment / storage virtualization are used in this SBC environment?

## 6. COMPARING VDI AND SBC RESULTS

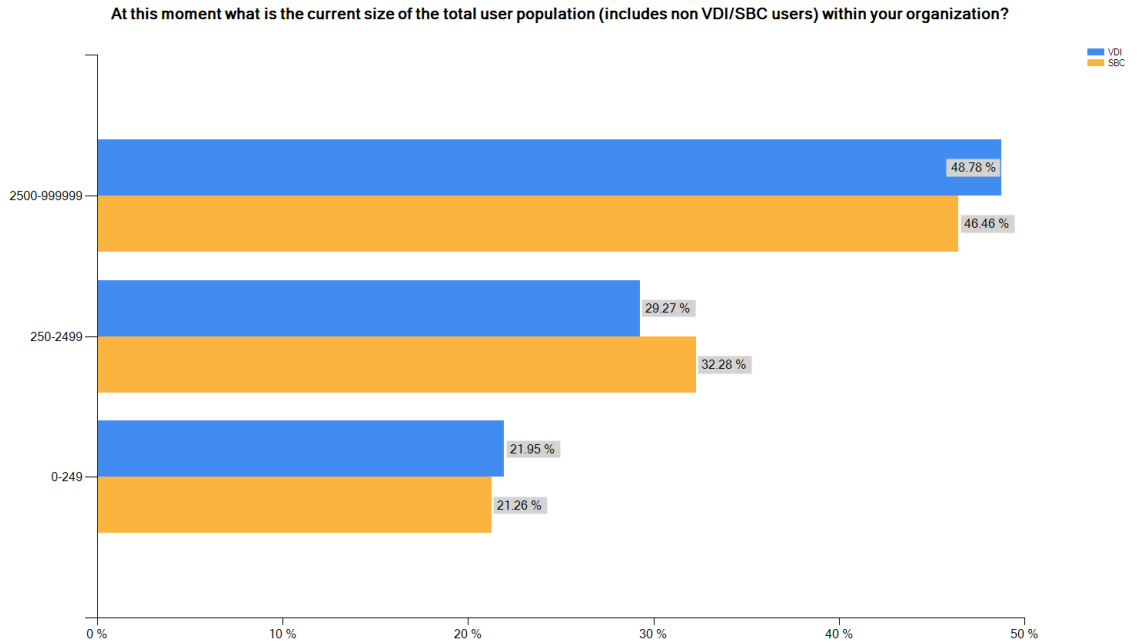


Figure 61, At this moment what is the current size of the total user population within your organization?

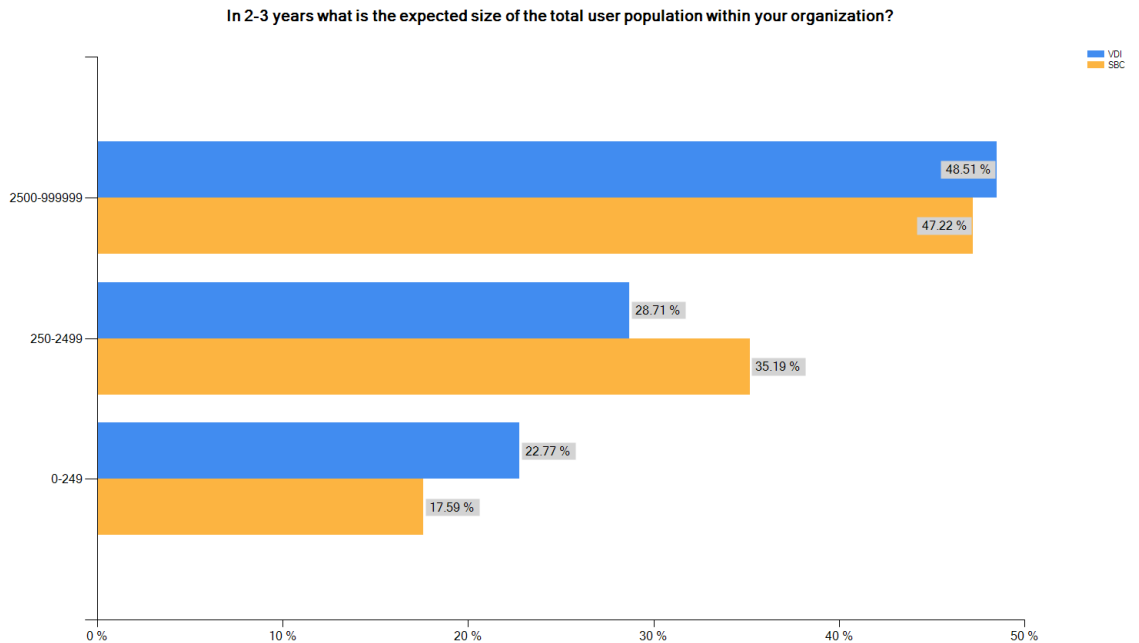


Figure 62, In 2-3 years what is the expected size of the total user population within your organization?

## 6.1 VDI VERSUS SBC: HYPERVISOR, SERVER WORKLOAD

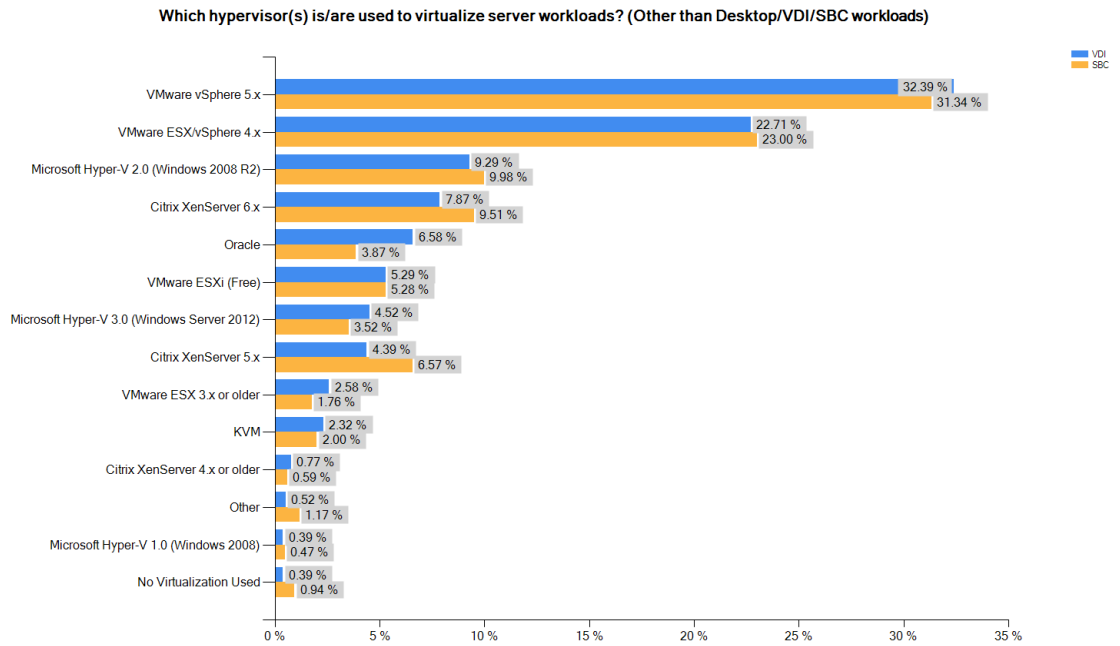


Figure 63, Which hypervisor(s) is used to virtualize server workloads? (Other than Desktop/VDI/SBC workloads)

## 6.2 VDI VERSUS SBC: WAN OPTIMIZATION

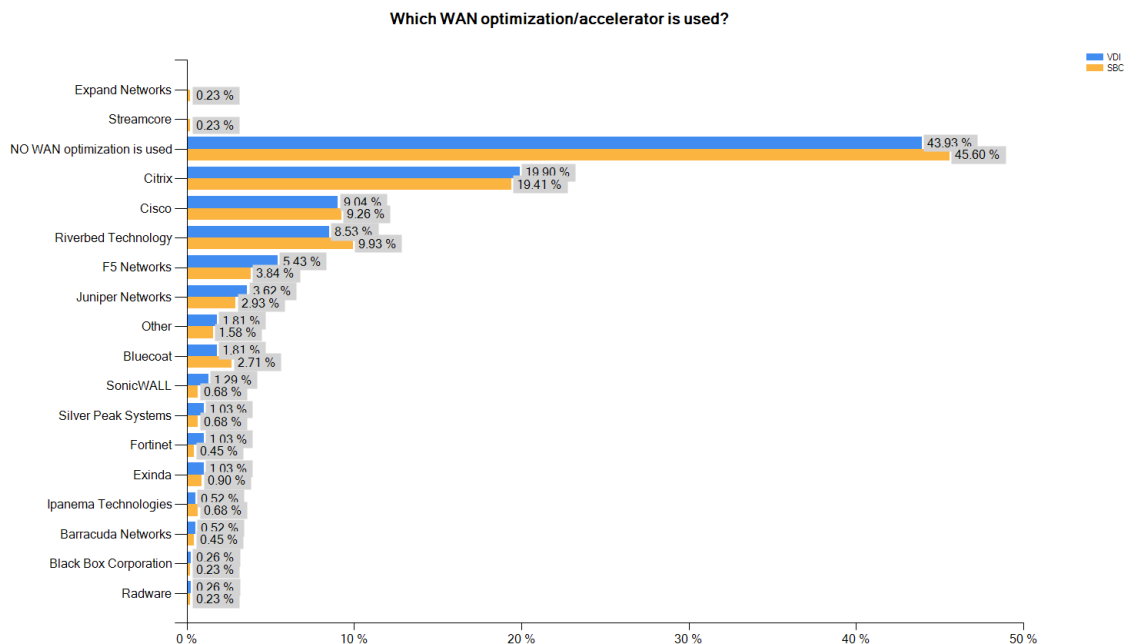


Figure 64, Which WAN optimization/accelerator is used

### 6.3 VDI VERSUS SBC: UNIFIED COMMUNICATIONS

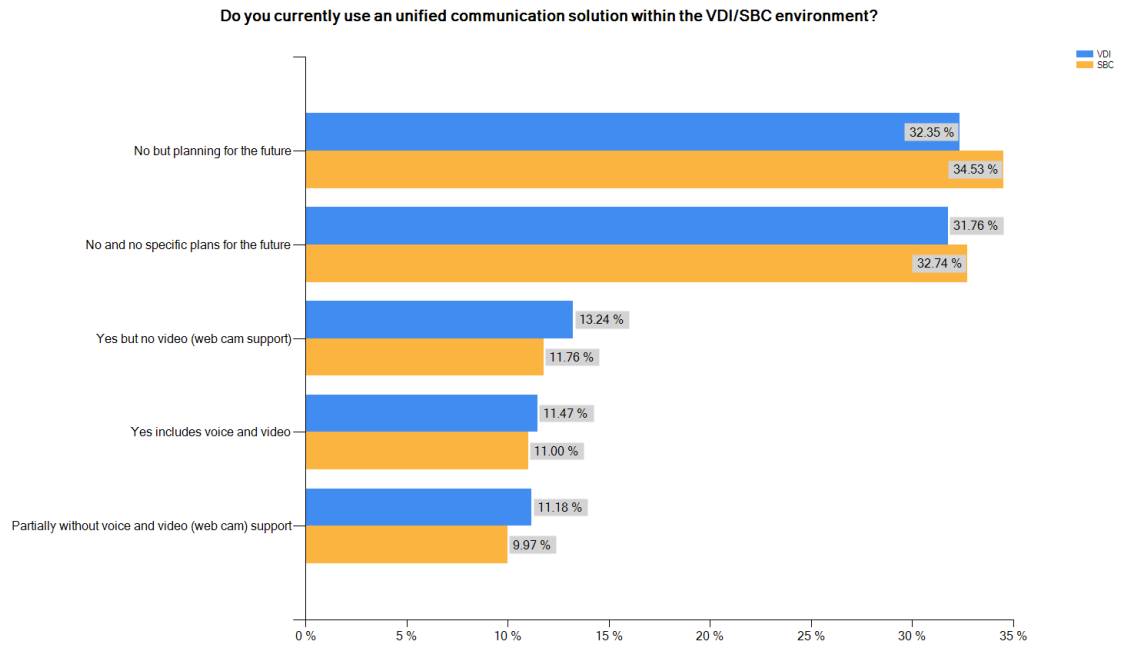


Figure 65, Do you currently use an unified communication solution within the VDI/SBC environment?

### 6.4 VDI VERSUS SBC: PERFORMANCE TESTING

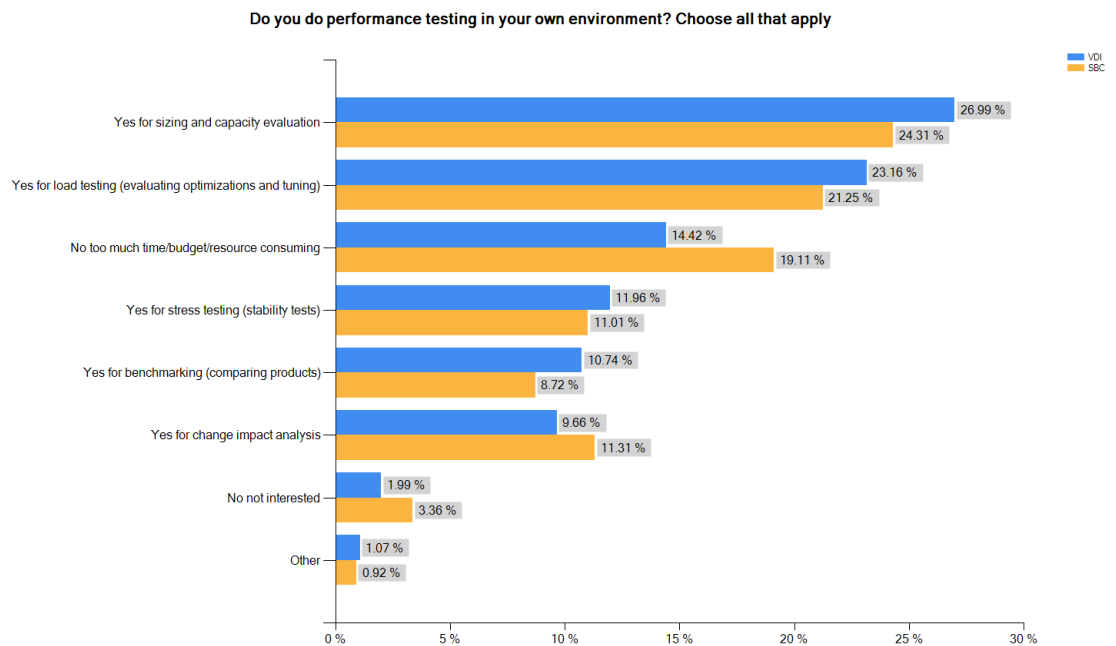


Figure 66, Do you do performance testing in your own environment?

## 7. FUTURE CUSTOMER ROADMAP FOR VDI AND SBC

Which key innovation areas are vital to improve VDI/SBC adaption in the long run?(Choose max 3)

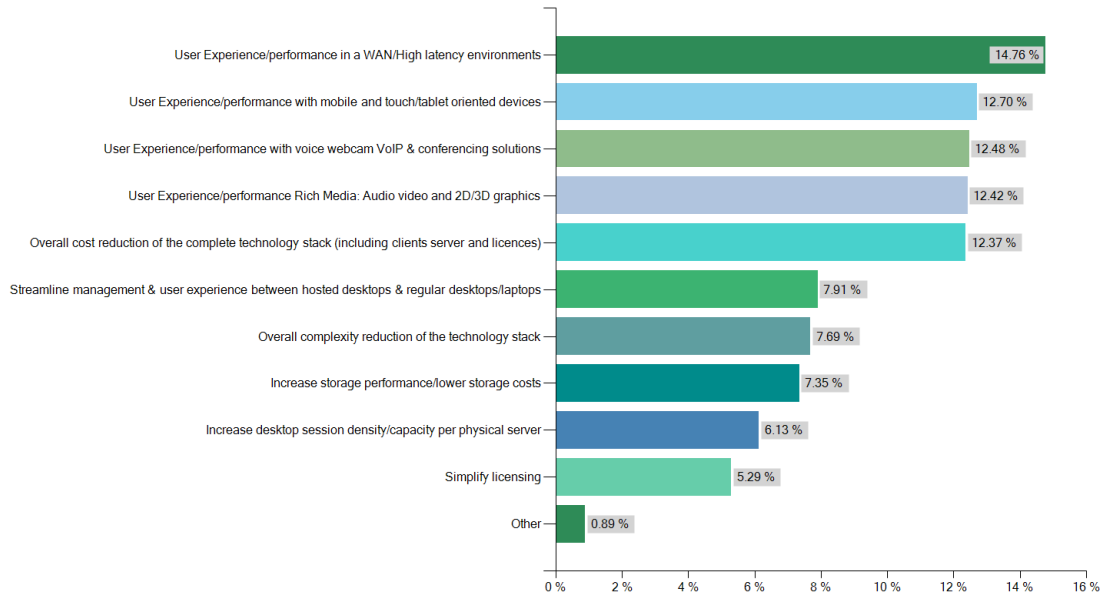


Figure 67, Which key innovation areas are vital to improve VDI/SBC adoption in the long run?(Choose max 3)

It's all about 'User Experience' the first four 'important topics' make clear that customers see this as a vital innovation area. To simplify licensing is with 5,29% the least interesting.



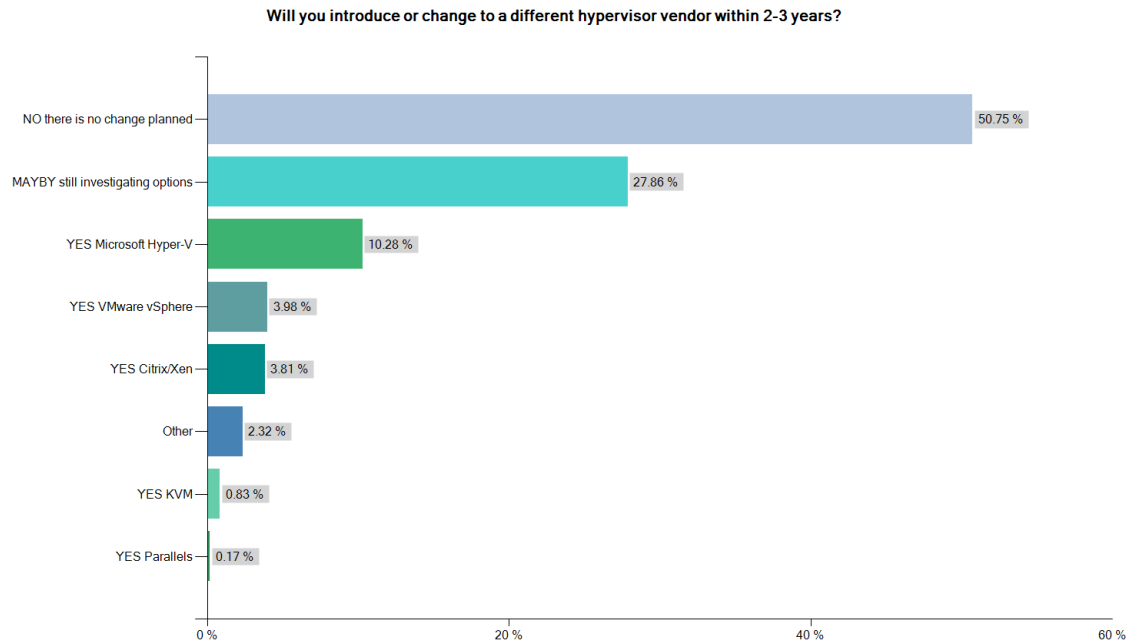


Figure 68, Will you introduce or change to a different hypervisor vendor within 2-3 years?

50,75% of the respondents have no plans for changing the hypervisor the next 2-3 years. 27,86 is investigating the options while 10,28% is sure about migrating to Microsoft Hyper-V. Choosing the right virtualization platform is a longer term commitment to that platform. In future survey whitepapers we will differentiate this question between IT-Pro's and IT-Executives and see what the different results will be.

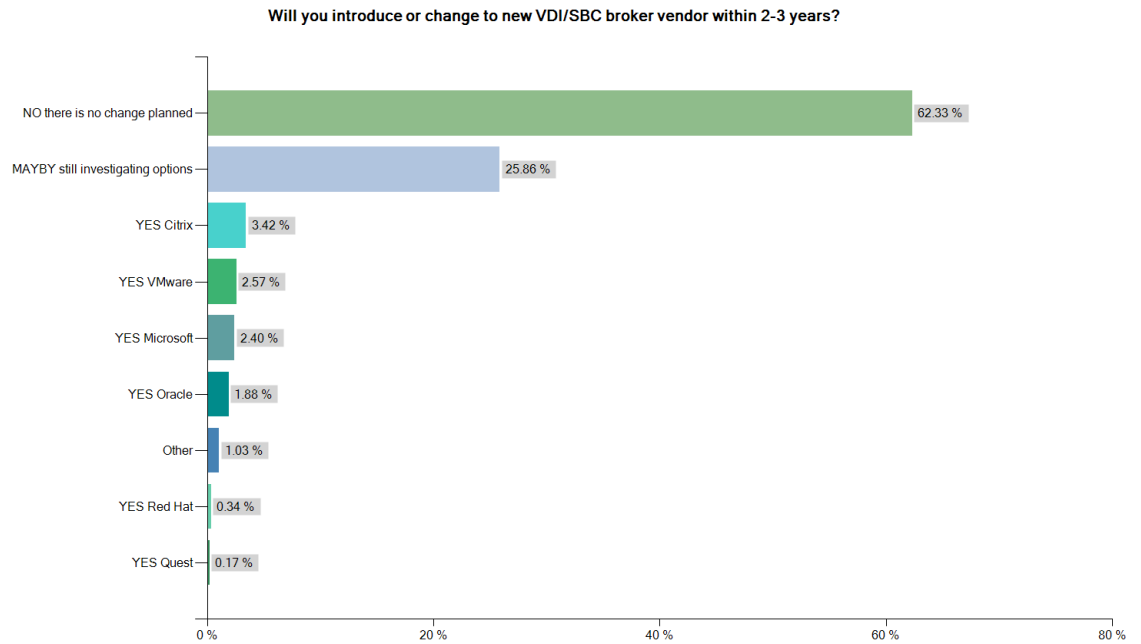


Figure 69, Will you introduce or change to new VDI/SBC broker vendor within 2-3 years?

62,33% of the respondents have no plans for changing the connection broker the next 2-3 years. 25,86% is investigating the options. Choosing the right VDI platform is a long term commitment to that platform. Choose wisely.

In future Survey whitepaper we will differentiate this question between IT-Pro's and IT-Executives and see what the different results will be.

Which key innovation areas are vital to improve VDI/SBC adaption in the long run?(Choose max 3)

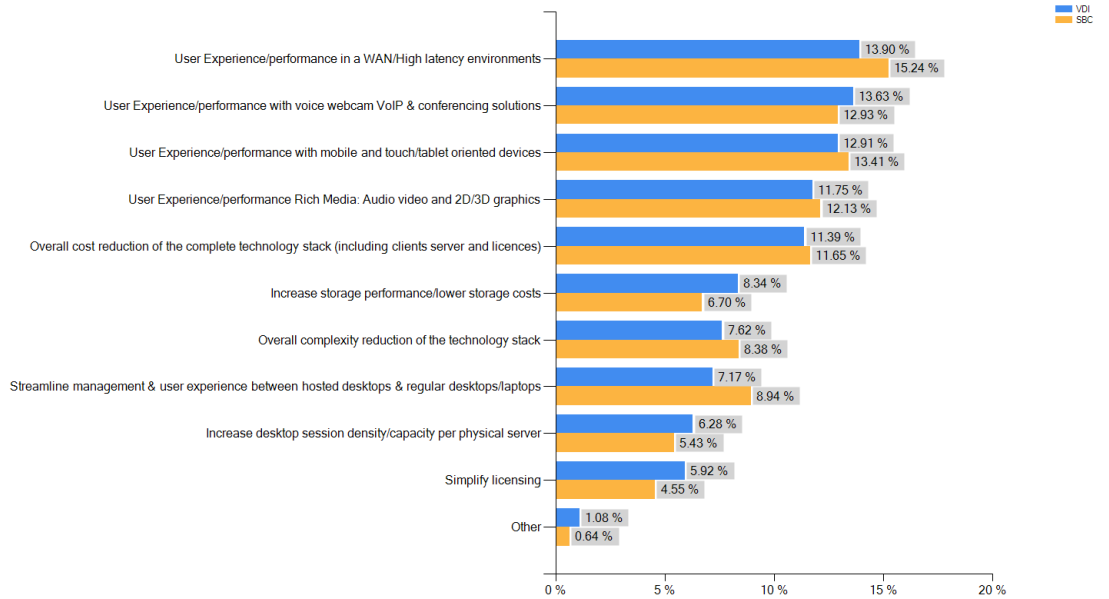


Figure 70, Which key innovation areas are vital to improve VDI/SBC adaption in the long run?(

Will you introduce or change to a different hypervisor vendor within 2-3 years?

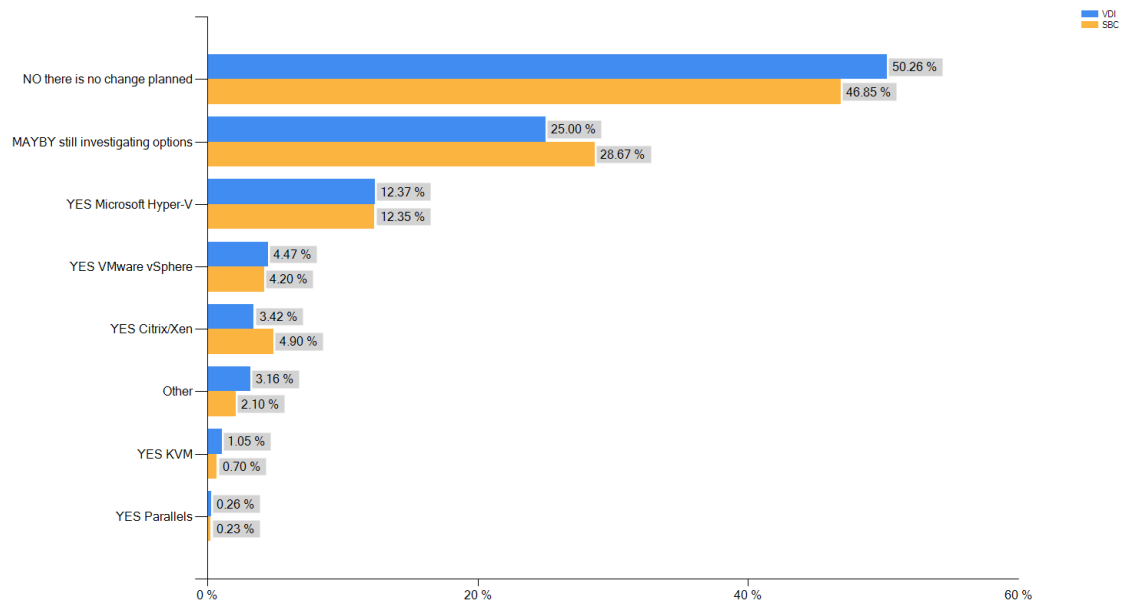


Figure 71, Will you introduce or change to a different hypervisor vendor within 2-3 years

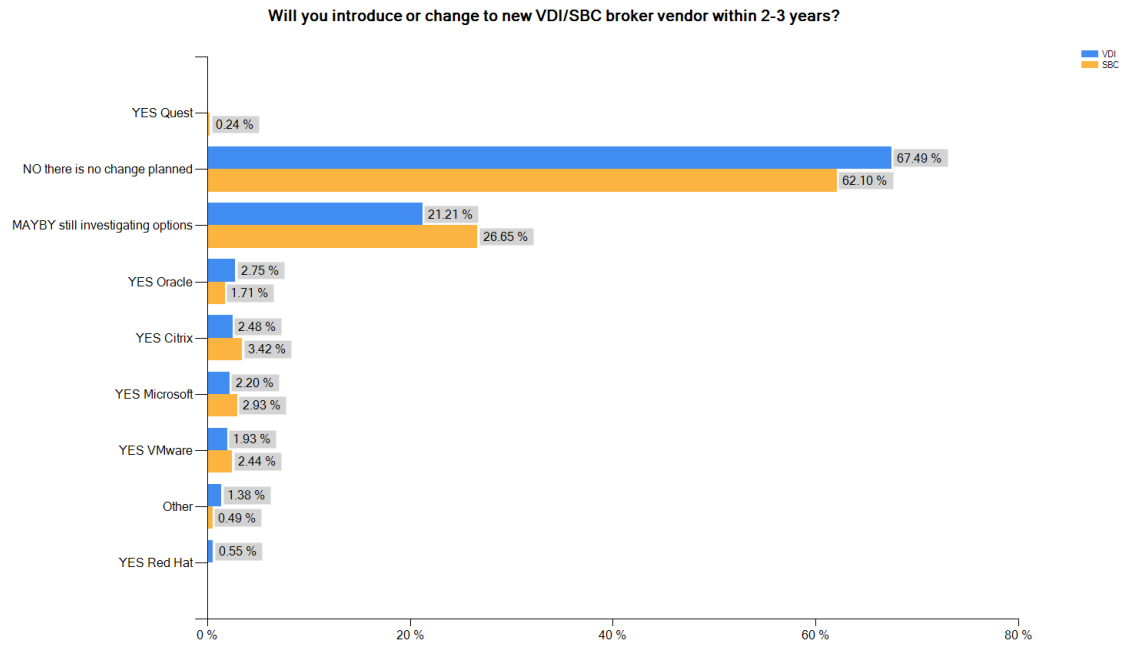


Figure 72, Will you introduce or change to new VDI/SBC broker vendor within 2-3 years?

## 8. PROJECT VRC SURVEY 2014

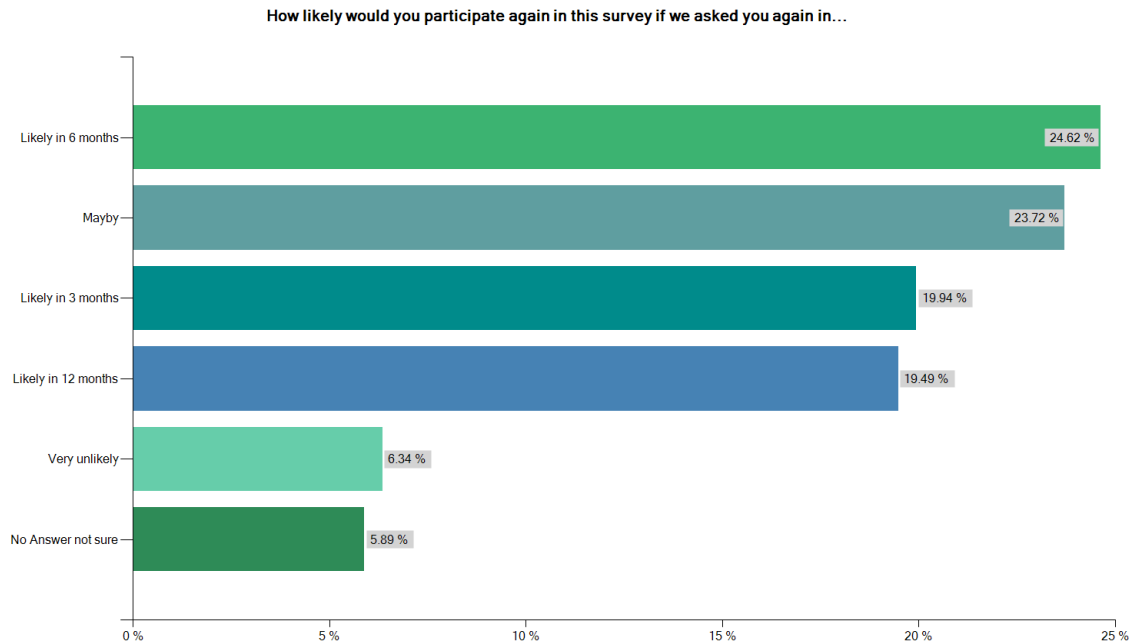


Figure 73, How likely would you participate again in this survey if we asked you again in...

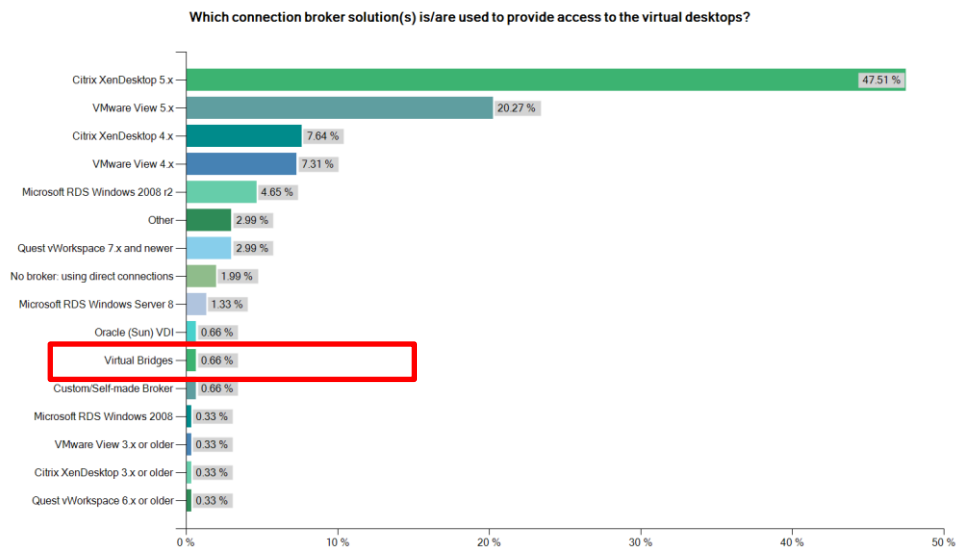
We will launch the 'State of the VDI and SBC union – 2014 edition' early 2014. Stay tuned for new results early 2014. When you have feedback, additions or comments please let us know.

Don't use content from this whitepaper, please contact [team@projectvrc.com](mailto:team@projectvrc.com) when you have questions!

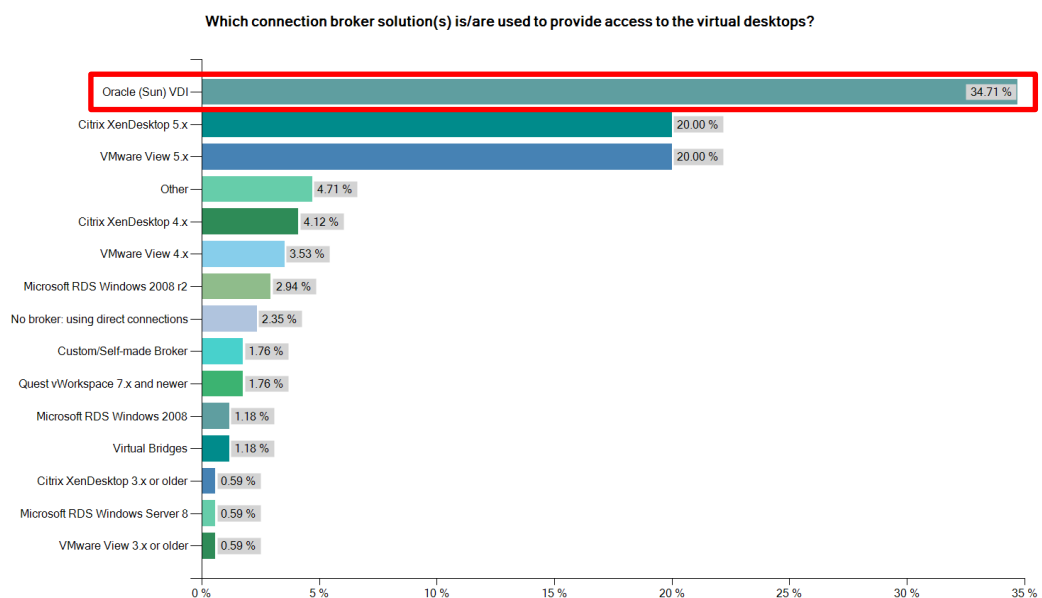
## 9. MARKETING EFFORTS

In this chapter we want to make clear what the marketing impact was of Oracle during a specific period of time. We have sanitized the results, removing all major vendor results in the whitepaper. We didn't remove the Oracle customer results because they are valid. The overall impact of Oracles marketing activity in the overall survey with 662 sanitized respondents isn't substantial.

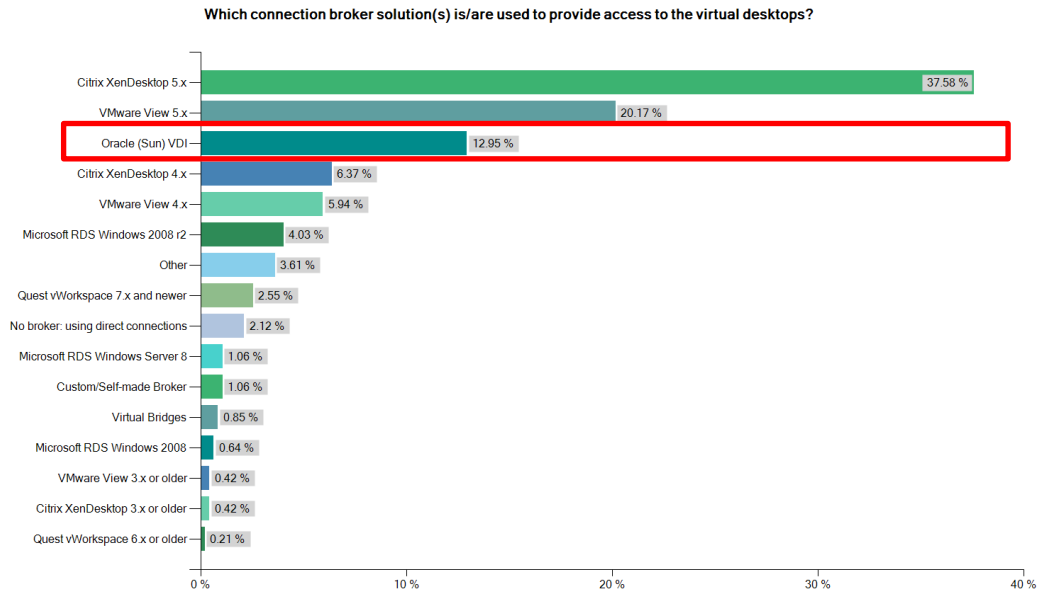
The diagram below shows the results of the survey respondents before October 15;



The diagram below shows the results of the survey respondents after October 15 for a period of a couple of weeks.



Below the final, sanitized results of the question.



Good marketing from Oracle around Project VRC, other vendors like Citrix, Microsoft and VMware can learn from them...

## 10. ABOUT THE AUTHORS

### 10.1 ABOUT LOGIN CONSULTANTS

Innovations of the desktop infrastructure bring significant benefits in the areas of cost, security, and user experience. The challenge is to find the perfect balance between end-user freedom and manageability. Exponential growth of possibilities when it comes to devices, virtualization technologies, application models and cloud solutions make it difficult to keep an eye on the ball.

Login Consultants is an independent international IT service provider specialized in End User Computing. We help our clients in finding the optimal balance between IT control and end user flexibility. Our goal is create innovative solutions which simplify future change. Our success with our customers is built on the quality of integration combined with a smart migration approach and the manageability of the solution after deployment.

Login Consultants has an experienced team with over 140 consultants in The Netherlands, Belgium and Germany. Our consultants have accreditations from Microsoft, Citrix and VMware, and are regularly invited to speak at national and international events. They are involved as experts in online and printed IT publications and actively participate in relevant technical blogs.

Login Consultants' innovative drive is materialized in our own Solutions-lab. The specialists of Login Consultants continuously create innovative software solutions to support and enhance the quality of centralized desktop implementations. These efforts resulted in a suite of software tools adding value to the software solutions of Citrix, Microsoft, VMware and others. These freeware tools are used and appreciated by thousands of companies worldwide. The Solution-lab of Login Consultants has been the incubator for successful software solutions, like Flex Profiles, Login VSI and Automation Machine for Hosted Desktops.

### 10.2 ABOUT PQR

PQR is the professional ICT infrastructure specialist focusing on the availability of data, applications and work spaces with optimized user experience in a secure and manageable way.

PQR provides its customers innovative ICT solutions, from on-premise to cloud management, without processes getting complex. Simplicity in ICT, that's what PQR stands for.

PQR has traceable references and a wide range of expertise in the field, proven by many of our high partner statuses and certifications. PQR is Citrix Platinum Solution Advisor, HDS Tier 1 Platinum Partner, HP GOLD Preferred Partner, Microsoft Gold Partner, NetApp Star Partner, RES Platinum Reseller, VMware Premier Partner en VMware Gold Authorized Consultant Partner.



PQR's approach is based on four main pillars:

- Data & System Availability
- Application & Desktop Delivery
- Secure Access & Secure Networking
- Advanced IT Infrastructure & (Cloud) Management

PQR, founded in 1990, is headquartered in De Meern and counts over 107 employees. In fiscal year 2011/2012 posted sales of € 94.9 million and a net after tax profit of € 4.6 million have been recorded.

### 10.3 TEAM MEMBERS

**Sven Huisman**, Consultant @ PQR

Sven Huisman (1977) studied Information Management in Utrecht. He started his career as system engineer and meanwhile he has over 10 years of experience in the IT business. He is one of PQR's technical consultants, focusing on Application and Desktop Delivery, hardware and software virtualization. Sven advises, designs, implements and migrates advanced ICT-infrastructure. He is a Citrix Certified Enterprise Administrator (CCEA), a Microsoft Certified Systems Engineer (MCSE) and a VMware Certified Professional (VCP). Sven is blogging about virtualization on [VirtualFuture.info](http://VirtualFuture.info) and was awarded as VMware vExpert. To contact Sven directly send an email to [shu@pqr.nl](mailto:shu@pqr.nl). Follow Sven on [twitter](https://twitter.com/shu@pqr.nl).

**Dennis Geerlings**, Consultant @ Login VSI

Dennis started at Login VSI about 2.5 years ago and worked as consultant within Login Consultants. He supported multiple customers in migration projects. Right now Dennis is support manager and lead consultant at Login VSI. In these roles he supports customers and partners, co-develops the Login VSI solution and acts as pre-sales for enterprise customers. Dennis has performed most of the tests for this whitepaper and created the test and analysis automation process in the Project VRC labs. Dennis is the main technical contact for customers and partners in the United States and Canada. To contact Dennis directly send an email to [d.geerlings@loginvsi.com](mailto:d.geerlings@loginvsi.com)

**Jeroen van de Kamp**, CTO @ Login Consultants

As Chief Technology Officer, Jeroen van de Kamp (1972) is responsible for defining and executing the technical strategy for Login Consultants. From the start, Jeroen has played a critical role in the technical growth and accreditation Login has accumulated over the years. He has developed several core solutions which allow Login Consultants to easily differentiate themselves in the infrastructure consulting market.

Jeroen is also responsible for several well-known publications like the Flex Profile Kit, TCT templates & "The black hole effect". Because of his contribution to the technical community van de Kamp is recognized as a thought-leader in the application delivery industry and has become a residential speaker for seminars like BriForum, Citrix

Solution Summit and many others. He is one of the 25 members worldwide who participate in the exclusive "Citrix Technology Professional" program. Jeroen is still engaged with strategic key accounts for Login Consultants, defining and realizing all-encompassing strategies for complex application, desktop and server delivery infrastructures. Previous to his position as CTO at Login Consultants Jeroen held positions as Infrastructure Architect at Login Consultants; as IT Consultant at QFace ICT and as IT specialist at ASG de Veer. To contact Jeroen directly send an email to [j.vandekamp@loginconsultants.nl](mailto:j.vandekamp@loginconsultants.nl) or follow him on [twitter: @thejeroen](https://twitter.com/thejeroen).

**Ruben Spruijt, CTO @ PQR**

Ruben Spruijt (1975) is CTO and focuses primarily on Enterprise Mobility, Virtualization and Cloud Management. He is actively involved in determining PQR's vision and strategy.

Ruben is Microsoft Most Valuable Professional (MVP), Citrix Technology Professional (CTP) and VMware vExpert and is the only European with these three virtualization awards. He gives customers advice and has them benefit from his expertise; he motivates his colleagues and writes blogs, articles and opinion pieces on a regular basis. During presentations in several national and international congresses, Ruben shares his thoughts and knowledge on application and desktop delivery, and on virtualization solutions.

To contact Ruben directly send an email to [rsp@pqr.nl](mailto:rsp@pqr.nl). Follow Ruben on [twitter: @rspruijt](https://twitter.com/rspruijt).

## 11. APPENDIX, QUESTIONS

ID	Question
0	What is your full name? (optional)
1	What is your business-email address? We will send you the complete results report (exclusive to survey participants!) when the survey is published. It will NOT be used for any other purposes. This question is repeated at the end of survey for confirmation.
2	What primary role do you have?
3	At this moment what is the current size of the total user population (includes non VDI/SBC users) within your organization?
4	In 2-3 years what is the expected size of the total user population within your organization?
5	In which region is the primary HQ of your organization located?
6	In which region(s) is/are the primary data center(s) located?
7	Which is/are the most important business vertical(s) to use this VDI and/or SBC environment? (Choose Max 3)
8	Which hypervisor(s) is/are used to virtualize server workloads? (Other than Desktop/VDI/SBC workloads)
9	Is Hosted Desktop Virtualization (VDI) used?
10	Does this VDI environment have a specific (project) name? (optional) This information will never be shared or published. We only use this to identify duplicate environments.
11	In what phase is this VDI environment?
12	How is this VDI environment used/considered within the organization? (choose best fit answer)
13	From which region(s) are users working in this VDI environment?
14	Which are the most important user types (max 3) intended to use this VDI environment?
15	Choose up to three most important goals which drive this VDI environment? (Max 3)
16	At this moment how many users are currently using this VDI environment?
17	In 2-3 years what is the expected total amount of users to use this VDI environment?
18	At this moment what is current capacity of simultaneous/concurrent desktop sessions for this VDI environment?
19	In 2-3 years what is expected total capacity of simultaneous/concurrent desktop sessions for this VDI environment?
20	Does the environment you are describing contain (floating) pooled/shared/stateless virtual desktops?
21	Which hypervisor(s) is/are used to host this VDI environment?
22	Which connection broker solution(s) is/are used to provide access to the virtual desktops?
23	From which brand is the server hardware to host the VDI environment?
24	What is the current standard Manufacturer of the CPU in the VDI server host?
25	What is the typical (current standard) amount of CPU's (sockets) per server?
26	What is the current standard amount of cores (excluding hyper-threading processors) per CPU in the server host?
27	How much physical memory (in GB's) is the current standard for the VDI host server?
28	Is the server capacity dedicated for VDI workloads or is it mixed with other workloads?
29	What is the maximum of Desktop VM's running on a server host?
30	Do you use specific hardware to accelerate (video) encoding of the remoting protocol?
31	How many vCPU's are typically (average) configured for each desktop VM?
32	Which OS is/are used for the desktop VM's?
33	How is the virtual Windows desktop typically licensed?
34	How is the user environment managed and/or virtualized in the virtual desktop?
35	What is the application virtualization ratio?
36	Which application virtualization solution is used within this VDI environment?
37	How are Windows and (non-virtualized) applications installed updated & managed in the VDI environment?
38	Which Security/Antivirus solution(s) are used?
39	Is the storage infrastructure specifically designed for VDI workloads?
40	Which storage technologies are used to host these desktops? (choose all that apply)
41	Which Storage Hardware Vendor is/are used for this VDI environment?
42	Which desktop image deployment/storage virtualization solution(s) is/are used for the VDI environment?
43	How many Windows applications are used in this VDI environment?
44	How many Web/Browser applications are used in this VDI environment?

45	Is Server Based Computing (SBC) used?
46	Does this SBC environment have a specific (project) name? (optional) This question is optional and this information will never be published. We only use this to identify duplicate environments.
47	In what phase is this SBC environment?
48	How is this SBC environment to be used/considered within the organization? (choose best fit answer)
49	From which region(s) are users working in this SBC environment?
50	Which are the most important user types (max 3) intended to use this SBC environment?
51	Choose up to three most important goals which drive this SBC environment?
52	At this moment how many users are currently using this specific SBC environment?
53	In 2-3 years how many users are planned to use this SBC environment?
54	At this moment what is the total designed capacity of simultaneous/concurrent desktop sessions for this SBC environment?
55	In 2-3 years what is the expected total designed capacity of simultaneous/concurrent sessions for this SBC environment?
56	Which connection broker solution(s) is/are used to provide access to this SBC environment?
57	From which brand is the server hardware to host the SBC environment?
58	What is the current standard Manufacturer of the CPU in the server host for SBC workloads?
59	What is the typical amount of physical CPU sockets per server for SBC server host?
60	What is the current standard amount of cores per CPU (excluding Hyper-Threading cores) in the server host for SBC workloads?
61	How much physical memory (in GB's) is the current standard for the host server for SBC workloads?
62	How many vCPU's are typically (average) configured for each Server VM?
63	How much (maximum if memory is dynamic) memory is typically (average) configured for each server VM?
64	Which OS is used for the SBC server (VM's)?
65	How is the user environment managed (profile/workspace) and/or virtualized in the SBC environment?
66	How many Windows applications are used in this SBC environment?
67	How many Web/Browser based applications are used in this SBC environment?
68	What is the application virtualization ratio in this SBC environment?
69	Which application virtualization solution is used within this SBC environment?
70	How are windows and applications installed updated & managed?
71	Which Security/Antivirus solution(s) are used in this SBC environment?
72	Is the storage infrastructure specifically designed for SBC workloads?
73	Which storage technologies are used to host SBC? (choose all that apply)
74	Which Storage Hardware Vendor(s) is/are used for the SBC environment?
75	Which desktop image deployment / storage virtualization are used in this SBC environment?
76	Do you currently use a unified communication solution within the VDI/SBC environment?
77	Do you do performance testing in your own environment? Choose all that apply
78	Which key innovation areas are vital to improve VDI/SBC adaption in the long run?(Choose max 3)
79	Will you introduce or change to a different hypervisor vendor within 2-3 years?
80	Will you introduce or change to new VDI/SBC broker vendor within 2-3 years?
81	Which WAN optimization/accelerator is used?
82	Which VDI/SBC related technology or question did we forget in this survey?
83	How likely would you participate again in this survey if we asked you again in...
84	Do you have any final questions or thoughts you would like to share with us?
85	What is your business-email address? (Confirmation) We will send you the complete results report when the survey is published. It will NOT be used for any other purposes. Your privacy is important to us.



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