Microsoft® Client Licensing in Virtual Desktop Environments

The purpose of this document is to provide an overview over the possible Microsoft client-side licensing and purchasing options for Server Based Computing (SBC) and Virtual Desktop Infrastructure (VDI) environments.

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About
This document has the purpose to provide an overview about the necessary Microsoft licensing in different virtual desktop access scenarios. The main focus is the client side licensing for the Windows® Desktop OS and Windows Server® access in virtual desktop environments. An additional assessment with a Fujitsu licensing professional is recommended to support your individual licensing scenario.

Licensing for Server Based Computing (SBC)
Server Based Computing provides hosted shared desktops, with applications shared among several users running on a terminal server. For task workers who use only the same limited set of applications every day, this is sufficient and provides a very low TCO (Total Cost of Ownership).
To access a shared desktop or even only a shared application hosted on a Windows Server, Windows Server Client Access Licenses (CAL) and Windows Server Remote Desktop Services Client Access Licenses (RDS CAL) are necessary. Depending on the scenario user- or device-based CALs can be chosen.
Each device or user, accessing Windows Server, must be assigned an individual Windows Server Client Access License. Additionally each device or user, directly or indirectly interacting with the Windows Server Graphical User Interface (GUI) for non-administration purposes, must be assigned an individual RDS CAL.
This also applies when interacting with parts of the GUI or using 3rd party software (e.g. Citrix® XenDesktop® or VMware® Horizon View™). Hosting of shared desktops on Windows Server always requires CALs and RDS-CALs for the accessing devices or users.

Windows Server, Windows Server CALs and RDS CALs can be purchased via the Volume Licensing and OEM offerings from Fujitsu.
The restrictions of Server Based Computing – multi-user capable applications, limited individuality and separation from other users – don’t make it applicable for real knowledge workers who need highest flexibility and individuality.

Licensing for Virtual Desktop Infrastructure (VDI)
In a VDI environment individual hosted virtual desktops with different types and versions of operating systems run as virtual machines on servers in the data center. They are isolated, and therefore fully protected from each other. Dependent on the IT strategy users could have personalized persistent or shared non-persistent desktop virtual machines (VMs).
Licensing depends on the operating system installed in the virtual machines as well as on the OS installed on the client devices accessing the virtual machines.
Depending on whether Windows Desktop or Windows Server OS is installed in the hosted virtual machine, different conditions apply.

Windows Server as virtualized Client OS
Windows Server can be used to provide hosted desktop VMs and can be even customized to look like a Windows Desktop OS. Costs can be reduced by leveraging the Windows Server Datacenter Edition, which includes the license right to run unlimited virtual instances of Windows Server per licensed physical server.
Client access licensing is in accordance to the described SBC scenario above. However, running Windows Server as the virtualized client OS has some trade-offs which have to be considered. For example software compatibility or application licensing and support models might be different for server and desktop OS.
If these restrictions do not apply, a SBC deployment should be considered first as it is far more resource efficient.

Windows Desktop Enterprise as virtualized Client OS
To run Windows Desktop OS on a virtual machine (VM) in a datacenter Microsoft’s “Virtualization Rights” are needed. As neither Windows Desktop OS licensed via retails (Full Packaged Product, FPP) or bundled with hardware (Original Equipment Manufacturer, OEM) includes these rights, Virtualization Rights have to be obtained via one of the three following models.
All three ways include the right to use the Enterprise edition of Windows Desktop OS on virtual machines.
To qualify for a Windows Enterprise upgrade and an attached Software Assurance a so called “Qualifying Operating System” must be licensed on the desired device. Qualifying OS are mentioned in the Microsoft Product List and are for example: Windows 8 Professional, Windows 7 Ultimate, Apple® Macintosh™. For Academic customers Windows 8 / Windows 7 Home Premium/Basic is also considered as a qualifying OS. An operating system not listed in the Product List is not a qualifying OS, for example: Linux, OS/2 or Windows 8 RT. Please note that Windows Embedded is a Qualifying Operating System but does only qualify for a Windows Embedded Upgrade and Software Assurance. This means the normal Windows desktop OS is not licensable this way.

1 The desktop OS licenses granted under volume licensing are upgrade licenses only.

2 To qualify for a Windows Enterprise upgrade and an attached Software Assurance a so called “Qualifying Operating System” must be licensed on the desired device. Qualifying OS are mentioned in the Microsoft Product List and are for example: Windows 8 Professional, Windows 7 Ultimate, Apple® Macintosh™. For Academic customers Windows 8 / Windows 7 Home Premium/Basic is also considered as a qualifying OS. An operating system not listed in the Product List is not a qualifying OS, for example: Linux, OS/2 or Windows 8 RT. Please note that Windows Embedded is a Qualifying Operating System but does only qualify for a Windows Embedded Upgrade and Software Assurance. This means the normal Windows desktop OS is not licensable this way.

A device licensed for the Windows Enterprise Upgrade with attached Software Assurance gains Virtualization Rights through SA benefits. This means on this device anyone can use Windows Desktop, independent of it running locally or remotely in a VDI environment. As the Virtualization Rights are bound to the Software Assurance subscription, these rights expire when the SA is cancelled. However, the Windows Enterprise Upgrade can be used perpetual on the local device in the latest version available at the time of SA expiration.

The primary user (>50% usage) of a device with a licensed Qualifying Operating System can be licensed for a Software Assurance per User. Henceforth the licensed user can use a remote Windows from any other device, even when it does not run a Qualifying Operating System. This is limited to a maximum of four instances of Windows running in virtual Operating System Environments (OSEs) or one instance of the software running in one physical OSE on (a) device(s) in the datacenter. The SA per user is a subscription and not perpetual, the usage rights end when the subscription is cancelled.

Devices which do not have a Qualifying Operating System (e.g. Thin Clients, Zero Clients or Tablets with non-qualifying OS), and therefore cannot be licensed with SA, can be licensed via a separate, standalone Windows Virtual Desktop Access (VDA) subscription license per device or user.

This license allows remote usage of Windows, either from one licensed device for all users or from all devices for one licensed user, as long as the subscription lasts.

Licenses mentioned in the options above can be obtained via the Microsoft volume licensing programs Open License*, Open Value, MPSA, Select Plus and Enterprise Agreement at Fujitsu.

*Only option 1 can be obtained via Open License program

**Comparison Table for Virtual Desktop OS Licensing**

<table>
<thead>
<tr>
<th>Licensing Requirements</th>
<th>Licensing per User</th>
<th>Licensing per Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Enterprise Upgrade</td>
<td>Software Assurance</td>
<td>VDA</td>
</tr>
<tr>
<td>The user’s primary work device must be licensed with a Qualifying OS</td>
<td>No device requirements; may be assigned to any user</td>
<td>Device must be licensed with a Qualifying OS</td>
</tr>
<tr>
<td><strong>Local Installation of Windows Enterprise</strong></td>
<td>Any device licensed with an OS listed in the Microsoft Product Use Rights (PUR) and any tablet with a diagonal screen size of 10.1 inches or less</td>
<td>The licensed device only</td>
</tr>
<tr>
<td><strong>Remote Access to Windows Enterprise through Virtual Desktop Infrastructure (VDI) or Windows To Go</strong></td>
<td>Any device</td>
<td>From licensed device and non-corporate devices while away from the office (through Roaming Use Rights*)</td>
</tr>
</tbody>
</table>

*Roaming Use Rights allow the primary user of any licensed device to access a virtual instance of Windows running in the data center (VDI) or Windows To Go from non-corporate devices, such as personally owned or hotel business center PCs, while away from the office.
Microsoft Client Licensing in Virtual Desktop Environments

Access Licenses for VDI with a Desktop OS
Depending on the technologies used in the VDI environment additional Microsoft Client Access Licenses (CALs) may be required. Administrative access is license-free for a limited amount of users.

Windows Server CAL
Any access to a Microsoft Windows Server from a client (device or user) will require the Windows Server CAL. This includes, but is not limited to, access to Windows Server based file shares, Active Directory Services, or any other application running on Windows Server, as well as connecting to virtual machines running on Hyper-V®. These licenses are available per user or per device.

Remote Desktop Services CAL
An individual RDS CAL must be assigned to any device or user, directly or indirectly interacting with the Windows Server GUI or using Remote Desktop Services technology (e.g. Microsoft Remote Desktop Gateway).

Client Licensing Examples
The following examples should help to figure out which kind of client side Microsoft OS and access licensing is best for given environments. Additional licensing, like for servers or applications, is not part of this paper.

Call Center
Scenario: A call center with 150 employees in 3 shifts wants to establish Server Based Computing (SBC) on Windows Server 2012 R2. Users will access their desktops via 50x FUJITSU Futro Thin Clients.

Solution: As the number of devices (50) is lower than the number of employees (150) a device based licensing approach is favorable. The use of SBC with Thin Clients does not require Desktop OS licensing (Software Assurance or VDA). A Windows Server CAL and Remote Desktop Services (RDS) CAL is required per Thin Client.

Result: 50x Windows Server CAL and 50x RDS CAL must be ordered to license the Remote Desktop access to the Windows Server OS.

VDI Migration
Scenario: A company with 200 users wants to migrate to a personal (persistent) VDI desktop. Users will continue to use their existing desktop PCs as client devices for VDI access. The devices are licensed with Windows Enterprise Upgrade and attached Software Assurance. The VDI technology used is VMware® Horizon™.

Solution: The licensed Software Assurance per device already includes the Virtualization Rights which are necessary to run Windows Enterprise in the VDI environment. The Software Assurance allows the use of a local instance of Windows on the licensed device as well as up to four virtualized instances. Using VMware Horizon to provide the Windows Desktop OS GUI, removes the need of RDS CALs. A Windows Server CAL per device is still required because all clients access the Horizon View Connection Broker which must be installed on a Windows Server OS.

Result: No additional Microsoft licenses have to be acquired for accessing virtual desktops from the already licensed devices, provided that Windows Server CALs are already present (e.g. for Active Directory or Windows file server usage).

Branch Office with Mobile Workers
Scenario: A new branch office for 25 users is set up. It will connect to the central VDI infrastructure in the headquarters datacenter. The users get a local Futro Thin Client with eLux™ and an additional tablet device with non-qualifying OS (e.g. Android™, iOS™ or Windows RT™) for mobile working.

Solution: With more devices (50) than users (25) a per-user licensing approach is more cost effective. As none of the devices have a Qualifying Operating System, a Virtual Desktop Access subscription per user is required.

Result: 25 VDA per-user subscriptions have to be obtained via Volume Licensing. Depending on the present (VDI) infrastructure additional Windows Server- and/or RDS CALs may be necessary.

Merger/Acquisition
Scenario: A small start-up with 10 employees has been acquired by a larger company which wants to integrate them in their VDI environment. Every employee has his own desktop PC with a Windows 8 Pro license.

Solution: As all desktop PCs are licensed with a Qualifying Operating System a Windows Enterprise Upgrade with attached Software Assurance can be purchased via Volume Licensing. This automatically provides Virtualization Rights to these devices and they can connect to a remote desktop. SA per user ships at a higher price and should only be obtained if more devices per user are present (or planned).
Result: 10x Windows Enterprise Upgrades with attached Software Assurance have to be purchased via Volume Licensing. Depending on the present (VDI) infrastructure additional Windows Server- and/or RDS CALs may be necessary.

Fujitsu’s offers to Microsoft Volume Licensing

Building on Microsoft´s Gold Competence for Volume Licensing and on the certified know-how of our licensing team of experts our activity covers the entire Microsoft volume license program portfolio:

- Open License and Open Value / Open Value Subscription,
- Microsoft Products and Services Agreement (MPSA) and Select Plus,
- Enterprise Agreements (EA) including Enterprise Subscription Agreement (EAS) and Server & Cloud Enrolment (SCE) Campus Agreement/ Enrolment for Education Solutions (EES).

For more information please visit
- Microsoft Software Licensing @ Fujitsu.com
- Licensing Solution Partner @ Fujitsu’s Extranet

Or contact our experts directly at VolumeLicensing@ts.fujitsu.com

Conclusion

This document has given a general idea about what kind of licensing options exist and when they apply. However, as mentioned above, it is strongly advised to contact the Fujitsu Volume Licensing team for further assistance. Their assessment of your existing IT environment and licenses provides the best base for a cost efficient and compliant licensing solution.