

Welcome to the *Directions on Microsoft* Licensing Fundamentals series.

### Introduction

Like it or not, technology and licensing are intertwined.

If you have limited technical familiarity with Microsoft product areas, these short backgrounders will get you upto-speed on basic terms and concepts ahead of time, and allow you to get more out of your upcoming training. This presentation is on the Windows client OS.

### New to licensing

Most organizations have a huge investment in Windows PCs and applications. They purchase large quantities of the Windows client operating system, OS for short. Customers acquire a Windows OS with the PCs they buy, and many also supplement these with Windows-related licenses purchased through their Enterprise Agreement.

### **Boot Camp attendees**

In the bootcamp we talk at length about why most organizations need to license Windows 10 Enterprise through their Enterprise Agreement, what their options are for licensing it, as well as how to navigate around the major potential licensing landmines, such as Virtual Desktop Infrastructure (VDI).

To get the most out of the bootcamp, it is helpful to have some technical background on concepts such as VDI beforehand. So, lets go.





## What is an Operating System?

- » Windows is an Operating System (OS)
  - » An OS is software that sits between the computer hardware and the applications
- » Tasks an OS performs (not a complete list)
  - » Allocates processor time, computer memory, and other computing resources to applications
  - » Handles keyboard, mouse, and touch input
  - » Sends output to the display screen
  - » Manages memory and disk

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Windows is an operating system. So what is an operating system? It is the software that manages the computer hardware and allows applications like Excel to run on that hardware.

Among other things, an OS

- Allocates processor time, computer memory, and other computing resources to applications
- Handles keyboard, mouse, and touch input
- Sends output to the display screen
- · Manages memory and disk

The OS is the somewhat magical force in the background that interconnects, arbitrates, coordinates, and schedules hardware resources and applications.

You can think of the OS as the mother in a house with toddlers.

The mom is the operating system. The house and the stuff in the house is the hardware. The kids are the software.

Without the mothers coordination and effort, it is hard to imagine anything but chaos. Neither the kids nor the house are going to be in good shape, and little positive or productive is going to be accomplished.

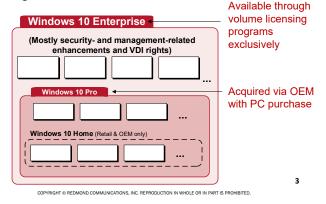
Yes, the mom is a magical force in the background that is often not fully appreciated until it is not present.

Same with the OS. You may not notice it much, until it doesn't work.



## **Windows Versions and Editions**

- » Versions
  - » Windows 10, Windows 8.1, Windows 7
  - » Issues that complicate moving to new versions: hardware & app compatibility, end user retraining, IT process reengineering
- » Editions



Now that we have a general idea what an OS is, let's look at the different flavors of Windows.

Since 2015, Microsoft has labeled its latest offerings "Windows 10", but there still are other older versions in widespread use, most notably Windows 7, and to a much lesser extent, Windows 8.1.

Both Windows 7 and 8.1 can continue to be used through the end of 2022, but starting Jan. 2020, rather than being free, Windows 7 patches will require expensive per device annual subscriptions. As for Windows 8.1, not that many organizations have it deployed.

The biggest reason old editions continue to linger is migration complexity.

- Moving to Windows 10 means contending with all sorts of issues like hardware and application compatibility, end user retraining, and patching and other IT process reengineering,
- It is akin to moving your household to a different city:
- Not only do you have to find a new house, move your stuff, and set up new living quarters, you also must
  coordinate a new school for kids, find new doctors, and on and on. There are a lot of moving parts that
  collectively make the task non-trivial.

That closes our conversation about versions; now let's move to the illustration in this slide which explains Windows editions.

Across Windows 7, Windows 8.1, and Windows 10 versions, Microsoft offers two editions, in other words "levels" of Windows that target business customers,

Here we picture the editions, with the empty white boxes representing various features.

- We didn't want to label them because we don't want to focus on specific technical features in this
  presentation.
- The important point is that as you move up the edition hierarchy, you get more features.

**Windows Pro** is the edition that business customers should acquire with their PC hardware purchases. Yes, there are lower level editions like Home, but those are for consumers, not organizations.

The Windows Pro license that the PC manufacturer bundles with the PC hardware they sell is perpetual, meaning the license never expires and can be used with the machine it came with until that machine dies.

Some organizations find Pro edition adequate and use it on their PCs. But most larger organizations choose to deploy Windows Enterprise instead because of its security- and compliance- related enhancements as well as more expansive use rights.

**Windows Enterprise** is available via Microsoft volume licensing programs only; it is never bundled with the hardware the PC manufacture sells. Enterprise edition can be licensed Per User or Per Device, and for all practical purposes, must be purchased as a subscription, with no residual use rights should the subscription lapse.

Most customers license Windows Enterprise via their Enterprise Agreement. It may appear as its own line item on their order, or as a component within a larger bundle, most notably "Microsoft 365", which we explore in great detail at the boot camp.

Back to the illustration. Windows Enterprise licenses provide more than just additional technical features. Special use rights that accompany Windows Enterprise subscriptions include use of Windows within virtual desktop infrastructure (VDI) scenarios, making Windows Enterprise licenses a necessity for customers using VDI.



# **Virtual Desktop Infrastructure (VDI)**

» Traditional Windows deployment scenario: "Thick client"

# Thick-client



» Virtual Desktop Infrastructure scenario: "Thin client"

# VDI iPad Keyboard & Windows client OS Screen drawing Server in datacenter COPPRIGHT © REDMOND COMMUNICATIONS, INC. REPRODUCTION IN WHOLE OR IN PART IS PROHIBITED.

Some listeners may have heard the term Virtual Desktop Infrastructure, but only have a vague understanding of what it is. If you fit this description, the next two slides are for you.

Just a quick reminder why this discussion is relevant—because many companies have widespread VDI use, or significant pockets of VDI use, but may not fully appreciate the licensing implications. Your organization's use of VDI may have a large influence on Windows Enterprise-related licensing decisions, including how many and what type of licenses to buy. We dive into these options in depth during the boot camp.

#### OK, so what is VDI?

**We'll start with an analogy.** VDI is akin to Facetime. Rather than being in close physical proximity, the people you converse with are at some separate location, but you are able to interact with them as if they are next to you.

Yes, today the local and remote experiences feel fundamentally different, but it is not too difficult to imagine Facetime-like technology evolving to the point where it is hard to tell whether a person is right next to you, or at some distant location.

With VDI, we're at that point.

In traditional Windows deployment scenarios, Windows Enterprise or Pro is installed and running on the user's local PC, overseeing applications installed and running on the user's device. Such scenarios are sometimes called a "thick client". The word "thick" describes the multiple OS and application layers running on the device.

The hardware and software driving your experience is in close physical proximity to you, akin to talking with someone right in front of you.

The VDI approach removes as much software as possible off the user's client device, and for this reason is often called a form of "thin client".

In VDI, the Windows client OS and associated Windows applications live on a server in some datacenter rather than on the user's client device.

The user essentially Facetimes with this software running in the datacenter. This Facetime-like experience is so good that it is hard for user to distinguish VDI from the traditional thick client deployment approach... except of course if connectivity is slow or severed.

That is the very high-level description of what VDI is; now let's provide a deeper technical description, and then

### address the obvious question, why would you ever want to do VDI?

In a VDI scenario, what resides on servers are individual instances of Windows Enterprise or Pro, each running a single user's client applications.

Through technology called hardware virtualization, multiple instances of a Windows OS can run on the same physical server and not interfere with each other. We discuss this in a different Microsoft Licensing Fundamentals presentation about Product Use Rights and Rules.

All that is required on users' client devices is a thin software layer to send the user's input to the remote Windows OS and application(s) and to display the OS & application's output on the user's screen.

This means that pretty much any modern end-user computing device is up to the task of being a VDI client. In the VDI scenario, the client device is simply providing a screen, input interfaces, and network connectivity.







# Why Deploy & Use VDI?

- » Allows Windows applications to be used from non-Windows devices
- » Stores the bulk of sensitive data in a secure datacenter rather than on client devices
- » Provides users with a consistent user interface and set of applications, regardless what device they use

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### So what is the allure of VDI?

There are several reasons why organizations are attracted to VDI, but we'll stick to our pick of the top three.

First, VDI allows users to interact with Windows client applications using non-Windows devices, such as iPads. You can't install and run Windows apps locally on an iPad, but you can make it look like it is running on an iPad by using VDI.

Second, VDI limits the security implications of lost or stolen devices by minimizing, if not eliminating, the storage of sensitive data on client devices. The consequence of theft or carelessness is the cost of a new client device, and not a risk of large data sets getting into the wrong hands.

Third, VDI provides users with a consistent user interface and applications as they roam between devices throughout the day. From each device, the user FaceTimes with the same personalized instance of Windows and Windows applications.







### **Microsoft Licensing Fundamentals Presentations**

- » Make your time at the Licensing Boot Camp as productive as possible by getting up-to-speed ahead of time
- » Available presentations
  - » Product Use Rights and Rules
  - » Windows client operating system (OS)
  - » Office suites (client applications)
  - » Group collaboration software (Exchange Server, Exchange Online, Office 365 suites, etc.)

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So now you have a high-level understanding of

- what an OS does,
- How Microsoft packages Windows into different versions and editions,
- how organizations acquire licenses for them, and, at a high level, why most opt for Windows Enterprise edition
- And what VDI is, why organizations find VDI alluring, and how use of VDI obligates you to purchase some form of Windows Enterprise subscription, meaning VDI has a major influence on your Windows licensing decisions

If you found this presentation helpful, be sure to check out our other Microsoft Licensing Fundamentals presentations listed here.

See you at a Directions on Microsoft Licensing Boot Camp.