

Comment lines: Ruth Willenborg: The new reality made possible by virtual images

Skill Level: Introductory

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Virtual images make installing and configuring software faster and easier than ever before. IBM® products shipped with virtual images, such as the beta versions of WebSphere® Application Server V7 and WebSphere Portal V6.1, have seen great success. The work being done on the Open Virtual Format (OVF) standard, for packaging and describing virtual machines and applications for deployment across heterogeneous virtualization platforms, should make it even easier still.

Can it get any easier than this?

This year, I created my first portal. This might surprise you after all these years (yes, IBM® WebSphere® Application Server just turned 10!), but I'll be honest and say that I had heard enough grumbings about installing IBM WebSphere Portal, that I just never wanted to try it. Then last spring, I received an early copy of the WebSphere Portal V6.1 beta driver as a virtual image, so I gave it a try. In just a few minutes, I had the server running and was using a wizard to create and customize my first portal. It was easy!

WebSphere Portal was first shipped with a virtual image as part of the product's beta program last spring, followed closely by the IBM WebSphere Application Server Network Deployment V7 beta, which also included virtual images. These images implement many of the how-tos and best practices I've been writing about over the last two years, and in this column, I would like to look more closely at these images and how easy they are to use.

Delivery

Virtual images are delivered as a set of compressed .zip files to be downloaded from the Internet. You select the set of .zip files for the format you want and let Download Director take care of the rest. The image download is made up of multiple .zip files that correspond to different logical disks within the virtual image; the images are designed with multiple logical disks, separating the IBM product binaries from profile and application data, as described in the developerWorks article [Using virtual image templates to deploy WebSphere Application Server](#).

In addition, the images are built with the operating system disk separate from the IBM product binaries. This separation makes it easier for IBM to support different hypervisor and operating system requirements. WebSphere products are currently shipped using four different image formats -- VMware Server (includes Workstation and Fusion), VMware ESX, OVF, and XEN formats -- with the hypervisor and operating system uniqueness isolated on one logical disk. WebSphere configuration techniques use wsadmin interfaces that are available across all WebSphere platforms.

Installation and configuration

Downloading and unzipping a beta or trial edition might not feel any easier than they have been in the past, but the installation, configuration, and usage stages certainly will. Traditional installation includes an installation program to run with a set of files that are copied to a prerequisite operating system. In contrast, the virtual image includes a pre-installed and pre-configured operating system and WebSphere Application Server. All you need to do is unzip the files and use the hypervisor facilities to start the new virtual machine.

The hypervisor requires some basic configuration information (number of virtual CPUs, and so on), after which the WebSphere product virtual image is ready to start. With WebSphere virtual images, the common configuration parameters for both the operating system and the application server are built into the initial activation. After you accept the license, but before you start on the network, you are prompted to provide network configuration information and to change passwords. After the operating system is reconfigured to match your requirements, you select your desired WebSphere configuration and provide your naming conventions for cell and node names. This is all that's required to achieve a running environment, configured to your specific needs. Alternatively, image activation can also happen unattended, as will be discussed shortly.

Usage

After the image is started, the server is identical to a server installed and configured through traditional installation mechanisms. There should be no unique migration or retooling issues; you can use your WebSphere product just as you always have.

At this stage, you also get additional advantages from virtualization. The beta or trial image runs in a virtual machine, isolated from other work on your system. When you are done, you just remove the files without worrying about an uninstall program leaving residuals in your operating system.

Automation and standards

IBM, VMware, XENSource, and other companies are working together on the Open Virtual Format (OVF) standard format for packaging and describing virtual machines and applications for deployment across heterogeneous virtualization platforms. This standard should make it even easier to deploy virtual images. You can see the start of this by choosing the WebSphere product image in OVF format, which includes an OVF file using a preliminary version of the standard. If you have VMware ESX 3.5, use the Virtual Infrastructure client Import Appliance menu to point to the OVF file, after you have unzipped the files. VMware processes the OVF file and obtains the disk information, virtual CPU, memory, and so on, directly from the WebSphere product-supplied OVF file, rather than prompting you for this information.

The WebSphere OVF file included with the image contains configuration parameters for the hypervisor (such as, how much virtual memory the image requires), but the parameters specific to your environment (such as host name) still need to be provided by you. These parameters can be entered interactively, as mentioned earlier, or passed in as an XML file. The virtual image contains an activation framework (described in the article [Automating deployment and activation of virtual images](#)) that enables unattended activation. Unattended support lets you script deployments of complete cells with ease. The OVF standard, once approved, is expected to include a standard format for passing parameters into a virtual image, very similar to the technique currently used in the virtual image.

Performance

Before closing, I would be remiss not to mention performance. Given my past life, I am often asked about the impact of virtualization on performance. My answer is, and likely always will be, “it depends.” I have seen performance data comparing WebSphere Application Server physical “on-the-metal” deployments to virtual machine deployments for the same workload (WebSphere Application Server with DayTrader) in different configurations where the results are anywhere from a 20% degradation to an over 20% improvement!

Though the results will vary for different applications, different hardware, and

different configurations, what I haven't seen is true magic. Please remember that, at the end of the day, there is a physical server with physical resources. No matter how magical virtualization technology might seem, when you run out of a physical resource, your performance is going to suffer. Plan your virtualization environments carefully, taking into account both physical and virtual resources.

To more fully utilize resources, consider implementing IBM WebSphere Virtual Enterprise, which added VMware support in 6.1.0.3. WebSphere Virtual Enterprise can optimize WebSphere application performance across multiple application servers and multiple physical servers, while taking into account both virtual and physical resources.

Summary

IBM WebSphere Application Server and IBM WebSphere Portal both deliver virtual images as part of their associated beta and trial programs, making installation and configuration faster and easier than ever. With the success of these images, and the OVF standards work underway, stay tuned to see how much faster and easier these processes can become!

Resources

Learn

- [Using virtual image templates to deploy WebSphere Application Server](#)
- [Automating deployment and activation of virtual images](#)
- [Using Tivoli Provisioning Manager to deploy composite virtual appliances](#)
- [Cloning a WebSphere Portal V6 installation](#)
- [Comment lines: Could it be time to virtualize?](#)
- [Comment lines: Virtual appliances -- Panacea or problems](#)
- [DMTF Virtualization Management Initiative \(VMAN\) Open Virtual Format](#)
- [IBM WebSphere Virtual Enterprise product information](#)
- [IBM WebSphere Extended Deployment V6.1.0.3 announcement of VMware support](#)

Get products and technologies

- Download virtual image: [WebSphere Application Server Network Deployment V7 trial version](#)
- Download virtual image: [WebSphere Portal 6.1 beta version](#)

About the author

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Ruth Willenborg is a Senior Technical Staff Member in IBM's WebSphere Technology Institute working on virtualization. Prior to this assignment, Ruth was the manager of the WebSphere Performance team responsible for WebSphere Application Server performance analysis, performance benchmarking and performance tool development. Ruth has over 20 years of experience in software development at IBM. She is co-author of *Performance Analysis for Java Web Sites* (Addison-Wesley, 2002).