Java Cloud Service for the WebLogic Administrator

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Keywords
Public cloud, Java Cloud Service, JCS, PaaS, OPC, administration, provisioning, agility

Introduction

The Java Cloud Service offers all the power of WebLogic but run as a managed service in the Oracle Cloud. Does this mean your job as a WebLogic Administrator will disappear? No, far from it - you'll be able to put your skills to far more valuable use!

Instead of worrying about how much hardware you need, tracking down patches, or just keeping the systems running, with JCS your focus will be different: liaising with your development teams to deploy new versions of applications safely into production, shaking out and fixing performance issues, scheduling patching and planning for future growth while maintaining consistent service levels - all tasks of high value to your users.

Overview of Java Cloud Service

If you've not yet heard about Java Cloud Service (JCS) this is Oracle's WebLogic Java EE application server and supporting software, run from Oracle's data centres, with all hardware and software costs bundled into a monthly subscription fee. It is one of Oracle's new services in its Platform as a Service (PaaS) portfolio.

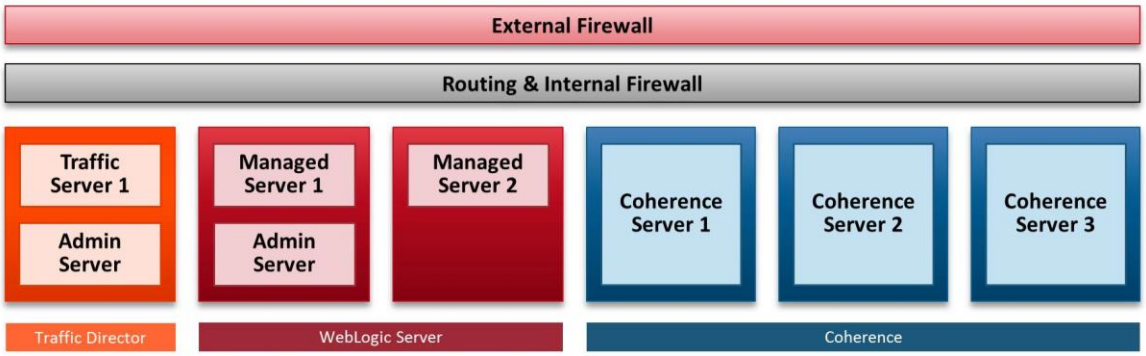
JCS was first launched in autumn 2012 as "Java as a Service," but that product has been re-badged as "JCS SaaS Extension" which, as its name suggests, is designed to make it easy to create relatively small add-ons to Oracle Cloud Applications (SaaS) but in a tightly constrained environment; it's not discussed further in this article or the presentation.

Over the last year we've seen the introduction of JCS Virtual Image (JCS-VI) and what's loosely called "full JCS" or "JCS PaaS". These two products offer the full power of WebLogic with the control an existing WebLogic Administrator is likely to want. They are suitable for running both custom enterprise applications and commercial off-the-shelf products.

A JCS environment itself, known as an "instance", is a self-contained set of virtual machines (VMs) running a single WebLogic domain that can include multiple managed servers, dedicated Coherence servers and a load balancer.

Architecture

The virtual machines provisioned for a single JCS instance, in this case a 2 node WebLogic cluster and 3 node Coherence cluster are shown in the following diagram:



As you can see the network topology is flat, but has software firewalls between all components. These vitual machines run on x86-64 servers and, for full JCS or JCS-VI, are under the administrator's full control – s/he can use SSH to access them remotely and make any changes they need, bearing in mind though that there are some restrictions to prevent breaking Oracle's „Cloud Tooling". In essence the provisioned system is very similar to what you might build at your own premises using either engineered systems (such as Exalogic or Oracle Database Appliance Virtual Platform) or conventional systems (except that Oracle Traffic Director is not available on those).

JCS Cloud Tooling

As part of full JCS Oracle provides what it calls „Cloud Tooling". This is code which runs on the central Service Managers of Oracle Public Cloud and within the VMs themselves and allow you to easily:

- Backup and restore an environment
- Scale up or down the number of nodes in a cluster (either WebLogic or Coherence)
- Patch the components

This automation makes your life as an administrator very much easier they are one or two click operations (or single REST API call) and, other than restoring the environment, all these changes occur without downtime of the application.

Oracle's PaaS Scope

The chances are if you are a WebLogic administrator today that you also look after other Fusion Middleware products. Oracle are using some of these products as the basis of higher level PaaS services, such as Integration Cloud Service (ICS) and Process Cloud Service (PCS), but we are also seeing the underlying products themselves starting to become available too. A good example is SOA Cloud Service (SOA-CS), which is architecturally the same as JCS, and this is expected to continue for most of Oracle's existing products.

The Administrator's Role

If you're primarily a middleware administrator and another team handles provisioning of the operating system and below, using JCS that may not be very different to how you work today.

Firstly, think about what you do in your daily work: the proportion of your time you spend installing software, creating domains and patching WebLogic will depend on the degree of automation you

already have in place, and the volatility of your environments, so the time savings from JCS will vary. We all know that applications change, that applications break and that performance problems arise — in my opinion "cloud" will make very little difference in this regard, but what it should do is allow you to dedicate more of your time to these business-visible, high value tasks, rather than more menial provisioning work.

Also, with the lower level PaaS services like JCS, SOA-CS and, to a degree, Database Cloud Service being architecturally very similar, skills that you learn to manage one will be easily transferred to others. Therefore I can see more traditional WebLogic or middleware administrators, and for that matter DBAs, becoming a more general purpose „Oracle Cloud administrator" who is able to manage all of the PaaS services at the operational level. Only when there are more specialized activities, such as dealiing with a performance issue, will either your previous DBA or WebLogic skills be called upon... though I am convinced that will still happen – moving software to Oracle's servers, and automatically provisioning/patching it, it will not make the traditional problems that occur with complex multi-tierred systems go away by magic! What I think will happen though is that administrators can spend more of their time fixing these kinds of issues, rather than mundane and, relatively low value, environment creation activities.

Whilst I've focussed on JCS here, the wider architectural view also needs to be considered including how other PaaS/SaaS systems, and those running on-premises, with co-exist with each other — something in which I expect administrators, with their intimate knowledge of existing systems, will be able to play a vital role.

Changing the way our IT infrastructure is provided also brings new opportunities to improve processes. For example, as well as the web consoles, all interaction with Oracle public cloud can be carried out via REST APIs. This allows for comprehensive automation, improving both efficiency and build quality, so I strongly encourage you to use this opportunity to both develop your skills and deliver more value to your organisations.

Closing Thought

Finally, what no broad-market cloud provider like Oracle can do, is be totally responsible for your systems. Your organisation will have a unique combination of business departments, functional requirements and software in use, as well as its own rhythm – peaks and troughs of activity that depend on new initiatives and perhaps cyclical demand: you are far better placed than any cloud provider to understand these factors and respond accordingly.

In this article I've only scratched the surface of what Java Cloud Service offers. In the presentation I will show how you create and manage JCS instances, talk in more detail about the provisioned virtual machines, as well as discuss some of the more practical aspects of using JCS to run both test and production applications.

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(version 1.0)