Paper: Real world Performance Tuning for Oracle ADF

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Summary Abstract

All too often, application performance is an afterthought, only addressed once the system is in production and the problem is critical. This paper will address the key recipes for building and tuning your ADF applications with performance in mind. If you want to make sure that your application go-live is a relief and a chance for a well earned rest rather than that start of a nightmare - this session is for you!

Content and Topic Breakdown

This paper is based on our experiences working with both internal users and external customers deploying production enterprise scale applications based upon the Oracle Application Development Framework (ADF). Although the whole area of deployment and application tuning is fairly well covered in the framework documentation it is evident from our experiences that developers do not know where to invest their time in order to get the maximum value from their tuning efforts. So, in the sort time available within this session I'll aim to cover the areas and techniques that I feel will offer the developer maximum value.

To this aim, this paper is divided into four sections:

- Preparing your Baseline
- Platform Tuning
- ADF Business Components Tuning
- User Interface and Controller Tuning

Preparing your baseline

In this introductory section of the paper I discuss the importance of establishing the correct procedures for testing and monitoring the changes in performance for the application as you undertake an application development. We can't leave performance tuning to the very end of a project, just like security, you need to be thinking in terms of performance from the very start.

However, experience with many users of the framework has shown that the actual testing carried out, on which system performance is evaluated and hardware requirements calculated, is often done very badly. A bad testing approach can skew the results of scalability studies and in several observed cases have overestimated the resources required by a factor of 10. So correct and realistic testing is an essential part of this whole story. It may be that tuning is not even required!

Platform Tuning

Once I have laid out the basic techniques and approaches to performing continuous testing to monitor your performance we will then look briefly at the core tuning considerations for the actual deployment

platform. We'll primarily look at what are the key Operating System configuration parameters to set, and the Java Virtual Machine settings that Oracle recommends. An additional performance bottleneck that we've also observed is the authentication process using LDAP, so we'll also cover some of the key configuration settings for addressing that issue.

ADF Business Components Tuning

Because the ADF Business Components (ADF BC) layer is responsible for talking to and from the database, it is often going to be responsible for the greatest amount of time spent within a particular transaction. As a result this is a key area to concentrate on. In this paper there is not enough time to tackle the generic subject of Database and SQL tuning, so instead we concentrate on the configurations that can be changed in the ADF BC layer. This will involve both how you can influence the interaction with the database, in terms of array fetching and optimizer hints, as well as some of the more mid-tier specific issues such as efficient resource pooling.

ADF UI and Controller Tuning

In the last part of the paper I concentrate on the UI layer. I start out this section explaining all of the performance optimizations that you will get for free, but then I'll go and and cover some of the changes that you can make.

Within the UI section there are many configuration parameters that you can change, some of which will have a dramatic effect on memory and CPU usage. However, there are also some considerations that you have to take in account when writing the application itself and so we'll cover some of those key best practices as well.

Wrap up

Performance tuning is a fascinating subject and of course the details and results will change from deployment to deployment. However, this presentation will give you the key tools that you will need to gain this skill for use with your own ADF applications.