



IBM Software Group

IBM WebSphere Application Server V6

Performance Overview



@business on demand.

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This presentation will focus on introducing the different technologies within WebSphere® Application Server that can be used to either monitor or enhance WebSphere Application Server's performance.

Goals

- Introduce performance technologies in WebSphere Application Server



The goals for this presentation are to introduce the different technologies within WebSphere Application Server that can be used to either monitor or enhance WebSphere Application Server's performance.



Agenda

- Performance Tools
 - ▶ Performance Monitoring Infrastructure (PMI)
 - ▶ Tivoli® Performance Viewer
 - ▶ Performance Advisors
 - ▶ Request Metrics
- Dynamic Caching



The agenda for this presentation is to discuss the different performance enhancing technologies within WebSphere Application Server at a high level. Each of the topics discussed within this lecture have an accompanying lecture that covers each topic in depth.

Performance Tools

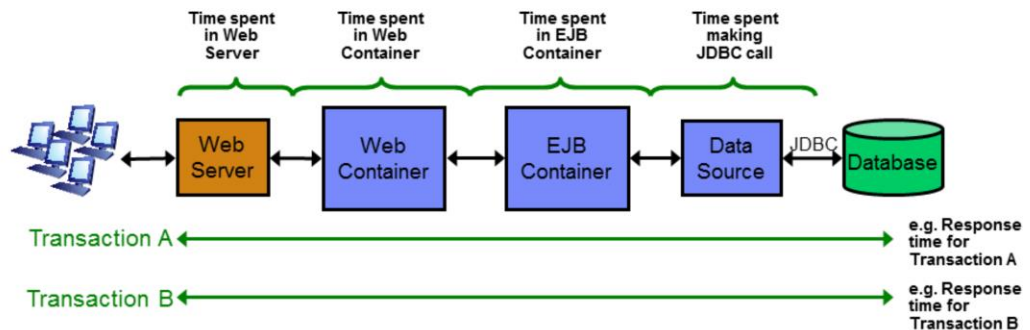
- Performance Monitoring Infrastructure (PMI) 
 - ▶ Monitoring infrastructure that collects performance data from a running Application Server
- Tivoli Performance Viewer
 - ▶ Collects PMI data from a running Application Server and allows user to visualize it through charts and graphs
 - ▶ Interface now included in Administrative Console 
- Performance Advisors
 - ▶ Provides configuration and tuning advice based on collected PMI data and the Application Server's current configuration



The tools listed are provided to make performance tuning your WebSphere Application Server environment easier and more efficient. The Performance Monitoring Infrastructure (PMI) externalizes the performance data from a running Application Server. The reason for externalizing this performance data is so that it can be consumed by other PMI clients for further analysis and decision making. One such PMI client is the Tivoli Performance Viewer which is provided as part of the Administrative Console. The Tivoli Performance Viewer provides an easily reachable client through which you can visualize and analyze WebSphere Application Server's current performance. The last piece that WebSphere Application Server provides is the Performance Advisors. The Performance Advisors use PMI collected from the running Application Server along with the current server configuration to generate configuration advice. The generated advice can then be applied back to the server to potentially enhance its performance.

Performance Tools (cont.)

- Request metrics Enhanced in V6
 - ▶ Tracks individual transactions, recording and correlating process time in each of the major components
 - ▶ New components supported in V6 – Web Services engine, JMS messaging engine, and AsyncBeans



Request Metrics allow you to monitor transactions as they move through the different components in a WebSphere Application Server environment. Request Metrics allow you to see not only the time spent running the whole request, but also the time spent running the request in each of the supported WebSphere Application Server components. The WebSphere Application Server components that support request metrics functionality are the HTTP server plug-in, Web container, Web Services container, EJB container, JDBC calls, Java™ Messaging Service and AsyncBeans. Additionally, Request Metrics are not limited to monitoring transactions that occur on just one Application Server. With Request Metrics you can monitor transactions as they fan out across a WebSphere Application Server environment.

It is important to note that the Request Metrics data differs from Performance Monitoring Infrastructure or PMI data, in that Request Metrics data is transaction aware and PMI data is not. The PMI service collects performance data across all currently running transactions, while Request Metrics collects performance data for individual transactions.

Dynamic Caching



- Application Server service used to temporarily store dynamically created J2EE application content
 - ▶ Relieves backend servers from repeatedly creating data therefore increasing performance
- Non-intrusive solution – no to limited amount of code modification needed to implement
 - ▶ Policy files used to store caching rules (cachespec.xml)
 - ▶ API available to programmatically work with cache
- Built-in invalidation support – rule-, time-, group, and programmatic-based methods



Dynamic caching is a built-in WebSphere Application Server service that stores generated application content to memory or disk so that subsequent requests can be served by using the already generated content. This increases the performance of the Application Server, because it does not have to go through the steps of reprocessing each step over and over again. Instead it can just grab the already generated result from cache and return it back to the user. Ideal contents to cache are those that are expensive to reproduce, but do not change frequently. For example, you may want to cache mutual fund quote lookups for a brokerage application.

Dynamic caching was designed to be a non-intrusive caching solution. Generally, using dynamic caching is as simple as enabling the dynamic caching service and defining cache policy files, otherwise known as cachespec.xml files, within your application. You will need to write code within your application when you want to cache WebSphere command objects or Java objects.

Dynamic caching has built-in invalidation support. Cache invalidation ensures that your cache stays fresh and consistent with minimal effort on your part. To enable invalidation within your cache you can define invalidation rules within your cache policy files, or it can be done programmatically within your application through the provided API.

Summary

- WebSphere Application Server provides many tools to assist in tracking down performance problems
- Performance Monitoring Infrastructure (PMI) externalizes performance data
- Tivoli Performance Viewer and Performance Advisors allow you to analyze and visualize PMI data
- Request Metrics provides transaction monitoring
- Dynamic Caching provides performance enhancements by reusing dynamic application content



In summary, this presentation has focused on the different performance technologies that are available within WebSphere Application Server. The Performance monitoring infrastructure externalizes performance data from a running Application Server. The Tivoli Performance Viewer allows you to collect and visualize the generated PMI data. The Performance Advisors provide configuration advice based on the performance data that is collected. Request metrics allows you to monitor individual transactions as they move through your WebSphere Application Server environment. Dynamic caching is a built-in WebSphere Application Server service that allows you to store dynamically created content so that subsequent requests can be served from the stored data instead of having to be regenerated.

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