

# smartpeAk | WLM™

Testing SmartPeak WLM in a  
Microsoft IIS Server environment



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## Overview

Dynamically control and prioritize IIS performance and availability from a central location.

Smartpeak WLM provides comprehensive workload management and optimization, allowing consolidation of multiple web applications on to a single IIS server, reducing cost and improving manageability.

### 01 Microsoft IIS 6.0 - Serving Web Applications to the world

Microsoft Internet Information Services (IIS) 6.0 is the version of Microsoft's web server shipped as standard with the Windows Server 2003 platform. It supports many types of technologies for implementing web sites including ASP.NET. This uses code written for the .NET Framework in languages such as C#.

Web applications can utilize a feature called 'Application Pools' within IIS which may be used to offload the processing from the main IIS service and also so that applications can be isolated from each other to provide improved security and resilience to failure. By default in IIS, there is a single application pool and all web applications use this pool. Best practice suggests that each distinct web application should run in its own application pool. Further isolation can be provided by running each application pool under a separate, restricted user account.

### 02 SmartPeak WLM - Guarantee Performance for Critical IIS Web Applications

When running multiple web applications on one IIS server, it is vital that critical instances are able to gain priority access to system resources when required in order to ensure that their performance is not degraded by other less critical applications, whether they be other web applications or non-web services such as backup or anti-virus agents.

SmartPeak WLM can be implemented on servers running Microsoft IIS to dynamically partition the allocation of system resources to individual web applications within IIS. This enables IT Administrators to automatically maintain Service Level Agreements whilst consolidating multiple web applications, whether on physical or virtual servers.

Even when only a single web application is being hosted on an IIS server, SmartPeak WLM can prevent contention with other processes. SmartPeak WLM can also help to mitigate the effects of Denial of Service attacks by ensuring that processes are not permitted to monopolize the CPU.

### 03 Ensuring Continued Availability Under Peak Load

In a test environment, SmartPeak WLM was used to demonstrate constant availability of a 'critical' web application whilst the server was subjected to a large load on both this and another web application installed. This may be achieved with a default, out of the box, configuration which allocates an equal share of the processor resource to each web application. For these tests, the 'critical' web application was assigned a 60% reservation of the available CPU meaning that it would always have at least this amount available on demand.

## 04 Test Results

The results in Figure 1 clearly demonstrate the difference in performance of the 'critical' application when SmartPeak WLM was used compared with the case when it was not enabled.

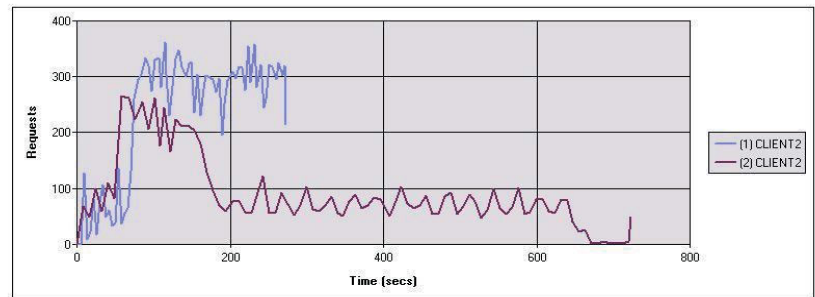
The "(1)Client 2" line illustrates the workload when using SmartPeak WLM to ensure priority access to resources is granted to this application.

The "(2)Client 2" line illustrates the workload when not using SmartPeak WLM such that this 'critical' application is in constant contention with the other web application being run in order to obtain processor resource.

The Y axis shows the rate of servicing web requests per second and the X axis shows how long it took to complete 5000 iterations of the testing cycle. This shows that the test took almost three times longer to complete and serviced the client at a far lower rate when not using SmartPeak WLM because there was insufficient processor resource available to fully provision both web applications in parallel.

"SmartPeak WLM enabled resources to be allocated to the 'critical' application when required, in order to process 164% more requests per second."

Test Run Graph



The table below summarizes the performance of the 'critical' web application whilst running in parallel with the secondary application:

	With SmartPeak WLM	Without SmartPeak WLM
Elapsed Time	272	722
Requests Per Second (Average)	238	90
Average Completion Per Iteration (sec)	3.3	10.8

In this example the critical application was granted a CPU reservation of 60%. A reservation constitutes a minimum, not a maximum, therefore other applications would not be permitted access to more than 40% of CPU time while the critical application required its reserved value or greater. SmartPeak WLM does not enable the completion of a greater total amount of work; it provides management of resource consumption by multiple applications. This ensures continued availability during heavy usage.

## 05 Conclusion

These results clearly demonstrate the benefit of SmartPeak WLM in a Microsoft IIS environment. This enabled resources to be allocated to the 'critical' application, when required, in order to process 164% more requests per second. It should also be noted that the secondary web application still always managed to complete its requests, so generated no errors, despite having its resource allocations reduced in favor of the 'critical' application.

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