RED HAT ENTERPRISE VIRTUALIZATION: SCALING MICROSOFT IIS

EXECUTIVE SUMMARY

The goal

Determine that Red Hat® Enterprise Virtualization is an effective platform for virtualization of Microsoft Internet Information Services (IIS) workloads and develop best practice for performance optimization on Red Hat's virtualization platform.

Why should I care?

Microsoft IIS is a major platform for the deployment of web-based applications. Good performance on standard IIS benchmarks indicates that Red Hat Enterprise Virtualization is a good platform for your IIS workloads.

WHAT WAS TESTED?

WEBBENCH WORKLOAD
MICROSOFT INTERNET INFORMATION SERVICES 7
MICROSOFT WINDOWS SERVER 2008 R2 RTM
RED HAT ENTERPRISE LINUX 5.4 (WITH INTEGRATED KVM HYPERVISOR)
DELL POWEREDGE R710 (INTEL XEON E5540–NEHALEM)

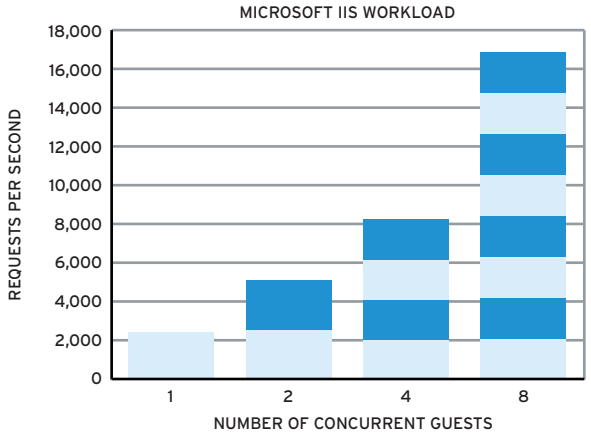
What was the result?

Red Hat Enterprise Virtualization scaled out IIS workloads well in all configurations tested, with low overhead costs of virtualizing multiple hosts and multiple virtual CPUs. IIS workloads scale out (# of virtual machines) better than scaling up (size of individual virtual machine) in this benchmark. Red Hat Enterprise Virtualization affords architectural flexibility in deploying virtualization of Microsoft Windows Server IIS-based web applications.

Microsoft IIS workloads scale out with near linear scalability

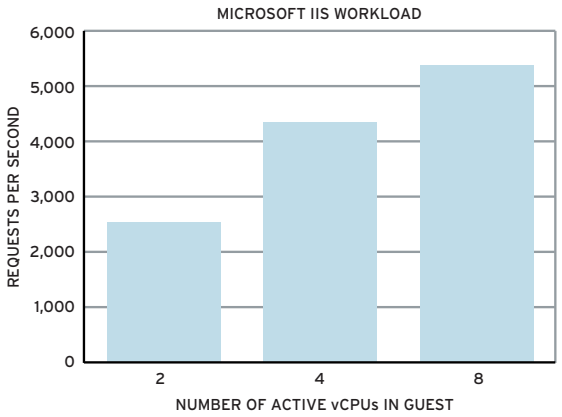
The performance of Microsoft IIS web applications was measured on Red Hat Enterprise Virtualization running on a two-socket Dell PowerEdge R710 server with 16 logical CPUs. Red Hat Enterprise Virtualization exhibited excellent scaling and performance across multiple configurations.

SCALING MULTIPLE 2-VCPU GUESTS



Scale-out of multiple two-vCPU guests on a single host yields near-linear scaling. Scaling up of a single VM with 2, 4, or 8 vCPUs on a single host shows performance drop-offs as the number of active vCPUs in the guest increases, indicating that IIS scales out better than scaling up.

SCALING VCPUS AND MEMORY OF A SINGLE GUEST



WHAT WAS THE GOAL?

Red Hat tested the performance of Microsoft IIS web applications hosted on Red Hat Enterprise Virtualization. We chose the WebBench 5.0 benchmark as the target for its performance testing. The results are scalability and performance measurements that are relevant for IIS web applications that provide insights into sizing and configuration of infrastructure for IIS web application virtual hosting.

WHAT WAS TESTED?

Red Hat tested a simulated Microsoft IIS workload on a Dell PowerEdge R710 server with two Intel E5540 processors. These are 2.53 GHz quad-core processors that support Hyper-Threading Technology. The host system has 72 GB of memory. The guest operating system was Microsoft Windows Server 2008 R2 RTM (Build 7600).

Scaling up the VMs

First, the performance of the WebBench 5.0 workload was measured by loading a single VM on the server and assigning it 2, 4, or 8 vCPUs in the VM. As shown in the graph "Scaling vCPUs and Memory of a Single Guest," the performance scales nearly linearly from 2 to 4 vCPU guests, and then scales slightly less than linearly from 4 to 8 vCPUs as a result of the increased IIS workload saturating the memory bandwidth of the host.

Scaling out the VMs

A second series of tests involved scaling out multiple VMs of 2 or 4 vCPUs per VM. The performance of the WebBench 5.0 workload shows linear scalability across the 2 vCPU scale-out as shown in the graph above.

WHAT NEXT?

For more information, visit **redhat.com/rhev/server** or contact your local Red Hat Enterprise Virtualization reseller.

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