



IBM Corporation (IBM) commissioned Principled Technologies (PT) to measure performance and power with Intel's vConsolidate OEM version 1 workload (profile 2) using VMware ESX Server 3.5 update 1 on the following quad-core servers:

- HP ProLiant DL580 G5 with four 2.93GHz Intel Xeon X7350 processors and 32 2GB DIMMs
- IBM System x3850 M2 with four 2.93GHz Intel Xeon X7350 processors and 32 2GB DIMMs
- IBM System x3950 M2 with eight 2.93GHz Intel Xeon X7350 processors and 64 2GB DIMMs

All three systems had identical PCI-e NICs and HBAs, but the IBM System x3950 M2 had twice as many of them as the other servers. Figure 1 provides a normalized comparison for the test servers with the optimum vConsolidate work units, which it calls consolidation stack units (CSUs). This chart normalizes the results to the performance of the HP ProLiant DL580 G5. That system's score is thus 1.00. Normalizing makes each data point in the chart a comparative number, with higher numbers indicating better performance.

In this summary, we discuss the best results for all servers. For complete details of the performance of each server at peak CSUs, see the test report at [www.principledtechnologies.com/Clients/Reports/IBM/IBMvCon0808.pdf](http://www.principledtechnologies.com/Clients/Reports/IBM/IBMvCon0808.pdf).

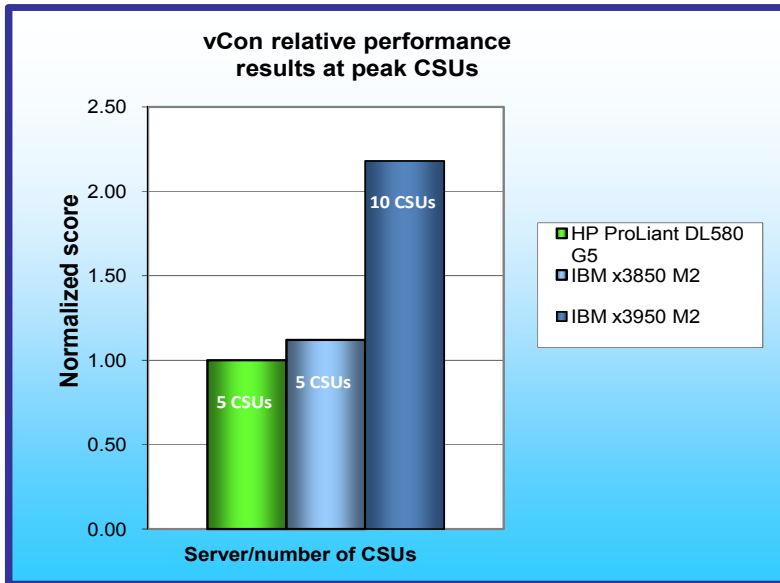


Figure 1: vConsolidate results at the optimal number of CSUs for the three servers we tested.

**KEY FINDINGS**

- Higher performance (see Figure 1)
  - The 4P IBM System x3850 M2 server delivered 11.8 percent more performance than the 4P HP ProLiant DL580 G5 server
  - The 8P IBM System x3950 M2 server delivered 118.4 percent more performance than the 4P HP ProLiant DL580 G5 server
- Higher performance per watt (see Figure 2)
  - The 4P IBM System x3850 M2 server produced 29.3 percent better performance per watt than the 4P HP ProLiant DL580 G5 server
  - The 8P IBM System x3950 M2 server produced 35.8 percent better performance per watt than the 4P HP ProLiant DL580 G5 server
- Lower power consumption (see Figure 2)
  - The 4P IBM System x3850 M2 server consumed 13.6 percent less power than the 4P HP ProLiant DL580 G5 server
  - The 8P IBM System x3950 M2 server consumed 19.6 percent less power than two of the 4P HP ProLiant DL580 G5 servers would have used

Figure 1 shows the IBM x3950 M2 server delivered better overall performance than the other two servers. It offers 118.4 percent better performance than the HP ProLiant DL580 G5 server and 95.4 percent better performance than the IBM x3850 M2 server.

We tested the servers with redundant power supplies active. As Figure 2 illustrates, the IBM x3950 M2 server delivered the highest performance per watt on the 10-CSU vConsolidate workload, a 35.8 percent increase over the HP ProLiant DL580 G5 server at five CSUs and a 5.0 percent increase over the IBM x3850 M2 server also at five CSUs.

We calculated performance per watt by dividing the vConsolidate score for each server at peak CSUs by the measured power when running at peak CSUs for a minimum 30-minute interval. We measured power at 208 V on all three servers.

Server	vCon results	Normalized performance	Average power	Idle power	Normalized performance per watt
HP ProLiant DL580 G5 (5 CSUs)	2.72	1.00	890.3	641.5	1.00
IBM x3850 M2 (5 CSUs)	3.04	1.12	769.5	514.0	1.29
IBM x3950 M2 (10 CSUs)	5.94	2.18	1,431.3	1,016.2	1.36

Figure 2: A comparison of the three servers in performance, power, and performance per watt at the peak number of CSUs.

For more information on these tests and to see the full test report, visit: [www.principledtechnologies.com/clients/reports/IBM/IBMvCon0808.pdf](http://www.principledtechnologies.com/clients/reports/IBM/IBMvCon0808.pdf).