



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

- HP ProLiant DL580 G5
- IBM System x3850 M2

The IBM and HP servers were similarly configured with four 2.93GHz Intel Xeon X7350 processors, 32 2GB DIMMs, and identical PCI-e NICs and HBAs. 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 lowest single one-CSU result. 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 five CSUs, see the complete test report at www.principledtechnologies.com/Clients/Reports/IBM/IBMVCon0208.pdf.

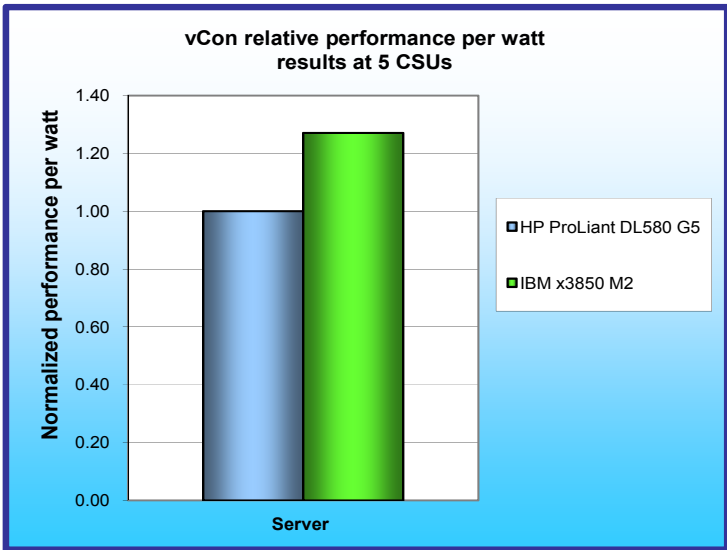


Figure 1: vConsolidate results at the optimal number of CSUs (five) for the two servers we tested.

As Figure 2 shows, with redundant power supplies and running idle, the IBM x3850 M2 server used 21.4 percent less power than the HP DL580 G5 server.

Server	vCon results	Average power	Idle power	Normalized performance per watt
HP ProLiant DL580 G5	2.63	942.6	641.3	1.000
IBM x3850 M2	2.84	800.6	503.8	1.271

Figure 2: A comparison of the two servers in performance, power, and performance per watt at five CSUs.

We measured power at 208 V on both servers.

For more information on these tests and to see the full test report, visit: www.principledtechnologies.com/clients/reports/IBM/IBMVCon0208.pdf.

KEY FINDINGS

- The IBM x3850 M2 server produced 27.1 percent better performance per watt than a similarly configured HP ProLiant DL580 G5 server with redundant power supplies active at five CSUs (see Figure 1).
- The IBM x3850 M2 server delivered 8.0 percent more performance running vConsolidate with the optimum number of CSUs (five) than the HP ProLiant DL580 G5 server (see Figure 2).
- With redundant power supplies active at five CSUs, the IBM x3850 M2 server used 15.1 percent less power than the HP ProLiant DL580 G5 server (see Figure 2).

We tested the servers with redundant power supplies active. As Figure 1 illustrates, the IBM x3850 M2 server delivered higher performance per watt on the five-CSU vConsolidate workload, delivering a 27.1 percent performance per watt increase over the HP ProLiant DL580 G5 server also at five CSUs.

Figure 2 shows the IBM x3850 M2 server delivered better overall performance than the HP ProLiant DL580 G5. It offers 8.0 percent better performance than the HP ProLiant DL580 G5, and used 15.1 percent less power to do so.

Part of the explanation for the higher power consumption of the HP ProLiant DL580 G5 is that it uses more power supplies than the IBM x3850 M2. In redundancy mode, it uses four power supplies, while the IBM x3850 M2 uses only two. It is possible to purchase a four-processor DL580 G5 server with only two power supplies, but that sacrifices redundancy. An experimental run to find out the impact of these extra power supplies showed that, under load, the DL580 G5 used 25 watts less power with two power supplies than with four. This means that the IBM x3850 M2 with redundancy delivered 23.7 percent better performance per watt than the DL580 G5 without redundancy.

We calculated performance per watt by dividing the vConsolidate score for each server at five CSUs by the measured power when running five CSUs for a minimum 30-minute interval.