

The vendor proposed an increase in CPU capacity when delayed nighttime Batch Processing began impacting online response – was it really necessary?



Background

Nighttime batch processing was dragging on into the start time of online service on peak business days. The processing that should have been completed within 5 hours took as long as 6 hours, preventing the online service from starting on time.

Systems Team's Actions

Asked about its recommendation on how nighttime batch processing could be shortened, the vendor proposed a CPU capacity increase.

With the huge cost involved in increasing CPU capacity the team needed to make sure that this countermeasure would really be able to resolve the batch-processing problem and asked us to validate the proposed CPU capacity increase for the purpose of shortening batch-processing time.

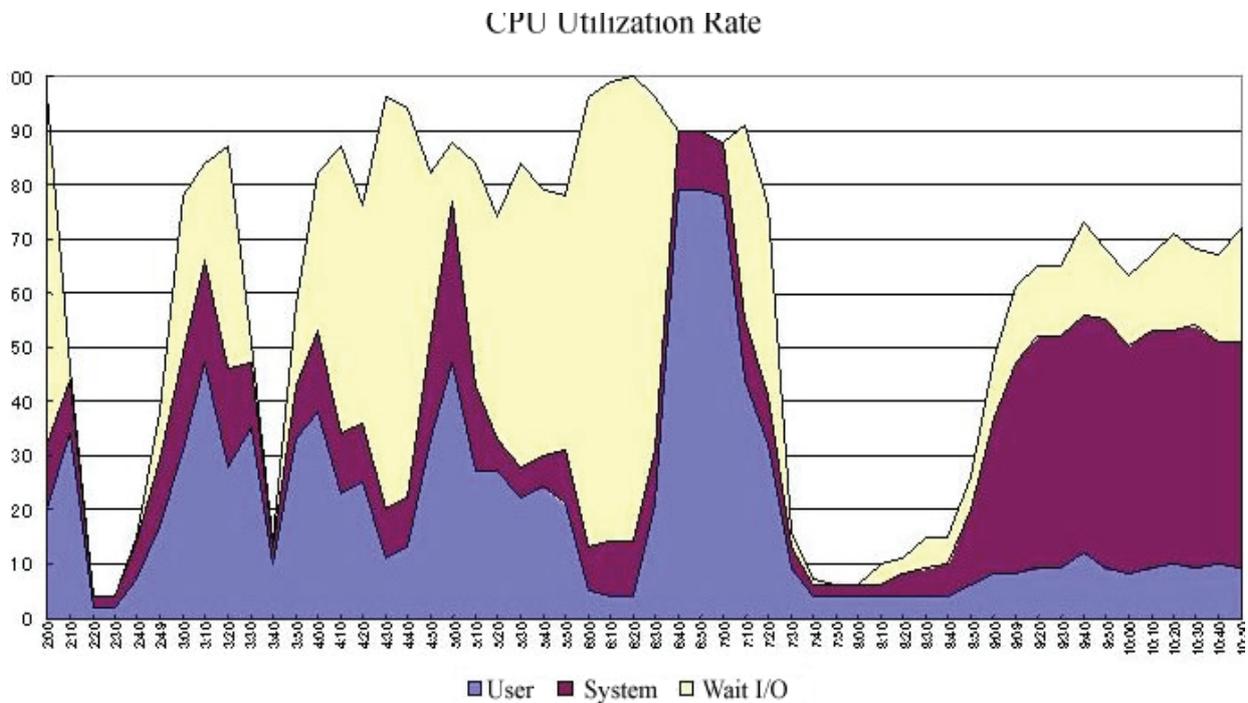
Performance Assessment

Our consulting service using ES/1 NEO identified the following:

Comparative analysis of the amount of tasks on ordinary and peak business days from their respective system logs found the following phenomena on peak days: Concentrated load on the specific disk device A

- There were periods of “I/O wait time” during which CPU was not fully utilized
- Business processes frequently accessing the disk device A were identified
- There was no problem with CPU and memory

Based on the four points above, we decided that the delayed nighttime batch processing was caused by the disk device A having a concentrated load and concluded that an increase in CPU capacity would still not shorten the batch processing time.



Graph: I/O wait time on peak business days

Proposal for Improvement

Distributing the load on disk device A over other disks would remove the bottleneck. We proposed the following three ideas for improvement:

- Distributing the load using modified applications
- Distributing files in the disk device A
- Migrating to higher-speed disk cache devices

Other measures we proposed were overhead reduction, task volume review, CPU performance improvement and extension of virtual memory ESQA.

System Team's decision

The system team was convinced that the vendor's proposal would not resolve this problem and decided against the proposed CPU capacity increase.

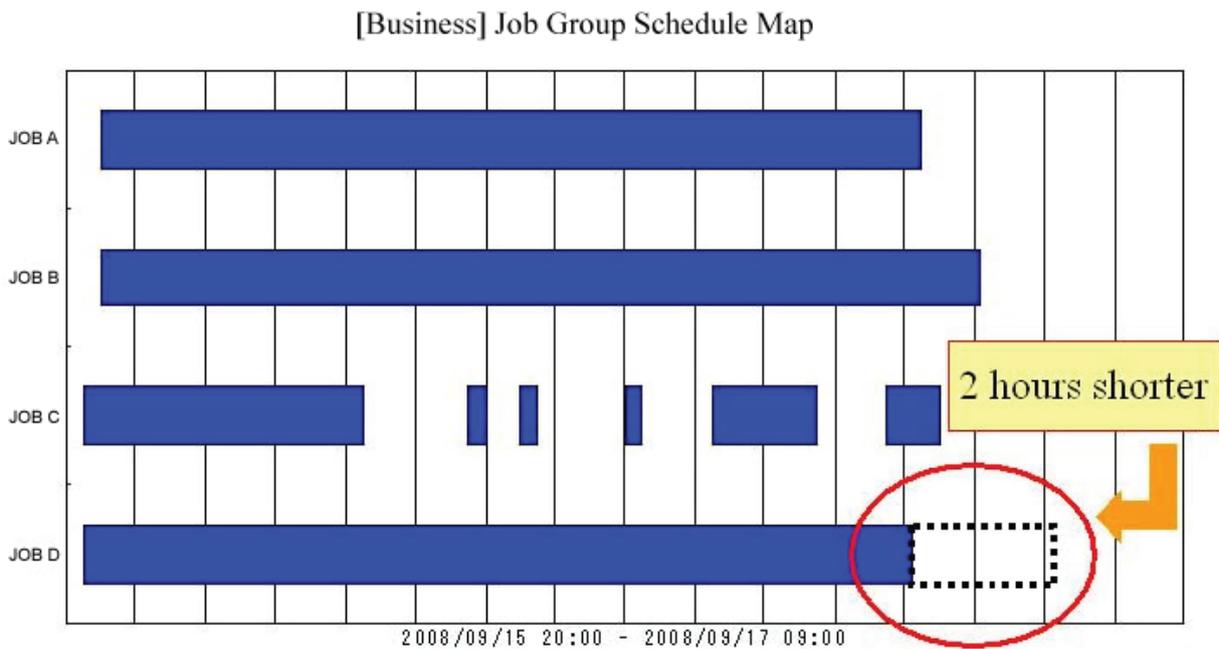
After a thorough internal discussion and examination of the benefits that could be expected from each of our ideas the team decided the most effective option was migration to higher-speed disk cache devices.

Conclusion

The migration to higher-speed disk cache devices shortened the nighttime batch processing from 6 to 4 hours, saving 2 hours and allowing the online service to start as scheduled. Our other ideas for improvement, not employed on this occasion, constitute valuable information for their next system construction.

Results

Realization of a shortened Batch Processing time without increasing CPU Capacity



If the vendor proposed increase in CPU capacity had been implemented, without sufficient validation of the proposal, our client would have seen no improvement in delayed nighttime batch processing despite the huge cost involved. They were delighted that the cost of the disk cache devices was much less than they would have paid for the CPU capacity increase and valued our technical capabilities. In addition to recommending solutions we were also able to identify problems relating to application and file arrangement that they were previously unaware of.