

Platform Symphony Multi-core Optimizer

Have you experienced any of these issues?

- Inability to maximize utilization of all the cores on multi-core grid hosts
- I/O contention slowing down application tasks running
- Can't dynamically place different workloads to use cores, memory, and I/O in the most optimal way

How can you solve these problems?

By deploying Platform Symphony Multi-core Optimizer on your Platform Symphony grid!

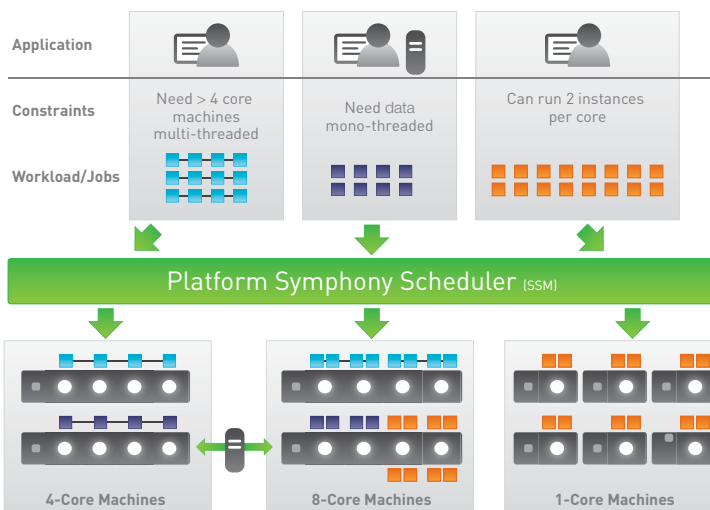


Image 1: Intelligent job placement with Multi-core Optimizer

What is Platform Symphony Multi-core Optimizer?

Platform Symphony Multi-core Optimizer makes the most out of multi-core servers – whether your application is multi-threaded or not. This add-on product ensures that financial services organizations can:

- Allow dynamic control of service and slot mapping to optimize core, memory, and I/O use according to workload requirements
- Reduce memory contention for I/O intensive applications by running multi-threaded services and by sending only one set of data per machine for multiple service instances
- Scale up and scale out seamlessly in mixed environments with old and new hardware
- Run heterogeneous workloads (multi-threaded, single-threaded, I/O-intensive, compute-intensive) efficiently in heterogeneous environments based on resource preference and affinity
- Guarantee application SLA through priority-based scheduling and task-level preemption

The number of transistors per chip is doubling every 18 months, translating into more, not faster cores. This generally means that there is a diminishing rate of “speed-up” as the number of cores goes up. A task that runs 3 times faster on a quad-core may only run 5 times faster on an 8-core machine. Platform Symphony Multi-core Optimizer is designed to help you increase this ratio to get better utilization across your grid no matter what the mix of cores/machines happens to be.

Improve Utilization with Platform Symphony Multi-core Optimizer

Optimize utilization in mixed environments

In an environment that mixes old and new hardware, with any number of cores/blades, and applications with different architectures and data requirements (single-threaded, multi-threaded, data-intensive, I/O-intensive, compute-intensive), it is difficult to schedule all tasks in the most efficient way. Platform Symphony Multi-core Optimizer dynamically maps services onto slots so you can share heterogeneous environments among any mix of applications.

Reduce data and memory contention

A big performance issue for data-intensive applications is that the same data needs to be sent multiple times to a host placing a burden on host memory and network bandwidth. With many cores on a CPU this will cause even greater I/O contention. Platform Symphony Multi-core Optimizer extends the common data optimization feature in Platform Symphony to optimize the distribution of common data and common data updates so that only one copy of the data is sent to each multi-core host serving the same session. The single copy of common data is shared between all SIMs and SIs associated with the same session on the same host (Image 2).

Oversubscribing slots to improve utilization

You can improve overall cluster utilization by over-scheduling low priority work to available cores. Normally, this would play havoc with service levels, however, Platform Symphony Multi-core Optimizer enables preemption of tasks within a single application so when a high priority task comes in, it will preempt the lower priority tasks currently running. This lets you achieve better overall utilization of infrastructure while still ensuring SLAs are met (Image 1).

The Value of Platform Symphony Multi-core Optimizer

Application performance and scalability improvement

- Reduce I/O and memory contention in multi-core environments

Improve utilization and reduce capital and operating expenses

- Run multiple I/O-intensive tasks per core, efficiently matching resources with non-uniform workload

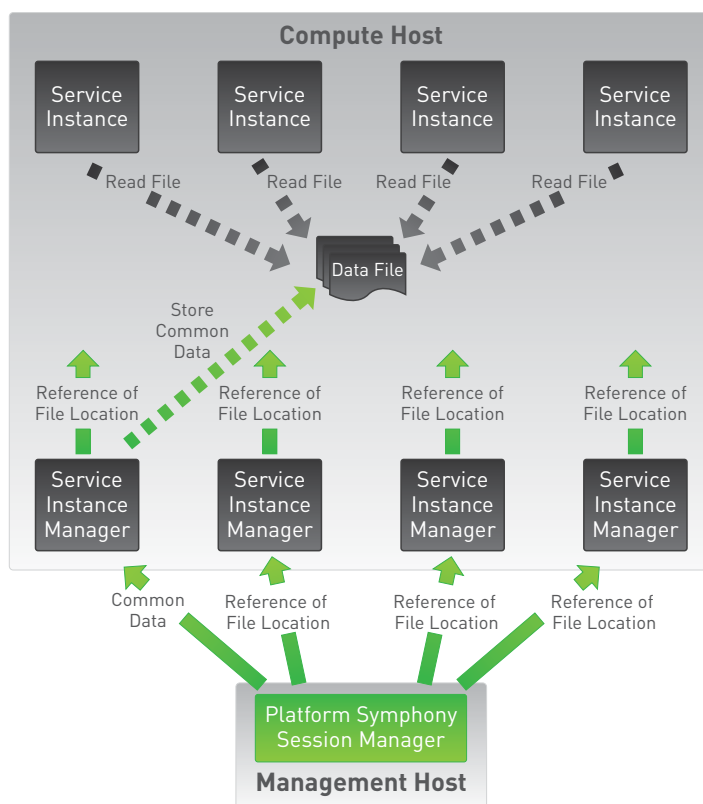


Image 2: Common Data Optimization

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