

Solution Overview

Platform ISF Adaptive Cluster

Turn static clusters and grids into dynamic, shared environments



Have you ever wanted to be able to do the following?

- Break through the barrier of static compute resources
- Keep servers busy and guarantee service at the same time
- Share computing environments that feature heterogeneous physical and virtual resources
- Eliminate cluster and queue sprawl

Platform ISF Adaptive Cluster allows you to consolidate multiple application silos in order to improve utilization, deliver improved service levels, and reduce costs. If you've had to manually provision operating systems or virtual machines, you will appreciate the automated, workload-driven server repurposing that Platform ISF Adaptive Cluster provides.

What is Platform ISF Adaptive Cluster?

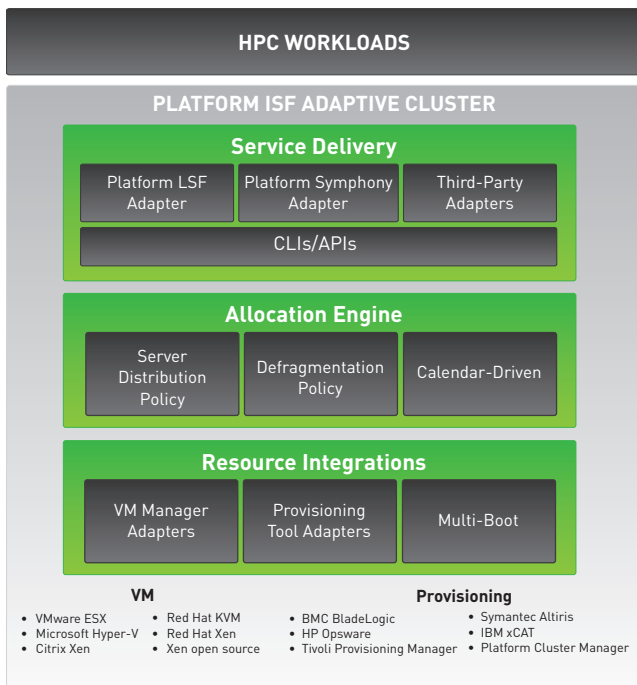
Platform ISF Adaptive Cluster turns static clusters and grids into dynamic, shared computing environments using heterogeneous physical and virtual HPC resources. It allocates resources dynamically based on Platform LSF and Platform Symphony workload demands. By being able to quickly repurpose servers and application environments based on flexible, workload-aware policies, customers enjoy tangible business benefits:

- Better utilization and service at lower cost by eliminating cluster and queue silos
- Wait-times are reduced, and jobs complete faster
- Users perceive a larger resource pool
- Administrator workload is reduced through automation
- Power consumption is reduced

Platform ISF Adaptive Cluster Use Cases

Eliminate Cluster and Queue Sprawl

Cluster sprawl occurs when, in order to ensure acceptable service levels, each department deploys its own cluster. While this guarantees SLAs it results in costly, over-provisioned, but under-utilized silos that are expensive to manage and maintain. A better solution is to partition a single cluster into multiple logical clusters with queue level policy directives. While total management costs are reduced by consolidating to a single cluster, maintaining large numbers of department-specific queues is challenging, and resource sharing is limited so total costs remain high.



With Platform ISF Adaptive Cluster, users enjoy better service levels and servers are better utilized and easier to administer. How?

- Infrastructure adjusts based on changing, real-time business demand
- Sharing policies guarantee SLAs, but allocation can “flex” to tap idle resource owned by other groups

Remove Application Stack Silos

Application stack silos typically feature a single cluster shared by a number of applications. This leads to higher utilization rates than in the previous scenarios. However, the effectiveness of sharing is constrained by static application stack, making it difficult or time-consuming to switch resources from one application to another.

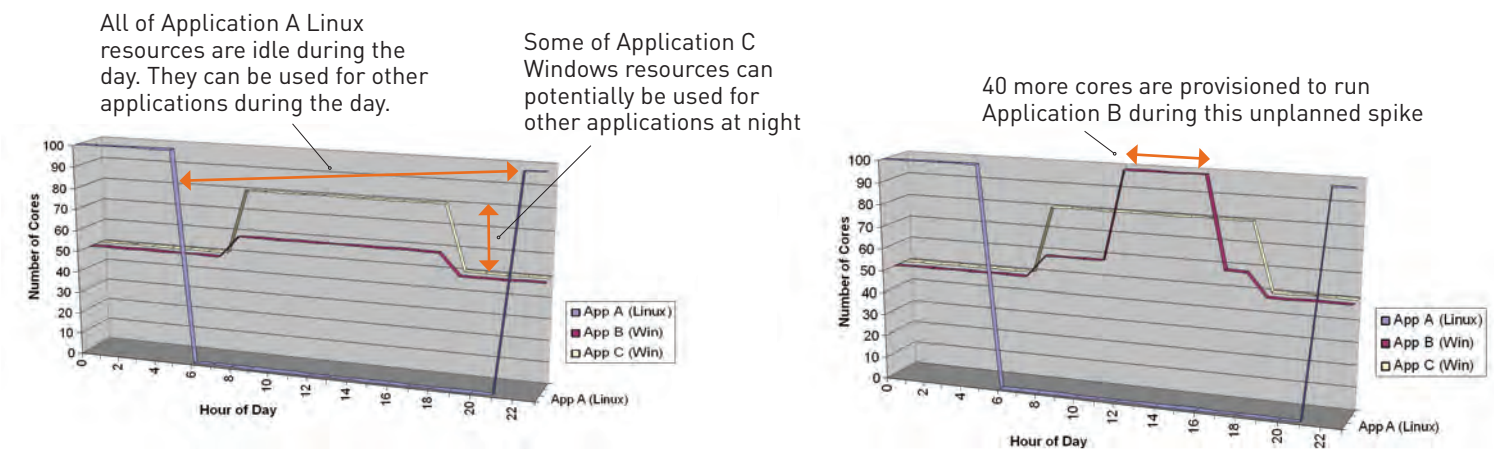
Platform ISF Adaptive Cluster allows you to improve utilization while meeting service levels by changing host personalities dynamically based on workload demand. Thus the existing OS and application stack silos can be eliminated.

Reduce Large Job Starvation

In a homogeneous hardware and operating system environment, jobs with varying memory sizes cause the memory allocation to be fragmented leaving no room for large memory jobs. To avoid such problems, many sites reserve dedicated servers for large memory jobs. This leads to sub-optimal resource utilization.

Platform ISF Adaptive Cluster solves this problem by using “smart” allocation to place workloads in VM containers so they can be efficiently migrated to avoid fragmentation. As a result, large jobs can be scheduled together with small jobs while maintaining high resource utilization.

Improved overall environment utilization



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