



RED HAT ENTERPRISE LINUX ADVANCED PLATFORM

RED HAT CLUSTER SUITE

Why deal with outages when the solution is already built right into your OS?

OVERVIEW

Balancing budget and performance while reducing risk is an ongoing challenge for all businesses whose services rely on an IT infrastructure. It's not enough to simply have a group of well maintained servers behind a firewall. There is much more to consider. What happens when the hard drive fails? What happens when the request volume exceeds capacity? What happens when you need to apply software updates or perform routine maintenance that requires the application to be stopped or the system to be restarted? Outages are bad, especially when they are unplanned.

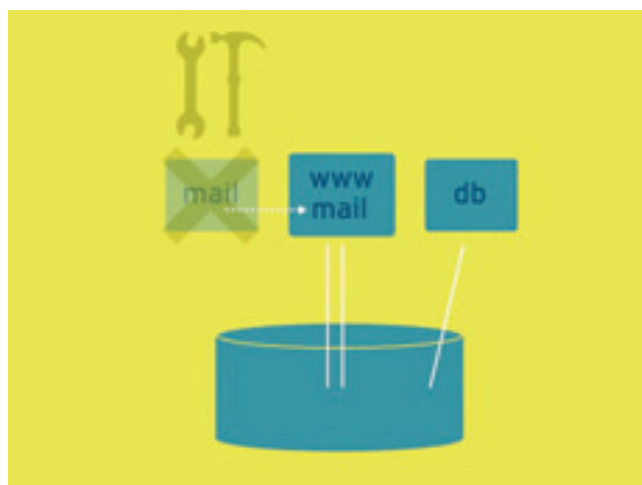
To minimize downtime, companies need a high availability solution that is easily expandable for future growth. And they want it at the lowest possible TCO (total cost of ownership). The solution? Clustering with Red Hat Enterprise Linux Advanced Platform.

WHY CLUSTER?

Outages, planned or unplanned, can be revenue impacting events. To prevent unplanned outages, clustering eliminates single points of failure in the hardware and software layers by providing failover capabilities (Graphic 1).



This same functionality can minimize planned outages as well. Failover is failover, whether the fault is forced by an administrator who needs to temporarily stop the server or an application on it. A server can be deliberately removed from the cluster for hardware or software updates and then added back to the cluster without causing denial of service (Graphic 2).



STORAGE SOLUTIONS WITH CLUSTERING

Scalable, large volume shared storage is a requirement for a high-performance clustering solution. NFS is a shared storage option, but its speed is slowed down by protocol overhead and is limited to 10-20 clients for heavy workloads. Red Hat Global File System (GFS), included with Red Hat Enterprise Linux Advanced Platform, allows storage to scale with the needs of the cluster. It performs at local file system speeds, and as many as 128 clients can access up to 25TB of data across 2 to 100+ nodes. All with inherent high availability. If one node is removed, the other nodes continue to function and process data. Because GFS is integrated into Advanced Platform, it also has similar update advantages—GFS updates are tested to be compatible with all the other Advanced Platform updates and then released on the same schedule.



CLUSTERING WITH VIRTUALIZATION

Dedicating a physical server for each cluster node often means excess capacity while nodes are not fully utilized. With virtualization, this excess capacity is realized. One physical server hosts multiple virtual cluster nodes, while still allowing each node to act as an independent server. Should a virtual server fail, it takes only minutes to restart it on another virtual machine, either on the same physical server or a different one. Once the failed virtual server is recovered, moving it and its applications back to the original virtual machine is performed with live migration and no disruption of service. As a component of Advanced Platform, virtualization can be seamlessly incorporated into the clustering solution. Again, with updates only released after they are thoroughly tested with all the other Advanced Platform components.

INTEGRATED INTO RED HAT ENTERPRISE LINUX ADVANCED PLATFORM

Clustering capabilities are integrated into Red Hat Enterprise Linux 5 Advanced Platform¹. All Advanced Platform components work together seamlessly as one solution set. When changes are needed, Advanced Platform updates are rigorously tested for compatibility with one another before being released. Updates for clustering, and all parts of Advanced Platform, are also guaranteed for the life of the subscription.

When Advanced Platform is used for clustering, there is no need to synchronize Advanced Platform updates with third-party software updates or worry about third-parties obsoleting their software. Fewer vendors means less time spent talking to support. Valuable time is not spent trying to isolate which vendor is responsible for the problem. This translates directly to less outage time and faster deployment.

CONCLUSION

Clustering is a vital component of any enterprise database solution where data must be readily available at all times. The clustering component of Red Hat Enterprise Linux Advanced Platform offers a cost-competitive highly available solution with automated failure and quick recovery, in addition to the efficiency of one vendor for updates and support.

¹ Red Hat Cluster Suite and Global File Systems (GFS) are included in Red Hat Enterprise Linux 5 Advanced Platform. They are still layered offerings for Red Hat Enterprise Linux 3 and 4.