Tomcat Cluster

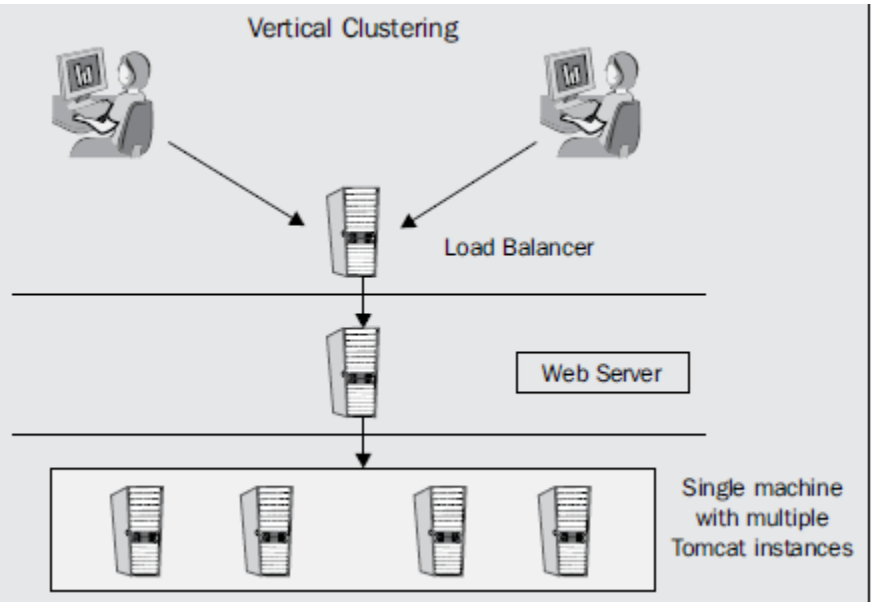
Apache Tomcat 7 supports both horizontal and vertical clustering. Here in this article we will discuss the implementation of both types of tomcat clustering in Apache Tomcat 7.

There are basically two types of clustering architectures implemented in a real-time IT infrastructure:

- Vertical clustering
- Horizontal clustering

Vertical clustering:

Vertical clustering consists of a single hardware with multiple instances running, using shared resources from the system. This kind of setup is mainly done in development and quality systems for the developer to test the functionality of the application. Also, vertical clustering can be implemented in production in certain cases, where there is a resource crunch for the hardware. It uses the concept of a shared resource such as CPU, RAM, and so on. The following figure shows the pictorial presentation of vertical clustering:



Every architecture has its pros and cons. Let's discuss some of the pros and cons of vertical clustering.

Advantages of vertical clustering:

Following are the advantages of vertical clustering:

- No network bandwidth issue, as instances are hosted on a single machine
- Hardware is shared by different Tomcat instances
- Addition of physical hardware is not required
- Single JVM can be shared by multiple instances

Disadvantages of vertical clustering:

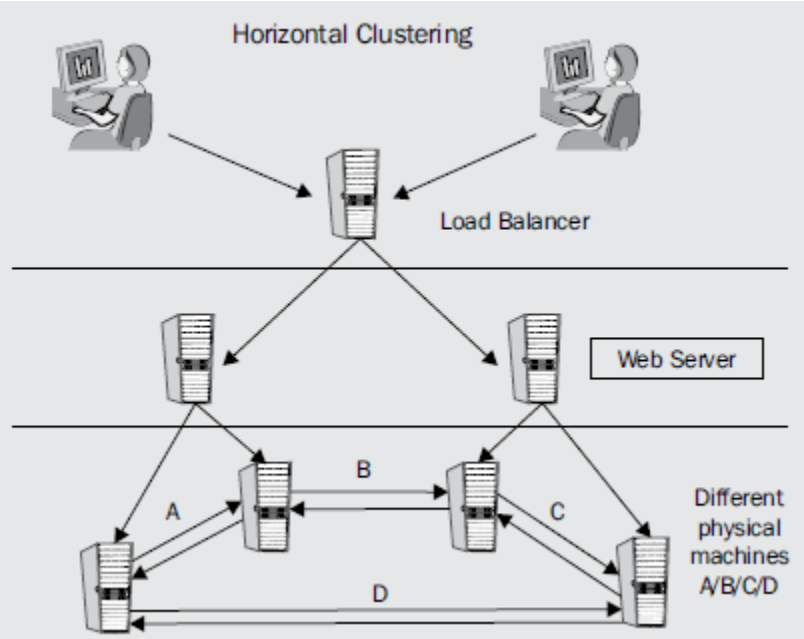
Following are the disadvantages of vertical clustering:

- No failover in case of hardware issues
- More maintenance issues
- High-end hardware used for implementation
- High cost

Horizontal clustering :

- ✓ In this type of clustering method, instances are configured separately on each physical machine and connected through high speed Ethernet.
- ✓ It's a very popular implementation technique in the production environment. Resources of one machine are not shared with the other machine. Also, failover can be done in the case of hardware failure.

The following figure shows the horizontal clustering for different Apache Tomcat instances using separate physical hardware:



Advantages of horizontal clustering:

Following are the advantages of horizontal clustering:

- Failover is possible in the case of hardware failure
- A low-end system can be used, as a single instance runs for each physical or VM instance
- Low maintenance issues

Disadvantages of horizontal clustering:

Following are the disadvantages of horizontal clustering:

- Network bandwidth issues
- Network connectivity issues between machines
- Each instance requires a separate physical hardware component