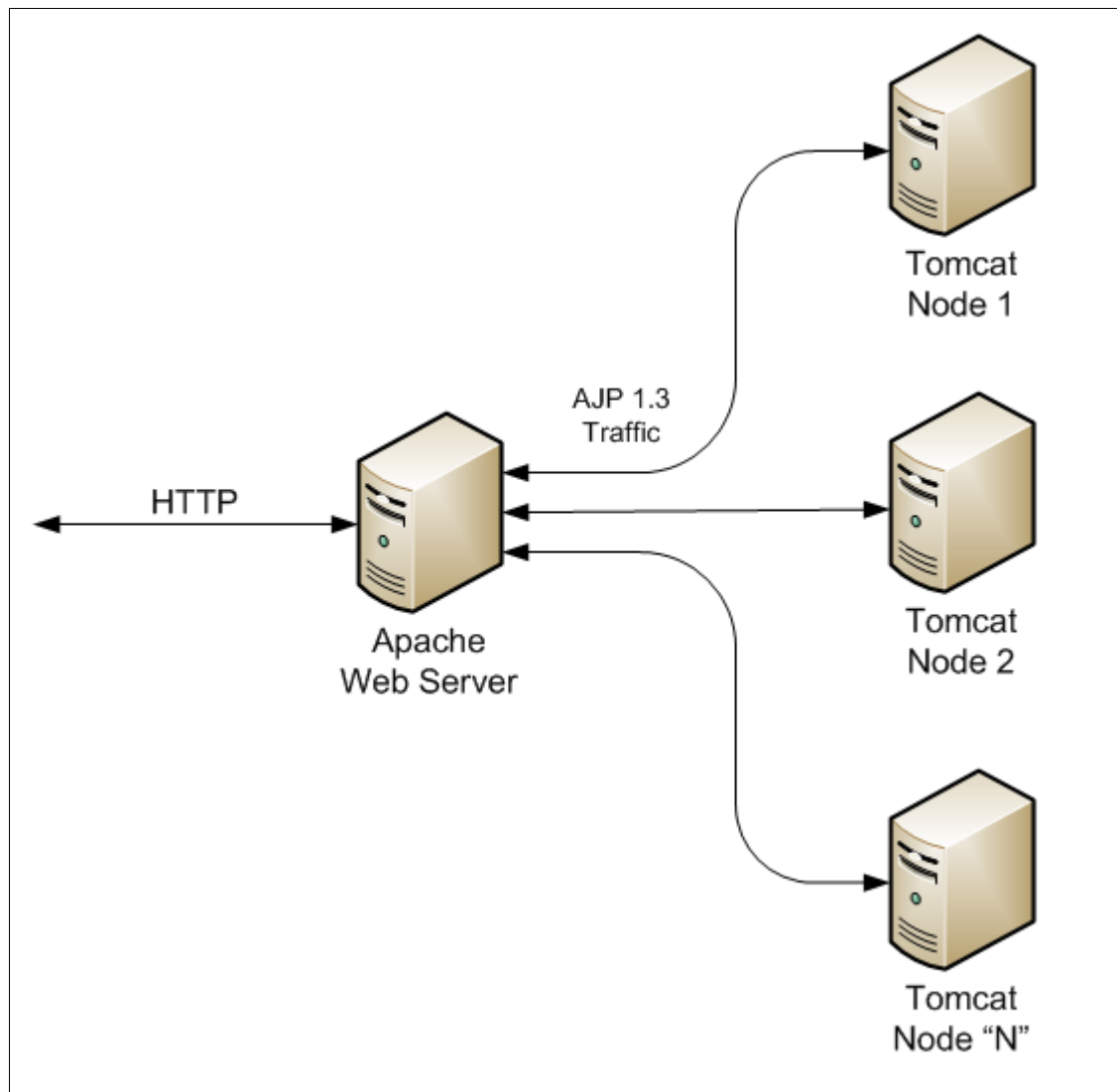
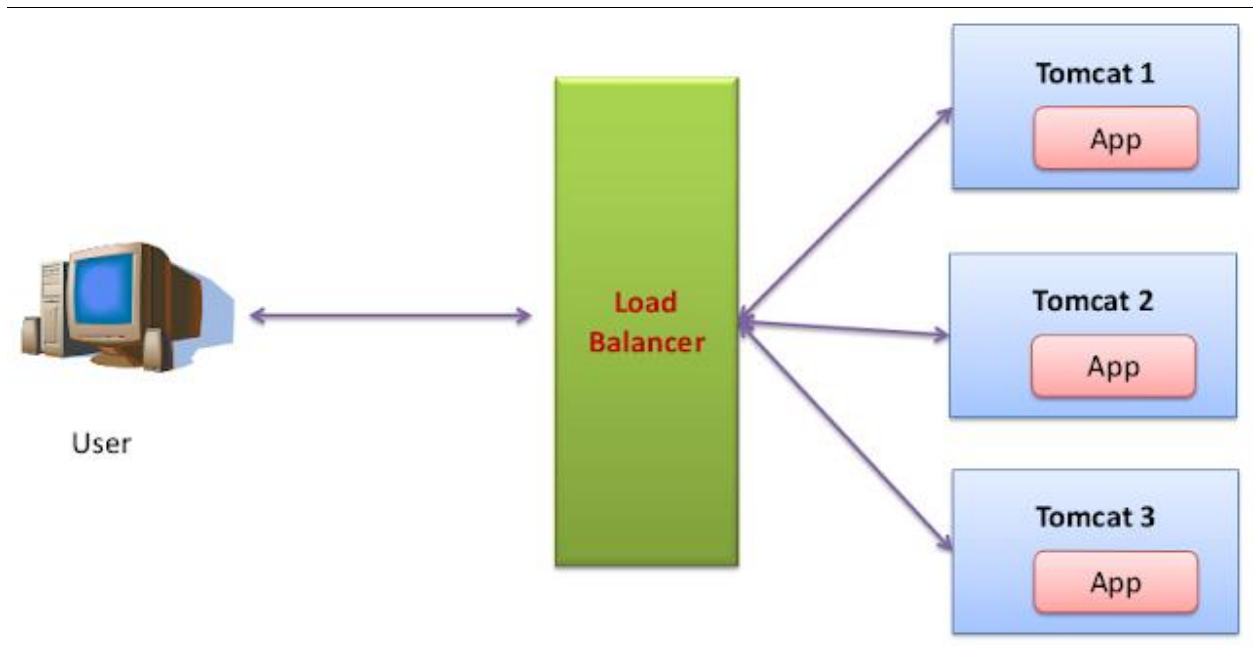


## Tomcat Load Balancer

A Tomcat cluster consists of a set of connected Tomcat Servers that work together so that, in many respects, they can be viewed as a single system. Each node, sets to perform the same task, controlled and scheduled by load balancer.



## Setup Load Balancer:



- Apache httpd web server will act as a Load Balancer.
- To provide the load balancing capability to Apache httpd server we need to include either the mod\_proxy module or mod\_jk module. Here we are using mod\_jk module.
- mod\_jk module as the load balancer. By default it uses the round robin algorithm to distribute the requests.

Before we run the Apache httpd server we need to tell Apache where is the server root.

Open the httpd server configuration file and edit the `SRVROOT` parameter using the appropriate directory.

### SRVROOT

```
1 Define SRVROOT "C:\Java\Apache24"
```

## Install the httpd service

Open the Windows terminal and go to the httpd server Installation bin directory.  
*httpd server bin installation directory.*

```
C:\Java\Apache24\bin>
```

Install the service with the following command:

Install httpd server service

```
C:\Java\Apache24\bin>httpd -k install
```

## Check that tomcat is running:

Open the browser in the URL: [localhost](http://localhost) and you should see the httpd server Welcome screen.

<http://localhost>

## mod\_jk installation

Extract the mod\_jk compressed file and copy the file `mod_jk.so` into the httpd server modules directory.

## Add mod\_jk to the httpd.conf

Edit the `httpd.conf` file.

Add the following line to load the connector.

Load mod\_jk

```
LoadModule jk_module modules/mod_jk.so
```

## Configure mod\_jk in the Apache httpd server

We are going to configure the mod\_jk to work with our Apache httpd server.  
Add the following lines to the httpd.conf

### Configure mod\_jk

```
1 JkWorkersFile C:\Java\Apache24\conf\workers.properties
2 JkShmFile C:\Java\Apache24\log\mod_jk.shm
3 JkLogFile C:\Java\Apache24\log\mod_jk.log
4 JkLogLevel error
5 JkMount /status status
6 JkMount /* balancer
```

JkWorkersFile C:\Java\Apache24\conf\workers.properties. In this file we define the Tomcat workers.

JkShmFile C:\Java\Apache24\log\mod\_jk.shm Defines where is the jk\_mod shared memory file.

JkLogFile C:\Java\Apache24\log\mod\_jk.log Defines where are the mod\_jk log file.

JkLogLevel error Sets the error level of the mod\_jk.

JkMount /status status Maps a worker to the status worker.

JkMount /\* balancer Mounts the Tomcat balancer

## Create the workers.properties file

In the `conf` directory of the Apache httpd server, create a new text file with the name `workers.properties`

Edit the `worker.properties` file and put the following lines:

*Workers properties*

```
01 worker.list=balancer,status
02
03 worker.tomcat1.type=ajp13
04 worker.tomcat1.port=8009
05 worker.tomcat1.host=localhost
06
07 worker.tomcat2.type=ajp13
08 worker.tomcat2.port=8010
09 worker.tomcat2.host=localhost
10
11 worker.tomcat3.type=ajp13
12 worker.tomcat3.port=8011
13 worker.tomcat3.host=localhost
14
15
16 worker.balancer.type=lb
17 worker.balancer.balance_workers=tomcat1,tomcat2,tomcat3
18
19 worker.status.type=status
```