

高可用

什么是高可用？

HA (High Availability) 。

系统一直能提供服务，那么可用性是 100%。

如果系统每运行100个时间单位，有1个时间单位无法提供服务。可用性：99%。

4个9：99.99%。8.76个小时不可用/年。

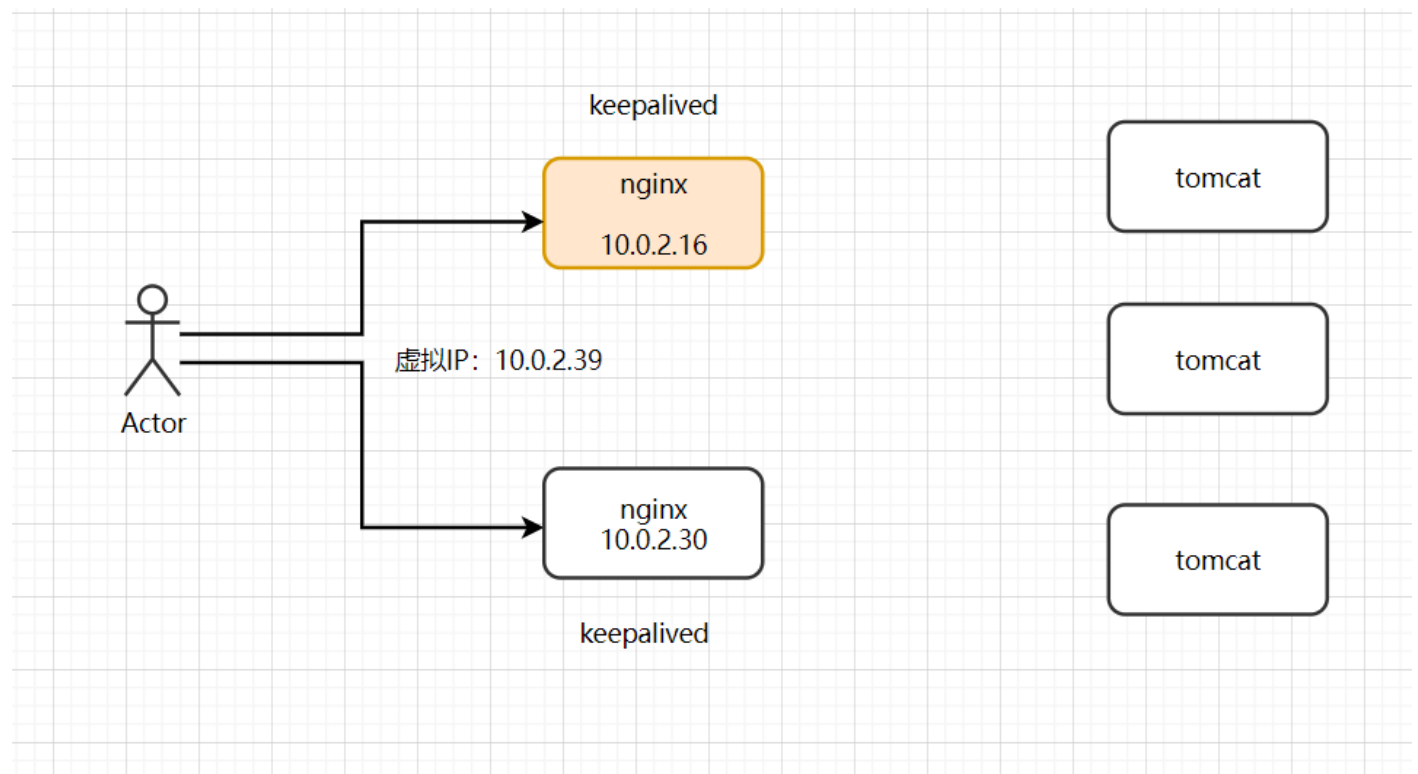
百度的首页。 www.baidu.com

如何保证高可用呢？

集群化、冗余。

核心：冗余。自动故障转移。

Nginx高可用组成



准备2台NGINX

复制机器。

修改IP：/etc/sysconfig/network-scripts/ifcfg-enp0s3

NAT端口映射：

Rule 16	TCP	127.0.0.1	9003	10.0.2.16	9003
Rule 2	TCP	127.0.0.1	1622	10.0.2.16	22
Rule 4	TCP	127.0.0.1	1081	10.0.2.15	80
Rule 5	TCP	127.0.0.1	81	10.0.2.15	8081
Rule 6	TCP	127.0.0.1	82	10.0.2.15	8082
Rule 7	TCP	127.0.0.1	9001	10.0.2.16	9001
Rule 8	TCP	127.0.0.1	91	10.0.2.15	81
Rule 9	TCP	127.0.0.1	9002	10.0.2.16	9002
Rule 17	TCP	127.0.0.1	3022	10.0.2.30	22

检查2台机器上的nginx

查看nginx状态：

```
[root@localhost ~]# systemctl status nginx
• nginx.service - nginx - high performance web server
  Loaded: loaded (/usr/lib/systemd/system/nginx.service; disabled; vendor preset: disabled)
  Active: inactive (dead)
  Docs: http://nginx.org/en/docs/
[root@localhost ~]#
```

修改2台nginx上的网页

```
[root@localhost ~]# cat /data/www/index.html
"static resource":10.0.2.16
[root@localhost ~]#
```

如果是NAT，做好端口映射。

浏览器访问：2台都做。

"static resource":10.0.2.30

安装keepalived

检查有没有 keepalived。

```
[root@localhost ~]# systemctl status keepalived
Unit keepalived.service could not be found.
[root@localhost ~]#
```

安装keepalived

```
[root@localhost ~]# yum install keepalived
```

检查keepalived

```
[root@localhost ~]# systemctl status keepalived
● keepalived.service - LVS and VRRP High Availability Monitor
   Loaded: loaded (/usr/lib/systemd/system/keepalived.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
[root@localhost ~]#
```

keepalived配置及启动

配置文件地址：

```
[root@localhost ~]# cd /etc/keepalived/
[root@localhost keepalived]# ll
total 4
-rw-r--r--. 1 root root 3598 Sep 30 2020 keepalived.conf
[root@localhost keepalived]# cp keepalived.conf keepalived.conf.bak
[root@localhost keepalived]# pwd
/etc/keepalived
[root@localhost keepalived]#
```

修改配置文件

主

```
[root@localhost keepalived]# cat keepalived.conf
! Configuration File for keepalived
```

```
global_defs {
}
```

```
vrp_instance VI{
    state MASTER
    interface enp0s3
    virtual_router_id 51
    priority 100
    advert_int 1
    authentication{
        auth_type PASS
        auth_pass 1111
    }

    virtual_ipaddress{
        10.0.2.39
    }
}
```

```
}
[root@localhost keepalived]#
```

从

```
[root@localhost keepalived]# cat keepalived.conf
! Configuration File for keepalived
```

```
global_defs {
}
```

```
vrp_instance VI{
    state BACKUP
    interface enp0s3
    virtual_router_id 51
    priority 20
    advert_int 1
    authentication{
        auth_type PASS
        auth_pass 1111
    }
}
```

```
}

virtual_ipaddress{
    10.0.2.39
}

}
```

启动：

```
[root@localhost keepalived]# systemctl start keepalived
[root@localhost keepalived]# ps -ef | grep keepalived
root    1307    1  0 08:23 ?        00:00:00 /usr/sbin/keepalived -D
root    1308   1307  0 08:23 ?        00:00:00 /usr/sbin/keepalived -D
root    1309   1307  0 08:23 ?        00:00:00 /usr/sbin/keepalived -D
root    1316   1208  0 08:23 pts/2    00:00:00 grep --color=auto keepalived
```

常见错误

先自己排查错误。

1. NAT转换中。ip地址不要超范围。

修改IP

```
[root@localhost /]# vi /etc/sysconfig/network-scripts/ifcfg-enp0s3
```

```
TYPE="Ethernet"
PROXY_METHOD="none"
BROWSER_ONLY="no"
#BOOTPROTO="dhcp"
BOOTPROTO="static"
IPADDR=10.0.2.17
NETMASK=255.255.255.0
GATEWAY=10.0.2.1
DNS1=114.114.114.114

DEFROUTE="yes"
IPV4_FAILURE_FATAL="no"
IPV6INIT="yes"
IPV6_AUTOCONF="yes"
IPV6_DEFROUTE="yes"
IPV6_FAILURE_FATAL="no"
IPV6_ADDR_GEN_MODE="stable-privacy"
```

```
NAME="enp0s3"  
UUID="0b9aa326-576d-4ed6-97d8-b35ebcddb122"  
DEVICE="enp0s3"  
ONBOOT="yes"
```

别忘了 NAT 映射。

2. keepalived.conf文件格式的错误。

正确的文件：

```
! Configuration File for keepalived
```

```
global_defs {  
}
```

```
vrp_instance VI {  
    state MASTER  
    interface enp0s3  
    virtual_router_id 51  
    priority 100  
    advert_int 1  
    authentication {  
        auth_type PASS  
        auth_pass 1111  
    }  
}
```

```
virtual_ipaddress {  
    10.0.2.21  
}  
}  
}
```

修改完文件后，重新启动。