搭建CDN内容分发系统

环境：rhel7.5虚拟机5台，关闭防火墙、SELinux，搭建好yum

结构

|  |  |  |  |
| --- | --- | --- | --- |
| 虚拟机编号 | 承担角色 | 主机名 | IP地址 |
| server1 | 客户机1  北京电信dns | Pc01  bjdns | 192.168.4.1  192.168.4.11 |
| Server2 | 客户机2  广州电信dns | Pc02  Gzdns | 192.168.4.2  192.168.4.22 |
| Server3 | CDN节点1  新网dns | Squid10.lxcdn.net  Dns100.xinnet.com | 192.168.4.10  192.168.4.100 |
| Server4 | CDN节点2  蓝汛dns | Squid20.lxcdn.net  Dns.lxcdn.net | 192.168.4.20  192.168.4.200 |
| Server5 | TEDU的web服务器 | Web | 192.168.4.50 |

#原理：本地客户机先找到本地dns服务器，然后本地dns服务器想新网dns服务器做出请求，新网dns把请求分发给蓝汛cdn，蓝汛cdn根据请求地址就近分配dns节点

#修改resolv文件

[root@server1 ~]# vim /etc/resolv.conf

[root@server1 ~]# cat /etc/resolv.conf

# Generated by NetworkManager

search tedu.cn

nameserver 192.168.4.11

[root@server2 ~]# vim /etc/resolv.conf

[root@server2 ~]# cat /etc/resolv.conf

# Generated by NetworkManager

search tedu.cn

nameserver 192.168.4.22

[root@server50 ~]# yum -y install httpd

[root@server50 ~]# vim /etc/httpd/conf.d/tedu.conf

[root@server50 ~]# cat /etc/httpd/conf.d/tedu.conf

<VirtualHost \*:80>

ServerName www.tedu.cn

DocumentRoot "/var/www/html"

</VirtualHost>

[root@server50 ~]# echo "TEDU IT" > /var/www/html/index.html

[root@server50 ~]# systemctl start httpd

[root@server50 ~]# curl http://127.0.0.1

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#部署cdn节点01

[root@server10 ~]# yum -y install squid

[root@server10 ~]# vim /etc/squid/squid.conf

[root@server10 ~]# cat /etc/squid/squid.conf | grep -v ^$ | grep -v ^#

http\_access allow all

http\_port 80 vhost

visible\_hostname squid10.lxcdn.net

cache\_peer 192.168.4.50 parent 80 0 originserver

cache\_dir ufs /var/spool/squid 100 16 256

coredump\_dir /var/spool/squid

refresh\_pattern ^ftp: 1440 20% 10080

refresh\_pattern ^gopher: 1440 0% 1440

refresh\_pattern -i (/cgi-bin/|\?) 0 0% 0

refresh\_pattern . 0 20% 4320

[root@server10 ~]# systemctl start squid

[root@server10 ~]# ss -ntplu | grep squid

udp UNCONN 0 0 \*:58895 \*:\* users:(("squid",pid=1237,fd=8))

udp UNCONN 0 0 :::41198 :::\* users:(("squid",pid=1237,fd=6))

tcp LISTEN 0 128 :::80 :::\* users:(("squid",pid=1237,fd=16))

#pc1测试访问

[root@server1 ~]# curl http://192.168.4.10/

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#查看日志

[root@server10 ~]# tail -1 /var/log/squid/access.log

1552369539.406 9 192.168.4.1 TCP\_MISS/200 418 GET http://192.168.4.10/ - FIRSTUP\_PARENT/192.168.4.50 text/html

#部署cdn02节点

[root@server20 ~]# yum -y install squid

[root@server20 ~]# vim /etc/squid/squid.conf

[root@server20 ~]# cat /etc/squid/squid.conf | grep -v ^$| grep -v ^#

http\_access allow all

http\_port 80 vhost

visible\_hostname squid20.lxcdn.net

cache\_peer 192.168.4.50 parent 80 0 originserver

cache\_dir ufs /var/spool/squid 100 16 256

coredump\_dir /var/spool/squid

refresh\_pattern ^ftp: 1440 20% 10080

refresh\_pattern ^gopher: 1440 0% 1440

refresh\_pattern -i (/cgi-bin/|\?) 0 0% 0

refresh\_pattern . 0 20% 4320

[root@server20 ~]# systemctl start squid

[root@server20 ~]# ss -ntpul | grep squid

udp UNCONN 0 0 \*:53779 \*:\* users:(("squid",pid=1323,fd=8))

udp UNCONN 0 0 :::40765 :::\* users:(("squid",pid=1323,fd=6))

tcp LISTEN 0 128 :::80 :::\* users:(("squid",pid=1323,fd=16))

#pc2测试squid02

[root@server2 ~]# curl http://192.168.4.20

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[root@server20 ~]# tail -1 /var/log/squid/access.log

1552370224.316 12 192.168.4.2 TCP\_MISS/200 418 GET http://192.168.4.20/ - FIRSTUP\_PARENT/192.168.4.50 text/html

##构建内容分发网络系统

#构建北京dns节点

[root@server1 ~]# yum -y install bind bind-chroot

[root@server1 ~]# vim /etc/named.conf

[root@server1 ~]# cat /etc/named.conf

options {

directory "/var/named";

forwarders { 192.168.4.100; };

};

[root@server1 ~]# named-checkconf /etc/named.conf

[root@server1 ~]# systemctl start named

#构建广州dns节点

[root@server2 ~]# yum -y install bind bind-chroot

[root@server2 ~]# vim /etc/named.conf

[root@server2 ~]# cat /etc/named.conf

options {

directory "/var/named/";

forwarders { 192.168.4.100; };

};

[root@server2 ~]# named-checkconf /etc/named.conf

[root@server2 ~]# systemctl start named

#构建新网dns，模拟权威dns节点

[root@server10 ~]# yum -y install bind bind-chroot

[root@server10 ~]# vim /etc/named.conf

[root@server10 ~]# cat /etc/named.conf

options {

directory "/var/named/";

recursion no;

};

zone "xinnet.com" IN {

type master;

file "xinnet.com.zone";

};

zone "net" IN {

type master;

file "net.zone";

};

zone "tedu.cn" IN {

type master;

file "tedu.cn.zone";

};

[root@server10 ~]# named-checkconf /etc/named.conf

[root@server10 ~]# cd /var/named/

[root@server10 named]# cp -p named.localhost xinnet.com.zone

[root@server10 named]# ll xinnet.com.zone

[root@server10 named]# vim xinnet.com.zone

[root@server10 named]# cat xinnet.com.zone

$TTL 1D

@ IN SOA @ rname.invalid. (

0 ; serial

1D ; refresh

1H ; retry

1W ; expire

3H ) ; minimum

@ NS dns100.xinnet.com.

dns100.xinnet.com. A 192.168.4.100

[root@server10 named]# named-checkzone xinnet.com xinnet.com.zone zone xinnet.com/IN: loaded serial 0

OK

[root@server10 named]# cp -p xinnet.com.zone net.zone

[root@server10 named]# ll net.zone

-rw-r----- 1 root named 184 3月 12 02:11 net.zone

[root@server10 named]# vim net.zone

[root@server10 named]# cat net.zone

$TTL 1D

@ IN SOA @ rname.invalid. (

0 ; serial

1D ; refresh

1H ; retry

1W ; expire

3H ) ; minimum

@ NS dns100.xinnet.com.

lxcdn.net. NS dns200.lxcdn.net.

dns200.lxcdn.net. A 192.168.4.200

[root@server10 named]# named-checkzone net net.zone

zone net/IN: lxcdn.net/NS 'dns200.lxcdn.net' (out of zone) has no addresses records (A or AAAA)

zone net/IN: loaded serial 0

OK

[root@server10 named]# cp -p xinnet.com.zone tedu.cn.zone

[root@server10 named]# ll tedu.cn.zone

-rw-r----- 1 root named 184 3月 12 02:11 tedu.cn.zone

[root@server10 named]# vim tedu.cn.zone

[root@server10 named]# cat tedu.cn.zone

$TTL 1D

@ IN SOA @ rname.invalid. (

0 ; serial

1D ; refresh

1H ; retry

1W ; expire

3H ) ; minimum

@ NS dns100.xinnet.com.

www CNAME www.tedu.cn.lxcdn.net.

[root@server10 named]# named-checkzone tedu.cn tedu.cn.zone

zone tedu.cn/IN: loaded serial 0

OK

[root@server10 named]# systemctl start named

[root@server10 named]# systemctl status named

● named.service - Berkeley Internet Name Domain (DNS)

Loaded: loaded (/usr/lib/systemd/system/named.service; disabled; vendor preset: disabled)

Active: active (running) since 二 2019-03-12 02:16:47 EDT; 4s ago

#部署蓝汛dns分离节点

[root@server20 ~]# yum -y install bind bind-chroot

[root@server20 ~]# vim /etc/named.conf

[root@server20 ~]# cat /etc/named.conf

options {

directory "/var/named";

forwarders { 192.168.4.100; };

};

acl client1 {

192.168.4.1;

192.168.4.11;

};

acl client2 {

192.168.4.2;

192.168.4.22;

};

view "zone1" {

match-clients {

client1;

};

zone "tedu.cn.lxcdn.net" IN {

type master;

file "tedu.cn.lxcdn.net.zone1";

};

zone "lxcdn.net" IN {

type master;

file "lxcdn.net.zone";

};

};

view "zone2" {

match-clients {

client2; any;

};

zone "tedu.cn.lxcdn.net" IN {

type master;

file "tedu.cn.lxcdn.net.zone2";

};

zone "lxcdn.net" IN {

type master;

file "lxcdn.net.zone";

};

};

[root@server20 ~]# named-checkconf /etc/named.conf

[root@server20 named]# vim lxcdn.net.zone

[root@server20 named]# cat lxcdn.net.zone

$TTL 1D

@ IN SOA @ rname.invalid. (

0 ; serial

1D ; refresh

1H ; retry

1W ; expire

3H ) ; minimum

@ NS dns200.lxcdn.net.

dns200 A 192.168.4.200

squid10 A 192.168.4.10

squid20 A 192.168.4.20

[root@server20 named]# named-checkzone lxcdn.net lxcdn.net.zone

zone lxcdn.net/IN: loaded serial 0

OK

[root@server20 named]# cp -p lxcdn.net.zone tedu.cn.lxcdn.net.zone1

[root@server20 named]# ll tedu.cn.lxcdn.net.zone1

-rw-r----- 1 root named 222 3月 12 02:54 tedu.cn.lxcdn.net.zone1

[root@server20 named]# vim tedu.cn.lxcdn.net.zone1

[root@server20 named]# cat tedu.cn.lxcdn.net.zone1

$TTL 1D

@ IN SOA @ rname.invalid. (

0 ; serial

1D ; refresh

1H ; retry

1W ; expire

3H ) ; minimum

@ NS dns200.lxcdn.net.

www A 192.168.4.10

[root@server20 named]# named-checkzone tedu.cn.lxcdn.net tedu.cn.lxcdn.net.zone1

zone tedu.cn.lxcdn.net/IN: loaded serial 0

OK

[root@server20 named]# cp -p tedu.cn.lxcdn.net.zone1 tedu.cn.lxcdn.net.zone2

[root@server20 named]# ll tedu.cn.lxcdn.net.zone2

-rw-r----- 1 root named 175 3月 12 02:57 tedu.cn.lxcdn.net.zone2

[root@server20 named]# vim tedu.cn.lxcdn.net.zone2

[root@server20 named]# named-checkzone tedu.cn.lxcdn.net tedu.cn.lxcdn.net.zone2

zone tedu.cn.lxcdn.net/IN: loaded serial 0

OK

[root@server20 named]# systemctl start named

[root@server20 named]# systemctl status named

● named.service - Berkeley Internet Name Domain (DNS)

Loaded: loaded (/usr/lib/systemd/system/named.service; disabled; vendor preset: disabled)

Active: active (running) since 二 2019-03-12 03:00:09 EDT; 3s ago

##测试结果

#测试新网dns可用

[root@server1 ~]# nslookup dns100.xinnet.com 192.168.4.100

Server: 192.168.4.100

Address: 192.168.4.100#53

Name: dns100.xinnet.com

Address: 192.168.4.100

#确保蓝汛dns可用

[root@server1 ~]# nslookup squid10.lxcdn.net 192.168.4.200

Server: 192.168.4.200

Address: 192.168.4.200#53

Name: squid10.lxcdn.net

Address: 192.168.4.10

[root@server1 ~]# nslookup squid20.lxcdn.net 192.168.4.200

Server: 192.168.4.200

Address: 192.168.4.200#53

Name: squid20.lxcdn.net

Address: 192.168.4.20

#测试蓝汛dns的分离解析

[root@server1 ~]# nslookup www.tedu.cn.lxcdn.net 192.168.4.200

Server: 192.168.4.200

Address: 192.168.4.200#53

Name: www.tedu.cn.lxcdn.net

Address: 192.168.4.10

[root@server2 ~]# nslookup www.tedu.cn.lxcdn.net 192.168.4.200

Server: 192.168.4.200

Address: 192.168.4.200#53

Name: www.tedu.cn.lxcdn.net

Address: 192.168.4.20

#确认区域dns可用

[root@server1 ~]# nslookup dns100.xinnet.com 192.168.4.11

Server: 192.168.4.11

Address: 192.168.4.11#53

Non-authoritative answer:

Name: dns100.xinnet.com

Address: 192.168.4.100

[root@server1 ~]# nslookup dns100.xinnet.com 192.168.4.22

Server: 192.168.4.22

Address: 192.168.4.22#53

Non-authoritative answer:

Name: dns100.xinnet.com

Address: 192.168.4.100

#确保子域授权可用

[root@server1 ~]# dig @192.168.4.100 squid10.lxcdn.net

; <<>> DiG 9.9.4-RedHat-9.9.4-61.el7 <<>> @192.168.4.100 squid10.lxcdn.net

; (1 server found)

;; global options: +cmd

;; Got answer:

;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 50830

;; flags: qr rd; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 2

;; WARNING: recursion requested but not available

;; OPT PSEUDOSECTION:

; EDNS: version: 0, flags:; udp: 4096

;; QUESTION SECTION:

;squid10.lxcdn.net. IN A

;; AUTHORITY SECTION:

lxcdn.net. 86400 IN NS dns200.lxcdn.net.

;; ADDITIONAL SECTION:

dns200.lxcdn.net. 86400 IN A 192.168.4.200

;; Query time: 6 msec

;; SERVER: 192.168.4.100#53(192.168.4.100)

;; WHEN: 二 3月 12 03:14:01 EDT 2019

;; MSG SIZE rcvd: 83

#测试分离解析

[root@server1 ~]# cat /etc/resolv.conf

# Generated by NetworkManager

search tedu.cn

nameserver 192.168.4.11

[root@server1 ~]# nslookup www.tedu.cn

Server: 192.168.4.11

Address: 192.168.4.11#53

Non-authoritative answer:

www.tedu.cn canonical name = www.tedu.cn.lxcdn.net.

Name: www.tedu.cn.lxcdn.net

Address: 192.168.4.10

[root@server2 ~]# cat /etc/resolv.conf

# Generated by NetworkManager

search tedu.cn

nameserver 192.168.4.22

[root@server2 ~]# nslookup www.tedu.cn

Server: 192.168.4.22

Address: 192.168.4.22#53

Non-authoritative answer:

www.tedu.cn canonical name = www.tedu.cn.lxcdn.net.

Name: www.tedu.cn.lxcdn.net

Address: 192.168.4.20

#测试访问

[root@server1 ~]# curl www.tedu.cn

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[root@server10 ~]# tail -1 /var/log/squid/access.log

1552375058.475 5 192.168.4.1 TCP\_MISS/200 418 GET http://www.tedu.cn/ - FIRSTUP\_PARENT/192.168.4.50 text/html

[root@server2 ~]# curl www.tedu.cn

TEDU IT

[root@server20 ~]# tail -1 /var/log/squid/access.log

1552375101.807 5 192.168.4.2 TCP\_MISS/200 418 GET http://www.tedu.cn/ - FIRSTUP\_PARENT/192.168.4.50 text/html