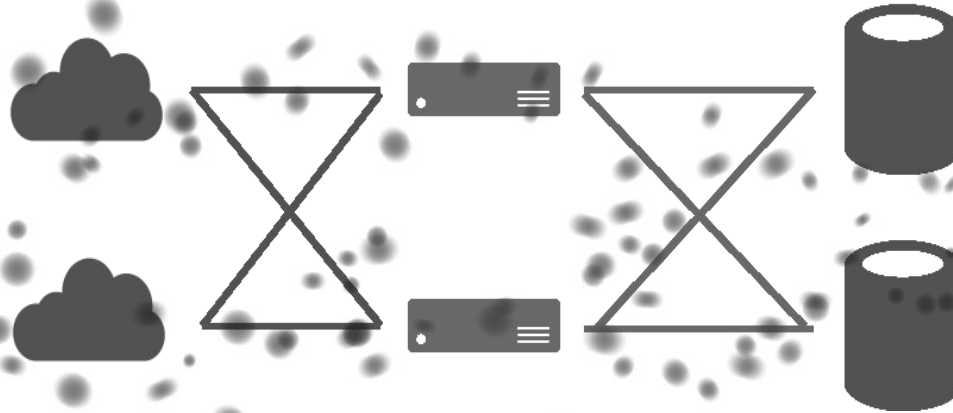


Zevenet L4 Session replication

Session persistence and high availability in Zevenet



High Availability
Load Balancing
Web Scale
Security

made easy

Who I am?

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- ★ Computer Science Engineer at Zevenet SL.
- ★ Hardware and low level development.
- ★ Support team.
- ★ Open Source and Gnu/Linux passionate.

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Why session persistence and session replication?

- Avoid continuous validation to client requests.
- Client session data in one backend.
- Ease load balance algorithms.



L4xNAT Session persistence

Use of Iptables recent module

```
-A PREROUTING -d 192.168.56.100/32 -p tcp -m recent --rcheck --seconds 120 --name _MyL4Farm_0x200_sessions --resource -m multiport --dports 60 -j MARK --set-xmark 0x200/0xffffffff
```

```
-A PREROUTING -d 192.168.56.100/32 -p tcp -m recent --rcheck --seconds 120 --name _MyL4Farm_0x201_sessions --resource -m multiport --dports 60 -j MARK --set-xmark 0x201/0xffffffff
```

```
-A PREROUTING -p tcp -m mark --mark 0x200 -m recent --set --name _MyL4Farm_0x200_sessions --mask 255.255.255.255 --resource -m comment --comment " FARM_MyL4Farm_0_ " -j DNAT --to-destination 192.168.56.1:80
```

```
-A PREROUTING -p tcp -m mark --mark 0x201 -m recent --set --name _MyL4Farm_0x201_sessions --mask 255.255.255.255 --resource -m comment --comment " FARM_MyL4Farm_1_ " -j DNAT --to-destination 192.168.56.250:80
```

```
~# tail /proc/net/xt_recent/_MyL4Farm_0x20*  
==> /proc/net/xt_recent/_MyL4Farm_0x200_sessions <==
```

```
==> /proc/net/xt_recent/_MyL4Farm_0x201_sessions <==  
src=192.168.56.1 ttl: 64 last_seen: 4298231337 oldest_pkt: 3 4298229032, 4298230236, 4298231337
```

Adding, removing, updating session data

linux/net/netfilter/xt_recent.c modification

- Default recent commands

- `echo +addr >/proc/net/xt_recent/_recent_table_`
to add `addr` to the `_recent_table_` list
- `echo -addr >/proc/net/xt_recent/_recent_table_`
to remove `addr` from the `_recent_table_` list
- `echo / >/proc/net/xt_recent/DE_recent_table_FAULT`
to flush the `_recent_table_` list (remove all entries).

- New command to insert full address recent timestamp

-

- `echo *addr ; ttl ; timestamp1; timestamp2; timestamp3;...; > /proc/net/xt_recent/_recent_table_`
to insert the source address with full timestamp data into the `_recent_table_` list

Ssyncd: Zevenet Session Synchronization service.

User space daemon in master - slave mode syncing L7 and L4 session data - <https://github.com/zevenet/ssyncd>

Usage

```
ssyncd -M [-p 7777]
ssyncd -B [-a 127.0.0.1 -p 7777]
```

Commands: Either long or short options are allowed.

```
-M --master      start master node
-B --backup     start backup node
```

> Control interface(ssyncdctl):

```
# ssyncdctl start recent/[http farm_name]
```

```
# ssyncdctl show recent/http
```

```
# ssyncdctl write http
```

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Ssyncd, what next?

Performance

Kernel updates using
kernel sockets
(Netlink)

Nftables

Use maps per
client:backend with
timeout

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