aws

COMMUNITY DAY

TEL AVIV

When the AWS ELB is just not enough…give me MOAR!!!!!

Maish Saidel-Keesing | 2018
All things Cloud @CyberArk
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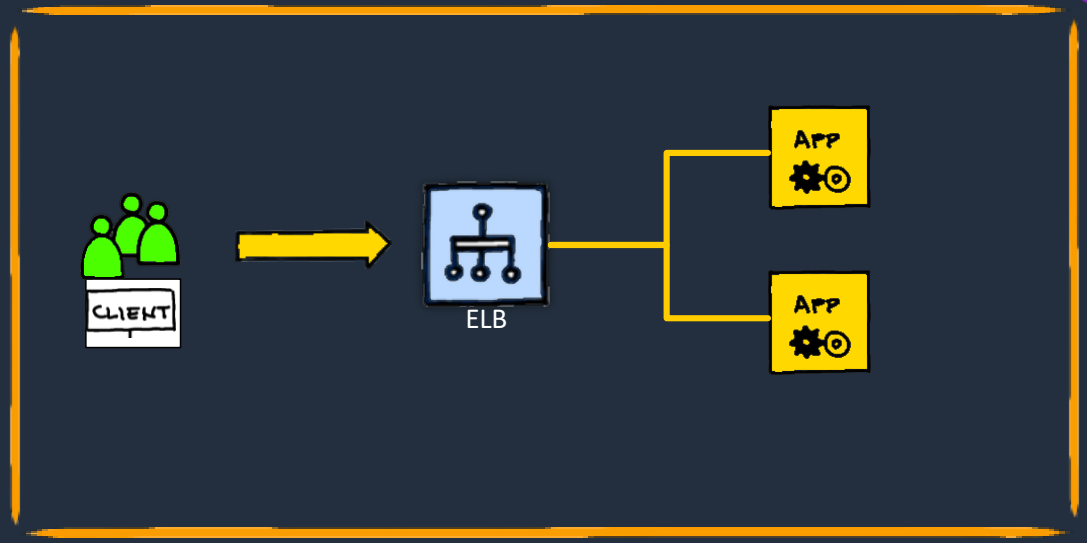
Standard Load Balancing Scenario



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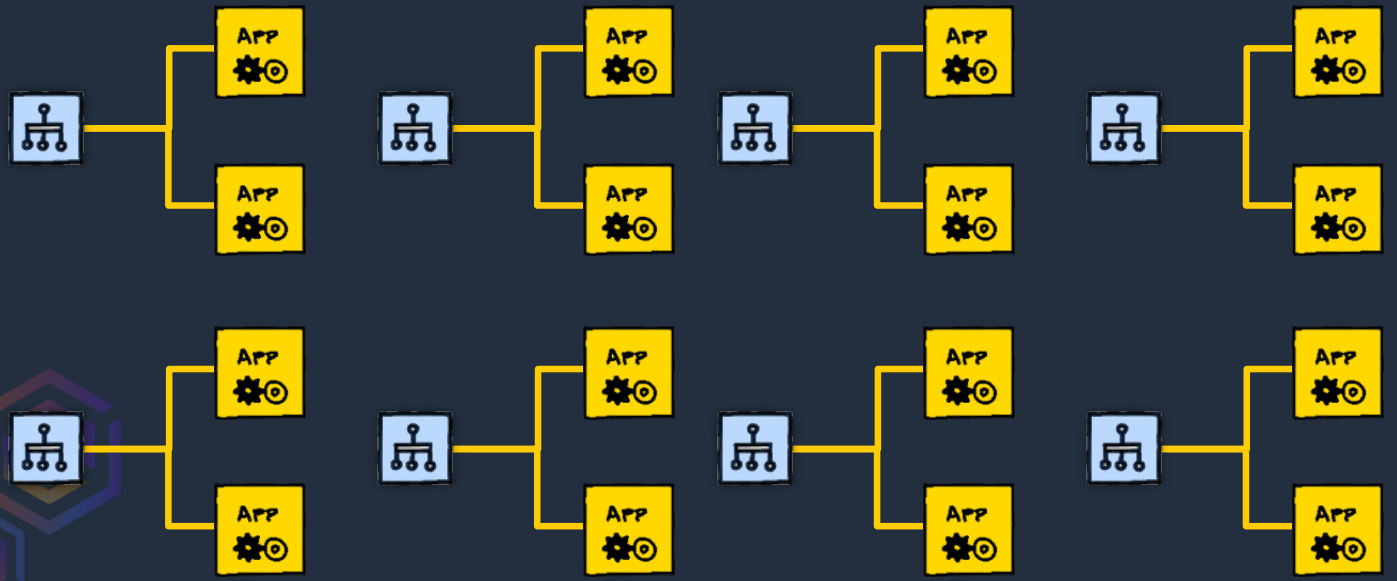
All components use a Load Balancer



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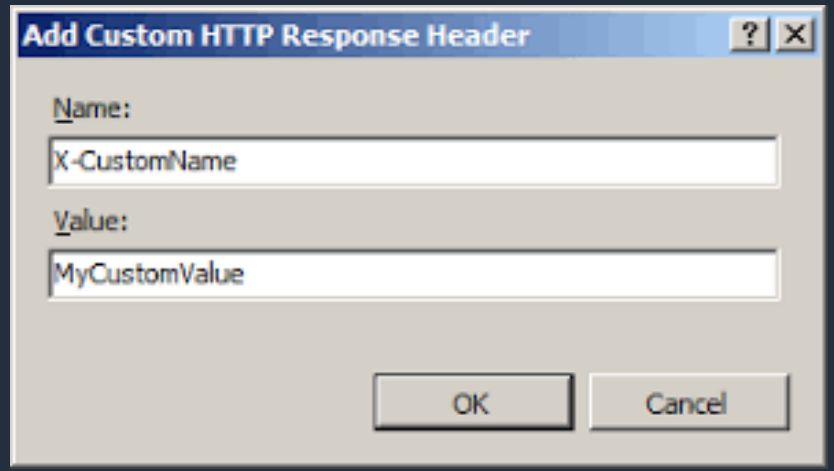
Custom HTTP Headers



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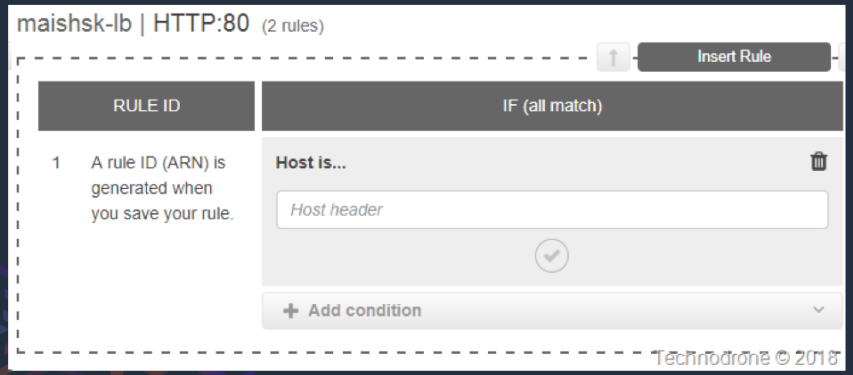
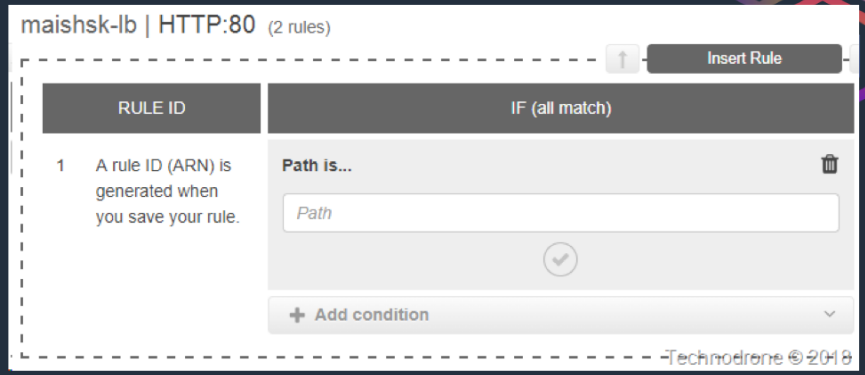
ALB Routing options





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Let me Introduce myself

Maish Saidel-Keesing

Cloud & DevOps Architect @CyberArk

Blogger, Author, Speaker

Automator of all things…

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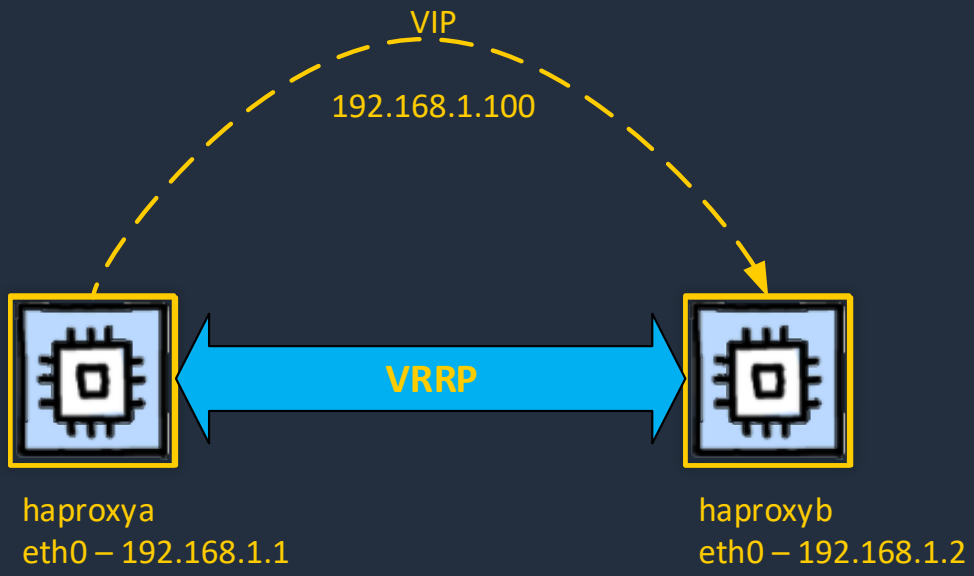
Basic haproxy



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Challenges

- VRRP (Multicast)
  - Simple …. Use Unicast
- Secondary IP address
  - Add another IP to the interface…
- High Availability across AZ's
  - Not so simple… 

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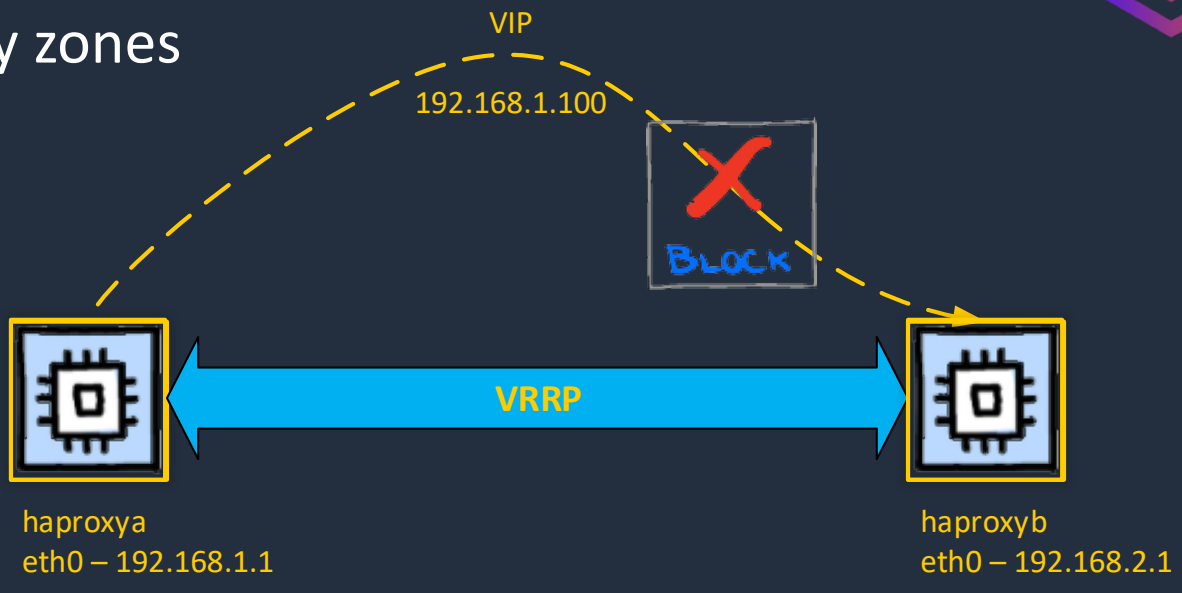
haproxy across availability zones



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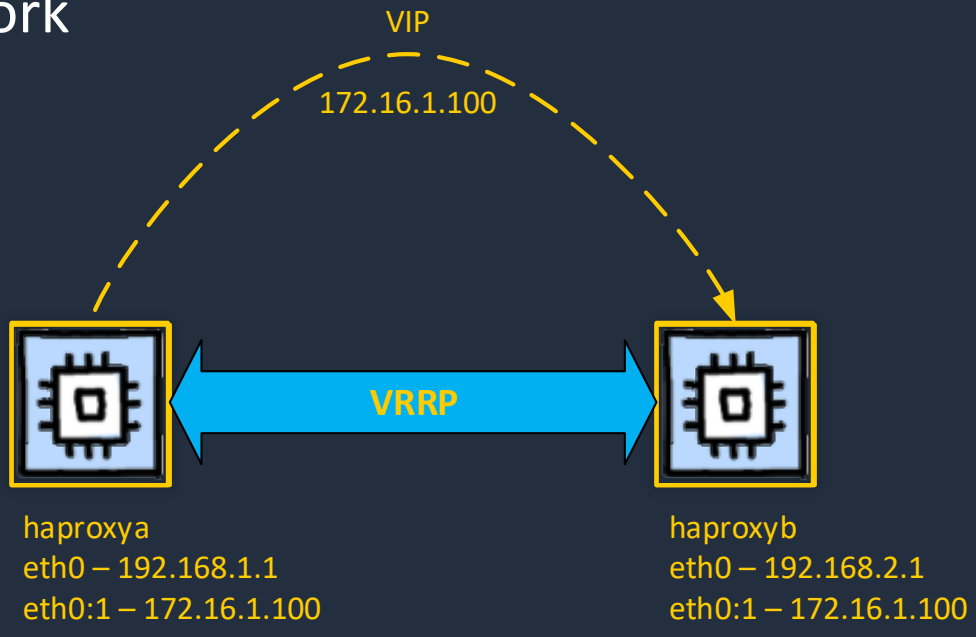
Overlay network



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Routing to the VIP

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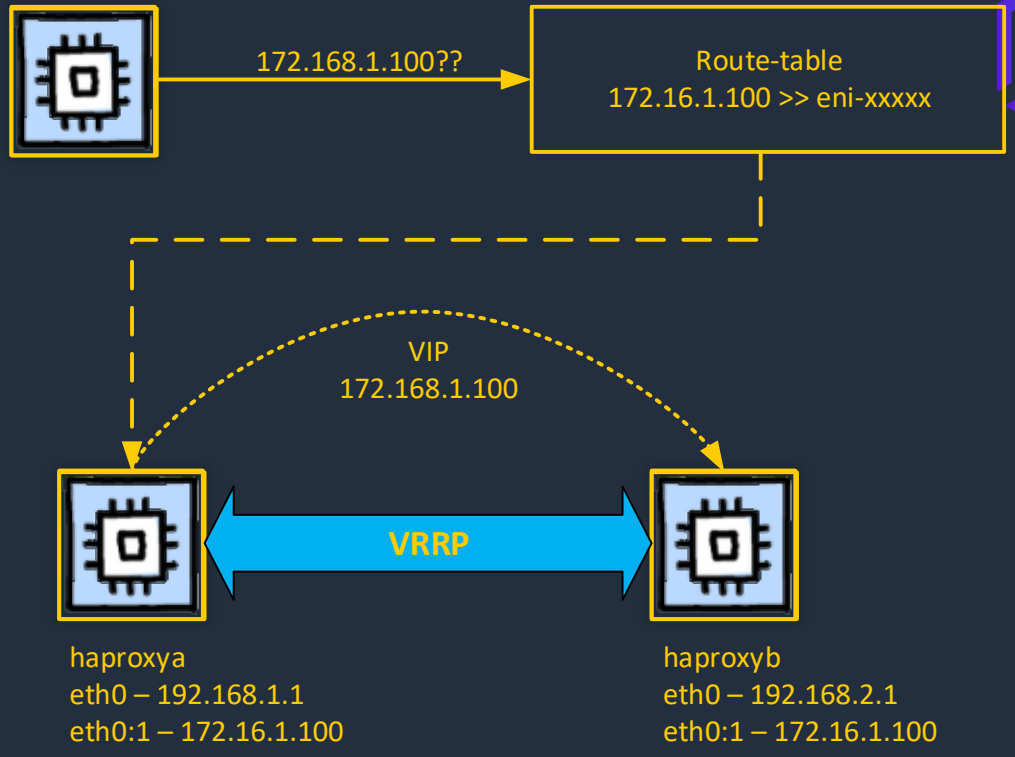
Routing Example



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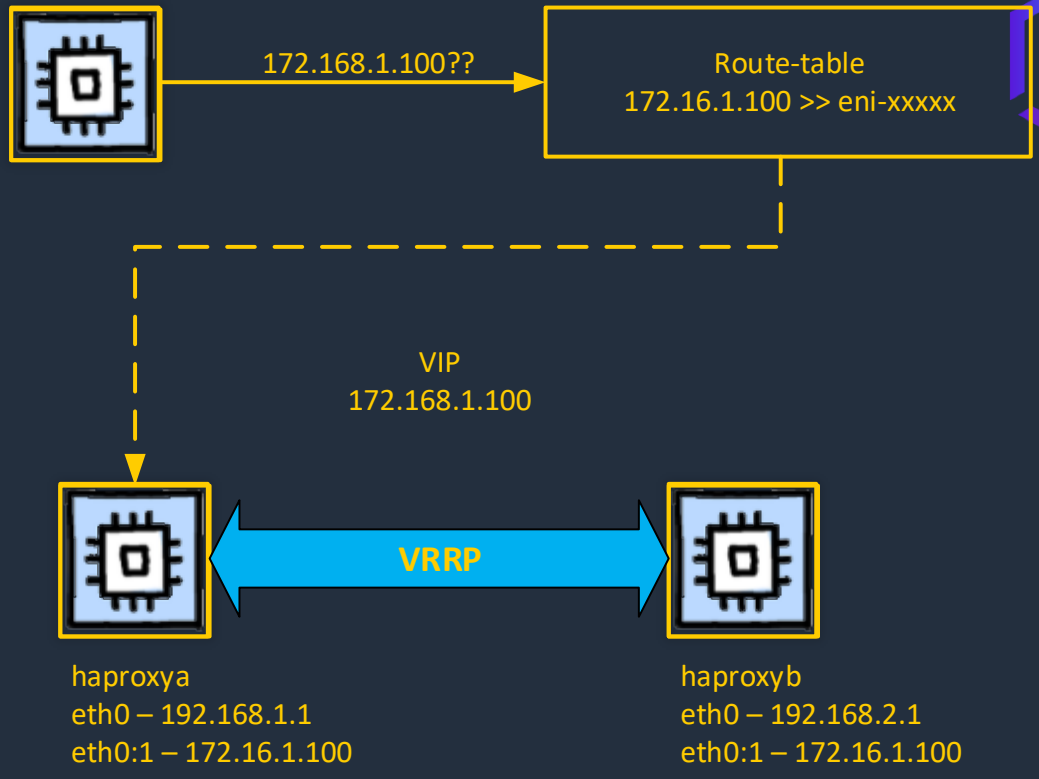
All is good



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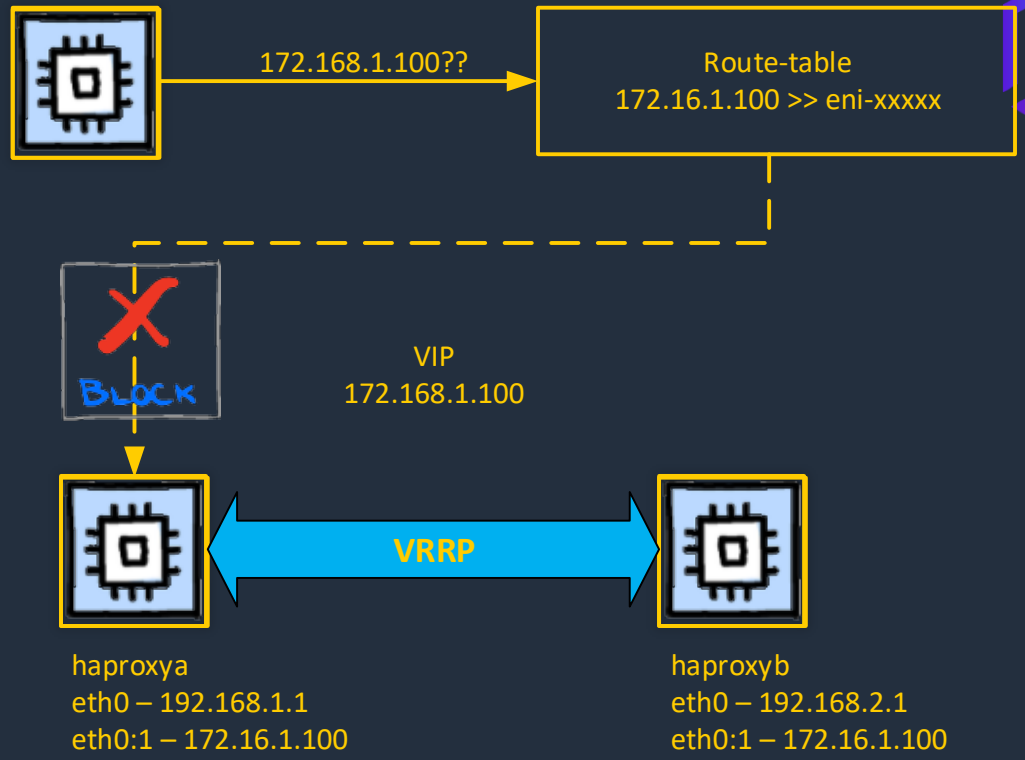
AZ1 fails



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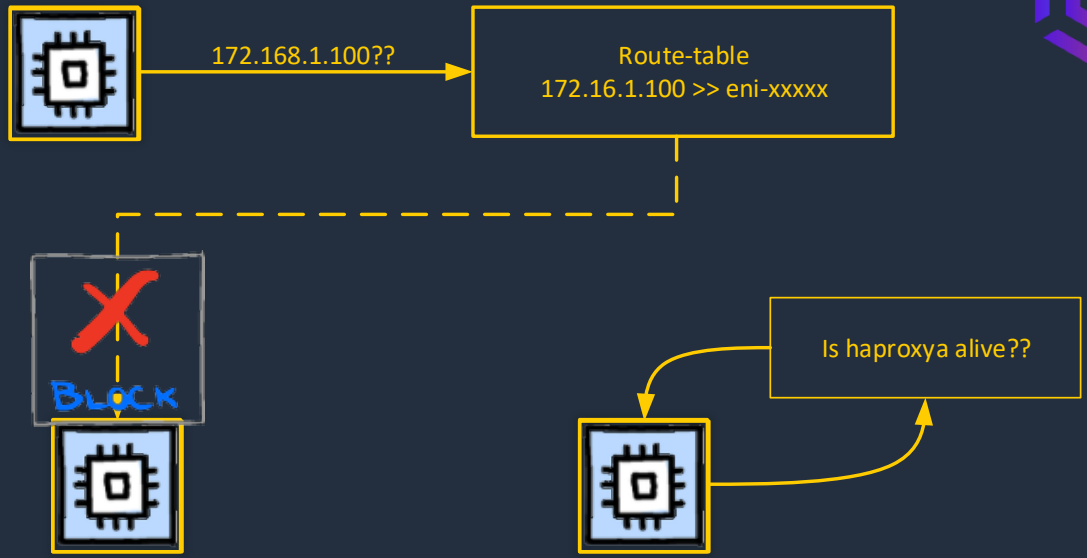
haproxyb awakens



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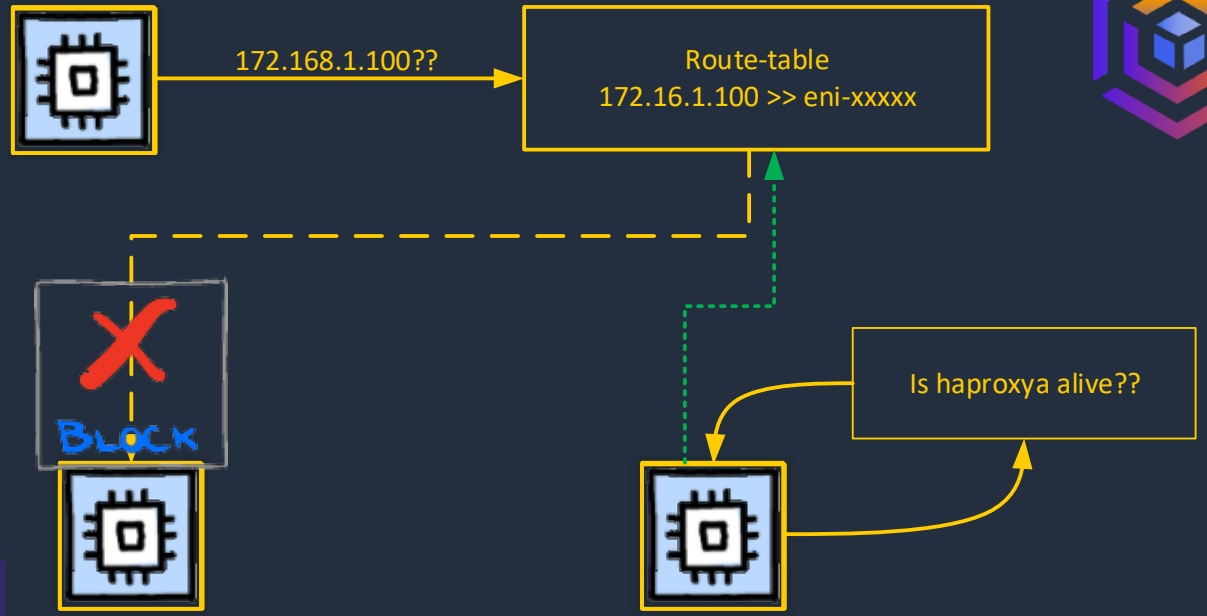
Update route table



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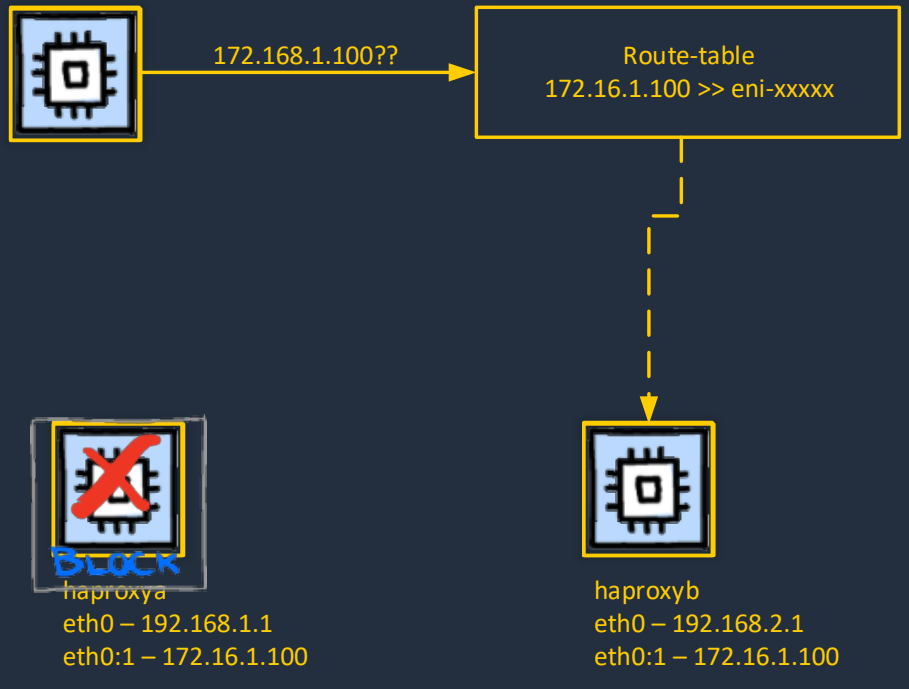
Traffic flows



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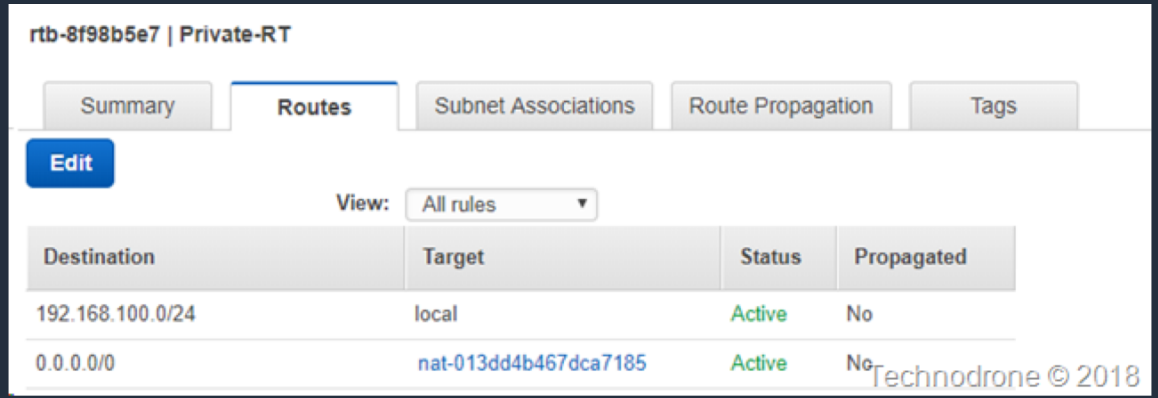
Network Deep Dive



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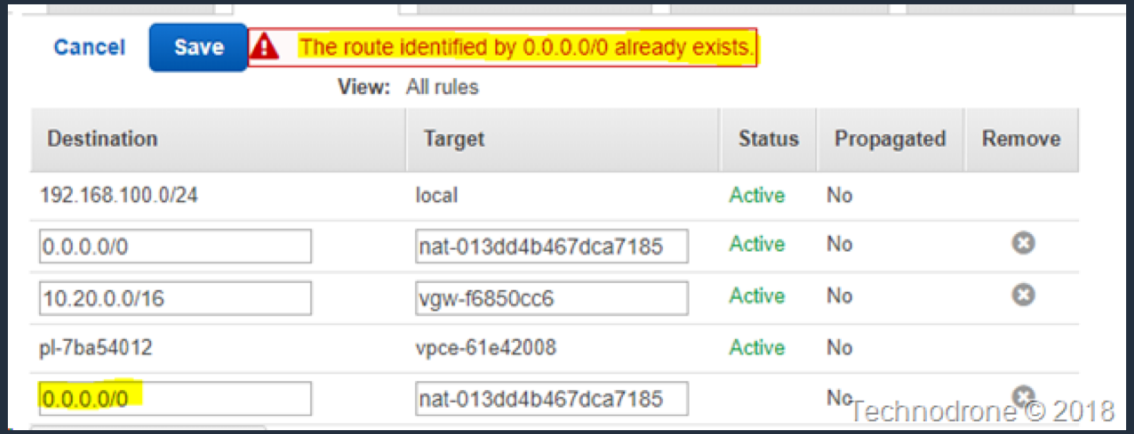
No Duplicates



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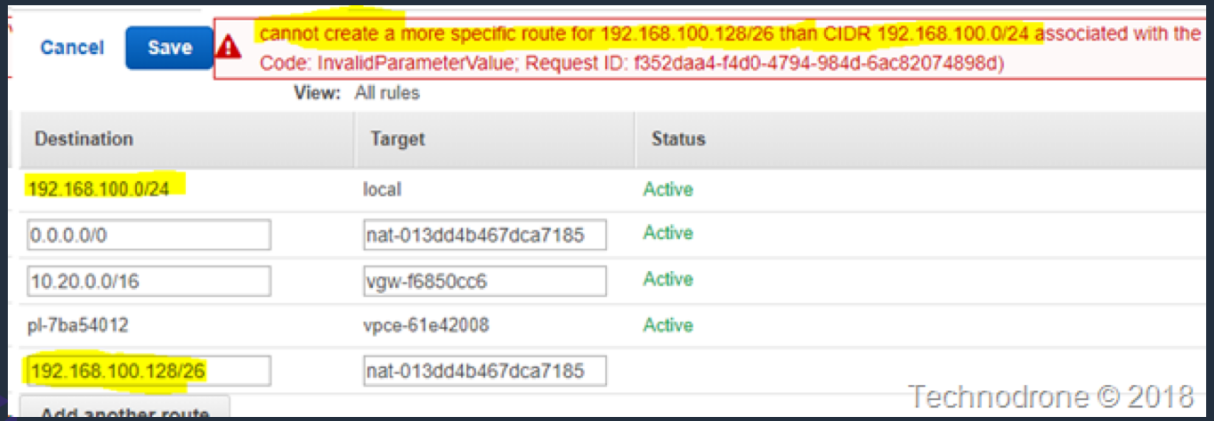
No Subsets



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Virtual Interface

```
DEVICE="eth0:1"
BOOTPROTO="none"
MTU="1500"
ONBOOT="yes"
TYPE="Ethernet"
NETMASK=255.255.255.0
IPADDR=172.16.1.100
USERCTL=no
```

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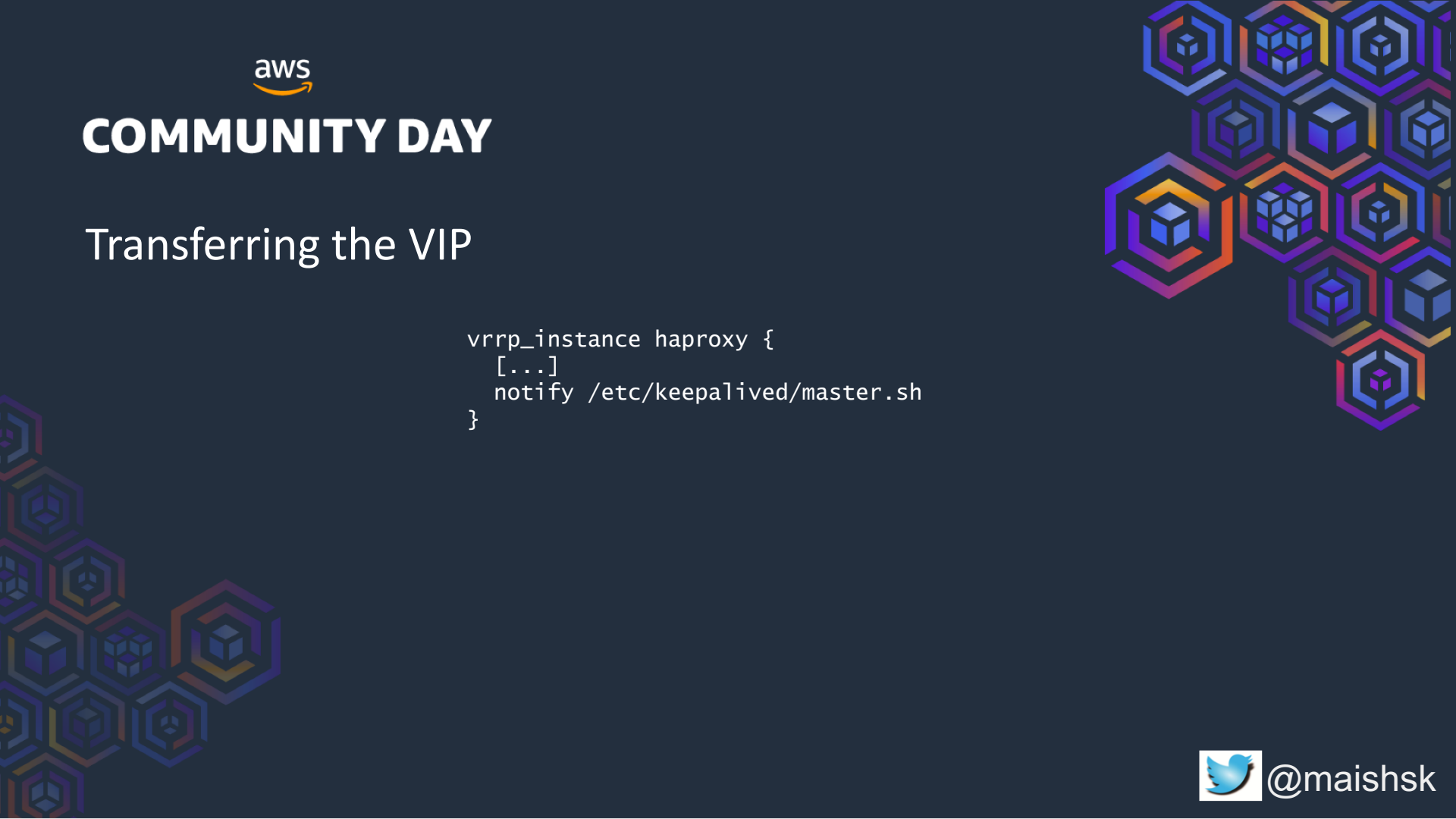
Transferring the VIP

```
vrrp_instance haproxy {
  [...]
  notify /etc/keepalived/master.sh
}
```



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master.sh script

```
aws ec2 replace-route --route-table-id <ROUTE_TABLE> \
--destination-cidr-block <CIDR_BLOCK> \
--instance-id <INSTANCE_ID>
```

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Automation

- https://github.com/maishsk/replace-aws-elb

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```
vpc_id: vpc-31721b59
keypair: maishsk-keypair
vpc_cidr_block: 192.168.100.0/24
region: us-east-2
virtual_ip: 192.168.55.100
instance_count: 2
instance_type: t2.large
use_public_ip: "no"
source_dest_check_enabled: "no"
iam_role: vrrp_Role
volume_type: gp2
root_disk_size: 50
component_name: haproxy
image_id: ami-0b59bfac6be064b78
policy_file: "./files/vrrp_policy.json"
trust_policy: "./files/trust_policy.json"
```

```
policyDescription: "Policy to allow HAproxy
to manage routes for high availability"
role_description: "Role to allow HAproxy
instances to manage routes for high
availability"

#### Security group rules for the component
component_rules:
  - proto: tcp
      from_port: 1
      to_port: 65535
      cidr_ip: "{{ vpc_cidr_block }}"
```

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Closing thoughts

- Was it worth it?
- What was the hardest part of the solution?
- Was this all you were doing with haproxy?
- Did you save money?
- Does this scale?
- Other benefits?
- External facing load balancers?
- Why not use an EIP in the first place?

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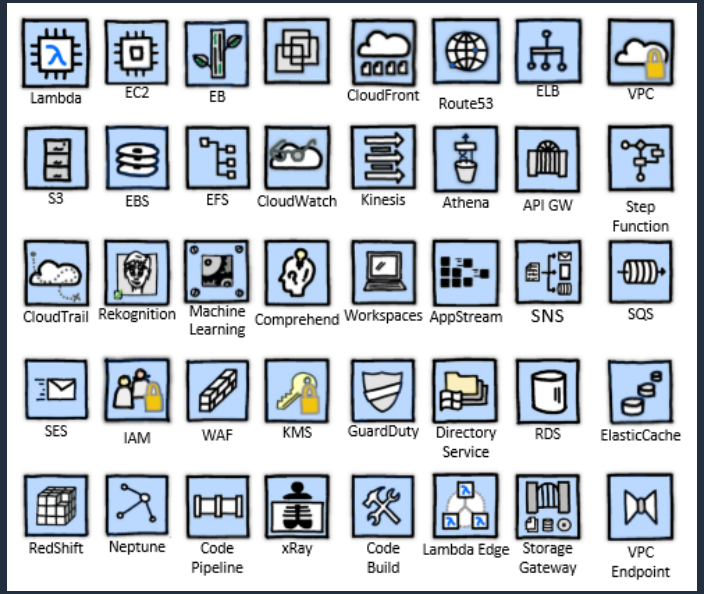
- AWS Community Stencils

  https://bit.ly/aws_visio



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