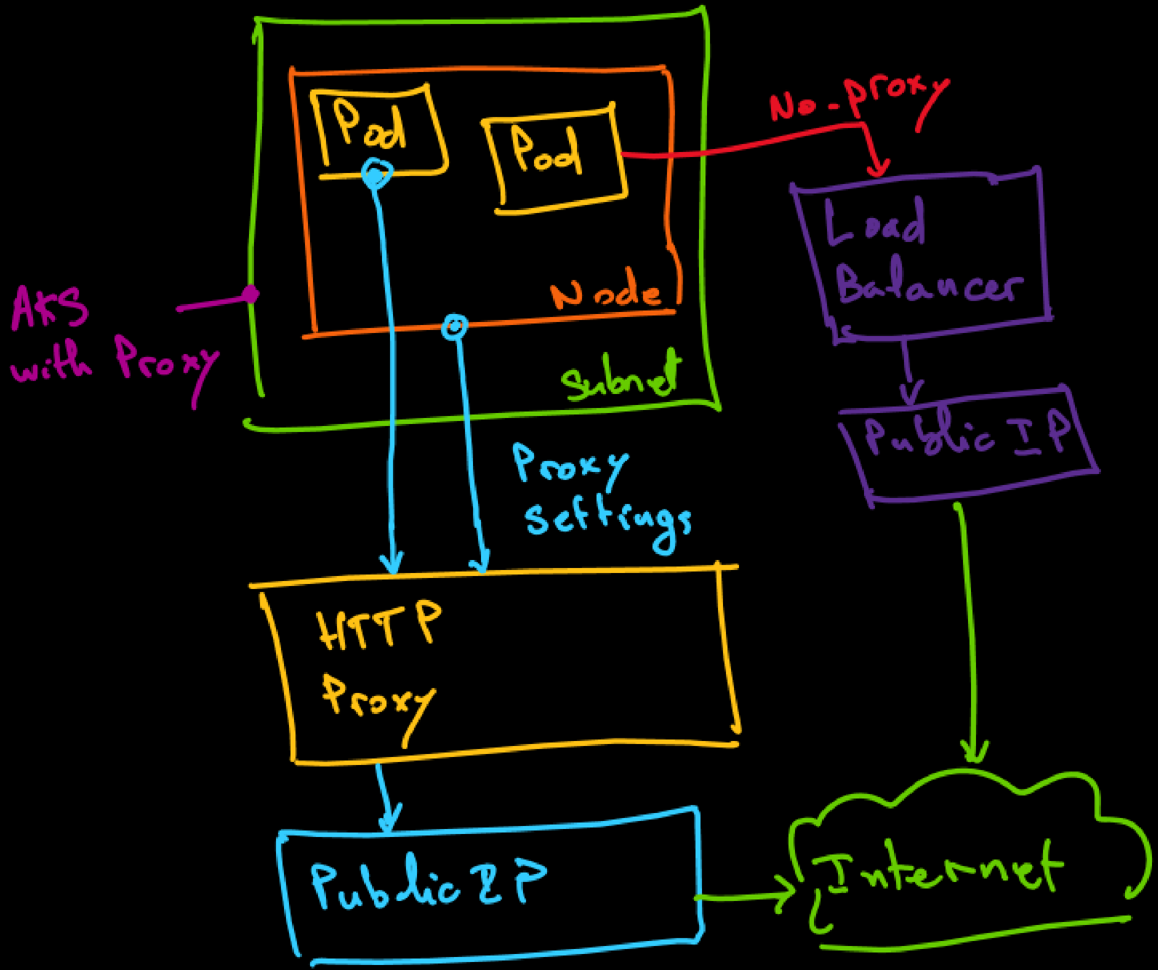
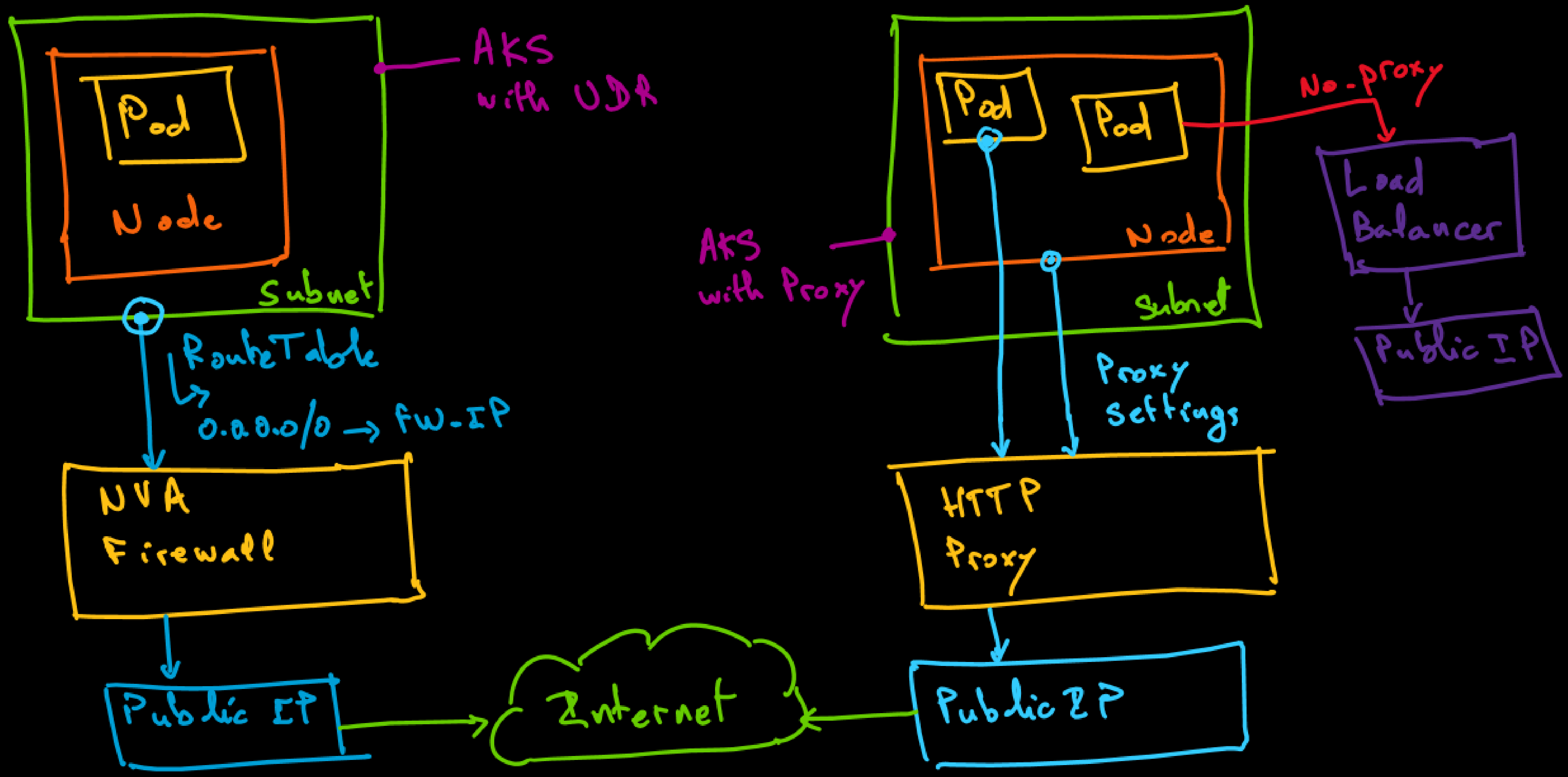
AKS with HTTP Proxy



AKS with UDR outbound vs HTTP Proxy



AKS with HTTP Proxy configuration

When creating new cluster, a JSON configuration file is used to send egress traffic to the HTTP Proxy.

```
{
    "httpProxy": "http://20.73.245.90:8080/",
    "httpsProxy": "https://20.73.245.90:8080/",
    "noProxy": [
        "localhost", "127.0.0.1", "docker.io", "docker.com"
    ],
    "trustedCA": "LS0tLS…LQo="
}
```

```
az aks create -n aks -g rg-aks --http-proxy-config aks-proxy-config.json
```

AKS with HTTP Proxy configuration

When HTTP Proxy is enabled, the following environment variables will be injected into the Pods and Nodes.

```
$ kubectl exec -it nginx – env

http_proxy=http://10.0.0.4:8080/
HTTP_PROXY=http://10.0.0.4:8080/

https_proxy=https://10.0.0.4:8080/
HTTPS_PROXY=https://10.0.0.4:8080/

no_proxy=localhost,aks8v0n0swv.hcp.westeurope.azmk8s.io,10.10.0.0/24,10.0.0.0/16,169.254.16
9.254,docker.com,127.0.0.1,docker.io,konnectivity,10.10.0.0/16,168.63.129.16
NO_PROXY=localhost,aks8v0n0swv.hcp.westeurope.azmk8s.io,10.10.0.0/24,10.0.0.0/16,169.254.16
9.254,docker.com,127.0.0.1,docker.io,konnectivity,10.10.0.0/16,168.63.129.16

$ kubectl exec -it nginx -- curl ifconf.me
104.40.226.222 # this is proxy Public IP address
```

Bypass HTTP Proxy

To bypass HTTP Proxy, you can use the annotation: `"kubernetes.azure.com/no-http-proxy-vars": "true"`

```yaml
apiVersion: v1
kind: Pod
metadata:
  name: nginx-noproxy
  annotations:
    "kubernetes.azure.com/no-http-proxy-vars": "true"
spec:
  containers:
  - image: nginx
    name: nginx
```

```
kubectl exec -it nginx-noproxy -- curl ifconf.me
4.245.123.106 # this is not proxy IP, but AKS Load Balancer’s IP
```

Updating AKS HTTP Proxy

You can update a cluster with existing proxy settings, but could not enable proxy for existing cluster.

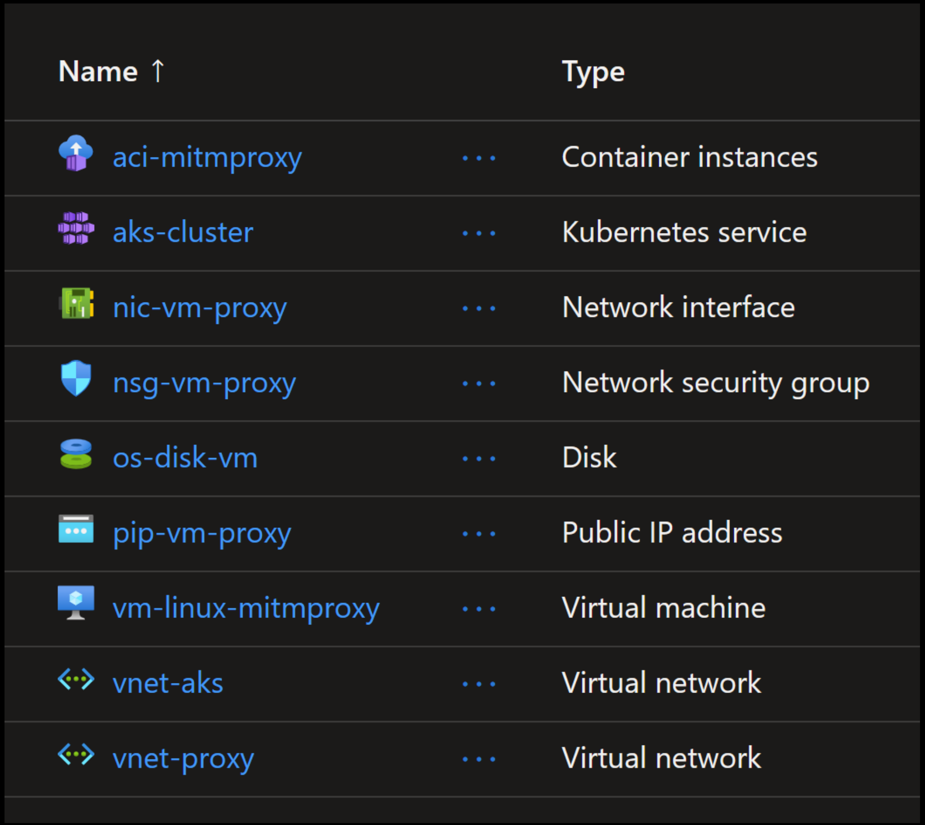
```
az aks update -n aks -g rg-aks --http-proxy-config aks-proxy-config.json
```

An aks update for httpProxy, httpsProxy, and/or NoProxy will automatically inject new environment variables into pods with the new httpProxy, httpsProxy, or NoProxy values.

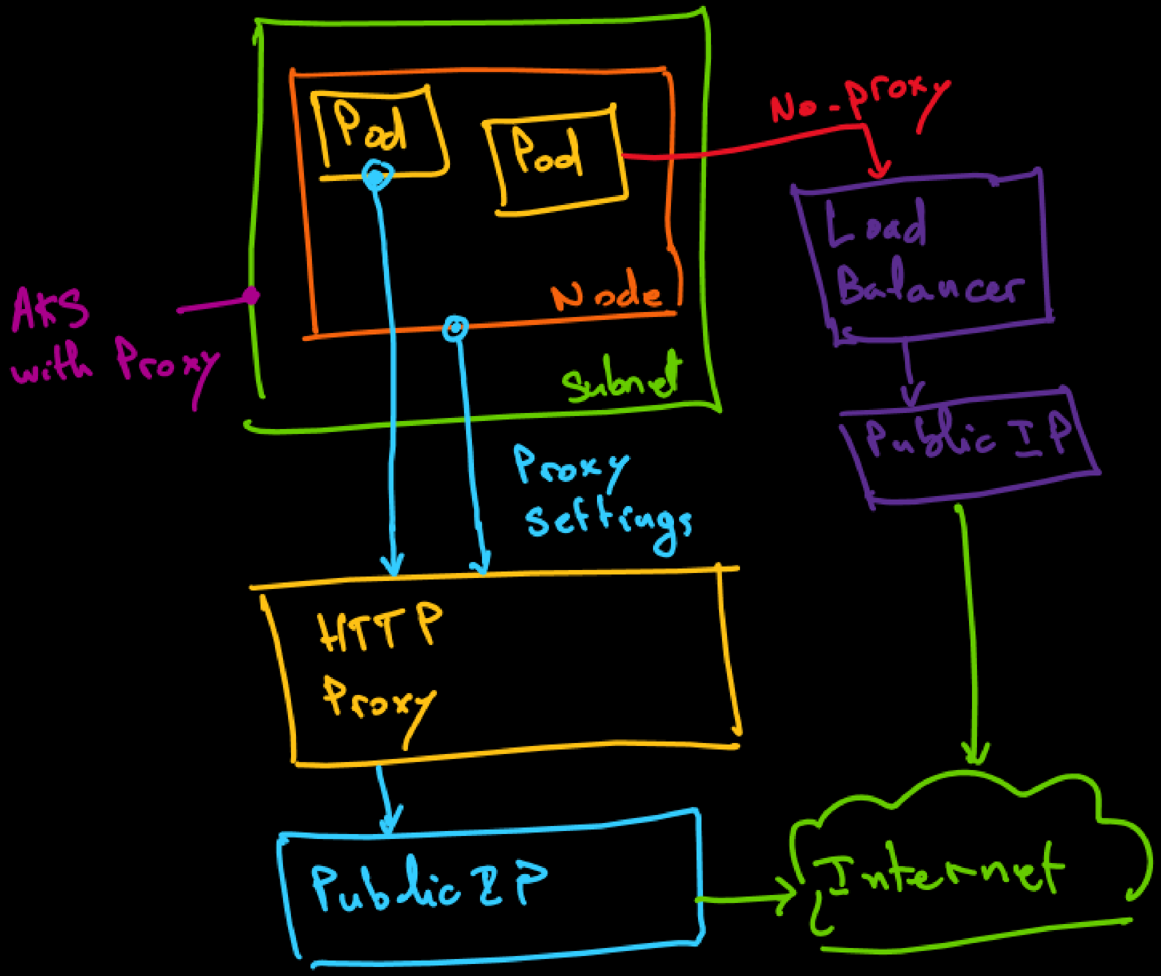
Pods must be rotated for the apps to pick it up.

For components under kubernetes, like containerd and the node itself, this won't take effect until a node image upgrade is performed.

AKS with HTTP Proxy - Demo



Name ↑	Type
aci-mitmproxy	Container instances
aks-cluster	Kubernetes service
nic-vm-proxy	Network interface
nsg-vm-proxy	Network security group
os-disk-vm	Disk
pip-vm-proxy	Public IP address
vm-linux-mitmproxy	Virtual machine
vnet-aks	Virtual network
vnet-proxy	Virtual network



github.com/HoussemDellai/docker-kubernetes-course/tree/main/67_egress_proxy