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# Istio MTLS configuration: Validate client

Indika Udagedara · Follow

2 min read · Aug 29, 2021

This is mostly a note to self…

Istio supports MTLS to authenticate clients. This is configured using a `Gateway` resource. There's great documentation on the configuration steps here. However, what's not quite clear is how to validate client identity using the `subjectAltName` (SAN) presented in the client certificate. In the example from Istio documentation, any client who presents a certificate using a given CA is accepted which is not desired in certain cases e.g. server exposed to multiple clients in the same network but accepts traffic only from specific clients.

Starting from the example here, MTLS client validation is done by adding `tls.subjectAltNames`

```
apiVersion: networking.istio.io/v1alpha3
kind: Gateway

... <snip> ...

tls:
     mode: MUTUAL
     credentialName: httpbin-credential
     subjectAltNames:
      - client.example.com
```

The caveat is, Istio validates only the SAN and not the Common Name (CN).

To create a CSR with SANs, do

```
openssl req -nodes -newkey rsa:2048 -subj
"/CN=client.example.com/O=client organization" -out
client.example.com.csr -pubkey -new -keyout client.example.com.key -
sha256 -config ssl.cnf
```

where `ssl.cnf` is

```
[ CA_default ]
copy_extensions = copy

[req]
req_extensions = v3_req
distinguished_name = req_distinguished_name

[req_distinguished_name]

[ v3_req ]
# Extensions to add to a certificate request
basicConstraints = CA:FALSE
keyUsage = nonRepudiation, digitalSignature, keyEncipherment
subjectAltName = client.example.com
```

To sign the client certificate, do

```
openssl x509 -req -in client.example.com.csr -CA example.com.crt -
CAkey example.com.key -CAcreateserial -out client.example.com.crt -
days 3650 -sha256 -extfile ssl-ext.cnf
```

where `ssl-ext.cnf` is

```
basicConstraints = CA:FALSE
subjectAltName = client.example.com
```

and CA certificate/key are generated from

```
openssl req -x509 -sha256 -nodes -days 365 -newkey rsa:2048 -subj
'/O=example Inc./CN=example.com' -keyout example.com.key -out
example.com.crt
```

Server certificates installed installed in `Gateway.tls.credentialName` are generated from

```
openssl req -out httpbin.example.com.csr -newkey rsa:2048 -nodes -
keyout httpbin.example.com.key -subj
"/CN=httpbin.example.com/O=httpbin organization"
openssl x509 -req -days 365 -CA example.com.crt -CAkey
example.com.key -set_serial 0 -in httpbin.example.com.csr -out
httpbin.example.com.crt
```

The credential contains

```
$ kubectl describe secrets/httpbin-credential -n istio-system

... <snip> ...

Data
====
ca.crt:   1046 bytes
tls.crt:  1054 bytes
tls.key:  1708 bytes
```

To test (against the httpbin server in the example)

```
curl -vvv -HHost:httpbin.example.com --resolve
"httpbin.example.com:$SECURE_INGRESS_PORT:$INGRESS_HOST" \
--cacert example.com.crt --cert client.example.com.crt --key
client.example.com.key \
"https://httpbin.example.com:$SECURE_INGRESS_PORT/status/418"
```

Istio Kubernetes Tls

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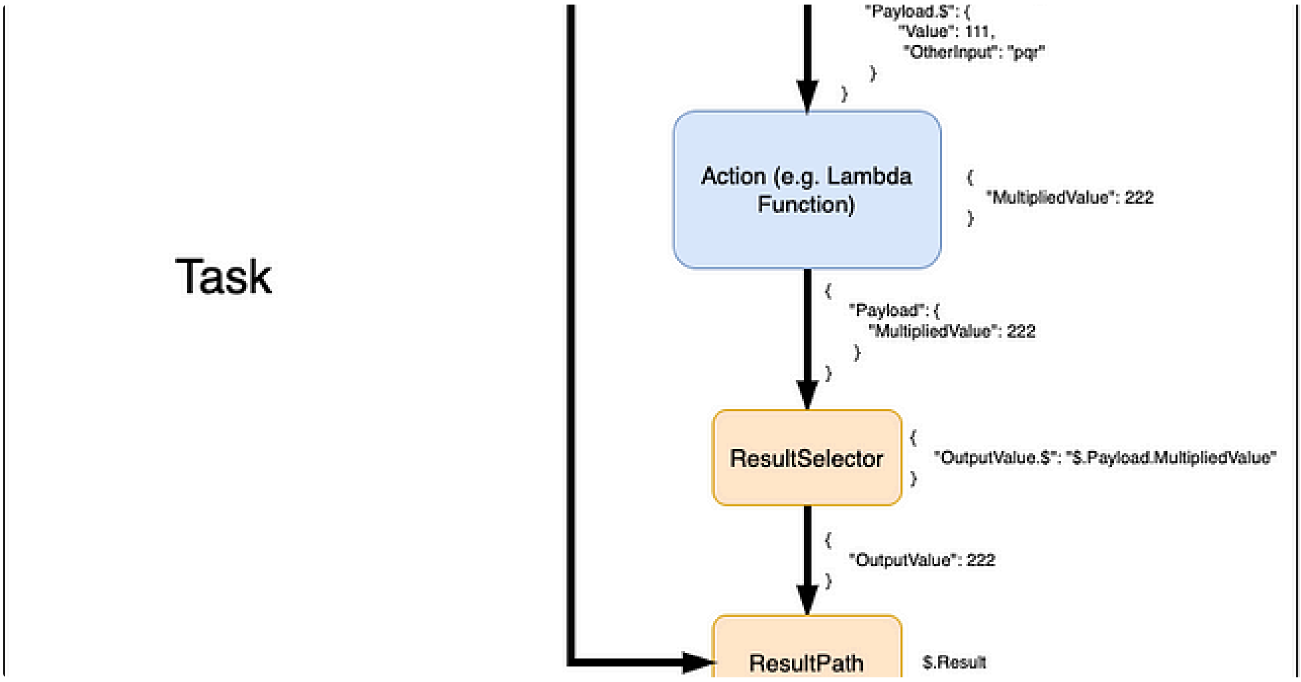

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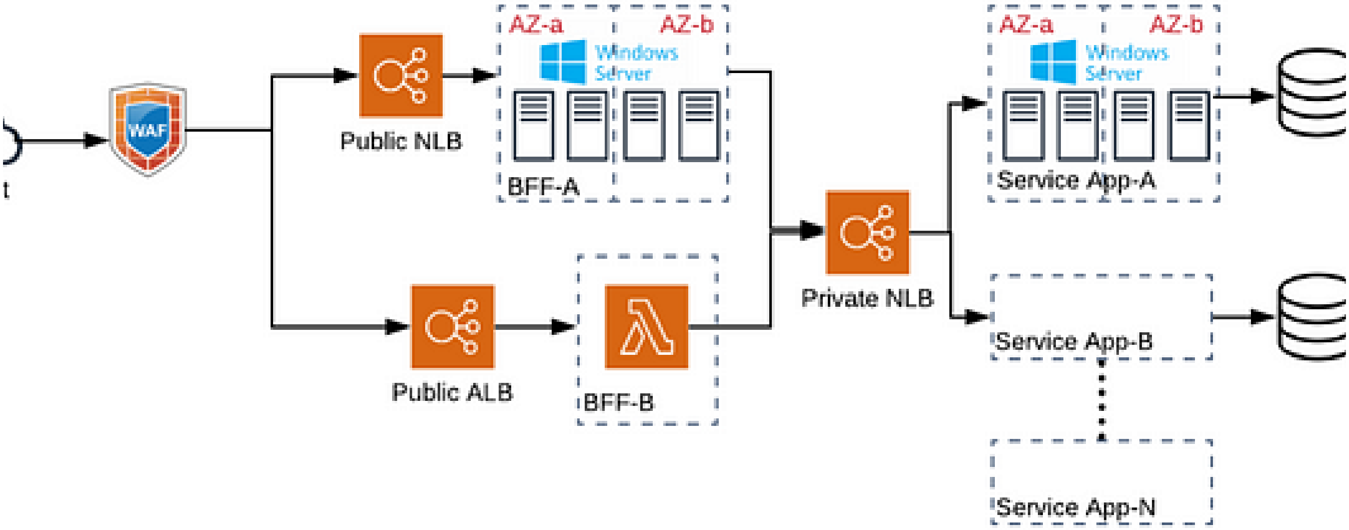

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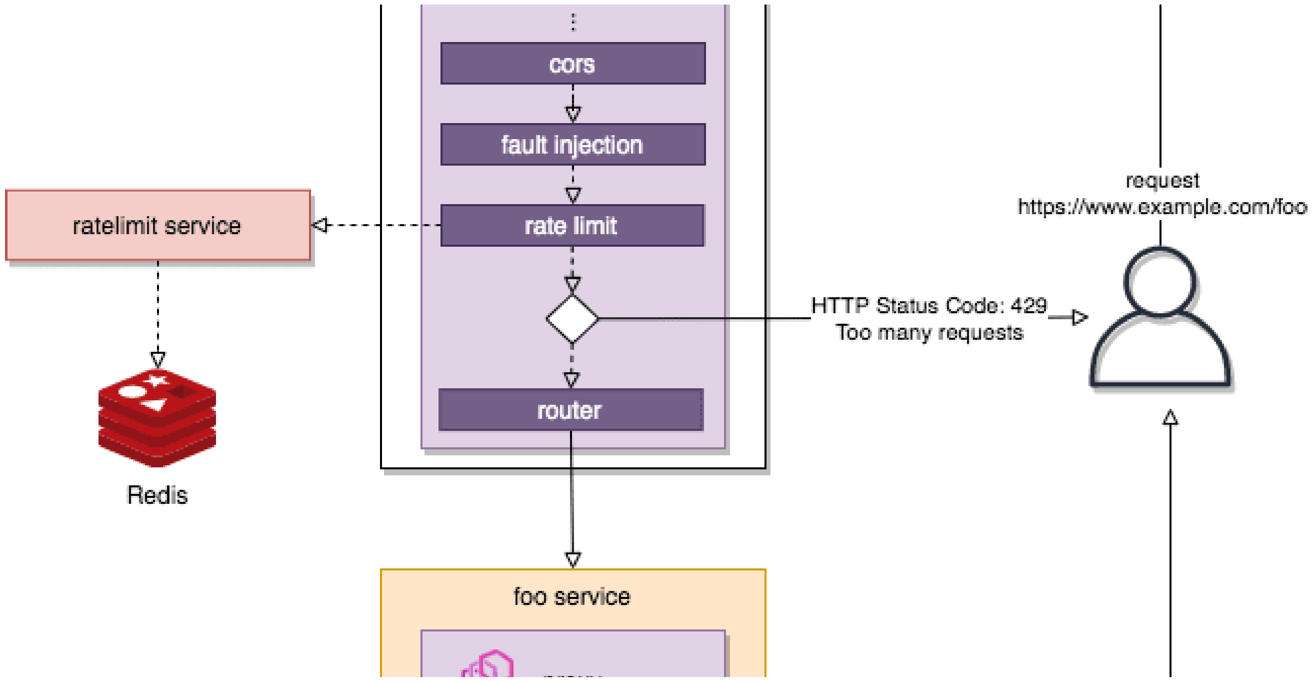

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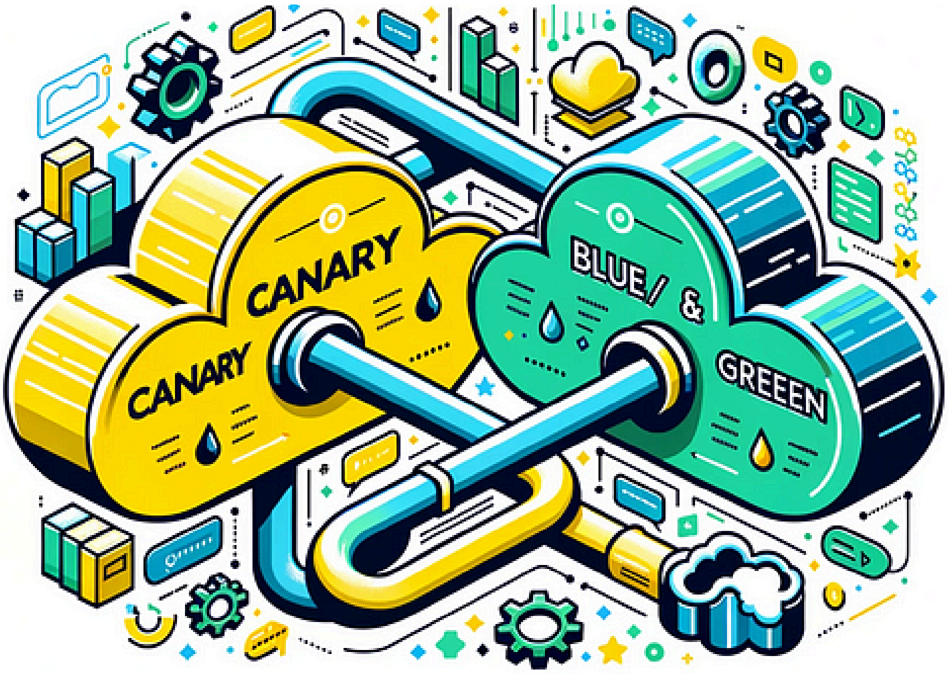

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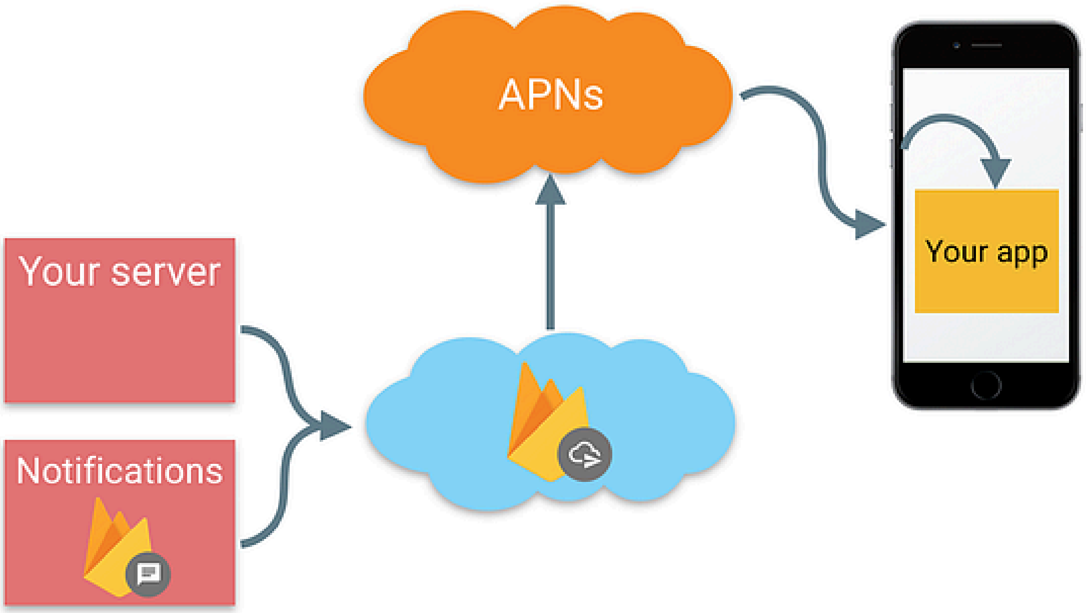

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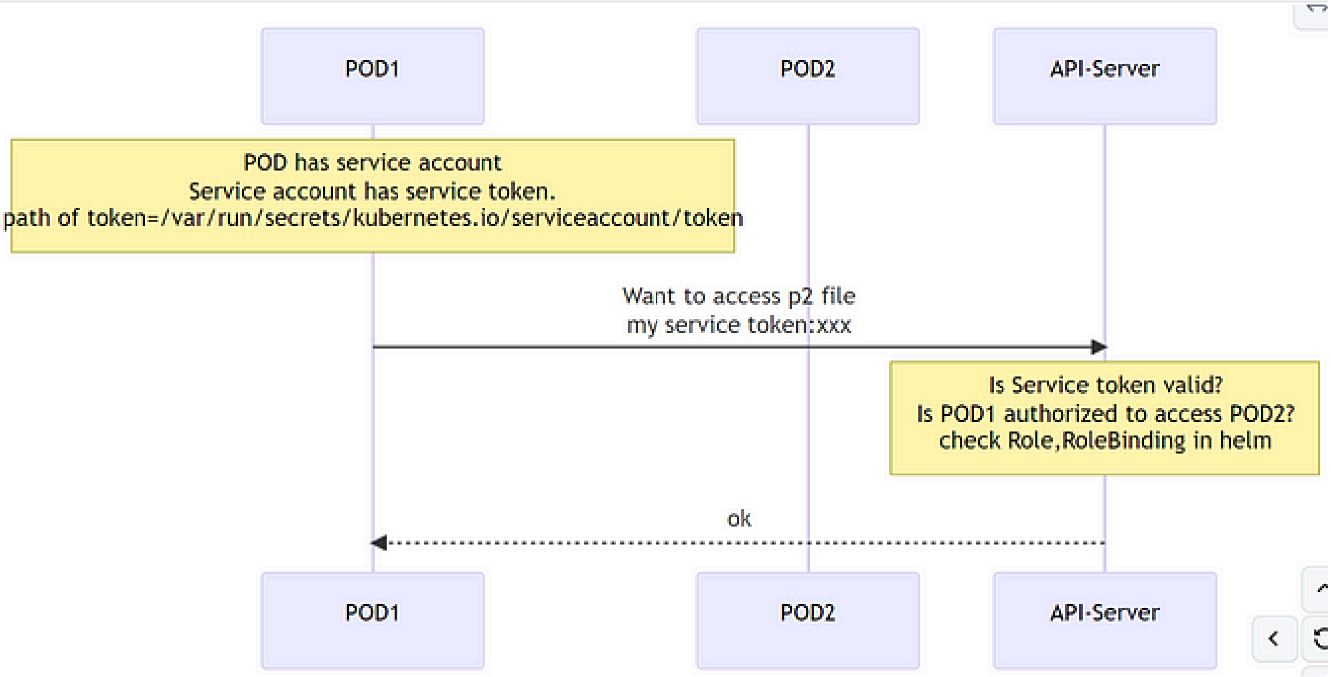
POD1
POD2
API-Server
POD has service account
Service account has service token.
path of token=/var/run/secrets/kubernetes.io/serviceaccount/token
Want to access p2 file
my service token:xxx
Is Service token valid?
Is POD1 authorized to access POD2?
check Role,RoleBinding in helm
ok
POD1
POD2
API-Server

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