

RFC: Fast Reverse Proxy Operator

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GLOSSARIES

Term	Definition
FRP	fast reverse proxy, open source to help you expose a local server behind a NAT or firewall to the Internet.

BACKGROUND

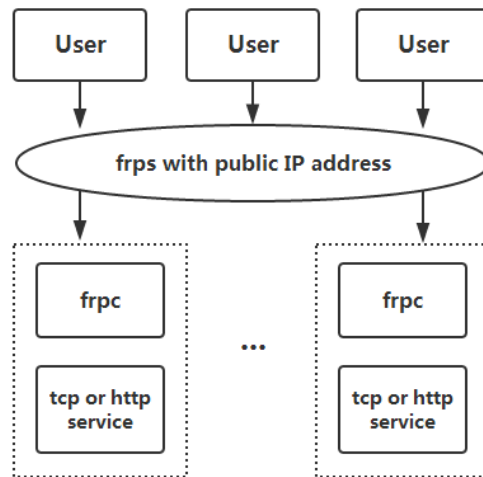
Exposing service on top of kubernetes on local environment is one of the challenge that developers and IoT engineer face. Based on [anderspitman/awesome-tunneling](#), there are several project that can help solve the problem like Ngrok & FRP.

[zufardhiyaulhaq/ngrok-operator](#) is a Kubernetes operator that can help abstract all the ngrok configuration and help developers become more productive. The issue is Ngrok is not an open source and probably lot's of developers cannot afford to use the service.

This RFC managed to solve the issue by creating operator for [fatedier/frp](#), an open source to help you expose a local server behind a NAT or firewall to the Internet.

FRP

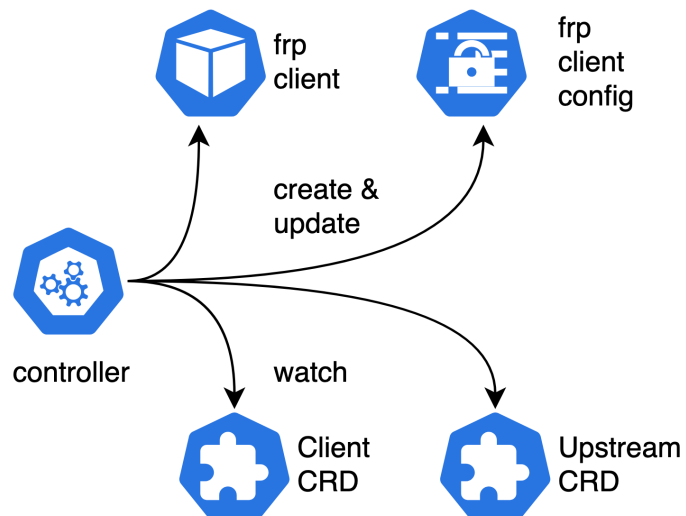
FRP have 2 components, a server and bunch of client that can be connected to server. A server must have a public IP as endpoint for users.



FRP Operator is aim to abstract, configure, and validate both client and server configuration. This project will be divided into two milestone:

1. Implementing CRDs that is abstracting client configuration,
2. Implementing CRDs that is provision and configure server on cloud provider.

DESIGN



Client CRD

client represent single pod that is used to connect to a server.

```

apiVersion: frp.zufardhiyaulhaq.com/v1alpha1
kind: Client
metadata:

```

```
name: frp-client-01
namespace: default
spec:
  kubernetes:
  image: zufardhiyaulhaq/frpc:v1.0.0
  server:
    host: 1.2.3.4
    port: 7000
    authentication:
      token:
        secret:
          name: frp-client-token
          key: token
```

Upstream CRD

Upstream represent server that we expect to be exposed to public. Client CRD has one to many relationship with Upstream CRD.

```
apiVersion: frp.zufardhiyaulhaq.com/v1alpha1
kind: Upstream
metadata:
  name: foo-service
  namespace: default
spec:
  client: frp-client-01
  tcp:
    host: foo.default.svc.cluster.local
    port: 80
  server:
    port: 8080
```

This operator will be build on top of Go operator framework.

REFERENCES

1. <https://github.com/fatedier/frp>
2. <https://sdk.operatorframework.io/docs/building-operators/>