# Let's talk
# with Prometheus

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2018-06-19

# Prometheus

- Sci-fi
- Filmed in 2012
- 7.0/10 on IMDb
- Directed by Ridley Scott

- **PersistentVolumeClaim** - mounted on /prometheus
- **ConfigMap** with prometheus.yml

```
data:
prometheus.yml: |-
  rule_files:
    - "/etc/prometheus/*.rules"
  global:
    scrape_interval: 10s
  scrape_configs:
  - job_name: 'kubernetes-apiservers'
    scheme: https
  ...
```

- **Pod (Deployment)**

```
containers:
- name: prometheus
image: prom/prometheus
args:
  - "--config.file=/etc/prometheus/prometheus.yml"
  - "--storage.tsdb.path=/prometheus"
```

- **Service**

```
spec:
selector:
  app: prometheus
ports:
- protocol: TCP
  port: 9090
  targetPort: 9090
```

- **RBAC**

```yaml
apiVersion: rbac.authorization.k8s.io/v1beta1
kind: ClusterRole
metadata:
name: prometheus
rules:
- apiGroups: [""]
resources:
- nodes
- services
- endpoints
- pods
verbs: ["get", "list", "watch"]
- apiGroups: [""]
resources:
- configmaps
verbs: ["get"]
- nonResourceURLs: ["/metrics"]
verbs: ["get"]
```

# Kubernetes service discovery

Synchronize scrape target configuration from Kubernetes API.

- node
- service
- pod
- endpoints
- ingress

```
- job_name: 'kubernetes-services'
  scheme: https
  kubernetes_sd_configs:
  - role: services
  relabel_configs:
  - source_labels: [__meta_kubernetes_service_annotation_prometheus_io_scrape]
    action: keep
    regex: true
```

```
kind: Service
apiVersion: v1
metadata:
  annotations:
    prometheus.io/scrape: 'true'
```

# Monitoring Kubernetes

- Apiserver
- Kubelet
- Node exporter
- Kube-state-metrics

```
- job_name: 'kubernetes-apiservers'
  scheme: https
  kubernetes_sd_configs:
  - role: endpoints

  tls_config:
    ca_file: /var/run/secrets/kubernetes.io/serviceaccount/ca.crt
  bearer_token_file: /var/run/secrets/kubernetes.io/serviceaccount/token

  relabel_configs:
  - source_labels:
      - __meta_kubernetes_namespace
      - __meta_kubernetes_service_name
      - __meta_kubernetes_endpoint_port_name
    action: keep
    regex: default;kubernetes;https
```

# Monitoring apps

- Monitor from inside!

1. Export `/metrics` endpoint
2. Annotate application

# Demo!

# Thanks for your attention!