This is a YAML file describing a Kubernetes Service resource for the Prometheus server. Let's break down its structure and explain each section:

```yaml

apiVersion: v1

kind: Service

metadata:

name: prometheus-service

namespace: monitoring

annotations:

prometheus.io/scrape: 'true'

prometheus.io/port: '9090'

```

- `apiVersion`: Specifies the Kubernetes API version used for the Service.

- `kind`: Specifies the type of resource, in this case, a Service.

- `metadata`: Contains metadata about the Service, such as its name, namespace, and annotations.

- `name`: Specifies the name of the Service as "prometheus-service".

- `namespace`: Specifies the namespace in which the Service is created.

- `annotations`: Contains additional metadata for the Service. In this case, it includes two annotations related to Prometheus scraping:

- `prometheus.io/scrape`: Indicates that the Service should be scraped by Prometheus.

- `prometheus.io/port`: Specifies the port on which Prometheus should scrape the Service.

```yaml

spec:

selector:

app: prometheus-server

type: NodePort

ports:

- port: 8080

targetPort: 9090

nodePort: 30000

```

- `spec`: Specifies the Service specification.

- `selector`: Defines the labels used to select the Pods that the Service will route traffic to. In this case, it selects Pods with the label `app: prometheus-server`.

- `type`: Specifies the type of Service. Here, it is set to `NodePort`, which exposes the Service on a static port on each node in the cluster.

- `ports`: Specifies the port configuration for the Service.

- `port`: Sets the port on which the Service is exposed internally.

- `targetPort`: Specifies the port to which the Service will forward traffic to the selected Pods.

- `nodePort`: Defines the port on which the Service will be accessible externally on each node in the cluster.

In summary, this YAML file describes a Kubernetes Service named "prometheus-service" in the "monitoring" namespace. The Service is annotated to indicate that it should be scraped by Prometheus on port 9090. It selects Pods with the label `app: prometheus-server` and exposes the Service on port 8080 internally. Additionally, it assigns a static node port of 30000 for external access to the Service.