1 CheatSheet: Prometheus CLOUD

- PDF Link: cheatsheet-prometheus-A4.pdf, Category: Cloud
- Blog URL: `https://cheatsheet.dennyzhang.com/cheatsheet-prometheus-A4`
- Related posts: Nagios CheatSheet, Kubectl CheatSheet, #denny-cheatsheets

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1.1 Prometheus Commands

Name	Command
Run prometheus server with docker	`docker run -p 9090:9090 prom/prometheus`, `http://localhost:9090/graph`,
Run cadvisor to get local containers' metrics	`docker run -v /var/run:/var/run -v /sys:/sys -p 8080:8080 google/cad`
Query metrics by api, instead of web console	`curl http://localhost:9090/api/v1/query?query=container_memory_usage`
List all alerts of alertmanager	`curl http://localhost:9093/api/v1/alerts`
Prometheus tech stack footprint	prometheus(350MB RAM), node-exporter(10MB), kube-state-metrics(20MB), ale
Example of client libraries	Link: prometheus-python-example.py
Prometheus Online Demo	Live demo from CloudAlchemy
Prometheus Config file	`/etc/prometheus/prometheus.yml` Sections in conf: `global`, `rule_files`, `scrap`

1.2 Prometheus Components

Name	Command
Prometheus server	Scrapes and store time series data. It uses mainly pull model, instead of push.
Special-purpose exporters	Get metrics for all kinds of services. e.g, Node Exporter, Blackbox Exporter, SNMP Exporter, JMX
Client libraries	Instrument application code.
Alertmanager	Handle alerts.
Push gateway	Support short-lived jobs. Persist the most recent push of metrics from batch jobs.
Reference	Link: Exporters And Integrations, Link: Default port allocations

https://raw.githubusercontent.com/dennyzhang/cheatsheet-prometheus-A4/master/prometheus-overview.png

1.3 Prometheus Metric Types

Name	Command
Counter	It only goes up (and resets), counts something. e.g, the number of requests served, tasks completed, or errors.
Gauge	It goes up and down, snapshot of state. e.g, temperatures or current memory usage, etc
Summary	It samples observations, espeically over a sliding time window. e.g, `rate(http_request_duration_seconds_sum[5r`
Histogram	It samples observations and counts them in configurable buckets.

1.4 Prometheus Concepts

Name	Summary
Target	A target is the definition of an object to scrape.
Job	A collection of targets with the same purpose.
Instance	A label that uniquely identifies a target in a job.
Exporter	Expose metrics from a non-Prometheus format into a format Prometheus supports.
Collector	A part of an exporter that represents a set of metrics.
Handler	
Rule	

1.5 Kubernetes Metrics Targets & Samples

Name	Command	Sample Metrics
cadvisor	`http://\protect\T1\textdollarnode_ip:10255/metrics/cadvisor`	Link: cadvisor-sa
node-exporter	`http://\protect\T1\textdollarnode_ip:9100/metrics`	Link: node-expor
kubelet	`http://\protect\T1\textdollarkubelet_ip:10255/metrics`	Link: kubelet-sam
kube-dns	`http://\protect\T1\textdollarkube_dns_addon_ip:10054/metrics`	Link: kube-dns-sa
kube-state-metrics http-metric	`http://\protect\T1\textdollarkube_state_metric_svc:8080/metrics`	Link: kube-state-
kube-state-metrics telemetry	`http://\protect\T1\textdollarkube_state_metric_svc:8081/metrics`	Link: kube-state-
apiserver	`https://\protect\T1\textdollarapi_server:443/metrics`	

https://raw.githubusercontent.com/dennyzhang/cheatsheet-prometheus-A4/master/prometheus-deployment.png

1.6 Prometheus PromQL Query

Name	Command
Reference	Link: query
Find metric by name+job+group	somemetric{job="prometheus",group="canary"}
	$\text{rate}(\text{apiserver}_{\text{requestcount}}\{\text{verb}=\text{"GET"}, \text{code}=\text{"200"}\}[1m])$
The avg network traffic received per second, over the last min	$\text{rate}(\text{node}_{\text{networkreceivebytestotal}}[1m])$
topk query	Link: query-topk.txt
join	
cut	
slice	
count	
predict	
sum	
min	
max	
avg	

1.7 Prometheus Alerts

Name	Command
How full will the disks be in 4 hours?	
Which services are the top 5 users of CPU?	
What's the 95th percentile latency in EU datacenter?	

1.8 More Resources

`https://prometheus.io/`

`https://povilasv.me/prometheus-tracking-request-duration/`