Cortex: Intro

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Kubernetes Colorado
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splunk>®

About Me

Maintainer of Prometheus and Cortex

Tech lead for internal observability platform for Splunk Cloud

Passionate about all things observability

Skiing (uphill!), hiking, and climbing whenever possible

Show of hands

Monitoring in Kubernetes with Prometheus

What's awesome

- First class support
- Large community of users
- Alerting and exploration without external dependencies

Areas of struggle

- Storage limited to local disk
- Hard to query and alert across clusters

Why use Cortex?

A **global store** of as many metrics as you need

With **Prometheus query and alerting** capabilities

On durable, **long term storage**

Across **multiple tenants**

Who uses Cortex?
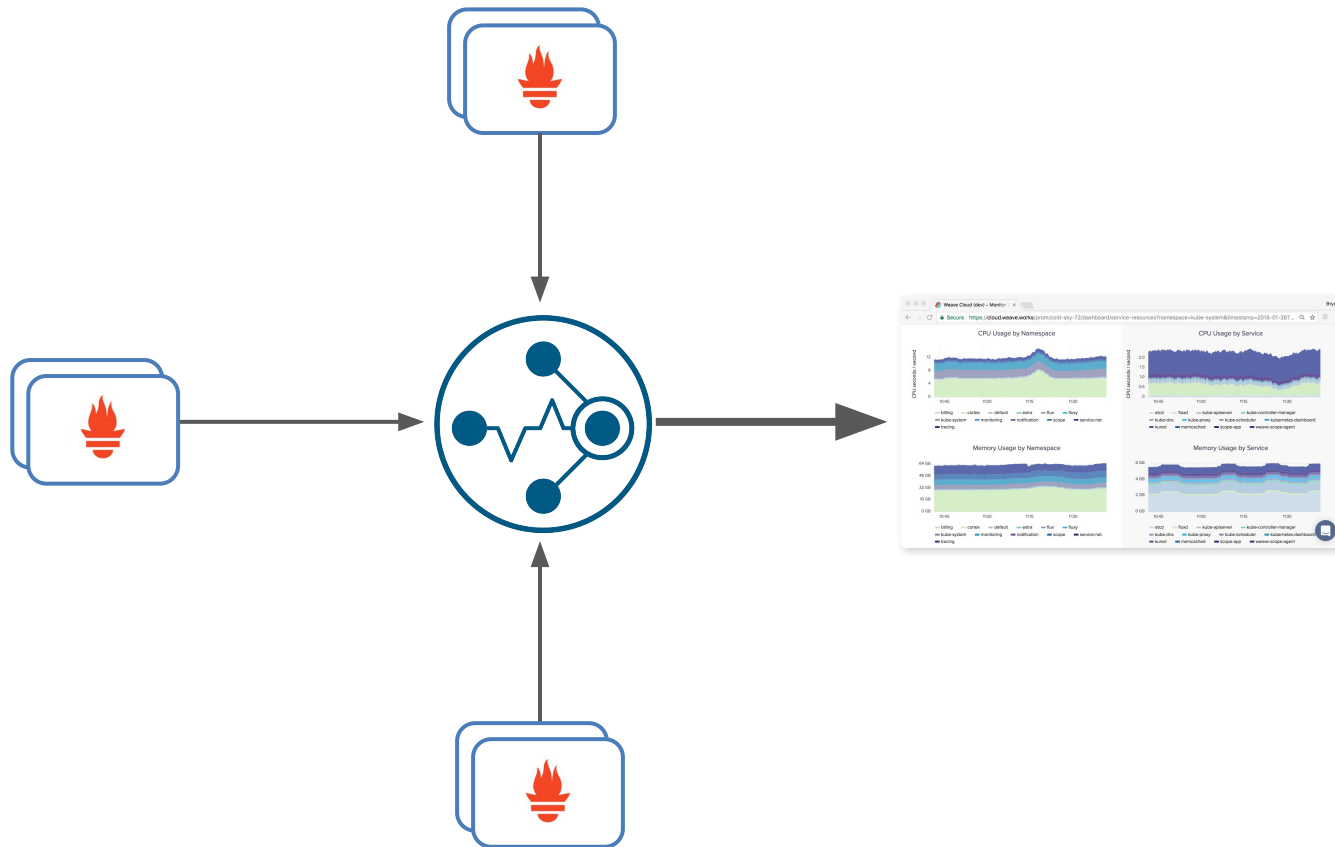
How does Cortex do it?

Built on the same code as Prometheus

- Horizontally scalable
- Highly available
- NoSQL and Blob storage
- Multi-tenancy embedded throughout

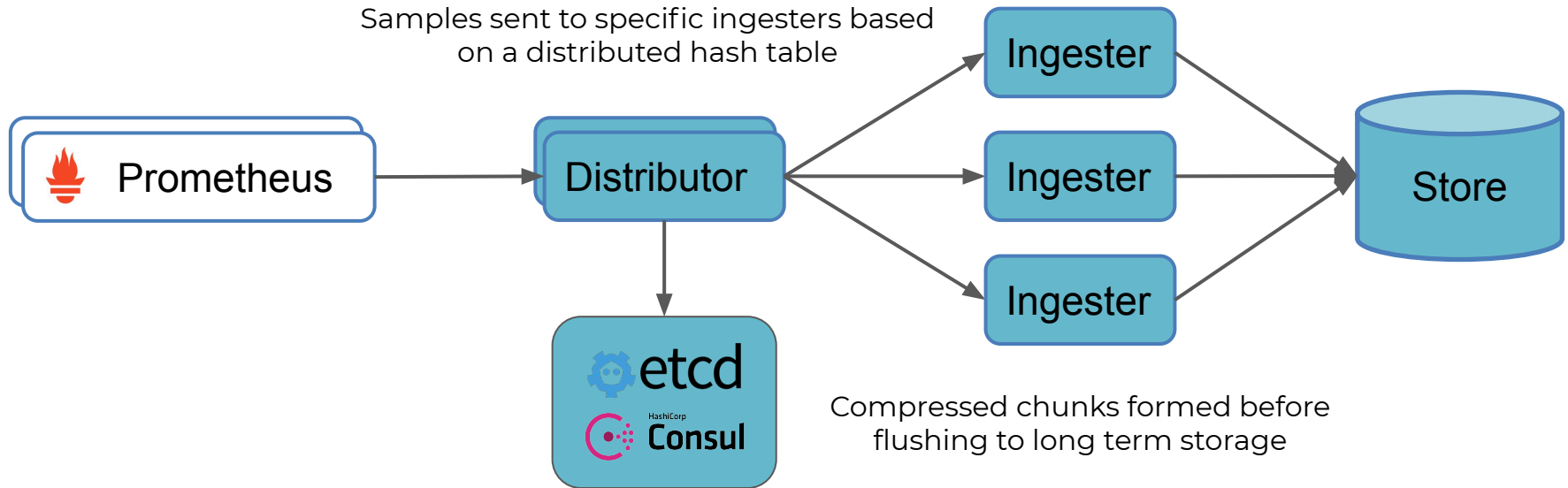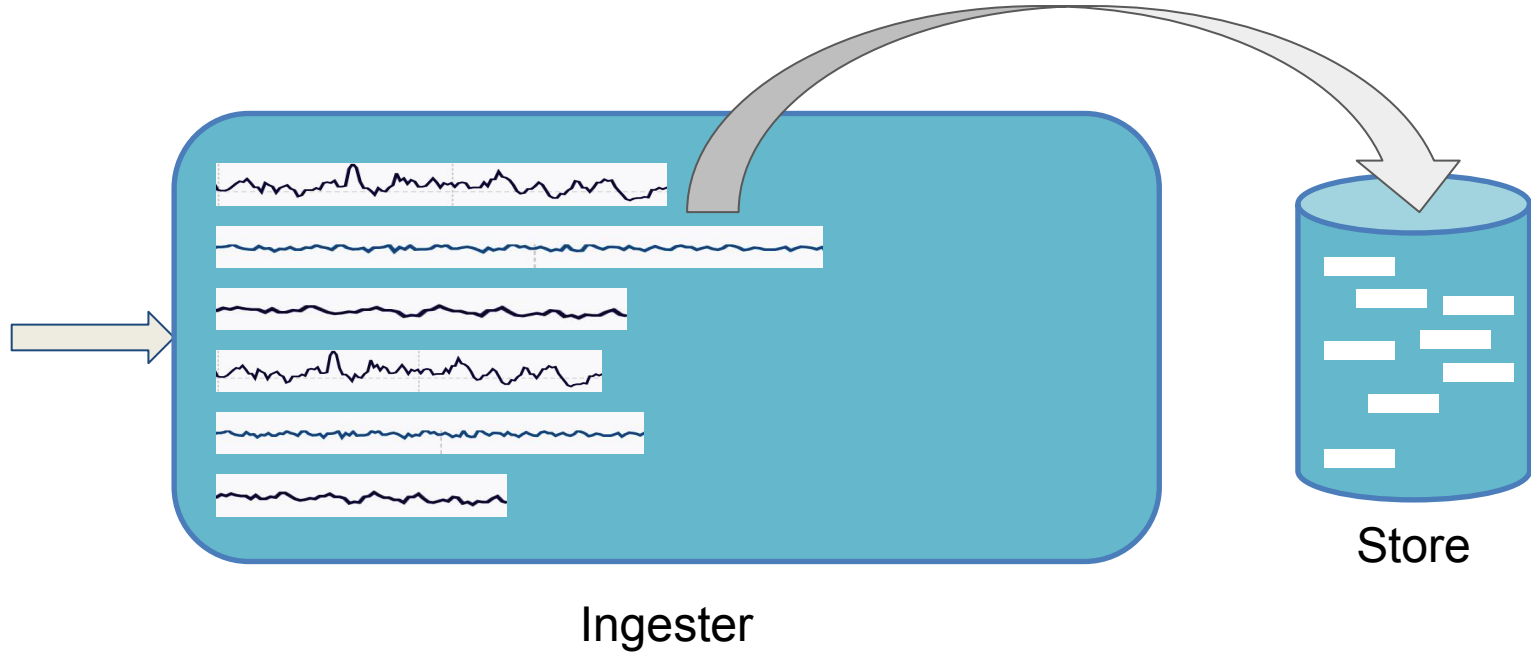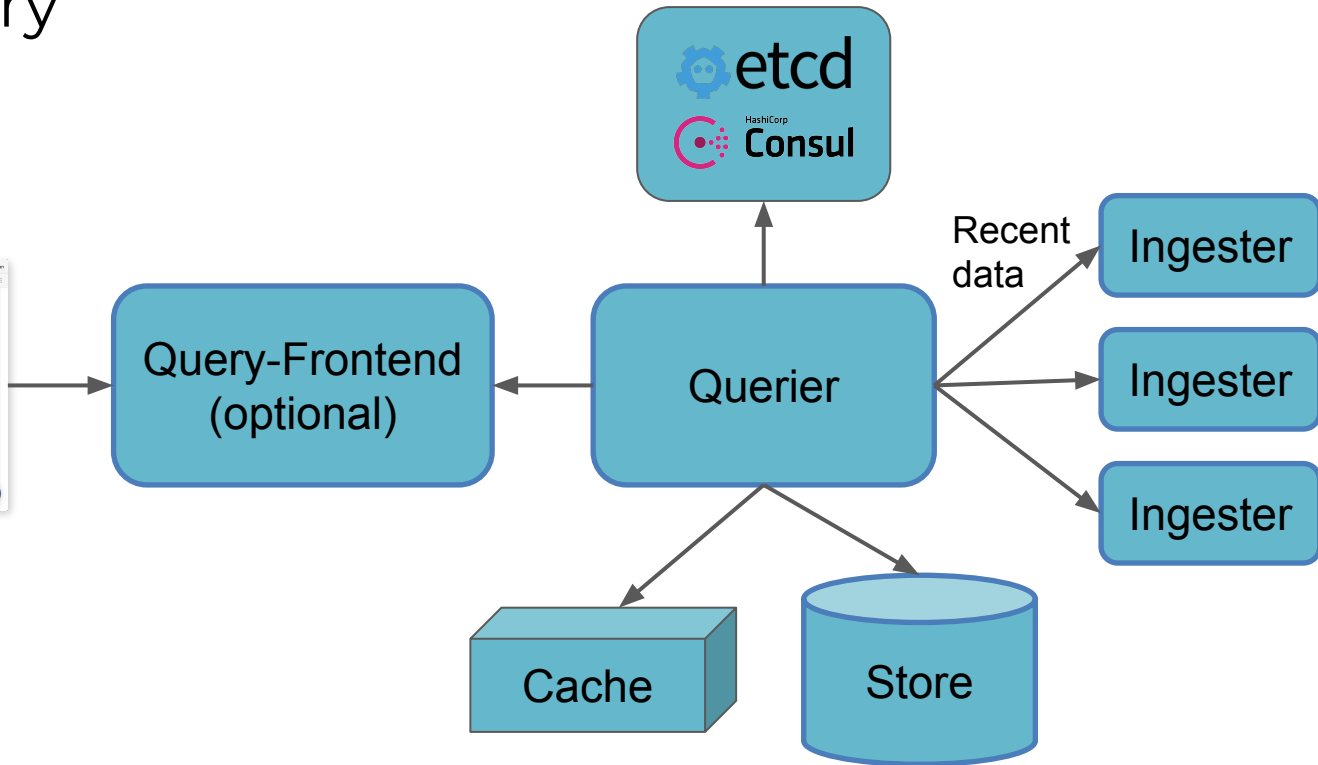Cortex is a CNCF Sandbox project
https://github.com/cortexproject/cortex

Cortex: Global view

Cortex: Ingest

Samples sent to specific ingesters based
on a distributed hash table

Prometheus

Distributor

etcd

HashiCorp
Consul

Ingester

Ingester

Ingester

Store

Compressed chunks formed before
flushing to long term storage

Cortex: Ingest Compression

Ingester

Store

Gorilla compression, same as Prometheus: http://www.vldb.org/pvldb/vol8/p1816-teller.pdf

Cortex: Query
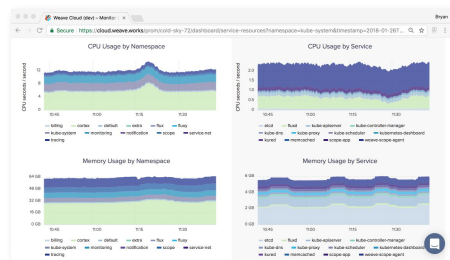
Cortex: Infinitely Scalable Prometheus

Multi-tenant

https://github.com/cortexproject/cortex

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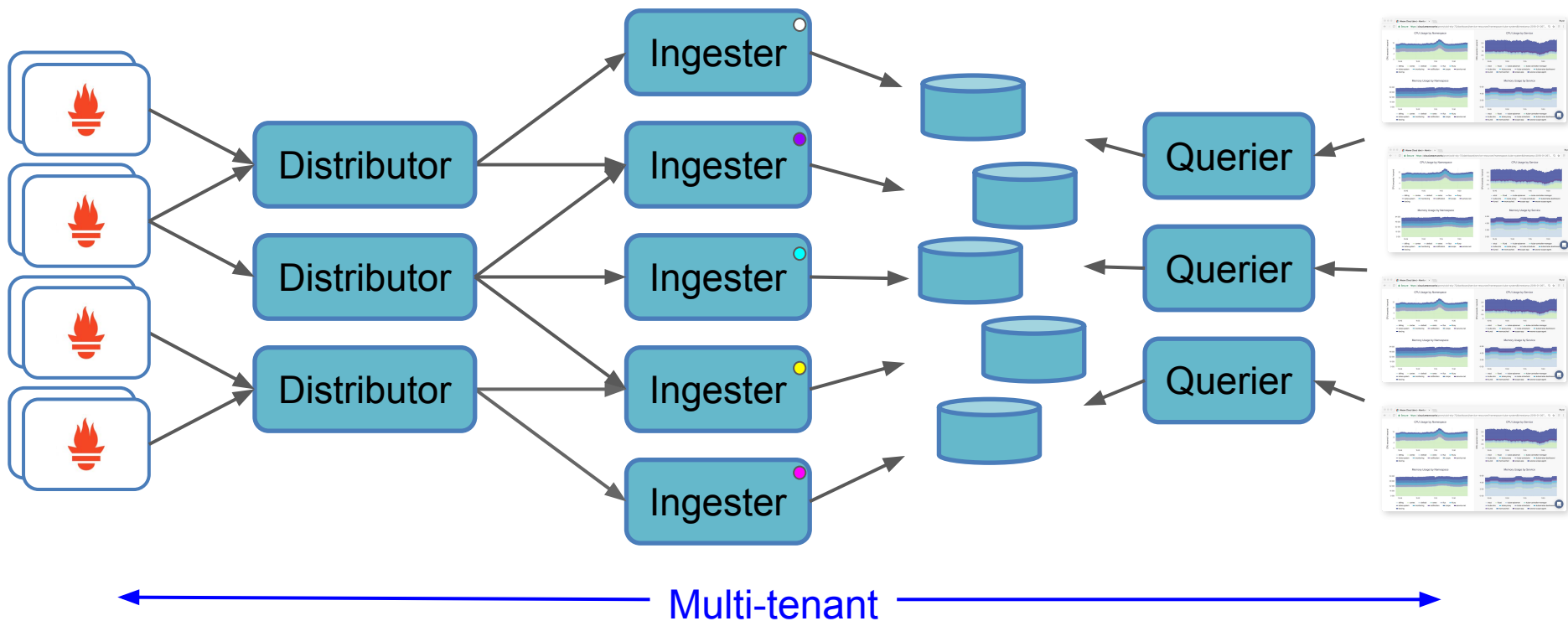
Cortex: Global Rule and Alert Evaluation
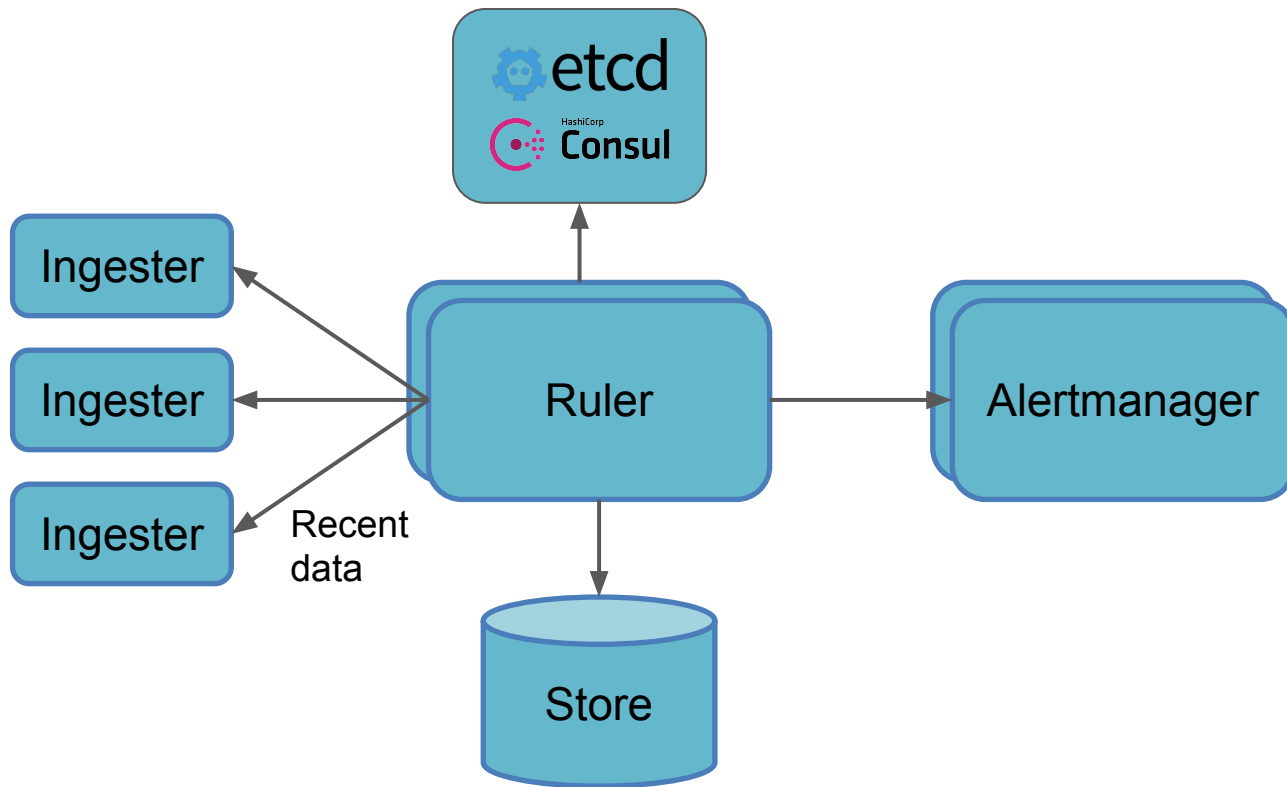
Cortex: Long Term Storage

DynamoDB

Google Cloud Bigtable

cassandra

S3

Google Cloud Storage

BoltDB

Thanos: An Alternative

- Decentralized architecture
- Only needs object storage
- CNCF Sandbox project

https://thanos.io/

https://github.com/thanos-io/thanos

Kubernetes Mixin

The Kubernetes Mixin provides alerts and Grafana dashboards for operating Kubernetes

Dashboards support multi-cluster mode

https://github.com/kubernetes-monitoring/kubernetes-mixin

Thanks!

Questions about anything observability?

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