Peer-To-Peer Networks
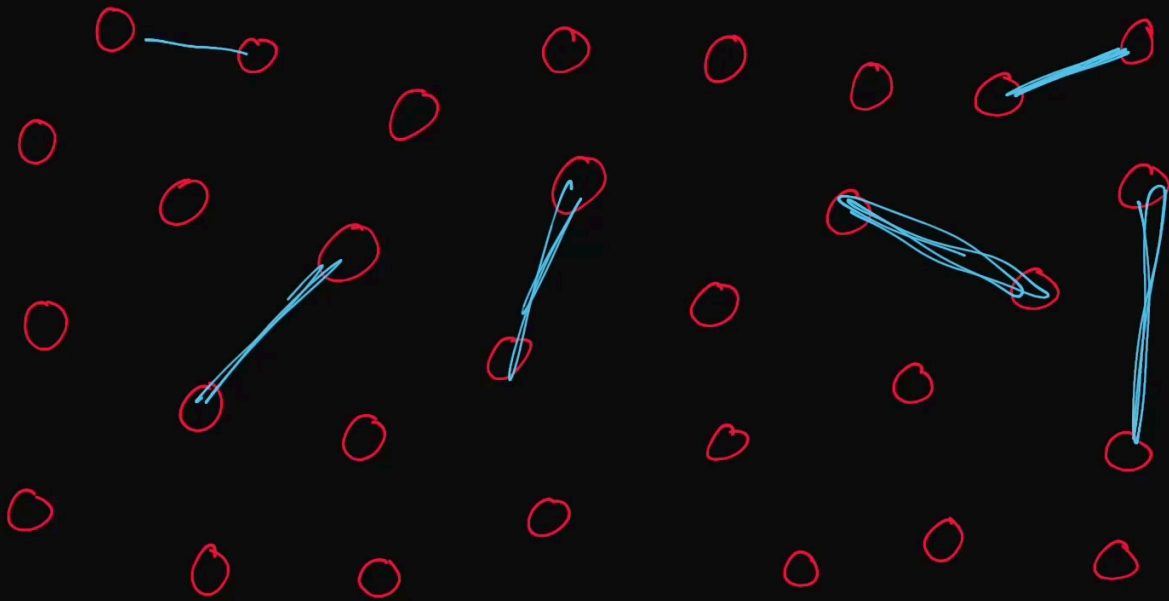
- 40 Gbps (5 GBps) network throughput
- 5 GB files
  ↳ 1300 5MB files
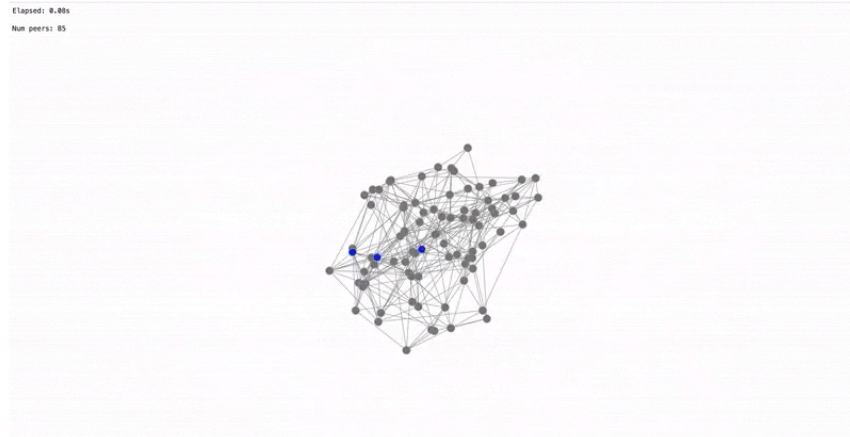
Kraken

build passing release v0.1.3 godoc reference go report A codecov 66%

Kraken is a P2P-powered Docker registry that focuses on scalability and availability. It is designed for Docker image management, replication and distribution in a hybrid cloud environment. With pluggable backend support, Kraken can easily integrate into existing Docker registry setups as the distribution layer.

Kraken has been in production at Uber since early 2018. In our busiest cluster, Kraken distributes more than 1 million blobs per day, including 100k 1G+ blobs. At its peak production load, Kraken distributes 20K 100MB-1G blobs in under 30 sec.

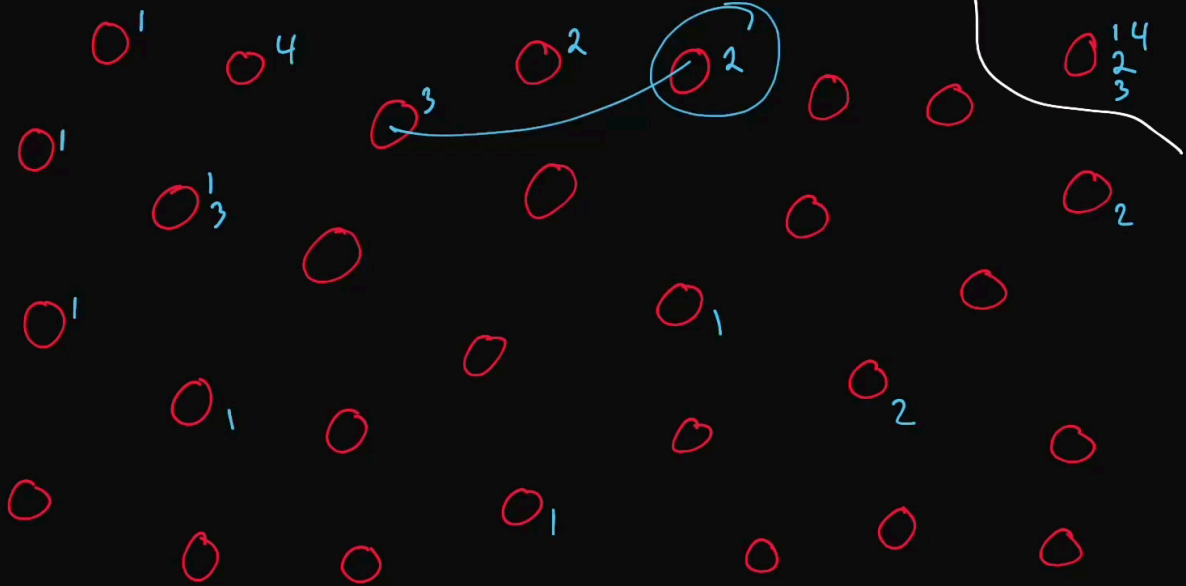Below is the visualization of a small Kraken cluster at work:

2 Prerequisites ▲

Client—Server Model

The paradigm by which modern systems are designed, which consists of clients requesting data or service from servers and servers providing data or service to clients.

Throughput

The number of operations that a system can handle properly per time unit. For instance the throughput of a server can often be measured in requests per second (RPS or QPS).

2 Key Terms ▲

Peer-To-Peer Network

A collection of machines referred to as peers that divide a workload between themselves to presumably complete the workload faster than would otherwise be possible. Peer-to-peer networks are often used in file-distribution systems.

Gossip Protocol

When a set of machines talk to each other in a uncoordinated manner in a cluster to spread information through a system without requiring a central source of data.