Discover and Configure services

A talk by
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What is Consul

"Service discovery and configuration in infrastructure."

- By Hashicorp

- Service Discovery - Register, discover over DNS or HTTP

- Health checks - Server status, memory utilization, etc. Traffic routing

- Key/ Value Store

    – Feature flags, configuration

    – Simple API calls

- Multiple Datacenter - Spread over regions

Architecture
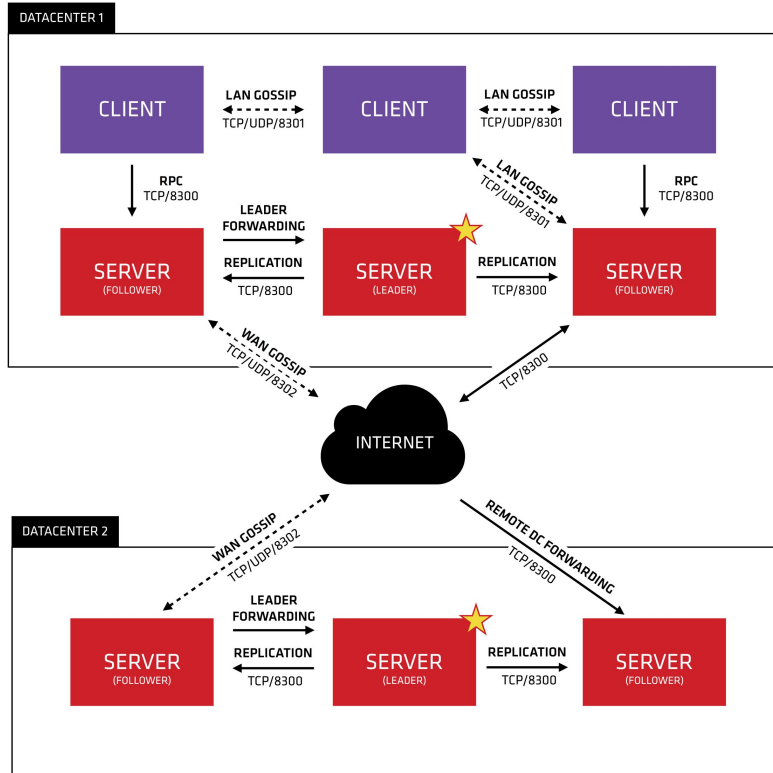
- Gossip - Node to node communication
- Consensus on leader and transactions
- Leader processes all queries and transactions

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How to set up?

- Download the Consul binaries and extract

- For OS X, $ brew install consul

- For Linux,

  cd /usr/local/bin

  wget https://dl.bintray.com/mitchellh/consul/0.3.0_linux_amd64.zip

  unzip *.zip

  rm *.zip

- To test and run, $ consul

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Demo

Pros and Cons

Pros

- More high-level features.

- EnvConsul - can read/set environment variable for processes from Consul.

- Better Documentation

- Fault Tolerant

- Highly Scalable - Understands the notion of a datacenter.

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Pros and Cons

Cons

- Need some configuration management tool to install it

- Manual bootstrapping

- Security Flaw - Encryption not during transit (only at storage)

- Naive Implementation

Consul VS. Other Software

- vs. ZooKeeper, doozerd, etcd

  - Multi-datacenter functionality using gossip protocol

  - More features, less third party dependency

- vs. Configuration mngt tools like Puppet, Chef

  - Dynamic configuration info update

  - Uses DNS or HTTP APIs, no configuration required in advance

- vs. Health Checking tools like Nagios, Sensu

  - Easier to scale, fault tolerant

  - Lightweight

Consul VS. Other Software

- vs. SkyDNS
  - Similar but with more features
  - Better health checking

- vs. Serf
  - The internal gossip protocol used within Consul is powered by the Serf library
  - More high-level features such as service discovery, health checking or key/value storage
  - Rich health checking system that handles liveness in addition to arbitrary host and service-level checks

Our Verdict

"What distinguishes Consul is the support for multiple datacenters and health checking without the usage of third-party tools. It does very few things and it does them well."

"The way Consul propagates knowledge about the cluster using gossip makes setup easier. Consul's service accomplishes a more compact result that often requires a single query to retrieve all the data related to the service."

"Consul's Web UI is like a cherry on top of a cake and provides a good way to visualize services and their health."