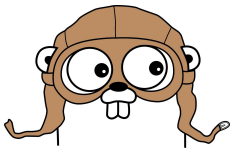
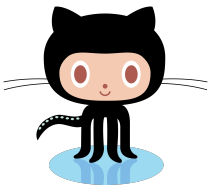
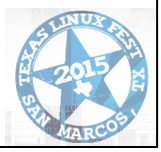
Talk about myself
Rackspace
Heat / Ansible / SaltStack
Bitcoin

What is Consul?

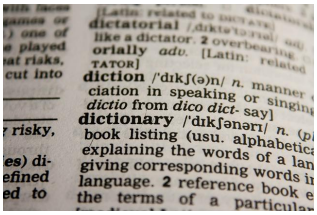


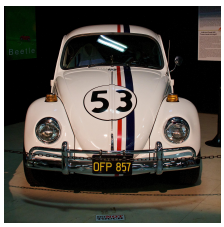




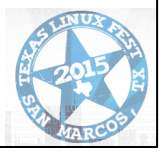
- From Hashicorp, makers of Vagrant
- github.com/hashicorp/consul
- Go binary and json config files
- Same binary provides server / agent (two faced)
- Built on gossip / Serf
- Service Definition / Discovery
- Health Checking
- Key/Value Store
- Multiple Datacenter

Service Discovery


dictatorial /ˌdɪktəˈtɔːrɪəl/ adj. like a dictator. 2 overbearing. orially adv. [Latin: related TATOR]
diction /ˈdɪkʃ(ə)n/ n. manner ciation in speaking or singing dictio from dico dict- say]
dictionary /ˈdɪkʃənərɪ/ n. (p book listing (usu. alphabetic explaining the words of a lan giving corresponding words i language. 2 reference book e the terms of a particular



http://



- **Service Definition and Discovery:** Clients of Consul can provide a service (by name), such as api or mysql, and other clients can use Consul to discover providers of a given service. Using either DNS or HTTP, applications can easily find the services they depend upon.
- SmartStack by AirBnB is comparable.

Health Checking

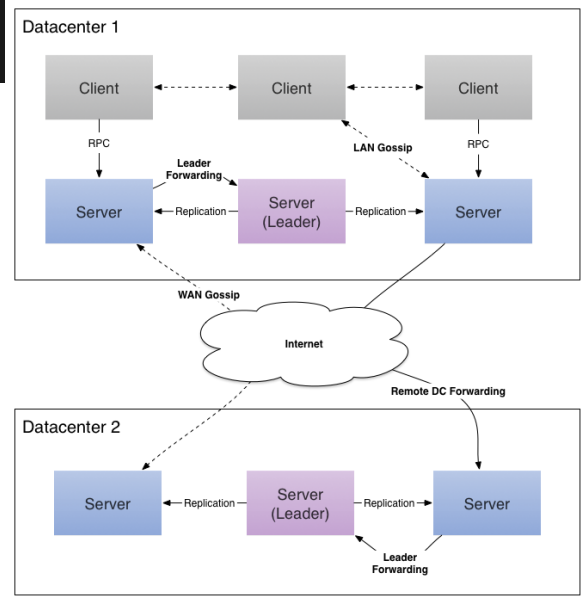
Nagios®

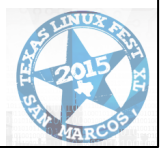
- **Health Checking:** Consul clients can provide any number of health checks, either associated with a given service ("is the webserver returning 200 OK"), or with the local node ("is memory utilization below 90%"). This information can be used by an operator to monitor cluster health, and it is used by the service discovery components to route traffic away from unhealthy hosts.
- Compatible with Nagios check scripts

Key/Value Store

- **Key/Value Store:** Applications can make use of Consul's hierarchical key/value store for any number of purposes, including dynamic configuration, feature flagging, coordination, leader election, and more. The simple HTTP API makes it easy to use.
- Comparable to etcd and Zookeeper

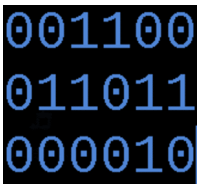
Multiple Datacenter





- **Multi Datacenter:** Consul supports multiple datacenters out of the box. This means users of Consul do not have to worry about building additional layers of abstraction to grow to multiple regions.

Installing



/usr/local/bin/consul
/etc/consul/conf.d
init/upstart script

1. Download and extract binary as /usr/local/bin/consul
2. Generate configuration files in /etc/consul/conf.d/
3. Create init/upstart script
4. Bootstrap your first server node.
5. Join a couple more server nodes. (3 to 5)
6. Join your clients.
7. Extract the web ui, ProxyPass using nginx.

Upstart Script

```
exec /usr/local/bin/consul agent -config-dir
/etc/consul/conf.d/ > /var/log/consul.log

start on filesystem and static-network-up
```

Agent Configuration

```
/etc/consul/conf.d/(client|server).json
{
  "datacenter": "iad",
  "data_dir": "/opt/consul",
  "server": true,
  "ui_dir": "/usr/local/bin/consul_ui/dist",
  "start_join": ["10.208.232.22", "10.208.232.32"]
}
```

Difference between agent and server is bold line.

Service Configuration

/etc/consul/conf.d/mysql.json

```
{
    "service": {
        "name": "mysql",
        "port": 3306,
        "check": {
            "name": "mysql_check",
            "script": "/usr/local/bin/check_mysql.sh",
            "interval": "1s"
        }
    }
}
```

Check Script

/usr/local/bin/check_mysql.sh

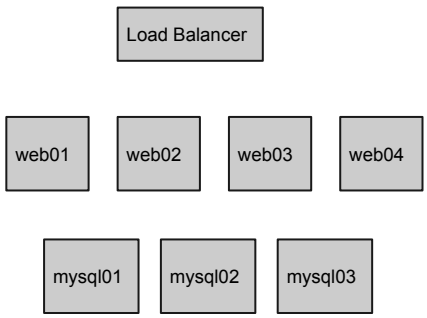
```
#!/bin/bash

nc -z localhost 3306
rt_val=$?

if [ $rt_val != 0 ]; then
    exit 3
else
    exit 0
fi
```

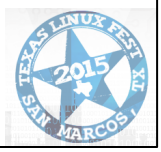
Demo

Consul UI

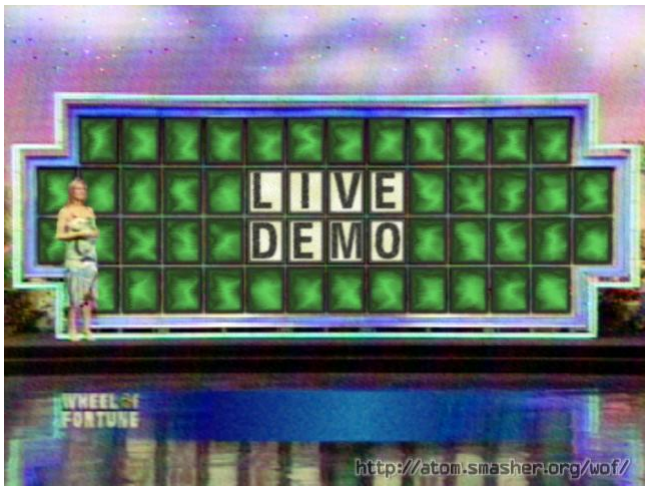
Load Balancer

```
web01:    - 104.130.8.110
web02:    - 104.130.12.91
web04:    - 104.130.6.235
web03:    - 104.130.12.98
mysql01:  - 104.130.8.117
mysql02:  - 104.130.12.52
mysql03:  - 104.130.12.5
```





Demo

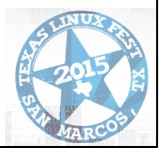


1. consul members
2. Log file
3. Web UI
4. Node leaving vs failure
5. Demo PHP App (DNS)
6. HTTP Examples

Encryption

API - TLS / SSL
Agent cross communication - The key must be 16-bytes, Base64 encoded.

DNS Forwarding



Consul defaults to port 8600.
Use local DNS to forward requests to localhost:8600
bind or dnsmasq

Watch out!

1. Don’t lose your minimum of 3 server nodes per DC!
2. Write your own init scripts, no fancy packages.

Resources

http://www.consul.io/

#consul on irc.freenode.net

github.com/linuturk/saltstates/

www.onitato.com