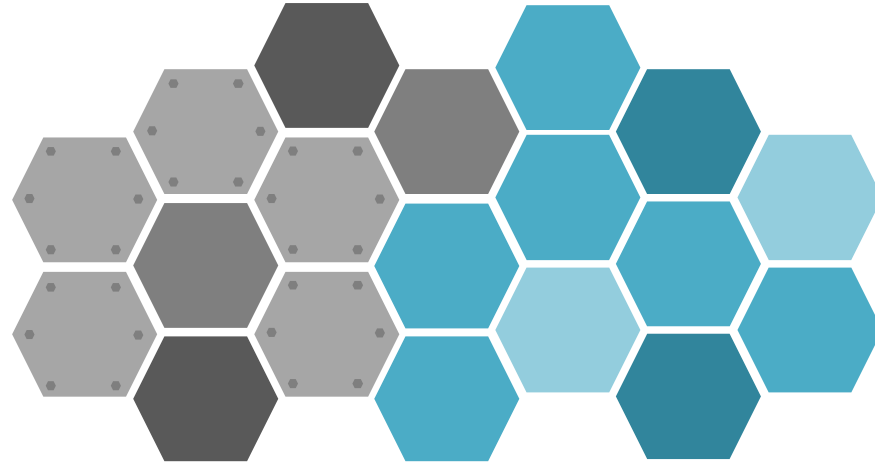




Cloud Foundry at Comcast

May 11, 2015



Comcast Cloud Services

[Tim Leong](#), Cloud Architecture

[Sergey Matochkin](#), App Platform Architecture

[Sam Guerrero](#), Cloud Engineering

[Neville George](#), Cloud Engineering

Cloud Foundry Custom URLs: Challenges

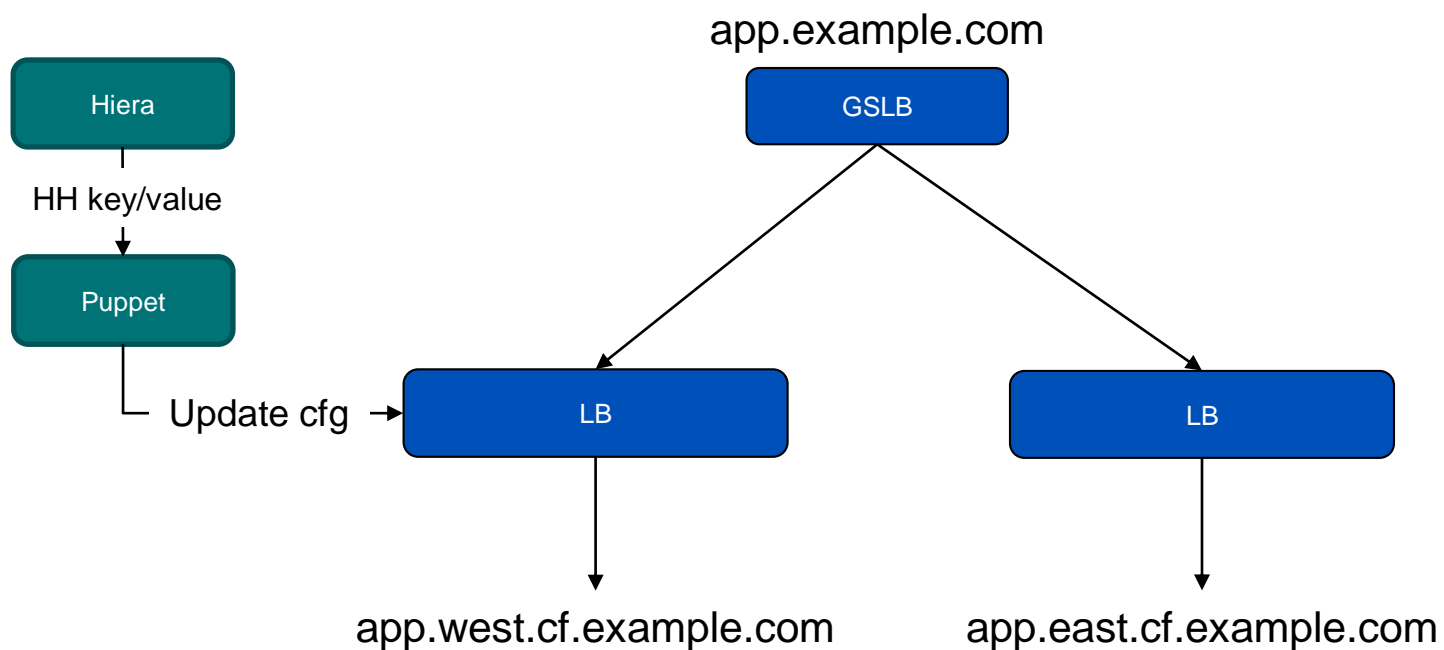
HTTP Host Header

- Changing Host Header for proper CF Routing
- Enable GSLB Support

Multiple SSL Certificates

- How to support SSL for multiple domains?

GSLB, Custom URLs and SSL



- HAProxy Config controlled by Puppet/Hiera
- Custom Host Header replacement config through Puppet
- Also works for certificate injection, with SNI

Cloud Foundry Custom Services: Challenges

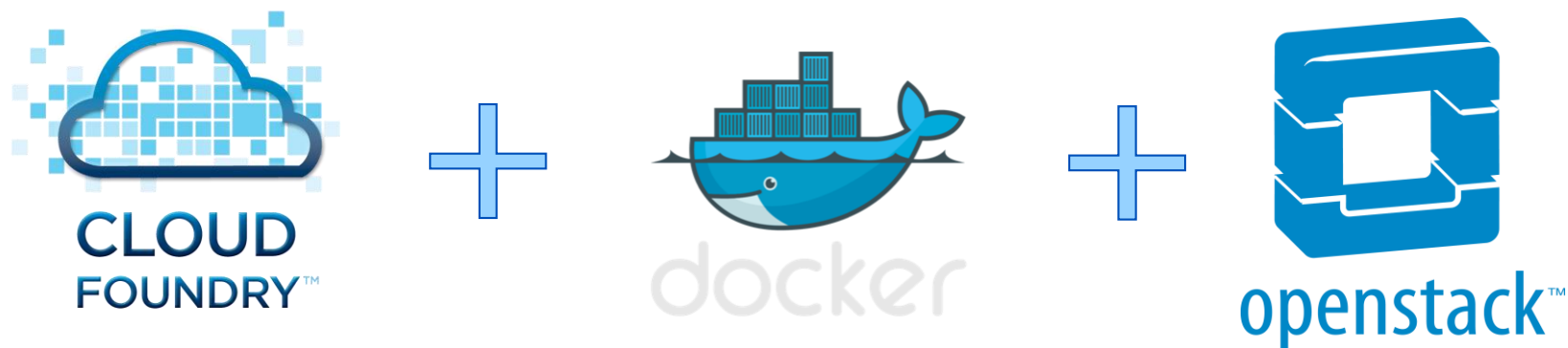
Need for Custom Services

- Logger
- Outbound Proxy
- HAProxy with custom URL mapping

Scale and Extend

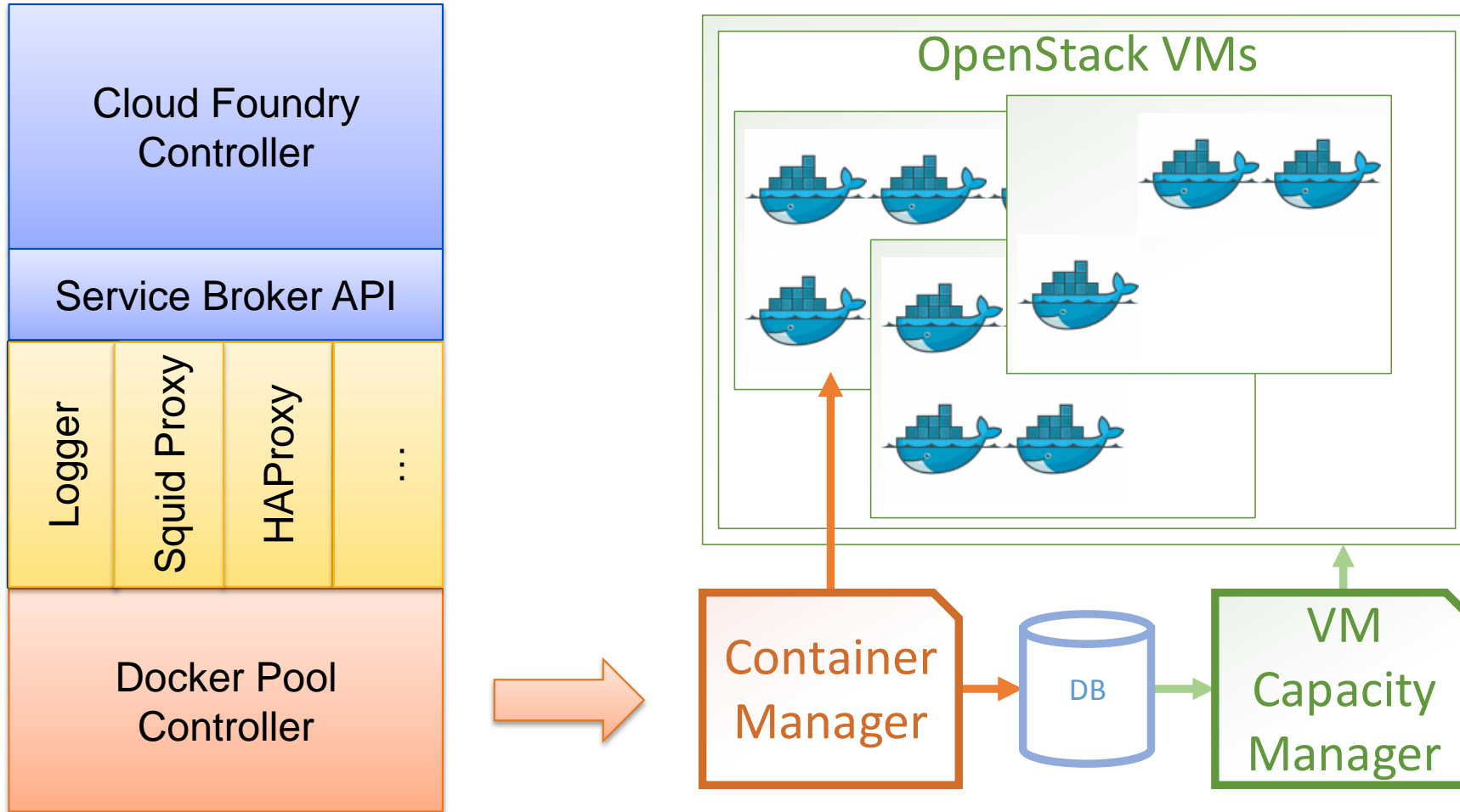
- Supports organic growth and on-demand scalability
- Add new Services without major Dev efforts
- Support service lifecycle

Cloud Foundry meets Docker and OpenStack at the Market Place



- Docker can run anything – ideal runtime environment for services
- Run Docker containers on OpenStack VMs
- OpenStack is build to scale
- Monitor utilization and automatically add VMs to maintain capacity

Two layers of Service Broker Implementation



Docker Pool Controller Request

Request

```
PUT /b8ead779-08ce-4659-84dd-30d61838e10e
```

```
{  
  "image": "comcast-logger",  
  "mem": 1024,  
  "ports": [  
    80, 5000  
  ]  
}
```



- Go find a server that can accommodate a new container
- Start the container using “comcast-logger” image
- Expose ports 80 and 5000
- Ensure that the container will have 1GB RAM to run

Response

```
{  
  "host": "b8ead779-08ce-4659-84dd-30d61838e10e.s.example.com",  
  "ports": {  
    "80": 49202,  
    "5000": 49203  
  }  
}
```



- Here is your service FQDN
- And port mappings

Shift in Thinking

- Self Service operating model (great for business but brings challenges to Engineering)
- Logistics (Asset management, CMDB to CF App associations, showback / chargeback)
- Expanded customer collaboration (App Specific / Network / DNS / Load Balancer)
- Increased scope of responsibility (cf versions, buildpacks, backups)
- “Run your own business” mentality (T-shaped)

Data Insight - “Knowing matters”

Admin UI Tool - Visibility

- GUI for state of the environment
- Aids in certain operational aspects
- Utilization metrics

Nagios - Proactive monitoring

- Key Performance Indicators
- Customer quotas
- Problem correlation

Cloud Foundry <http://api.ula.app.cloud.comcast.net>

← Organizations Spaces Apps Routes Service Instances Service Bindings Organization Roles Space Roles Cl

Show 250 entries Search: Create new DEA Copy Print Save Download

Name	Index	Status	Started	Stack	CPU	Memory	Apps	Running
10.251.168.28:39276	0	RUNNING	2015-04-01T21:31:24+00:00	lucid64	0	84,885,504	19	21
10.251.168.29:41943	1	RUNNING	2015-04-01T21:34:56+00:00	lucid64	0	73,404,416	19	19
10.251.168.32:47658	2	RUNNING	2015-04-01T21:38:25+00:00	lucid64	0	78,012,416	16	16
10.251.168.33:54514	3	RUNNING	2015-04-01T21:43:25+00:00	lucid64	0	88,395,776	21	21
10.251.168.34:35822	4	RUNNING	2015-04-01T21:47:13+00:00	lucid64	0	81,256,448	17	17
10.251.168.35:46197	5	RUNNING	2015-04-01T21:50:42+00:00	lucid64	0	84,598,784	17	17
10.251.168.36:46140	6	RUNNING	2015-04-01T21:55:34+00:00	lucid64	0	80,134,144	14	14
10.251.168.71:37677	7	RUNNING	2015-04-01T21:58:56+00:00	lucid64	0	82,538,496	19	19



COMCAST