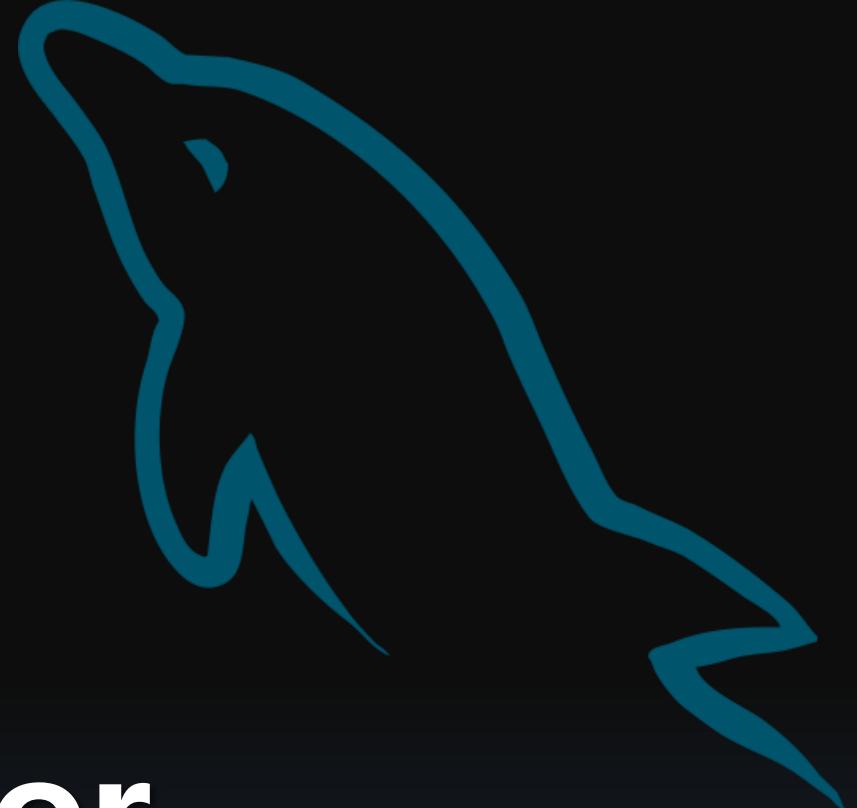
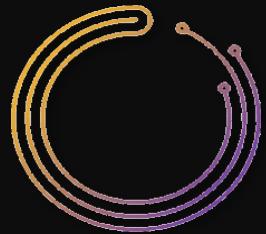




Orchestrator Consul ProxySQL with Super Tengen Toppa

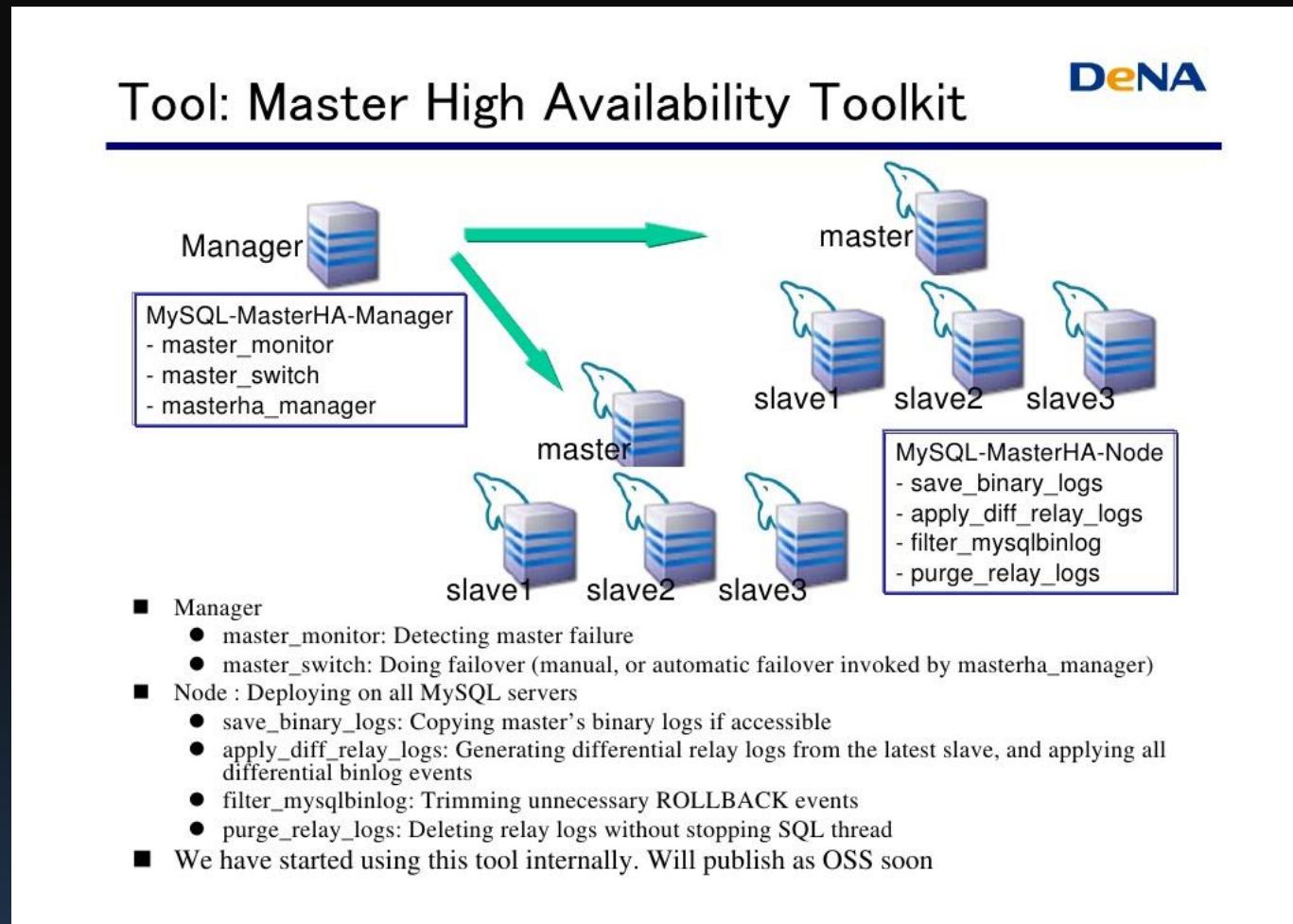
MySQL Korea User Group



Github's Orchestrator

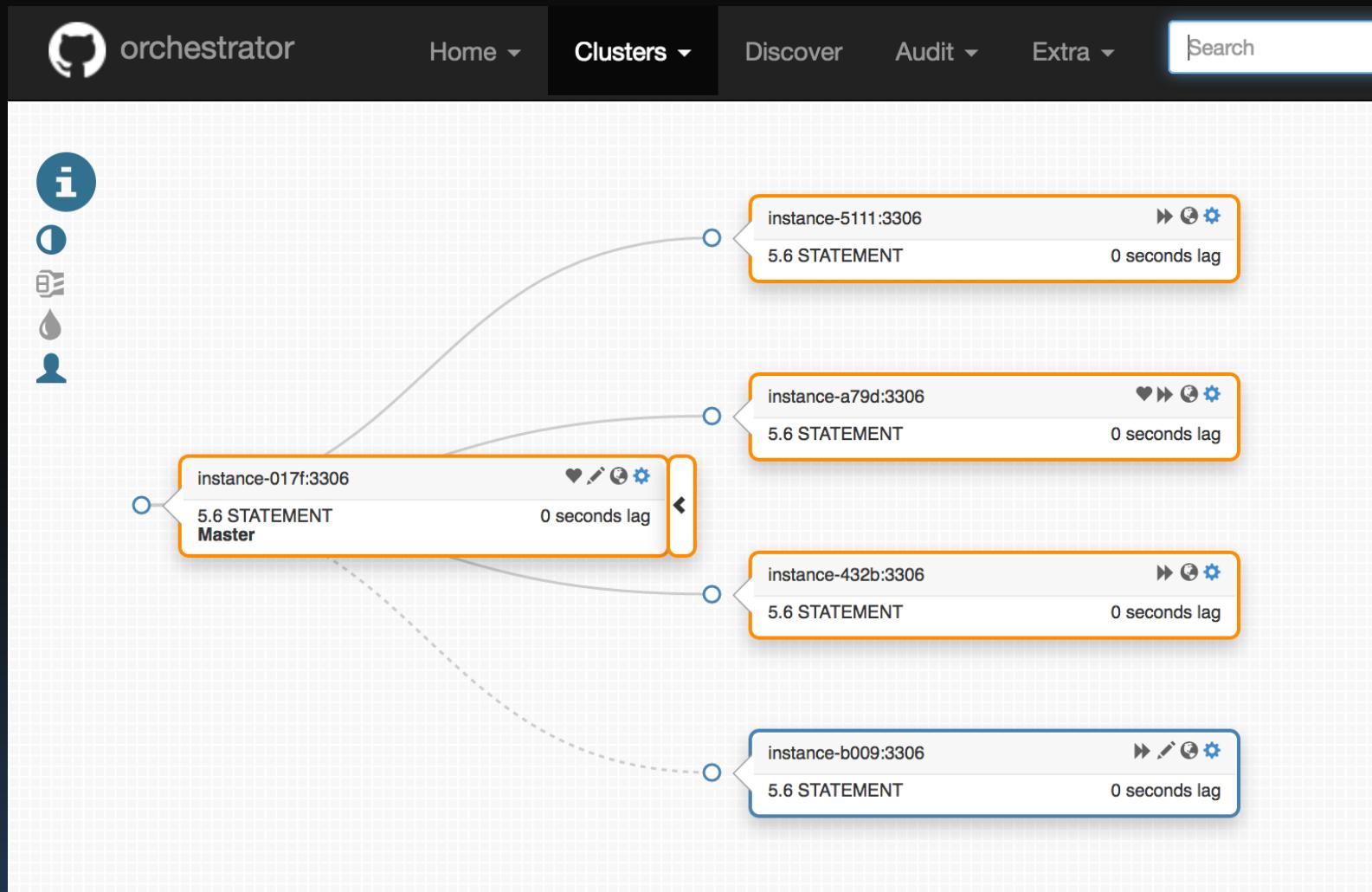
MySQL replication topology management and HA

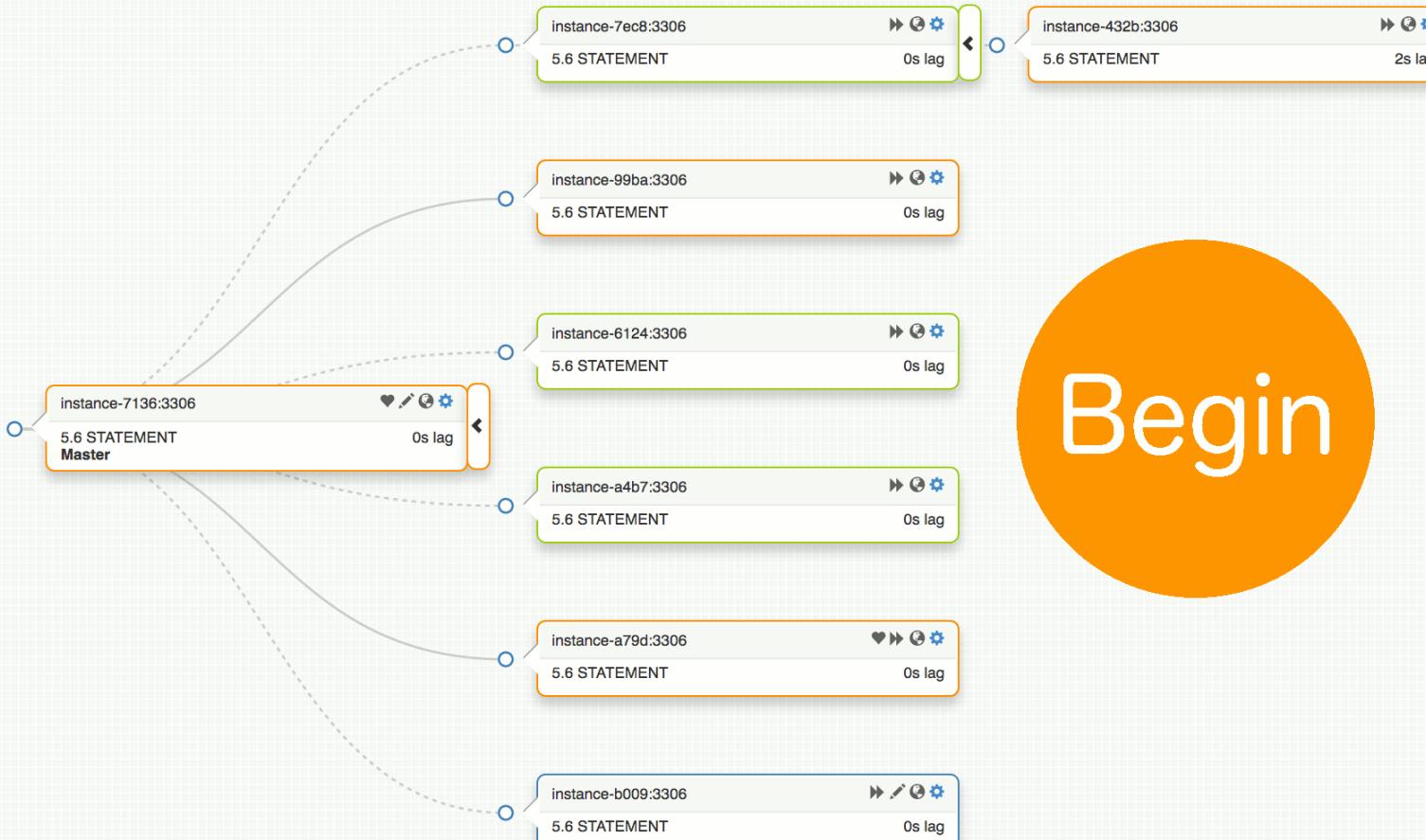
YOSHINORI MATSUNOBU's MHA



<http://yoshinorimatsunobu.blogspot.com/2011/07/announcing-mysql-mha-mysql-master-high.html>

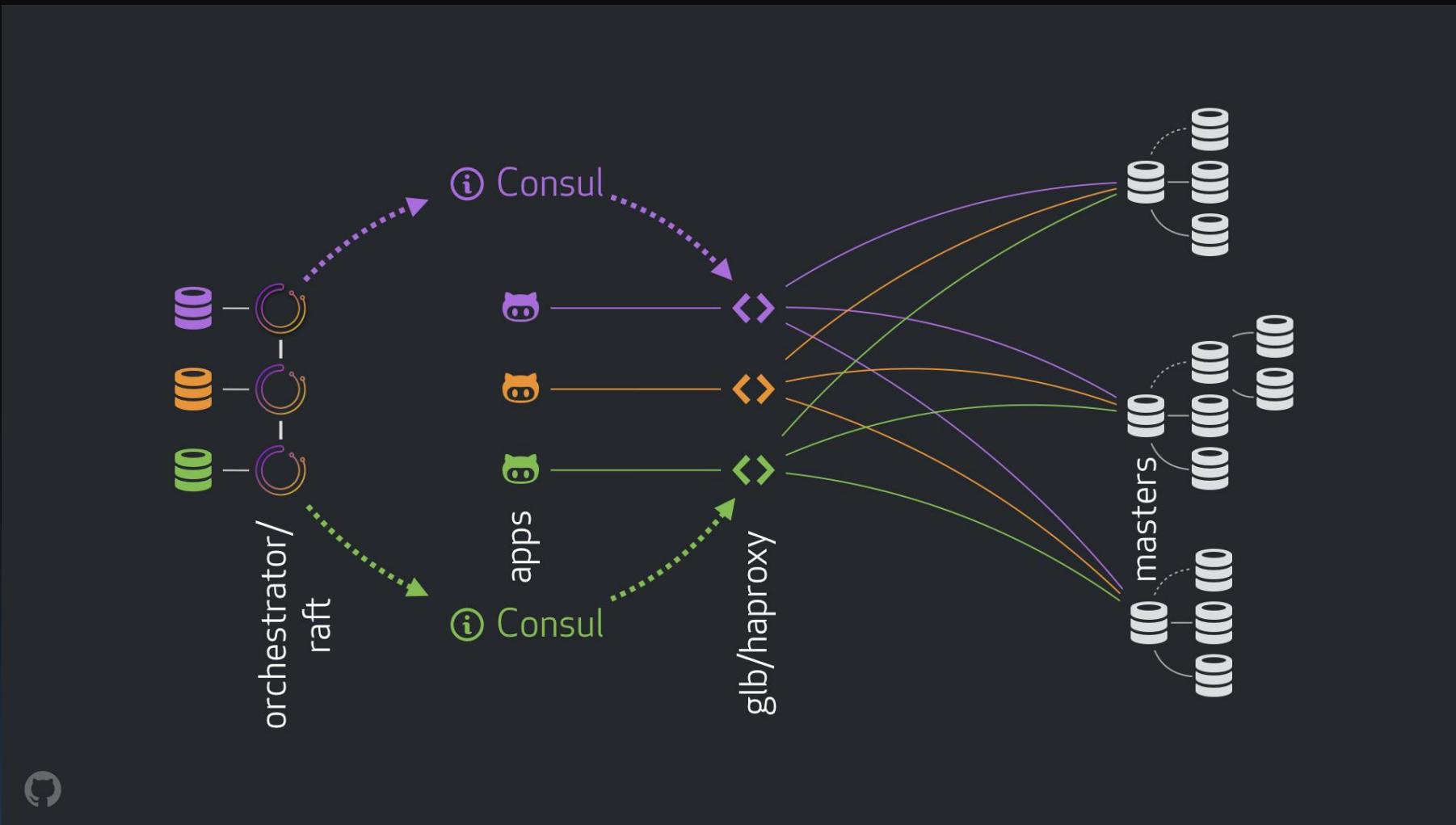
MySQL replication topology management and HA





Begin

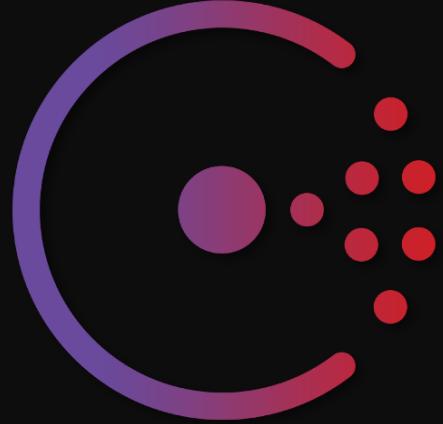
GitHub's Orchestrator



<https://blog.github.com/2018-10-30-oct21-post-incident-analysis/>

code.openark.org

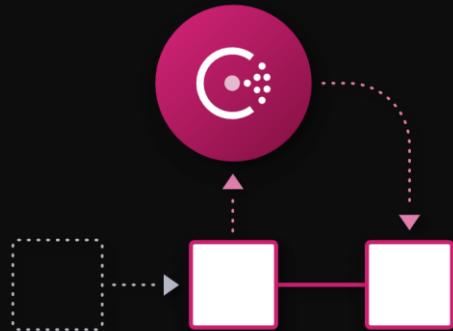
- MySQL master discovery methods, part 1: DNS
- MySQL master discovery methods, part 2: VIP & DNS
- MySQL master discovery methods, part 3: app & service discovery
- MySQL master discovery methods, part 4: Proxy heuristics
- MySQL master discovery methods, part 5: Service discovery & Proxy
- MySQL master discovery methods, part 6: other methods



Hashicorp's Consul

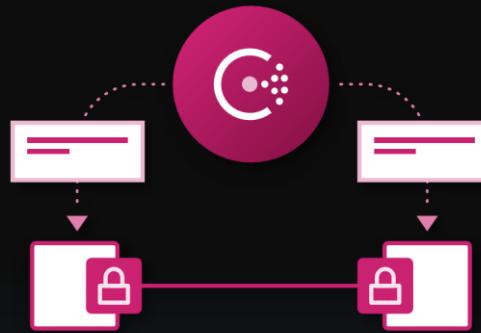
service discovery and configuration. Consul is distributed, highly available, and extremely scalable.

service discovery and configuration. Consul is distributed, highly available, and extremely scalable.



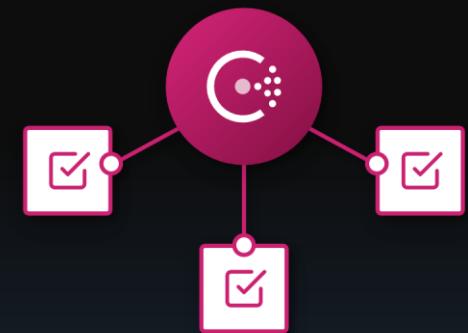
Service Discovery for connectivity

Service Registry enables services to register and discover each other.



Service Segmentation for security

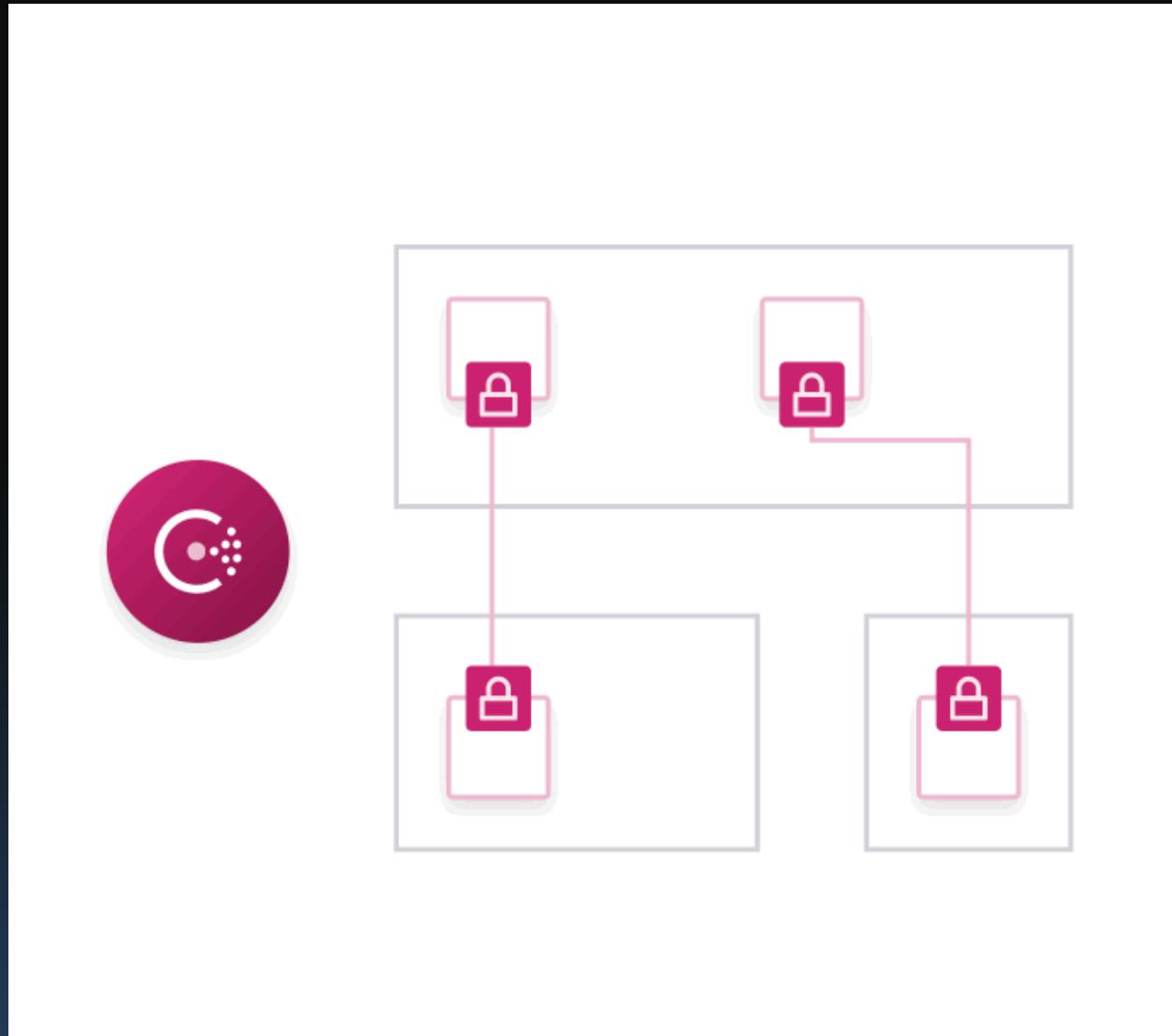
Secure service-to-service communication with automatic TLS encryption and identity-based authorization.



Service Configuration for runtime configuration

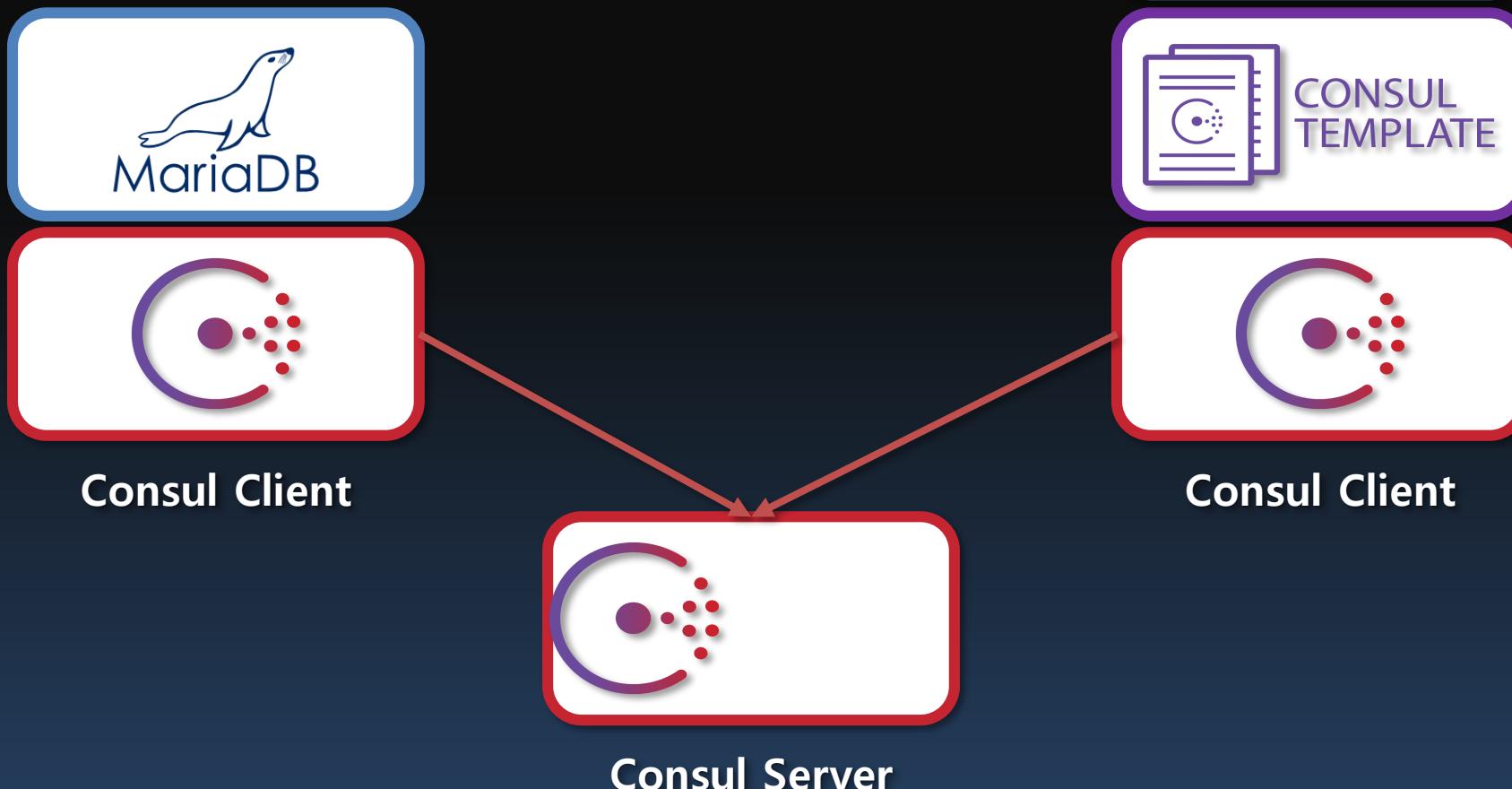
Feature rich Key/Value store to easily configure services.

Service Connect, automatic proxy sidecars

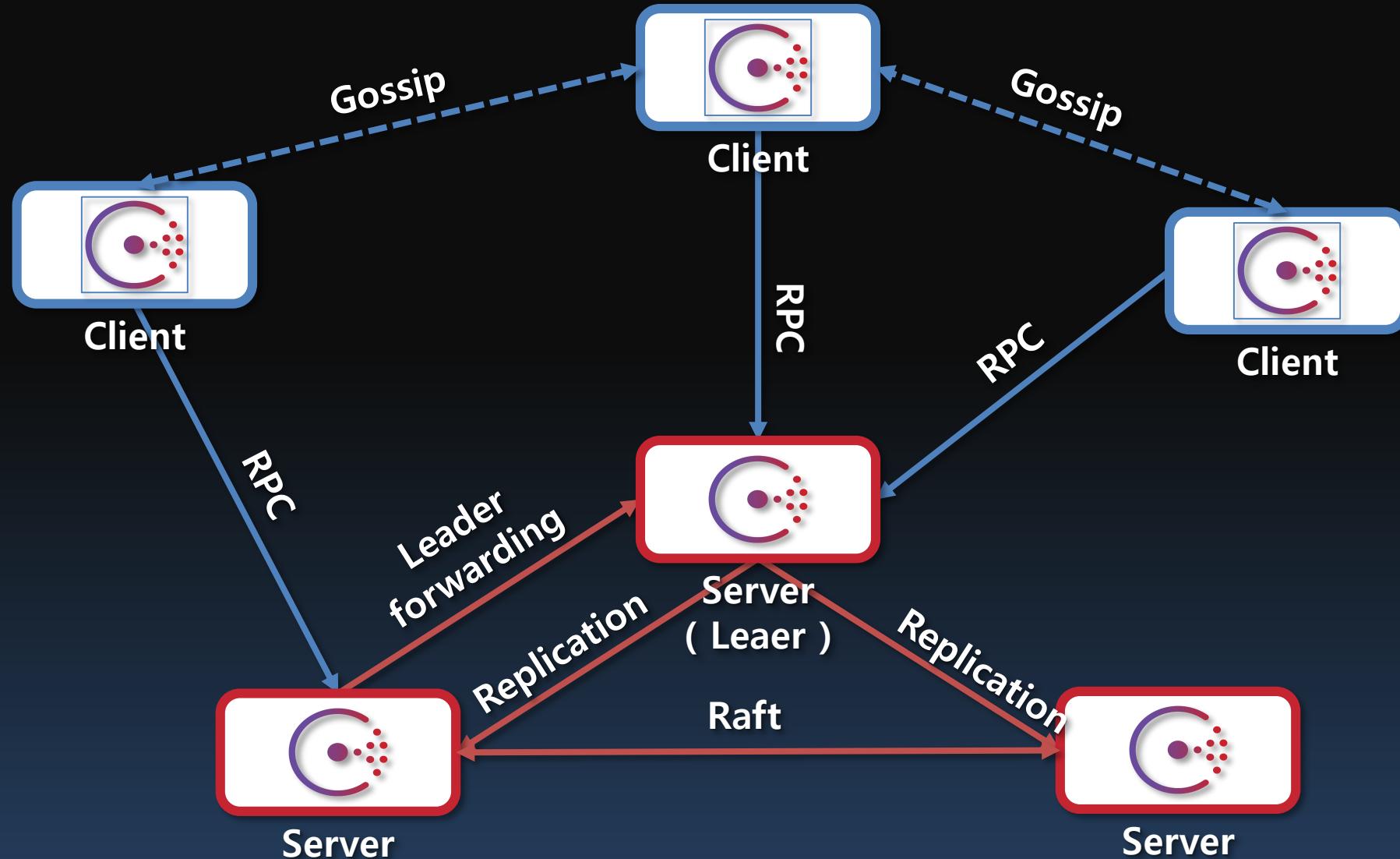


Sidecar model

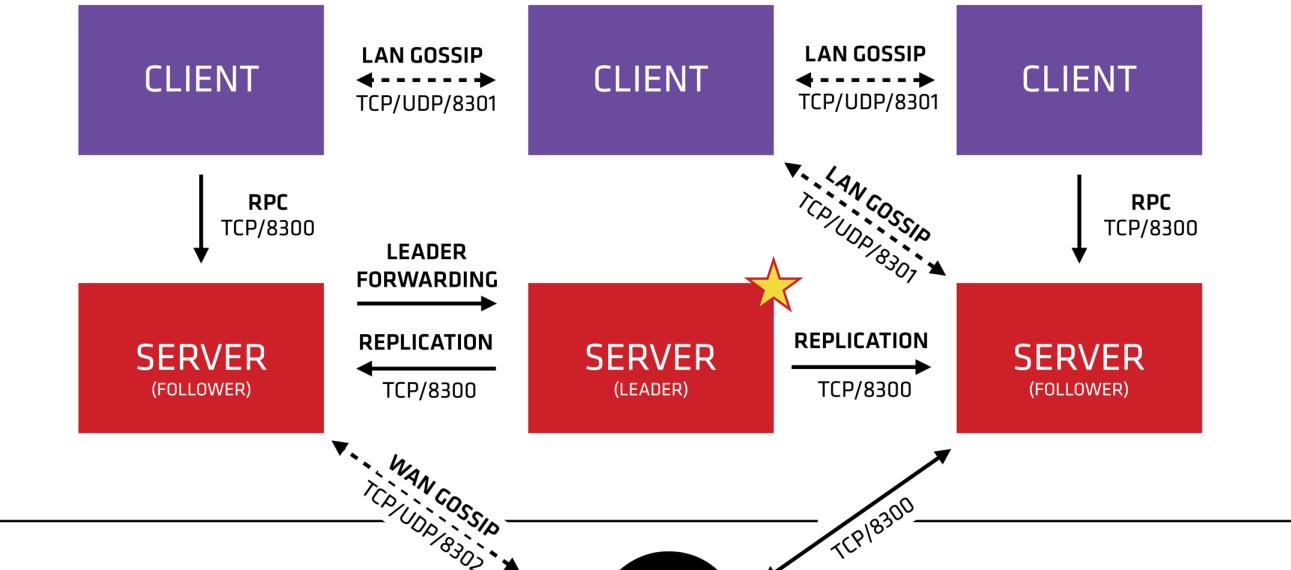
寄生獣 (Parasyte)
セイの格率



Consul Server ↔ Consul Client

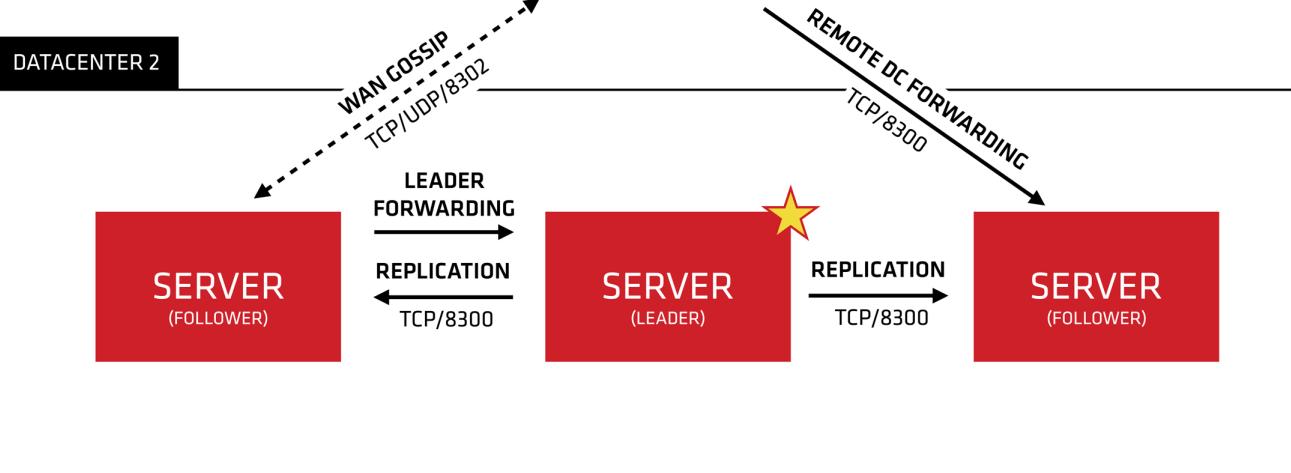


DATACENTER 1



INTERNET

DATACENTER 2



consul & consul-template package ?!

```
$ ll --block-size=M consul consul-template  
-rwxr-xr-x 1 dev dev 95M Nov 15 07:42 consul*  
-rwxr-xr-x 1 dev dev 8M Jun 13 01:15 consul-template*
```

/etc/consul.d/server.json

```
{  
    "node_name"      : "server1",  
    "server"         : true,  
    "bootstrap_expect": 1,  
    "bind_addr"      : "192.168.33.10",  
    "client_addr"    : "0.0.0.0",  
    "data_dir"        : "/tmp/consul"  
}
```

/etc/consul.d/client.json

```
{  
    "node_name" : "client1",  
    "server"      : false,  
    "bind_addr"   : "192.168.33.11",  
    "start_join"  : [ "192.168.33.10" ],  
    "data_dir"    : "/tmp/consul"  
}
```

Consul Server Configuration

옵션	설 명
node_name	노드 이름. 기본값은 호스트 이름입니다. 고유 필요가 있다
server	서버 모드로 부팅할지 여부
bootstrap_expect	Consul <u>클러스터</u> 를 형성 할 때 지정하는 server 노드 수입니다. 그 숫자에 도달 한 시점에서 리더의 선출한다. 수에 도달하지 않으면 전혀 리더가 정해지지 않는 상태가 된다.
bind_addr	bind있는 내부 <u>클러스터</u> 의 주소 범위. 기본 0.0.0.0. <u>vagrant</u> 라면 Failed to get advertise address: Multiple private IPs found. Please configure one.이 나오면 지정.
client_addr	bind있는 클라이언트의 주소 범위. 기본 <u>127.0.0.1</u>
data_dir	Consul가 내부적으로 사용하는 디렉토리

Consul Client Configuration

옵션	설 명
<code>node_name</code>	노드 이름. 기본값은 호스트 이름입니다. 고유 필요가 있다
<code>server</code>	서버 모드로 부팅할지 여부
<code>bind_addr</code>	<code>bind</code> 있는 내부 <u>클러스터</u> 의 주소 범위. 기본 0.0.0.0. <code>vagrant</code> 라면 Failed to get advertise address: Multiple private IPs found. Please c onfigure one.이 나오면 지정.
<code>start_join</code>	<code>join</code> 하는 서버 군의 IP
<code>data_dir</code>	Consul가 내부적으로 사용하는 디렉토리

Consul Ports

기능	<u>TCP</u> / <u>UDP</u>	포트	설 명
Server RPC	<u>TCP</u>	8300	Server가 다른 Agent에서 RPC 요청을 받아들이고
Serf LAN	<u>TCP</u> 및 <u>UDP</u>	8301	LAN 용 gossip <u>프로토콜</u> , 전체 Agent끼리 사용
Serf WAN	<u>TCP</u> 및 <u>UDP</u>	8302	WAN 용 gossip <u>프로토콜</u> , Server끼리 사용
<u>CLI</u> RPC	<u>TCP</u>	8400	consul 명령 실행시 로컬 Agent 와의 통신에 사용
<u>HTTP API</u>	<u>TCP</u>	8500	Client가 HTTP 요청을 수락
<u>DNS</u>	<u>TCP</u> 및 <u>UDP</u>	8600	Agent가 <u>DNS</u> 쿼리를 허용

<https://www.consul.io/docs/agent/options.html>

<https://qiita.com/ryo0301/items/a65709c4d99408f1df0a>

CLI RPC

```
$ consul members
```

Node	Address	Status	Type	Build	Protocol	DC
client1	192.168.33.11:8301	alive	client	1.4.0	2	dc1
server1	192.168.33.10:8301	alive	server	1.4.0	2	dc1

```
$ consul members
```

Node	Address	Status	Type	Build	Protocol	DC
client1	192.168.33.11:8301	left	client	1.4.0	2	dc1
server1	192.168.33.10:8301	alive	server	1.4.0	2	dc1

HTTP API

```
$ curl localhost:8500/v1/catalog/nodes?pretty
```

```
[  
  {  
    "Node": "client1",  
    "Address": "192.168.33.11",  
    "TaggedAddresses": {  
      "wan": "192.168.33.11"  
    },  
    "CreateIndex": 356,  
    "ModifyIndex": 357  
  },  
  {  
    "Node": "server1",  
    "Address": "192.168.33.10",  
    "TaggedAddresses": {  
      "wan": "192.168.33.10"  
    },  
    "CreateIndex": 192,  
    "ModifyIndex": 355  
  }]  
]
```

DNS

```
$ dig @localhost -p 8600 server1.node.consul  
;; ANSWER SECTION:  
server1.node.consul. 0 IN A 192.168.33.10
```

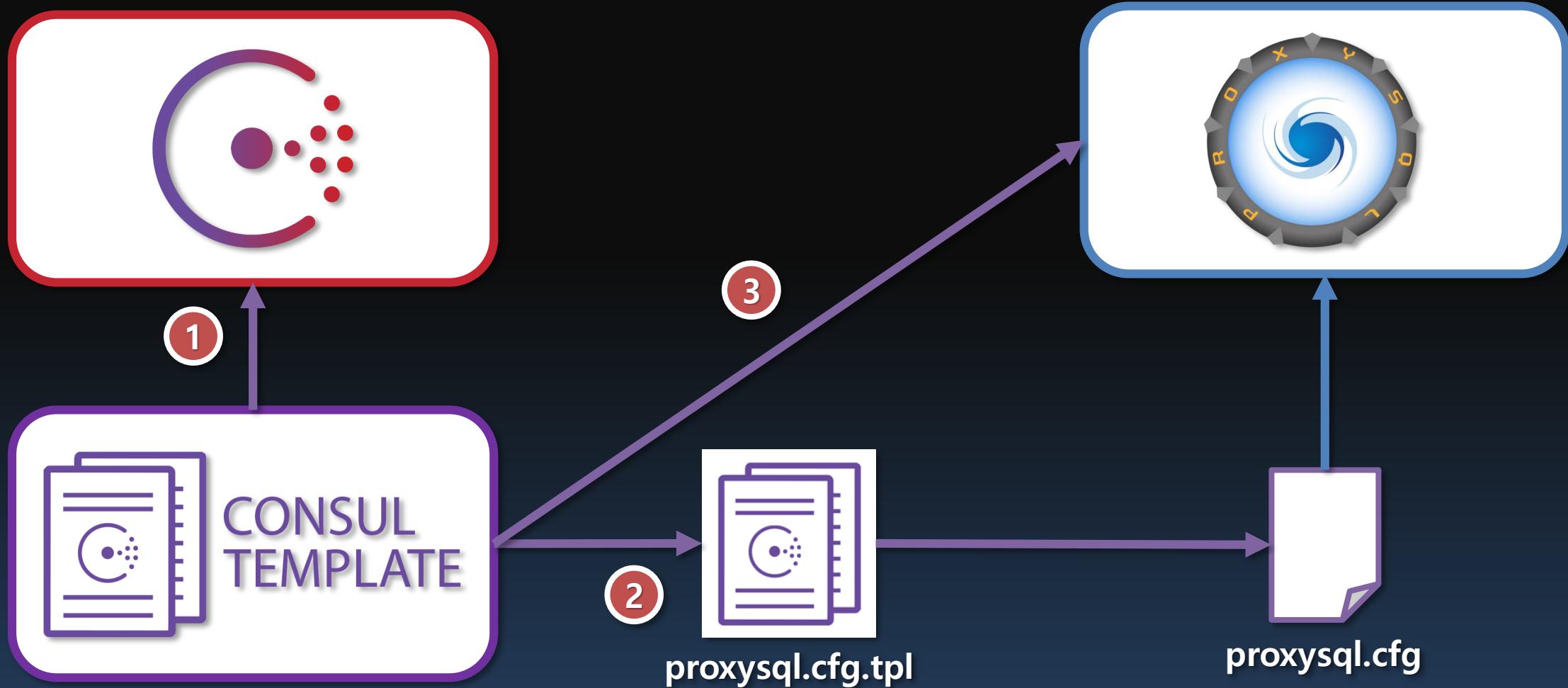
```
$ dig @localhost -p 8600 client1.node.consul  
;; ANSWER SECTION:  
client1.node.consul. 0 IN A 192.168.33.11
```

HashiCorp Tools

These Consul tools are created and managed by the dedicated engineers at HashiCorp :

- **Enconsul** - Read and set environmental variables for processes from Consul.
- **Consul Migrate** - Data migration tool to handle Consul upgrades to 0.5.1+
- **Consul Replicate** - Consul cross-DC KV replication daemon.
- **Consul Template** - Generic template rendering and notifications with Consul

Template rendering, notifier, and supervisor for Consul and Vault data.



Utilities - envconsul

- <https://github.com/hashicorp/envconsul>

```
$ consul kv put my-app/address 1.2.3.4
```

```
$ consul kv put my-app/port 80
```

```
$ consul kv put my-app/max_conns 5
```

```
$ envconsul -prefix my-app env
```

```
address=1.2.3.4
```

```
max_conns=5
```

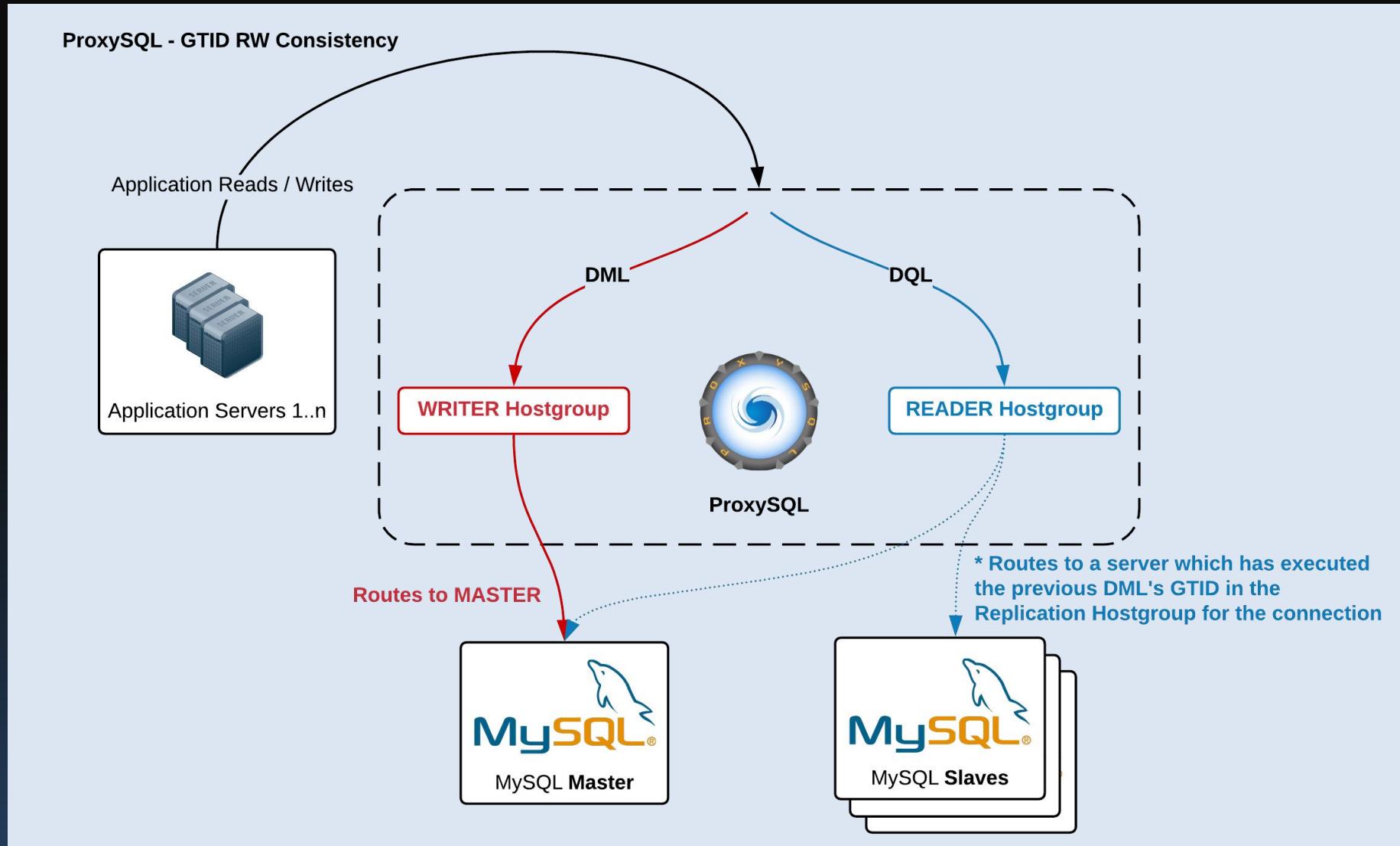
```
port=80
```



ProxySQL

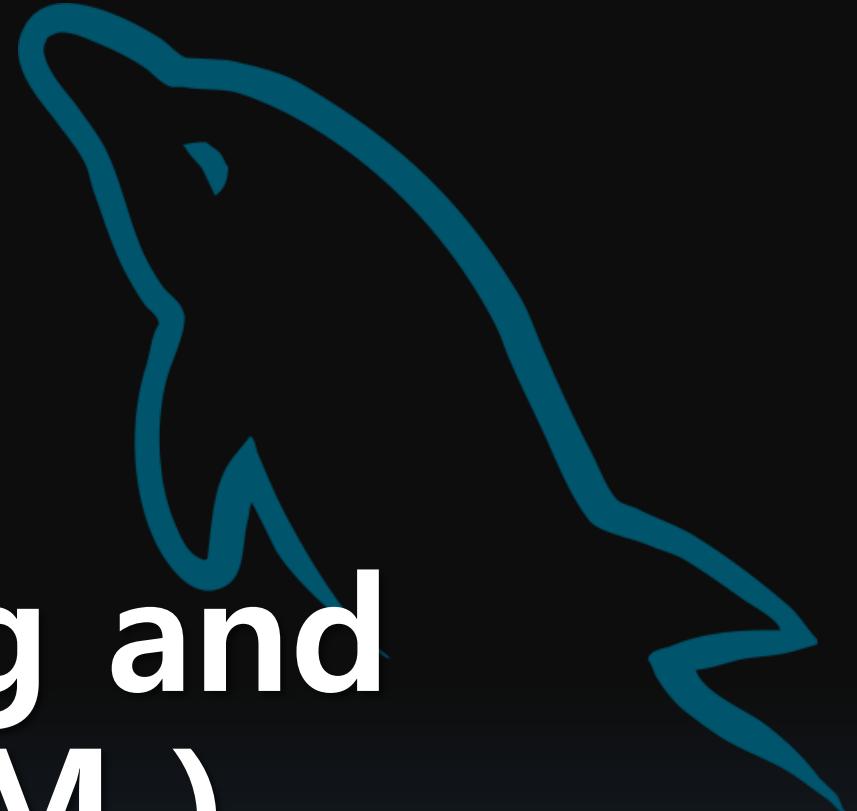
High-performance MySQL proxy with a GPL license.

High-performance MySQL Proxy





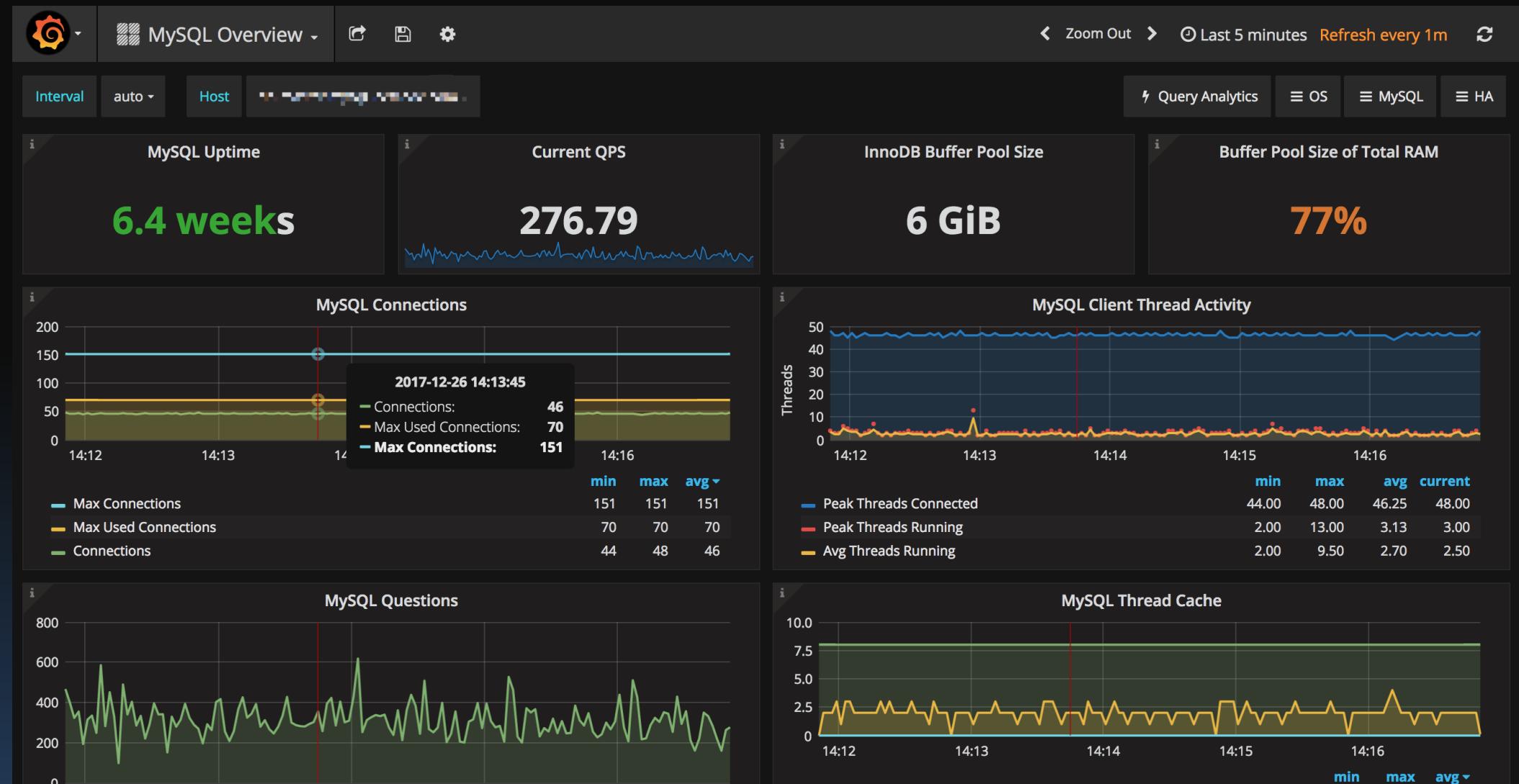
PERCONA
Monitoring and Management



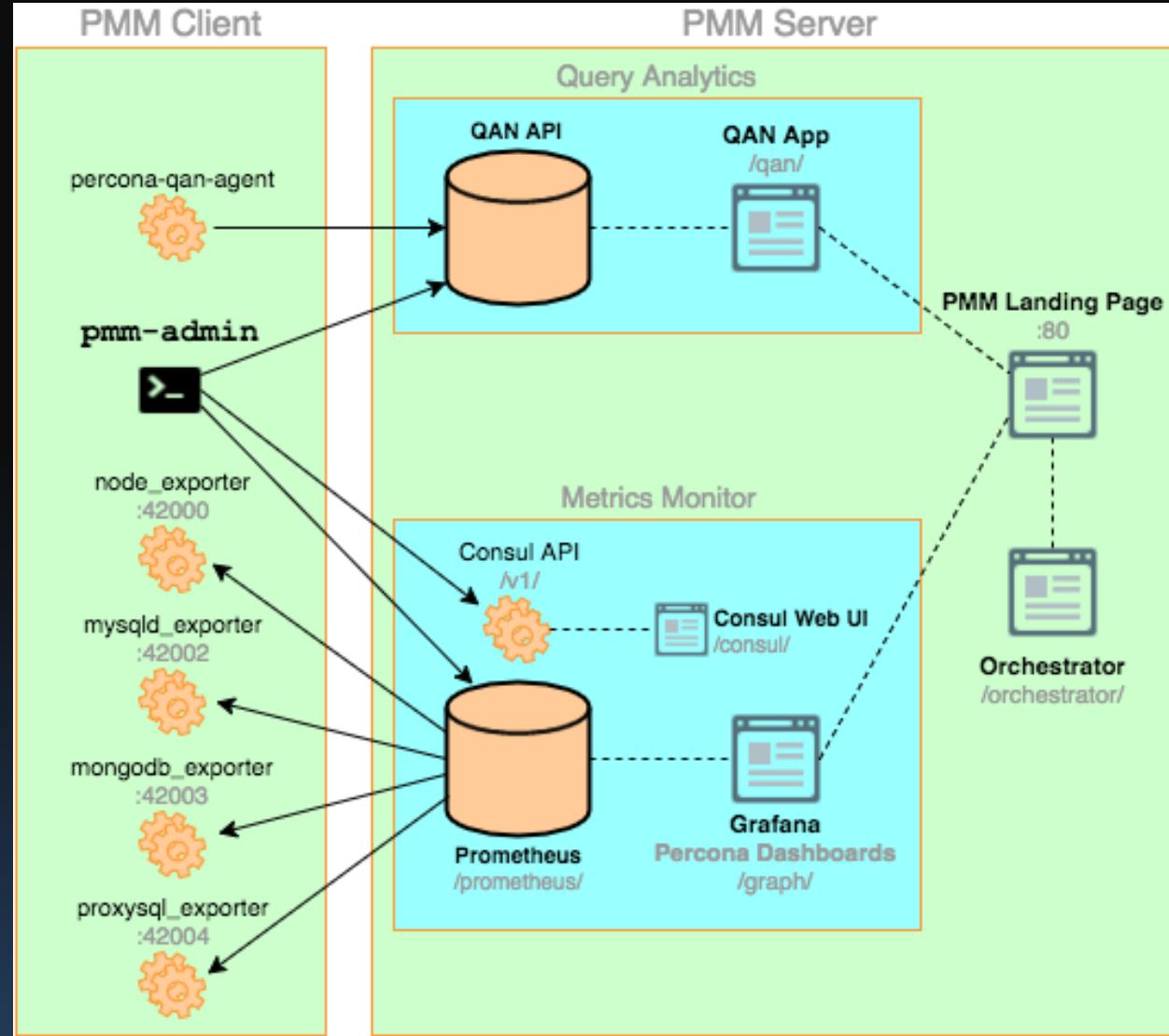
Percona Monitoring and Management (PMM)

is open-source platform for managing and monitoring MySQL and MongoDB performance.

MySQL, ProxySQL, Orchestrator Monitoring



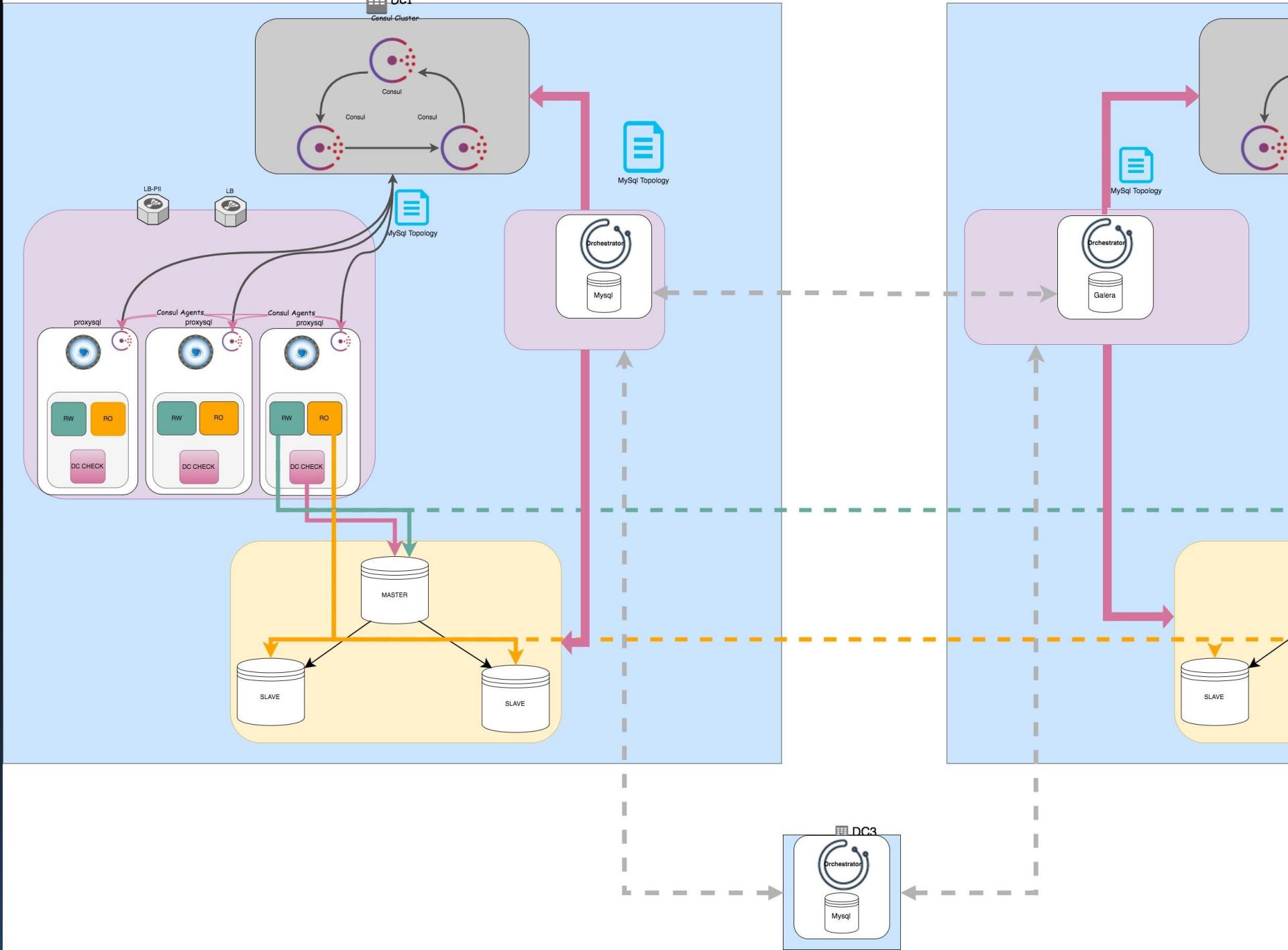
Prometheus + Grafana + Consul + ...



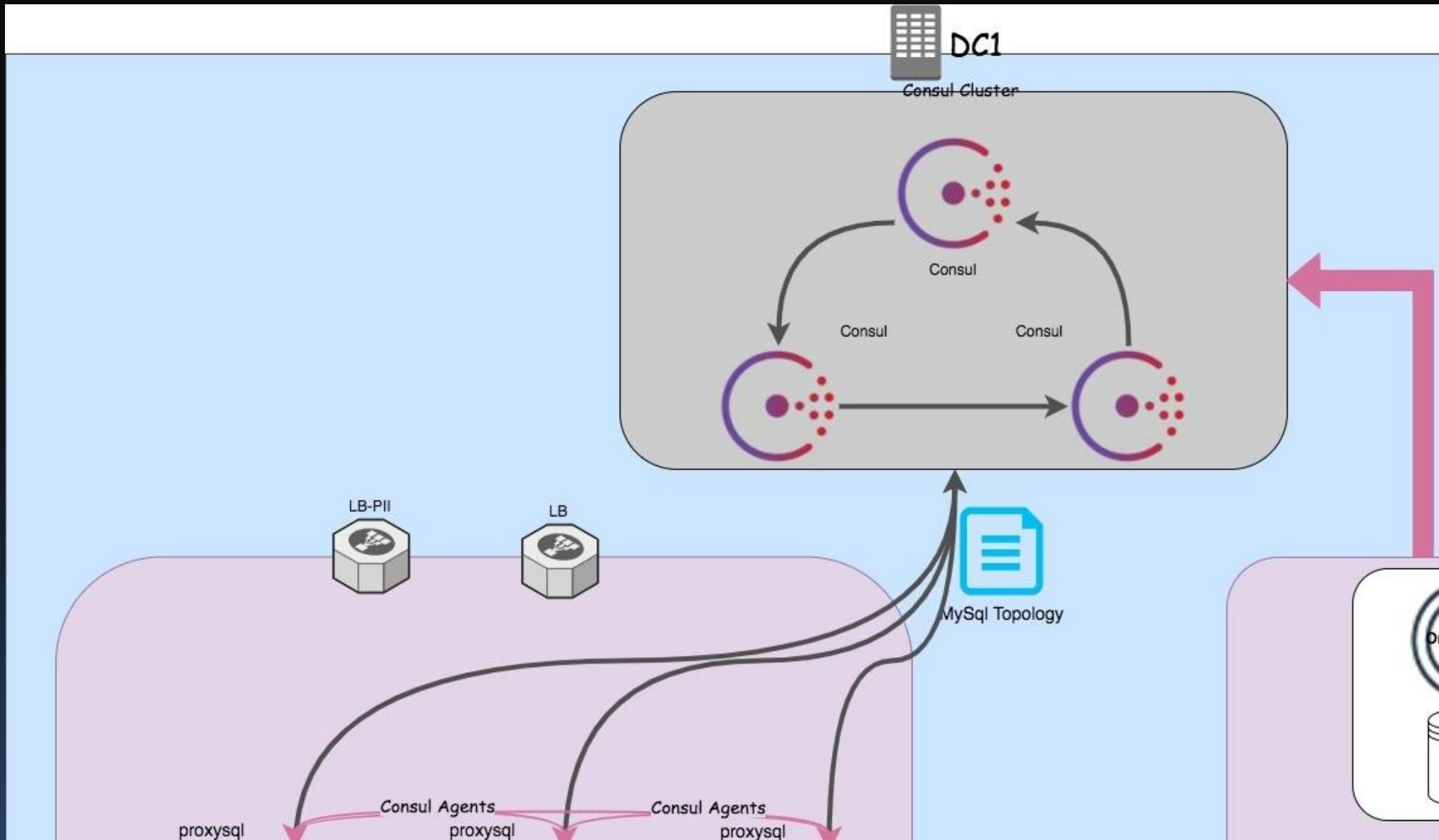
OCP Demo



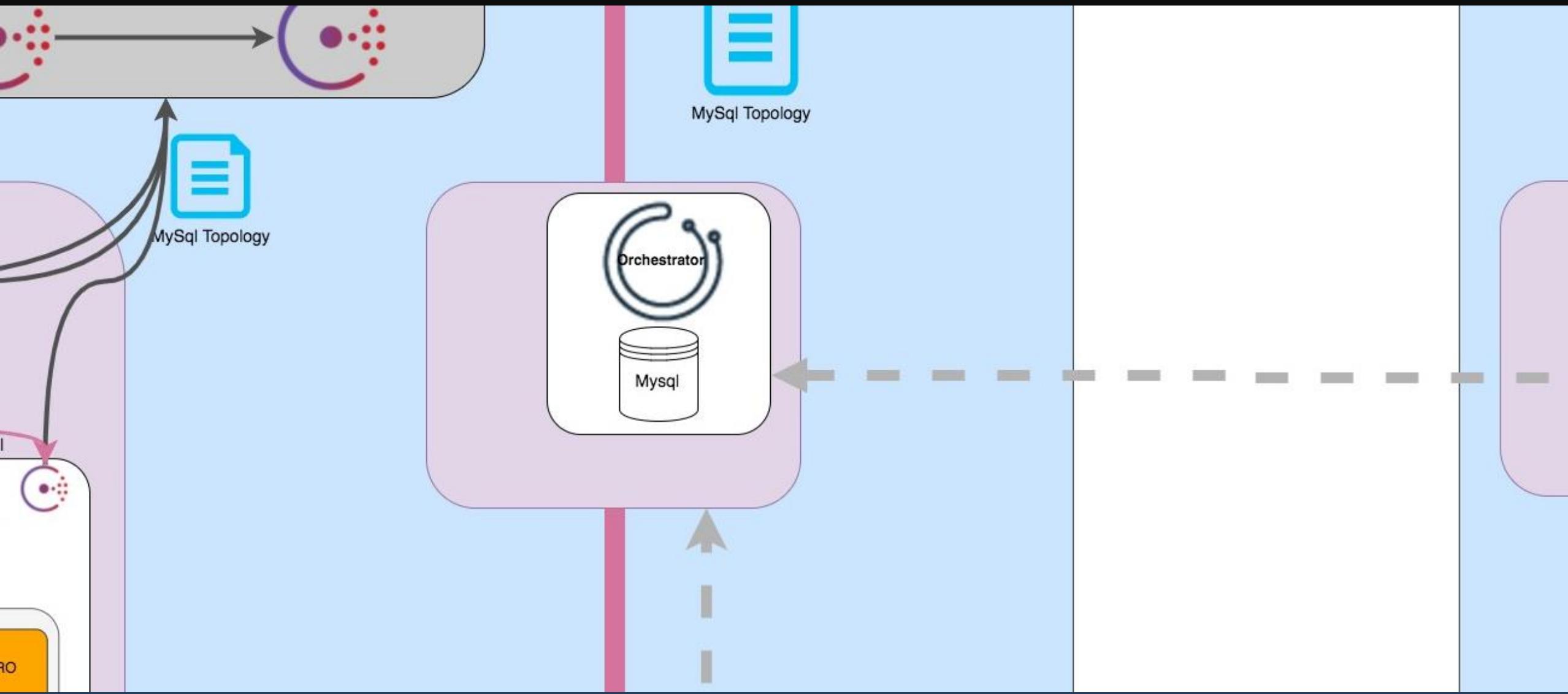
WIX



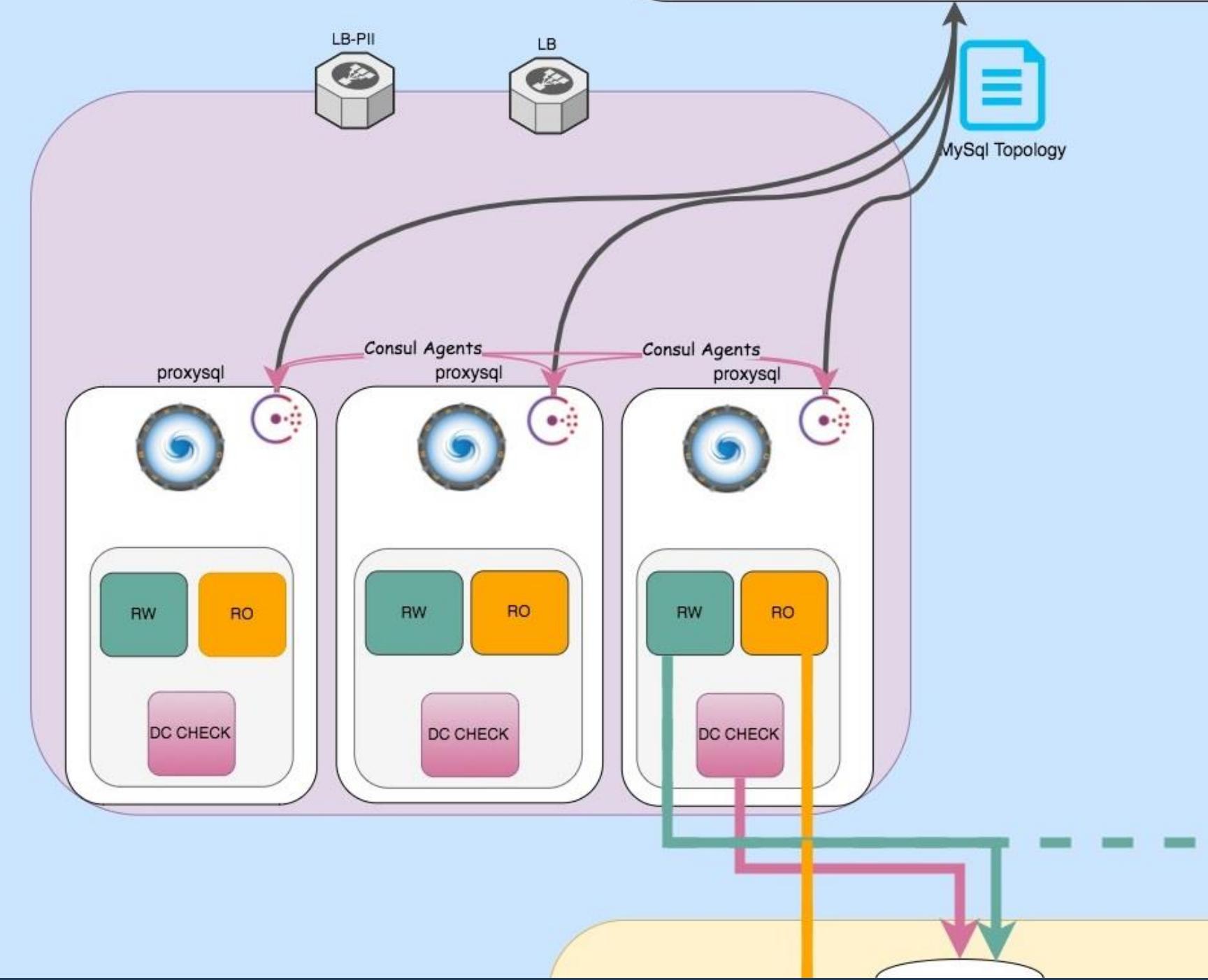
Consul Cluster



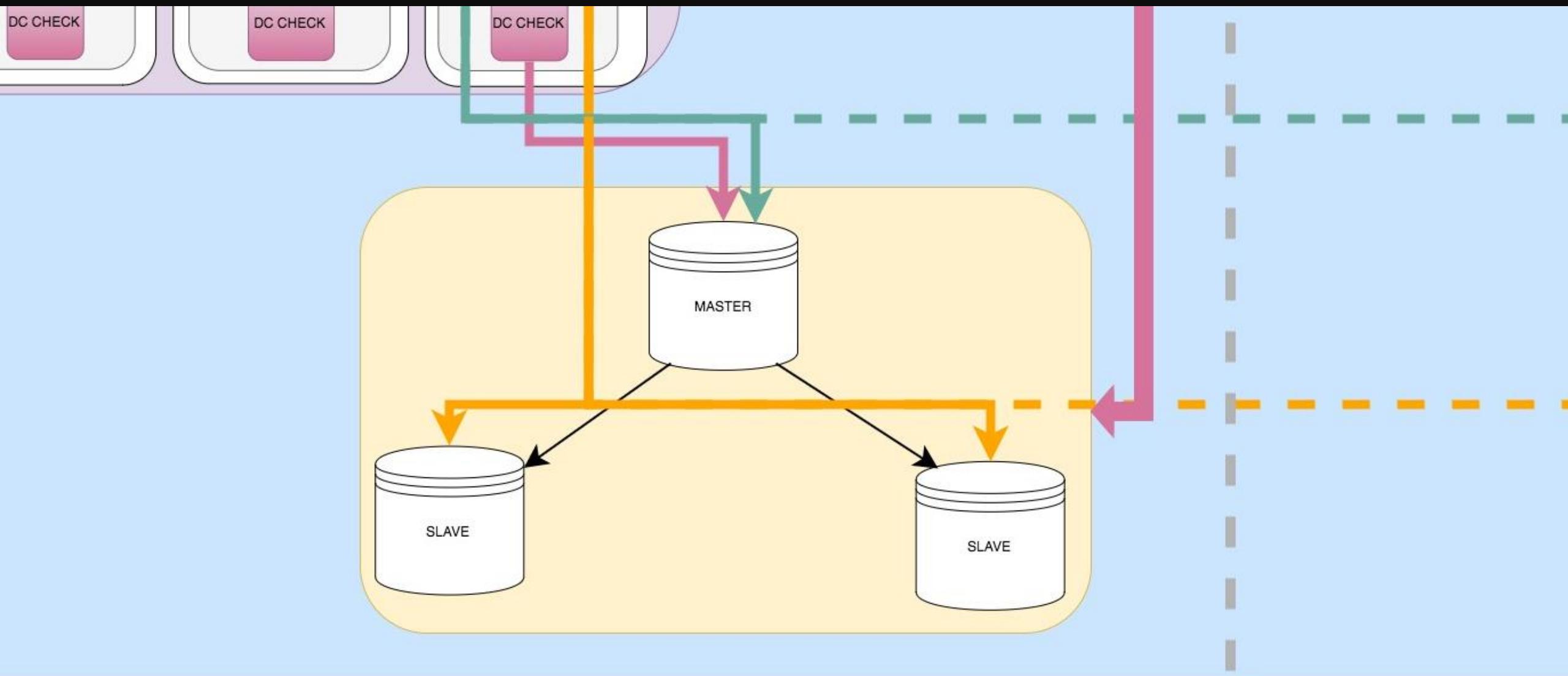
Orchestrator



ProxySQL



MySQL Cluster



Futher...

- Consul Cluster
- Orchestrator Replication
- ProxySQL Replication
- PMM Replication
- Dnsmasq - network services for small networks.
- ACL, SSL/TLS Encryption
 - Hashicorp's Vault
- Consul-template
- Stress Application
 - Envoy

Q?!.A

