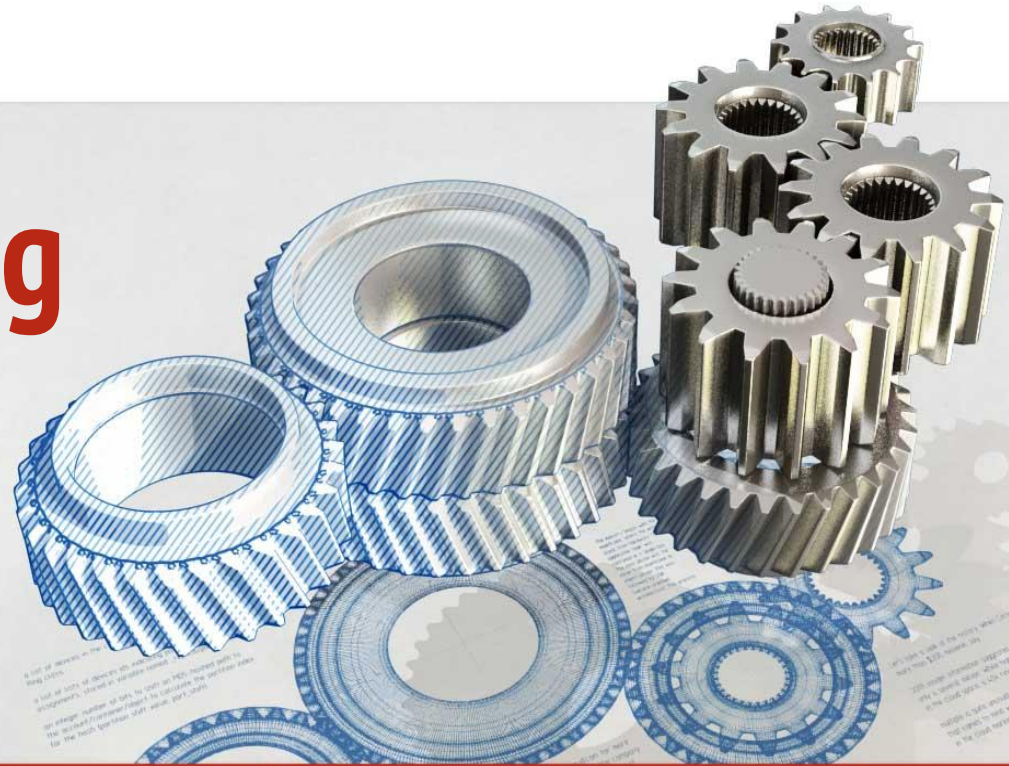




# Load Balancing as-a-service

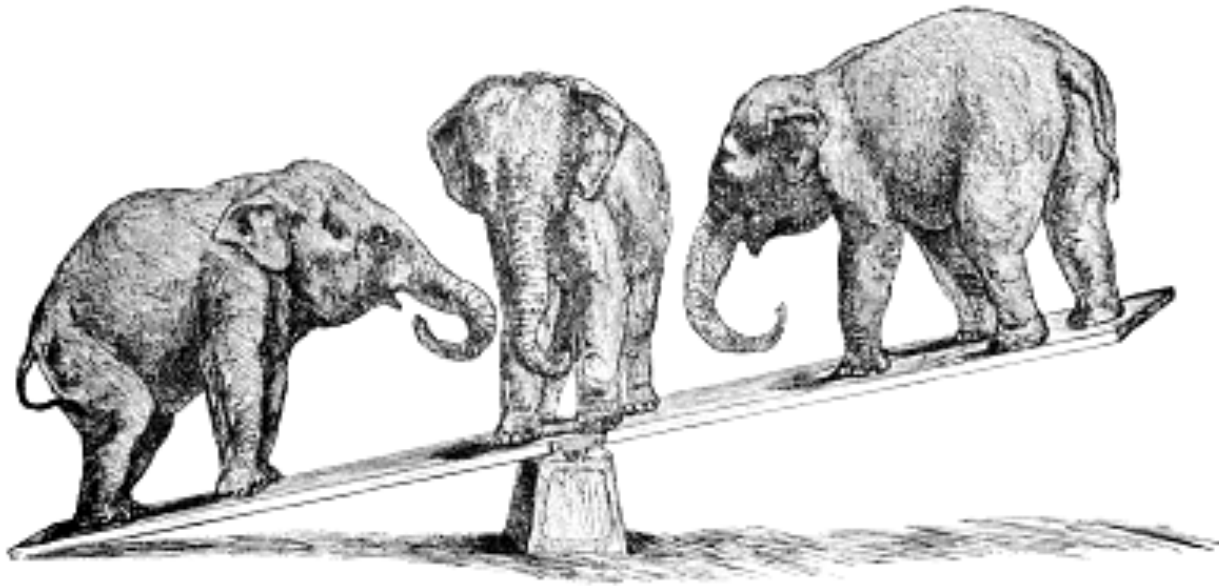


Ilya Shakhat  
Eugene Nikanorov

# Thanks!

Avishay, Eugene, KC, Leon, Mark, Oleg, Youcef  
... and all who helped with discussions,  
specifications and testing

# Agenda



- History
- Grizzly
  - features
  - architecture
  - workflow
- Future

# History

- Stand-alone solutions:
  - Atlas (Java)
  - Equilibrium (Python)
- In Grizzly became Quantum extension

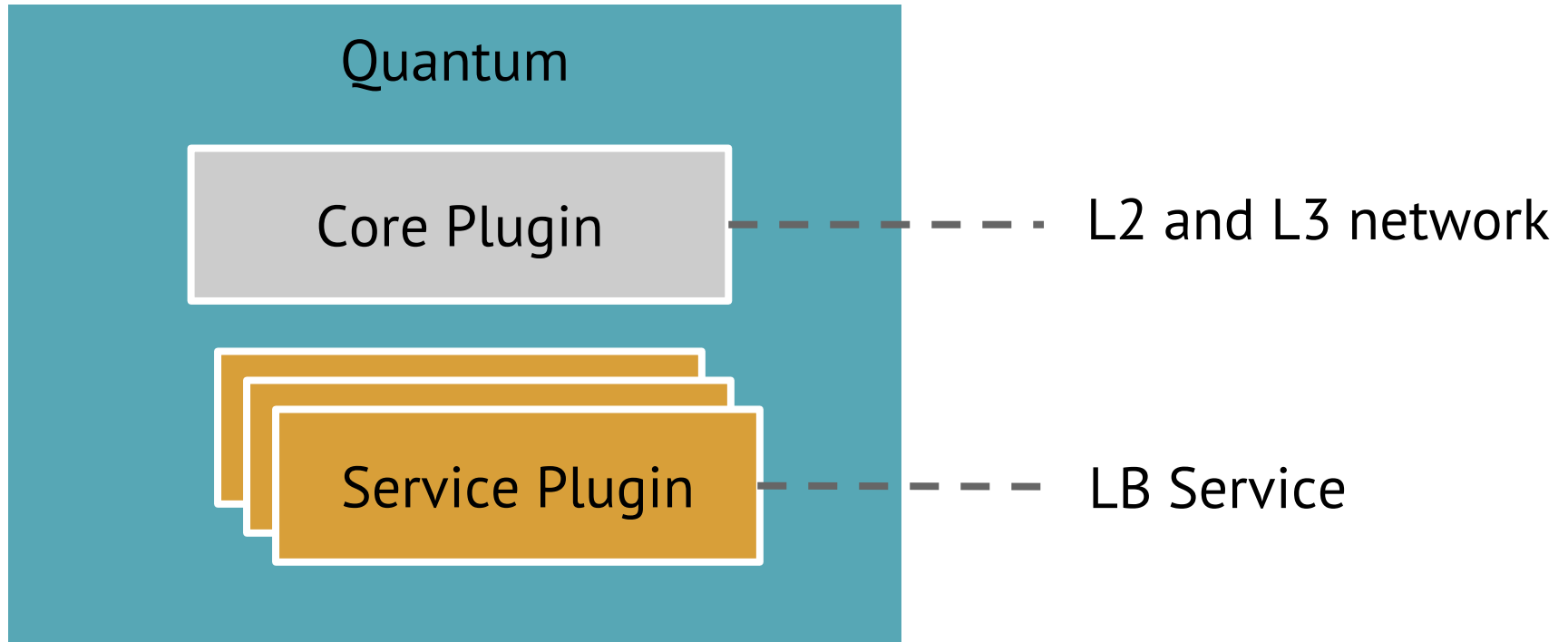
# Features Overview

- REST API
- CLI
- UI in Horizon
- On-host HAProxy
- DevStack out-of-box support

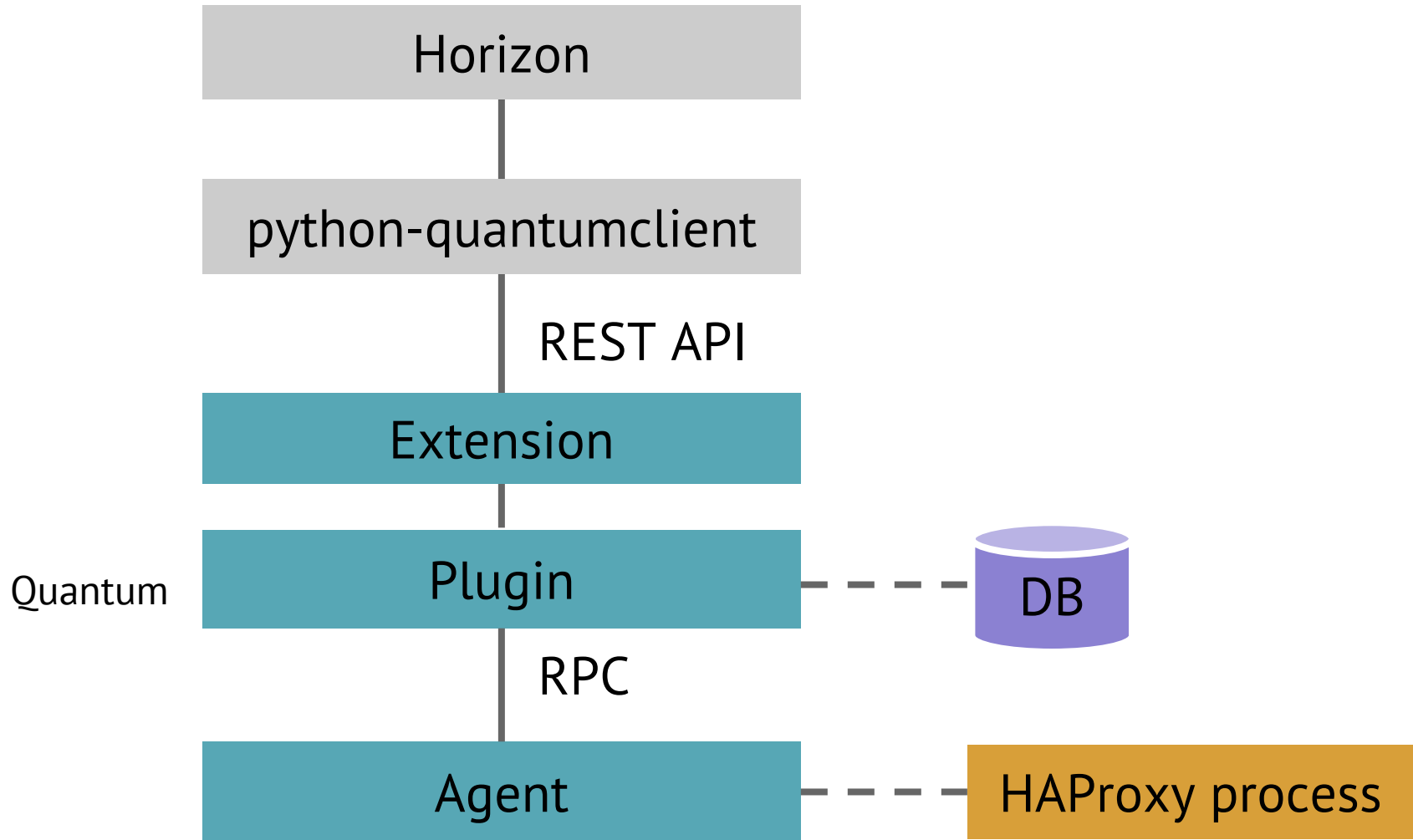
# Load Balancing Features

- Load balancing between services on VMs
- Load balancing methods (e.g. round-robin)
- Session persistence
- Health monitoring (TCP, HTTP)
- Connection limit

# Quantum Service Plugins

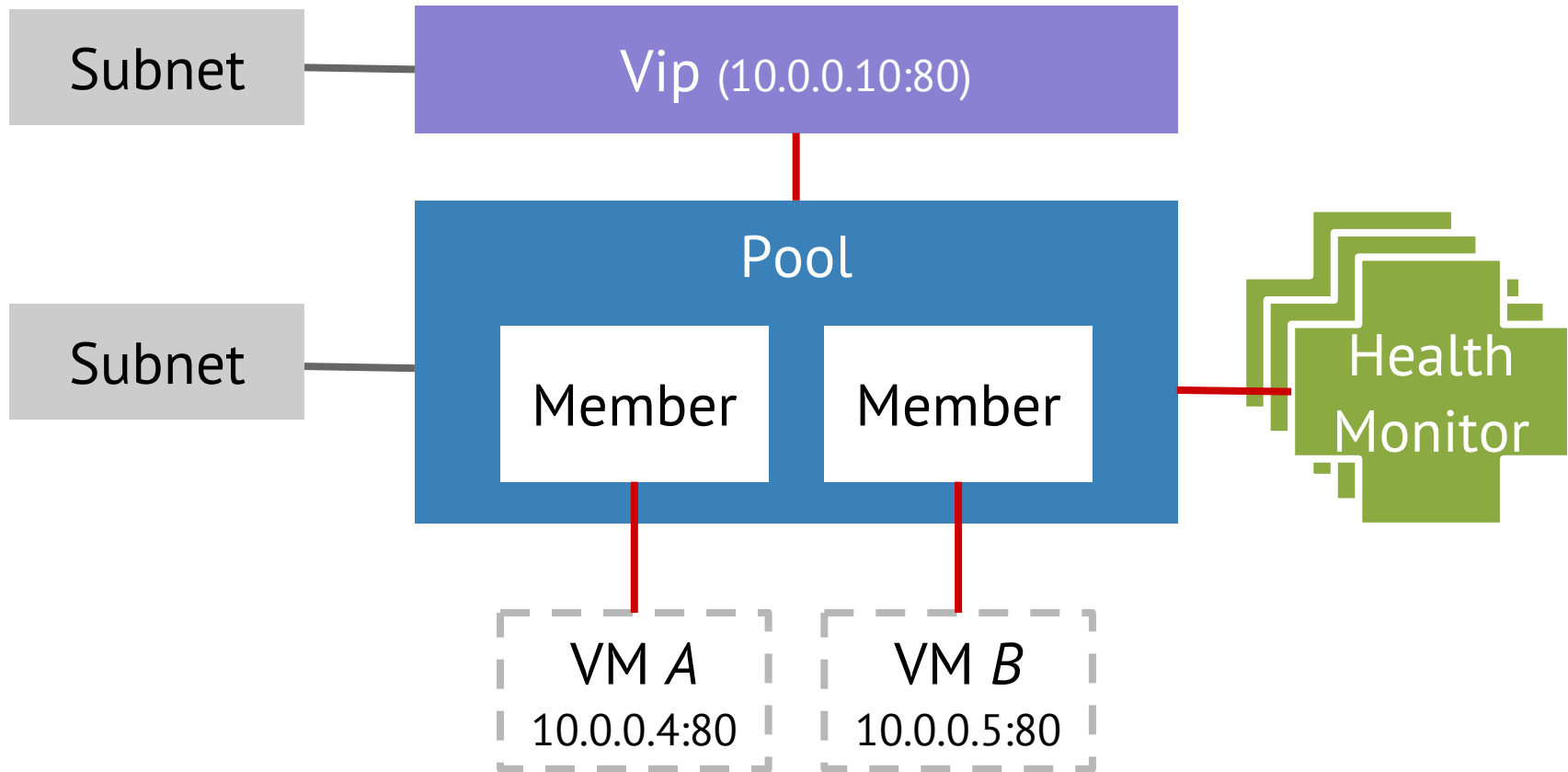


# Architecture

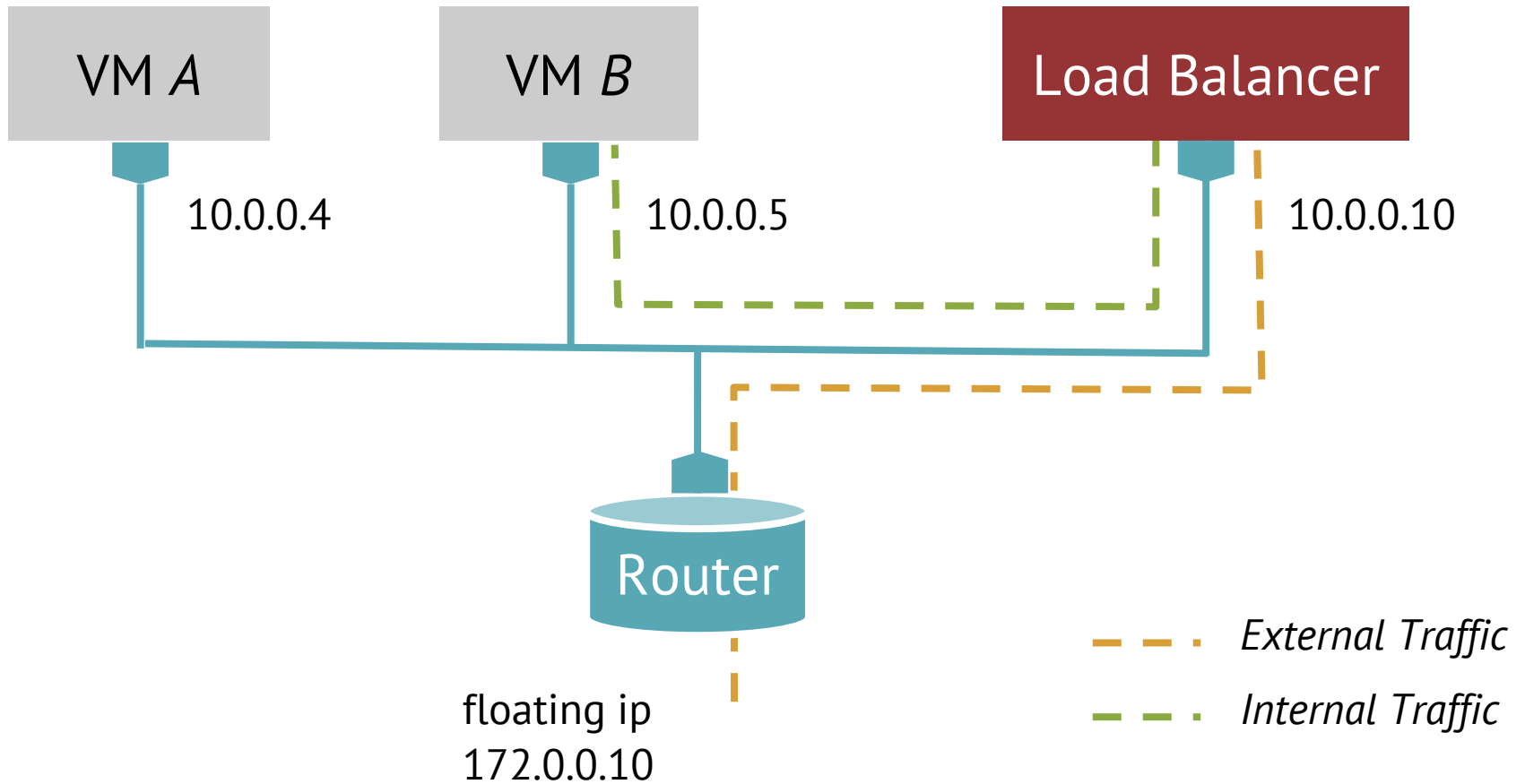




# Model



# Wiring



# Workflow

1. Create pool
2. Create members (1 per VM / service)
3. Create vip for the pool
4. (opt.) Create health monitor and associate with Pool

# UI | Step 1

The screenshot shows the OpenStack Dashboard interface for adding a new load balancer pool. The browser address bar shows the URL `172.18.76.77/project/loadbalancers/addpool`. The page title is "Add New Pool - OpenStack Dashboard".

**Left Sidebar:**

- Project: demo
- Manage Compute
  - Overview
  - Instances
  - Volumes
  - Images & Snapshots
  - Access & Security
- Manage Network
  - Networks
  - Routers
  - Load Balancers** (circled in red)
  - Network Topology

**Main Content Area: Add New Pool**

**Add Pool**

**PoolDetails**

**Name:** ThePool

**Description:** Additional information here...

**Subnet:** 10.0.0.0/24

**Protocol:** HTTP

**Load Balancing Method:** ROUND\_ROBIN

**Admin State:**

**Instructions:** Create Pool for current tenant. Assign a name and description for the pool. Choose one subnet where all members of this pool must be on. Select the protocol and load balancing method for this pool. Admin State is UP (checked) by default.

**Buttons:** Add

# UI | Step 2

The screenshot shows the OpenStack Dashboard interface for adding a new member to a load balancer pool. The browser window title is "Add New Member - OpenStack Dashboard". The URL is "172.18.76.77/project/loadbalancers/addmember". The user is logged in as "demo".

**OpenStack Dashboard**

**Add New Member**

Logged in as: demo [Settings](#) [Help](#) [Sign Out](#)

**Add Member**

MemberDetails

**Pool**  
ThePool

**Member(s)**

- backend-290c3cde-fb6e-4544-b8ee-401e050827ba
- backend-ad13ccd0-853c-4f59-9a84-b45d934568ca

**Weight**  
1

**Protocol Port**  
80

**Admin State**

Add member to selected pool.  
Choose one or more listed instances to be added to the pool as member(s). Assign a numeric weight for this member. Specify the port number the member(s) operate on; e.g., 80.

**Add**

# UI | Step 3

Specify Vip - OpenStack Dashboard

Specify Vip - OpenSt... x OS X Mountain Lion: ... x +

Be6 172.18.76.77/project/loadbalancers/addvip/aec975df-6fbd-480b-a0c6-b50a46bbb3c5/ Искать в Яндекс 100%

openstack DASHBOARD

Project

CURRENT PROJECT demo

Manage Compute

- Overview
- Instances
- Volumes
- Images & Snapshots
- Access & Security

Manage Network

- Networks
- Routers
- Load Balancers
- Network Topology

### Specify Vip

Logged in as: demo Settings Help Sign Out

#### Add Vip

AddVip

**Name**  
TheVip

**Description**  
Additional information here...

**Vip Address from Floating IPs**  
Currently Not Supported

**Specify a free IP address from 10.0.0/24**  
10.0.0.20

**Protocol Port**  
80

**Protocol**  
HTTP

**Session Persistence**  
Set Session Persistence

**Cookie Name**

**Connection Limit**

Create a vip (virtual IP) for this pool. Assign a name and description for the vip. Specify an IP address and port for the vip. Choose the protocol and session persistence method for the vip. Specify the max connections allowed. Admin State is UP (checked) by default.

# UI | Step 4

**openstack**  
DASHBOARD

Project

CURRENT PROJECT  
**demo**

Manage Compute

- Overview
- Instances
- Volumes
- Images & Snapshots
- Access & Security

Manage Network

- Networks
- Routers
- Load Balancers
- Network Topology

## Add New Monitor

Logged in as: demo [Settings](#) [Help](#) [Sign Out](#)

### Add Monitor

MonitorDetails

**Pool**  
ThePool

**Type**  
HTTP

**Delay**  
1

**Timeout**  
1

**Max Retries (1-10)**  
1

**HTTP Method**  
GET

**URL**  
/

**Expected HTTP Status Codes**  
200

Admin State

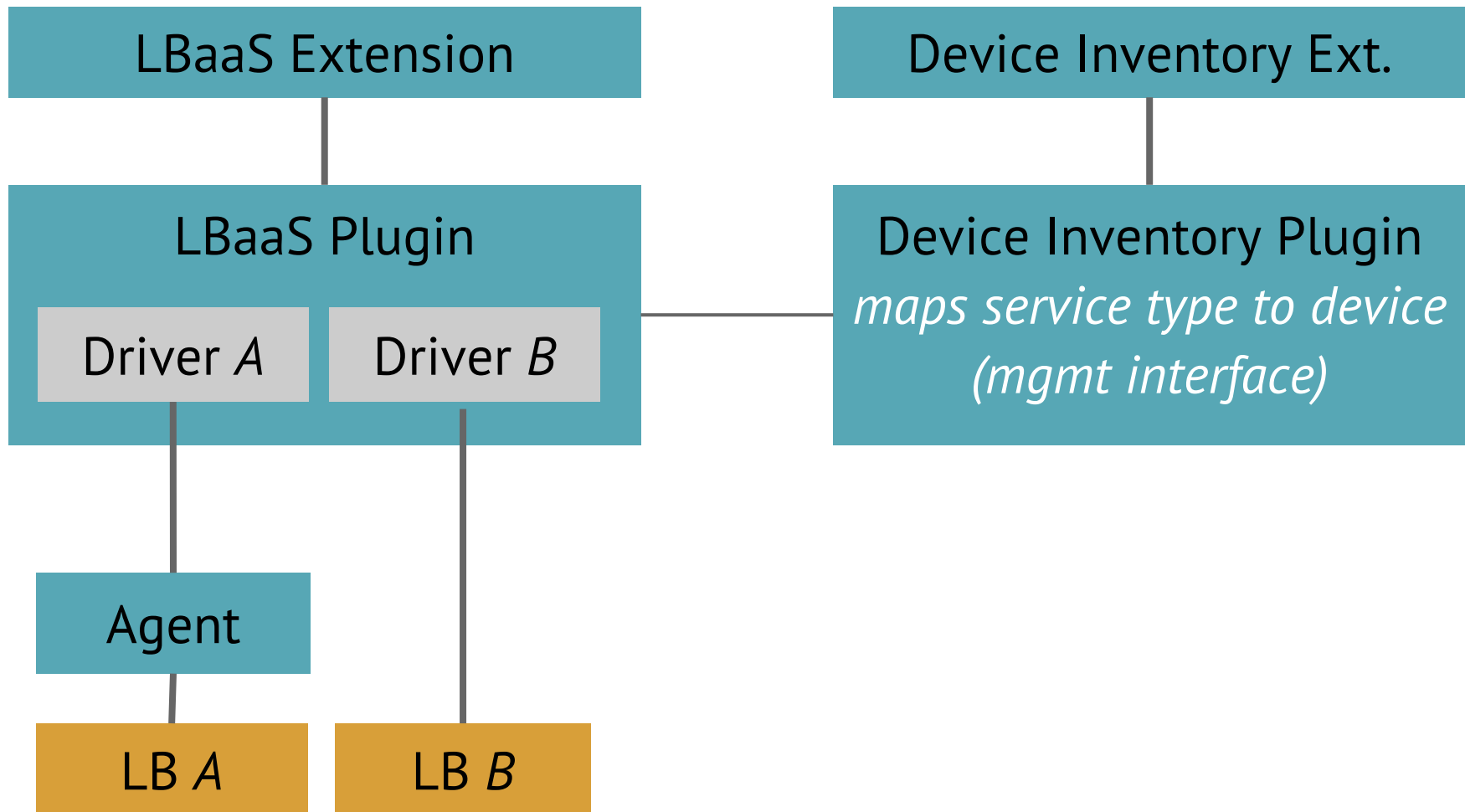
Create a monitor for a pool.  
Select target pool and type of monitoring. Specify delay, timeout, and retry limits required by the monitor. Specify method, URL path, and expected HTTP codes upon success.

# LBaaS Next

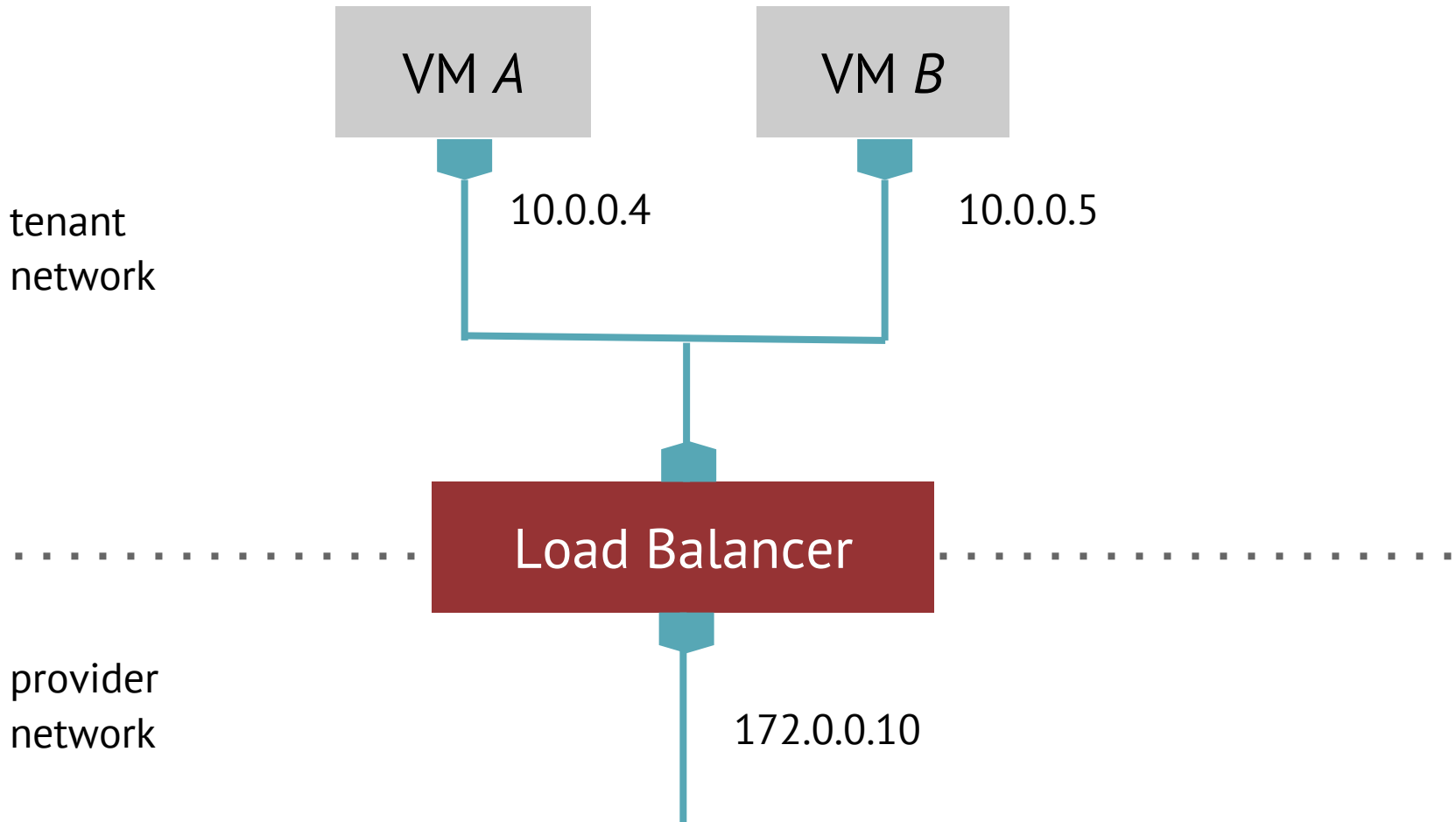
- Support of HW / VM LBs
  - driver API
- Device Inventory
- Service insertion modes
  - routed mode
  - 1-arm
  - other modes



# Architecture



# Routed Mode Insertion



# Q&A