Best Practices for Deploying OpenStack Trove: An Inside look at Database as a Service Architecture

OpenStack Summit at Barcelona, October 2016
Who are we?

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  – Tesora Inc.
What are we covering in this session?

• **Introduction to Trove**
  – Trove Concepts
  – Tutorial demonstrating Trove functionality
  – Trove Architecture

• **Access to Trove environment**
  – DevStack VM
  – Trove VM
    • MySQL and MongoDB Guest Images
  – Step-by-step Lab Tutorial

• **Questions**
What is Trove?
Introduction to OpenStack Trove Project

• Motivation: Provide DBaaS within OpenStack framework
  – Incubated in Havana (October 2013)
  – Integrated in Icehouse (April 2014)
• Original project sponsors: HP and Rackspace
• Major contributors include Tesora, Rackspace, HP, IBM, Redhat, eBay, Mirantis
What does Trove provide?

• Database as a Service for OpenStack
• API’s for both development and operations
• Self service database provisioning
• Full database lifecycle management
• Multi-database support
  – Both Relational and NoSQL
Supported Databases

- Available today
  - MySQL 5.6, 5.7
  - Percona 5.6, 5.7
  - Percona XtraDB Cluster 5.6, 5.7
  - MariaDB 10.1
  - MongoDB 3.2
  - Cassandra 2.2, 3.0
  - Couchbase 3.0, 4.0
  - Couchdb 1.6.1
  - Redis 3.0
  - PostgreSQL 9.4
  - DB2 Express 10.5
  - Vertica

- Available today
  - Oracle MySQL Enterprise 5.6*
  - EDB PostgreSQL Enterprise 9.4*
  - Couchbase Enterprise 4.1*
  - MongoDB Enterprise 3.2*
  - DataStax Enterprise 4.8*
  - Oracle 12c*, 11g*
  - Oracle RAC*

- Coming soon
  - MS SQL Server

*Tesora DBaaS Enterprise Edition only
Complete Database Lifecycle Management

Provision
• Wide array of databases
• One click away
• Single instances to clusters

Secure
• Automated patching
• Granular permissions
• Restricted root access

Manage
• Databases
• Replica sets
• Users and backups

Tune
• Database images
• Optimized and tuned
• APIs for custom configs
Trove Terminology

- Guest Image
- Guest Agent
- Trove Instance
- Cluster
- Datastore
- Datastore Version
- Configuration Group
- Flavor
Provisioning a Database Instance with Trove

- Database instances can be deployed using dashboard or CLI
- Trove API allows options to customize the database instance
  - Flavor support
  - Cinder volume support
  - Create database(s)
  - Create user(s)
  - Manage configurations
  - Replicate from another instance
  - Restore from a backup
Trove in Action

In this demo we will...

• Create a MySQL instance through Horizon
• Create a backup of the instance
• Create a MongoDB cluster
Trove Architecture and HA Deployment
Tesora DBaaS Platform Architecture
Sample POC architecture

An existing OpenStack Deployment

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Trove Deployment at Cisco
High Availability Configuration
What’s new in Newton?

• Upgrade support
• Usability improvements
• Clustering improvements
• Locality support in instance creation and replication
• Improved DB2 Express-C Support
• Improved PostgreSQL Support
• New quota management [admin] API for reviewing and changing quota’s for specific tenants
If you are interested in learning further:

Please attend the session on Thursday at

- 1:50 PM in P1 - Room 117
- What's New with OpenStack Trove in Newton, What's On Deck for Ocata
Questions?
If you are interested in deploying Trove

Contact Tesora for additional information

• http://www.tesora.com/contact-us/
If you want additional information

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Thank You