BBVA at Red Hat Summit

Mission-critical Red Hat Virtualization Operations and Evolution

May 2018
Introduction
**Speakers**

**José María Ruesta**
Global head of Infrastructure, Service and Open Systems  
**BBVA**  
José María is the global head of infrastructure for the Service & Open Systems group at BBVA, where he designs and implements cloud infrastructure solutions to deploy scale-out architectures based on commodity hardware and open source code. José Maria has more than 25 years of experience in technology management and transformation projects in the financial market, including experience managing global teams.

**Daniel Parkes**
Cloud and Infrastructure Consultant  
**Red Hat**  
Cloud consultant working for a year in Red Hat based in Spain, working primarily with OpenStack at different customers, helping them deploy, update and operate their OpenStack clouds.

**Enrique García**
Senior Technical Project Manager  
**Red Hat**  
Enrique García joined in 2016 as Technical Project Manager to Red Hat. During this time, he has been involved mainly in BBVA IaaS project delivery, consolidating open source products and mindset within financial services complexity.
Contents

The BBVA hybrid cloud journey
From the beginning until the future datacenter at BBVA

Challenges & Roadmap
Early adopters benefits... and problems... evolution of the product... experiences, challenges for the future

Collaboration Red Hat / BBVA
How Red Hat and BBVA make Cloud journey a reality
After this session, you will realize that...

- RHV suits perfectly on Mission Critical loads
- RHV is cloud enabler
- RHV has good support for 3rd party
The BBVA hybrid cloud journey
€685 billion in total assets
73 million customers
>30 countries
8,200 branches
31,602 ATMs
131,745 employees

Data at the end of March 2018. Those countries in which BBVA has no legal entity or the volume of activity is not significant are not included.
Where do we come from?

- Client interactions based on branches and ATM’s
- “A few” servers
- Config “easy”
- Proprietary sw
- Long product life cycle (“...the client seems to be ok...”)
- Banks can cope “easily” with client requirements

until ~2000
Where do we come from?

- Internet for everyday transactions
- Empowered clients
- Shorter product life cycle
- New architectures → client engagement
- Dozens of servers
- Proprietary sw becomes a nightmare (TCO, upgrades) and config management… somewhat tricky
Where do we come from?

- The four (A - G - F - A) break through
- Digital challenge: help our customers to take advantage of the opportunities - Data everywhere!
- Very short product life cycle
- Thousands of critical servers
- Infrastructure architecture is needed

<table>
<thead>
<tr>
<th>Until ~2000</th>
<th>~2004</th>
<th>~2012</th>
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<tbody>
<tr>
<td>Dominance of Scale UP IT</td>
<td>Linux enters corporate arena (and makes a real impact)</td>
<td>It's data all around me</td>
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The BBVA hybrid cloud journey

Client: needs and requirements

Developer teams: architect and operates solutions

Legacy systems
The BBVA hybrid cloud journey

Client: needs and requirements

Developer teams: architect and operates solutions

NO NEW APPS DEPLOYED

Legacy systems

legacy stock dwindles off as apps meet their end of lifecycle
The BBVA hybrid cloud journey

Client: needs and requirements

Developer teams: architect and operates solutions

Hybrid cloud deployment

DEPLOYED ON NEW ARCHITECTURE

On premise

RHV

RHOSP

Public Cloud
Evolution and Roadmap of future Datacenter at BBVA

- Microservices
  - Red Hat Satellite
  - GitLab
  - Automation Governance Monitoring
  - Automation
  - Governance
  - Monitoring

- Applications
  - OPENSHIFT
  - MESOS
  - Spark
  - MongoDB
  - JBoss

- Security
  - Red Hat IDM
  - RH SSO
  - RHDS
  - Splunk
BBVA Mission-Critical Use Case

Red Hat products allow BBVA Digital transformation

- Deployments on two data centers (Mexico DF and Madrid) managed leveraging Deployment & Operations Architecture based on Ansible
- Production and Test environments to support infrastructure and applications lifecycle
- RHV deployments:
  - + 4,000 production cores
  - + 700 production vmachines serving core banking applications
    - + 30% Spain core banking transactions (digital and traditional channels)
    - + 70 M transactions / day
  - Supports also OpenStack deployment infrastructure
    - 50,000 production vcores for analytical purposes

BBVA achieve the best quarterly result for the last 3 years

- +1,3 billions +12% growth
- Digital sales comprises 37% of total sales
- Client number that use digital channels grows 25%
03 Challenges & Roadmap
Early Adopter benefits...

- KVM
- SELinux + sVirt
- Cost reduction
- Open source

and problems

- Poor live migration
- No SDN integration
- No automation
- Manual DR - Created by BBVA for BBVA
- Painful upgrades...
Upgrades! Reboots!
Upgrading problems

**Official 3.5 to 4.1 upgrade path**

- 3.5 to 3.6 (reboots required)
- 3.6 to 4.0 (reboots required)
- 4.0 to 4.1

- too many operation windows needed!!

**EPIC: 3.5 to 4.1 with just one or minimal reboot**

- 3 steps & 1 reboot

**Achieved by:**

Collaboration by BBVA, Consulting, Support, CEE, BU, QE & Engineering
Upgrade Strategy from 3.5 to 4.1

01 Previous tasks
- Get status using ovirt-logcollector-analyzer
- Update Engine from 3.5.x to 3.5.latest
- Update Engine from 3.5.latest to 3.6.latest

02 Hypervisors Upgrade

03 Engine/Manager Upgrade
Upgrade Strategy from 3.5 to 4.1

01. Previous tasks

02. Hypervisors Upgrade
   - Create new empty cluster in 3.6 compatibility mode.
   - Reinstall hypervisors with RHV-H 4.1 Image.
   - Live-migrate VMs from old 3.5 cluster to new 3.6 cluster.
   - Remove 3.5 cluster when empty.

03. Engine/Manager Upgrade
Upgrade Strategy from 3.5 to 4.1

01 Previous tasks

02 Hypervisors Upgrade

03 Engine/Manager Upgrade

- Make engine-backup on the Engine/Manager host
- Reinstall The Manager with RHEL7 and RHVM 4.0
- Restore configuration with engine-backup on the new Engine physical host
- Upgrade Engine to RHVM 4.1
- Migrate to Hosted Engine configuration
Challenge → RHV upgrades with minimal downtime
Evolution and benefits
1 - Performance: High Performance Virtual Machines
2 - Live migrations
4 - Third-party integration
5 - Ansible Based Disaster Recovery Out Of the Box
6 - Metrics
Scale improvements +400 hosts per manager
Working on

- Upgrade enhancements - avoiding cold migration
- Increase capabilities of integration with Cisco ACI (4.2)
- vGPU
- Better Satellite & CF integration
- Infra sharing with OpenStack (Glance, Cinder, Barbican, ...)
- Ceph iSCSI integration
04

Collaboration BBVA / Red Hat
Use Cases
Prioritization
Outcomes / Results
Mission-critical workloads
Production
Value to end users

Expertise
Best practices
Reference Architectures
Partner Enablement
Professional Services
Support
Certifications
Learning Services

Innovation
Collaboration
Quality
Standardization
Partners, customers, developers, testers, contributors, ...

Open Source Communities
- Needs from Customer to Open Source communities
- Innovation from Open Source communities to customer
Open Source Communities

How??

Professional Services
IaaS, PaaS, Automation

High Touch Programs

Partners Collaboration

Executive Meetings

Support

Events (building community)
Added value by Red Hat

- Global Company
- Customer-Centric Approach
- Alignment on Values and Goals
- True Partnership
- Trust and Transparency
- Open Source
Questions?