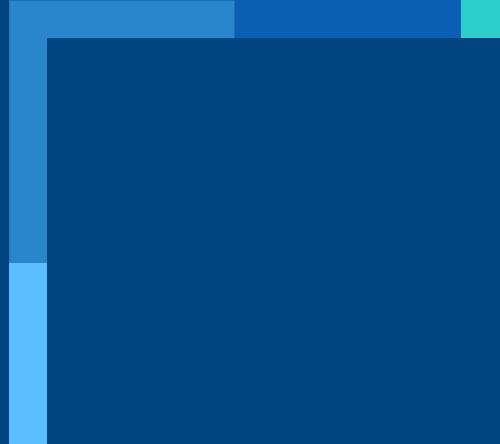


BBVA at Red Hat Summit

Mission-critical Red Hat Virtualization Operations and Evolution

May 2018



01

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 María 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



02

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

Dominance of Scale UP IT

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

until ~2000

~2004

Dominance of Scale UP IT

Linux enters corporate arena
(and makes a real impact)

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

until ~2000

~2004

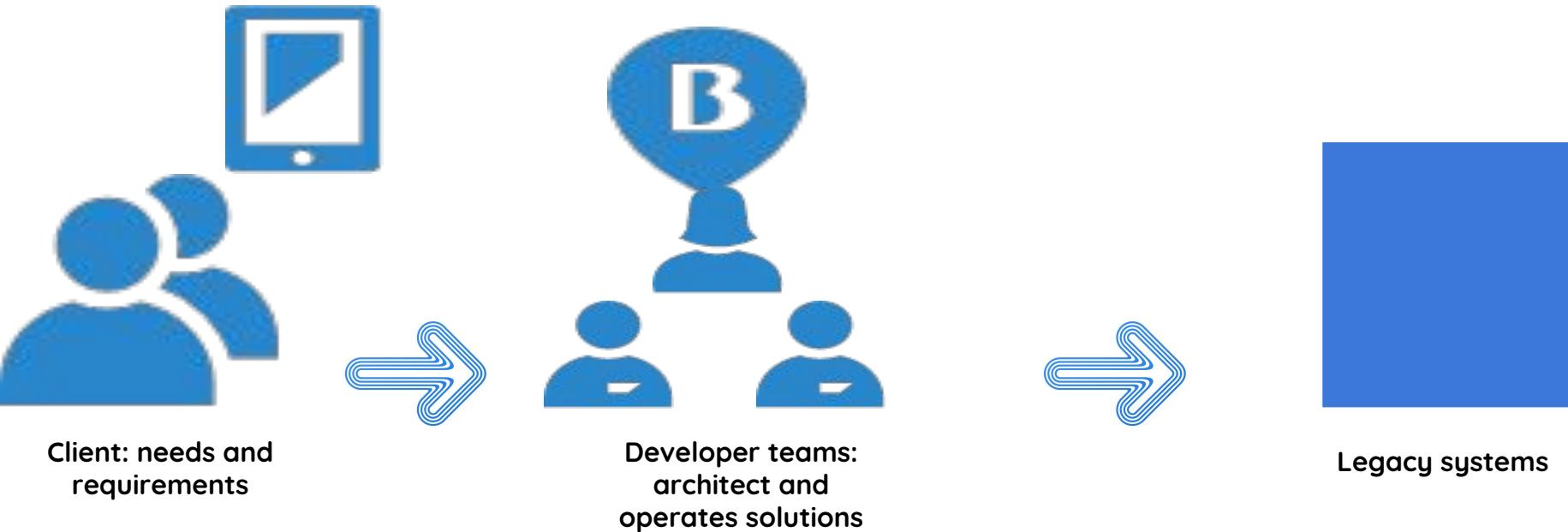
~2012

Dominance of Scale UP IT

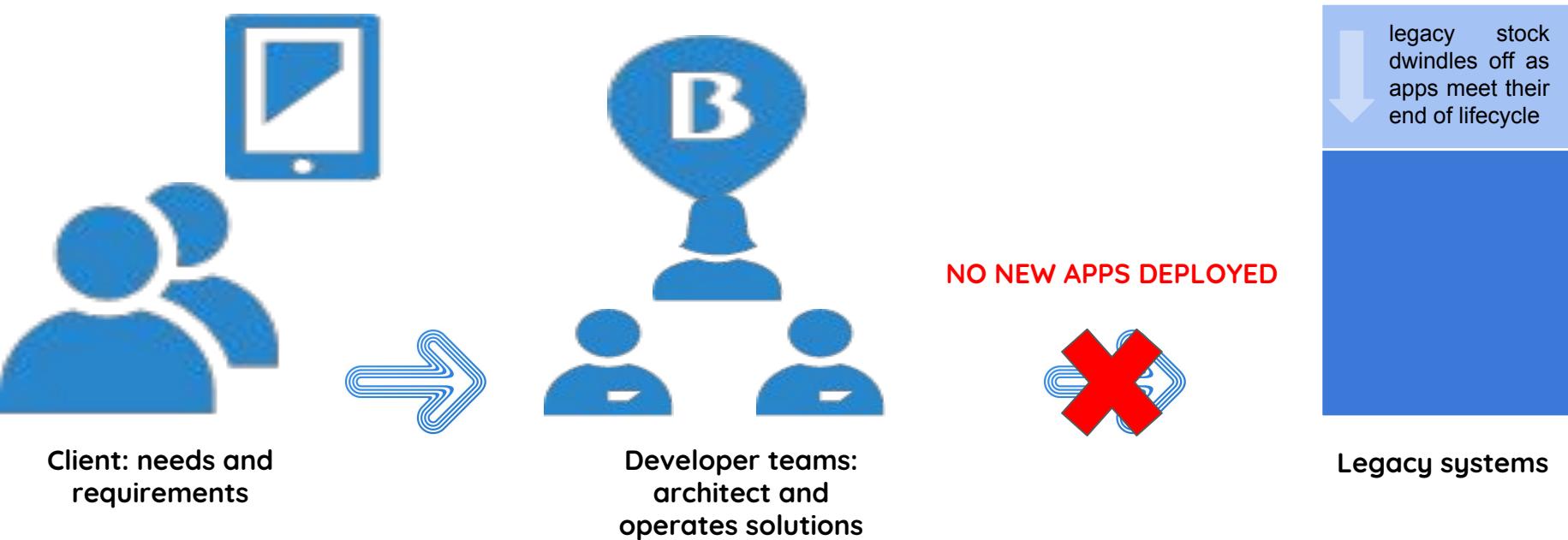
Linux enters corporate arena
(and makes a real impact)

It's data all around me

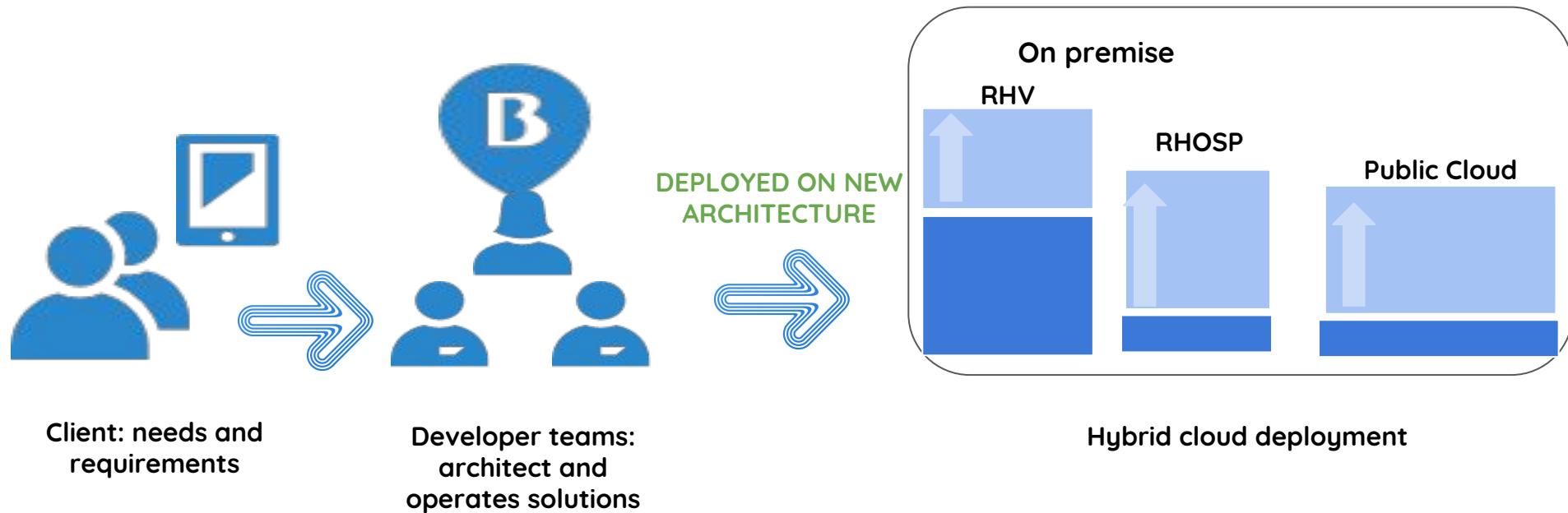
The BBVA hybrid cloud journey



The BBVA hybrid cloud journey



The BBVA hybrid cloud journey



Evolution and Roadmap of future Datacenter at BBVA



**RED HAT®
SATELLITE**

 GitLab

 Atlassian Bitbucket

Automation
Governance
Monitoring



Microservices



Applications



splunk>

Red Hat IDM

RH SSO

RHDS

Security

**RED HAT®
ENTERPRISE LINUX®**

BM

BM

...

VM

VM

VM

...

VM

**RED HAT®
ENTERPRISE LINUX®**

VM

VM

...

VM

**RED HAT®
OPENSTACK
PLATFORM**

**RED HAT®
ENTERPRISE
VIRTUALIZATION**



NetApp®



TRILIO

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

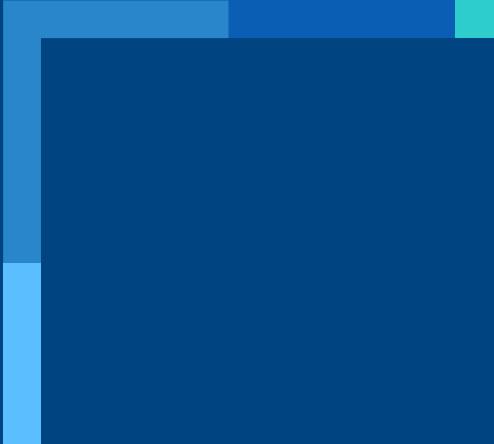
- +1,3 billions +12% growth
- Digital sales comprises 37% of total sales
- Client number that use digital channels grows 25%



Lago Esmeralda México DF



Tres Cantos Madrid



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!



Upgrade 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



Feedback +
Partnership +
Collaboration

Support & CEE

BBVA

Engineering

Consulting

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



RHV 4.1!

Challenge → RHV upgrades with
minimal downtime

A scenic landscape featuring a vast, green, hilly foreground with small white flowers. In the middle ground, there are several layers of mountains, with the closest ones appearing dark and silhouetted against a bright sky. The sky is filled with dramatic, billowing clouds in shades of white, gray, and yellow, with bright sunlight streaming through them. The overall atmosphere is one of natural beauty and tranquility.

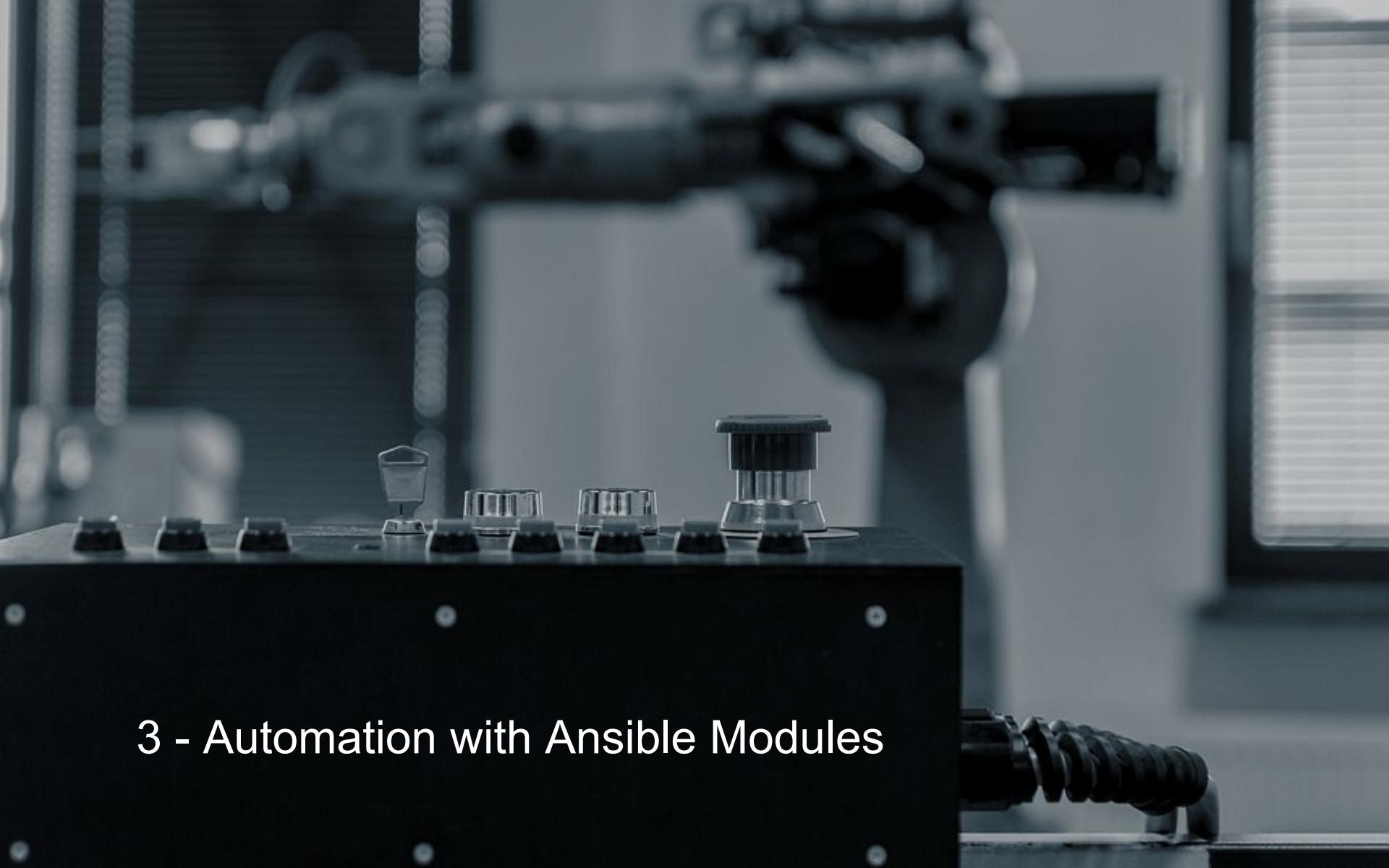
Evolution and benefits

1 - Performance: High Performance Virtual Machines





2 - Live migrations



3 - Automation with Ansible Modules

4 - Third-party integration





5 - Ansible Based Disaster Recovery Out Of the Box



6 - Metrics

A black and white photograph of painting supplies laid out on a wrinkled plastic drop cloth. In the center is an open can of paint. To the left is a paintbrush with the brand name 'WOOSTER' visible on its handle. To the right is a paint tray containing a roller. The lighting is dramatic, casting deep shadows and highlighting the texture of the drop cloth and the metallic surfaces of the paint can and tray.

Improved UI

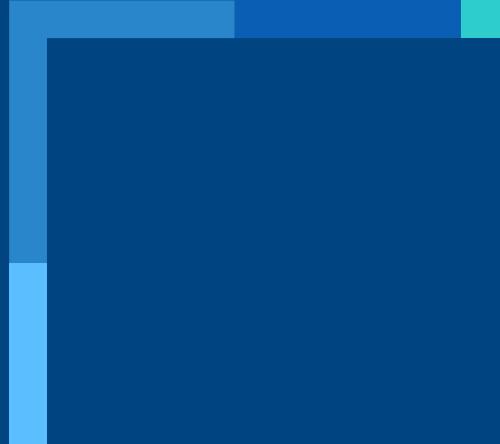


Scale improvements +400 hosts per manager



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

Open Source Communities



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

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



BBVA



Consulting
Customer Experience & Engagement
Business Units
Engineering
Sales
Management

Open Source Communities



How??



BBVA



Open Source Communities



Professional Services
IaaS, PaaS, Automation

High Touch
Programs

Partners
Collaboration

Support

Executive
Meetings

Events (building
community)

**Added value
by Red Hat**



GLOBAL COMPANY

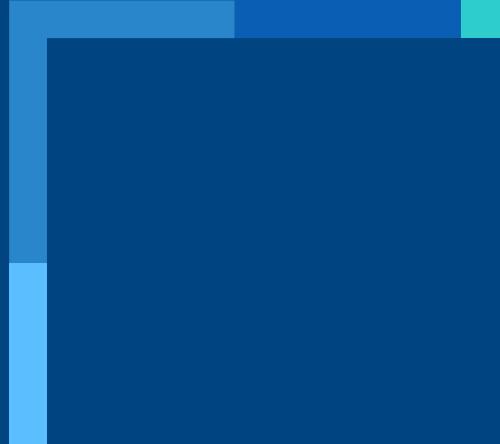
CUSTOMER-CENTRIC APPROACH

ALIGNMENT ON VALUES AND GOALS

TRUE PARTNERSHIP

TRUST AND TRANSPARENCY

OPEN SOURCE



QUESTIONS?