Orange and OW2

from open source middleware
to open source cloudware

Orange Labs

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unrestricted

Orange and OW2
quick facts

- **12 years of active OW2 membership**
  - 1999: France Telecom R&D co-founder of ObjectWeb
  - France Telecom Strategic Member of OW2 since its creation
  - Orange co-lead of OW2 Open Source Cloudware initiative

- **numerous Orange Labs contributions to the code base**

- **strong Group-wide commitment to OW2 JOnAS**

open source

Orange and open source
in practice

- contribution to open source software, often from R&D

- widespread usage of open source products
  - incl. industrialisation process, just like for commercial software
  - OSS recommended alongside with commercial software
    - internal middleware catalogue includes *Linux, MySQL, PostGreSQL, Eclipse, Apache HTTP Server, JOnAS, JBoss AS, Salomé-TMF, CLIF, CXF, …*
    - open source alternative package for desktop
  - increased share of open source software as alternative

- internal open source community and governance

Orange and open source
research & innovation drivers

- availability of open experimentation platforms

- knowledge of technologies deployed in our systems

- contribute to reinforce a community in this domain

- contribute to the creation of an ecosystem
  - integrating labs, start-ups and corporate companies

- reinforce dissemination and valorisation of results

- new types of partnership on service infrastructure

- "netiquette": we use open source software, let us contribute to its production

- internal use of open source software development principle for a better software component re-use

orange™

Orange and open source
deployment & exploitation drivers

- **independence** from software providers

- reduction of deployment and maintenance costs
  - licenses, in-house R&D on the products

- availability of software infrastructure with key features
  - standard (relies on Orange presence at standardisation bodies for evolution of standards)
  - efficient, secure and reliable
  - prone to reactivity and evolutions

- control over the complete software chain
  - from the client to the network

Orange and OW2

Orange Labs active OW2 contributor

Orange Labs

– internal research projects

– OW2 Fractal, JORM, MEDOR, Perseus, Sirocco, CLIF

Dev and industrialisation

– internal development projects

– support and com activities

– internal recommendation

– Java EE – OW2 JOnAS, JASMINe

– software eng. – OW2 CLIF, Salome-TMF

R&D expertise

distributed systems architecture, persistence, application platforms, embedded systems, validation and tests
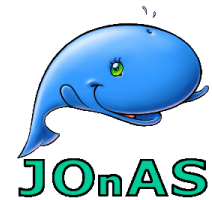
Orange and OW2
contributions to OW2 Projects

| OW2 Project		lead	initiator	contributor	FT Group recommendation	in use at FT/Orange Labs
ASM	byte code manipulation		x			x
CLIF	load injection and performance measurement	x				x
Fractal	component-based architecture framework (w/ ref. impl)	x				x
JASMINe	deployment and management			x	x	x
JOnAS	Java EE platform			x	x	x
JORAM	JMS MOM			x		x
JORM	multi-support persistence service	x				
Lomboz	Eclipse plug-in for J2EE			x		
MEDOR	distributed queries	x				
MobiliTools	mobile agents	x				
MonoLog	logging and trace		x			
ODIS	open distributed infrastructure for services	x				x
PetALS	Enterprise Service Bus			x		x
Salomé-TMF	test management			x		x
Sirocco	Cloud IaaS management	x				x
Speedo	JDO container	x				
TESS+CRS	Framework for real-time event stream processing	x				
THINK	framework for OS kernels		x	x		x

JOnAS

Orange and OW2
why choosing JOnAS

- strategic reasons
  - Orange Labs is a strong contributor to the OW2 code base
  - JOnAS is more than just a Java EE Application Server
    - integration with OW2 components

- performance and robustness reasons
  - stress tests show very good performance and robustness
  - same level of operation as other Java EE Applications Servers
  - same rules and tools

- economical reasons
  - LGPL license + open source business model based on support cost
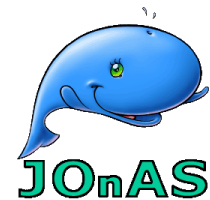
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JOnAS, a Group-wide success story

- introduced in 2003 (3.3 version)
- the only AS for development since 2006
  - local development platform (JOnAS + Eclipse)
  - even for applications deployed on other AS
- today 1st Application Server's Choice
  - within the Group in France
- migrations from other AS to JOnAS
  - accompanied by in-house IT support
  - very positive feedback
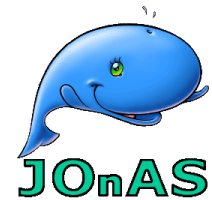
Orange and OW2

in-house usage of JOnAS examples

- **more than 300 applications with JOnAS in production**
  - 1000+ server instances
  - large-scale applications
- **JOnAS on Information System and Services Platforms (for internal and external customers)**
- **usage examples**
  - Address book
  - MaLigneTV programme guide
  - internal SOA technical bus
  - M2M framework
  - many internal IS applications
  - …

from
open source middleware
to
open source cloudware

Orange and open source cloud interests

- context: deployment of Cloud solutions for customers and in-house IT platforms

- interests in OW2 Open Source Cloudware initiative
  - interoperability at the infrastructure level
  - openness and standards compatibility
  - open source alternative to commercial solutions
  - open PaaS middleware for designing, configuring and deploying distributed applications
  - metering for SLA checking and billing
  - provide services in SaaS mode
 - security and privacy guarantees for our customers

Orange and open source cloud
differences with open source middleware

- lack of maturity of (open source) cloud products
  - especially at the PaaS layer
- current lack of standards
  - but de facto standards, and standardisation under way (specifications)
- lack of openness and interoperability
- many existing cloudware components
  - but not integrated

OW2 OSCi
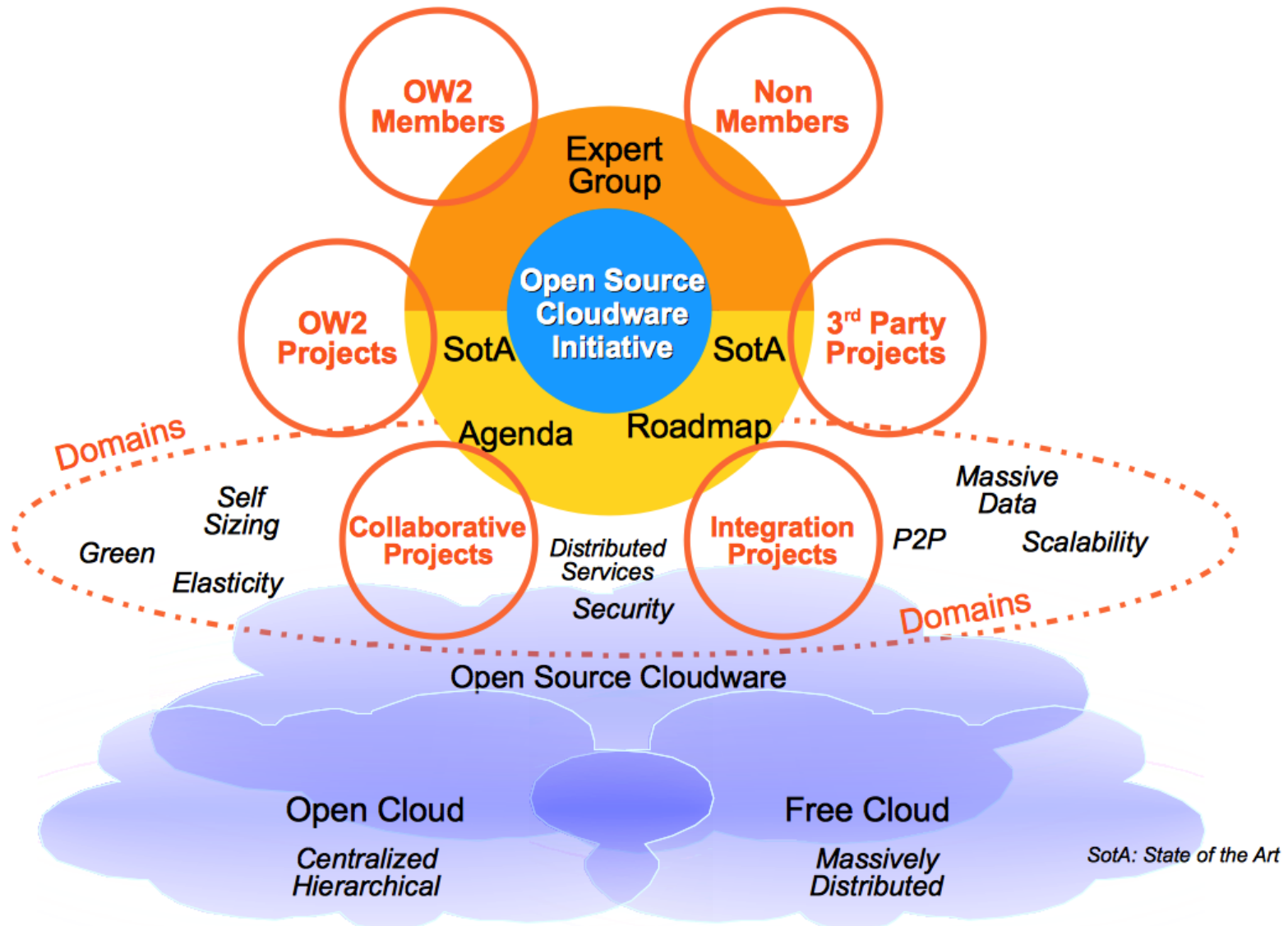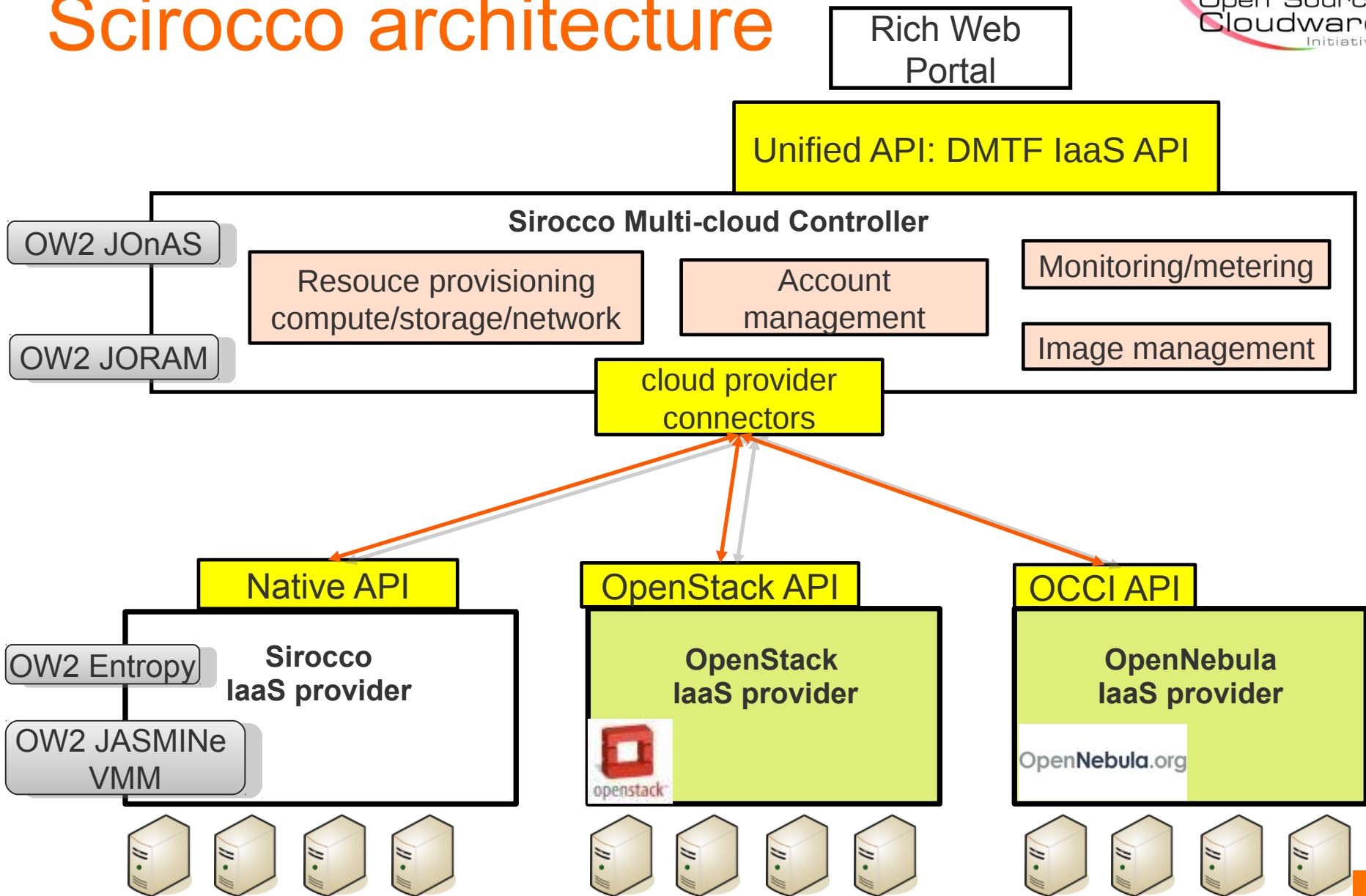
Orange and OSCi
the bedrock
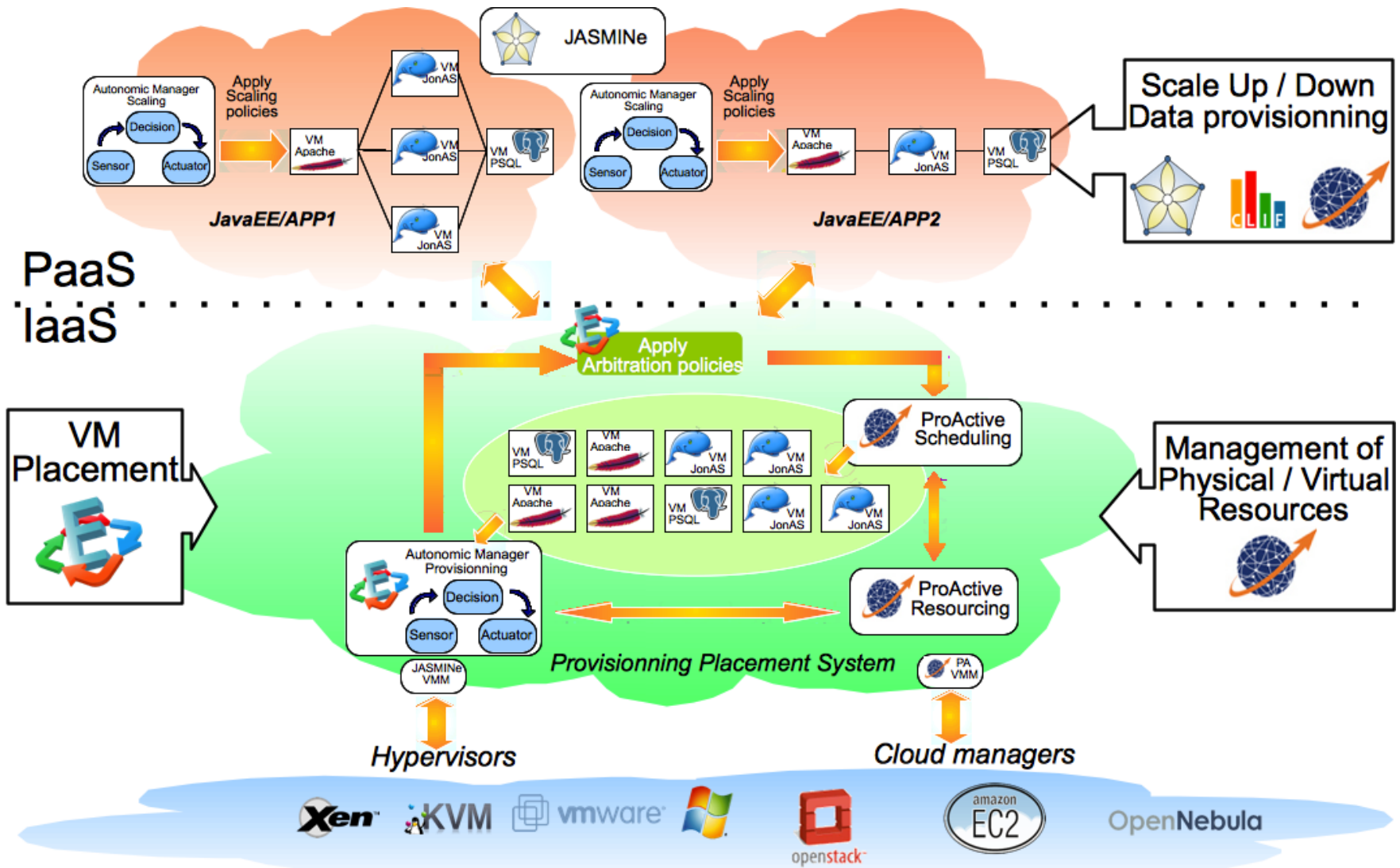
Orange and open source cloud

OW2 Sirocco

- internal Orange Labs IaaS project initiated in 2008
  - used and enriched in the context of collaborative projects (ANR SelfXL, Celtic Servery)
- self-service VM provisioning portal deployed in production within Orange Labs and Orange Portals

- multi-hypervisor support
  - VMware, Xen and KVM
  - the lower software layer (multi-hypervisor VM Management) was open-source in 2010 (OW2 JASMINe VMM component)

- now an OW2 incubator project http://sirocco.ow2.org

Scirocco architecture

Rich Web Portal

Unified API: DMTF IaaS API

Sirocco Multi-cloud Controller

OW2 JOnAS

Resouce provisioning compute/storage/network

Account management

Monitoring/metering

OW2 JORAM

Image management

cloud provider connectors

Native API

OpenStack API

OCCI API

OW2 Entropy

Sirocco IaaS provider

OpenStack IaaS provider

OpenNebula IaaS provider

OW2 JASMINe VMM

Orange and open source cloud perspectives

- collaborative R&D projects (being evaluated)
  - from application modeling and development...
  - ...to deployment and operation (PaaS)...
  - ...on multiple IaaS (interoperability, hybrid)

- longer term challenges
  - end-to-end security
  - privacy
  - cloud of things

thank you