

# Canada-EU Future Internet Workshop

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## OpenNebula Leading Innovation in Cloud Computing Management

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*OpenNebula - Leading Innovation in Cloud Computing Management*

## **OpenNebula as Spin-off of the RESERVOIR Project**

- What is OpenNebula?
- What is the RESERVOIR Project?
- What is the OpenNebula Open-Source Project?
- Who Uses OpenNebula?

## **OpenNebula as Reference Open Stack for Cloud Computing**

- How is OpenNebula Used in the Leading Projects?
- What is Our innovation Model?
- How to Boost Adoption of Cloud Technologies?
- Open Research Issues?

*Open-source Toolkit to Build your IaaS Cloud*

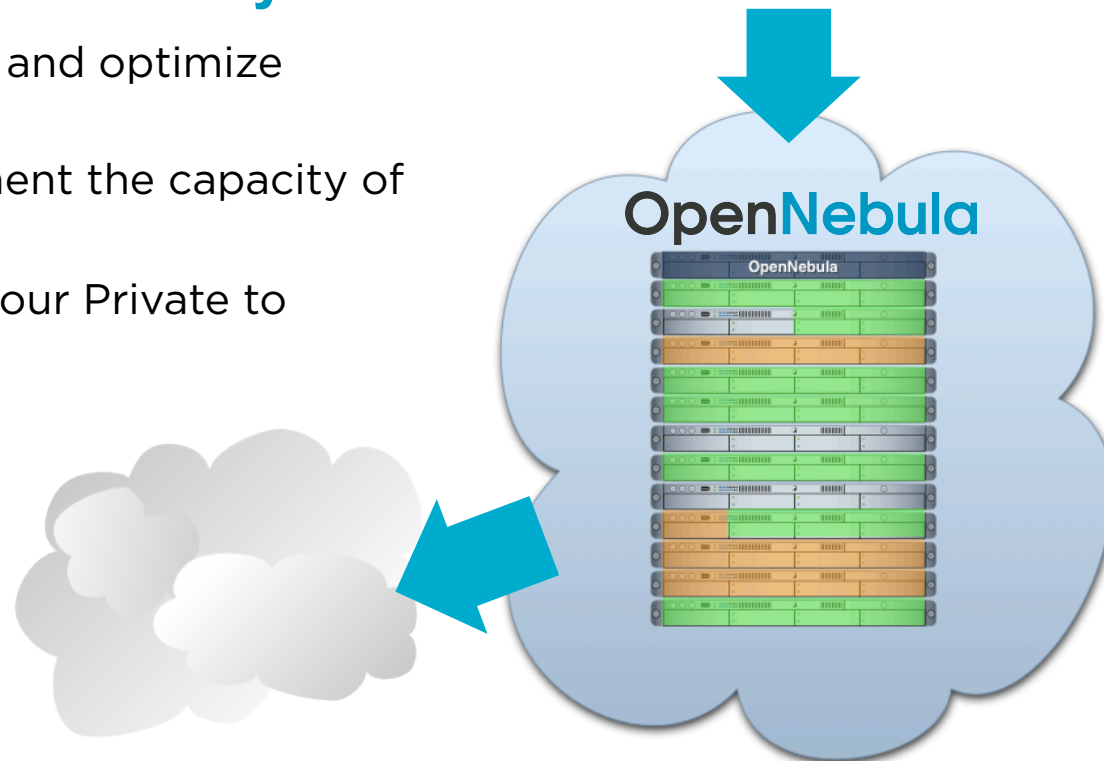
## IaaS Cloud Provider

- Simple web interface
- Raw infrastructure resources
- Pay-as-you-go & elastic capacity



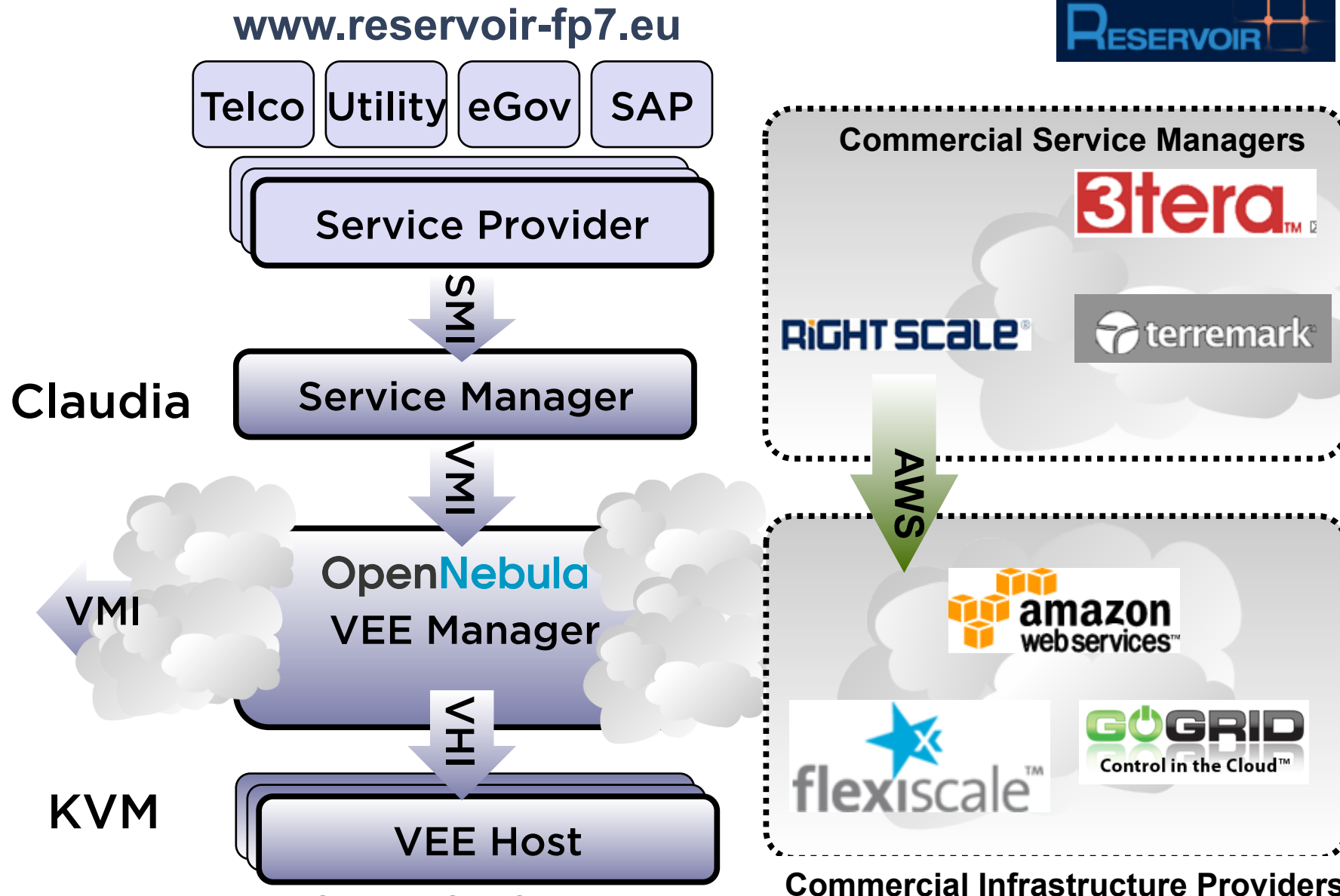
## Enabling Technology to Build your Cloud

- **Private Cloud** to simplify and optimize internal operations
- **Hybrid Cloud** to supplement the capacity of the Private Cloud
- **Public Cloud** to expose your Private to external users



# What is the RESERVOIR Project?

*The Enabling Software Artifacts*



Source: RESERVOIR Project

*Building the Industry Standard Open Source Cloud Computing Tool*

## Lead Innovation in Enterprise-Class Cloud Computing Management

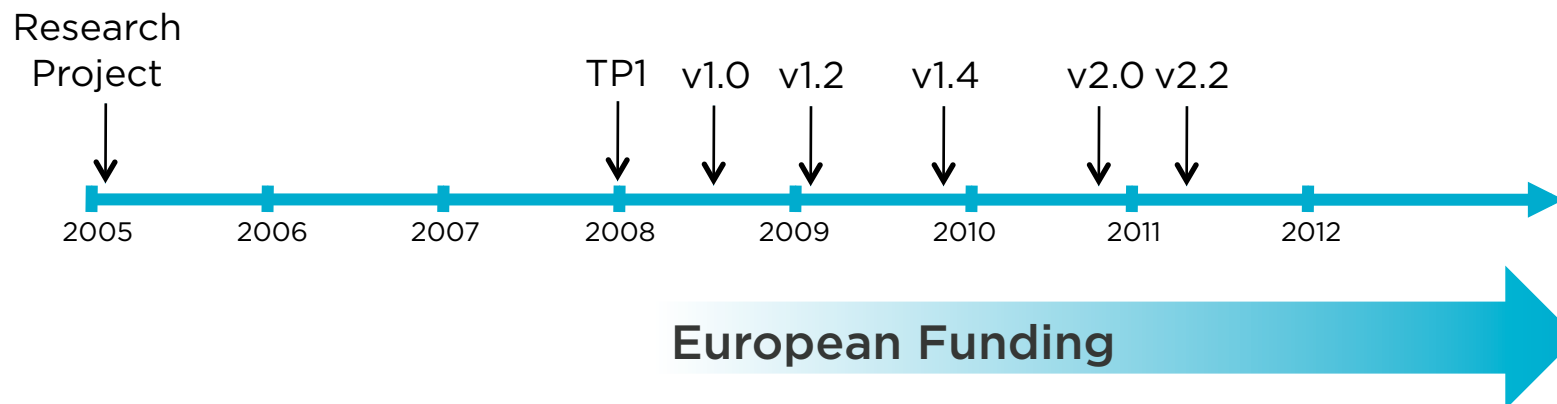
- Develop, maintain and assure the quality of OpenNebula
- Collaborate with open-source and research projects and communities
- Support the community and the ecosystem

## An Active and Engaged Community

- 4,000 downloads/month
- 100 active contributors
- OSS distribution channels



## From a Research Project on Scalable Management of VMs



## Organizations Building Clouds and Innovative Projects

### Organizations Building Clouds for Development, Testing and Production

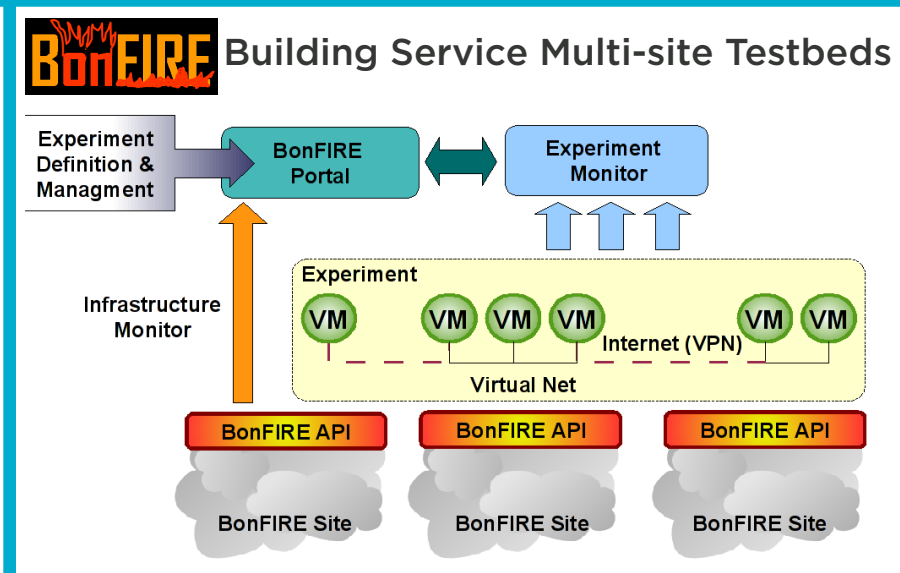
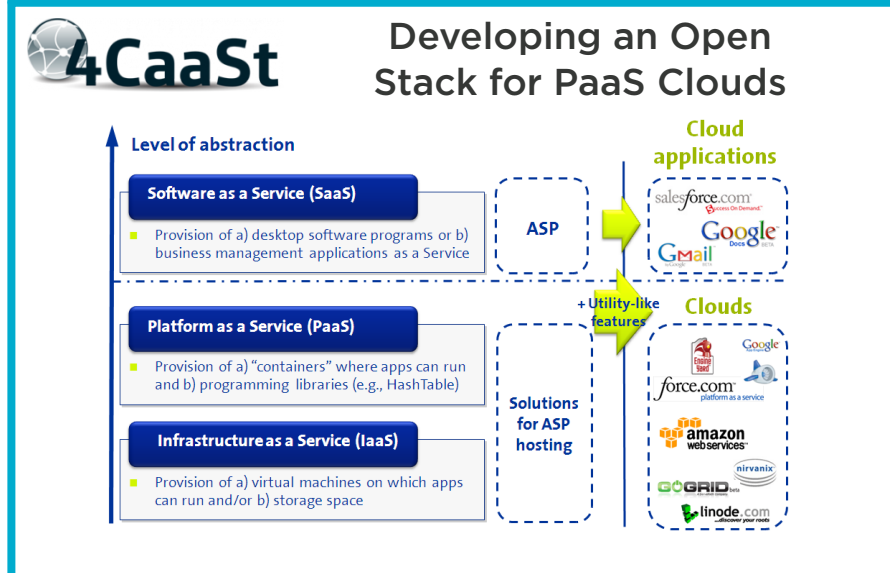
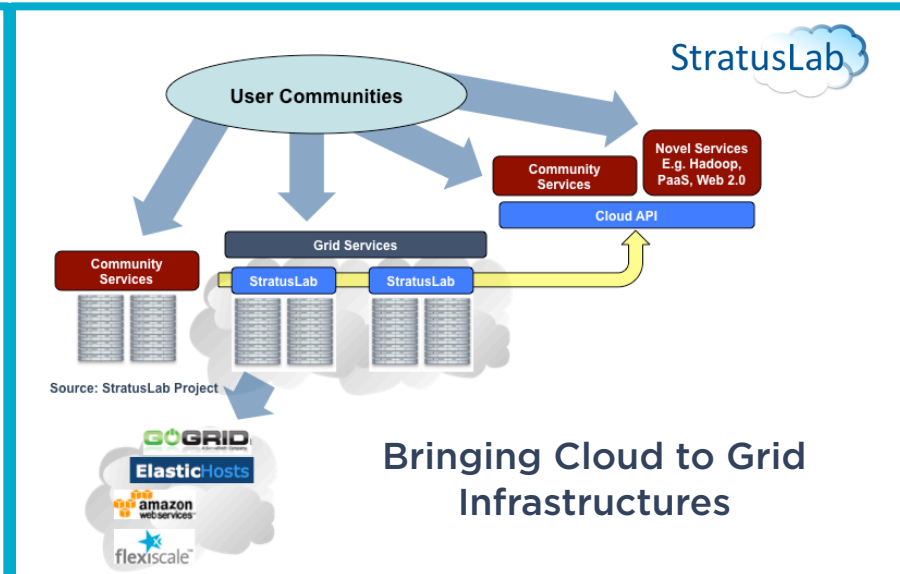
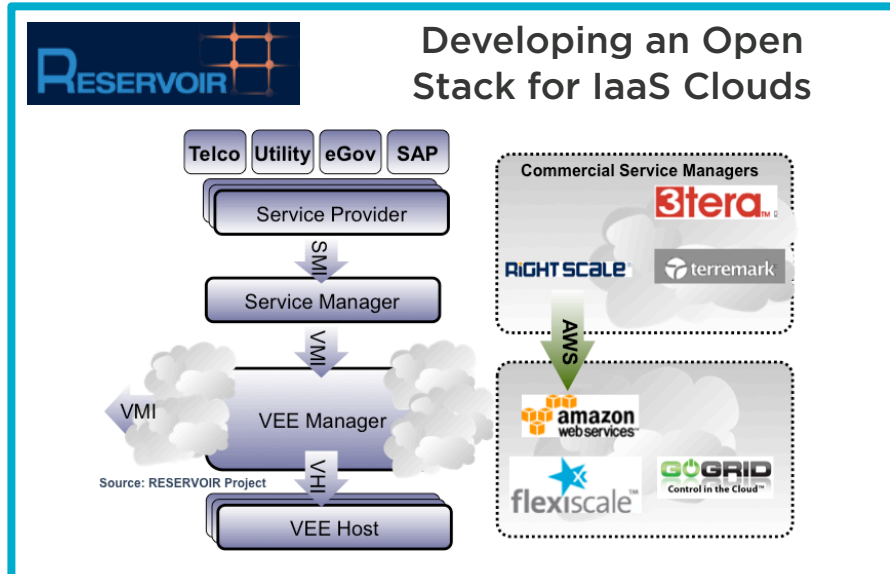


### Projects Building an Open Cloud Ecosystem Around OpenNebula



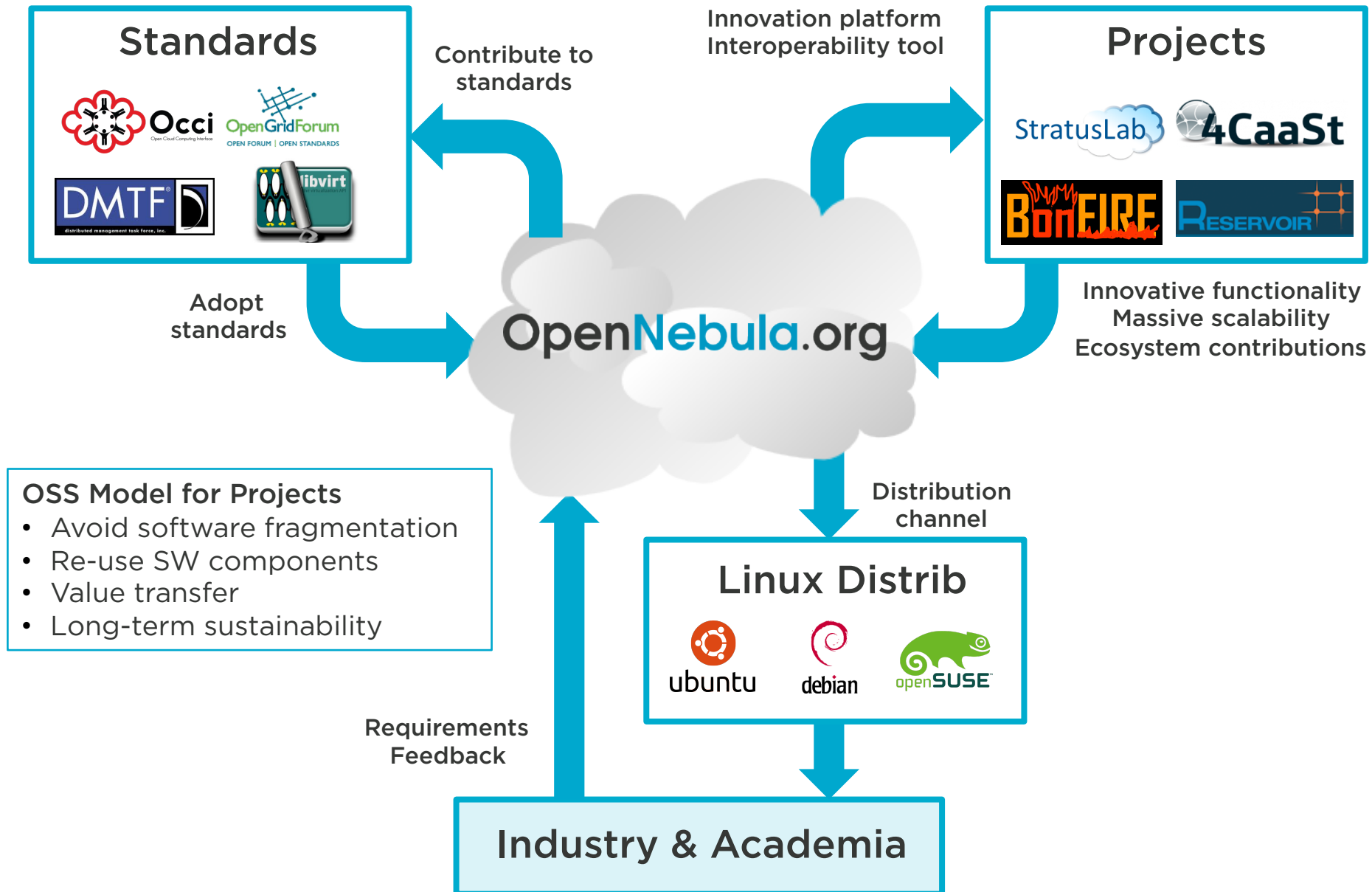
# How is OpenNebula Used in the Leading Projects? OpenNebula.org

*International Projects Building an Open Cloud Ecosystem Around OpenNebula*



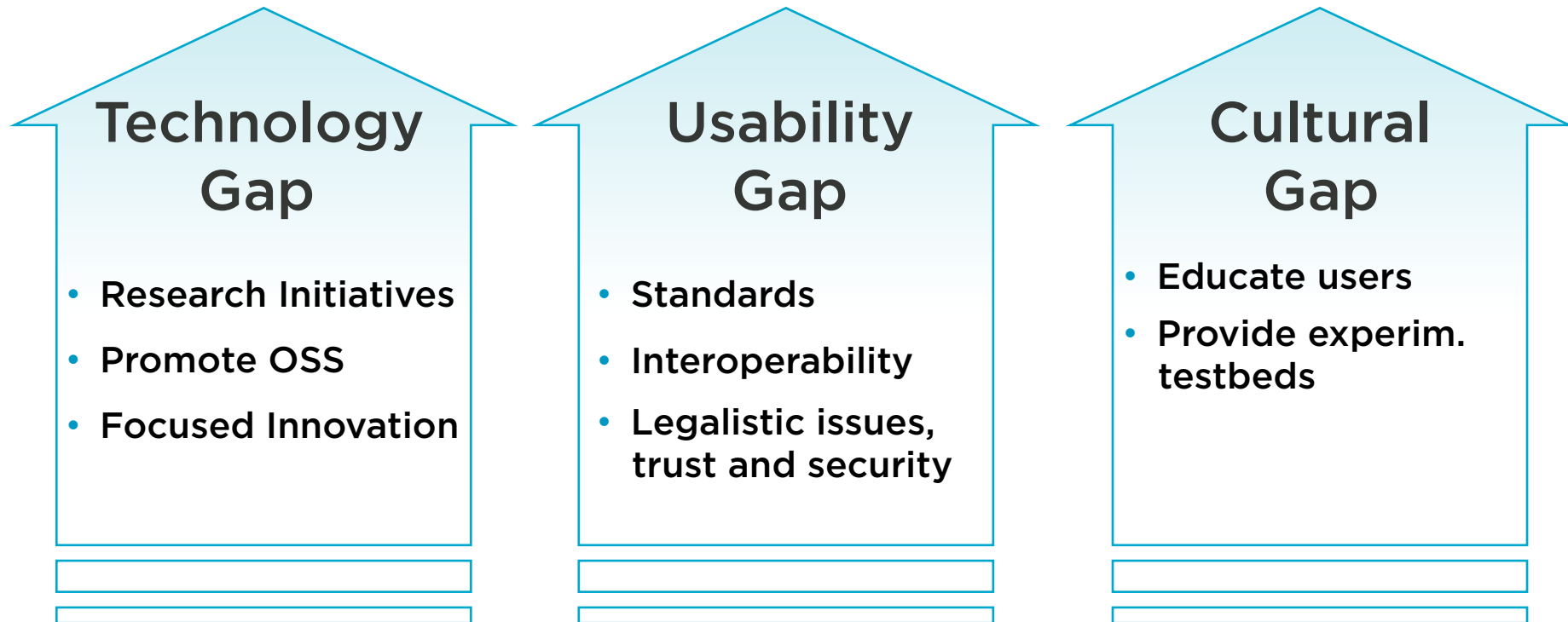
# What is Our Innovation Model?

## Building and Open Cloud Ecosystem





## *Main Gaps for Adoption*



## Main Areas for EU-Canada Collaboration

## Key Research Challenges in Cloud Computing

### Cloud Aggregation

Aggregation of resources from diverse cloud providers adding additional layers of service management

### Cloud Management

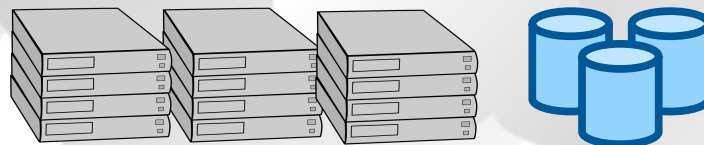
Delivering infrastructure resources on-demand in a multi-tenant, secure, elastic and scalable environment

### Cloud Enablement

Enhancing platform infrastructure to support cloud management requirements

### Cloud Interoperability

Ensuring that the available cloud services can work together and interoperate successfully



**The Future of Cloud Computing. Opportunities for European Cloud Computing Beyond 2010**, Expert Group Report (<http://cordis.europa.eu/fp7/ict/ssai/docs/cloud-report-final.pdf>)



*We Will Be Happy to Answer Any Question*

