European Cloud Computing initiative

Bob Jones, CERN

Strategic Plan

- The Strategic Plan aims to pave the way for the **development and exploitation of a Cloud Computing Infrastructure**, initially based on the needs of European IT-intense scientific research organisations, while also allowing the inclusion of other stakeholders' needs (governments, businesses and citizens).

- The scale and complexity of services needed to satisfy the foreseen needs of **Europe's IT-intense scientific research organisations** are beyond what can be provided by any single company and hence will **require the collaboration of a variety of service providers**.

- To join this infrastructure, just like any other public infrastructure, a service provider must adhere to internationally **recognised policies and quality standards** that will be adopted by the governance structure involving all stakeholders.

Strategic Plan for a Scientific Cloud Computing infrastructure for Europe

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1.1

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http://cdsweb.cern.ch/record/1374172/files/CERN-OPEN-2011-036.pdf
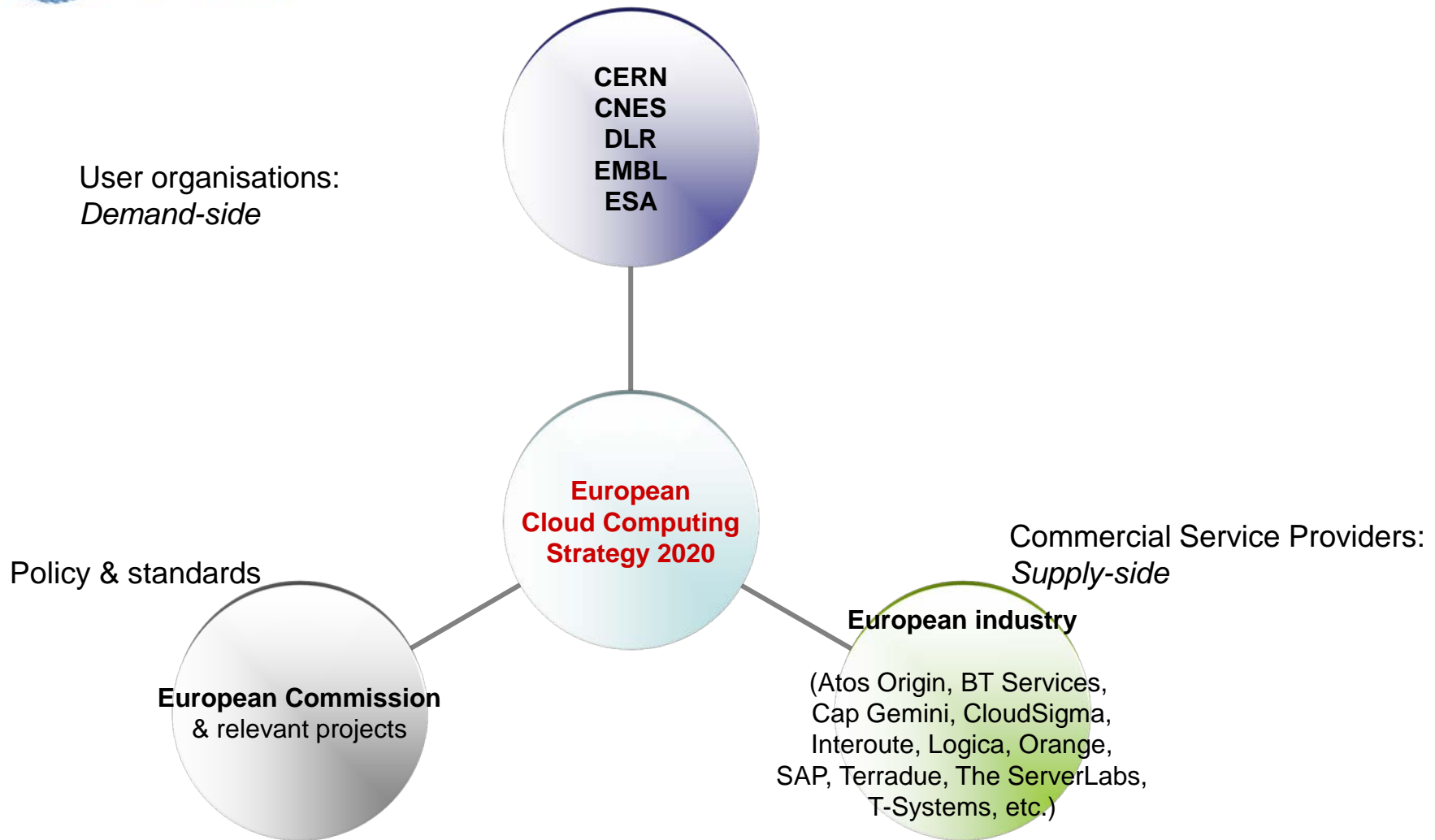
Origin of the initiative

- Conceived by ESA as a prospective for providing cloud services to space sector in Europe

- Presented to the IT working group of the EIROforum where other members (CERN, EMBL) joined

EIROforum: CERN, EFDA-JET, EMBL, ESA, ESO, ESRF, European XFEL, ILL

Objectives of the initiative

1. Set up a cloud computing infrastructure for all European Research Area

2. Identify and adopt policies for trust, security and privacy on a European-level

3. Create a light-weight governance structure involving all stakeholders

4. Define a short and medium term funding scheme

A collaboration Initiative

User organisations:
*Demand-side*

**CERN
CNES
DLR
EMBL
ESA**

**European
Cloud Computing
Strategy 2020**

Commercial Service Providers:
Supply-side

Policy & standards

European industry

(Atos Origin, BT Services,
Cap Gemini, CloudSigma,
Interoute, Logica, Orange,
SAP, Terradue, The ServerLabs,
T-Systems, etc.)

European Commission
& relevant projects

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The demand

Requirement	Current	2015	2020
Concurrent CPU nodes	1'000 to >> 10'000	1'000 to >> 10'000	10'000 to >> 10'000
PB storage	< 10	10 to > 100	100 to >> 100
Monthly distribution of large (> 1MB) files	1'000 to >> 1'000	1'000 to >> 1'000	>> 1'000
Hosted web sites/applications	50 to >> 100	50 to >> 100	100 to >> 100
TB monthly network traffic	10 to >> 10	>> 10	>> 10

Flagship use cases

- **Proposed by demand-side user organisations addressing scientific challenges with societal impact**
  - Photogenic high-profile applications that catch the public imagination and encourage others to use the services
  - Show need for significant scale of resources, federation/aggregation of data sets, long-term archiving and on-demand processing

- **Must be sponsored by user organisations that have a long-term objective of outsourcing a portion of their computing requirements**
  - Must be prepared to contribute their own resources during the pilot phase to port application and contribute to the cost of procuring required services from the supply-side
  - Must participate in a costing exercise where the total cost of deploying and operating the flagship application in-house can be compared to the cost of procuring the services via the cloud computing initiative

Draft Governance Model for Pilot Phase

Timeline

Full-scale cloud service market (2014 …)
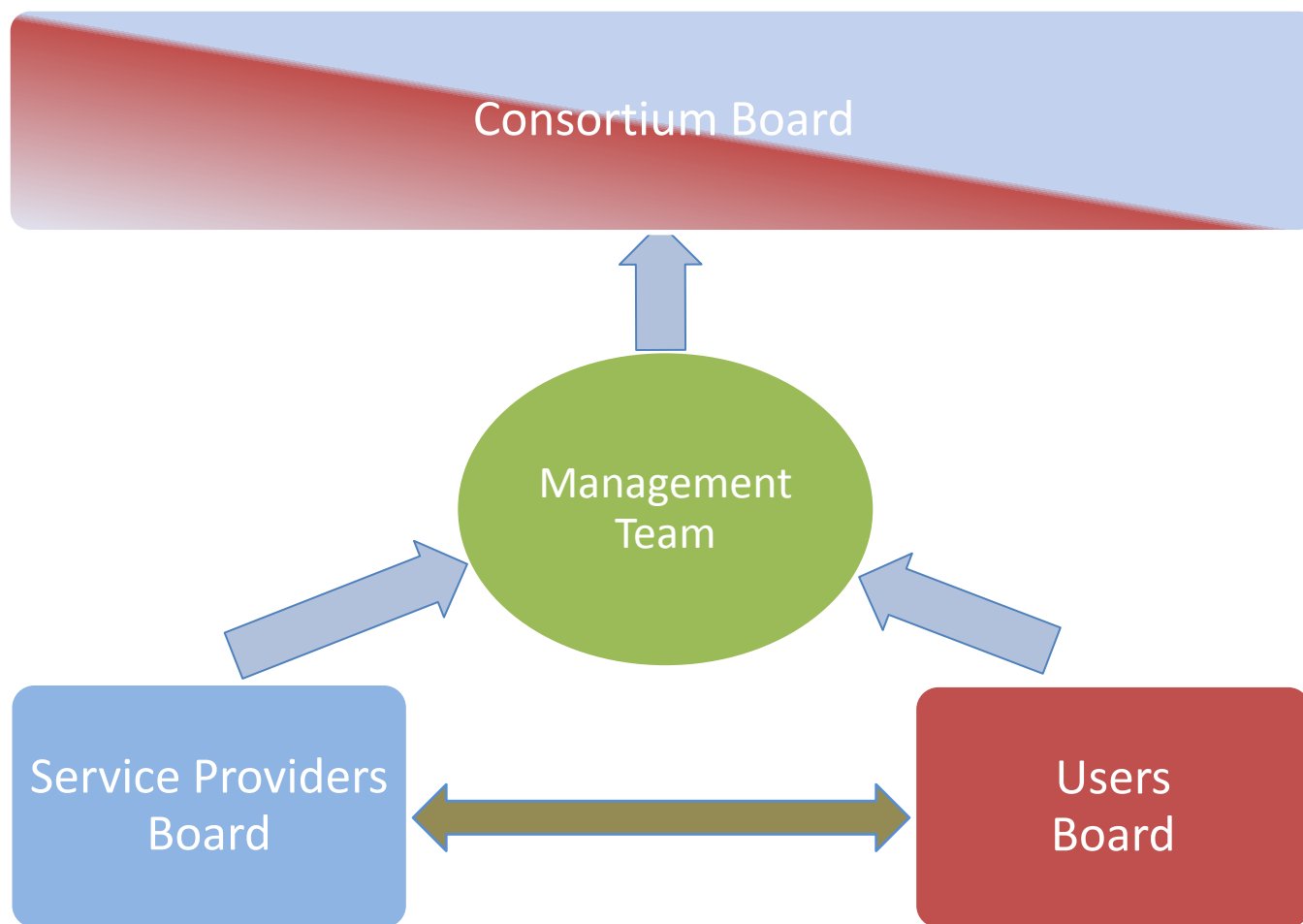
Set-up (2011)

Pilot phase (2012-2014)

Select flagships use cases, identify service providers, define governance model

Deploy flagships, Analysis of functionality, performance & financial model

More applications, More services, More users, More service providers

Addressing actions of the "Digital Agenda for Europe"

- Supporting the **single digital market**: building such a European Infrastructure will help create a single digital market for cloud computing;

- Enhancing **interoperability and standards**: the European Cloud Computing Infrastructure will permit geographically dispersed and separately managed devices, applications and services to interact seamlessly;

- **Stimulating research and innovation**: implementing this strategic plan will generate more private investment for IT research to develop a new generation of applications and services as well as reinforce the coordination and pooling of resources;

- **Improving trust and security**: it will also provide a coordinated European approach to security for cloud computing and adhere to rules on data protection.

Summary

- The objective of this initiative is to establish a sustainable cloud computing infrastructure for the European Research Area based on commercially provided services

- It is a collaborative initiative bringing together all the stakeholders to establish a public-private partnership

- It has commitments from the IT industry and user organisations to get underway in 2012