

# A successful public- private partnership

Bob Jones  
head of CERN openlab



# CERN openlab in a nutshell

- A science – industry partnership to drive R&D and innovation with over a decade of success
- Evaluate state-of-the-art technologies in a challenging environment and improve them
- Test in a research environment today what will be used in many business sectors tomorrow
- Train next generation of engineers/employees
- Disseminate results and outreach to new audiences

## PARTNERS



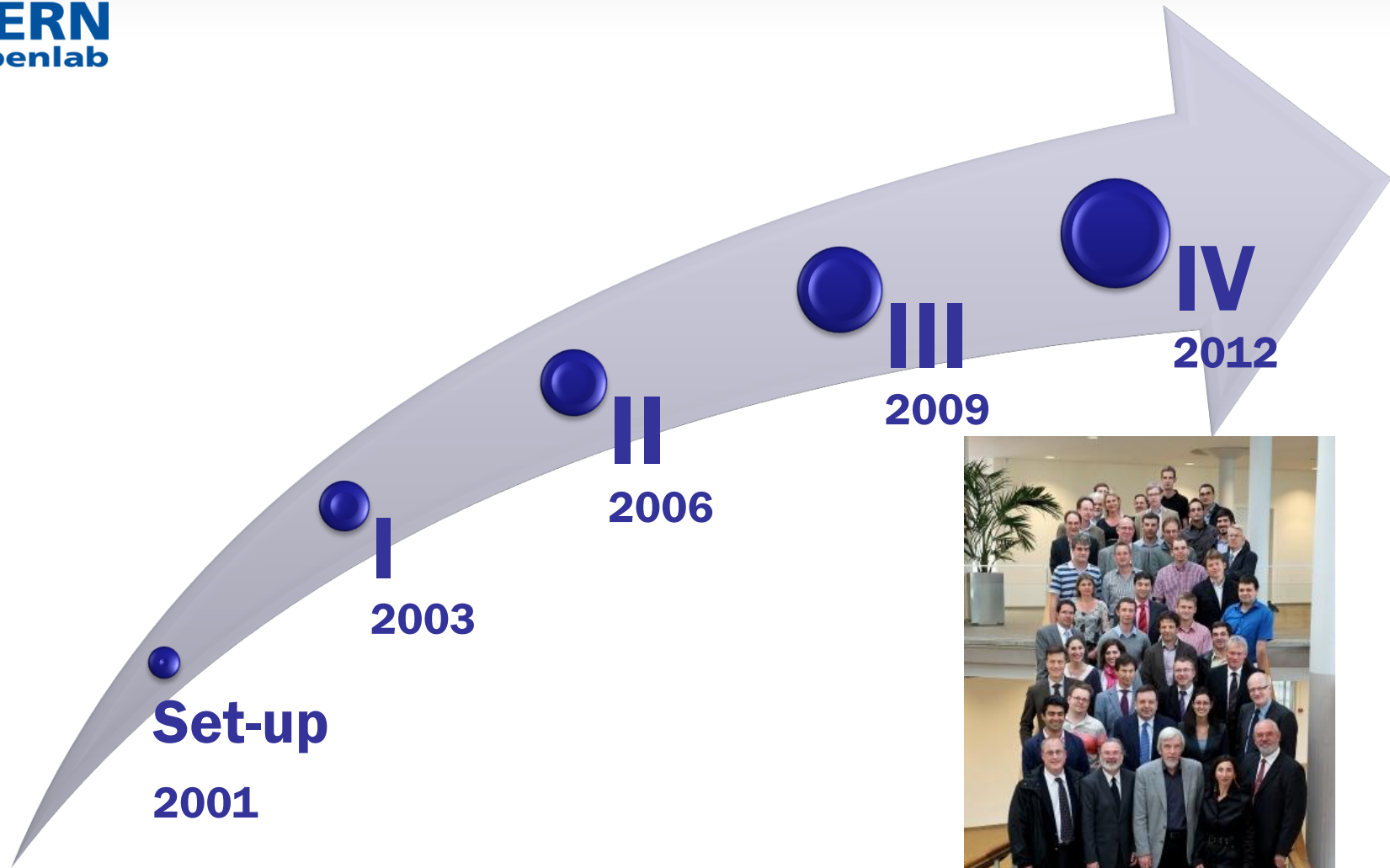
**ORACLE**

**SIEMENS**

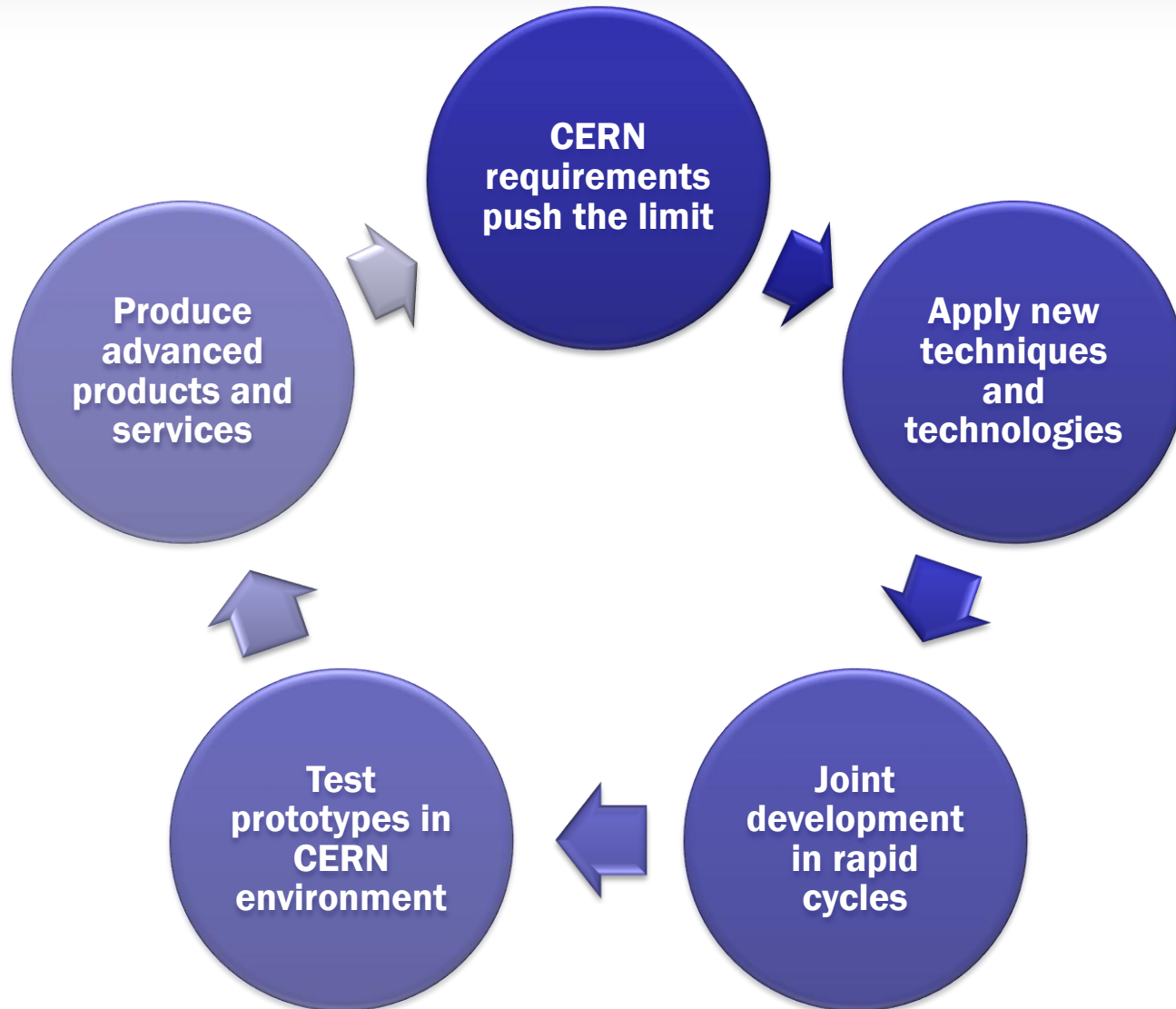
## ASSOCIATE

**Yandex**

# The history of openlab



*CERN openlab 10th birthday celebration on 3 May 2011*



A public-private partnership between the research community and industry

- **From Partners / Contributors**
  - Mix of
    - in cash for hiring young personnel
    - in kind for carrying out R&D activities



- From Partners
- From CERN
  - Technical environment
  - Technical manpower
  - Technical supervision
  - Management resources
  - Communication resources



CERN-hosted **workshops** on advanced topics

**Joint events** with industry members

On-site **lectures** for summer students

Technical **seminars** from CERN staff or invited guests

Contributions to the

**CERN School of Computing**

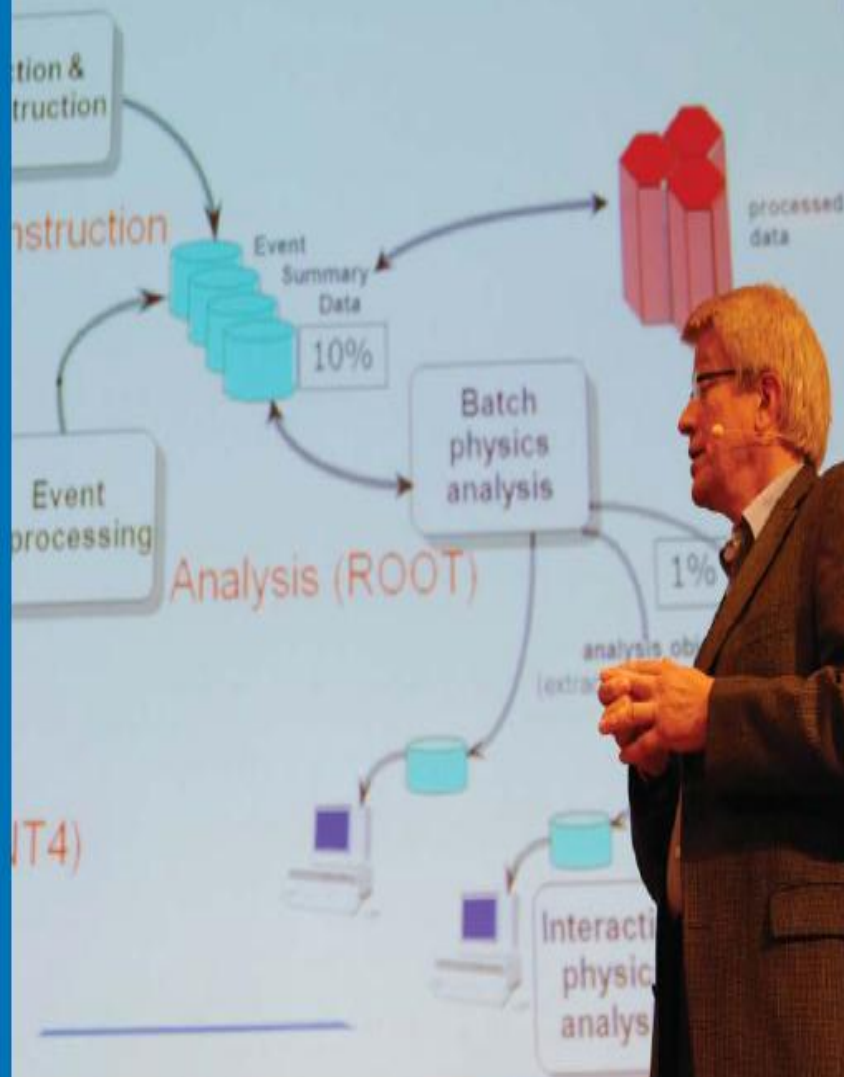
Publication of

**technical papers and posters**

**Keynote presentations**

at leading global events

# Data Handling and Computation for Physics Analysis





# CERN Communication Context in Figures



- Visits Service: 85,000 visitors in 2012 (compared to 75,000 in 2011, 58,000 in 2010, 40,000 in 2009 and 25,000 in 2008) and still many more requests
- Permanent exhibition ('Universe of Particles' in the Globe for Science and Innovation): around 62,000 visitors in 2012 (+20% compared to 2011 with 52,000 visitors)
- Total of 169 protocol visits in 2012 (282 VIP visits with Head of States, Ministers, etc. in 2010 + 2011)
- Teachers Programme: 1045 in 2012 (1112 in 2011, 984 in 2010, 830 participants in 2009): limit of present capacity...
- Journalists visiting CERN and interviewing CERN physicists all year-long





# 4<sup>th</sup> July Announcement Coverage



- The webcast of the Higgs seminar had almost **500,000 single IP connections** – with a record 60,500 IPs connected at once. CERN also provided 150 scientific institutes – with an estimated audience of 10,000 people – with a special HD connection to the webcast, and a video conference connection to the 700 physicists present in Melbourne for the ICHEP conference.
- Video footage was used by **1,034 TV stations** and **5,016 news programmes** (compared to 550 TV stations and 3,500 news programmes in 2008, for the inauguration of the LHC):.

**An estimate of 1 billion viewers worldwide!**

- The extreme demands from CERN's scientific programme
- The alignment of goals between partners
- Trust
- Young researchers with their talents, expertise and energy
- Efficient and lightweight structure
- Regular checkpoints/reviews
- Outreach/communications

Unique **testing environment** in terms of scale and complexity

Engagement of multi-disciplinary **CERN experts** collaborating on joint projects

Association with the **world's leading innovators** in the IT industry

**Dissemination of positive results** as success stories to a wide range of audiences via conference presentations, whitepapers, website, etc.

On-site **visits**

Access to CERN **complex IT infrastructure** and engineering experience

- **Three categories of Sponsors of the CERN openlab**
  - Partner                      3 years engagement
  - Contributor                1 year engagement
  - Associate                  1 year in-kind engagement
  
- openlab activity is decoupled from CERN's procurement process
- A separate agreement and an NDA is signed between CERN and each Sponsor

- **HP:** WIND facility improves day-to-day operations and reduces the time to diagnose wifi network problems. Start of ViSION project for SDN
- **Intel:** work on the Xeon Phi co-processor disseminated to the physics community, which is now porting software; ~350 participants trained in 10 workshops
- **Oracle:** reproduced physics analysis (HZ->bll), lot of Oracle 12 advances (currently under NDA)
- **Siemens:** adaption of industrial control systems to better resist cyber-attacks, progress on Oracle Storage plugin for archiving, upgrade of SCADA system (WinCC OA 3.11) for LHC long shutdown
- **Huawei:** tests showed the cluster of 384 drives with low power processors could support 336 concurrent clients performing 18,000/s file downloads and 1,400/s uploads
- **Training and communication**
  - 15 summer students with intense 2 month programme
  - published 17 reports, 25 presentations, organised 11 workshops



# ICE-DIP: Intel CERN European - Doctorate Industrial Program

The project starts today: CERN will recruit the **5 PhD students** on 3 year fellowship contracts in autumn 2013

Each PhD student will be **seconded to Intel for 18 months**

Will work with **LHC experiments** on future upgrade research themes:

- usage of many-core processors for data acquisition
- future optical interconnect technologies
- reconfigurable logic
- data acquisition networks

**Associate partners:** Nat. Univ. Ireland Maynooth & Dublin City Univ. (recruits will be enrolled in PhD programmes), Xena Networks (SME, Denmark)

EC funding: ~ €1.25 million over 4 years

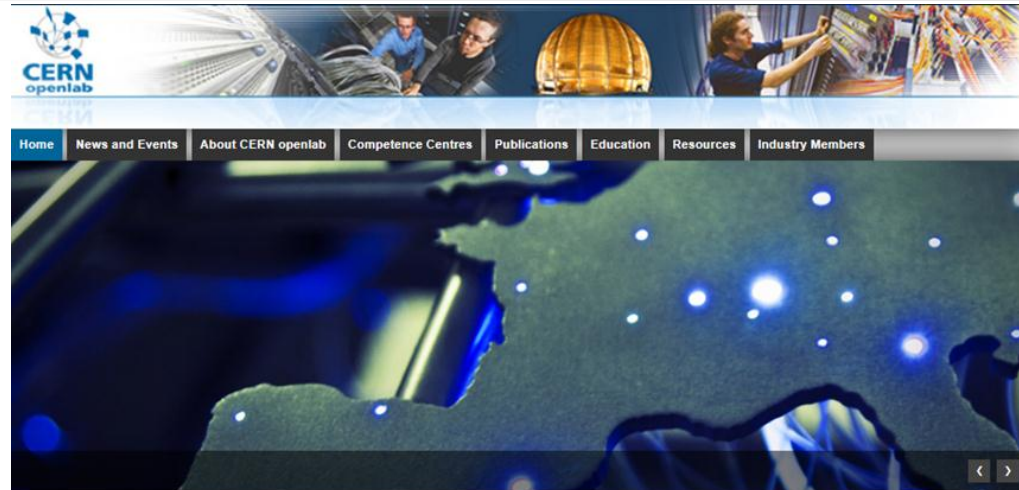


# BIG DATA Marie Curie proposal submitted

- Multi-partner network coordinated by CERN including openlab partners and EIROforum research labs
    - Recruiting partners: **CERN**, **XFEL** - European X-Ray Laser Project , **EFDA** - European Fusion Development Agreement, **ESRF** - European Synchrotron Radiation facility, **ILL** - Institut Laue-Langevin (Neutron science), **ORACLE**, **Siemens**
    - Secondment hosts: ESA – European Space Agency, D-TACQ (UK SME), Intel, iSencia (Belgian SME), HP
    - PhD universities: Dublin City Univ (Ireland), Ludwig Maximilian Univ of Munich (Germany), Nat. Univ Ireland, Tessella Ltd (UK SME)
  - Theme BIG DATA acquisition, analysis, storage, distribution and access
  - Recruit 13 PhD students for 3 yrs (and one senior researcher for 2 yrs)
    - Recruits will share time between two research labs and one company via secondments
  - Expect feedback from the evaluation of proposal by the EC in April 2013
-

- A win-win public-private partnership between research and industry
- Proven track record of success for partner companies and CERN with excellent return on investment
- Future prospects
  - CERN's ambitious scientific programme
  - Greater use of commercial components
  - Engagement of the partners
  - A growing network of industrial partners and research labs

# More information available via the website



## Upcoming Events

### Major Review

31/01/2013 (All day)  
The meeting includes updates on the technical progress of ongoing CERN openlab projects, the activities of the various competence centers, and reports on management and communication activities. More details can be found on the Indico page.

### openlab Board of Sponsors 2013

14/05/2013 (All day) to 15/05/2013 (All day)

[more](#)

CERN openlab is a unique public-private partnership between CERN and leading ICT companies. Its mission is to accelerate the development of cutting-edge solutions to be used by the worldwide LHC community.

[read more](#)

## Latest News

24 Jan 2013 [The CERN openlab summer student programme invites 2013 applications!](#)



[Read more...](#)

6 Dec 2012 [New report published by the Platform Competence Centre on the Intel 4 socket Sandy Bridge-EP server processor](#)



[Read more...](#)

6 Dec 2012 [When Big Science meets Big Data](#)

Bob Jones, Head of CERN...



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[more openlab news...](#)

## Industry Members

### Partners



ORACLE

SIEMENS

### Associates



[www.cern.ch/openlab](http://www.cern.ch/openlab)