

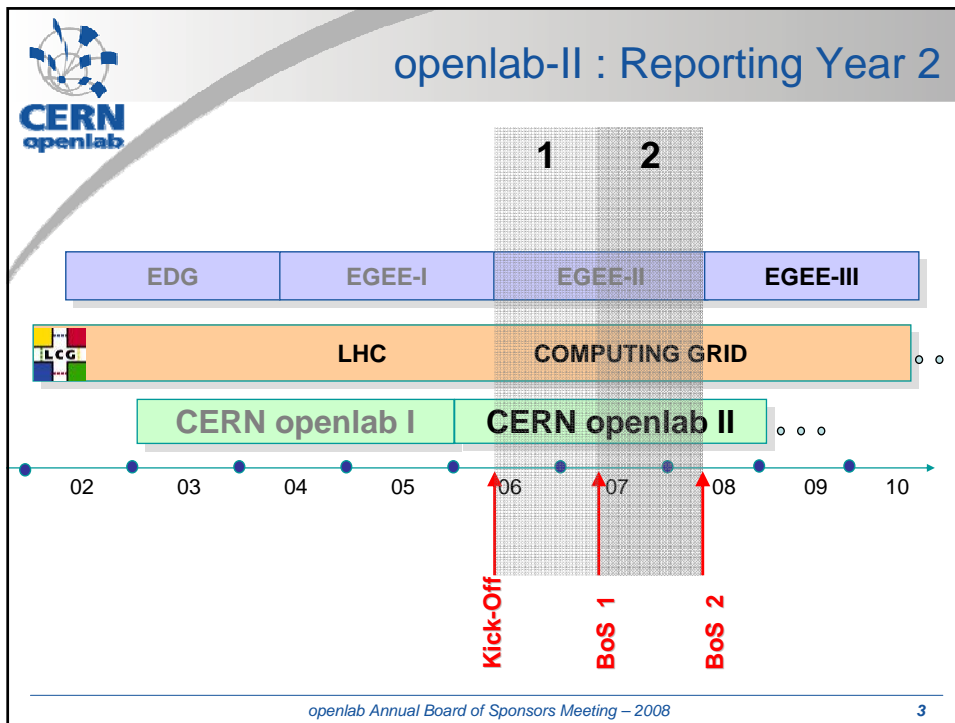


**Board of  
Sponsors  
meeting  
2008**

CERN openlab  
Overall Status  
2007-2008



François Fluckiger  
openlab Manager



**Partnership principles**

**The partnership framework**

openlab framework

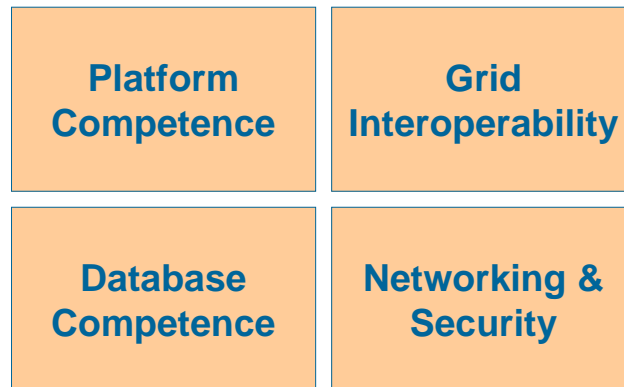
- **Partner** commitment
  - 3 years
  - Contributions: mix of
    - In-kind (HW, SW, services)
    - In-cash (in general for fellows)
- **Contributor** commitment
  - 1 year
  - Lower level

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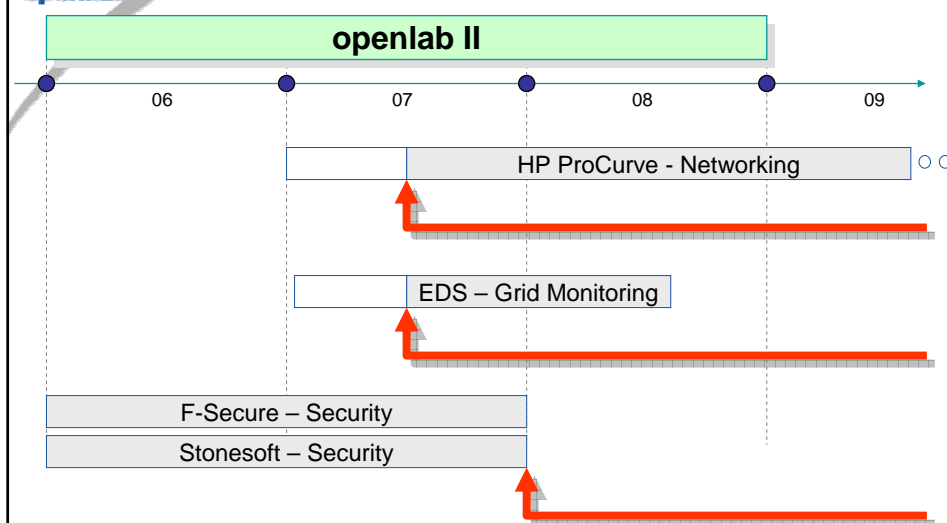


## Current activities

- Four domains of technical activities





## Partnership update






**CERN openlab**

## Partnerships in 2008





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

**PARTNERS**

**CONTRIBUTORS**



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**CERN openlab**

## Partnerships in 2008

Partn.	HP HP ProCurve	Grid Interoperability Platform Competence Networking
	Intel	Platform Competence Networking
	Oracle	Database Competence
Contr.	EDS	Grid Interoperability

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## Key Achievements (non-technical)

- **Consortium**
  - Integration of new member
  - Preparatory work for **openlab III**
- **Team**
  - Creation of solid renewed team
  - An increased global, **transversal** effort
- **Management**
  - Consolidation of new **review** procedures
- **Communication**
  - Rich series of events, publications, exposure



## Welcome to the new members\*

- Significant progress on traffic analysis with **HP-ProCurve**
- Impressive first outcome on Grid Monitoring with **EDS**

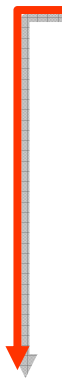
\* More on technical achievements in Partners' and S. Jarp's presentations



## Contributions in openlab II

### ▪ From Partners / Contributors

- Target is a **balanced** contribution
  - 50% in kind
  - 50% in cash  
(essentially for manpower to the technical programme)



openlab II



## openlab Technical Team in year 2

Personnel	Hired last year	Total
Partner-sponsored Fellow	3	7
Partner-sponsored Staff	1	3
Marie-Curie Fellow	-	1
Technical Student	1	1
<b>Total</b>	<b>5</b>	<b>12</b>





## openlab Technical Team in year 2

### CERN openlab Staff and Fellows 12

- Gyorgy Balazs Student (CERN)
- Havard Bjerke Fellow (Intel)
- Daniel Filipe Fellow (EDS)
- Xavier Gréhant Fellow (HP)
- Milosz Hulboj Fellow (ProCurve)
- Ryszard Jurga Staff (ProCurve)
- Andreas Hirstius Staff (Intel)
- Andrzej Nowak Fellow (EU/CERN)
- Eva Dafonte Perez Staff (Oracle)
- José M. D. Perez Fellow (HP)
- Anton Topurov Fellow (Oracle)
- Dawid Wojcik Fellow (Oracle)



## Contributions in openlab II

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



openlab II



## CERN manpower contribution in year 2

Role	People involved*
<b>Technical</b> (manpower and supervision)	12
<b>Management and Communication</b>	3
<b>Total</b>	<b>15</b>

\* Part time



## CERN manpower contribution in year 2



\* Part time

### IT Department staff involved\* **15**

- Ian Bird LCG Group leader
- Dirk Düllman PSS group
- François Flückiger openlab Manager
- David Foster CS group leader
- Maria Girone PSS group
- Eric Grancher DES group
- François Grey Comm. Team
- Denise Heagerty Security section
- Sverre Jarp openlab CTO
- J-M Jouanigot CS group
- Mats Möller DES group leader
- Alberto Pace DM Group leader
- Severine Pizzera Admin. Assistance
- Markus Schulz GD Group leader
- Jamie Shiers GS Group leader





## IT Department Groups

IT Groups		
1	Administrative Information Services (AIS)	Reinoud Martens
2	Communication Systems (CS)	David Foster
3	Controls (CO)	Wayne Salter
4	Database and Engineering Services (DES)	Mats Moller
5	Department Infrastructure (DI)	Alan Silverman
6	Data Management (DM)	Alberto Pace
7	EGEE Project (EGE)	Bob Jones
8	Fabric Infrastructure and Operations (FIO)	Tony Cass
9	Grid Deployment (GD)	Markus Schulz
10	Grid Support (GS)	Jamie Shiers
11	Internet Services (IS)	Christian Isnard
12	LCG Project, includes ARDA (LCG)	Ian Bird
13	User and Document Services (UDS)	Tim Smith

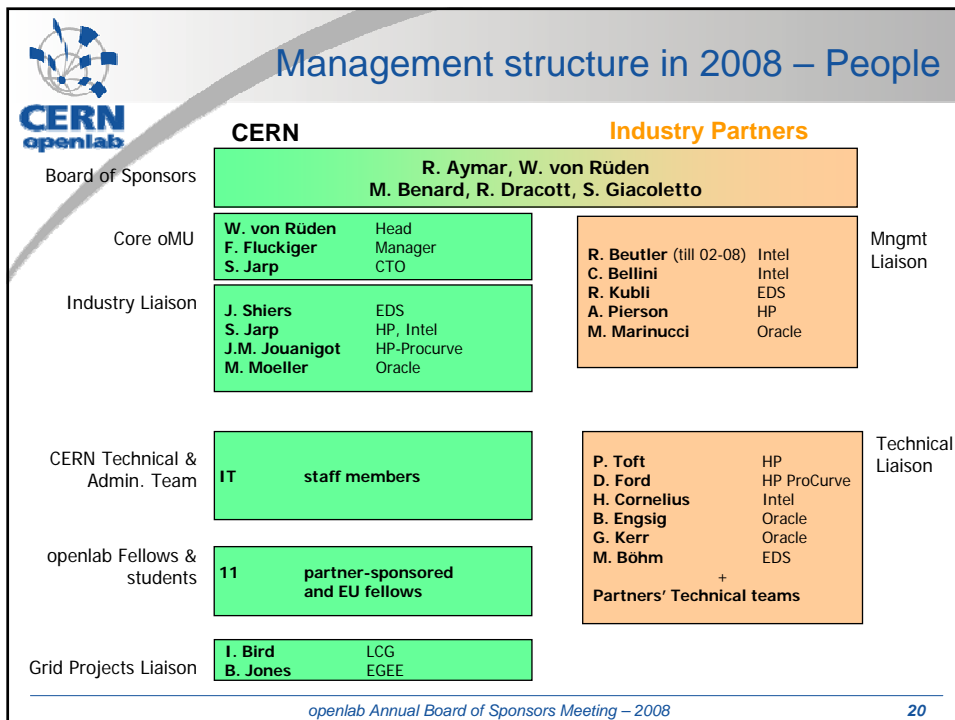
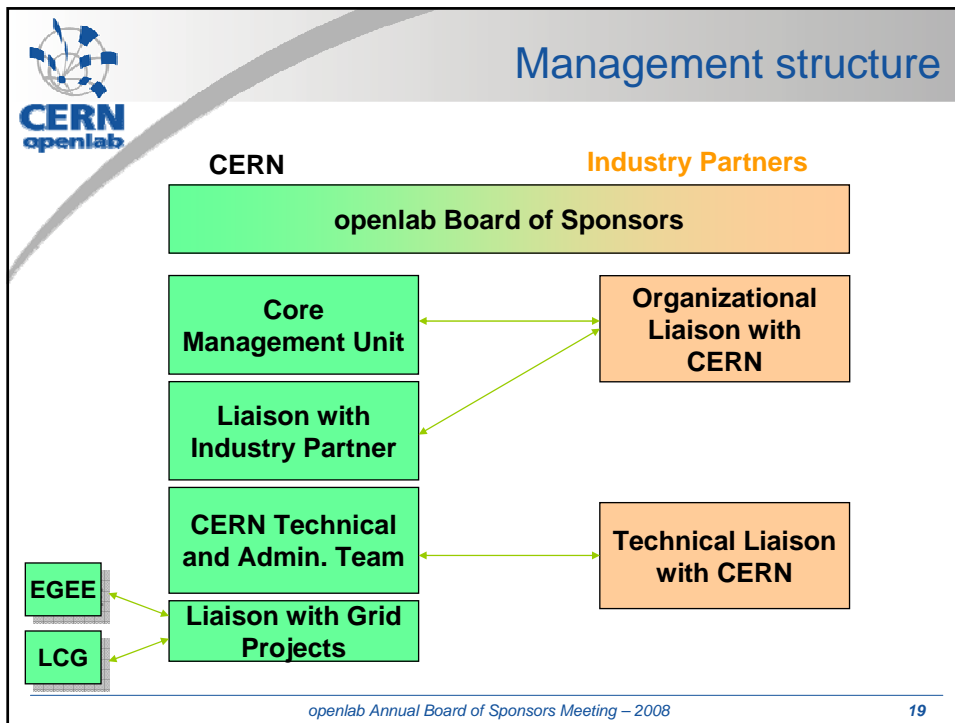


## IT Department Groups involved in openlab

IT Groups		
1	<b>Administrative Information Services (AIS)</b>	Reinoud Martens
2	<b>Communication Systems (CS)</b>	<b>David Foster</b>
3	Controls (CO)	Wayne Salter
4	<b>Database and Engineering Services (DES)</b>	<b>Mats Moller</b>
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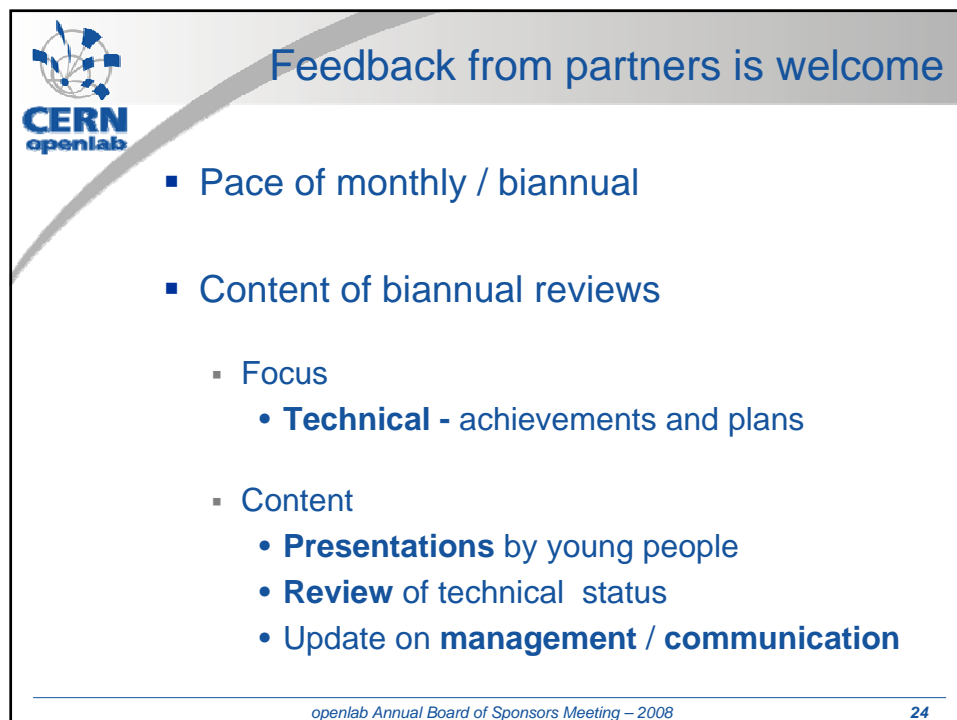
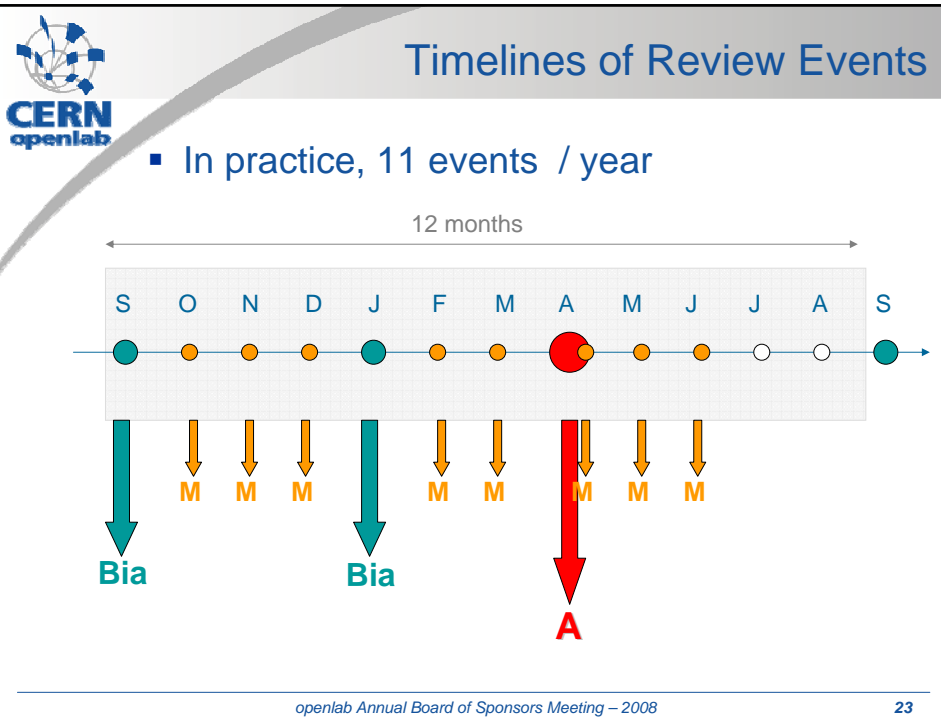
**11 Groups**

**7 Group leaders**



- After consulting partners, **version 6** of the **openlab Guiding Principles** was released
  - Document explains the rationale and the **common** foundation of the openlab partnerships
  - Referenced in some contractual agreements
  - Document is public
  
- **Changes from V5**
  - Update of sections referring to openlab or LHC technical status
  - Update section on contributors and BoS meeting
  - Mention the progress review mechanisms set up in openlab II

- In place since fall 2006
  
- Two-level mechanisms
  - **Monthly** technical progress meetings
  - **Biannual** review meetings
  
- Mechanisms flexible / adaptable





## Education – Summer student program - 2007

- Launched in 2002 by **F. Grey**
  - for undergraduate, Masters and Ph.D. students to get hands-on experience
- 2007:
  - **25** students, from Europe, Canada, Brazil
  - Several students co-funded by **three** openlab partners
- **Dedicated lecture series for the students**

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## Education – Summer Lecture series

### CERN openlab student programme lecture series July-August 2007

- Lecture 1: **Server hardware,** A. Hirstius/CERN
- Lecture 2: **Linux kernel,** J. Iven/CERN
- Lecture 3: **Oracle RDBMS,** B. Engsig/Oracle
- Lecture 4: **Computer Security,** S. Lopienski/CERN
- Lecture 5: **Compilers,** L. Pollock/ U. Delaware
- Lecture 6: **Benchmarking,** S.Jarp/CERN
- Lecture 7: **Networking,** M. Swany/ U. Delaware
- Lecture 8: **Virtualization,** H.Bjerke/CERN
- Lecture 9: **LCG,** L. Poncet/CERN
- Lecture 10: **gLite,** M. Schulz/CERN

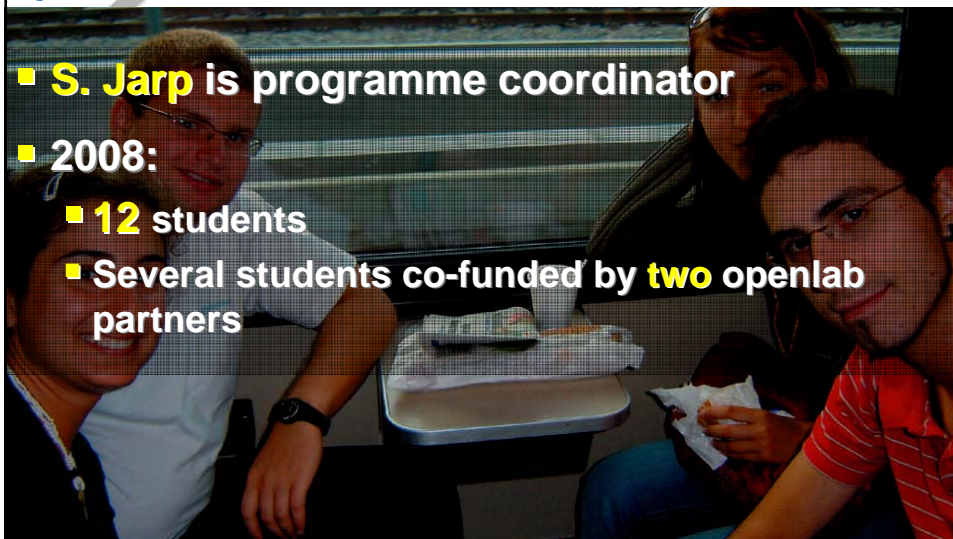
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## Education – Summer student program - 2008

- **S. Jarp** is programme coordinator
- **2008:**
  - **12** students
  - Several students co-funded by **two** openlab partners



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## Education – Thematic workshops

New Last year

- openlab started a strong education programme based on **thematic workshops**
  - for CERN staff, LHC experiments participants
  - on critical topics
- **Two** workshop series started in **2007**
  - heavily over-subscribed each
- Programme will continue in **2008**

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## Education – Thematic workshops

### 1. Multithreading

- Two sessions organized
- One day of **lectures**, one day of **exercises**
- Five lecturers, two from **Intel**, three from CERN

### 2. Computer Architecture and Performance Tuning

- One session
- Tutorial

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## Education – CERN School of Computing 2008

**Gjovik, Norway**

- New series (lectures + hand-on) on **Computer Architecture and Performance Tuning**

- S. Jarp, A. Nowak, openlab

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## Events and outreach highlights

- **ProCurve Networking for HP Press Event, CERN, 11 September 2007**  
*Introduction to CERN openlab as part of product launch event*
- **Oracle, 11g launch, 12 September 2007**  
*CERN Oracle Database 11g launch Innovate Faster held at CERN*
- **Oracle OpenWorld, San Francisco, October 2007**  
*CERN participation in Intel CEO keynote speech, CERN presentations*



## Events and outreach highlights (cont)

- **Intel Customer Visit, CERN, 14 November 2007**  
*Tour of CERN and review of CERN openlab results for Intel corporate customers*
- **First event on Computing for Finance, 21 November 2007, CERN**  
*Joint public event by CERN openlab and EGEE, featuring speakers from banking and financial services sectors*
- **CERN-Oracle Event, 18 December 2007, CERN**  
*Joint Oracle-CERN meeting and celebratory event to mark 25 years of collaboration*
- **From R&D to Innovation: Future Business Opportunities, 6 February 2008**  
*Oracle VIP conference and roundtable discussion held at CERN*





## Publications and presentations

### Presentations

- **X. Grehant and I. Demeure**, SmartDomains, 2<sup>nd</sup> authoring workshop, EuroSys 2007, Lisbon, Portugal, March 2007
- **J.M. Dana**, CERN Snippets Dissected, Gelato ICE '07, San Jose, California, USA, April 15-18 2007
- **J.M. Dana**, Tycoon market-based system: integration with EGEE, 2nd EGEE User Forum, Manchester, UK, May 9-11 2007
- **X. Grehant**, SmartDomains, Invited talk for Kite Special Interest Group in Virtualization, London, September 2007
- **J.M. Dana**, An update on HP's Tycoon at CERN: integration with EGEE, EGEE '07 Conference, Budapest, Hungary, 1-5 October 2007
- **J.M. Dana**, Tycoon @ CERN, Distributed Computing Workshop, London (UK) May 21, 2008
- **Sverre Jarp**, Gelato Many-Core Workshop, Shanghai China / Fudan University, March 27-28
- **Sverre Jarp**, CERN PH/SFT Many-Core Workshop, CERN, April 14<sup>th</sup>
- **M. Böhm and R. Kubli**, Visualizing the State of the Grid with GridMaps, EGEE7 Conference, Budapest, Hungary. October 2007
- **E. Grancher, A. Topurov**, Real life experiences of RAC scalability with a 6 node cluster, UK Oracle User Group Conference, Birmingham, UK, December 2007
- **C. Lambert**, EM10g implementation at CERN, Oracle Enterprise Manager User Group, Munich, Germany, June 2007
- **L.M. López, C. Lambert**, OOW, Securing CERN Oracle Databases using Grid Control, Oracle OpenWorld, San Francisco, USA, November 2007



## Publications and presentations

### Posters

- **X. Grehant, J.M. Dana, and H. Bjerke**, Grid and Virtualization Experience in CERN openlab, EuroSys 2007, Lisbon, March 2007
- **E. Grancher, A. Topurov**, Oracle RAC (Real Application Cluster) application scalability, CHEP07, Vancouver, Canada, September 2007



## Publications and presentations

### Publications

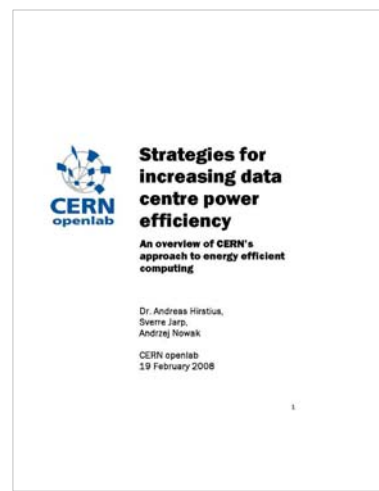
- **X. Grehant, O. Pernet, S. Jarp, I. Demeure and P. Toft**, Xen Management with SmartFrog, VHPC'07, August 2007
- **H. K. F. Bjerke, D. Shiyachki, Andreas Unterkircher, Irfan Habib**, Tools and Techniques for Managing Virtual, Machine Images, submitted to 3rd Workshop on Virtualization in High-Performance Cluster and GridComputing (VHPC '08)
- **M. Girone, J. Wojcieszuk, D. Wojcik, G. Kerr**, Cross-Platform Database Migration with Oracle Data Guard: a CERN Case Study, Oracle Technology Network, October 2007
- **A. Nowak**, openlab/Intel workshop offers programmers multicore training, CERN Computer Newsletter, September 2007
- **M. Böhm and R. Kubli**, Link of the week - Visualizing the state of your grid with GridMaps, ISGTW, October 2006; CNL, November 2007
- **A. Dechert**, IT-Service Management at CERN and How It Can Be Improved by the Usage of Oracle Enterprise Manager, Diploma Thesis, Karlsruhe University of Applied Sciences 2008



## Publications and presentations

### CERN openlab Reports

- **A. Hirstius, S. Jarp, A. Nowak**, Strategies for increasing data centre power efficiency - An overview of CERN's approach to energy efficient computing, February 2008
- **X. Grehant and J.M. Dana**, Providing Virtual Execution Environments: a Twofold Illustration, May 2007
- **M. M. Hulboj and R. Erazm Jurga**, Packet Sampling for Network Monitoring, December 2007

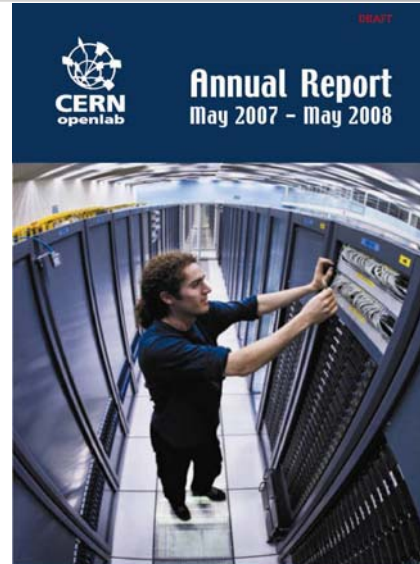




## Annual Report

- Draft version available
- Comments welcome by the **15<sup>th</sup> of May**

To  
[francois.fluckiger@cern.ch](mailto:francois.fluckiger@cern.ch)  
and  
[francois.grey@cern.ch](mailto:francois.grey@cern.ch)



## Conclusion on year 2

### Excerpt from the openlab Annual Report foreword by R. Aymar:

*“The synergy that CERN openlab creates with leading IT companies is vital, as the long-term future of Grid computing will surely depend on a broad commercial adoption of the technology, just as the hardware currently in CERN’s computer centre now relies heavily on advances made for the commodity market.*

*I therefore thank all CERN openlab partners and contributors for their continued support of our joint effort.”*



**Thank you**