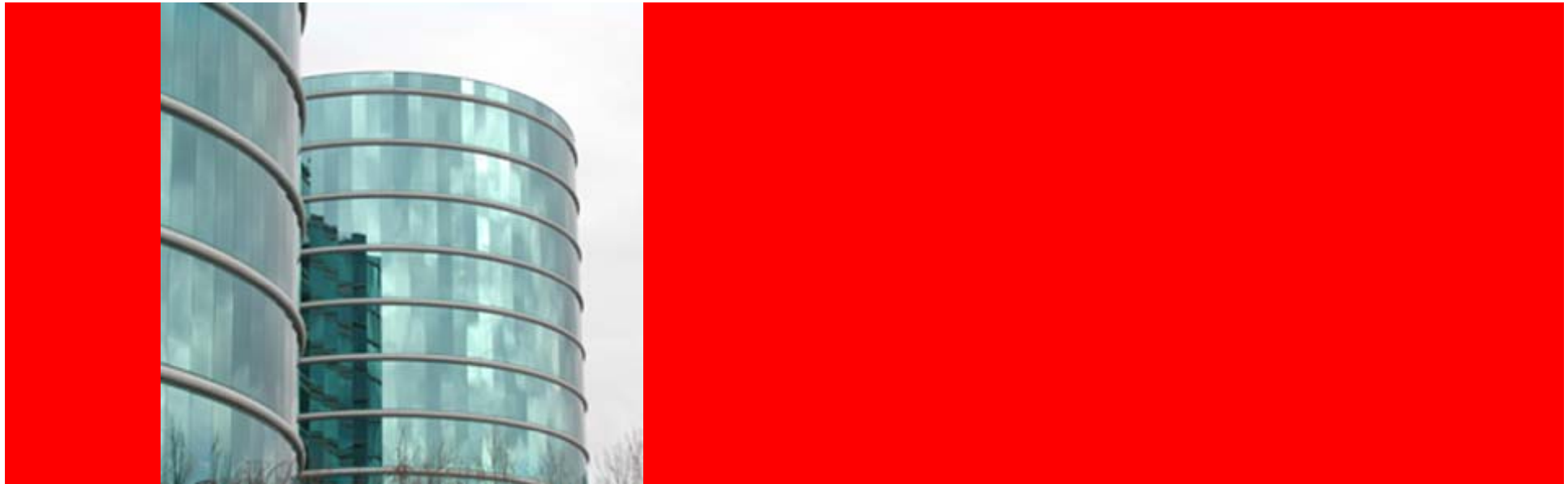


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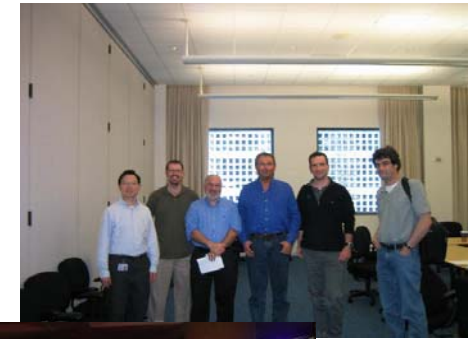
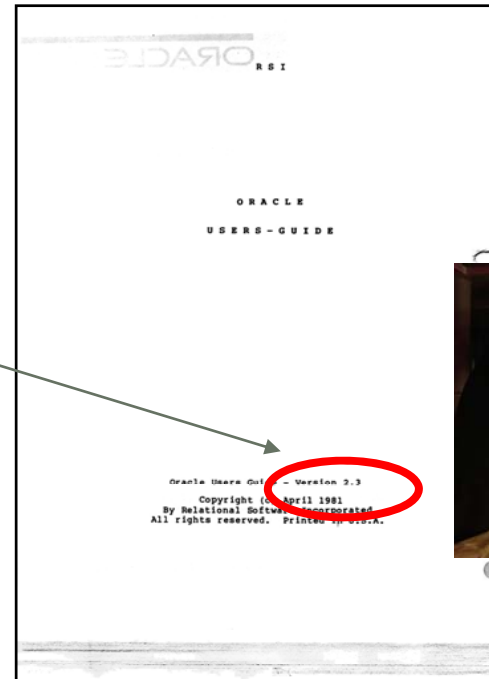
When Research meets Industry

Stéphane Rousset
Senior Vice-President, Oracle EMEA

LHC Grid Fest, Oct 3rd 2008

26 years of collaboration

- 1982: Oracle 2.3 introduced at CERN
- 1990's:
 - More OO approach for Physics applications
 - Commodity HW (Linux)
 - High Availability
- 2003 & the openlab era
 - GRID and the LHC Computing Grid



The LHC Data Challenge

- 15 Petabytes per year
- Worldwide access & distribution
- Over 10+ years of life of LHC

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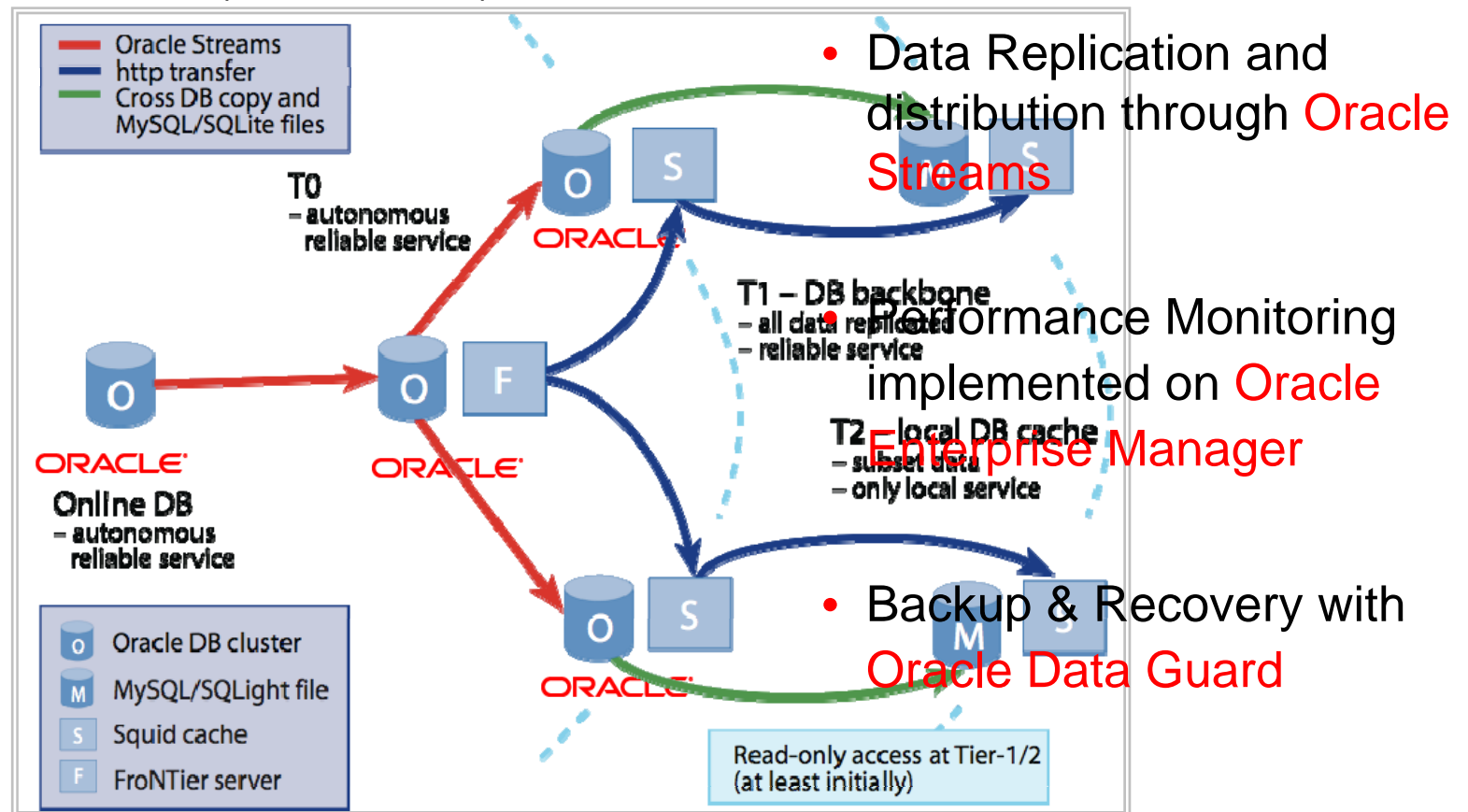
Oracle Grid Technology

- Environment**
- To allow resources sharing, maximum availability and location independency
 - ~280 Database Servers
 - ~600 TB Raw Data Storage
 - RedHat Linux
 - 41 Production Clusters
 - 24x7 Availability
- High Availability, Scalability, Flexibility**
- Oracle Real Application Cluster (RAC)
 - Oracle Enterprise Manager (OEM)
 - Oracle Automated Storage Management (ASM)
 - Oracle Data Guard

LCG Distributed Deployment of Databases (3D) Project

- A worldwide distributed database infrastructure for LHC

- Around 120 RAC nodes = 450 CPU cores at CERN
- Several tens of nodes at 10 T1 partner sites are in production now



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... and more!

- Alpha and Beta Testing

- Oracle 11g
- Oracle Enterprise Manager
- Oracle Streams
- New products

- Benchmarking

- Performance & Tuning

- PVSS
 - Commercial SCADA application, critical for LHC and experiments
 - Archiving in Oracle Database
 - Tuning Results:
moving from **100** “changes” per second to CERN needs **150 000** changes per second

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DATABASE 11^g

ORACLE®
DATABASE
ENTERPRISE EDITION

ORACLE®
ENTERPRISE MANAGER

ORACLE®
REAL APPLICATION
CLUSTERS

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Business Impact

- Technology

- Software enhancements
- Software testing
- Creating new Oracle experts (OCP)



- Customers Interaction

- Customers Advisory Boards
- Reference Calls and Visits
- Best practices



- *From R&D to Innovation: Future Business Opportunities* event

(Feb.2008)

- Opportunities 50 senior leaders from customers, partners, business schools, European Commission
- Round Table on issues preventing optimal interaction between Industry and Science/Academia

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CERN-Oracle Partnership

- Long-term
- Trust
- Openness

- **CERN openlab is the right framework**





ORACLE IS THE **INFORMATION** COMPANY