Kerlabs :
OS for an efficient cluster

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## www.kerlabs.com

Kerrighed
Linux clusters made easy

INRIA
RENNES

- Part of the HPC INRIA Rennes research project (PARIS project lead by T. Priol)
  - Research in OS for cluster started in 1999 (C. Morin)
- 3 PhDs, several engineers
- Industrial funds from EDF R&D, DGA.
  - > 20 years of engineer
- Part of the XtreemOS european project (www.xtreemos.org).

- How to provide an easy way to handle your cluster:
    - Replace your set of nodes by one unique machine
    - Keep your legacy application unmodified

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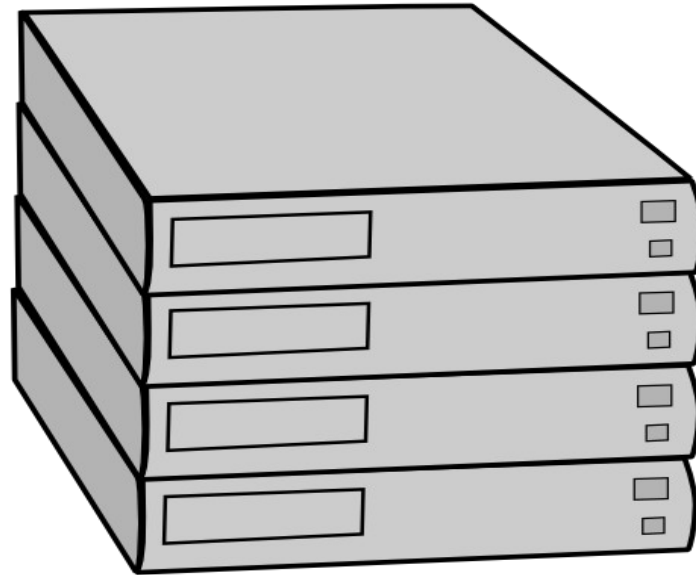
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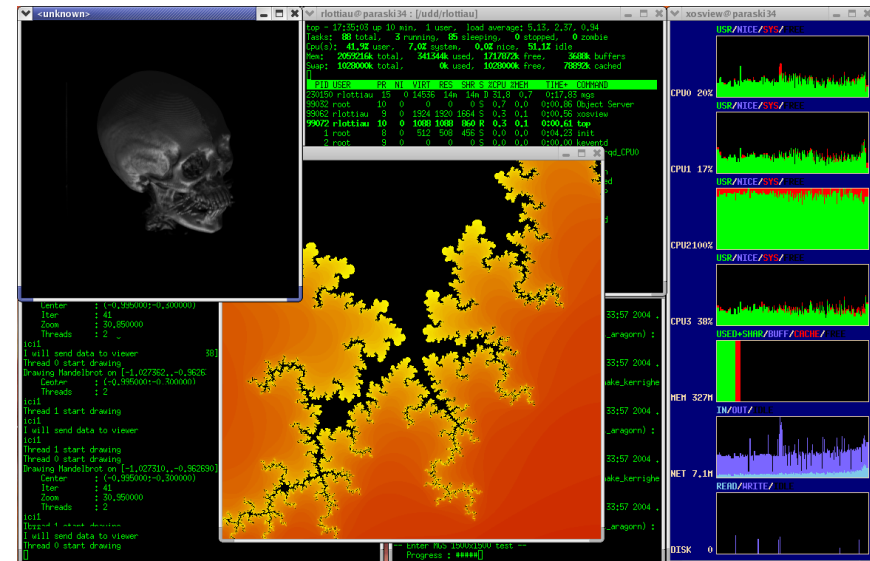
Kerrighed : OS for Linux cluster

- Virtual SMP over Clusters
    - Single process space
    - Single file space
    - Single memory space

- Customizable Global Process Scheduler

- Supports Parallel Programming

- Supports Process Checkpointing

Kerrighed in action

Kerrighed: current status

- Current version based on Linux Kernel 2.6.11

- Open source project under GPL licence (www.kerrighed.org)

- Available as an official OSCAR package (ssi-oscar.irisa.fr)

- Easy test with the Knoppix-based Kerrighed Live-CD

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- Kerlabs is a software editor company

- Our activities:
  - to drive and to develop the core-GPL infrastructure
    - to stimulate the current community
  - to design and to sell proprietary modules
    - support to specific network technology...
  - to provide high-level support around cluster and Kerrighed

Software editor (GPL)

Software support

Dedicated code

- Licenses
- Support (3-4)

Kerlabs

- Licenses
- Support (1-4)
- Specific code

Integrator

- Licenses
- Support (1-4)

Clients
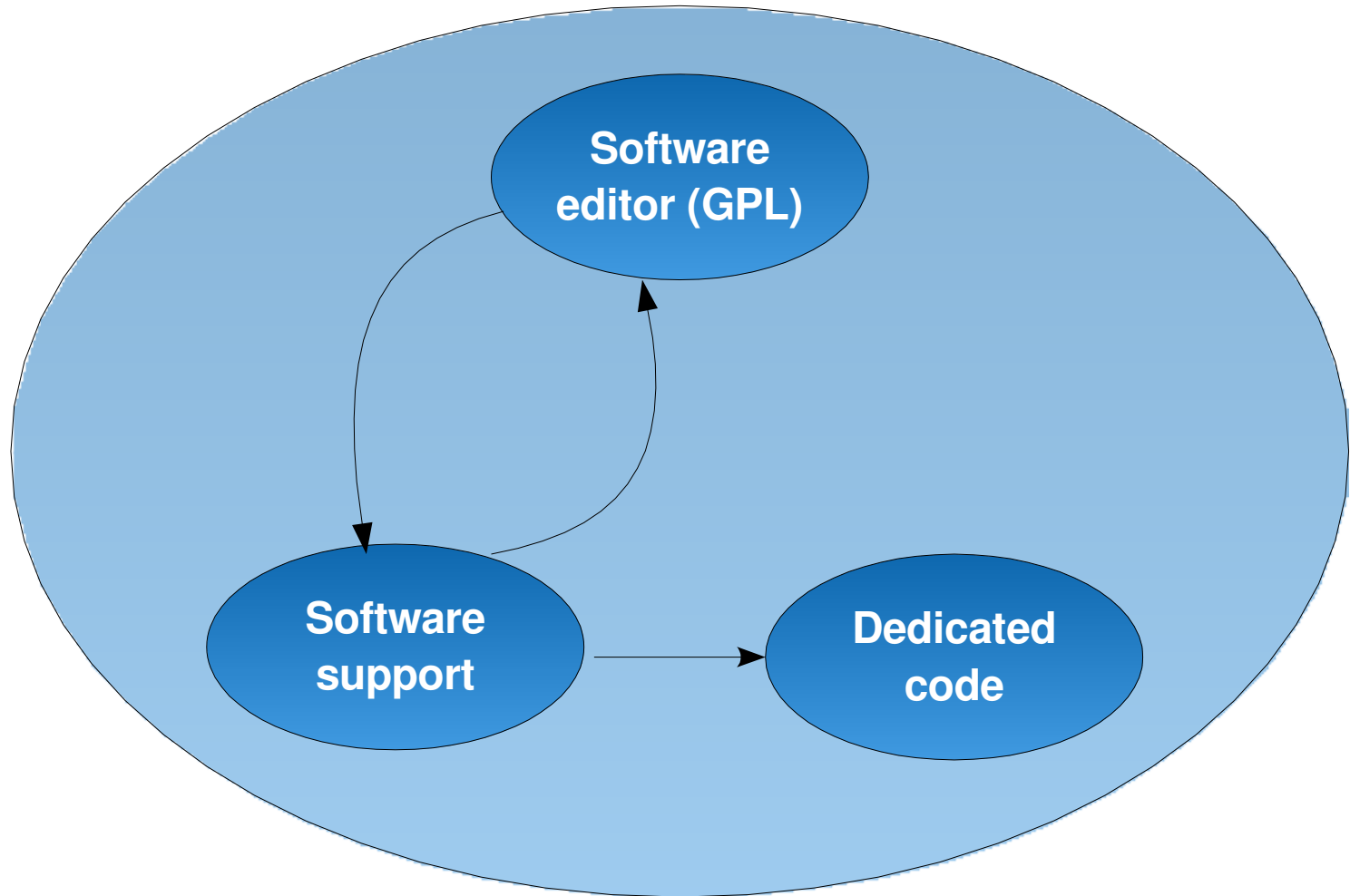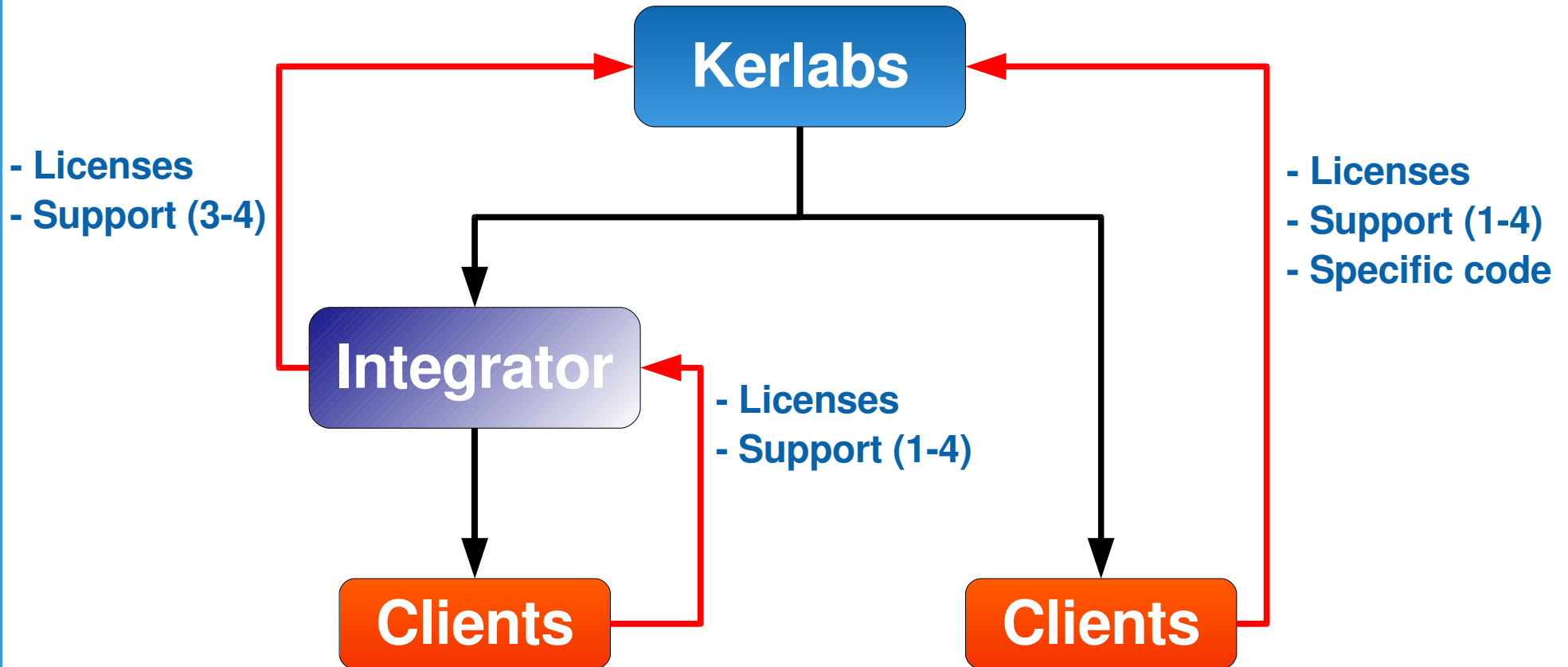
Clients

- SuperComputing 2004: first full featured version
  - Very good feedback of industrial public
  - INRIA can't provide any commercial support to Kerrighed

- End of our contract in november 2005
  - start to receive job-proposal
  - The design team will be destroyed

- Why not to create our own company ?

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- Because it's a GPL software!

- Because we are technical people!

- Because we don't have the very first euros needed to start a company !
  - We need offices, computers, business training...

- Because we are not in US...

One problem = One solution

- Problem with the GPL ?
  - Learn from Adacore, Mysql Corp, Troll Tech, etc.

We have to sell our knowledge, not only the code

- Incomplete skills in our team ?
  - Discuss with other startup in the lab

We need to add an enterprise manager to our team

- Need offices, machines, etc...
  - Ask INRIA to help us

We need to get the status of «   INRIA spinoff   »

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- Collaboration between
  - INRIA Rennes (1 dedicated project consultant)
  - Rennes Atalantes (Emergys: 2 dedicated project consultants)
  - Myself (as the leader of the company)

- INRIA allows us to use some of its ressources (mainly offices, computers)
- Rennes Atalantes
  - provides fund for lawyers, marketing studies, etc.
  - organises meeting and training in order to develop our skills
- Kerlabs works on the developpement of Kerrighed

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- No capital risk in France
- Only « development » capital
  - need a validated market
  - need a validated product
  - need some early-customers

- We need a validated project in order to start a company
- Thanks to INRIA to provide the validation

- We will be monitored 5 years by Rennes Atalantes

- Take benefit of INRIA-Transfert consulting services
  - mainly in order to have new industrial/academic contacts

- INRIA scientific collaboration
  - Creation of a « scientific board » in the company
    - T. Priol, C. Morin
  - continue the transfert to industrie of technologies around Kerrighed

- 4 co-founders
  - 3 persons from the Kerrighed teams
    - Pascal Gallard (Communication / HA designer)
    - Renaud Lottiaux (memory and filesystem designer)
    - Louis Rilling (worked on the global scheduling management)
  - 1 enterprise manager

- Expect to start our activity in september

Our products roadmap

- Release our first product for SuperComputing'06
    - Architecture to manage/supervise processes in a cluster
    - basic add/delete resources mecanisms in the cluster
    - Framework for HPC applications
- 2007
    - full HPC applications support
    - full dynamic resources management
    - Server (database and web) support
- 2008
    - Architecture for highly-available applications

- Every year, one or two new startups at INRIA Rennes
- This framework is quite efficiant
- People in the spinoff-process are really committed to their job

- Looks like they were just waiting for us to decide...

- Increase of my skills in project management (in any cases, good for my CV)

Wellcome on our website
http://www.kerlabs.com