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The "**Pôle informatique**" (hereafter called "PI") is constituted of 8 engineers (1T, 4IE, 3IR). Our activities are distributed among three main directions:
computing and storage
infrastructure management (shared resources, and invidual equipment), software and service
development
and
data analysis
in molecular biology and ecology.

Infrastructures managment

- **Microcomputing**: the PI is in charge of managing the laboratory's microcomputer equipment, from choosing the most appropriate solution in consultation with the future user to managing maintenance, including installation and configuration of the equipment.
- **Laboratory Information System**: the PI provides laboratory and community members with a number of services, including several web servers (apache), numerous database servers (relational or indexed) and several collaborative tools (Git, Redmine, Seafile...). These services are hosted on largely virtualized machines.



- **Compute and storage**: since 2009, the PI manages a computing cluster with almost 1200 avalaible computing cores. The cluster is linked to a 250 TB high performing distributed storage system under BeeGFS and an object mode storage based on iRods (~300 useful TB).
- **Cloud and containerization**: cloud-girofle (224 vcpu and 120 To), the local cloud operated by the PI since 2017, is part of the Biosphere cloud federation from the French Institute of Bioinformatics (IFB). We are starting to converge our virtualization infrastructure towards containerization technologies (docker, singularity).
- **User support**: the PI provides user support for all the resources and tools available to the laboratory's members. It trains and supports users in their use of shared resources through trainingsessions, information and monitoring meetings and mailing lists.

Software and methodological development

Members of the PI are involved in numerous software development projects in collaboration with the lab researchers, covering a large range of programming languages (R, Python, C++, OCaml, Javascript, SQL, shell). It goes from optimized parallel numerical codes to web services and dedicated databases (SQL or no-SQL). A peculiar effort is also performed to share the best practices of modern software development and make these software codes reproducible and available following the standards and requirements of the community.

Data analysis

Members of the PI are in the front line facing the data avalanche (and the data diversity) of this decade.
A large part of our activity is related to the quantity of data coming from sequencing technologies. The PI develops and proposes pipelines for genomic data assembly and annotation, RNA-seq and RAD-seq data analysis. More recently, computer image processing has become an important issue for future ecological studies performed in the lab in the Evolutionary Ecology.

Animation, training and scientific expertise

Our group has set up a series of dedicated workshops to improve internal skills in software engineering, distributed computing, programming and data analysis, which complements more formal teaching sessions. Members of the group are also involved in training activities in universities (UCBL1) and CNRS (Formation permanente).
In their respective fields, members of the PI actively monitor technological developments and participate in major events such as JOBIM (bioinfo), the JRES (system administration), the JDEV (development), the Aramis days (system and network administration and software development) and the 'Rencontres R' (programmation). The PI is also involved in dedicated networks and/or projects of national scope such as the LyonCalcul group, the RLyon group and the IFB-NNCR and IFB-Core projects.

We works in close cooperation with the bioinformatics platform PRABI (Pôle Rhône-Alpes de BioInformatique), notably for the management of the computing and storage infrastructure, the diffusion of our lab's software production, the organization of teaching sessions and for sharing expertise in genomic/transcriptomic data analysis.

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