exivity

Case study

Discover how you can meter on-site infrastructure for High-Performance Computing (HPC) clusters and automate the billing process.

IMP
Research Institute of
Molecular Pathology

Benefits Realized

By choosing Exivity, IMP covered the following needs:

- Clear and detailed overviews of consumption and costs of the HPC resources on a per-customer basis
- Reduced the waiting time to gain insights into the IT resource consumption from every 3 months to 1 day
- Full automation of the billing process, previously done manually, thus decreasing the number of FTEs involved
- Fewer errors in billing workflows resulting in minimal administrative overhead

Founded
1985

Employees
~300

Industries
Molecular and cellular biology, structural biology and biochemistry, gene expression and chromosome biology, stem cell biology and development, immunology and cancer, neuroscience

Users through their HPC cluster
~300

Customer story

The research Institute of Molecular Pathology (IMP) is a research institute located in Vienna at the Vienna Biocenter. They are doing research in the areas of molecular and cellular biology, immunology and cancer, structural biology and biochemistry and more.

Together with other institutes (Institute of Molecular Biotechnology, Gregor Mendel Institute of Molecular Plant Biology, Vienna BioCenter Core Facilities), they are using a shared IT infrastructure with around 750 users on the campus. In collaboration with the Austrian Academy of Science (ÖAW) and other universities they are also operating a High-Performance Cluster (HPC) with around 300 active users in Austria.

Challenges and needs

Working with state-of-art technologies and innovative tools, like cryo electronic microscopes, implies massive amounts of data produced on a daily basis. IMP has an impressive number of microscopes that produce data in photo and video formats, with a rate of 50 images per second. Every picture has a size of ~8MB, resulting in approximately 15TB of data per day from the microscopes alone. Apart from that, there are significant quantities of data in a text format generated by the Next Gene Sequencing. Given this, most of their infrastructure is on-site. The HPC services work like a cloud solution for the clients that need to access such scientific computing facilities and they are charged by the amount of resources they consume.

The core challenge revolved around the fact that HPC users wanted to have an overview of their consumption and costs. The HPC has become essential for numerous research groups, including some from the Vienna BioCenter itself, owning more than 200 servers running on over 7700 CPU cores and 120 GPU cards. Before IMP got help from Exivity for the HPC service, they created such numbers manually (using tools like Excel). Naturally, this process was not time-saving or efficient, not only because manual labour is tedious, but also because of the lack of automation. It resulted in data reports that were prone to errors and lacked accuracy.

Given the full automation of the billing process offered by Exivity, the wait time for receiving a summary report of the HPC services consumption has been significantly reduced: from 3 months to 1 day.
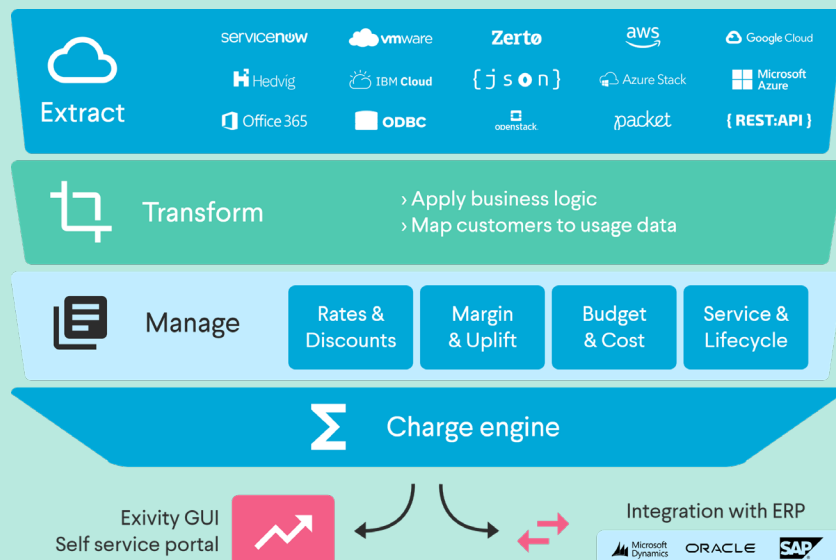
Exivity extracts data directly out of SLURM - a workload manager and scheduler for HPC clusters

Advanced Functionalities

Exivity's solution for IMP provides a full spectrum of functionalities, among which:

- Workflows: users may schedule various tasks (e.g. a data extraction step and a data normalization step) and execute them at a specific date and time.
- Budget monitoring: it is possible to create Budgets for different levels (e.g. Departments, teams) and enable notifications to inform users when a threshold has been reached.
- SAP integration: Consumption data can be handed to SAP, as Exivity supports full integration and compatibility with such systems.
- Rate adjustments: allows users to create rate and cost adjustments for services (e.g. apply Discounts).
- Automated Billing and Chargeback reports: Exivity enables customers to generate summaries of the HPC spend on a schedule, reducing manual labour.
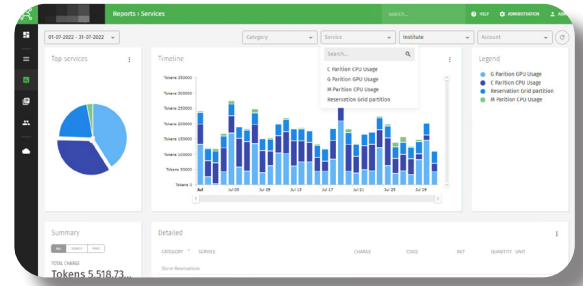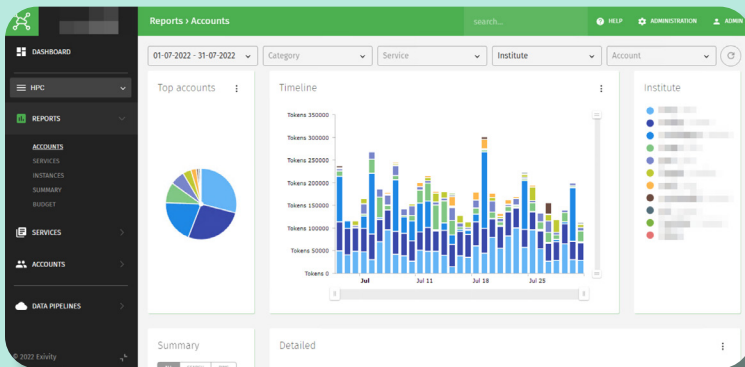
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