

LumOS Modernizes Data Management at France's CC-IN2P3 (CNRS)



Founded in 1971, France's National Institute of Nuclear and Particle Physics (CC-IN2P3) has long stood at the nexus of vision and discovery.

As a division of the French National Centre for Scientific Research (CNRS), CC-IN2P3's mission is to advance scientific research in nuclear and particle physics across France and the world.

From unraveling the nature of dark matter to designing new instruments for medical diagnostics, CC-IN2P3 is a key player in humanity's effort to better understand the universe.

Notably, the institute serves as a Tier 1 computing and storage site for CERN.

CC-IN2P3 processes and stores data from the Large Hadron Collider (LHC) — the most powerful particle accelerator ever built and the birthplace of breakthroughs such as the Higgs boson, also known as the God Particle (popularized in Dan Brown's fictional novel, *Angels & Demons*). ➔

At a Glance:

- CC-IN2P3 upgraded to LumOS to **modernize tape library infrastructure** and improve speed.
- **The LumOS REST API automates tasks** and offers visibility into tape library metrics.
- LumOS helps CC-IN2P3 manage data from **the world's most exciting scientific experiments**, including from the CERN Large Hadron Collider (LHC).



LumOS has helped CC-IN2P3 modernize our tape library management. Now, when I need to collect logs, **it takes a few seconds instead of 20 minutes.**



Pierre-Emmanuel Brinette
Mass Storage System Manager
CC-IN2P3 (CNRS)

At the center of CC-IN2P3's data storage strategy is Pierre-Emmanuel Brinette, the institution's mass storage system manager.

Brinette is not just a custodian of data.



LumOS improves the speed and usability of our tape libraries.

— Pierre-Emmanuel Brinette, CC-IN2P3

He's also a forward-thinking systems architect with a responsibility to ensure that high-stakes, high-value scientific information doesn't just sit safely on tape but also remains accessible, actionable, and secure for generations of researchers to come.

Currently, 60% of CC-IN2P3's active archive capabilities are dedicated to storing data from the LHC. For this, Brinette relies on **two nine-frame Spectra TFinity Exascale tape libraries**.

He specifically selected this product for space-efficient density and the ability to mix both LTO and Enterprise tape drives — a valuable optimization strategy to leverage the best technology now and beyond.

But even for someone with Brinette's technical fluency, such systems can only go so far without evolution.

In 2024, he became one of the first Spectra customers to upgrade to LumOS, the next-generation software powering Spectra tape libraries.

Adopting LumOS was a strategic inflection point for CC-IN2P3.

"LumOS helped CC-IN2P3 modernize the way we manage our tape libraries by improving their speed and usability," Brinette explains. The difference is tangible. Previously, pulling logs could take upwards of 20 minutes. With LumOS, the same action takes seconds.

Higher Performance, Improved Automation

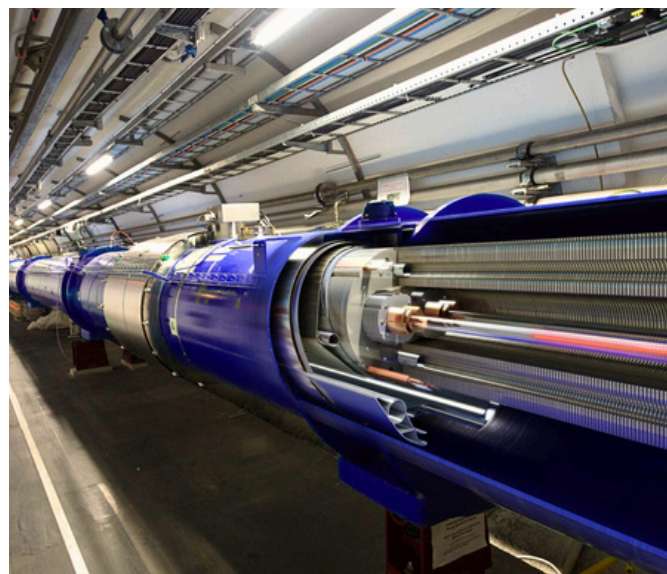
The software's REST API enables Brinette and his team to automate actions such as querying the libraries, integrating monitoring stacks, and collecting metrics.

Plus, the remote capabilities have removed the most tedious steps from Brinette's workflow by eliminating the need for manual USB connections — saving hours of valuable time and boosting operational efficiency.

CC-IN2P3 continues to evolve its infrastructure to meet the growing demands of high-energy physics research. Brinette keeps pace by closely collaborating with the engineers behind the Spectra technology.

"As a customer, I can share my requests and feedback directly with the people who design the libraries and software," he says. "From my perspective, that's a great benefit!"

As data volumes from global collaborations continue to expand, CC-IN2P3 stands ready with a future-proofed storage strategy at its core.



The Large Hadron Collider at CERN.
Photo credit: Maximilien Brice, CERN

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