MIRIA CUSTOMER SUCCESS · GEOLOGY

GEOLOGICAL SURVEY OF NORWAY
- NGU -

# The Norway Geological Survey Backs up Lustre HPC Data with Miria

## “Thanks to Miria, we’re able to push data to tapes and retrieve it very fast.”

“For us, it’s both backup and archiving. We might never need these files again, but we know they are present and safe.”

— JOHN DEHLS, RESEARCHER, NGU

### THE ORGANIZATION

NGU is Norway’s Geological Survey that maps Norway’s geology. The Survey is attached to the Ministry of Trade, Industry and Fisheries with headquarters in Trondheim, Norway, and over 200 employees forming a highly international work environment.

One of NGU’s geological mapping projects, InSAR Norway is the first free and open, nationwide, web-based mapping service using radar measurements collected from Sentinel-1A and 1B satellites that are part of EU’s Copernicus program for earth observation. Some examples of InSAR mapping: measuring on subsidence in urban areas and detecting movement on unstable rock slopes that might endanger habitations.

### DATA MANAGEMENT CHALLENGES

NGU recently acquired Atempo’s data management of solution, Miria, to manage the backup and archiving of satellite image data plus all associated image data points. Each year, 100s of TB of data and billions of integrated data points are generated and need to be moved and stored safely and rapidly.

We spoke to John Dehls, a researcher at NGU about his role managing geological mapping with InSAR Norway to find out more about NGU’s data management requirements and how Atempo Miria fits into their data-laden workflows. Also joining us for our virtual conversation was Svein Nilssen, Atempo’s HPC partner in Norway, Alpha Systems AS.

John explained how InSAR collects satellite data every night from most of northern Europe via the European Sentinel-1 radar satellites. The data is free and openly available from the European Space Agency (ESA). ESA keeps a rolling archive but only for a year, after which data goes offline and becomes much slower to retrieve.

> “For us, it’s important to have our own archives so that we can access this data again because otherwise it could take us several months to download it.”
>
> — JOHN DEHLS, RESEARCHER, NGU

For that reason NGU keeps its own archive of the satellite data.

### MIRIA DATA MANAGEMENT PLATFORM

Perhaps unsurprisingly, given NGU's HPC compute requirements and the amount of data generated and accessed running, their chosen file system is Lustre. There are frequently hundreds of processes running all accessing the file system at the same time. From a hardware point of view, NGU have exactly what they need: disk, CPU, memory, and tape.

However, the issue they faced was the necessary throughput to get files on and off tape. The incumbent file moving solution just couldn't handle the required data flow speeds. John recounts how the Atempo Miria Data Management platform has made life easier. And faster.

Tape write speeds are running at maximum throughput – something the prior tools were a long way from achieving. Atempo had guaranteed a maximum of 23 days to push 3 PB of data from disk to tape. In the end only 16 were required: testimony to the efficiency of NGU hardware and file system setup and of course, the sheer moving power delivered by Miria!

Svein Nilssen from Atempo partner Alpha System AS who worked closely on the integration of Miria with John at NGU recalls that they were very glad to find Atempo because other solutions tested over time just weren't efficient enough: "They were more complex, more costly and, in particular, not so good with Lustre."

Speed is one thing and security another. Or put another way – without security, speed is nothing. Miria catalogs file locations, manages metadata and enables a high level of automation and user security controls. If the system doesn't locate a file on disk, it will search the tape catalog directly. This adds to the overall sense of serenity at NGU regarding data management.

### PARTNER

Alpha System AS is a Norwegian-based company that specializes in High-Performance Computing solutions. They offer software development, IT consulting and custom-made solutions, designed to help businesses optimize their HPC infrastructure and stay ahead of the competition.

### CHALLENGES

Miria's versatility makes it more than a backup and archiving facilitator. It can in the future be a viable choice to migrate data to a new NGU Lustre system or to a third set of disks for example. John concludes:

"We had a system that wasn't fulfilling all our needs. Today, we have a system that answers these needs and more [...] I have had nothing but positive experiences so far and wouldn't hesitate to recommend Miria to other high-volume data users."

### BUSINESS BENEFITS

- **Fast & secure move of petascale data volumes to the archive**
- **Achieved nominal HPC infrastructure throughputs**
- **Flexible usage: Archive, backup, migration**

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