EMBL-EBI
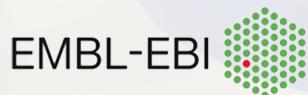
EU BIOINFORMATICS | PROBLEM SOLVED

The European Bioinformatics Institute champions the use of big data in biology to benefit humankind. Thanks to NetApp, scientists and researchers can focus on their work instead of worrying about securing and protecting data.

Biology and Big Data Make a Big Difference in Europe

To give the world the data it needs to research all aspects of life at the atomic level, the European Bioinformatics Institute stores and manages massive amounts of biological research. The publicly funded Institute then distributes that data to help scientists all over the world solve some of humanity's biggest challenges, including climate change, aging populations, and food security.

27 million
daily web searches

120PB
of storage capacity

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> "We don't want to get in the way of science with technical barriers restricting the ability to create and manipulate data. The key for us is open data. That is what EBI's all about—allowing seamless access to the data sets that are forever growing."

Zander Mears
Storage System Administrator of the European Bioinformatic Institute

What began in the 1980s as a modest task of abstracting information from scientific literature soon became a major database activity with direct electronic submissions of data and the need for highly skilled informatics staff. The task grew in scale with the start of the genome projects and gained visibility as the data became relevant to commercial sector research.

Today scientists increasingly turn to AI, machine learning and deep learning to solve bioscience problems and generate new products and solutions. The Institute's work now supports millions of researchers in all areas of the life sciences, from biomedicine to bio-diversity and agri-food research. To accomplish this mission, the Institute manages three data centers and 120PB of raw storage capacity to handle 27 million web requests each day. As a point of reference, 50PB of information is all of the words ever written by humans in all languages since the beginning of time.

"We don't want to get in the way of science with technical barriers restricting the ability to create and manipulate data. The key for us is open data. That is what the European Bioinformatic Institute's all about—allowing seamless access to the data sets that are forever growing," says Zander Mears, storage system administrator of the European Bioinformatic Institute.

A CUSTOM-MADE SOLUTION PLEASED EVERYONE
Because the Institute stores data forever so scientists can always access what they need, robust file systems are necessary. To free up as much money as possible for pure research, cost-effectiveness is also required.

The Institute chose NetApp® ONTAP® feature NetApp FlexGroup volumes for its robustness and flexibility. While it had been working with Infinite Volumes, it needed a solution that didn't have an inherent metadata limitation. To handle some of the Institute's file systems that are massively metadata heavy, NetApp developed the new FlexGroup product.

"The familiarity with Data ONTAP and the manageability of FlexGroup are critical for us, because we have such a small storage team," Mears explains. "In our case, we manage all of this data with a team of three."

MASSIVE DATA MIGRATION
To get the solution up and running, the Institute needed to migrate more data into the NetApp system than most businesses could ever imagine.

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Most organizations only move 30TB, which is a hundred times smaller than some of the data the Institute was trying to move.

The European Bioinformatic Institute allowed NetApp developers access to their data set to assist with product development. "It's such a challenging environment that it's not replicable anywhere in the world," Mears says.

The NetApp development teams work directly with the Institute's data to enhance those products, so not only was the Institute sharing biological information with scientists worldwide but also actually developing IT environments. Data services specialist Q Associates also played a vital role in enabling the solution.

"I've been working in the industry for nearly 20 years, and personally, I've never experienced a partnership with suppliers like this," Mears adds.

SOLUTION COMPONENTS

NETAPP PRODUCTS

NetApp® ONTAP® feature NetApp FlexGroup volumes

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