Call for contribution of expertise

CERN invites collaborating institutes and universities to contribute the expertise of their qualified employees to the activity described below.

Start date: Asap	*Duration:* Two years, possible extension to a maximum of up to three years.

Project/Activity: LARGE-SCALE ERASURE-CODING DISK FARMS

Detailed description of Activity:

EOS is the disk solution for LHC. It has been developed at CERN to handle the analysis of LHC data and crossed the 200-PB mark of used disk space. This corresponds to over 2 Billion files being made available to CERN researchers and engineers.

EOS software continues to be enhanced at CERN where it delivers a scalable storage system built on heterogeneous storage units. Data are served off large sets of disks (currently 50,000 disks in 1600 servers) and are efficiently accessed thanks to the cooperation of a fast name space (capable of sustaining requests well above 100 kHz) and a wide selection of transfer protocols. Data durability is achieved by maintaining multiple replicas or erasure-code fragments across the EOS disk farm.

The project is to investigate new deployment scheme actively using the erasure-code capabilities to achieve :
Reduced space overhead compared to equivalent multiple-replica schemes
improve single stream performance in reading from multiple disks
Validate operational modes not requiring disk replacements by tuning the redundancy level against the disk lifetime.

Profile: Bachelor degree in computing, IT engineering or related field.

This project requires proven experience in dealing with Linux systems (Foundation of system administration and Python scripting). Knowledge of storage technologies, distributed systems, Agile devops practices is a strong plus.

Specific details: Opportunity to work with world-class engineering and devops team on the most challenging storage systems to support the biggest scientific endavours. Good working knowledge of English.

Status at CERN: Associated Member of the Personnel (Project Associate).

Conditions in accordance with CERN's Staff Rules and Regulations and Administrative Circular No. 11. Subsistence allowance is payable by CERN to cover the additional cost arising from the individual's (and, as applicable, their family's) stay in the local area while performing activities at CERN.

Option: Collaborating institutes and universities can propose to support the activity of the qualified employees participating in this "Call for contribution of expertise" with students or other employees. Their status and Subsistence allowance when applicable will be adapted to their relation with their institutions

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