

## 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:** 01/12/2018

**Duration:** One year, possible extension to a maximum of up to three years.

**Project/Activity:** Computing Engineer for monitoring of WLCG distributed infrastructure

### *Detailed description of Activity:*

The CERN Monitoring team provides a central service to collect, enhance and display monitoring data from the CERN Data Centre infrastructure and the WLCG worldwide distributed services.

The monitoring infrastructure is developed and deployed to collect and store more than 80000 metrics/sec and is built on established open-source technologies such as Apache Spark, Apache Kafka, Hadoop, Elasticsearch, InfluxDB and Grafana. The expert will learn all such technologies and join a team of young engineers working following the Agile methodologies and using state-of-the-art service and software technologies such as OpenStack, Puppet, Linux and Git. In particular will contribute to the design and development of important upcoming enhancements for the WLCG Grid Site Monitoring, such as:

- Enrich and store monitoring data, using Kafka and Spark, on availability and reliability of the large WLCG distributed infrastructure (more 15000 metrics/sec from 170 sites worldwide)
- Design real-time alarms and dashboards, using Grafana and InfluxDB, for experiments experts and site administrators
- Study and develop statistics and reports, using Spark and HDFS, on sites efficiency for WLCG and sites managers
- Investigate and provide general data analytics use cases, based on Jupiter and Spark, for better exploiting the large amount of historical monitoring data available.

**Profile:** Qualification: Bachelor's degree in the field of Computer Science or related field, or equivalent.

**Experience:** General knowledge of Linux system administration. Basic experience with at least one programming language such as Python, Java or Scala. Knowledge of any of the technologies mentioned above would be an asset but is not necessary.

**Specific details:** Work will be in a young team of engineers with frequent contacts with users and therefore a dynamic attitude to share and discuss ideas and suggestions within the team is very important. The team works and communicates in English. Therefore, a good working knowledge is needed.

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

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

**Reference:** 2018\_Q3\_001