



# 14th Pisa Meeting on Advanced Detectors



## Computing Infrastructure and its monitoring at the CERN Neutrino Platform (NP) prototype experiments Nektarios Chr. BENEKOS - CERN and National Technical University of Athens, Hellas

The EHN1-NP computing cluster consists of nearly 2500 cores with various characteristics and the status and health of every host must be constantly monitored to ensure the correct and reliable operation of the whole online/offline data processing system.

It represents an effort to foster fundamental research in the field of Neutrino physics as it provides data processing facility.

There is an evident need for an automated configuration management system for this cluster as monitoring of such infrastructure can be cumbersome. To manage the machines hosted in EHN1, some virtual machine (VM) servers are hosted on CERN OpenStack Cloud infrastructure. A Puppet-managed virtual machine was used and configured with Puppet to provide a longer-lived service to users.

In the Neutrino cluster, open source Puppet helps to describe machine configurations in a declarative language, bring machines to a desired state and keep them there through automation. The deployment type of Puppet in this cluster was agent/master architecture. Puppet was used with Foreman, an open source tool that helps with the management of servers by an easy interaction with Puppet to automate tasks and application deployment. Foreman provides a robust web interface that allows us to provision, configure cluster nodes and leverage its External Node Classifier (ENC) and reporting capabilities to ease the management of Puppet.

For a fully operational cluster these tasks must be carried out; implementation and monitoring of all the necessary web-paged tools for the NP cluster operational monitoring, including: frontend configuration, server nodes and users monitoring, job monitoring, batch process monitoring, sites availability, data management and transfers between CERN-EOS and EHN1 and the outside world.

Zabbix and Grafana monitoring systems have been combined to get a complete picture of the system. For active checks and alerting performing with different time intervals ranging between 5 minutes and 24 hours according to the need.

### EHN1 computing cluster and Zabbix monitoring concept

