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## Operations Developments at the National Analysis Facility at DESY

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The National Analysis Facility (NAF) at DESY is a multi-purpose compute cluster available to a broad community of high-energy particle physics, astro particle physics as well as other communities. Being continuously in production for about 15 years now, the NAF evolved through a number of hardware and software revisions. A constant factor however has been the human factor, as the broad set of user experiences and user interactions with compute and storage infrastructures requires a ongoing support endeavor.

While utilizing compute resources, i.e., CPU cycles, has shown to be the more easy part in running an Analysis Facility, setting up and operating storage as well as authentication/authorization infrastructures and models have always caused the most labour intense work loads. As such easing the operational load is paramount to run an AF efficiently. While solutions for monitoring of the different dimensions of an AF exists, i.e., the compute part or the storage systems, and integrated monitoring has been missing and bridging the information silos has been cumbersome. Thus the need for an integrated monitoring like per user and job file and network socket handles on the compute part being mapped to I/O information on the storage instances.

Furthermore, as an AF is an exposed system with regard to security constraints, care has to be taken to set up a sufficient safe service model in the various steps of designs and operations.

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