Beamline Jockey Days - Challenges in Imaging



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Online Multimodal Data Analysis At The Hard X-ray Micro/Nano Probe P06.

INTRODUCTION

Adding the possibility of multimodal data acquisition is a must for any beamline. The current challenges are not only

the amount of data and computational resources needed, but also the know-how. This because many users are not

specialists any more in the x-ray field but in another research field. To make the best of the data, data analysis often

is/was outsourced to beamline personnel.

ARCHITECTURE

The main architecture is based on micro services and distributed on as many compute nodes as required for the task at

hand. All acquired data is accompanied by metadata that allows for fully automated data analysis for every available

measurement modality. The default data pipeline constitutes out of 3 components, a master, worker, and data sorter.

A task distributor and a sink complete the default standard blocks.

AIM

The goal of the data pipelines is to provide processed data asap to the visiting scientist and control system. The delay

between data acquisition and analysed data is dependant on several components. Software stack of the used detector,

streaming or file based, and the methodology and the required computational power. The analysed data is provided to

the user in 3 forms:

Queryable database;
HDF5 file;
Visualised in an online data viewer.
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