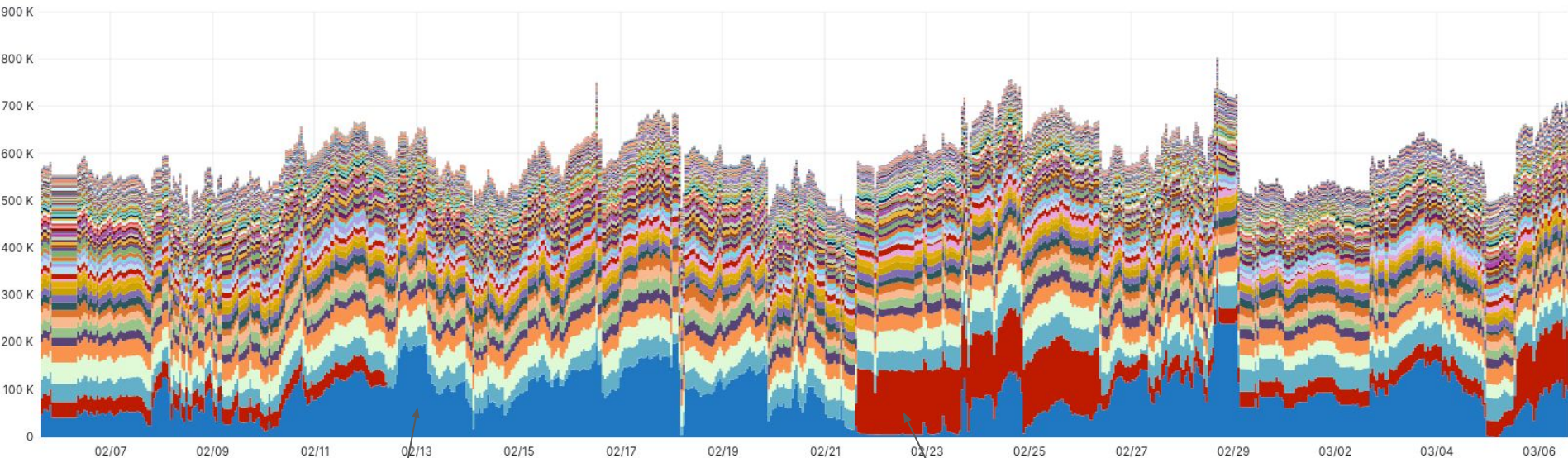


ATLAS Panda usage

- Rod Walker, LMU

600-700k running cores

Slots of Running jobs



Vega(HPC)

P1 (HLT farm)

Usage and components

- All production activities and bulk user analysis are handled by **Panda**
 - exception is primary reconstruction at Tier0 facility
 - also final analysis step from NTUP
 - may need Panda as data volume grows, e.g. Analysis Facility
- Fully integrated with **Rucio** for data handling
- **JEDI** is integral part of core, covering panda job creation & brokerage
- Not core but vital for workflow:
 - **ProdSys**: handles task creation and chaining, e.g. evgen->sim->Reco->Derivation
 - **Data Carousel** handles orderly pre-staging or inputs from tape
- Ongoing efforts to merge workflow into the core
 - better crosstalk, e.g. where to stage data to, and when - to satisfy priorities & resources
 - core **IDDs** to release jobs for staged files
 - support complex workflows: circular with feedback, dynamic workflow, e.g. skip merge
 - more easily deployed and used by others in community

More components

- **Harvester** to start jobs on wide-range of resources
 - “Grid”: Batch clusters behind HTCondorCE or ARC CE
 - HPC: local harvester with direct submission into batch system
 - handling stage-in/out, multi-node jobs
 - Remote direct submission to Kubernetes
 - job in own VM/Pod
- **BigPanda** monitoring
 - task and job monitoring, invaluable to ops but largely passive and static
 - Prodsys UI allows task and job manipulation, e.g. change params, pause, kill, debug
 - Plan is to integrate to get best of both in modern maintainable framework
- **CRIC** information system
 - WLCG project
 - Panda and harvester need this for queues, CEs, architecture, sw, ...

Conclusions

- Panda plus ecosystem very scalable, powerful and extendable
 - ATLAS absolutely need it, and invest manpower to develop and operate
- Smaller experiments should consider carefully if it is for them
 - lower bar to get started
 - alternative to Oracle
 - containerized deployment, on less hardware
- A touch negative but Community meant to address these concerns