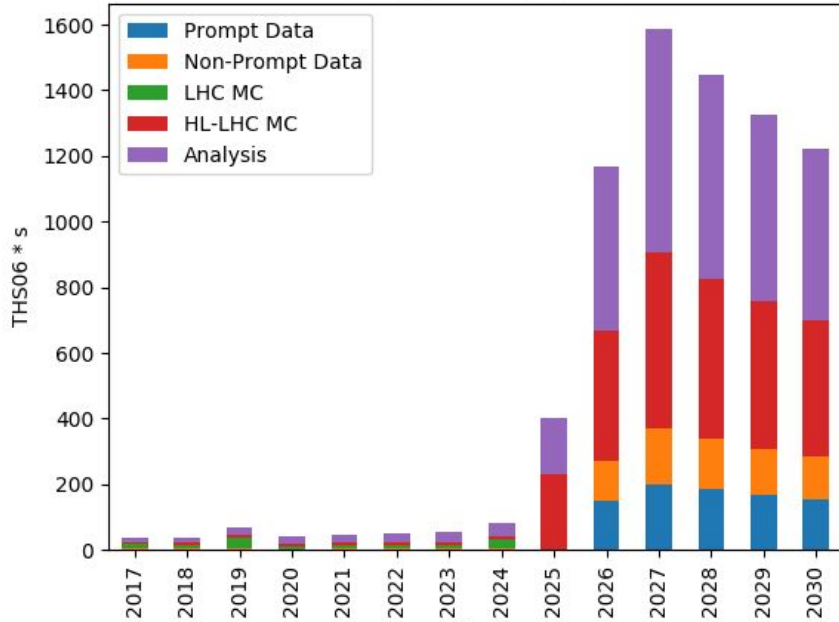
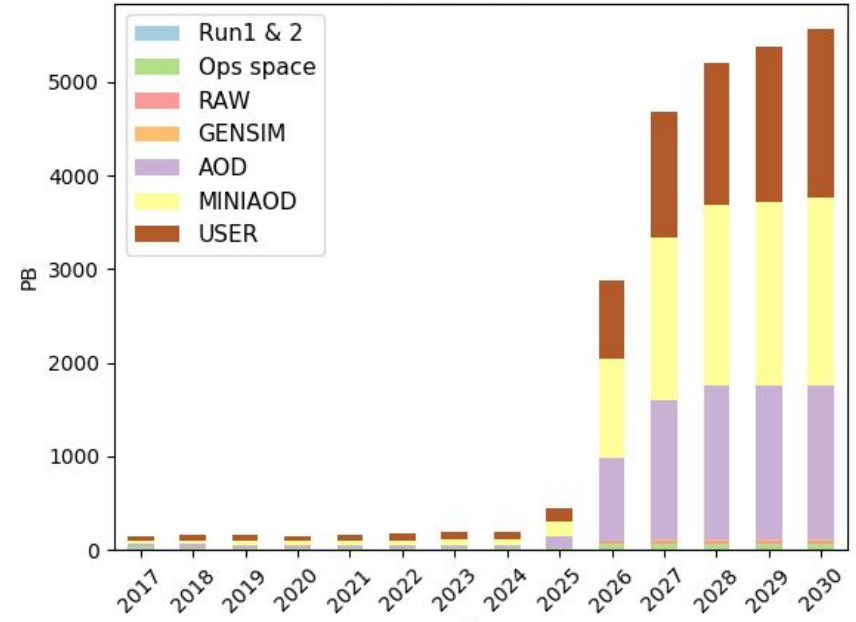


CPU seconds by Type



Data on disk by tier



Naive extrapolation for HL-LHC:

In 2027 we “would” need:

CPU: 5 Million cores (x20 compared to now)

Disk: 5 Exabyte (x50 compared to now)

**We need:
Disruptive Changes!**

CMS R&D overview

Computation

Many-Core

Accelerators

Algorithms

Storage

Store Data

Organize Data

Analyze Data

Services

Elasticity

Connectivity

Orchestration