

# DB Infrastructure Finance Data Warehouse SAS Performance Initiative

13:25-13:45 Deutsche Bank: Leistungsoptimierung für Risk Management

## Contributors:

Marco Pighetti (Deutsche Bank AG), marco.pighetti@db.com

Adrian Immler (ext. Consultant), adrian.immler@kosakya.de

Bernd Ströhle (ext. Consultant), bernd.stroehle@kosakya.de

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# Agenda

- ▶ What the department does
- ▶ What the application does
- ▶ What the infrastructure looks like today
- ▶ How the infrastructure might look like tomorrow

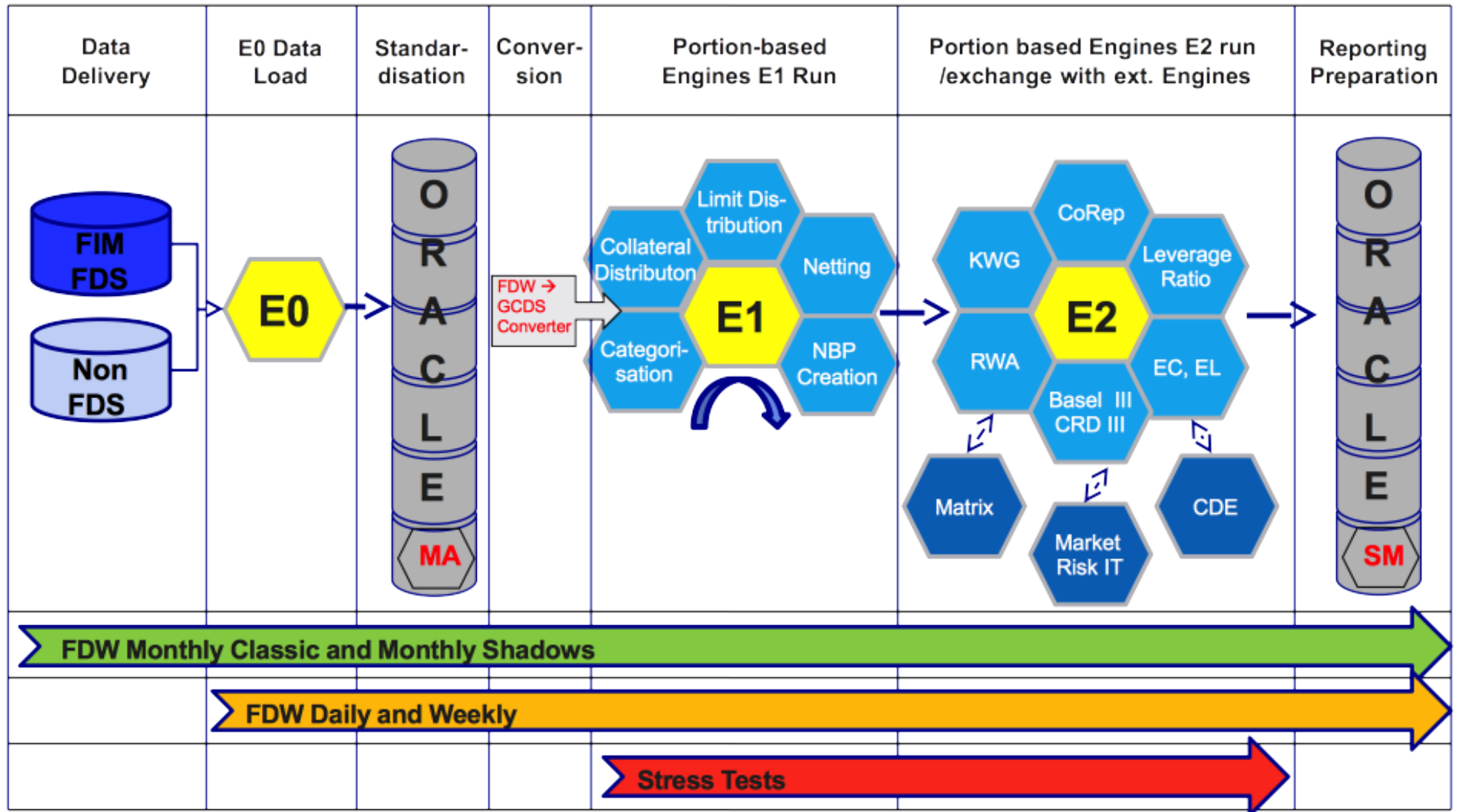


# Who we are & what we do

- ▶ We belong to
  - ▶ Finance Technology
  - ▶ Sub-domain Finance Data Warehouse (FDW)
- ▶ We support
  - ▶ Group-wide consolidation, calculation and reporting of Credit Risk values, e.g.
    - ▶ Regulatory requirements: KWG, Basel III and IIII, IFRS, AnaCredit, stress tests
    - ▶ Risk requirements: RWA, EL, EC, Value at Risk, Specific Loans
  - ▶ Preparation of specific ad hoc – reports for ~ 150 power user and DB Board to manage and control the Bank
- ▶ We process via SAS:
  - ▶ 1 TB of data per run
  - ▶ A flatfile with 2400 Variables and 35 Million Transactions
  - ▶ 2 million lines of code (1/3 written, 2/3 generated)
  - ▶ 16h runtime on the SAS side only (complete production: 40 h)
  - ▶ 1 daily run, 4 weekly run, 5 different monthly productions, various stress tests



# SAS Engines standard process in FDW



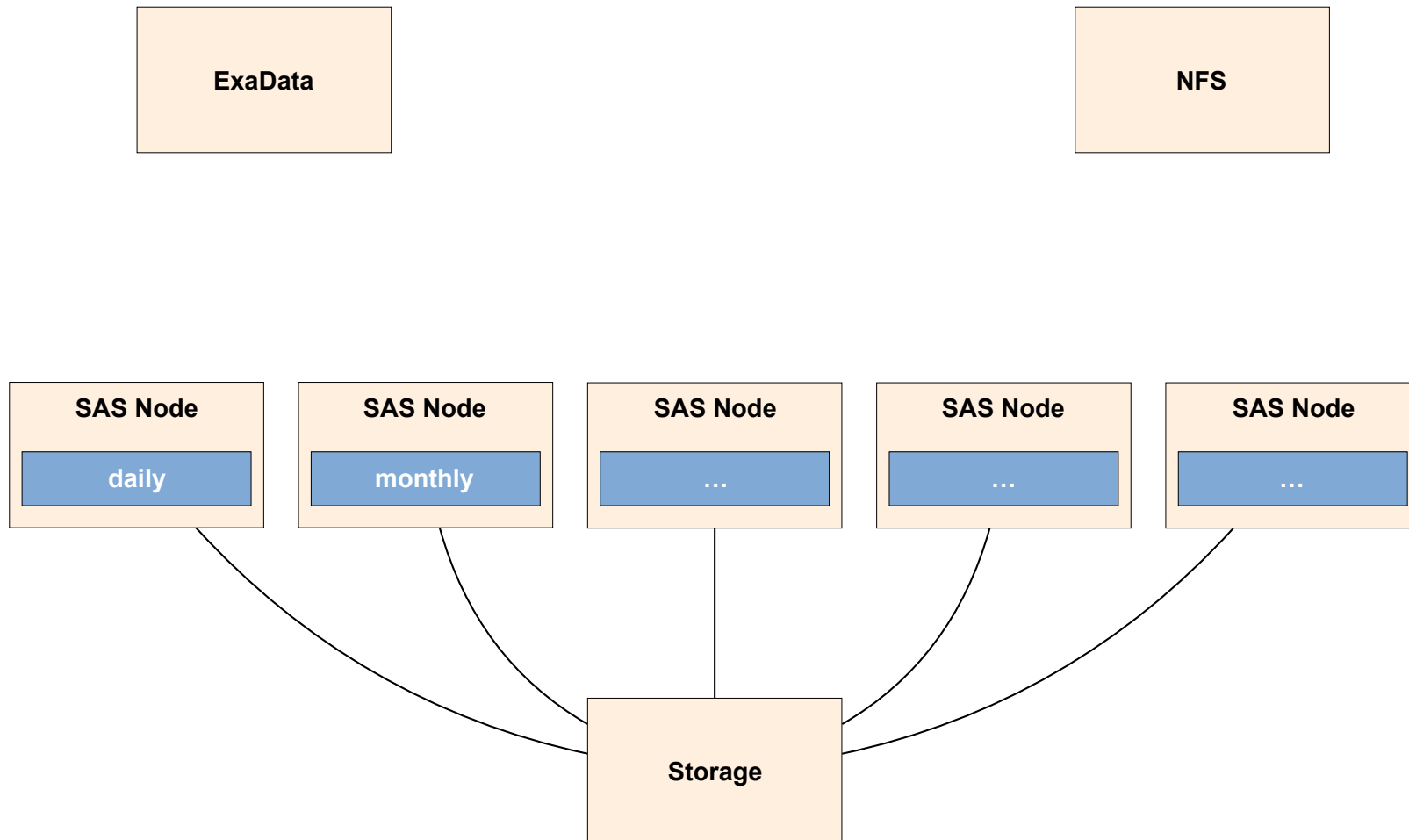


# What the applicaion does



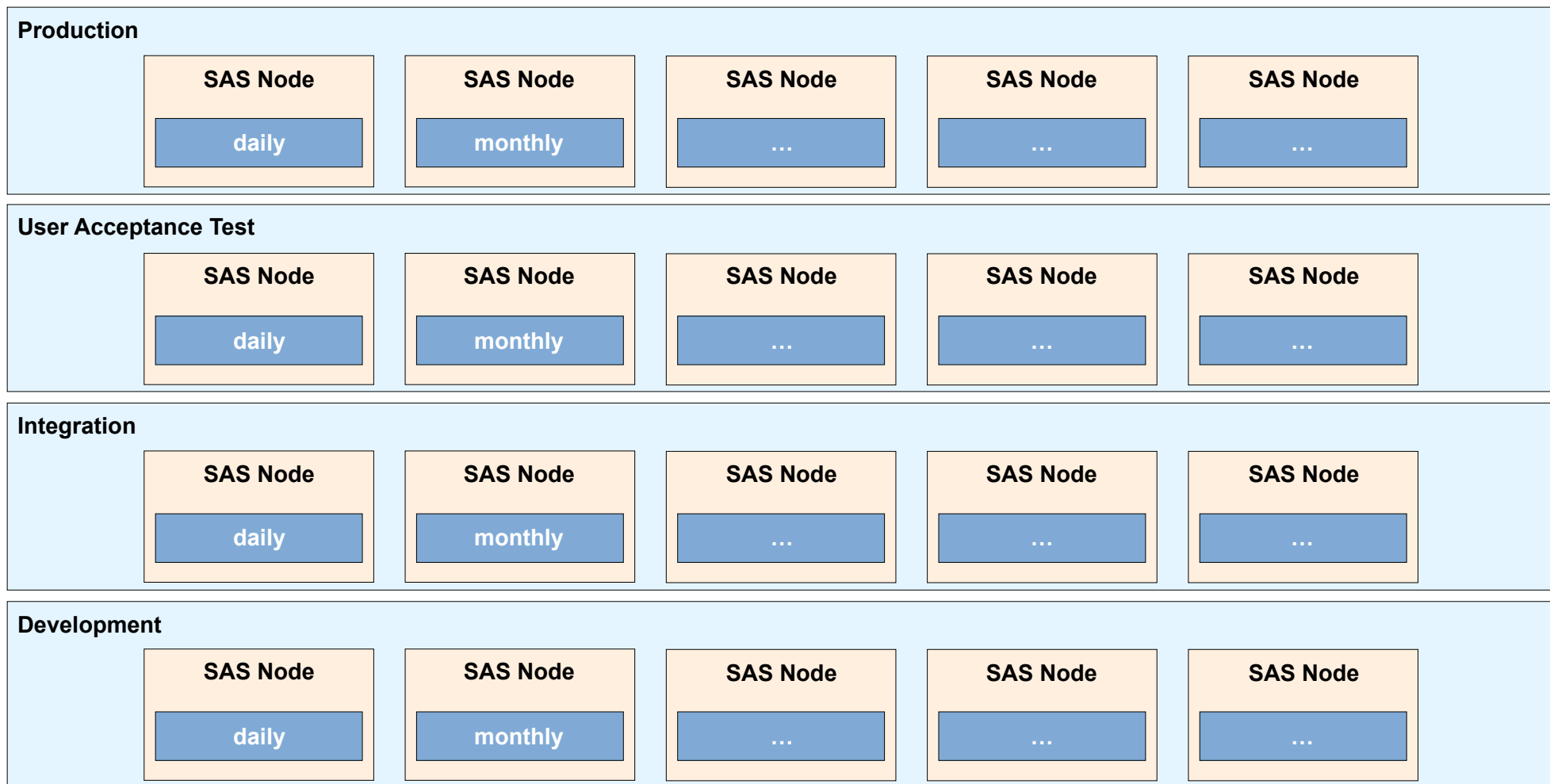


# Infrastructure today





# Infrastructure today (2)



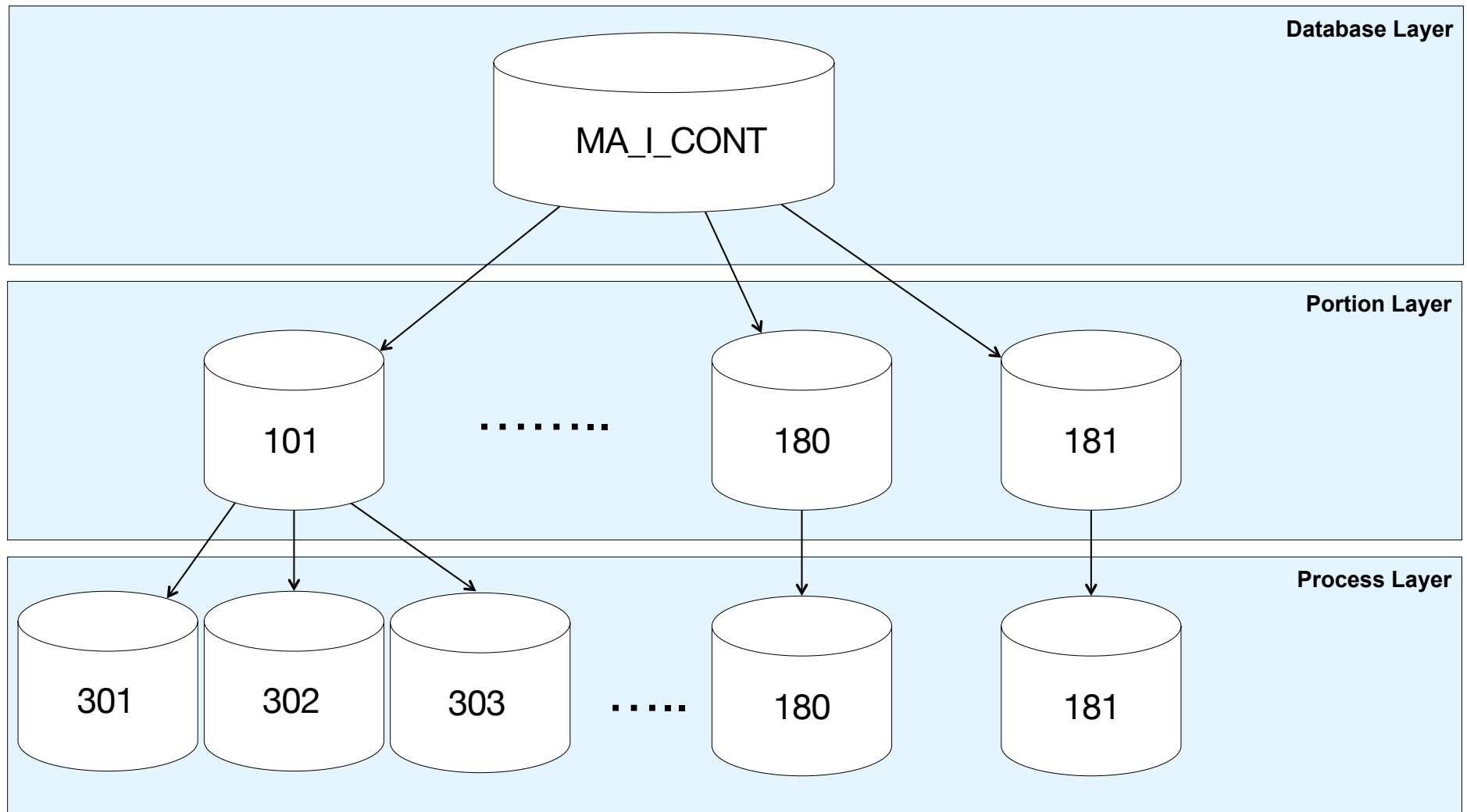


**so what to do ?**



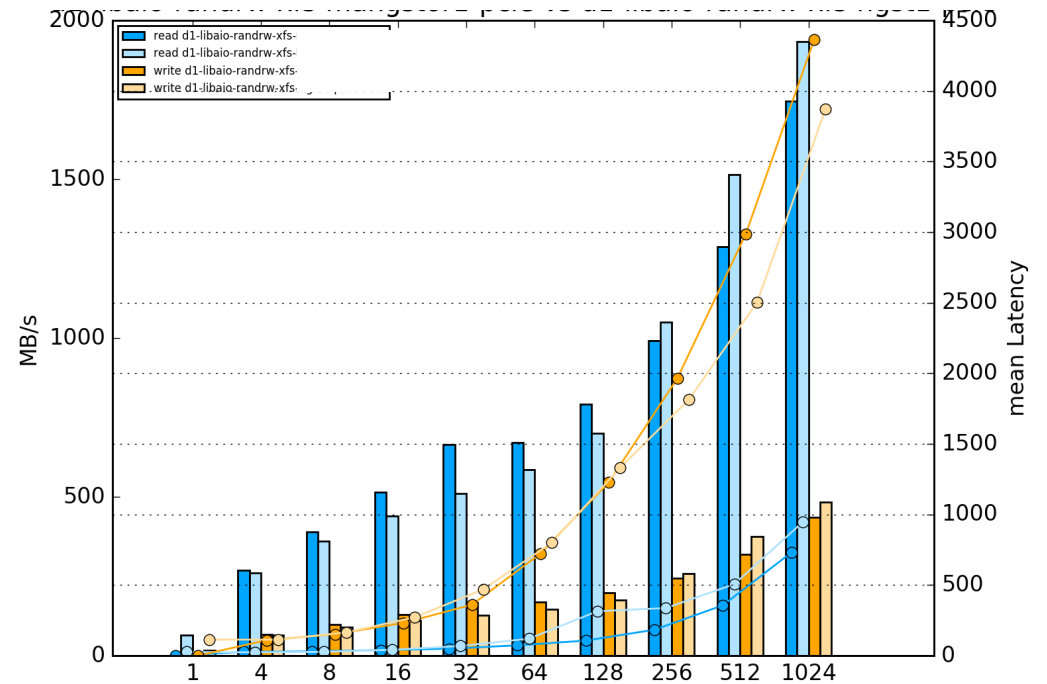
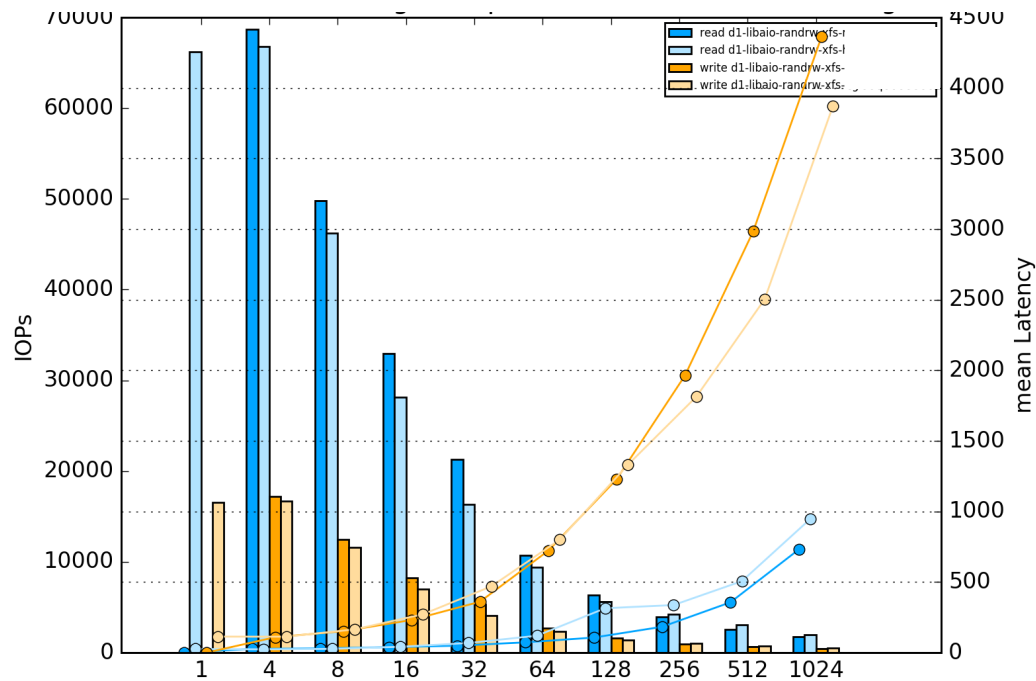


# Create small datasets



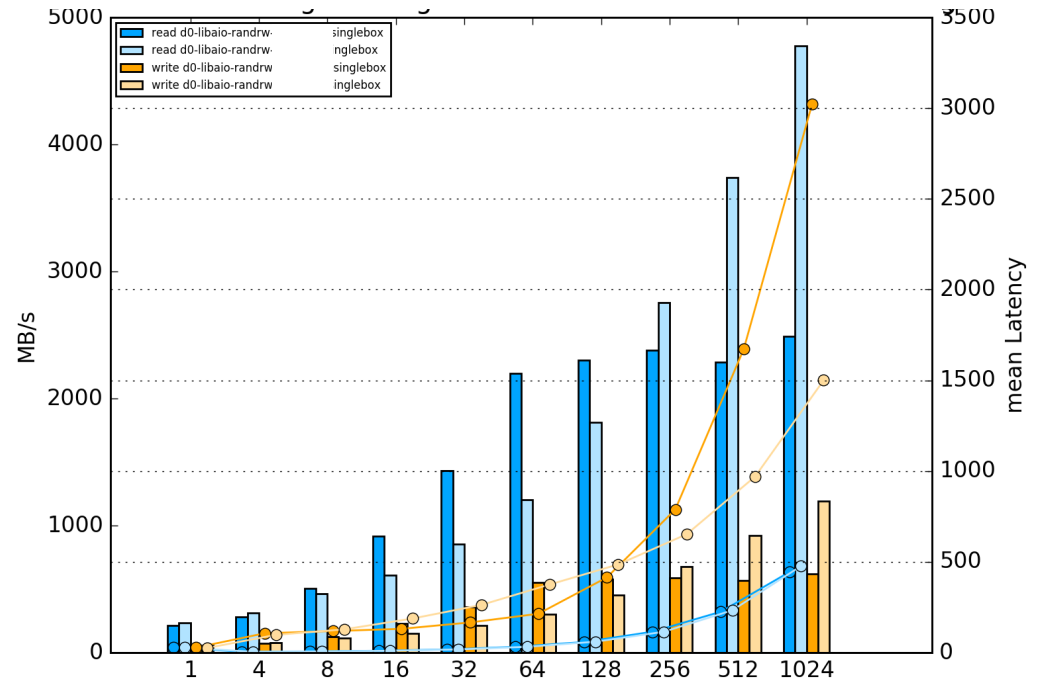
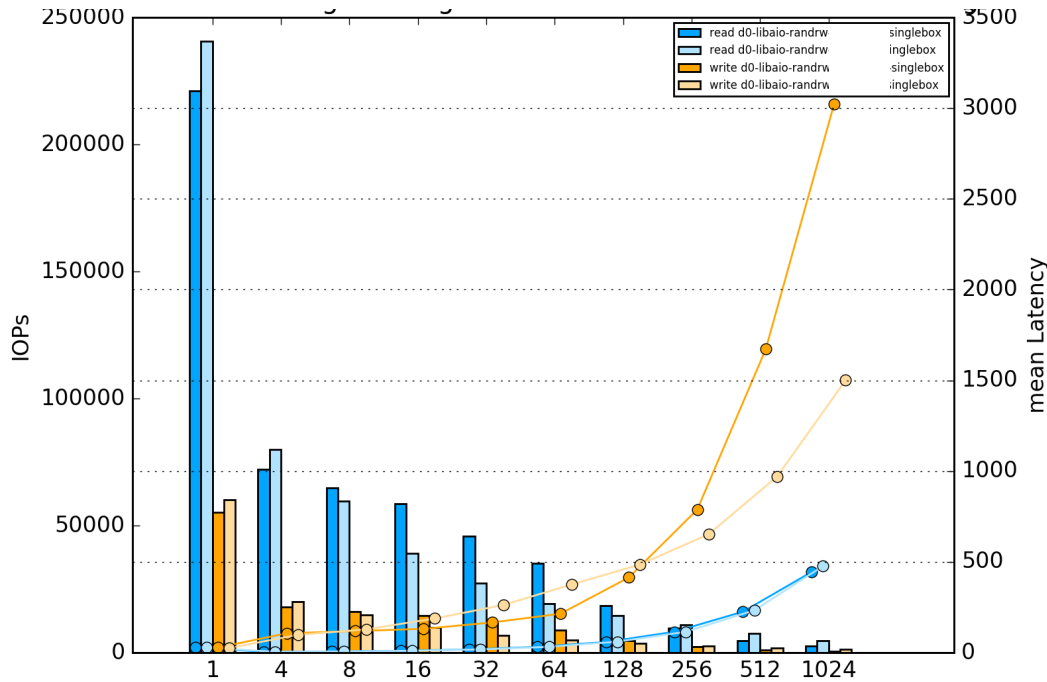


# NVMe Karte 1 vs NVMe Karte 2



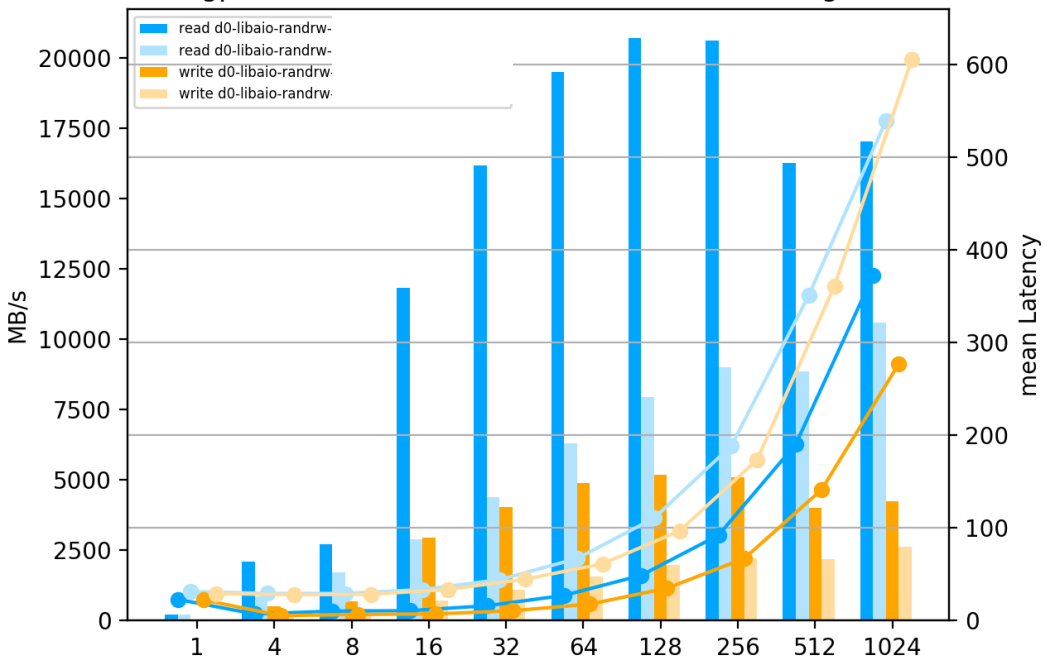
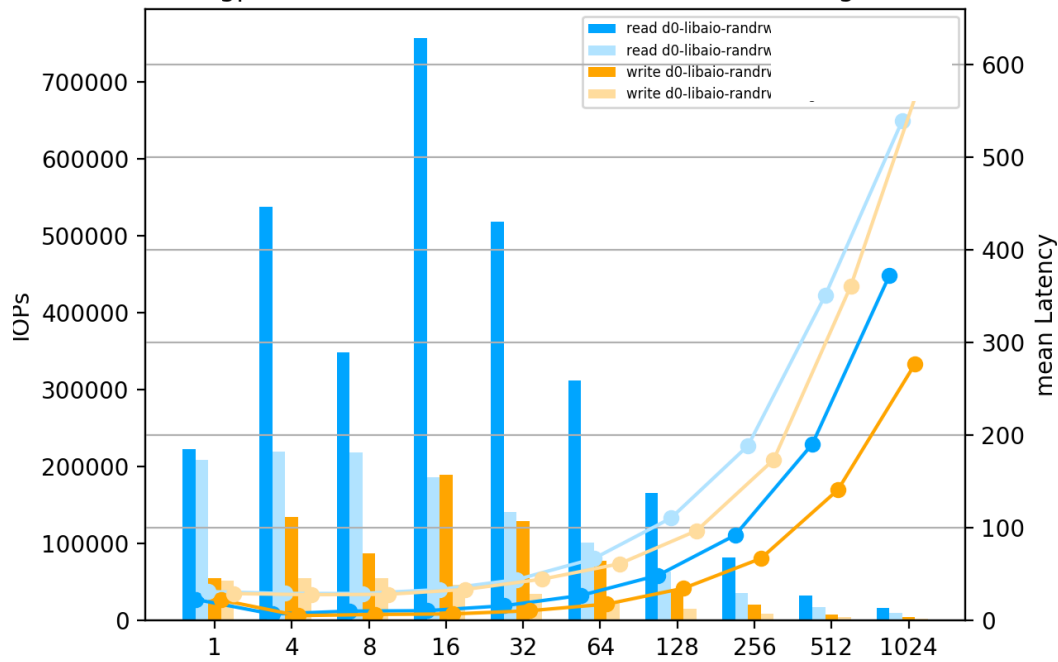


# Storage Box1 vs Storage Box2



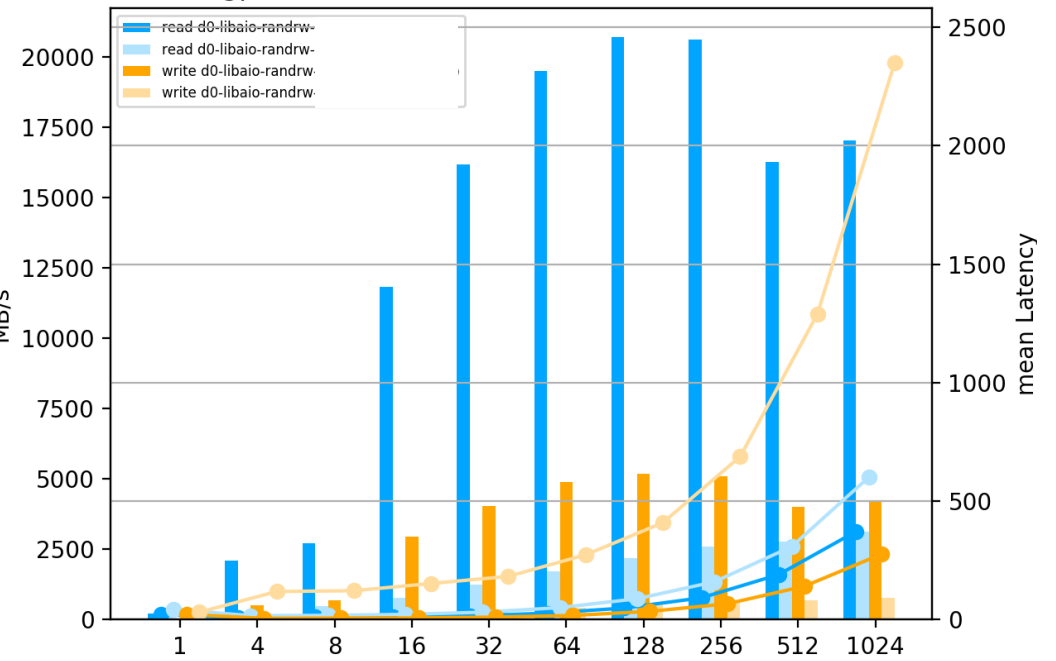
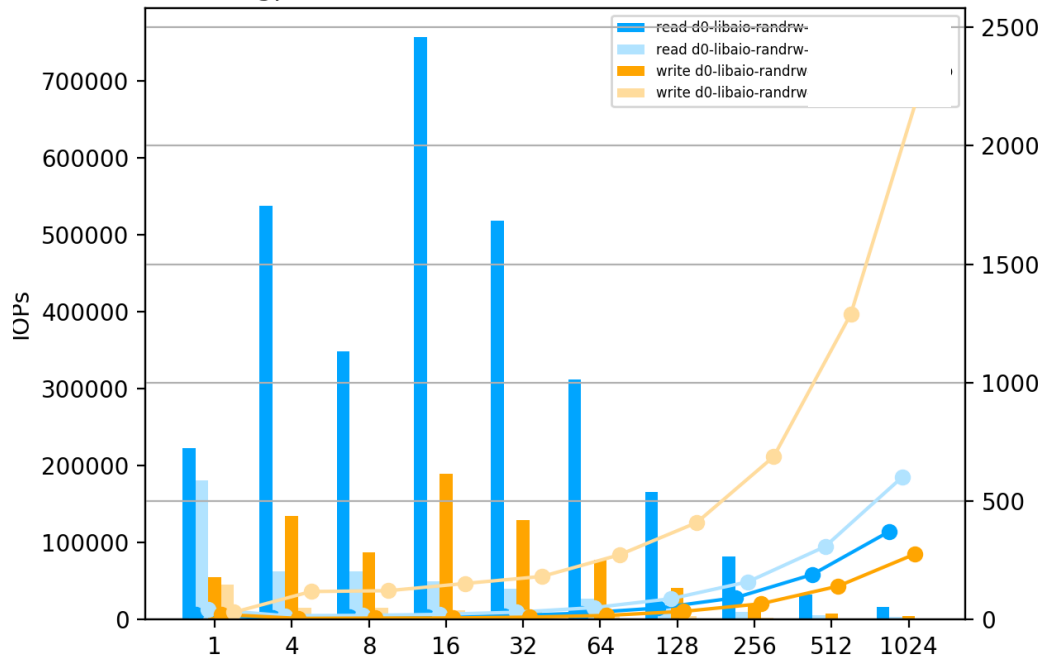


# GPFS vs FS1





# GPFS vs FS2





# What the infrastructure might look tomorrow

## Production

SAS Node

SAS Node

SAS Node

SAS Node

SAS Node

## User Acceptance Test

SAS Node

SAS Node

SAS Node

SAS Node

SAS Node

## Integration

SAS Node

SAS Node

SAS Node

SAS Node

SAS Node

## Development

SAS Node

SAS Node

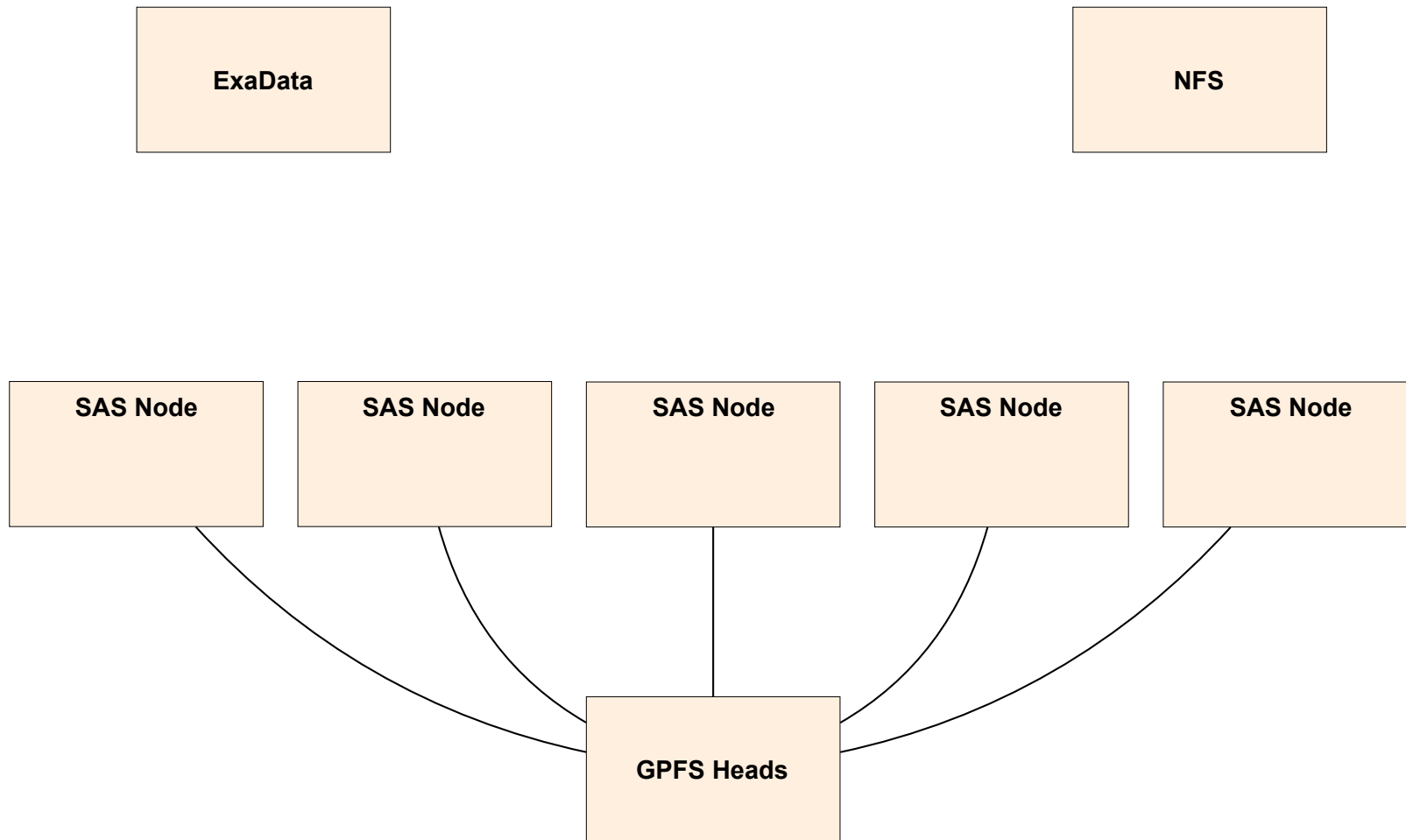
SAS Node

SAS Node

SAS Node



# What the infrastructure might look tomorrow





# Other Tweaks

- ▶ disable HyperThreading
- ▶ disable virtualization features
- ▶ change BIOS settings of other relevant options
- ▶ alignment of SAS Workers
- ▶ select workload scheduler



Thank you for your support!

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