

# Online Storage

Industry Day, Bologna, 16 January 2019

Luca Romita

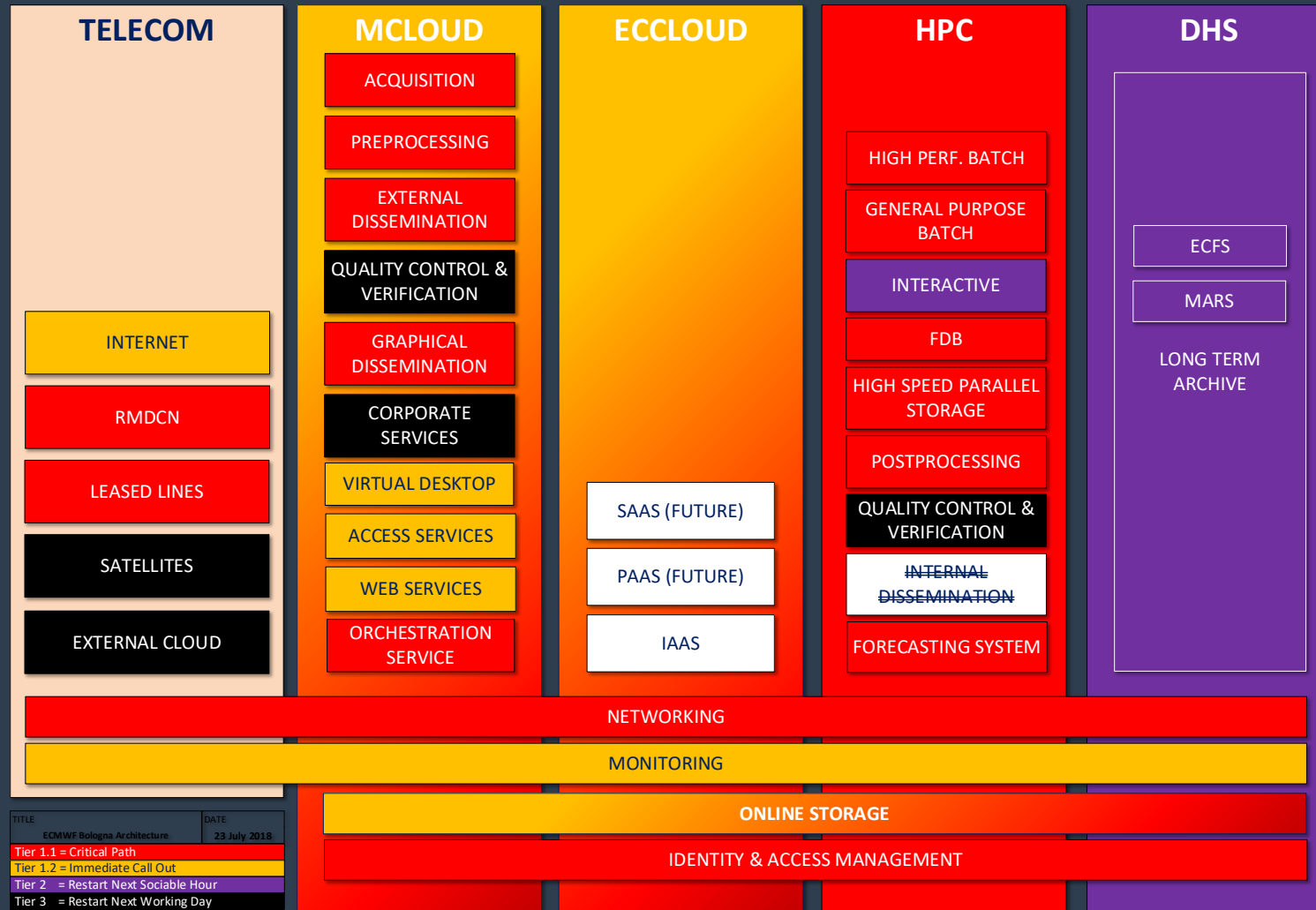
ECMWF



# Overview

- What is Online Storage;
- Tiering of storage;
- Initial disk systems for the new Data Centre;
- Procurement strategy;
- Timeline of future acquisition.

# Online Storage layer



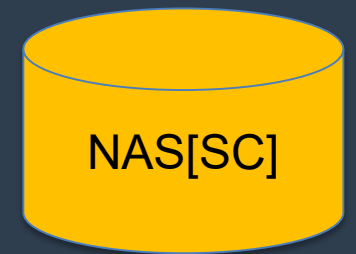
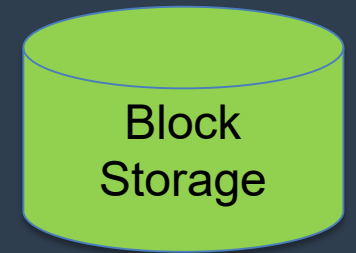
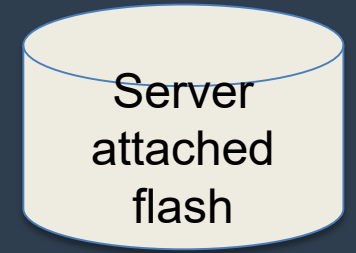
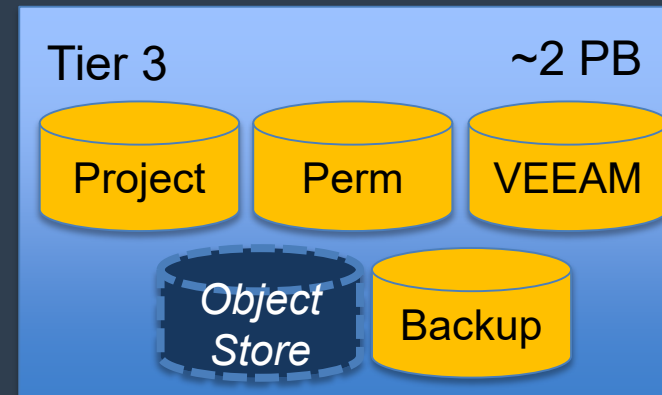
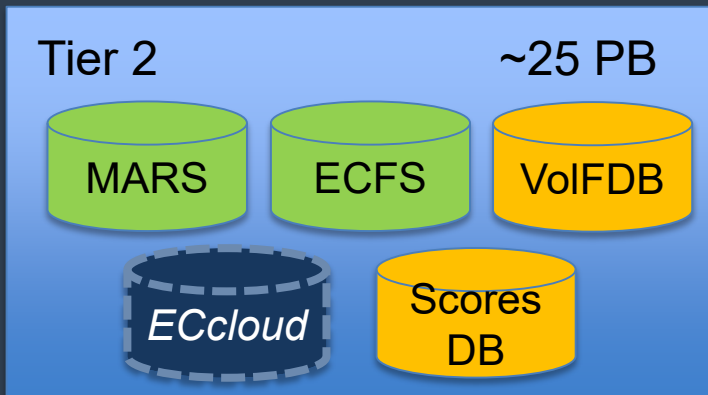
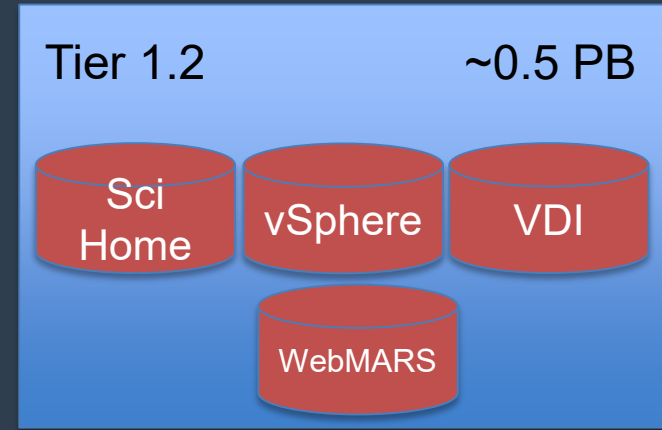
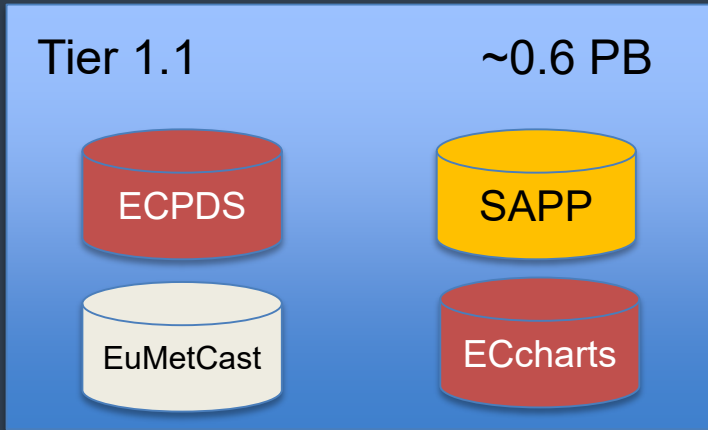
Providing storage to services in:

- MCloud,
- ECcloud,
- DHS,
- (and partly to HPC).

## Tiering of Storage based on Service Levels

- Tier 1.1 – Storage used in the path of the Time-Critical operational suite;
- Tier 1.2 – 24/7 support for critical issues, with a 4 hours response;
- Tier 2 – Sociable hours support;
- Tier 3 – Next working day support.

# Tiering of Storage



# Initial disk systems for the new Data Centre

- Tier 1.1
  - NAS[HA] (Highly Available NAS) for ECPDS and Eccharts.
  - Multiple NAS[SC] (Single Controller NAS) for the SAPP clusters.
- Tier 1.2
  - Multiple NAS[HA].
- Tier 2
  - Volume FDB (8PB), ScoresDB – NAS[SC];
  - DHS – mostly block storage (SAN):
    - Existing disk 10.6 PB (Retiring 2.5 PB, mix IBM and DDN, and moving 8.1 PB to Italy);
    - Initial temporary cache acquisition of 5 PB (2019), 5PB (2020) of disk storage;
    - Absorbed into normal DHS storage.
- Tier 3
  - NAS[SC] will be used for: Permanent Space, Project Space, VEEAM, backups.

# Storage Performance and Tiering

- Tier 1.1
  - Greater use of high performance storage, e.g. pure flash appliances with smaller capacity.
  - Top end SAS HDDs where more capacity is required.
- Tier 1.2
  - Hybrid solution with flash and SAS HDDs.
- Tier 2 & Tier 3
  - High capacity storage systems utilising a mix of SAS and NL-SAS HDDs.

# Procurement Strategy

- Storage Framework 262 est. late 2017 (for equipment and services):
  - Can purchase NetApp, IBM, Hitachi, Lenovo, HP, EMC, ...
- Industry day:
  - Explain storage needs;
  - Encourage resellers.
- Select new members who meet the necessary standards for Framework 262 via Open Tender.
- Run mini competitions for new equipment/services under the framework.
- Only suppliers accepted onto the framework (existing and new) will be able to bid.



## Timeline

- Storage Framework 262 est. late 2017;
- Reopening of Framework 262 on Q1 2019;
  - Open Tender to be published on ECMWF's website and OJEU;
- Selection to be completed by Q2;
- Mini competitions to be issued to suppliers approved for framework from Q3 2019:
  - Functional requirements,
  - Specific requirements.
- Delivery of new equipment from Q4 2019.

Q&A  
Grazie mille!