

# DUNE Plans for Data Challenge 24

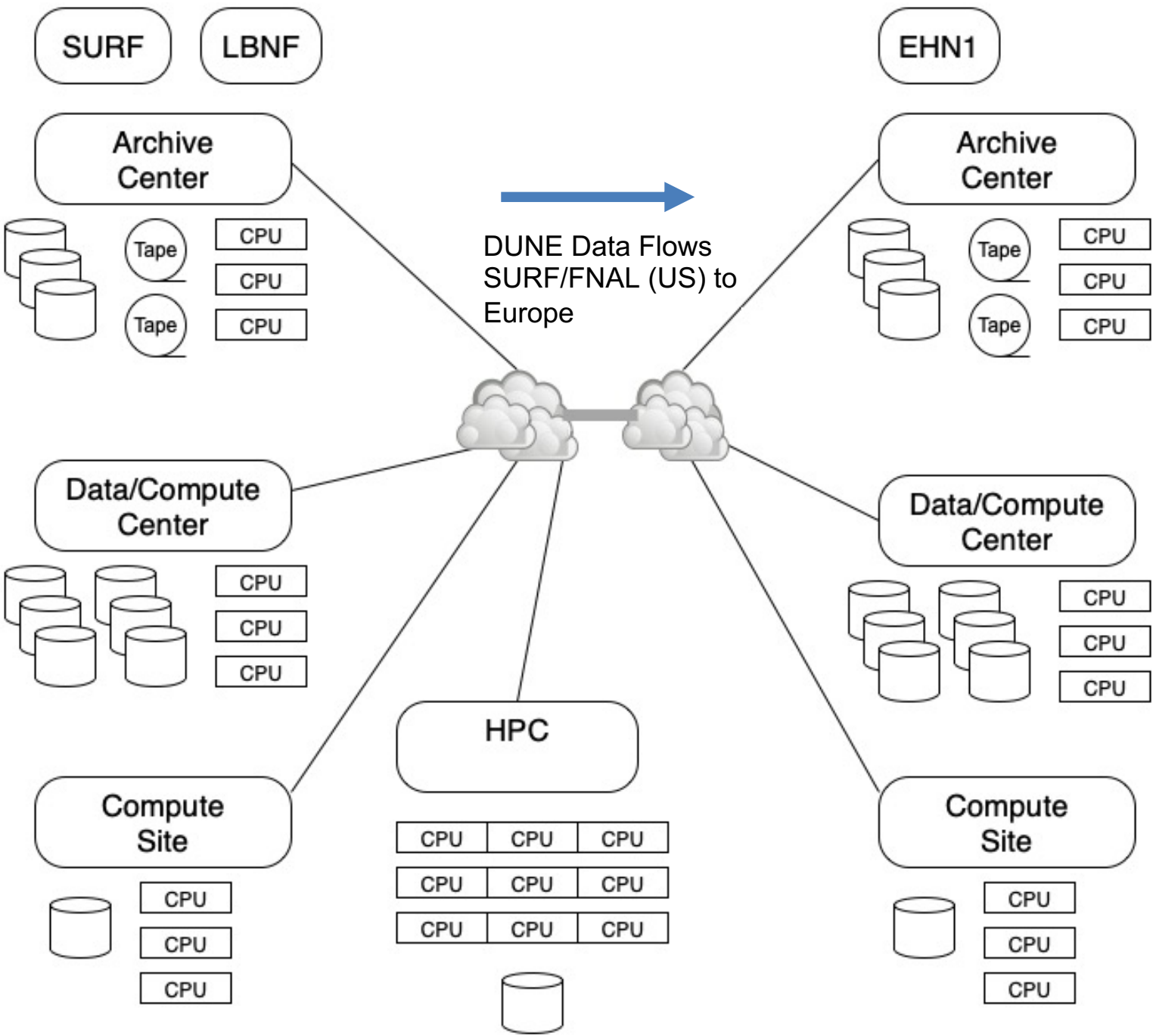
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FOR THE COMPUTING CONSORTIUM



U.S. DEPARTMENT OF  
**ENERGY**

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## DUNE computing model

- Sites offer services
  - Archival (few)
  - Disk (RSE)
  - CPU
  - HPC
- Make use of opportunistic resources (HTC/HPC)
- Data streamed between nearby RSE and CPU only site

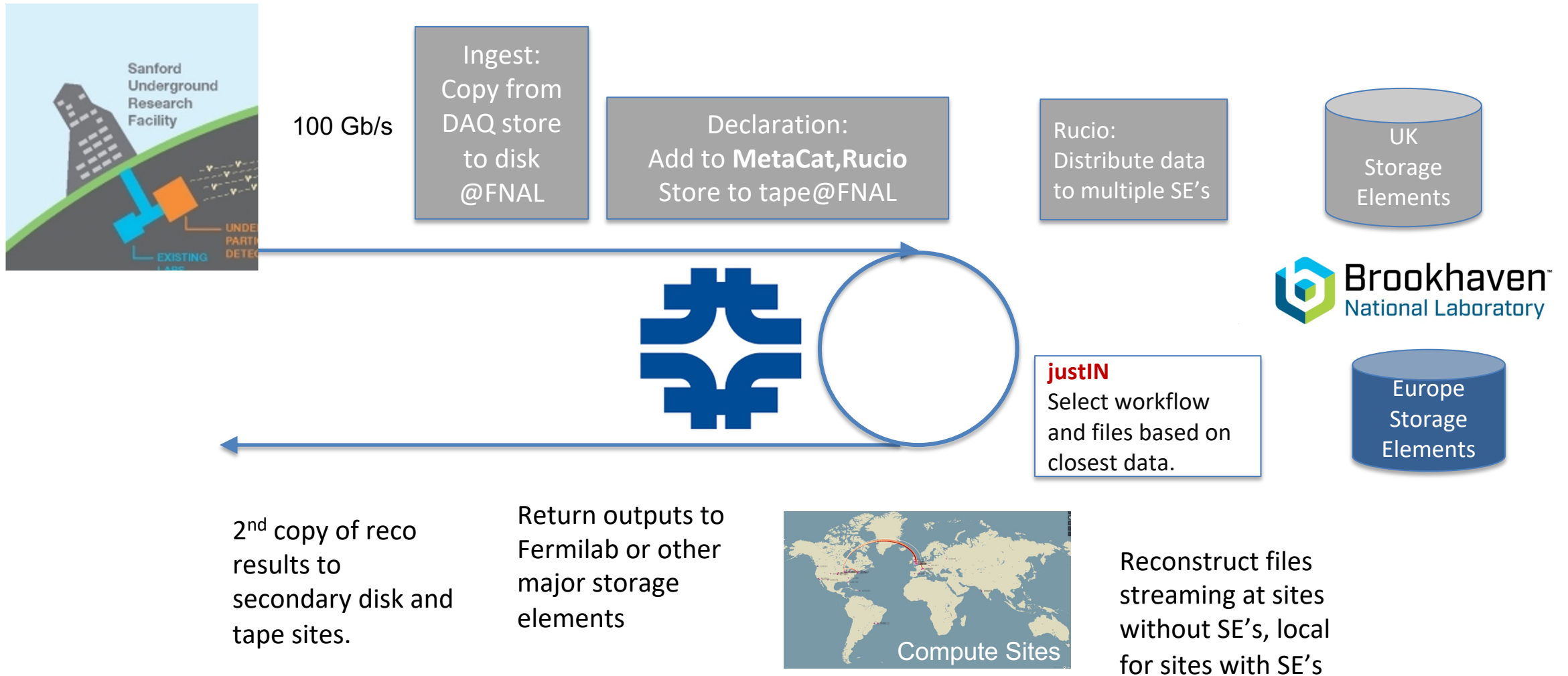
## DUNE DC24 plans

- RSE to RSE w/ token auth.
- Compute Node to/from nearby RSE – using DUNE’s justIN workflow system
- Test "SURF" to FNAL to Europe data flows.

# Backup Material



# SURF → FNAL Data Movement Plan



# Beyond ProtoDUNE – dealing with data from full DUNE

8GB for a 4.25 ms readout  
 180 TB for one 100s readout

ProtoDUNE (6 APA)  
 reco = 4 GB  
 sim – 4/6 GB

Table 7.4: Useful quantities for computing estimates for **VD** readout based on the **DAQ** requirements document of January 2022. CPU times are scaled from **ProtoDUNE-SP** assuming all detectors are used in hit finding but interactions are confined to a subsection of the detector not much larger than **ProtoDUNE-SP**.

Quantity	Value	Explanation
<b>Far Detector Vertical Drift</b>		
CRPs per module	160	DAQ spec.
TPC channels	491,520	DAQ spec.
TPC channel count per CRP	3,072	DAQ spec.
TPC ADC sampling time	512 ns	DAQ spec.
TPC ADC dynamic range	14 bits	DAQ spec.
<b>VD</b> module trigger record window	4.25 ms	DAQ spec.
Extended FD module trigger record window	100 s	DAQ spec.
Size of uncompressed trigger record	8 GB	DAQ spec.
Size of uncompressed extended trigger record	180 TB	DAQ spec.
Compression factor	TBD	
Beam rep. rate	0.83 Hz	Untriggered
Hit finding CPU time	6,000 sec	from MC/ProtoDUNE
Pattern recognition CPU time pre event	1,500 sec	from MC/ProtoDUNE
Simulation CPU time per event	2,700 sec	from MC/ProtoDUNE
Memory footprint/CRP	0.5-1GB	ProtoDUNE experience