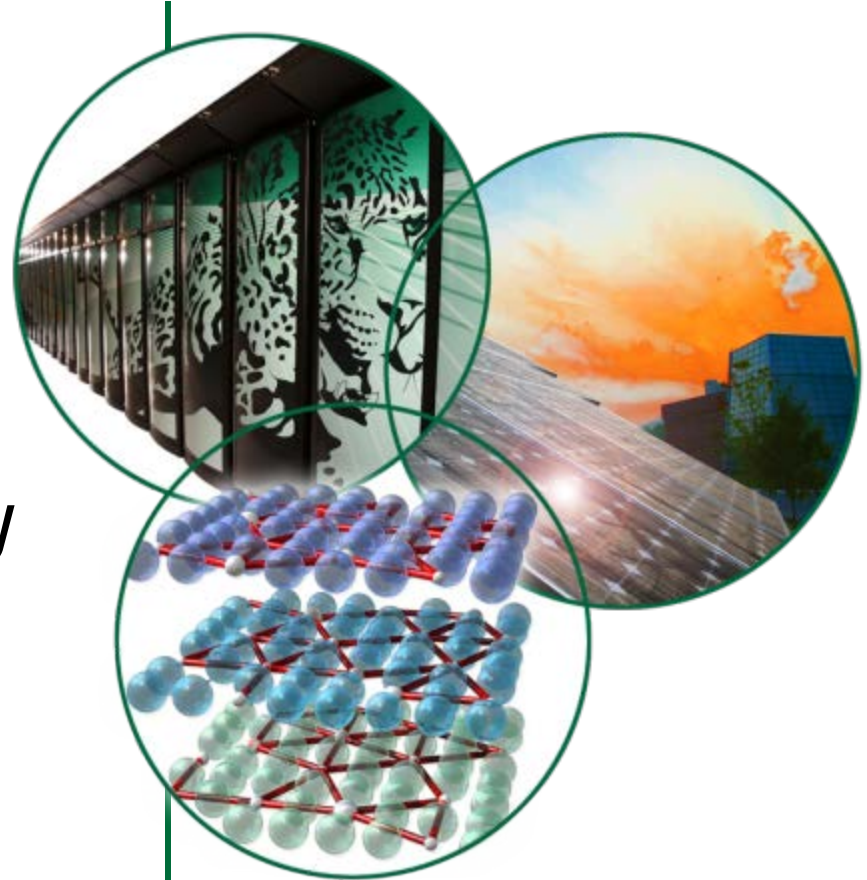


2020 HPC Architectures and Their Impact on Storage

Al Geist
Oak Ridge National Laboratory

Lustre User's Group Meeting

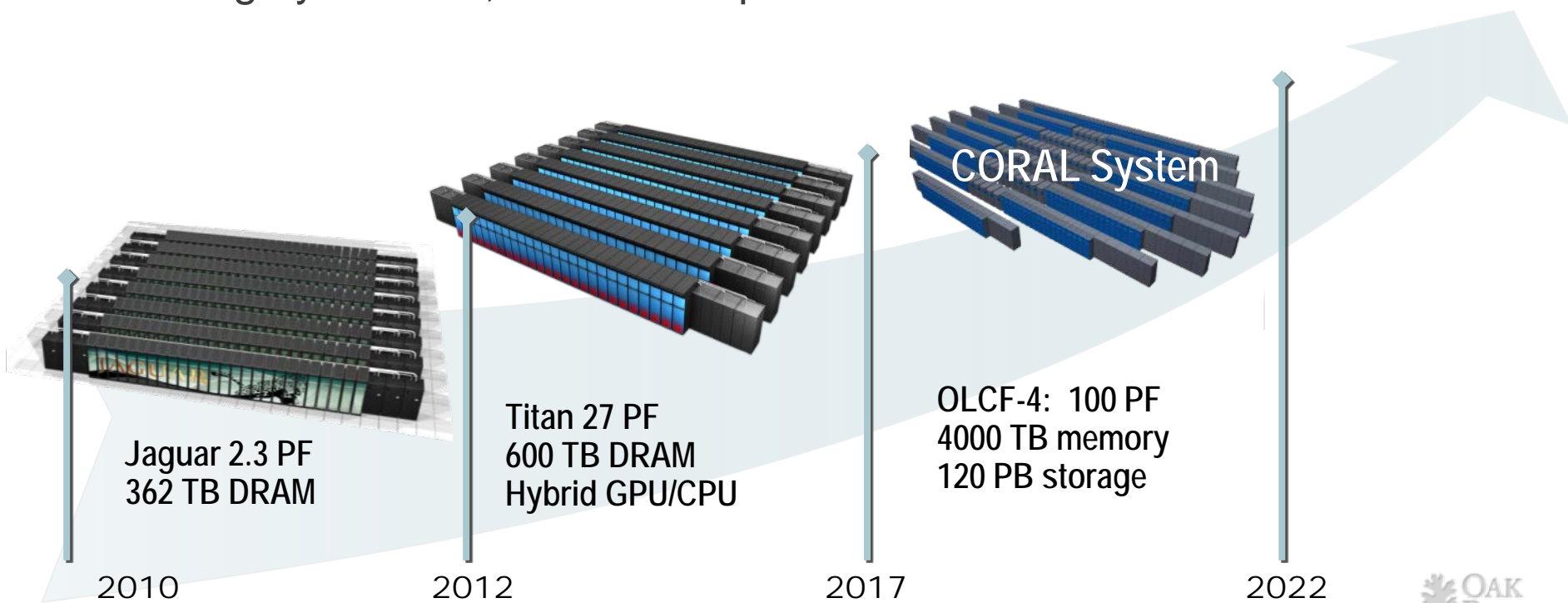
Miami, Florida
April 9, 2014



Predictions of HPC Systems 2020

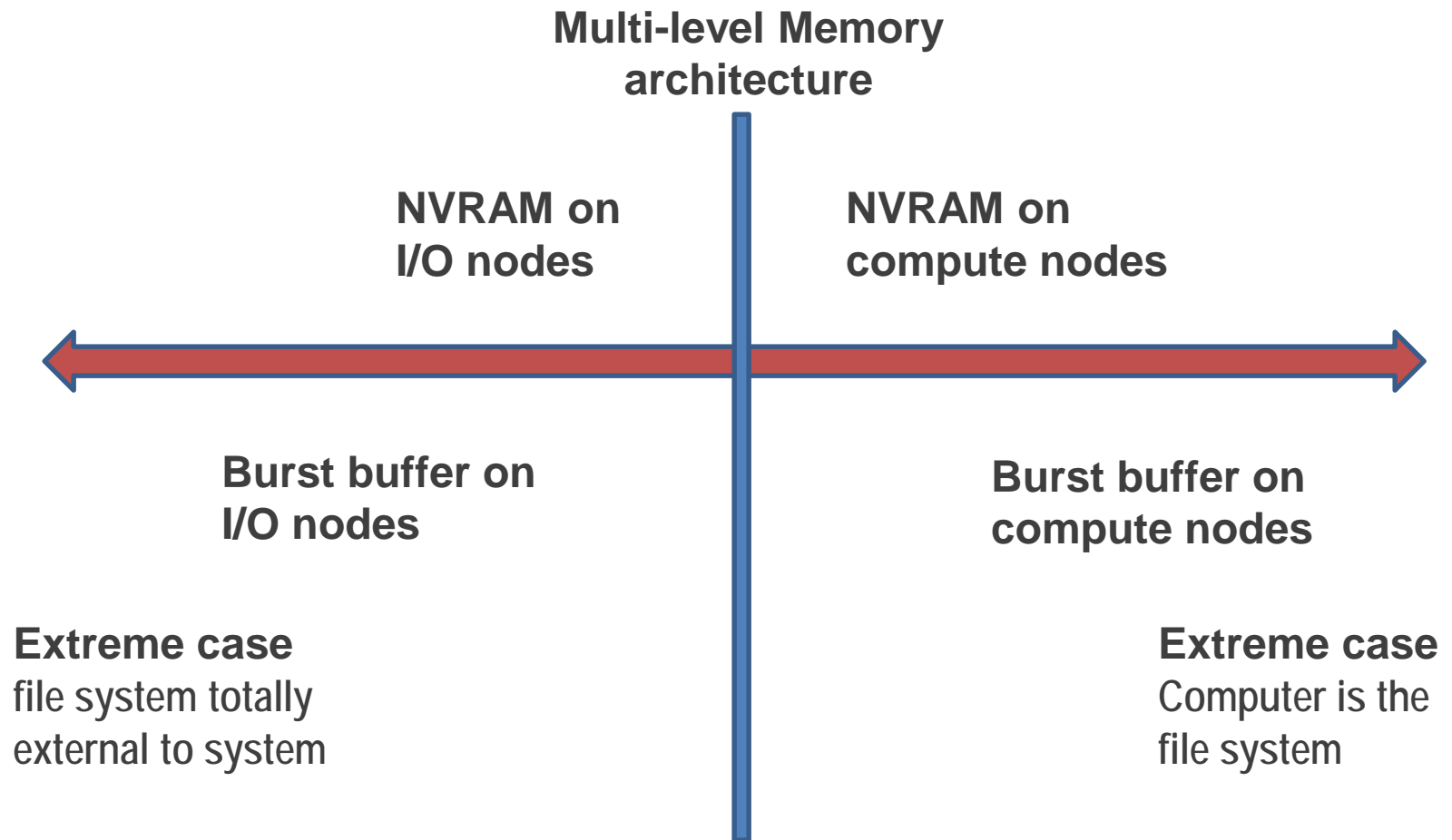
What was asked for in the CORAL RFP:

- NVRAM memory
- Burst Buffer
- POSIX interface
- File System BW requirement 6 minute checkpoint
- 1 trillion files, 1 trillion directories, TB files
- Integrity: RAID 6, silent corruption 1 bit in 10^{18}



Where Storage Resides in System?

2020 Architectures will have storage everywhere



Biggest concerns surrounding the HPC architecture and storage

There is a growing class of **big data science problems** - **are 2020 HPC Architectures and Storage prepared for:**

- **Coupling of simulation and experiment** in a feedback loop that has the potential to revolutionize discovery.
- **Analysis and data exploration of huge volumes** of disparate data from sensors, satellites, and experimental data
- **Long-term curation of big data from simulations** and disseminate this data to scientists around the world (access polices, security, etc.)

Lustre to Save the Day

