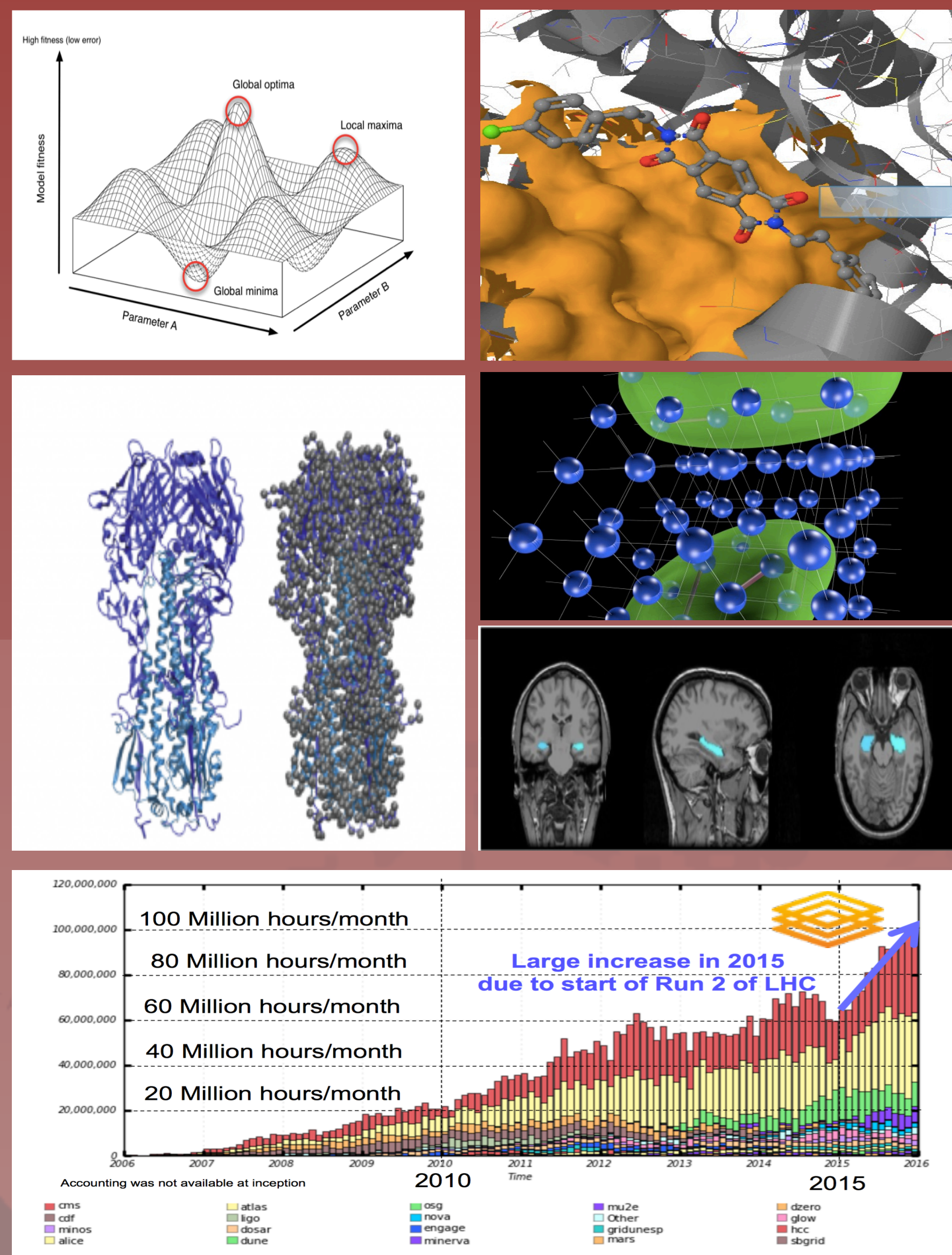


High Energy Physics Computing for the Greater Good

Robert Gardner
University of Chicago

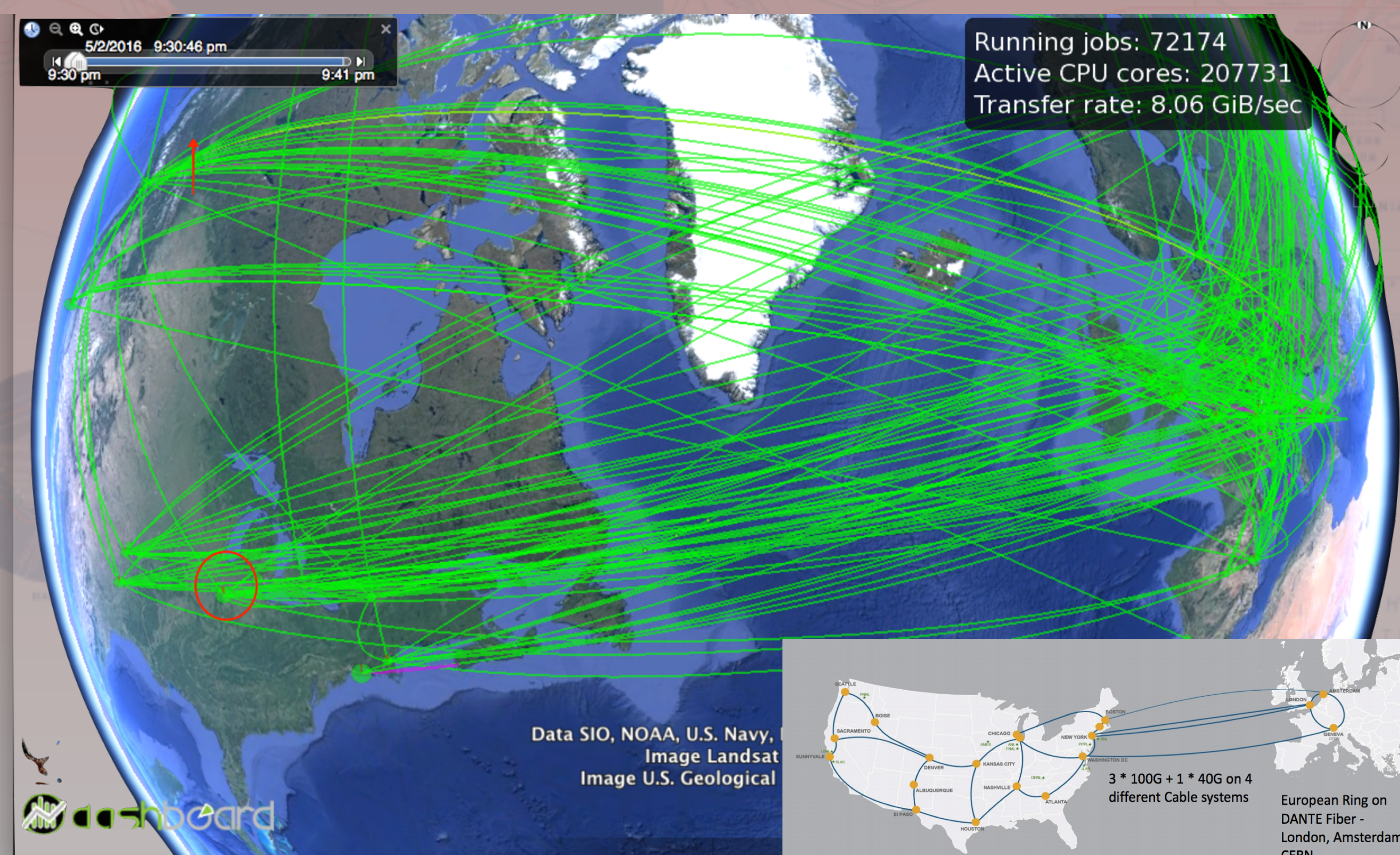
HIGH THROUGHPUT COMPUTATION: HEP computation has advanced the field of distributed high throughput computing. What science is good fit for HTC?



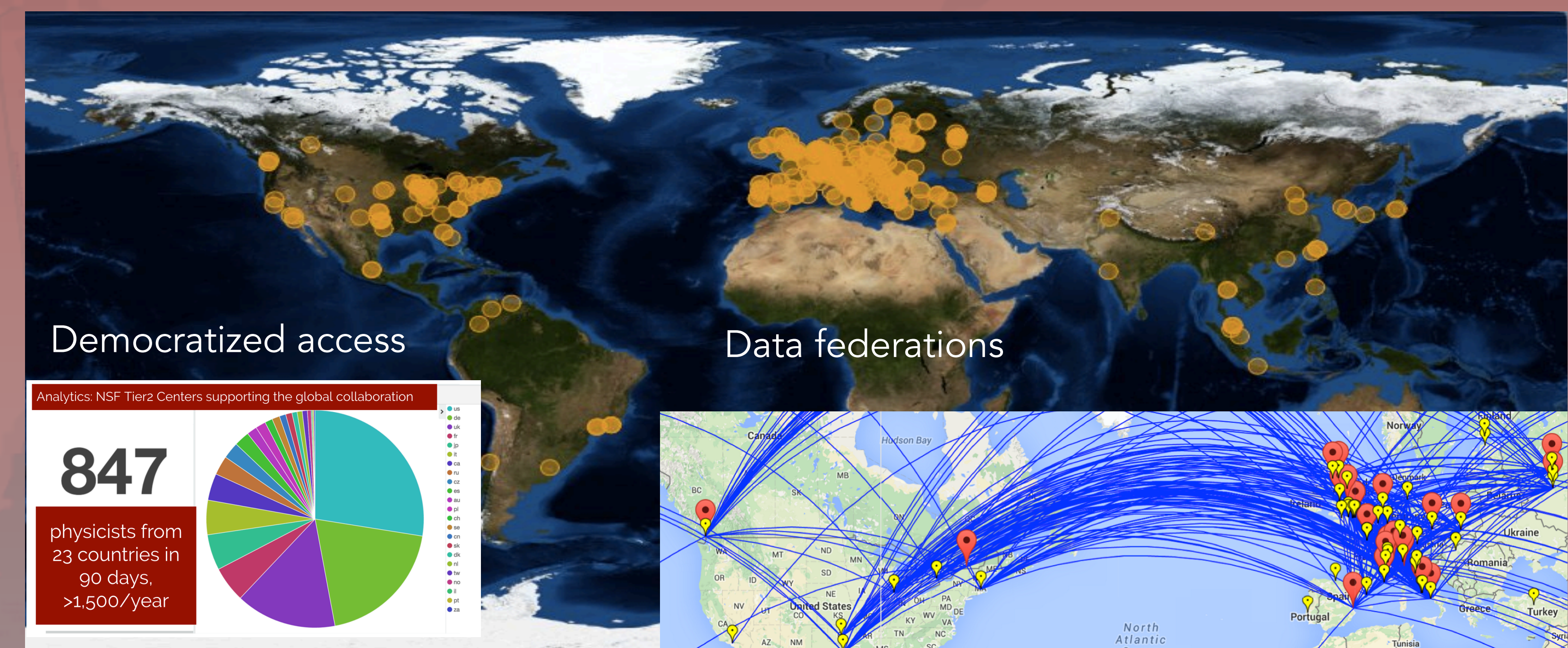
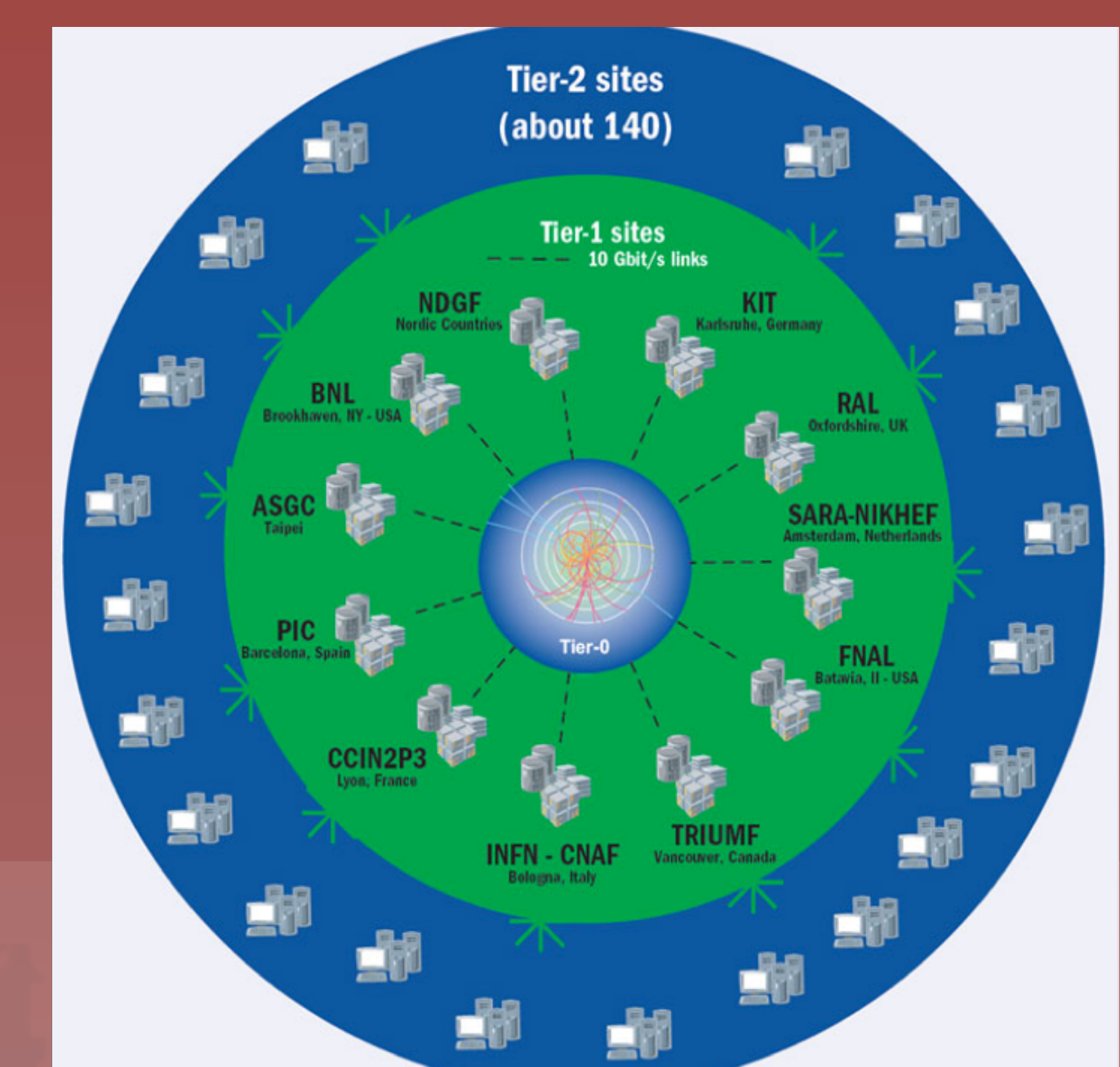
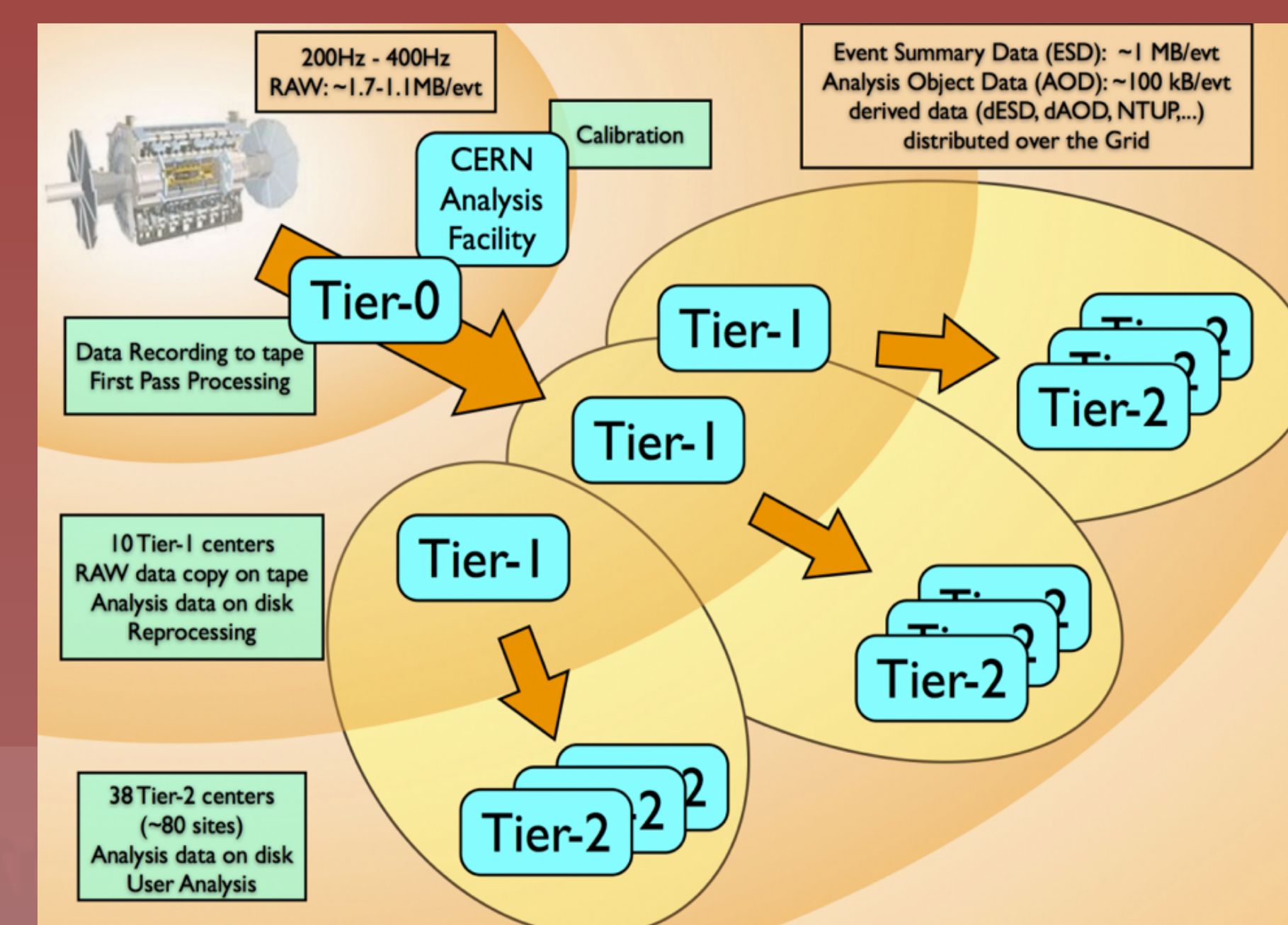
Any computation that can be split into independent pieces:

- Parameter sweeps
- Multi-start simulations
- Statistical model optimization
- Image analysis
- Pattern recognition
- Text mining
- Data-intensive analysis

HIGH PERFORMANCE NETWORKING: HEP requires very large datasets distributed over hundreds of data centers. HEP experiments have pushed development of reliable file transfer services, data federations, and engineering for "Science DMZs". ESnet & LHCONe provides high capacity transatlantic links.



DATA INTENSIVE GRIDS: the Worldwide LHC Computing Grid (WLCG) pioneered operation of grid middleware and distributed workload systems at very large scale. The infrastructure and systems have been adopted by many domains outside of HEP.



UBIQUITOUS CYBERINFRASTRUCTURE for the university

