SLAC’s research initiatives present formidable computing challenges. SLAC needs a strategy for delivering data analytics at an unprecedented scale, from data acquisition and detector controls that can leverage ML at the edge for real-time calibration, to processing on modern HPC clusters before publishing results. The entire data pipeline relies on scalable storage systems, high-speed networking and instant access to compute resources. The SLAC Shared Scientific Data Facility (S3DF) is our strategy for providing these capabilities while building core computing competencies at the lab. S3DF is a new compute, storage and network architecture designed to support all SLAC experimental facilities and programs, including LCLS/LCLS-II, UED, cryo-EM, the accelerator, and the Rubin observatory. The S3DF infrastructure is optimized for data analytics and is characterized by large, massive throughput, high concurrency storage systems.