

Finalizing Construction of a New Data Center at BNL

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Computational science, data management and analysis have been key factors in the success of Brookhaven National Laboratory's scientific programs at the Relativistic Heavy Ion Collider (RHIC), the National Synchrotron Light Source (NSLS-II), the Center for Functional Nanomaterials (CFN), and in biological, atmospheric, and energy systems science, Lattice Quantum Chromodynamics (LQCD) and Materials Science, as well as our participation in international research collaborations, such as the ATLAS Experiment at Europe's Large Hadron Collider (LHC) at CERN (Switzerland) and the Belle II Experiment at KEK (Japan). The construction of a new data center is an acknowledgement of the increasing demand for computing and storage services at BNL in the near term and enable the Lab to address the needs of the future experiments at the High-Luminosity LHC at CERN and the Electron-Ion Collider (EIC) at BNL in the long term. The Computing Facility Revitalization (CFR) project is aimed at repurposing the former National Synchrotron Light Source (NSLS-I) building as the new data center for BNL. The new data center is to become available in early 2021 for ATLAS compute, disk storage and tape storage equipment, and later that year - for all other collaborations supported by the Scientific Data and Computing Center (SDCC), including: STAR, PHENIX and sPHENIX experiments at RHIC collider at BNL, the Belle II Experiment at KEK (Japan), and the Computational Science Initiative at BNL. Migration of the majority of IT load and services from the existing data center to the new data center is expected to begin with the central networking systems and the first BNL ATLAS Tier-1 Site tape robot in 2021Q3, and it is expected to continue throughout FY2021-2024. This presentation will highlight the key mechanical, electrical, and plumbing (MEP) components of the new data center. Also, we will describe plans to migrate a subset of IT equipment between the old and the new data centers in CY2021, the period of operations with both data centers starting from 2021Q3, plans to perform the gradual IT equipment replacement in CY2021-2024, and show the expected state of occupancy and infrastructure utilization for both data centers up to FY2026.

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