



20 Years of Biowulf: How NIH's Supercomputer Is Evolving with Science

Friday, August 9, 2019

From a small cluster of boxes to petabytes of data storage, [Biowulf](#) has seen exponential growth since its launch in 1999. Biowulf, a state-of-the-art supercomputer managed by the Center for Information Technology's (CIT's) [High Performing Computing Services](#), is designed for general-purpose scientific computing, has high availability and high data durability, and acquires and processes data for simultaneous computing jobs and large-scale distributed memory tasks. A recent [HPCwire](#) article highlights how [Biowulf's impact at NIH over the last several years mirrors the rise of computational biology](#), a hybrid discipline of biomedical research, life sciences, and high-volume data generation.

Biowulf has expanded significantly in recent years, especially since the start of its second phase, Biowulf 2.0, in 2014. The expansion was in response to a need to keep pace with the increasing volume and complexity of datasets involved in groundbreaking biomedical research. To help ensure that NIH's information technology (IT) infrastructure could continue to support NIH's mission of enhancing human health and reducing illness and disability, this five-year, five-phase project focused on modernizing the supercomputer's infrastructure by increasing the computing capability and data storage for research. "[NIH's] objectives over the five-year period were to put in a modern architecture that had both the power and flexibility to meet the needs of intramural researchers across our 27 institutes and centers a wide variety of different disease and health domains, and basic, translational and clinical research," says CIT Director and NIH Chief Information Officer Andrea Norris.

NIH now will work to optimize this storage and simplify the data by structuring the computer's architecture in the next phase, Biowulf 3.0.

As Dr. Andy Baxevanis, director of computational biology for the NIH Intramural Research Program and CIT's acting scientific director, explains, "We are in the middle of a long-term strategic planning process, and part of that process involves evaluating new architectures and new technologies so that we can continue to meet the scientific needs of the intramural research program."

Read the [full HPCwire article](#) to learn more about Biowulf's past, present, and future at NIH.