



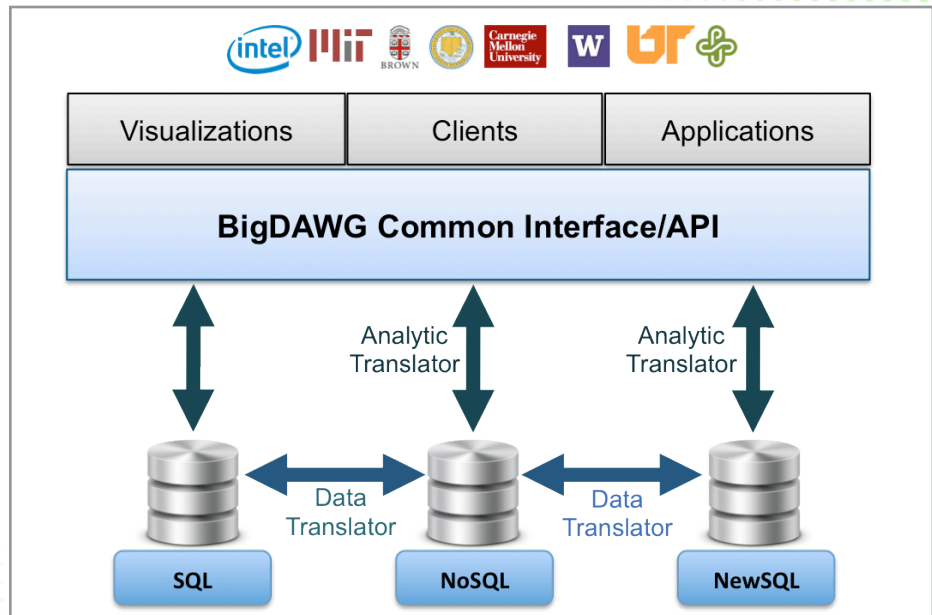
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## Enabling Massive Computation and Resiliency in the Internet-of-Things Era

Technology Office | Lincoln Laboratory

The Internet of Things (IoT), an ever-growing network of physical devices connected to the Internet, brings a unique set of challenges to the Department of Defense (DoD). These challenges include the billions of connected devices, the tremendous diversity of the data being generated by these devices, and the varied defenses required to protect the applications.

This Line-funded program has been developing fundamental technologies to address these challenges. For devices, the team has been working with several groups to develop hardware and software tools to process the high volume of data generated by these devices. These efforts include understanding how new processing paradigms—such as Group 102's graph processor, NVIDIA graphics processing units, and Intel's KNL processors—will play a role in the Lincoln Laboratory Supercomputing Center's future. To address the diversity challenge, the Laboratory team, in collaboration with university partners, developed the first-ever polystore database system called BigDAWG. BigDAWG greatly simplifies data analytics by allowing users to integrate data that is spread



To address challenges in working with diverse datasets, Laboratory staff and university collaborators created the BigDAWG polystore system. BigDAWG is a new kind of database management system that allows users to integrate and run analytics on data that is spread across disparate database engines.

across disparate database engines. To address defense challenges, the team is developing algorithms resilient to certain cyber attacks. These algorithms are co-designed with existing algorithms in order to allow DoD sensors to operate in adversarial environments.

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