WHAT YOU NEED TO KNOW ABOUT GRAHAM

THE NEW SUPERCOMPUTER AT THE UNIVERSITY OF WATERLOO

1 **Located at the University of Waterloo,** Graham is one of Canada's newest large-scale computing resources and provides expanded compute, storage and cloud resources for researchers across the country. Graham is one of four new national systems being deployed as part of one of the biggest advanced research computing renewals in Canada's history. Learn more about this technology renewal at www.computecanada.ca/techrenewal

2 **Graham is powerful.** With over 1,000 nodes and 33,000 CPU cores, Graham will support more simultaneous computational jobs than any other Canadian academic supercomputer. It provides 2.6 petaFLOPs of peak theoretical computational performance.

3 Of the General Purpose Clusters in the new Compute Canada fleet of resources, **Graham is the largest in terms of total core count.**

4 **Graham provides more GPU-equipped nodes than any other Canadian academic supercomputer,** enabling large data processing to run efficiently. Overall this also helps the system to run with fewer idle cores at any given time, meaning that more jobs will run simultaneously, and ultimately more research results will be generated.

5 **Graham's configurations are specifically tailored to accommodate and accelerate** the kinds of procedures that Canadian innovators are using for their groundbreaking research.

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6 **Graham is built for big data.** With its massive 5 petabyte parallel storage system and extraordinary computing power, Graham can support researchers who are collecting, analyzing, or sharing immense volumes of data.

7 **Graham supports a broad range of projects.** Researchers will pursue discovery and innovations in advanced manufacturing, artificial intelligence, political science, chemistry and engineering, among others.

8 **Graham offers cloud computing.** Using OpenStack, Graham's massive storage and batch HPC (high performance computing) environment will integrate seamlessly with Arbutus — Compute Canada's cloud system at the University of Victoria — and other systems in the national cloud federation.

9 **Data intensive science requires a platform optimized for large capacity,** high performance data flows. Graham is fully integrated into Compute Canada's National Data Cyberinfrastructure, which allows for massive data flows at up to 100Gb/s among sites.

10 **Graham was born out of collaboration.** Together, Waterloo (a member of SHARCNET, a multi-university consortium in Ontario), Compute Ontario and Compute Canada built a system that serves over 11,000 Canadian researchers across all academic disciplines.

Graham is named in honour of Professor Wes Graham, the first director of Waterloo's Computing Centre. Recognized as the father of computing at the University of Waterloo, he was a passionate teacher and pioneer in the creation of software for education to enable student programming.

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