



**compute**canada

*National Advanced Research Computing Platform and  
Services Dedicated to Canadian Researchers*

Dr.Greg Newby, CTO Compute Canada



**200** experts accelerating results for more than **10,700** researchers including **3,140+** faculty members



More than **35,000** peer-reviewed publications, **40** patents, **23** inventions, and **7** companies\*

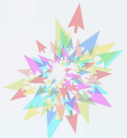
\*since 2012



Storing and managing over **15** petabytes of active research data



Serving users at more than **70** Canadian universities



# Regional Organizations

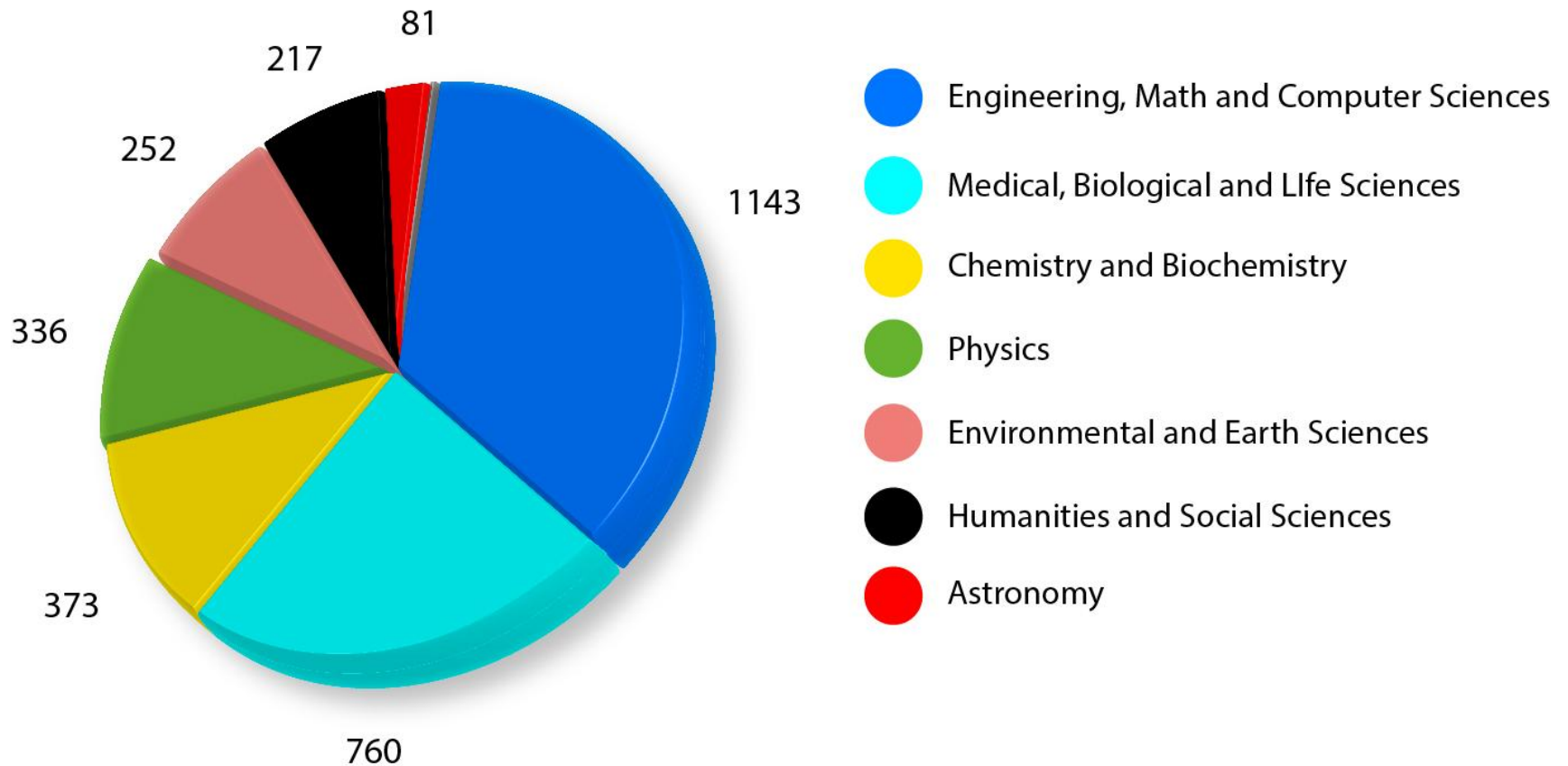


- Role of regions: Coordinate local activities, such as training, staff management and ensuring needs of the institutions and provinces are being met.
- Role of Compute Canada: Leadership and national scale initiatives: Resource Allocation Competition (RAC), procurement, coordinating research data management and other national services, securing funding, advocacy, national/international partnerships

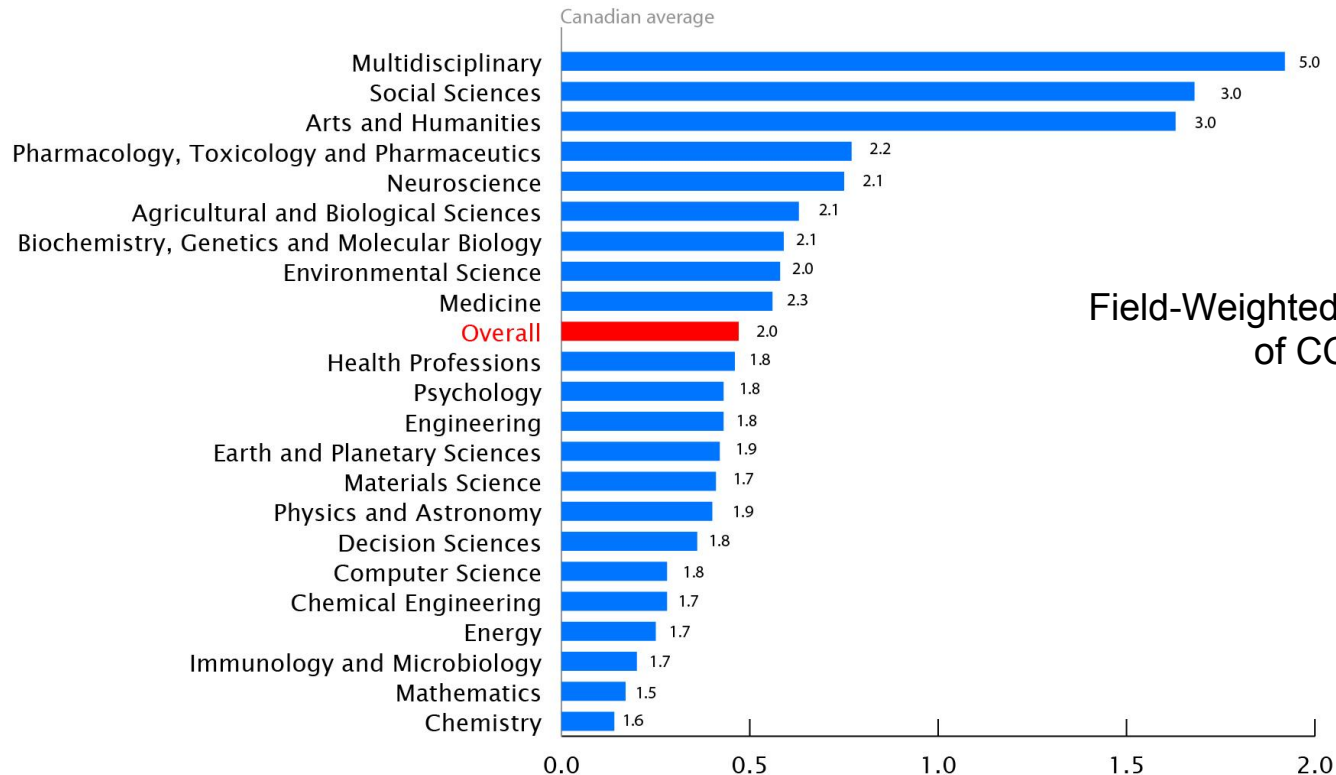


# Essential for All Disciplines

Active faculty by research area (Jan 1, 2016)



# Essential for Excellence



Field-Weighted Citation Impact (FWCI)  
of CC-enabled papers minus  
Canadian Average.

- 35,000 publications identified as “CC-enabled”
- CC-enabled publications have higher FWCI in all disciplines (with at least 100 papers)
- Overall 2x world-average.
- Largest effect in emerging disciplines.



# What services do we provide?

High performance, big data and GPU computing and storage

Extensive variety of specialized software

Globus portal to share and transfer terabytes of data in a fast and secure environment

Portals for specialized data and tools available for research disciplines

GenAP platform to access and use genomic datasets

ownCloud on a dedicated, managed server, offering data integrity and 50GB of space across multiple devices

Cloud environment development space that includes an outward-facing IP address

Data storage and back-up systems provide stability and security options compared to your desktop



# Who do we support?

Canadian Researchers and their industrial and international partners

Large R&D industries in aviation, drug development, advanced materials manufacturing, energy and natural resources and life sciences.

Research based commercial spin-offs

Research Hospitals and institutes including the Canada's Michael Smith Genome Science Centre

Global research initiatives such as ATLAS, CANFAR, IHEC

TRIUMF, Genome Canada, NRC



# How we help researchers

## Resources/Services

ownCloud

Globus file transfers

Managed cloud space

Stable and secure data storage and backup

High performance, big data and GPU computing and storage

Videoconferencing

Research Data Management

Software distribution

## HIGHLY TRAINED CAMPUS EXPERTS

Consultation - Helping to determine the resources needed

Designing, optimizing and troubleshooting computer code

Customizing tools

Installing, operating and maintaining advanced research computing equipment

Dedicated humanities specialists

Visualization specialist

Cybersecurity

## Training

Group and individual training and ongoing support from novice to advanced

Standard and discipline specific customized training

Livestreaming of national seminar series including VanBUG and Coast to Coast

Quickstart guides, training videos and other upcoming online workshops

Software Carpentry

compute | calcul  
canada | canada



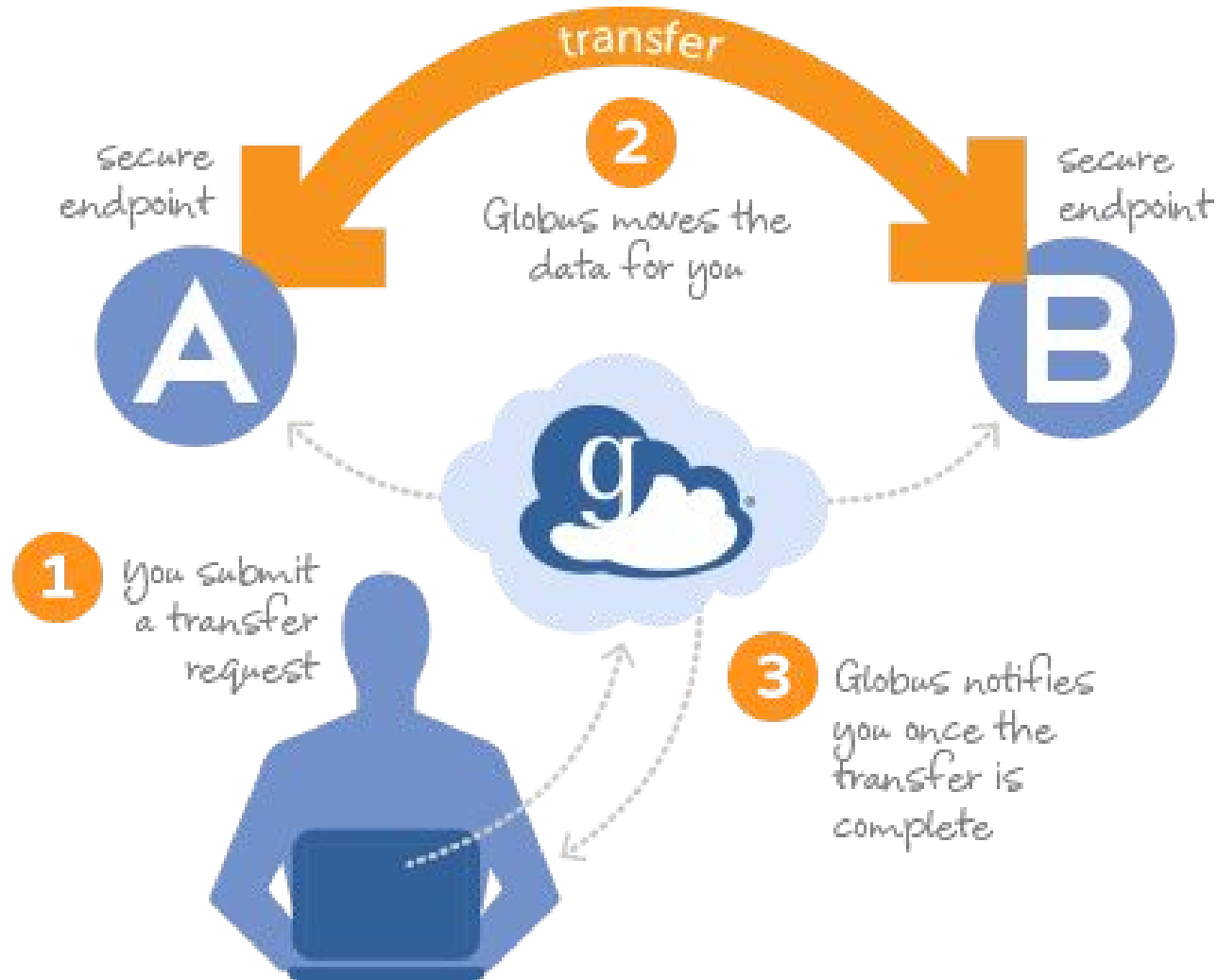


# Did you know that we...

- ❖ **Have over 200 staff, more than 60 PhDs, at 35 institutions?**
- ❖ Employ Database experts and run **databases** on behalf of certain research groups?
- ❖ Offer connection to 24 of our sites through the **globus.computecanada.ca** portal? You can transfer files in-and-out and share datasets with other researchers around the world with the click of your mouse.
- ❖ Employ **visualization experts** who run training workshops and work closely with researchers on their visualization needs.
- ❖ Offer a **collaboration platform** based on Vidyo - HD video conferencing, screen sharing, recording, phone bridge (vidyo@computecanada.ca).
- ❖ Launched our first **Research Platforms and Portals** competition in fall 2014? Science gateways, web portals, large collaborative science - multi-year allocations.
- ❖ Can offer **Hadoop** and other services on-demand?
- ❖ Offer general purpose research (OpenStack) **cloud** in the next 2 months?



# Globus - Data Transfer Service



# Access and Allocations

- Account holders must be faculty at a Canadian institution (or be in collaboration with). There is no fee for usage charged to Canadian university faculty.
- All usage by private industry and federal labs is subject to a fee.
- Each system has resources set aside for users with “default priority”. No special vetting or application process required.
- Researchers with larger needs can apply to two different resource allocation competitions, annually each Fall:
  - Resource Allocation Competition : 1-year, mostly individual faculty members
  - Research Portal and Platforms Competition: up to 3-years, platforms and portals, shared datasets
- Allocation decisions made based on peer review. Storage is a dedicated allocation. Compute is a priority allocation.

# Consolidating Platform and Renewing Systems

CC Manages All Software & Middleware Services

## Distributed Across Canada today

50 Systems

23 Data Centres

200,000 cores, 2 Pflops, 20 PB

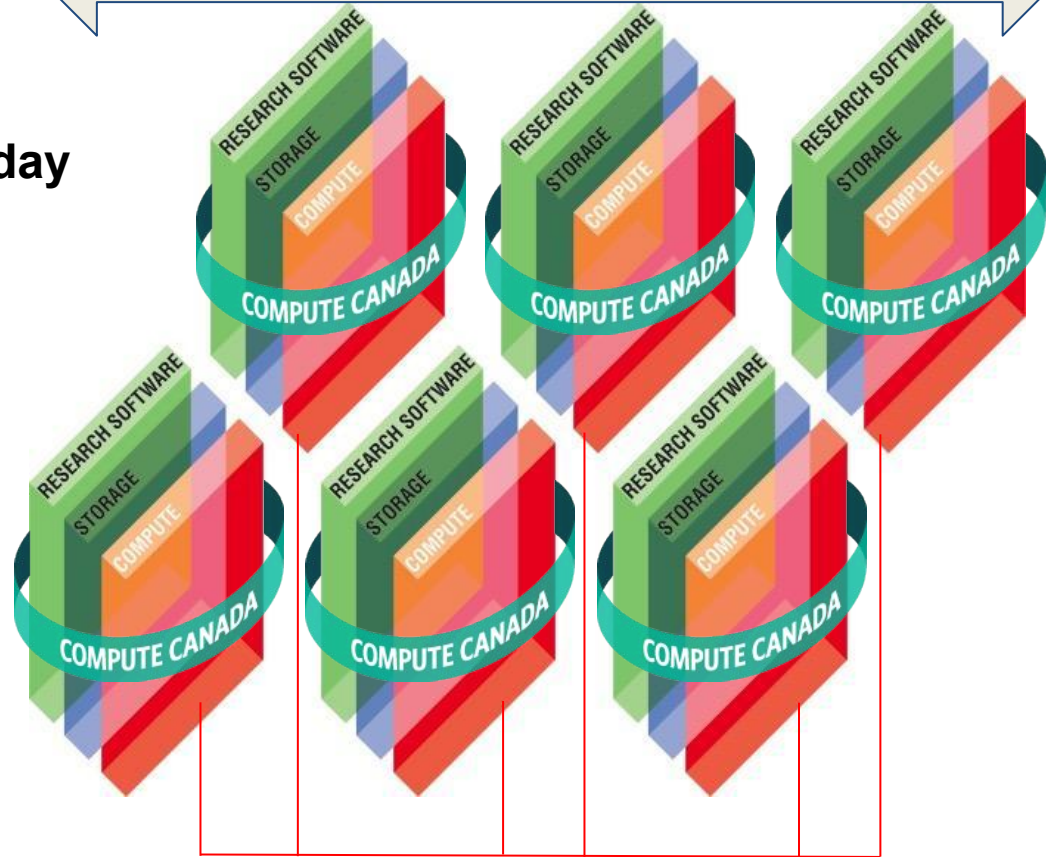
200 Experts

## Consolidation & Concentration by 2018

5-10 Data Centres

300,000 cores, 12 Pflops, 50+ PB

200 Experts

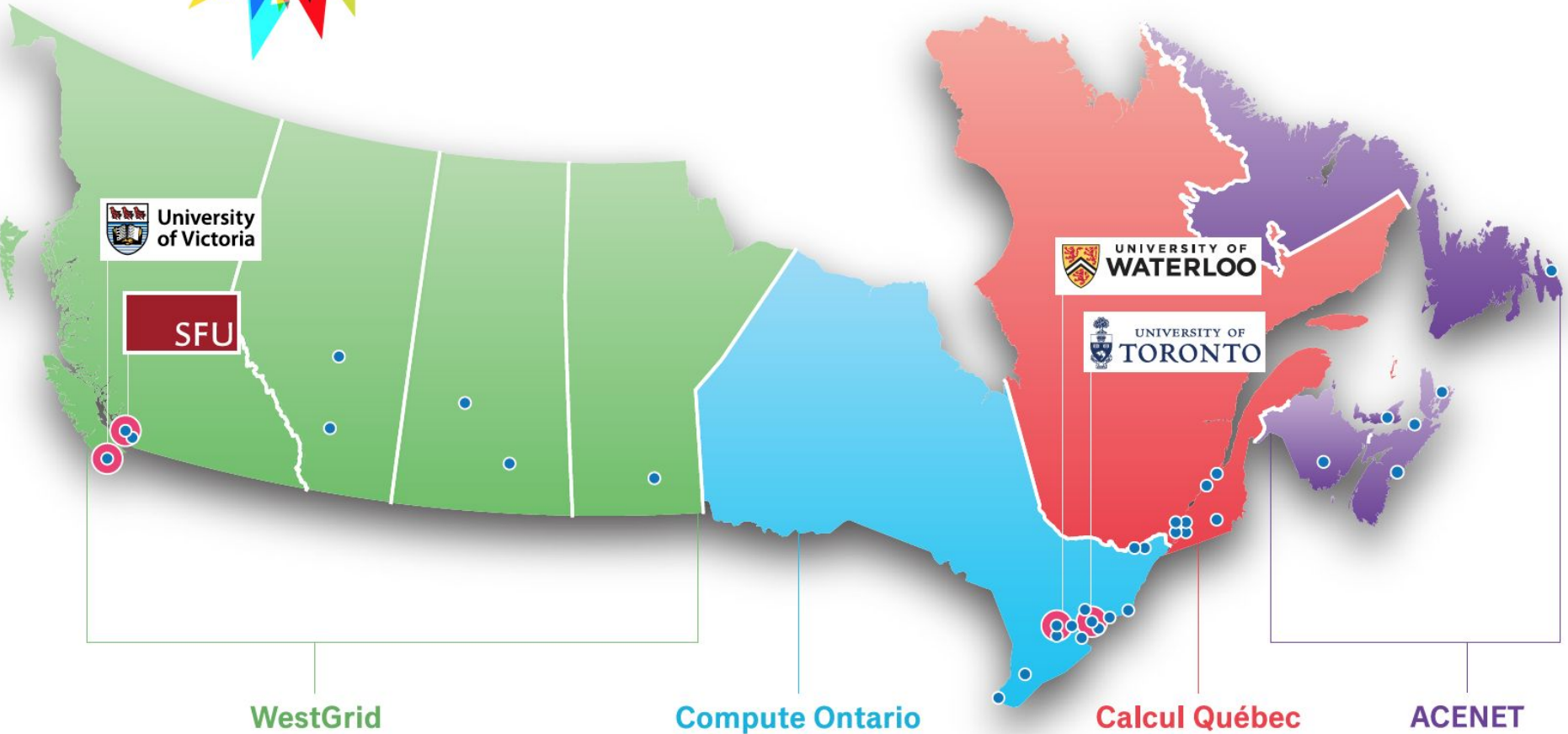


CANARIE and regional  
Networks





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● **Future Consolidated Infrastructure Site**

● **Member Site\***

\*member sites include sites served by Compute Canada, sites with infrastructure and support teams and sites with support teams only

# You are invited ...

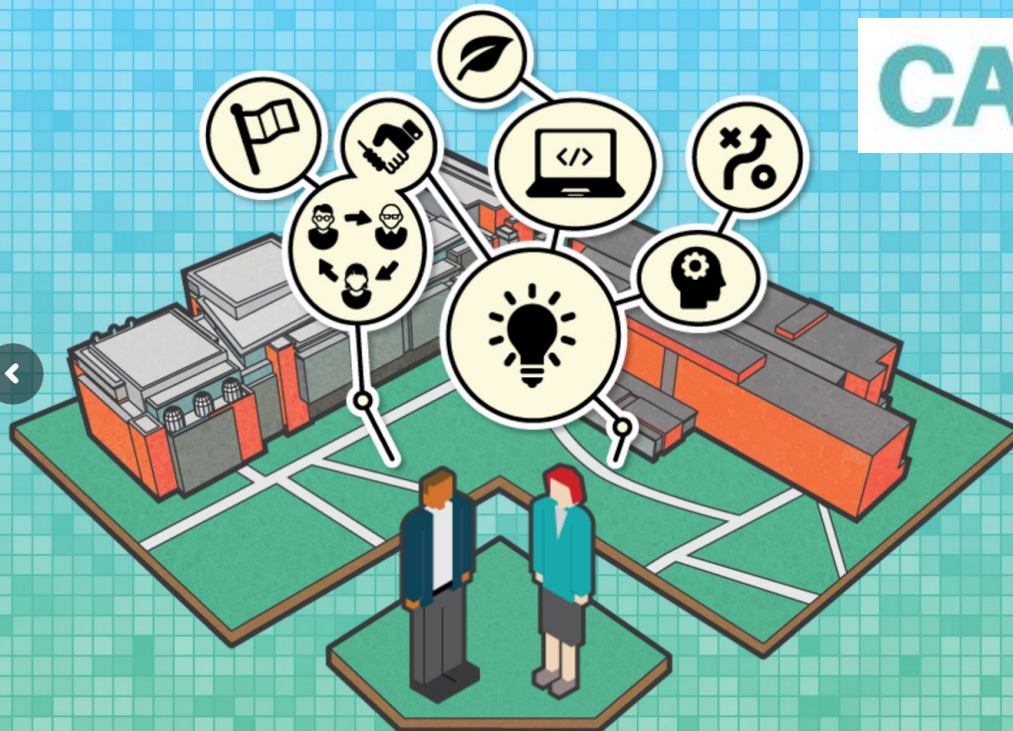
Edmonton, AB  
HPCS.ca

Participate in the discussion around ways to advance national initiatives, strategies and vision for building world-class digital infrastructure in Canada.

**CANHEIT** **HPCS** 

Shaping  
The Digital  
Landscape

June 19 - 22, 2016



# Summary

We welcome your advice, requests and feedback!

Connect with us at

[sparc@computecanada.ca](mailto:sparc@computecanada.ca)

[@computecanada](https://twitter.com/computecanada)

[info@computecanada.ca](mailto:info@computecanada.ca)

