Digital Research Infrastructure (DRI) in Canada

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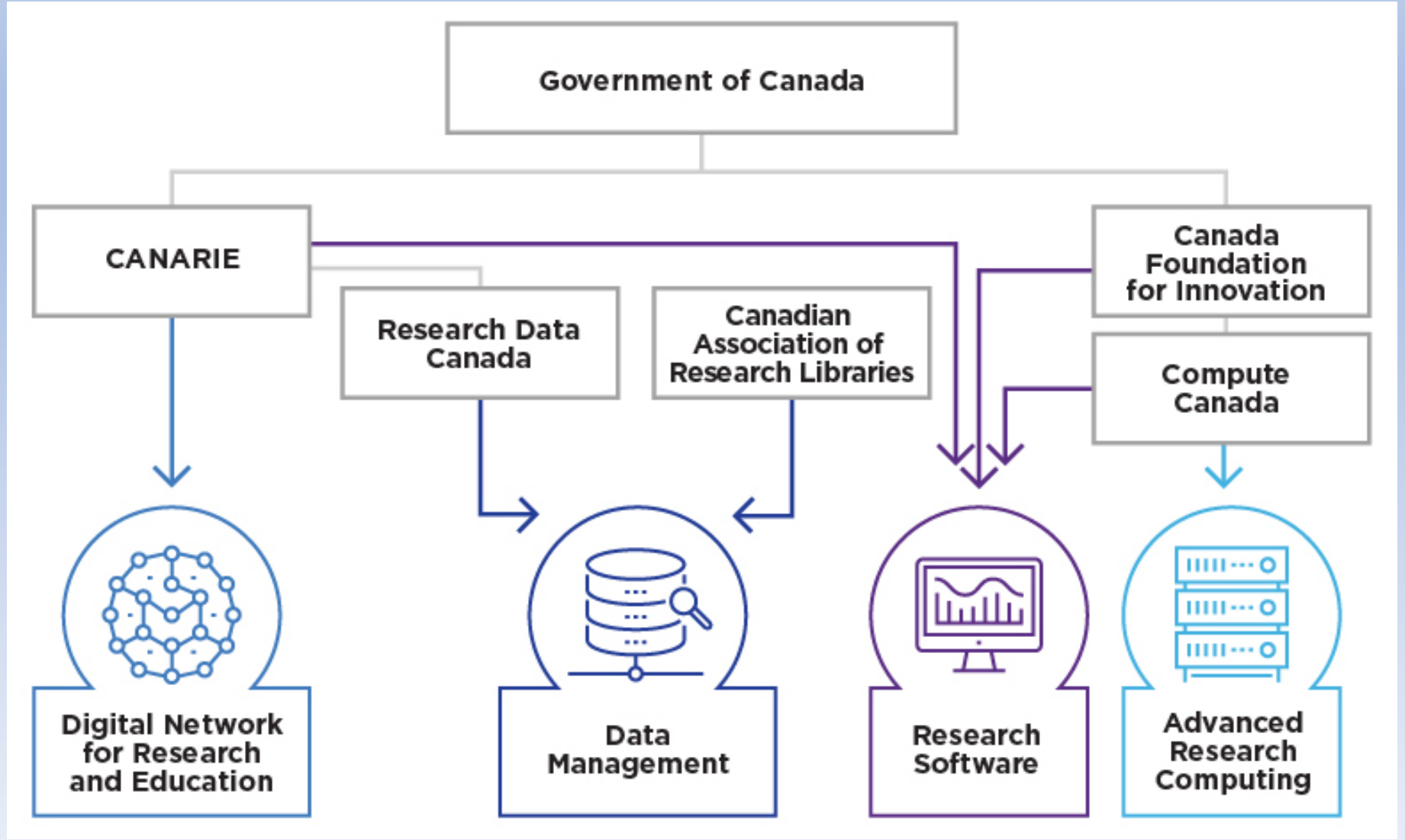
Review state of the DRI situation and calls for proposals

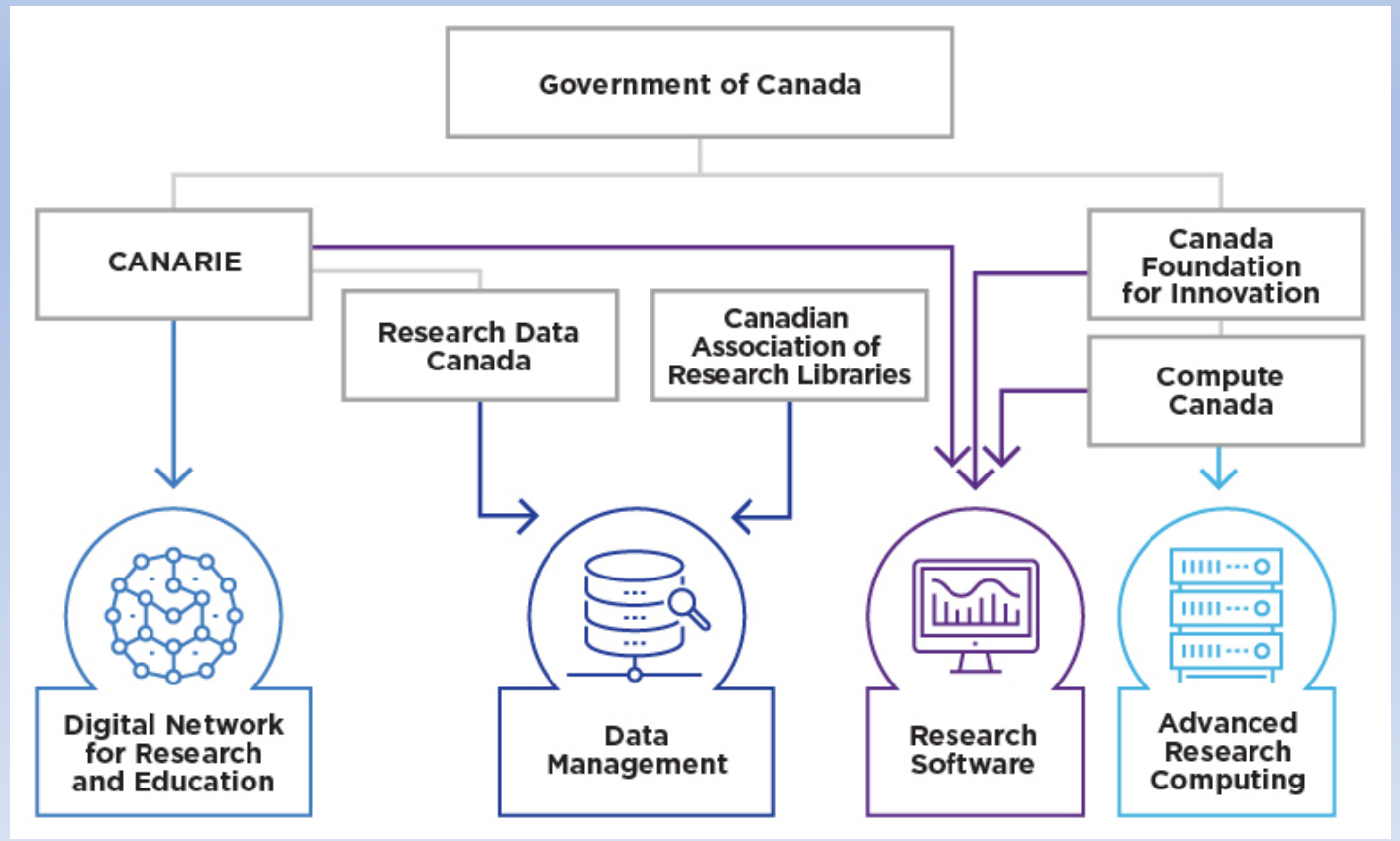
IPP/CINP response and activities

Federal view of Digital Research Infrastructure in Canada



http://www.ic.gc.ca/eic/site/136.nsf/eng/home

Researcher view of Digital Research Infrastructure in Canada



Industry	Universities & Provinces	NSERC

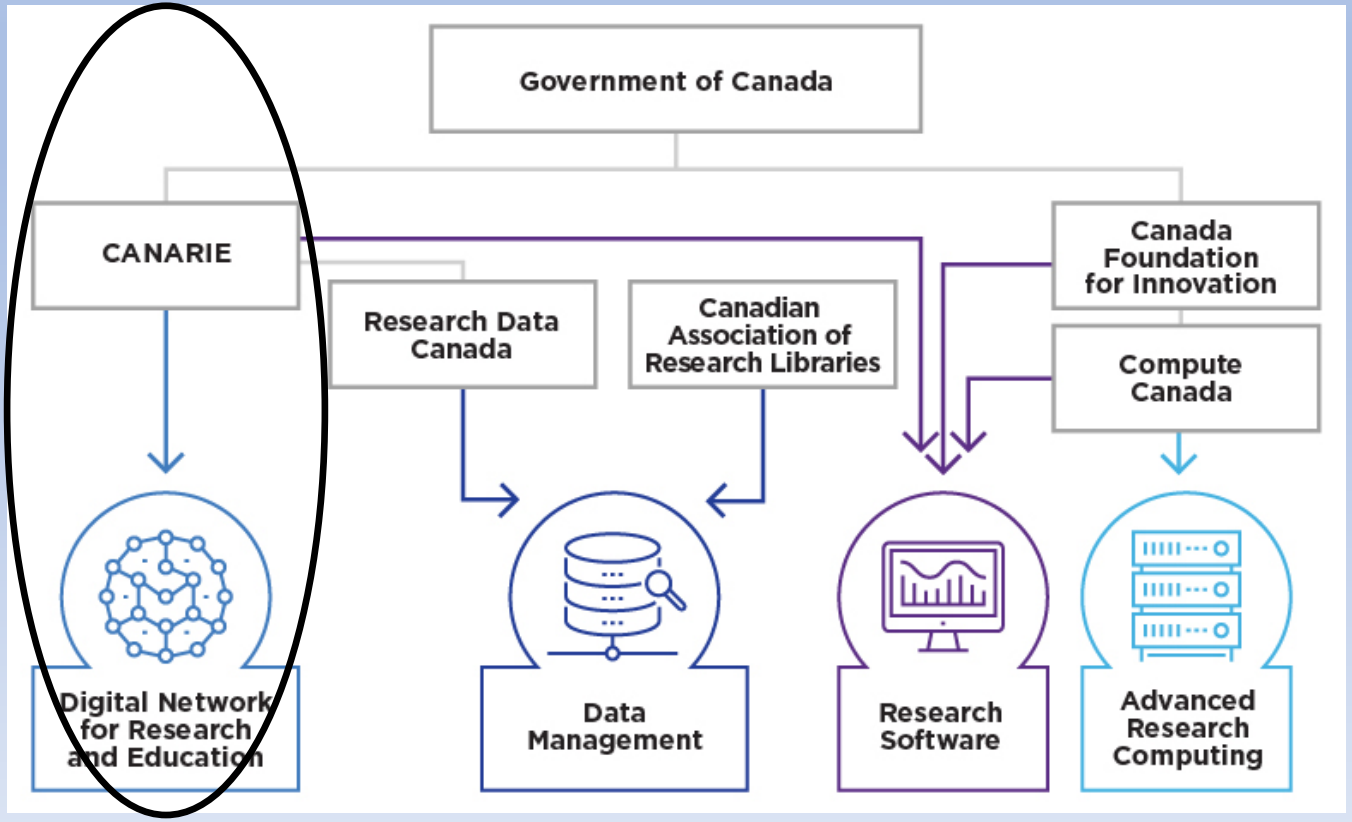
CANARIE (National research network provider)
Established by research community

Provides national backbone and international connections, trans-oceanic links

Provincial (regional) networks provide connections to universities, labs, ..

ATLAS T1-CERN dedicated network

Funded in a similar manner as TRIUMF



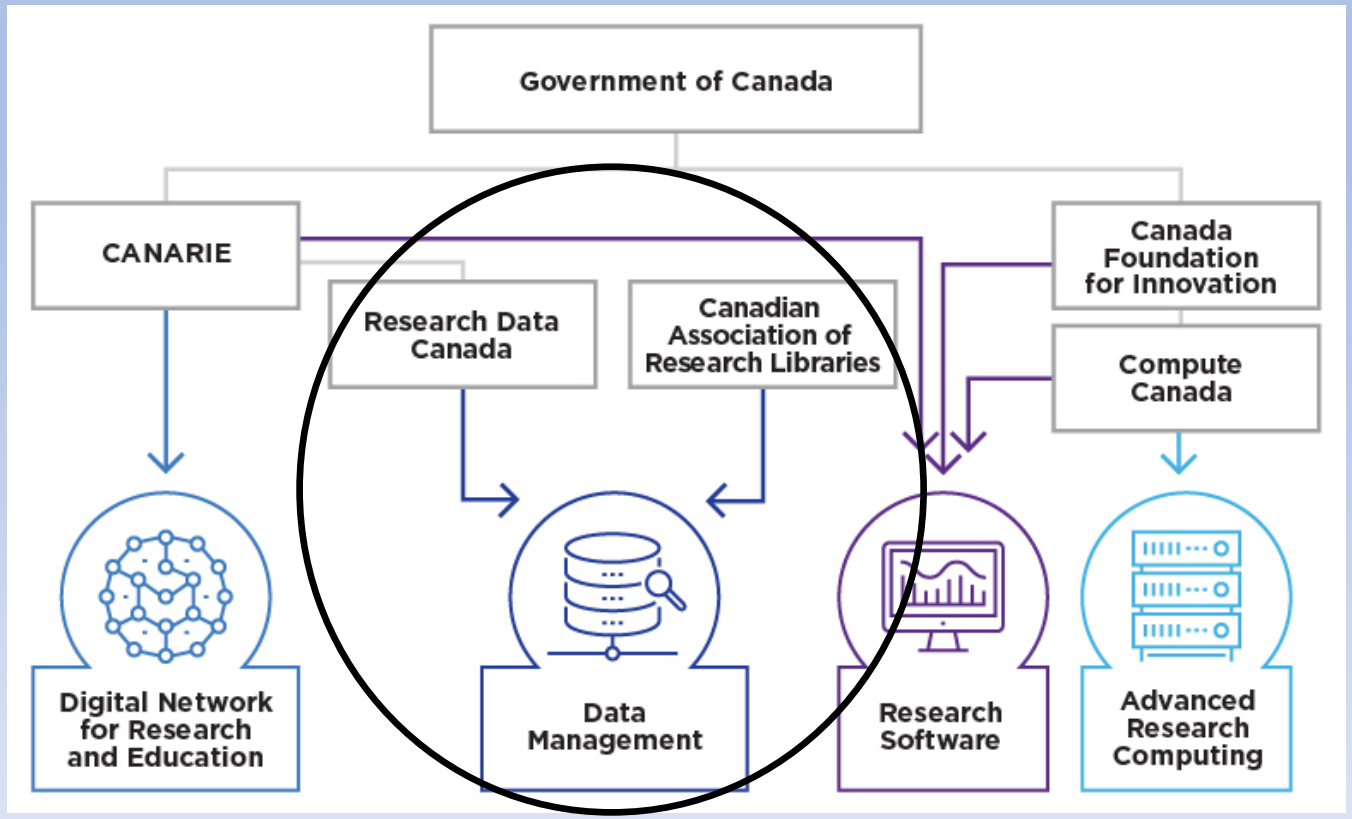
Data management

CARL (Libraries)
Curation and archival of small data

Research Data Canada (RDC)
Small organization supported by CANARIE

Responsible for “small” research data (< 100 TB) ?

Relevance for HEP?
Many “big sciences” have data management systems

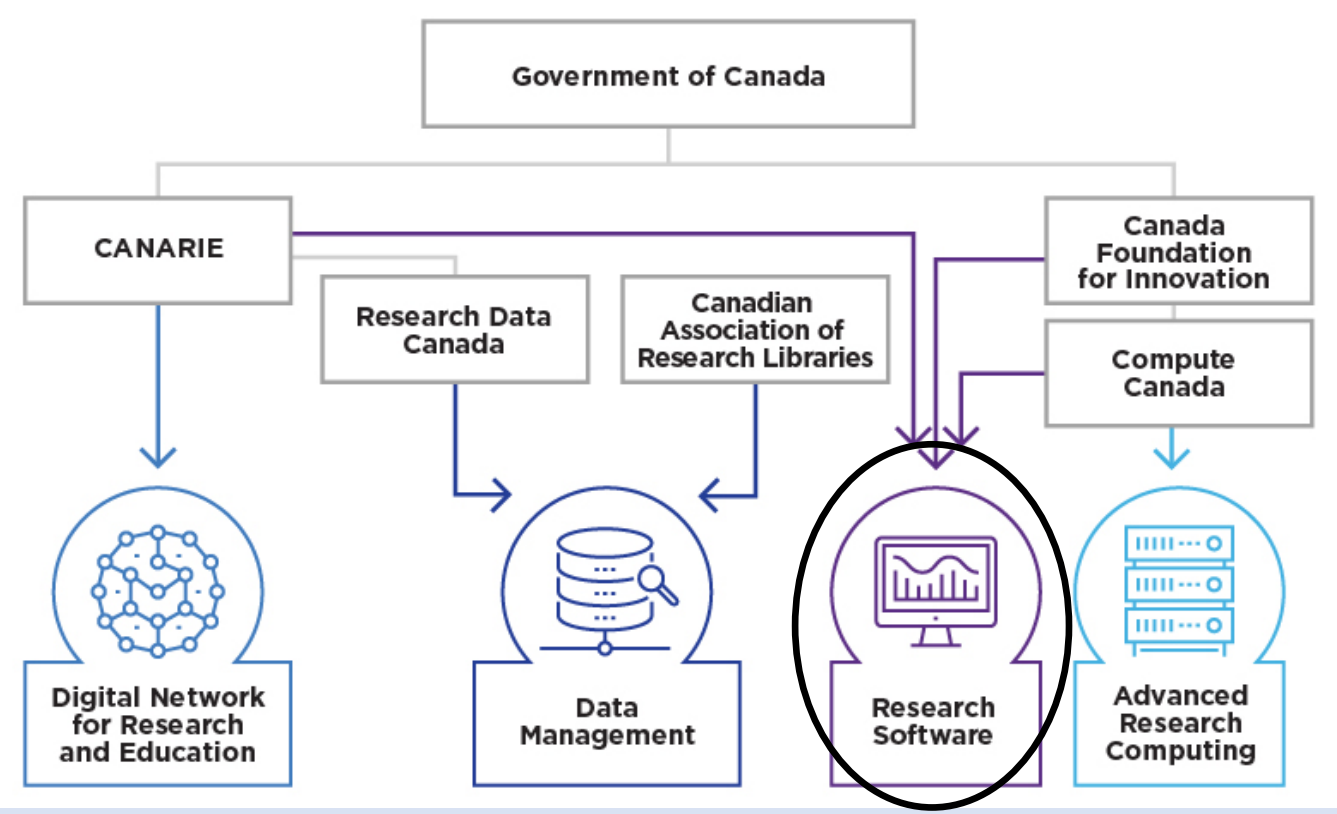


Research software

Separate from systems/application software management

Compute Canada has staff to manage application software on its resources
(e.g. CC SAP team does no software development)

Ad-hoc funding from CFI, CANARIE and NSERC
CANARIE to continue funding until new organization established
Future funding from the new organization

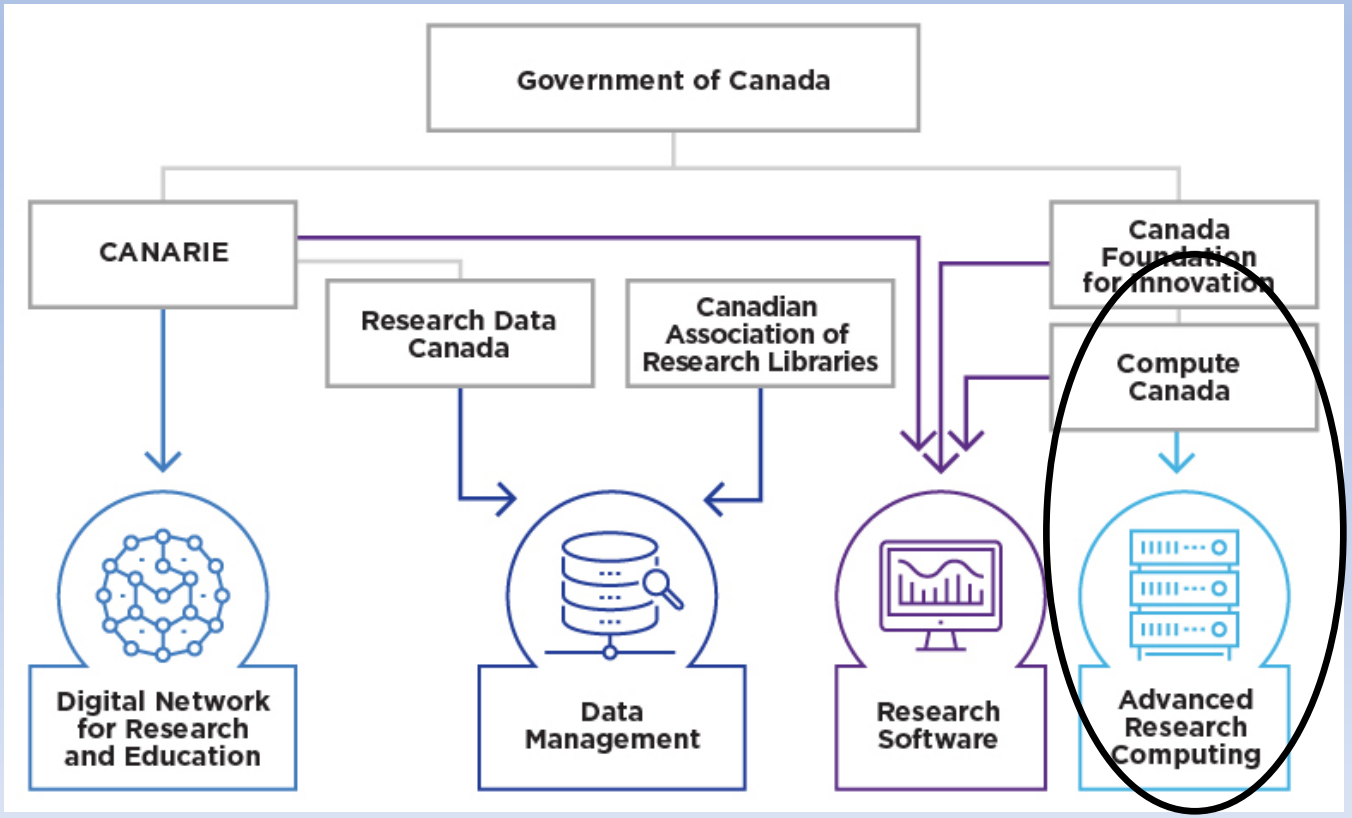


Research computing
("advanced"?)

Compute Canada (CFI)
Primarily batch HPC and HTC computing
Large storage systems
Some specialized resources (cloud, GPU)

Commercial cloud
Some universities providing commercial cloud access for research

Special purpose centres (CFI) – still eligible
ATLAS Tier 1
Belle II Raw Data Centre



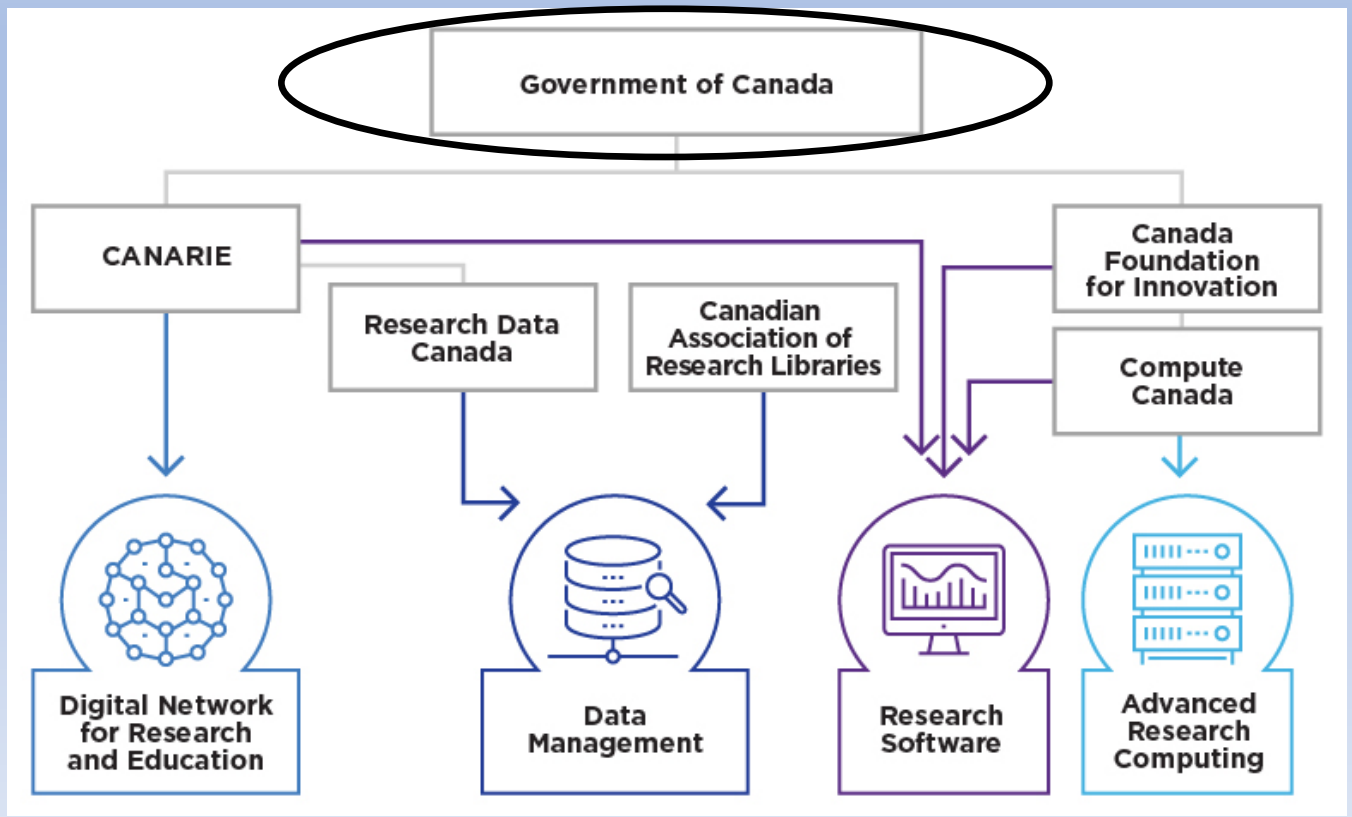
Government of Canada
$573 million in April 2018 budget

June 2019:
Compute Canada
$50 million for refresh of existing CC sites
MSI funding to continue until 2022 for CC

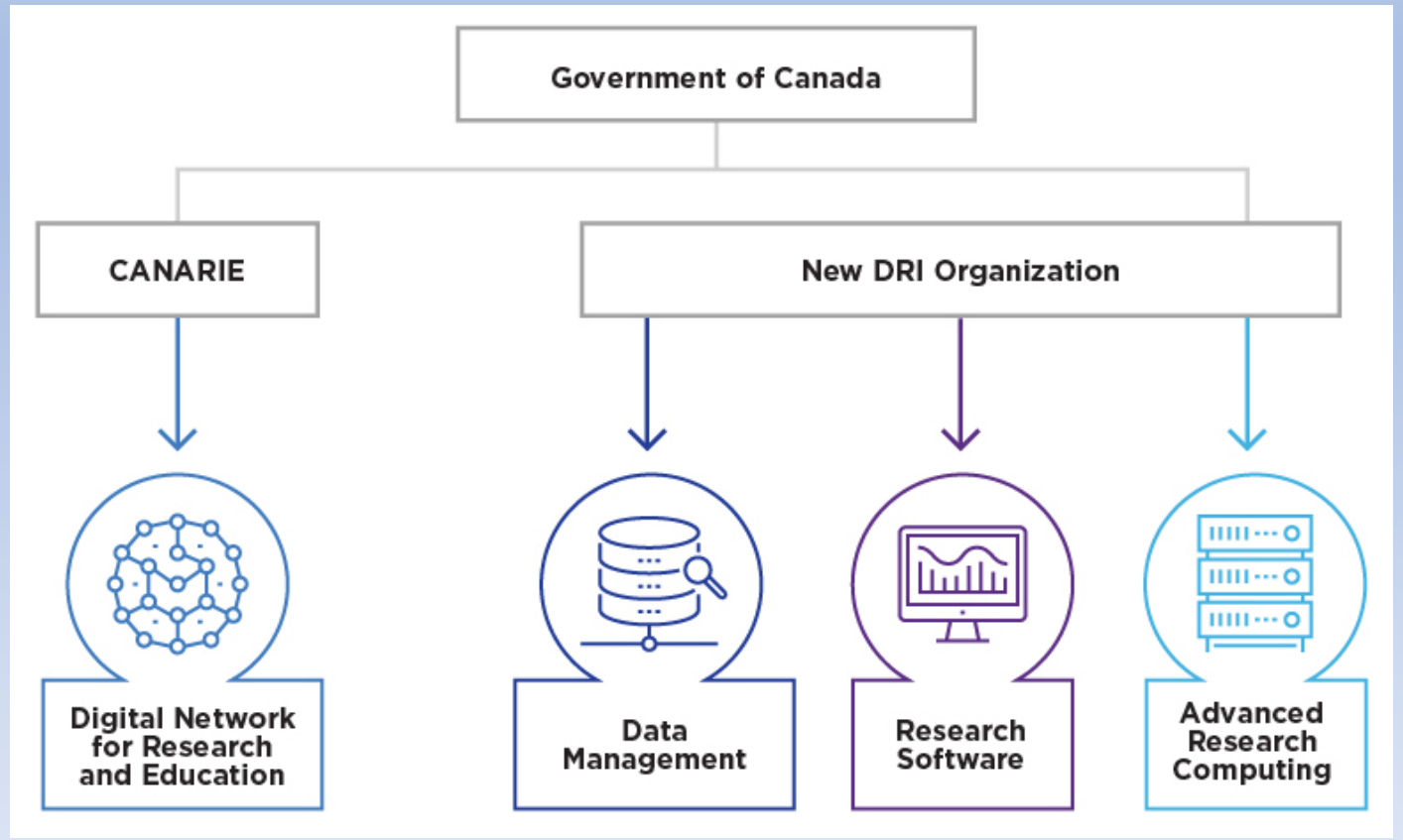
CANARIE
Previously funded $105M for 5 years
Plan is to synchronize funding cycle with new organization

New organization
Approve proposal but not full funding

No decisions to date (end of sitting is June 21)



Call for proposal for the new DRI organization



Proposal submitted May 6
Reviewed in May by select Canadian panel
Decision and signed agreement in June
http://engagedri.ca/wp-content/uploads/2019/05/Digital-Research-Infrastructure-Contribution-Program-Proposal-Complete-Submisson-May-6-2019.pdf

SAP response

- IPP/CINP aware of activities in the computing space - Feb 2019
- Mike/Garth met with ISED, CFI, NSERC, CANARIE around Large Projects Day
  - Proposed “SAP Brief” to ISED (ISED agreed it would be useful)
- SAP “White Paper” group++ met and drafted document
  - Sent to ISED, U15, ”Engage-DRI” and others
  - https://particle.phys.uvic.ca/~rsobie/DRI-Brief-for-ISED-IPP-CINP.pdf
- Contacted astronomers (via HIA) and CASCA was coordinating their response

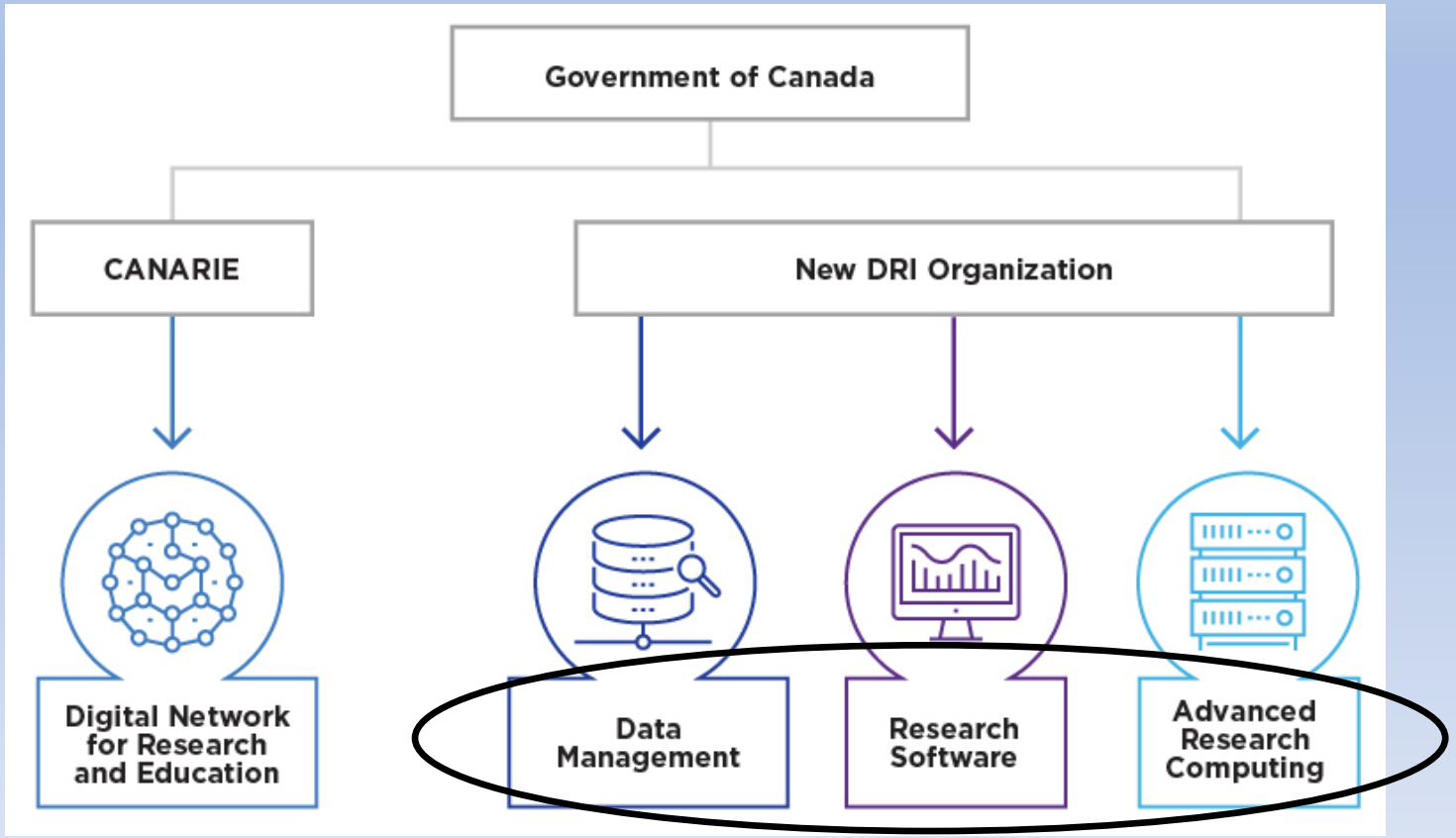
SAP Recommendations

1. Conduct extensive consultations and reviews with researchers with the research communities to fully understand the technical requirements
2. Treat research computing as a national resource with an uptime of 100% and involve stakeholders in failure-point analysis during specification of new systems
3. The new organization should be led by a highly-respected researcher with experience as a user, and who has vision and expertise in research computing
4. Create a Research Advisory Panel that effectively engages with the new organization's management and reports to ISED
5. Organize computing infrastructure systems configurations, architecture and support team resources according to the functional requirements of an explicitly identified set of research communities
6. Introduce data archiving as part of the mission of the new organization (especially unique raw data samples)

Implementation and opportunity

- Adopt best practices when managing its resources and interacting with its user community; establish lines of responsibilities between the site personnel, the domain specific teams and the management
- Provide the key performance indicators for each site that are reviewed by the Research Advisory Panel and made publicly accessible
- Establish an enhanced resource allocation process that ensures the RAC members are knowledgeable about the type and availability of resources
- Ensure systems are accessible to international collaborators of Canadian researchers
- Work closely and collaboratively with CFI and NSERC
- Enable the use of commercial cloud computing resources by providing funds and resources/teams that could, for example, meet peak demands
- Invest in the development of research software and data management; provide funding to researchers through a competitive peer review process that draws on the established experience of NSERC

Orthogonal view



The proposed organization does not mesh with SAP computing
The “silos” need to be rotated 90 degrees

“Domain-specific organizations”

SAP Computing
Integrated systems of computing, storage, software and research networks

Current status

- Federal government to make a number of decisions before the House adjourns for the summer
  - Compute Canada $50M refresh [decision pending]
  - CANARIE renewal [4-year renewal to synchronize funding with new organization [pending]
  - Approval of the DRI proposal to establish a new organization [pending]
- IPP/CINP
  - Submitted our “brief” to ISED, U15, DRI-proposal writers, CANARIE, Astronomy, .. [public document]
- Other items:
  - CFI accepting “special requests” for computing [e.g. Tier-1 type facilities]
  - CANARIE will still fund research software/data in next mandate [recent focus has not led to success for HEP]
  - Expanding use of commercial clouds for research computing by universities with no CC site