It is time to re-consider "computing in the network"

Jeffrey He, Huawei
Marie-José Montpetit, Triangle Video
Rachel Chen, Huawei
Background

1981: "End-To-End Arguments in System Design"
1998: "Active Networking and End-To-End Arguments"
2018:
   - Softwarization of the networking functions (SDN, NFV)
   - Rising of programmable switching and P4 programming language

Active Research Activities
   - In-Net Computing for high performance distributed systems in DC
     - DNN (Deep Neural Network) training
     - Frontend KV (Key-Value) caching
     - Consensus system such as Paxos
     - ACM SIGCOMM 2018 Workshop on In-Network Computing (NetCompute 2018)
   - Low latency/high BW services are driving Distributed Computing
     - Advanced AR/VR
     - NSF Workshop on Grand Challenges in Edge Computing, 2016
     - ACM SIGCOMM 2018 Workshop on Mobile Edge Communications (MECOMM 2018)
COIN: Computing in the Network

- Proposing an IRTF RG: COIN
- Goals:
  - Understanding the use cases and different types of network programmability and their different characteristics
  - Understanding relationship to and impact on existing Internet protocols and frameworks.
  - Investigating architectural questions such as system architecture and protocol designs for in-network computing
  - Developing common terminology, concepts and potentially system elements such as data plane protocols and management concepts.
  - Providing guidance for potential future IETF work on distributed and in-network computing
JOIN US:
COIN
FRIDAY 10AM-12PM
ROOM BOROMPHIMARN 3
Jeffrey.he@huawei.com
marie@mjmontpetit.com
chenlijuan5@huawei.com