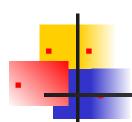Federation,Generalisation,Heterogeneity
or
Edge v. In-Network compute?

Jon Crowcroft,

http://www.cl.cam.ac.uk/~jac22

SLICES, 3rd Mar 2021
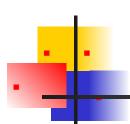
Federation

- Scale to Edge
- A trillion devices
- Coordination!=k8

feds

- doesn't guarantee privacy
  - but helps - still need enclaves etc
- measure:
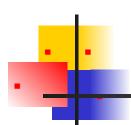 - energy, availability, resilience

Heterogeneity

- CPU speciation
- accelerators - graphcore, gpu...
- In net, edge, dc?

hets

- range of systems grown
- incorporating accelerators in
    - energy, privacy, resilience
    - net & cpu facing ML
    - scale fed ML model share/acquire
    - in net aggregator fn?

Generalisation

- Repos

- Repros

- Curations

gens

- Jupiter notebooks++
  - Continuous Integration
- explainability, repro, repo
  - digital twins
- record negative outcomes too
- curate (web site decay:-)
- applicability/use case document/ethics

some refs

- UK view from JISC&STFC etc: https://bit.ly/3t6yGTu

- Public option for core: https://doi.org/10.1145/3387514.3405875

- Distr learning, e.g. https://arxiv.org/abs/1709.07772

- GAEN https://en.wikipedia.org/wiki/Exposure_Notification

- raft in cloud flare or k8 – replacement: https://arxiv.org/abs/2012.15762