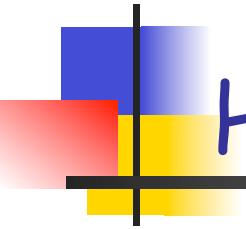
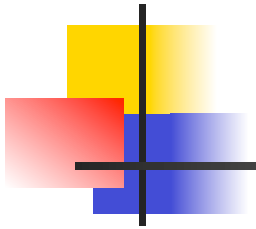


How small a contrib can CfN be?

Jon Crowcroft,

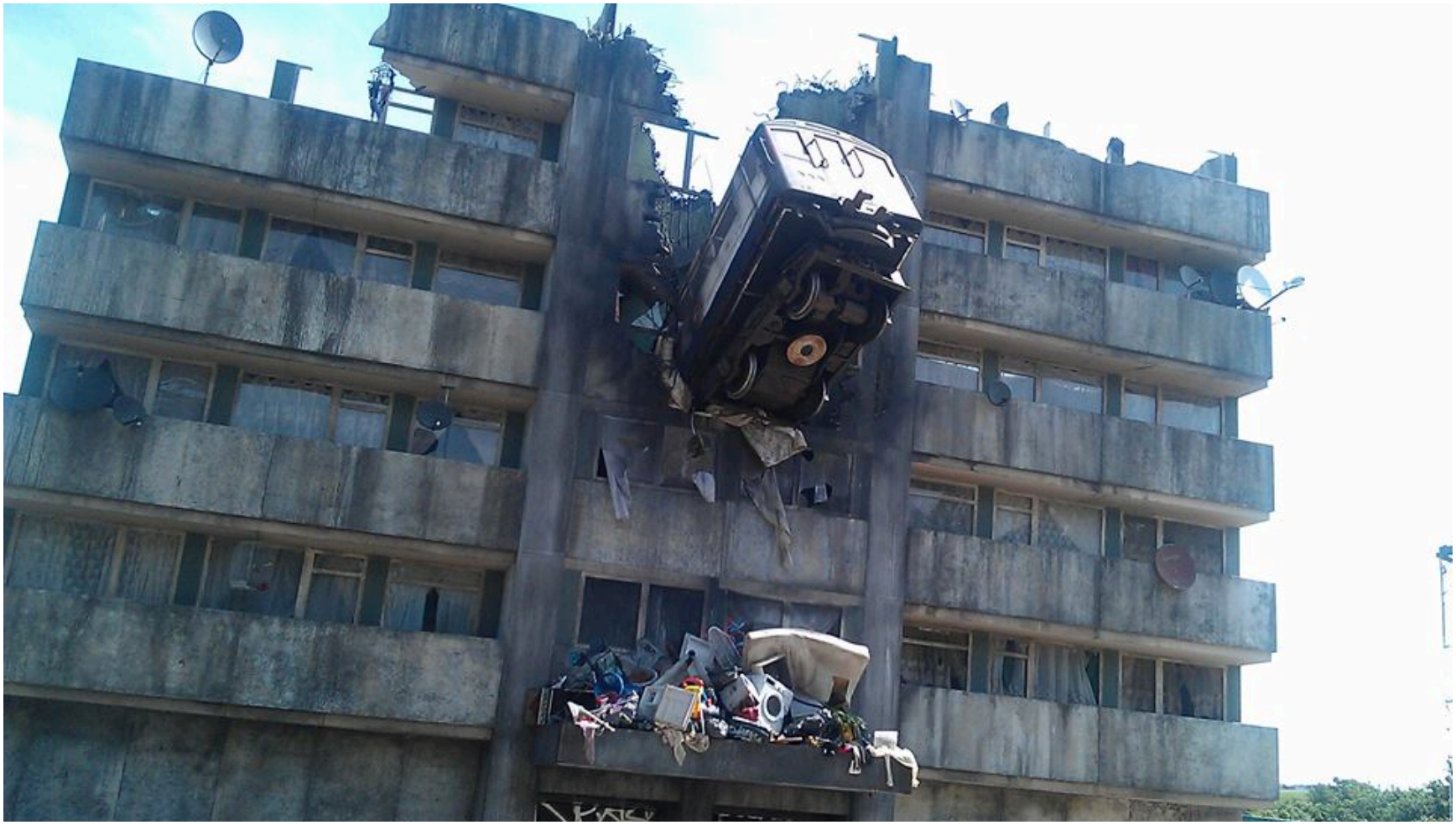
http://www.cl.cam.ac.uk/~jac22

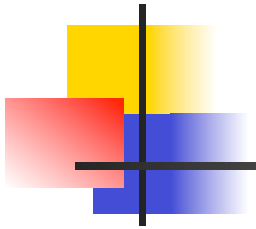


What may be a distraction

- Cloud RAN
- NFV
- Etc etc
- Although emulating old G radio, in net
  - may actually be a good driver/use case
  - Or it may be a disaster…

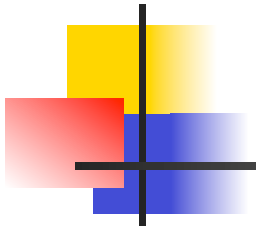
In the real world





What changed?

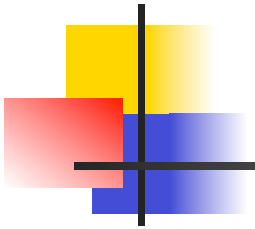
- In net s/w can be verified/secured
- But is a very very tempting target
- For nation scale adversaries…
- We also have tools like
  - unikernels, serverless/lambda
  - New sandbox/hypervisor
  - h/w support for enclaves
- But back to some simpler, friendlier older things…



Anything beyond best effort IP?

1. Multicast, mobility, multipath
2. Service differentiation
3. Application offloading/in net agg(IoT)

- Use cases –
  1. Network evolution
  2. Service evolution
  3. Incast mitigation

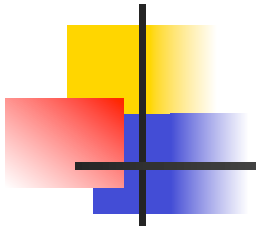


All need indirection service

- Branch/merge point discovery
- Load balancers/tie breakers
- Liveness/failure detectors
- Replicated state machines…
- And a certain amount of programmability

https://p4.org/p4/paxos-made-switch-y.html

https://dl.acm.org/doi/10.5555/647076.759978



On the other hand, could be bolder

- Edge Cloud (including just inside net)
- Federated ML…more sustainable…
  - Privacy
  - Energy
  - Latency
- Needs work on replicated state machine
  - For wide area availability/recovery
  - Flexible Paxos&TLC (threshold logical clocks)

Who Am I?