An Insider’s guide to doing research for SIGCOMM

1. Pick a good title

2. Do some research

3. Don’t piss anyone off… too much
Selecting a good title

Top terms appearing in titles of SIGCOMM papers:
1. Internet
2. Networks
3. Routing
4. Scalable
5. Multicast

Fairly invariant, except “Internet” enters top three in 1996 and “fair” disappears
How to do research

- Elements of research
  - Write a conclusion
  - Align yourself with a doctrine
  - The rest… is style

- Example research question:
  “Is RED important for helping property x and if so, how much?”
Mike Measuremuch

- Research process
  - Gets accounts on 10,000 machines and send data between them
  - Design tool to detect whether RED is on or off on intervening links
  - See if RED helps property x across six months of measurements

- Conclusion: RED helps property x 79% of the time, with a standard deviation of 50
Peter Pessimistic

- Research process
  - Anything you measure is biased by bad methodology
  - If you do measure something it can’t be generalized
  - By the time you do generalize it, the Internet has completely changed

- Conclusion: its impossible to know
Don Dogmatic

- Research process
  - RED is good, therefore it helps x
  - If RED doesn’t help x then
    - x doesn’t matter
    - x is bad
    - you just don’t understand
  - There are good analogies to unrelated disciplines (e.g. power grids)

- Conclusion: RED is good
Theo Thinksalot

- Research process
  - Learn “Judge Ito” calculus
  - Learn what Max Plus Linear means
  - Validate that your work can’t be evaluated

- Conclusion: RED is

\[ \sum_\prod^\beta \left\langle \sqrt{\int_\varsigma^\rho^\alpha_x} \eta^\pi^\kappa \right\rangle \]

\[ \Omega \]
Sue Simulator

- Research process
  - Pick a version of ns
  - Construct a realistic topology
    - Measure property x with every combination of parameters

- Conclusion: RED works well for some parameters, but not for others
Abe Abstraction

- Research process
  - Worst case RED drops all packets
  - Best case RED doesn’t drop any packets
  - There is a utility function $p$, the represents the range between

- Conclusion: RED impacts property $x$ proportional to the amount of traffic times $p$
Oliver Outrageous

- Research process
  - Drink beer
  - Complain a lot
  - Call yourself an insider

- Conclusion: Whatever…