Tips from a Networking Insider

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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

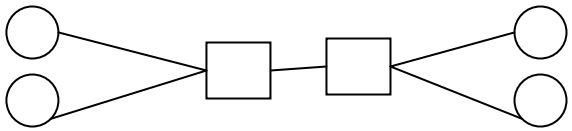
Theo Thinksalot

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

$$\frac{\sum_{\prod_{\beta}} \left\langle \sqrt{\iint_{x} \begin{matrix} \Re & \nu & \theta \\ \varsigma & \rho & \alpha \\ \eta & \pi & \kappa \end{matrix}} \right\rangle}{\Omega}$$

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…