

# Protecting End Hosts: Putting Control Where It Belongs

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# Avoid Function Creep: Let Routing be Routing

- Networks should not compensate for operating systems that protect themselves inadequately
- “It's really hard to have a network-level thing do this stuff, which means you have to assemble the packets in something bigger and thus violate all the protocols.” -Vint Cerf
- Asking the network to perform tasks other than routing undermines the ability of the network to do its most essential job.

# Slide Creep (Function Creep 2)

- Function creep can become entrenched
- Security mechanisms that reach through network layers destroy flexibility
- If it becomes smart to change the way addressing and/or routing is done, entrenchment of other jobs the network is doing may prevent it (e.g., introducing mobility, coping with address space crunch)

# Misplaced Incentives: Throwing out the baby while keeping the bathwater

- Not separating identification from routing creates risks
- individuals: cyberstalking, identity theft, profiling
- companies: reveals corporate strategy and structure, current activity (which group is suddenly contacting Monster.com a lot, who's talking to your patent lawyers this week, etc.)
- governments: exposes activities in intelligence, law enforcement, national security
- None of this hurts the really bad guys: they already know how to hide and will break the law to do it

# Misplaced Incentives: Throwing out the baby while keeping the bathwater

- If the network does other jobs, bad guys (and good guys) do network things to achieve non-network goals
  - IP tunneling to access a service authenticated by IP address is using a sledgehammer for finishing work
  - User authentication by network location gives incentive to spoof or break into systems just for their location
- Entrenching cross-layer solutions hamstring innovation and honest use while bad guys have incentive to route around it and good guys have incentive to become “bad guys”