What we were doing in 1988

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24/5/2025

SIGCOMM 1988 – 32 papers

- Compare with SIGCOMM 2023 (72 papers) https://conferences.sigcomm.org/sigcomm/2023/list-accepted.html
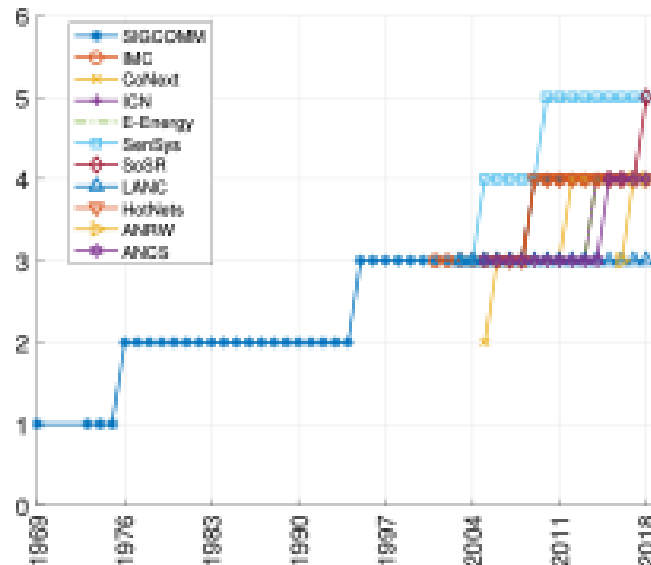- Not with NeurIPS 2024 (3584 papers)

Figure 3: Median number of authors during 1969–2018 in SIGCOMM venues. *Collaborative authorship is becoming*
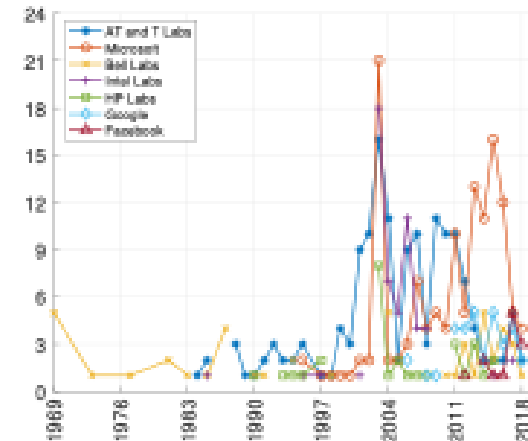

Figure 9: Top research institutes in all SIGCOMM venues based on publication count during 1969–2018 and their temporal development. Note that the line breaks where data is not available. *AT&T is a major player in SIGCOMM venues and remaines the overall top contributor, but other research institutes (e.g., HP, Intel, Microsoft) have emerged as rising stars. Note that y-axis represents the number of publications of a research lab published across all venues from our dataset.*

Topology, Routing, Interconnect, Resource

- Topological analysis of local-area internetworks

- Dynamic bandwidth allocation in a network

- Optical interconnection using ShuffleNet

- The landmark hierarchy: a new hierarchy for routing in very large networks

- Pitfalls in the design of distributed routing algorithms

- Multicast routing in inter networks and extended LANs

Computing Science! OS, PL, Arch

- Design of the x-kernel

- Exploiting recursion to simplify RPC communication architectures

- Service specification and protocol construction for the transport layer

- A network management language for OSI networks

- The design philosophy of the DARPA internet protocols

- The fuzzball

- Development of the domain name system

Hardware & Speed

- Optimizing bulk data transfer performance: a packet train model

- A mesh/token ring hybrid-architecture LAN

- Tree LANs with collision avoidance: protocol, switch architecture, and simulated performance

- An analysis of Memnet—an experiment in high-speed shared-memory local networking

- The VMP network adapter board (NAB): high-performance network communication for multiprocessors

- Circuit switching in multi-hop lightwave networks

Measurement&Methodologies

- A pseudo-machine for packet monitoring and statistics

- Knowledge-based monitoring and control: an approach to understanding behavior of TCP/IP network protocols

- Measured capacity of an Ethernet: myths and reality

- Distributed testing and measurement across the Atlantic packet satellite network(SATNET)

- Experience with test generation for real protocols

- Performance models for Noahnet

Protocols Protocols Protocols

- A multicast transport protocol

- A high performance broadcast file transfer protocol

- Specification and verification of collusion-free broadcast networks

- Delivery and discrimination: the Seine protocol

- A binary feedback scheme for congestion avoidance in computer networks with a connectionless network layer

- Congestion avoidance and control

- A protocol to maintain a minimum spanning tree in a dynamic topology

Where did we go from there…

Table 6: Yearly top keywords in SIGCOMM venues

Thanks to Gareth et al for work on the 5 Decades of SIGCOMM biblio paper (where the graphs/tables come from)!

Why should you care?

- The UK has been a leader in networking since the start
  - The University and National support is a major factor
- Much of our science is a beneficiary
  - Data and code and seminars/classes on the net
  - E.g. LHC/CERN, Genome, dare I say AI
- Operational networks deploy in cycles
  - Having extreme demands ahead of extreme dependency is helpful
  - Viz video conferencing from 1988, meant we were ready!