

Report for SIGCOMM'01, at the University of California, San Diego, August 27–31

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Attendees

SIGCOMM'01 had approximately 400 attendees, and only 10% of these attendees presented papers. Whilst the keynote speech was well-attended, only about half the audience was present for the main paper sessions.

Keynote Speech

Van Jacobson presented the keynote speech. His main argument was that we, as data communication researchers, should not assume that the circuit-driven approach to building the internet is the best approach. Van Jacobson suggested the analogy of relating the internet to the 'power-station' model, where one continuous flow is available to any end-user. The speech was well-received, and no-one dared asking any questions.

Paper Presentations

Session 1: Security and Denial of Service

The best student paper "Hash-Based IP Traceback" proved to be very interesting. The use of non-changing IP header fields as hash values at each router allowed fast traces of packets throughout a network, with only 32 bytes of disk space per packet per router. If the router changed the packet header (maybe because of packet fragmentation), then the router must record enough information to remember this change when a trace is performed.

Session 2: Network and System Architectures

The paper "Aging Through Cascaded Caches: Performance Issues in the Distribution" used the property of age to determine when local copies of documents within cascading caches should be refreshed. It appears as if age could be very useful for minimising document resends.

The paper "A simpler fix for IP" suggested the use of domain names instead of IP addresses as the primary host identifier. This allowed a decoupling of IP addresses and internet service providers. This could be particularly useful when domains are spread over multiple ISPs.

Session 3: Network Multimedia Applications

The paper "Scalable Real-Time Media Streaming with Packet Loss Recovery" reiterated over the tradeoff between startup latencies and available bandwidth. The paper introduced a piecewise model for streaming data which worked much like TCP's expanding window.

Session 4: Service Guarantees and Resource Management

The paper “Analysis and Design of an Adaptive Virtual Queue (AVQ) Algorithm for Active Queue Management” proved to be very interesting. The authors describe a system where a virtual queue is maintained, based on the arrival and processing of the underlying, real network packets. When the virtual queue becomes full, real packets will be marked and dropped. The virtual queue length is also dynamic, based on the current environment. The paper gave results which showed improvements over RED and other queueing techniques. To implement the AVQ algorithm, only a few machine instructions are required.

Session 5: Towards New Network Services

“An Investigation of Geographic Mapping Techniques for Internet Hosts” was a memorable paper, although it did raise quite a few hostile questions from the audience. The idea was that the location of any host could be determined by proprietary information, ping latencies, and DNS/IP information.

Session 6: Scheduling and Classification

At this point, I discovered the UCSD gym, the La Jolla beach, and the all-day buffet outside the conference hall.

Session 7: Routing Protocols and Network Discovery

The paper “Hop By Hop Multicast Routing Protocol” presented a protocol for multicasting that attempts to simplify address allocation procedures using a recursing “subtree” approach. I think I missed the main point of this paper, as to me it looked like simple point-to-point unicasting.

Session 8: Congestion Control

The paper “On Inferencing TCP Behavior” (by ACIRI) was very well received. The authors described a tool (TBIT, available at www.aciri.org/tbit) that initiated TCP messaging with remote hosts, to determine the conformance of the remote TCP stack. The authors found bugs with the kernels of Linux, Solaris, and Windows. Some bugs affected only end users, whilst other bugs caused damage to the network in terms of excessive window sizes, redundant signalling, etc.

Special Sessions

Poster Session

One comment was made that the worst student poster was significantly better than the best paper presentation. The posters were very impressive (visually) and of quite a technical nature. Whilst the papers covered many issues of networking, the themes of wireless admission control, wireless coverage, QoS, and network processors were common.

CSTB Panel Session

This session discussed a request by the NSF for a focus on reliability, scalability, and usability of networks, at the expense of increased performance. The panel discussed their replies to the board, but a call was made for fresh, challenging ideas, as opposed to the data communication community’s fascination with performance. A report is available from my office, explaining the panel session, and the request from the NSF.

Outrageous Opinions

A seemingly-endless supply of beer kept this session in high spirits. Whilst Microsoft took the brunt of the harsh comments in this session, several humorous proposals were made, ranging from the exclusive use of DNS for all data transfers to using the token ring protocol for doing your online shopping (you really needed to be there to understand that one). At the end of the session, one person displayed a list of 30 passwords that he had scanned from the wireless LAN within the conference location. The room went silent.

Closing Remarks

This was an incredibly rushed speech that lasted only 30 seconds. I think everyone was more focused on changing their passwords.

Social Events

Student Dinner

The student dinner was held at 'The Red Rock' restaurant at La Jolla. About 50 students attended, and whilst the food wasn't fantastic, it was great to discuss research with some of the brightest Ph.D. students in existence.

Conference Dinner

The conference dinner was held at the 'Hotel Del Coronado', on the shores just south of the San Diego port. This was a great event with good food and unbelievable service, and plenty of time was available to talk with other researchers in a very relax atmosphere.

San Diego and the UCSD Campus

The weather for the duration of the conference was very pleasant, in the mid 70s to mid 80s. The city was clean and public transport was very reliable. The San Diego campus was very modern, and the people there were only too keen to help with instructions, etc. The beautiful La Jolly beach was only a few minutes away by foot.