ARTES Travel Report: Protocols for High-Speed Networks April 2002, Berlin, Germany

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I attended Protocols for High-Speed Networks in Berlin (http://www.usenix.org/events/usenix01/). This is a quite small but high-quality workshop with about 50-60 attendees. There were quite a number of well-known and respected people among the attendees. I had also attended the previous PfHSN which was had less participants.

The workshop started with a keynote speech, given by Bryan Lyles, the reasearch director of Sprint Labs, one of the largest carriers in the USA. The main theme of his talk was that soon there willbe network processors out that have the capability to perform sophisticated functions on packets at line speed (10 GBit/sec). Sophisticated functions include traffic shaping, policing, updating the protocol headers etc. Furthermore, these units are capable of handling huge numbers of flows. This would enable at least some simplified RSVP, i.e. some kind of guaranteed service for individual flows. The technology involved is not exotic and will scale to 40 Gbit/sec when fiber transmission at that speed is available (so-called OC-768).

I presented my paper "Handling Multiple Bottleneck in Web Servers Using Adaptive Inbound Controls" in the application-level mechanisms session. This session also contained a paper on a distributed cache pruning approach and a paper that stated that TCP is not efficient when the delay-bandwidth product of a network is high. The paper proposed one kernel-based and one application-level solution both of which try to make sure that the window the receiver announces is large enough to "fill the pipe".

Several papers dealt with Quality of Service. The presented papers included a simplified guaranteed service, using admission control and scheduling to provide service guarantees as well as end-to-end DiffServ support. Interesting is that several papers built on Stoica's concept of core-stateless networks, where the flow state is carried in the packet headers.

Besides the paper sessions, the workshop also included working sessions on the nowadays almost ubiquitous peer-to-peer computing, high-speed mobile and wireless networks. There were also two invited papers: One on high speed networks for carriers by a person from Siemens who presented their view on a future public network infrastructure capable of seamlessly supporting a variety of telecommunications, data services and applications. The other was a very interesting retrospective on high-speed

networking research. The slides of this talk and the keynote speach are worth looking at and are available on the workshop homepage.

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