M.I.T. Laboratory for Computer Science Computer Systems Groups

November 2, 1981 Request for Comments No. 209 A

Trip Report: 7th Data Communications Symposium, Mexico City, Mexico, October, 1981

by J. H. Saltzer

The 7th Data Communication Symposium, cosponsored by ACM and IEEE, was held in Mexico City on October 26-29, 1981. This symposium traditionally attracts an audience interested in computer communication and data networks (rather than those interested in modulation and signal processing theory). As might be expected, two areas dominated the conference, local network technology and protocol conversion/standardization. Even the analytical and performance modeling papers were mostly on the subject of modeling the performance of alternative higher-level protocol designs. This emphasis represents a shift from earlier symposiums toward topics that are more connected to real problems.

On the other hand that shift toward more relevant problem areas didn't guarantee more relevant papers. The papers on protocol conversion were surprisingly naive in their proposals to solve the world's problems of incompatible protocols by designing translating gateways. Usually, someone had been successful in constructing a special-case translating gateway between two essential equivalent protocols, and tried to extrapolate from this experience to recommend that translating gateways could solve most problems.

A second class of attacks on problems of protocol incompatibility came from various groups working on standards. Again, these proposals were marked by a kind of naive hopefulness that the combination of widespread interest and increasing needs for interconnection would lead to successful standardization efforts, despite strong technical arguments between providers of different kinds of applications. When asked questions about this conflict, one of the standards-setting authors expressed a strong belief that community pressures would prevail and standards would succeed. At the same time, when another author was asked why his company was ignoring the standards and designing its own protocols, he answered that it appeared that the desired function could be implemented far more cheaply by straying from the standards. It would appear that these arguments are far from settled.

WORKING PAPER -- Please do not reproduce without the author's permission and do not cite in other publications. An interesting sidelight of the conference that several participants commented about privately was a notable lack of enthusiasm for the Xerox-Dec-Intel Ethernet. It seemed that no one had anything good to say about the Ethernet, and there were quite a number of people who had negative things to say about it. The feelings were not very well formed, and ranged from cost to engineering difficulty to specific unsuitabilities. A similar reaction occurred to the paper from Xerox describing the rationale behind the 48-bit address field. It appears, from the overall mood of this symposium, that there is not a ground swell of enthusiasm for the Ethernet within the data communication technical community.

One lesson of this symposium should be noted by anyone who takes on future responsibilities for running such activities. To hold such a symposium in the middle of a major city is a mistake, for two reasons. First, the cost of first class facilities is very high. The series of data communication symposia normally makes a large enough profit to provide operating funds for the sponsoring special interest groups for the next two years. This symposium, however, appears barely to be breaking even, despite an unusually high registration fee. Second, the sightseeing and shopping attractions of a large city are very powerful, with the consequence that some sessions were only lightly attended. More important, during the unscheduled times of the symposium, the participants scattered into the city rather than gathering in the hotel lobby to talk. Thus one of the major benefits of the symposium (informal contact) was greatly diluted. Locating a symposium at a small, out-of-the-way place (such as Asilomar) seems to be a far better strategy.

The symposium proceedings, containing 30 papers, can be borrowed at my office. A copy of the table of contents is attached.

-2-

SEVENTH DATA COMMUNICATIONS SYMPOSIUM—1981 MARIA ISABEL SHERATON HOTEL MEXICO CITY, MEXICO OCTOBER 26-29, 1981

Table Of Contents

Preface	
Session 1: Applications and Systems Keynote Address (D. Liddle, Keynote Speaker)	
Session 2: Protocols I (R. Pickholtz, Chairman)	
Description of a Planned Federal Information Processing Standard for Transport Protocol	2
Formal Specification and Verification of a Connection Establishment Protocol D. Schwabe	11
HOLC Reliability and the FRBS Method to Improve It	
Design Issues of Protocols for Computer Mail	
Digital Signature Schemes for Computer Communication Networks	37
Session 3: Heterogeneous Computer Networks (A. Nava, Chairman) SNATCH Opens Manufacturers' Networks Through Gateways D. Einert and G. Glas	44
Insights Into the Implementation and Application of Heterogeneous Local Area Networks W.P. Lidinsky	52
Session 4: Societal Issues: Impact And Applications (M. Abrams, Chairman) The Great Debate Over Telematics and Employment E. Rivera and L. Briceño	64
Some Cryptographic Principles of Authentication in Electronic Funds Transfer Systems C.H. Meyer and S.M. Matyas	73
Session 5: Modeling Analysis And Optimization (M. Schwartz, Chairman) A Heuristic Method for Optimizing an Intercity Data Transmission Network R.A. Pazos	90
Modeling and Analysis of Flow Controlled Packet Switching Networks S.S. Lam and Y.L. Lien	98
A Study of Protocol Analysis for Packet Switched Network	
A Versatile Queueing Model for Data Switching	118
Session 6: Protocols II (L. Pouzin) An Analysis of Link Level Protocols for Error Prone Links	130

L.J. Miller

Demand Assigned Multiple Access Systems Using Collision Type Request Channels: Priority Messages
G.L. Choudhury and S.S. Rappaport
Bidirectional Token Flow System
M.E. Ulug, G.M. White and W.L. Adams
A Theoretical Performance Analysis of Polling and Carrier Sense Collision Detection
Communication Systems
E. Arthurs and B.W. Stuck
Session 7: Local Computer Networks (W. Lidinsky, Chairman)
A Virtual Circuit Switch as the Basis for Distributed Systems
G.W.R. Luderer, H. Che and W.T. Marshall
TORNET: A Local Area Network
Z.G. Vranesic, V.C. Hamacher, W.M. Loucks and S.G. Zaky
Panel Session 8: Networks in Latin America (M. Sanchez Ruiz, Chairman)
Session 9: State-Of-The Art in Network Technology: Keynote Address
(L. Kleinrock, Keynote Speaker)
Special Invited Session: Topics in Data Communications (I. Perez-Mendez, Chairman)
The Cost of Data Replication
H. Garcia-Molina and D. Barbara
Local Area Networks for the Automated Office—A Survey
A.R. Braun
Isolated Word Recognition Based Upon Source Coding Techniques
A. Buzo, H. Martínez, C. Rivera and A. Jazcilevich
Session 10: Networks, Systems, and Architecture (A. Vieira, Chairman)
Incorporation of Service Classes into a Network Architecture
R. Perlman
Why a Ring?
J.H. Saltzer and D.D. Clark
Optimal Loop Topologies for Distributed Systems
C.S. Raghavendra and M. Gerla
An Overview of BLN: A Bell Laboratories Computing Network
K.E. Coates, D.L. Dvorak and R.M. Watts
Session 11: Internetworking (C. Sunshine, Chairman)
X.75 Internetworking of Datapac and Telenet
M.S. Unsoy and T. Shanahan
48-bit Absolute Internet and Ethernet Host Numbers
Y.K. Dalal and R.S. Printis
Session 12: Satellite Networks (J. Garduno, Chairman)
Impact of Satellite Technology on Transport Flow Control
R.L. Tenney, G. Falk and D.H. Hunt
An Experiment on High Speed File Transfer Using Satellite Links
Late Papers
HDLC Reliability and the FRBS Method to Improve It
Isolated Word Recognition Based upon Source Coding Techniques
Author Index