

Contents

	Preface	xi
	Roger Needham: 50 + 5 Meeting Programme	xiii
	Contributors	xv
	Introduction: Roger Needham	
	Rick Rashid	1
1	On Access Control, Data Integration, and Their Languages	
	Martín Abadi	9
2	Protocol Analysis, Composability and Computation	
	Ross Anderson, Michael Bond	15
3	Access Control in Distributed Systems	
	Jean Bacon, Ken Moody	21
4	Implementing Condition Variables with Semaphores	
	Andrew D. Birrell	29
5	Clumps, Clusters and Classification	
	Christopher M. Bishop	39
6	How to Implement Unnecessary Mutexes	
	Mike Burrows	51
7	Bioware Languages	
	Luca Cardelli	59
8	The Economics of Open Systems	
	David D. Clark	67
9	From Universe to Global Internet	
	Jon Crowcroft	73
10	Needham-Schroeder Goes to Court	
	Dorothy E. Denning	77
11	The Design of Reliable Operating Systems	
	Peter Denning	79
12	An Historical Connection between Time-Sharing and Virtual Circuits	
	Sandy Fraser	85
13	On Cross-Platform Security	
	Li Gong	89
14	Distributed Computing Economics	
	Jim Gray	93
15	The Titan Influence	
	David Hartley	103
16	Middleware? Muddleware?	
	Andrew Herbert	109
17	Grand Challenges for Computing Research	

	Tony Hoare	117
18	Sentient Computing	
	Andy Hopper	125
19	Cyber Security in Open Systems	
	Anita Jones	133
20	Software Components: Only the Giants Survive	
	Butler W. Lampson	137
21	Security Protocols: Who Knows What Exactly?	
	Peter Landrock	147
22	Volume Rendering by Ray-Casting in Shear-Image Order	
	Hugh C. Lauer, Yin Wu, Vishal Bhatia, Larry Seiler	153
23	A Conceptual Authorization Model for Web Services	
	Paul J. Leach, Chris Kaler, Blair Dillaway, Praerit Garg, Brian LaMacchia, Butler Lampson, John Manferdelli, Rick Rashid, John Shewchuk, Dan Simon, Richard Ward	165
24	The Trouble with Standards	
	E. Stewart Lee	173
25	Novelty in the Nemesis Operating System	
	Ian Leslie	177
26	A Technology Transfer Retrospective	
	Roy Levin	185
27	An Optical LAN	
	Derek McAuley	195
28	What's in a Name?	
	Robin Milner	205
29	The Cryptographic Role of the Cleaning Lady	
	Bob Morris	211
30	Real Time in a Real Operating System	
	Sape J. Mullender, Pierre G. Jansen	213
31	Zen and the Art of Research Management	
	John Naughton, Robert W. Taylor	223
32	The Descent of BAN	
	Lawrence C. Paulson	225
33	Brief Encounters	
	Brian Randell	229
34	Retrieval System Models: What's New?	
	Stephen Robertson, Karen Spärck Jones	237
35	Slammer: An Urgent Wake-Up Call	
	Jerome H. Saltzer	243
36	Caching Trust Rather Than Content	
	M. Satyanarayanan	249
37	Least Privilege and More	
	Fred B. Schneider	253
38	Using Sharing to Simplify System Management	
	Michael D. Schroeder	259

39	An RSA-Related Number-Theoretic Surprise	
	Gustavus J. Simmons	269
40	Application-Private Networks	
	Jonathan M. Smith	273
41	Using the CORAL System to Discover Attacks on Security Protocols	
	Graham Steel, Alan Bundy, Ewen Denney	279
42	On the Role of Binding and Rate Adaptation in Packet Networks	
	David Tennenhouse	287
43	Technologies for Portable Computing	
	Chuck Thacker	295
44	Multiple Alternative Voting	
	David Wheeler	305
45	The Semiotics of Umbrellas	
	John Wilkes	311
46	Computers for Specialized Application Areas	
	Maurice Wilkes	317
	Computer Security?	
	Roger Needham	319
	Roger Needham: Publications	
	Karen Spärck Jones	327