

- packet, 9, 150
- protocol field, 36, 38, 70, 79, 516
- reassembly, 36, 148–150
- reassembly timer, 100, 158–159, 168, 536
- record route option, 91–95, 97, 101, 110, 168, 514
- router, 4
- routing, 37–41
- security option, 37, 548
- source routing LSRR option, 105–109, 511
- source routing option, 104–109, 168, 384, 514, 531, 537, 540
- source routing SSRR option, 107–108
- timestamp option, 95–96, 168, 514
- total length field, 36, 144, 149
- TTL, 36–37, 82, 87, 93, 97–110, 154, 182, 184, 243, 345, 351, 510–511, 527–530, 532–533, 535, 537–538
- IP address, 7–9
 - broadcast, 169, 546
 - class A, 8
 - class B, 8
 - class C, 8
 - class D, 8, 175, 177–178, 180
 - class E, 8
 - loopback, 45, 51, 115
 - multicast, 169
 - nonlocal, 237
 - special case, 45
 - unicast, 169
 - wildcard, 164, 254
- ip group, SNMP, 376–379
- IpAddress datatype, SNMP, 363
- ip_cksum_choice variable, 530
- ip_debug variable, 530
- ip_def_ttl variable, 530
- ip_dirbroadcast variable, 528
- ip_forward_directed_broadcasts variable, 531
- IPFORWARDING constant, 526, 528–529
- ipforwarding variable, 119, 526, 529, 536
- ip_forwarding variable, 528, 530–531
- ip_forward_src_routed variable, 531
- ipfragttl variable, 536
- ip_icmp_return_data_bytes variable, 79, 531
- ip_ignore_delete_time variable, 531
- ip_ill_status variable, 531
- ip_ipif_status variable, 531
- ip_ire_cleanup_interval variable, 531
- ip_ire_flush_interval variable, 531, 533
- ip_ire_pathmtu_interval variable, 156, 531
- ip_ire_redirect_interval variable, 531
- ip_ire_status variable, 531
- ip_local_cksum variable, 531
- ip_mrtdebug variable, 532
- IPng, 50, 546
- ip_path_mtu_discovery variable, 156, 532
- IP_RECVSTADDR socket option, 163, 505
- ip_respond_to_address_mask variable, 532
- ip_respond_to_echo_broadcast variable, 532
- ip_respond_to_timestamp variable, 532
- ip_respond_to_timestamp_broadcast variable, 532
- ip_rput_pullups variable, 532
- IPSENDREDIRECTS constant, 526, 528–529
- ip_sendredirects variable, 123, 528
- ipsendredirects variable, 526, 529, 536
- ip_send_redirects variable, 532
- ip_send_source_quench variable, 532
- ip_subnetsarelocal variable, 528
- iptrace program, 491
- IPv4, 34
- ip_wroff_extra variable, 532
- IRTF (Internet Research Task Force), 14
- IS-IS (Intermediate System to Intermediate System Protocol), 141
- is.internic.net, 8, 20, 485
- ISN (initial sequence number)
 - TCP, 226, 231–232, 245, 247, 261, 517–518
- ISO (International Organization for Standardization), 26, 189
- ISOC (Internet Society), 14, 20
- ISODE, 370, 386, 541
- iterative
 - query, DNS, 192, 204–205
 - server, 12, 162–163, 190
- Jacobson, V., xix, 25, 27, 31, 97, 104, 245, 253, 285, 300, 309–310, 312, 339, 345, 380–381, 491–493, 547, 549
- Jamin, S., 263, 441, 544
- Juszczak, C., 479, 547
- Kacker, M., xix
- Kamikaze packet, 230
- Kantor, B., 391, 548
- Karels, M. J., xix, 23–24, 311, 499, 548
- Karn, P., 301, 548
- Karn's algorithm, TCP, 301, 304–305, 357, 521, 548
- Katz, D., 178, 548
- keepalive
 - example, TCP, 333–336
 - message, BGP, 139
 - timer, TCP, 297, 331–337, 417, 473–474, 505, 520, 527–529, 535, 537
- Kenney, D., 77, 552
- Kent, C. A., 149, 548
- Kent, S. T., 37, 548

- Kerberos, 392, 417
- Kernighan, B. W., v, xix
- Kleinrock, L., 346, 548
- Klensin, J., 452–453, 548
- kludge line mode, Telnet, *see* line at a time mode, Telnet
- Knowbots, 550
- Krol, E., 539, 548
- Kullberg, A., 37, 549
- Kumar, A., 188, 546
- label, DNS, 192
- lamp test segment, 230
- LAN (local area network), 3
- LaQuey, T., 539, 548
- last in, first out, *see* LIFO
- LAST_ACK state, TCP, 240–241, 381
- layer
 - application, 3
 - data-link, 2
 - internet, 2
 - network, 2
 - network interface, 2
 - transport, 2
- layering, 1–7, 545
- LBX (low bandwidth X)
 - X Window System, 490
- LCP (link control protocol), 26, 552
- Leffler, S. J., 23–24, 311, 499, 548
- Leres, C., 491
- lexicographic ordering, SNMP, 368–369
- LFN (long fat network), 344
- Li, S., 485, 550
- Li, T., 140, 546, 551
- LIFO (last in, first out), 164, 259
- limited broadcast address, 45, 136, 171, 173, 217–218
- line-at-a-time mode (kludge line mode), Telnet, 404, 413–415
- linemode option, Telnet, 403, 408, 544
- linemode, Telnet, 404, 411–413, 415–416
- link control protocol, *see* LCP
- link layer, 2, 21–32
 - checksum, 22, 24
- LINK0 constant, 48
- LINK1 constant, 48
- LINK2 constant, 48
- link-state routing protocol, 137
- LISTEN state, TCP, 240–241, 254–255, 381
- little-endian byte order, 34
- Liu, C., 197, 543
- LLC (logical link control), 22
- load balancing, 138
- local area network, *see* LAN
- localhost hostname, 28
- lock manager, NFS, 469, 553
- logical link control, *see* LLC
- long fat network, *see* LFN
- long fat pipe, 344
 - TCP, 344–347, 547
- longest match, 140
- loopback
 - interface, 28–29, 48, 51, 73, 96, 114–117, 159, 183, 355, 382, 486, 491, 510, 531, 536
 - IP address, 45, 51, 115
 - MTU, 51, 508
- loop_check_sum variable, 536
- loose source and record route, *see* LSRR
- Lougheed, K., 138, 548
- low bandwidth X, *see* LBX
- LSRR (loose source and record route), 104
 - IP source routing, 105–109, 511
- Lucchina, P., xix
- Lumley, J., 356, 546
- Lynch, D. C., 1, 548
- Macklem, R., 473, 548
- magic cookie, 221
- Malkin, G. S., 110, 136, 549
- Mallory, T., 37, 549
- management information base, *see* MIB
- Manber, U., 512, 549
- Mann, T., 65, 546
- manual pages, Unix, xviii
- Margolin, B., xix
- mask, noncontiguous subnet, 508
 - subnet, 43–45, 136
- match, longest, 140
- maximum segment lifetime, *see* MSL
- maximum segment size, *see* MSS
- maximum transmission unit, *see* MTU
- MBONE (multicast backbone), 186, 545
- McCanne, S., 491–493, 549
- McCloghrie, K., 359–360, 365, 387, 545, 549, 552
- McGregor, G., 26, 549
- McKusick, M. K., xix, 24, 311, 499, 548
- mechanism, routing, 112, 128
- meltdown, Ethernet, 512
- message transfer agent, *see* MTA
- MetaMail program, 542
- metrics
 - RIP, 131–132
 - TCP per-route, 316–317, 322, 340
- MIB (management information base)
 - SNMP, 359, 365–367, 372–382, 549
- Military Network, *see* MILNET
- Mills, D. L., 77, 499, 549
- MILNET (Military Network), 483–484

- MIME (multipurpose Internet mail extensions), 456
 - SMTP futures, 456–458, 542
- Mitzel, D. J., 263, 441, 544
- Mockapetris, P. V., xix, 188, 549
- modem
 - checksum, 90
 - latency, 90
- Mogul, J. C., xv, 29–30, 42, 65, 147, 149, 153, 237, 282, 340, 342, 492, 519, 546, 548–549
- Moore, K., 453–455, 548, 550
- Morgan, S. P., 63, 543
- mount
 - NFS hard, 478
 - NFS soft, 478
 - protocol, NFS, 470–471
- mount program, 470–471
- mountd program, 470
- Moy, J., 137, 550
- MSL (maximum segment lifetime), 242–244, 246, 262, 345, 351, 357
- MSS (maximum segment size)
 - option, TCP, 227, 231, 236–238, 253, 276, 341, 354, 526–528, 535, 537
 - TCP, 236–238, 285, 313, 320, 325, 340–341, 357
- MTA (message transfer agent), 442
- MTU (maximum transmission unit), 29
 - discovery, TCP path, 340–344, 534
 - discovery, UDP path, 151, 155–157
 - Ethernet, 30
 - FDDI, 30
 - Hyperchannel, 30
 - IEEE 802.3/802.2, 30
 - loopback, 51, 508
 - path, 30, 531–532, 549
 - PPP, 30
 - SLIP, 30
 - token ring, 30
 - traceroute program, path, 153–154, 541
 - X.25, 30
- multicast, 8
 - backbone, *see* MBONE
 - group address, 175–176
 - IP address, 169
- multicasting, 175–178, 545–546
 - Ethernet, 176–177
 - examples, 183–186
 - FDDI, 178, 548
 - token ring, 178, 551
- multihomed, 5, 47, 73, 92, 171, 196, 254–255, 383, 385
 - AS, 139
- multipurpose Internet mail extensions, *see* MIME
- Muuss, M., 503
- MX record, DNS, 193, 201–202, 448–451, 550
 - preference value, DNS, 202, 448–451, 459
- Nagle algorithm, TCP, 267–274, 506, 535, 550
 - disabling, TCP, 269–274
- Nagle, J., 267, 550
- name server, 187, 543
 - DNS primary, 190
 - DNS root, 190–191, 204–205, 208, 515, 546
 - DNS secondary, 190
- named program, 188, 541
- nameserver directive, 195, 203
- NASA Science Internet, *see* NSI
- nastygram, 230
- National Optical Astronomy Observatories, *see* NOAO
- National Science Foundation network, *see* NSFNET
- NCP (Network Control Protocol), 15, 26, 549
- ndd program, 529
- Nelson, B., xix
- Net/1, *see* BSD Networking Release 1.0
- Net/2, *see* BSD Networking Release 2.0
- Net/3, *see* BSD Networking Release 3.0
- net-directed broadcast address, 45, 171
- Netfind program, 484, 550
- net.inet.icmp.maskrepl variable, 538
- net.inet.ip.forwarding variable, 538
- net.inet.ip.redirect variable, 538
- net.inet.ip.ttl variable, 538
- net.inet.udp.checksum variable, 538
- netstat program, 32–33, 49, 51, 83, 111, 113–114, 117–118, 152, 164–166, 168, 183–184, 240, 244, 254–256, 378, 509–510, 514, 530
 - a option, 164, 183, 254
 - f option, 165, 254
 - i option, 49, 183
 - n option, 49, 113, 164, 183, 254
 - r option, 113, 514
 - s option, 509–510
- network
 - byte order, 34, 395
 - element, SNMP, 359
 - interface layer, 2
 - interface tap, *see* NIT
 - layer, 2
 - management station, 359
 - unnumbered, 138
 - unreachable, ICMP, 117–119, 317, 336
 - virtual terminal, *see* NVT
- Network Control Protocol, *see* NCP
- Network File System, *see* NFS
- Network Information Center, *see* NIC
- Network News Transfer Protocol, *see* NNTP

- Network Time Protocol, *see* NTP
- next-hop router, 38, 54, 104, 113, 119, 384
- NFS (Network File System), 461–480, 542
 - asynchronous WRITE, 479
 - examples, 474–479
 - file handle, 469
 - hard mount, 478
 - idempotent procedures, 478–479
 - lock manager, 469, 553
 - mount protocol, 470–471
 - over TCP, 473–474
 - procedures, 471–472
 - protocol, 467–474, 553
 - server cache, 479
 - soft mount, 478
 - statelessness, 476–478
 - status monitor, 469, 553
 - synchronous WRITE, 472, 479
 - timeout and retransmission, 159, 476, 478
 - UDP or TCP?, 473
 - Version 3, 479, 553
- nfsd program, 468
- NIC (Network Information Center), 8, 102
- nic.ddn.mil, 8, 102, 191, 483
- Nickelsen, J., 503
- NIT (network interface tap), 68, 493–494, 549
- nit_buf streams module, 493
- nit_if streams module, 493
- nit_pf streams module, 494
- NNTP (Network News Transfer Protocol), 35
- no operation, *see* NOP
- no program, 536
- NOAO (National Optical Astronomy Observatories), xix, 18
- noao.edu networks, 18–19, 44, 134, 190, 438
- non-ASCII headers, SMTP futures, 454–455
- noncontiguous subnet mask, 508
- nonlocal IP address, 237
- nonlocsrcroute variable, 537
- NOP (no operation), 93, 253, 402
- NS record, DNS, 193, 202, 204, 515
- NSFNET (National Science Foundation network), 19, 103, 106–107, 118–119, 128, 507
- NSI (NASA Science Internet), 103, 119
- nslookup program, 197, 524
- NTP (Network Time Protocol), 76–77, 176, 549
- NVT (network virtual terminal), 401
 - ASCII, 363, 401–402, 421, 423, 426, 432, 442, 445–447, 453–457, 481–483, 504, 516
- Nye, A., 486, 550
- OBJECT IDENTIFIER datatype, SNMP, 363
- object identifiers, SNMP, 364–365
- Obraczka, K., 188, 485, 546, 550
- octet, 9
- OCTET STRING datatype, SNMP, 363
- offered window, 280
- Official Protocol Standards, Internet, 15
- opaque, XDR, 469
- open
 - active, 232
 - passive, 232
- open shortest path first, *see* OSPF
- Open Software Foundation, *see* OSF
- open system, 1
- open systems interconnection, *see* OSI
- options
 - IP, 37, 168
 - IP record route, 91–95, 97, 101, 110, 168, 514
 - IP source routing, 104–109, 168, 384, 514, 531, 537, 540
 - IP source routing LSRR, 105–109, 511
 - IP source routing SSRR, 107–108
 - IP timestamp, 95–96, 168, 514
 - negotiation, Telnet, 402–403
 - TCP, 253–254
- orderly release, 247
- organizational domains, DNS, 189
- OSF (Open Software Foundation), 77, 462, 552
- OSI (open systems interconnection), 26, 50, 141, 250, 260, 484, 494, 551
- OSPF (open shortest path first), 128–129, 137–138, 550
 - checksum, 142, 513
- out-of-band
 - data, 293
 - signaling, 395
- packet filter, BSD, 491–493
- Papadopoulos, C., 282, 550
- Partridge, C., xix, 37, 185, 301, 346, 356, 367, 448, 544–545, 548, 550, 553
- Parulkar, G. M., 282, 550
- passive
 - close, 233
 - open, 232
- password
 - cleartext, 137–138, 362, 388, 392, 411, 417, 427, 496
 - encrypted, 496
- path MTU, 30, 531–532, 549
 - discovery, TCP, 340–344, 534
 - discovery, UDP, 151, 155–157
 - traceroute program, 153–154, 541
- PAWS (protection against wrapped sequence numbers)
 - TCP, 351, 541, 547
- Paxson, V., 391, 441, 550

- PDU (protocol data unit), 362
- peer, 3
- performance, TCP, 354–356, 544, 546, 552–553
- Perlman, R., 6, 50, 111, 138, 141, 186, 550
- permanent host group, 176
- per-route metrics, TCP, 316–317, 322, 340
- persist
 - example, TCP, 323–325
 - timer, TCP, 297, 323–330, 399
- pfmod streams module, 494
- PhysAddress datatype, SNMP, 363
- piggyback, 265
- ping program, 85–96, 110, 114, 118, 121, 152, 173–175, 178, 501, 510–512, 540
 - l option, 110
 - R option, 91, 110
 - s option, 86, 89
 - v option, 121
- Pink, S., 356, 550
- PIP, 50, 546
- pipelining, 523
- Pirard, A., 455
- Plummer, D. C., 53, 63, 550
- pointer
 - DNS, 197
 - query, DNS, 198–200
- Point-to-Point Protocol, *see* PPP
- policy, routing, 112, 128
- policy-based routing, 139
- port mapper, 465–467
- port number, 10, 12–13
 - ephemeral, 13, 533, 535
 - reserved, 13, 396, 418, 480, 522, 524, 533, 536
 - TCP, 226
 - TCP server, 254–255
 - UDP, 144
 - well-known, 12
- port unreachable, ICMP, 77–81, 83, 98, 100, 165, 170, 247, 509, 511, 514
- Portable Operating System Interface, *see* POSIX
- POSIX (Portable Operating System Interface), 479
- Postel, J. B., 15, 22, 33, 35–36, 42, 46, 69, 92, 98, 143, 161, 167–168, 189, 223, 230, 232, 243, 401–402, 404, 408, 413, 419, 442, 512, 543–545, 549–551
- PPP (Point-to-Point Protocol), 26–27, 29, 490, 549, 552
 - asynchronous link, 26
 - encapsulation, 26–27
 - encapsulation, picture of, 26
 - MTU, 30
 - synchronous link, 26
- preference value, DNS MX record, 202, 448–451, 459
- primary name server, DNS, 190
- principle, robustness, 19, 508
- PRINTER environment variable, 408
- process, 180
- promiscuous
 - ARP, 62
 - mode, 169, 177, 491
- propagation delay, 289
- Prospero, 550
- protection against wrapped sequence numbers, *see* PAWS
- protocol
 - address, 57
 - data unit, *see* PDU
 - field, IP, 36, 38, 70, 79, 516
 - suite, 1
 - Unix domain, 486
- proxy ARP, 60–62, 120–121
- pseudo-header
 - TCP, 227
 - UDP, 145
- pseudo-terminal, 390
- PSH (push flag, TCP header), 227
 - TCP, 284–285, 535
- PTR record, DNS, 193, 199–201, 438
- Pusateri, T., 178, 551
- push flag, TCP header, *see* PSH
- Quarterman, J. S., 24, 311, 499, 548
- query class, DNS, 193
- queueing, SLIP, TOS, 30, 35
- quiet time, TCP, 246
- quoted-printable encoding, SMTP, 454–456
- Rago, S. A., xix, 493, 551
- RARP (Reverse Address Resolution Protocol), 65–68, 546
 - example, 66–67
 - packet format, 65
 - request-reply, picture of, ARP and, 56
 - server design, 67–68
 - timeout and retransmission, 66
- rarpd program, 66, 492–493
- Rashid, R., 492
- rdate program, 74, 76
- read-ahead, 476
- reassembly
 - IP, 36, 148–150
 - timer, IP, 100, 158–159, 168, 536
- receive buffer
 - TCP, 280, 282–283, 326, 329, 347–349, 357, 398, 506, 520–521, 527–528, 537
 - UDP, 159, 163, 506, 527, 529, 537
- record route option, IP, 91–95, 97, 101, 110, 168, 514

- recursive query, DNS, 192, 196, 204–205, 207
- redirect, ICMP, 39, 93, 95, 119–123, 126, 510, 512, 526, 528–529, 531–532, 536, 538
 - picture of, ICMP, 122
- Rekhter, Y., 119, 138–141, 546, 548, 551
- relay agents, SMTP, 446
- release
 - abortive, 247, 505
 - orderly, 247
- religious issue, 331, 476
- remote flow control option, Telnet, 403, 408, 547
- remote procedure call, *see* RPC
- remote terminal protocol, *see* Telnet
- repacketization, TCP, 272, 296, 320, 519
- replay, transaction, 352
- Request for Comment, *see* RFC
- reserved port number, 13, 396, 418, 480, 522, 524, 533, 536
- reset flag, TCP header, *see* RST
- reset segment, TCP, *see* RST
- resolver, 54, 187
- resource record, *see* RR
- restricting
 - foreign IP address, TCP, 256
 - foreign IP address, UDP, 166, 504
 - local IP address, TCP, 256
 - local IP address, UDP, 164–166
- retransmission
 - ambiguity problem, 301, 521
 - DNS timeout and, 206
 - IP fragment, 149
 - NFS timeout and, 159, 476, 478
 - RARP timeout and, 66
 - RPC timeout and, 463, 523
 - SNMP timeout and, 360
 - TFTP timeout and, 81, 211, 213
 - time out, *see* RTO
 - timer, TCP, 297
- retry intervals, SMTP, 448
- Reverse Address Resolution Protocol, *see* RARP
- Reynolds, J. K., 15, 22, 35, 401–402, 404, 408, 413, 419, 458, 481, 484, 551, 553
- RFC (Request for Comment), 14–15, 539
 - Assigned Numbers, 14, 19, 98, 176, 365, 372, 403–404
 - Gateway Requirements, 15, 544
 - Host Requirements, 15, 19, 22, 60, 64, 73, 81, 83, 105, 114, 146, 158, 163, 171, 213, 222–223, 232, 262, 267, 270, 280, 293, 331, 333, 347, 416, 422, 429, 431, 433, 436, 448, 508, 515, 535, 544
 - Router Requirements, 15, 46, 98, 128, 151, 161, 543
- .rhosts file, 200, 392
- ring search, expanding, 182
- RIP (Routing Information Protocol), 128–136, 547
 - example, 132–136
 - message format, 129
 - message, picture of, 130
 - metrics, 131–132
 - problems, 132
 - protocol, 130–131
 - version 2, 136–137, 176, 549
- ripquery program, 132–133
 - n option, 132
- Risner, J., xix
- Rlogin
 - client escapes, 395–396
 - client interrupt, 393
 - client to server commands, 395
 - examples, 396–401
 - flow control, 393
 - protocol, 391–396, 548
 - server to client commands, 394
 - window size changes, 393–394
- rlogin program, 270–271, 382
- robustness principle, 19, 508
- Romkey, J. L., 24, 551
- root name server, DNS, 190–191, 204–205, 208, 515, 546
- root-servers.txt file, 191
- Rose, M. T., 359–360, 365, 367, 370, 387, 452–453, 458, 523, 545, 548–549, 551–552
- Rosenberg, W., 77, 552
- round-trip time, *see* RTT
- route
 - direct, 113
 - indirect, 113
- route program, 111, 116, 126–128, 317
- routed program, 111, 128, 130, 171
- router, 4
 - advertisement, picture of, ICMP, 124
 - discovery, ICMP, 123–125, 510, 540, 546
 - IP, 4
 - next-hop, 38, 54, 104, 113, 119, 384
 - solicitation, picture of, ICMP, 124
- Router Requirements RFC, 15, 46, 98, 128, 151, 161, 543
- Routhier, S. A., 388, 552
- routing, 111–142
 - daemon, 127
 - daemon, Unix, 128–129
 - domain, 136
 - domain, top-level, 119
 - dynamic, 127–142
 - IP, 37–41
 - mechanism, 112, 128
 - policy, 112, 128
 - policy-based, 139
 - principles, 112–117

- protocol, 127
- protocol, distance-vector, 137
- protocol, link-state, 137
- tables, SNMP, 383–385
- Routing Information Protocol, *see* RIP
- RPC (remote procedure call)
 - client stub, 462
 - credentials, 464
 - server stub, 462
 - Sun, 461–465, 542, 553
 - timeout and retransmission, 463, 523
 - transport independent, Sun, 463
 - verifier, 464
 - XID, 463–464, 474, 480, 523–524
- rpcbind program, 465
- rpcinfo program, 466
- RR (resource record)
 - DNS, 194, 201–202
 - picture of, DNS, 193
- rsh program, 64, 239, 508
- rs.internic.net, 8, 102, 191, 483–484
- RST (reset flag, TCP header), 227
 - TCP, 246–250
- RTO (retransmission time out)
- RTO variable, 299–301, 304–306, 353, 357, 519
- RTT (round-trip time)
 - example, TCP, 301–306
 - measurement, ICMP, 75
 - measurement, TCP, 299–301, 345, 349
- rwho program, 171
- rwhod program, 171
- SACK (selective acknowledgment), 345
 - TCP, 226, 254, 547
- Schmidt, D. C., xix
- Schoffstall, M. L., 360, 545
- Schryver, V. J., 355, 552
- Schwartz, M. F., 484, 552
- Seaver, T., 97
- secondary name server, DNS, 190
- security, 546
 - option, IP, 37, 548
 - tcpdump, 496
 - TFTP, 213
- segment, TCP, 9, 224
- selective acknowledgment, *see* SACK
- self-clocking behavior, TCP, 289
- send buffer
 - TCP, 282, 284–285, 294, 398–399, 506, 527–528, 536–537
 - UDP, 159, 506, 527, 529, 537
- SEQUENCE datatype, SNMP, 363
- sequence number, TCP, 226
- SEQUENCE OF datatype, SNMP, 364
- Serial Line Internet Protocol, *see* SLIP
- serial line throughput, 30–31, 89
- server, 3
 - cache, NFS, 479
 - concurrent, 12, 213, 254, 257–258, 488, 505
 - design, BOOTP, 219–220
 - design, RARP, 67–68
 - design, TCP, 254–260
 - design, TFTP, 212
 - design, UDP, 162–167
 - iterative, 12, 162–163, 190
 - port number, TCP, 254–255
 - stub, RPC, 462
 - to client commands, Rlogin, 394
- services, standard, simple, 15
- set-request operator, SNMP, 360
- shutdown function, 238
- signaling
 - in-band, 395
 - out-of-band, 395
- silly window syndrome, *see* SWS
- Simonsen, K. J., 455
- Simple Mail Transfer Protocol, *see* SMTP
- Simple Network Management Protocol, *see* SNMP
- simple services, standard, 15
- SIMPLEX constant, 48
- Simpson, W. A., 26, 552
- simultaneous
 - close, TCP, 252
 - open, TCP, 250–251
- SIP, 50, 546
- Sirovica, D., 518, 545
- Skibo, T., xix
- Slattery, T., 503
- sliding window, TCP, 275, 280–282
- SLIP (Serial Line Internet Protocol), 29, 32, 490, 540, 551
 - dialup, 90
 - encapsulation, 24–25
 - encapsulation, picture of, 25
 - hardwired, 89
 - MTU, 30
 - TOS queueing, 30, 35
- slow start, TCP, 285–286, 306, 547
- SMI (structure of management information)
 - SNMP, 360, 363–364, 552
- SMTP (Simple Mail Transfer Protocol), 441–459, 551
 - 8-bit encoding, 456
 - base-64 encoding, 455–456
 - binary encoding, 456
 - body, 445–446
 - commands, 445
 - content, 446
 - envelope, 445–446

- examples, 442-444, 448-452
- EXPN command, 451-452
- futures, 452-458
- futures, extended SMTP, 452-454
- futures, MIME, 456-458, 542
- futures, non-ASCII headers, 454-455
- headers, 445-446
- protocol, 442-448
- quoted-printable encoding, 454-456
- relay agents, 446
- retry intervals, 448
- VRFY command, 451-452
- SNMP (Simple Network Management Protocol), 359-388
 - agent, 359
 - at group, 374-375
 - community, 362, 370
 - Counter datatype, 363
 - DisplayString datatype, 363
 - enterprise, 386
 - examples, 370-371, 382-385
 - Gauge datatype, 363
 - get-bulk-request operator, 387
 - get-next-request operator, 360
 - get-request operator, 360, 370-371
 - get-response operator, 360
 - icmp group, 379
 - inform-request operator, 387
 - instance identification, simple variables, 368
 - instance identification, tables, 368
 - INTEGER datatype, 363
 - interface group, 372-374
 - ip group, 376-379
 - IpAddress datatype, 363
 - lexicographic ordering, 368-369
 - MIB, 359, 365-367, 372-382, 549
 - network element, 359
 - OBJECT IDENTIFIER datatype, 363
 - object identifiers, 364-365
 - OCTET STRING datatype, 363
 - PhysAddress datatype, 363
 - protocol, 360-362
 - routing tables, 383-385
 - SEQUENCE datatype, 363
 - SEQUENCE OF datatype, 364
 - set-request operator, 360
 - SMI, 360, 363-364, 552
 - system group, 372
 - table access, 371
 - tcp group, 379-382
 - timeout and retransmission, 360
 - TimeTicks datatype, 363
 - trap operator, 360
 - traps, 385-386
 - Version 2, 387-388, 545, 552
- snmpd program, 370, 374-375, 377, 386
 - a option, 370
 - c option, 370
- snoop program, 134-136, 491, 495
 - P option, 135
 - r option, 135
 - t option, 135
 - v option, 135
- SO_BROADCAST socket option, 174, 505
- sock program, 146-147, 149, 157, 159, 161-162, 165-166, 243, 247, 251, 261, 275, 282, 294, 301, 318, 320, 324, 326, 333, 341, 347, 357, 497, 503-506, 517, 542
 - A option, 165, 167, 245, 505
 - B option, 505
 - b option, 244, 251, 504
 - c option, 504
 - D option, 301, 497, 505
 - E option, 163-164, 505
 - F option, 505
 - f option, 166, 504
 - h option, 504
 - i option, 148, 275, 505
 - K option, 333, 505
 - L option, 247-248, 505
 - N option, 506
 - n option, 148, 294, 505
 - O option, 258, 506
 - P option, 163, 294, 324, 506
 - p option, 505
 - Q option, 506
 - q option, 258, 505
 - R option, 163, 506
 - r option, 163, 505
 - S option, 283, 294, 506
 - s option, 133, 163, 275, 505
 - U option, 294, 506
 - u option, 147, 163, 505
 - v option, 147, 163, 244, 251, 505
 - w option, 148, 505
- socket
 - debug option, 301, 303-304, 313, 496-497, 505
 - definition of, 226
 - pair, 226, 243-245, 431, 517, 522
 - Unix domain, 487
- socket option
 - IP_RECVDSTADDR, 163, 505
 - SO_BROADCAST, 174, 505
 - SO_DEBUG, 505
 - SO_KEEPALIVE, 505
 - SO_LINGER, 247, 505
 - SO_RCVBUF, 348, 506
 - SO_REUSEADDR, 165, 167, 243-245, 429, 431, 505
 - SO_REUSEPORT, 167

- SO_SNDBUF, 294, 506
- TCP_MAXSEG, 251, 294, 348
- TCP_NODELAY, 270, 506, 535
- socket program, 503
- sockets API, 17, 159–160, 174, 180, 238, 282, 284, 293, 461, 463, 542, 545, 552
- sockio program, 503
- SO_DEBUG socket option, 505
- soft mount, NFS, 478
- SO_KEEPALIVE socket option, 505
- Solaris, xviii, 13, 79, 81, 93, 110, 114, 116, 119, 123, 125, 134, 152, 155–156, 159–160, 163, 180, 237, 244, 257–258, 260, 282, 299, 340, 406, 433, 465, 469, 491, 494–495, 508, 510, 512
 - 2.2 configuration options, 529–536
- SO_LINGER socket option, 247, 505
- Sollins, K. R., 209, 552
- solutions to exercises, 507–524
- SO_RCVBUF socket option, 348, 506
- SO_REUSEADDR socket option, 165, 167, 243–245, 429, 431, 505
- SO_REUSEPORT socket option, 167
- SO_SNDBUF socket option, 294, 506
- source code availability, 539–542
- source quench, ICMP, 160–162, 164, 317, 510, 532
 - picture of, ICMP, 161
- source routing, option, IP, 104–109, 168, 384, 514, 531, 537, 540
 - LSRR option, IP, 105–109, 511
 - SSRR option, IP, 107–108
- source service access point, *see* SSAP
- special case IP address, 45
- spoofing, DNS hostname, 200
- SprintLink, 119
- SSAP (source service access point), 22
- SSRR (strict source and record route), 104
 - IP source routing, 107–108
- ssthresh variable, 310–314, 316–317
- Stahl, M. K., 483, 547
- Stallings, W., 22, 387, 552
- standard, simple services, 15
- standardization process, 14
- state transition diagram, TCP, 240–246
- statelessness, NFS, 476–478
- status monitor, NFS, 469, 553
- status option, Telnet, 403, 408, 551
- Stefferd, E. A., 452–453, 548
- Stern, H., 467, 552
- Stevens, D. A., xix
- Stevens, D. L., 391, 545
- Stevens, E. M., xix
- Stevens, S. H., xix
- Stevens, W. R., 18, 85, 162, 209, 211, 239, 354, 391, 398, 462, 472, 484, 552
- Stevens, W. R., xix
- stop-and-wait protocol, 211, 213, 219, 275, 321, 516, 519
- streams, 493, 551
- streams module
 - bufmod, 494
 - nit_buf, 493
 - nit_if, 493
 - nit_pf, 494
 - pfmod, 494
- strict source and record route, *see* SSRR
- structure of management information, *see* SMI
- stub
 - AS, 139
 - RPC client, 462
 - RPC server, 462
- subnet
 - address, 42–45, 550, 553
 - example, 46–47
 - mask, 43–45, 136
 - mask, noncontiguous, 508
 - variable-length, 46, 138
- subnet-directed broadcast address, 45, 47, 136, 172–174, 178
- SUBNETSARELOCAL constant, 526, 528
- subnetsarelocal variable, 526, 537–538
- suboption negotiation, Telnet, 404
- summarization, 140
- Sun Microsystems, 462, 465, 467, 479, 540, 553
- Sun RPC, 461–465, 542, 553
 - transport independent, 463
- SunOS, xviii, 48, 63, 110, 116, 119, 123, 159, 163, 167, 172, 200, 237, 244, 259, 282, 295, 380, 406, 433, 450, 469, 491–493, 495–496, 509, 513, 541
 - 4.1.3 configuration options, 527–529
- supernetting, 140, 546
- suppress go ahead option, Telnet, 403, 407, 551
- SVR4, xviii, 49, 63, 68, 72, 75, 89, 93, 110, 116, 119, 123, 160, 163, 237, 244, 282, 321, 325, 396, 406, 431, 433, 465, 469, 496, 500–501, 519, 524
 - configuration options, 529
- SWS (silly window syndrome)
 - TCP, 325–330, 545
- SYN (synchronize sequence numbers flag, TCP header), 227
- synch signal, Telnet, 406, 433–436
- synchronization, clock, 74–77, 349, 351
- synchronize sequence numbers flag, TCP header, *see* SYN
- synchronous
 - link, PPP, 26
 - WRITE, NFS, 472, 479
- SYN_RCVD state, TCP, 240–241, 250–251, 381
- SYN_SENT state, TCP, 240–241, 250–251, 381
- sysctl program, 537
- system group, SNMP, 372

- T1 carrier, definition of, 290
- T3 carrier, definition of, 290
- Tanenbaum, A. S., 27, 553
- TCP (Transmission Control Protocol), 223–357, 551
 - 2MSL timer, 297, 345
 - 2MSL wait, 242–246, 261, 352, 357, 429, 431, 505, 517–518, 522, 534
 - ACK number, 226
 - and UDP with bigger addresses, *see* TUBA
 - bandwidth-delay product, 289–291, 317, 344–345, 356, 519
 - big packets or small packets?, 342–344
 - bulk data flow, 275–296
 - bulk data throughput, 286–292
 - checksum, 147, 224, 227–228, 356, 381, 531
 - CLOSED state, 240–241, 246, 261, 381, 517
 - CLOSE_WAIT state, 240–241, 246, 261, 363, 381
 - CLOSING state, 241, 252, 381
 - congestion, 291–292
 - congestion avoidance algorithm, 310–312, 547
 - congestion example, 306–309, 313–316
 - connection establishment, 229–234
 - connection establishment timer, 235–236, 534
 - connection termination, 229–234
 - delayed ACK, 265–267, 277, 312, 350, 353, 418, 528, 534
 - DNS UDP or, 206
 - ESTABLISHED state, 240–241, 250, 252, 254–255, 330, 363, 381, 517, 521
 - fast retransmit and fast recovery algorithm, 309, 312–313, 344, 527, 534, 547
 - FIN_WAIT_1 state, 241, 252, 330, 381
 - FIN_WAIT_2 state, 241, 246, 261, 330, 381
 - flow control, 224, 227, 280–282, 310
 - full-duplex, 15, 226, 233, 239, 459
 - futures, 339–354
 - half-close, 233, 238–240, 504
 - half-duplex close, 262
 - half-open, 248
 - header, 225–227
 - header length field, 226, 228
 - header, picture of, 225
 - ICMP errors, 317–318
 - incoming connection request queue, 257–260, 505, 534
 - interactive data flow, 263–274
 - interactive input, 263–265
 - ISN, 226, 231–232, 245, 247, 261, 517–518
 - Karn's algorithm, 301, 304–305, 357, 521, 548
 - keepalive example, 333–336
 - keepalive timer, 297, 331–337, 417, 473–474, 505, 520, 527–529, 535, 537
 - LAST_ACK state, 240–241, 381
 - LISTEN state, 240–241, 254–255, 381
 - long fat pipe, 344–347, 547
 - MSS, 236–238, 285, 313, 320, 325, 340–341, 357
 - MSS option, 227, 231, 236–238, 253, 276, 341, 354, 526–528, 535, 537
 - Nagle algorithm, 267–274, 506, 535, 550
 - Nagle algorithm, disabling, 269–274
 - options, 253–254
 - path MTU discovery, 340–344, 534
 - PAWS, 351, 541, 547
 - performance, 354–356, 544, 546, 552–553
 - per-route metrics, 316–317, 322, 340
 - persist example, 323–325
 - persist timer, 297, 323–330, 399
 - port number, 226
 - pseudo-header, 227
 - PSH, 284–285, 535
 - quiet time, 246
 - receive buffer, 280, 282–283, 326, 329, 347–349, 357, 398, 506, 520–521, 527–528, 537
 - repacketization, 272, 296, 320, 519
 - restricting foreign IP address, 256
 - restricting local IP address, 256
 - retransmission timer, 297
 - RST, 246–250
 - RTT example, 301–306
 - RTT measurement, 299–301, 345, 349
 - SACK, 226, 254, 547
 - segment, 9, 224
 - self-clocking behavior, 289
 - send buffer, 282, 284–285, 294, 398–399, 506, 527–528, 536–537
 - sequence number, 226
 - server design, 254–260
 - server port number, 254–255
 - services, 223–225
 - simultaneous close, 252
 - simultaneous open, 250–251
 - sliding window, 275, 280–282
 - slow start, 285–286, 306, 547
 - state transition diagram, 240–246
 - SWS, 325–330, 545
 - SYN_RCVD state, 240–241, 250–251, 381
 - SYN_SENT state, 240–241, 250–251, 381
 - three-way handshake, 231, 352
 - timeout and retransmission, 297–322
 - timestamp option, 253, 349–350, 541, 547
 - TIME_WAIT assassination, 518, 544
 - TIME_WAIT state, 241–246, 252, 260, 262, 297, 352–353, 356–357, 381, 517–518, 522, 534, 544
 - transaction, 351–354, 544
 - urgent mode, 292–296, 393–394, 396, 398–399, 406, 409, 415, 417, 434, 436, 506, 522, 535
 - urgent pointer, 227, 292, 416, 436
 - window advertisement, 274

- window probe, 323
 - window scale option, 253, 347–349, 541, 547
 - window size, 227, 282–284
 - window update, 279
 - zero window, 281, 324–325, 399
- tcp group, SNMP, 379–382
- tcp_close_wait_interval variable, 534
- tcp_conn_grace_period variable, 534
- tcp_conn_req_max variable, 534
- tcp_cwnd_max variable, 534
- tcp_debug variable, 534
- tcp_default_mss variable, 528
- tcp_deferred_ack_interval variable, 534
- tcpdump program, 57–60, 62, 66, 72, 77–78,
 - 80–81, 83, 87, 93, 99, 107–108, 110, 118,
 - 133–134, 146–150, 152, 155, 157–158, 161,
 - 169, 174, 184, 194–196, 199–200, 203–206,
 - 212, 218–219, 222, 230–231, 234–235, 238,
 - 248–249, 253, 256, 258, 260–261, 270–272,
 - 274, 277, 294, 298, 301, 303–305, 307, 309, 313,
 - 318, 320, 324, 329, 334–336, 341, 348, 351, 370,
 - 375, 385–386, 406, 449, 451, 474–476, 480,
 - 491–497, 499, 501, 508, 513, 523, 542
- e option, 58, 66, 72, 78, 89, 496
- i option, 133
- n option, 59, 62
- r option, 203
- s option, 133
- S option, 234
- v option, 93, 107, 110
- w option, 203
- tcpdump, output, 495
 - security, 496
 - time line, 80–81
- tcp_dupack_fast_retransmit variable, 534
- tcp_eager_listeners variable, 260, 534
- tcp_ignore_path_mtu variable, 534
- TCP/IP implementations, 16–17
- tcp_ip_abort_cinterval variable, 534
- tcp_ip_abort_interval variable, 299, 534
- tcp_ip_notify_cinterval variable, 534
- tcp_ip_notify_interval variable, 534
- tcp_ip_ttl variable, 535
- tcp_keepalive_interval variable, 535
- tcp_keepidle variable, 527–529, 537–538
- tcp_keepintvl variable, 527, 529, 537
- tcp_keeplen variable, 528
- tcp_largest_anon_port variable, 535
- tcp_maxpsz_multiplier variable, 535
- TCP_MAXSEG socket option, 251, 294, 348
- tcp_mss_def variable, 535
- tcp_msdfilt variable, 526–527
- tcp_mss_max variable, 535
- tcp_mss_min variable, 535
- tcp_naglim_def variable, 535
- tcp_nodelack variable, 528
- TCP_NODELAY socket option, 270, 506, 535
- tcp_old_urp_interpretation variable, 535
- tcp_rcv_push_wait variable, 535
- tcp_recvspace variable, 527–528, 537
- tcp_rexmit_interval_initial variable, 535
- tcp_rexmit_interval_max variable, 535
- tcp_rexmit_interval_min variable, 535
- tcprexmtthresh variable, 527
- tcp_rwin_credit_pct variable, 535
- tcp_sendspace variable, 527–528, 537
- tcp_smallest_anon_port variable, 535
- tcp_smallest_nonpriv_port variable, 536
- tcp_snd_lowat_fraction variable, 536
- tcp_status variable, 536
- tcp_sth_rcv_hiwat variable, 536
- tcp_sth_rcv_lowat variable, 536
- tcp_ttl variable, 527–528, 537
- tcp_wroff_xtra variable, 536
- Telnet (remote terminal protocol)
 - binary transmission option, 403, 551
 - character-at-a-time mode, 404, 406–411
 - client escapes, 406
 - commands, 401–402
 - data mark command, 406
 - echo option, 403, 551
 - environment option, 403, 408, 544
 - examples, 406–416
 - flow control, 408
 - half-duplex mode, 404
 - line-at-a-time mode (kludge line mode), 404,
 - 413–415
 - linemode, 404, 411–413, 415–416
 - linemode option, 403, 408, 544
 - option negotiation, 402–403
 - protocol, 401–406, 551
 - remote flow control option, 403, 408, 547
 - status option, 403, 408, 551
 - suboption negotiation, 404
 - suppress go ahead option, 403, 407, 551
 - synch signal, 406, 433–436
 - terminal speed option, 403, 408, 547
 - terminal type option, 403–404, 408, 553
 - timing mark option, 403, 551
 - window size option, 403, 553
- telnet program, 57, 60, 76, 229, 233, 235–236
- terminal
 - speed option, Telnet, 403, 408, 547
 - type option, Telnet, 403–404, 408, 553
- test network, 18–19
- TFTP (Trivial File Transfer Protocol), 66, 77–78,
 - 80–81, 163, 174, 209–213, 215, 219, 321, 546
 - example, 211–212

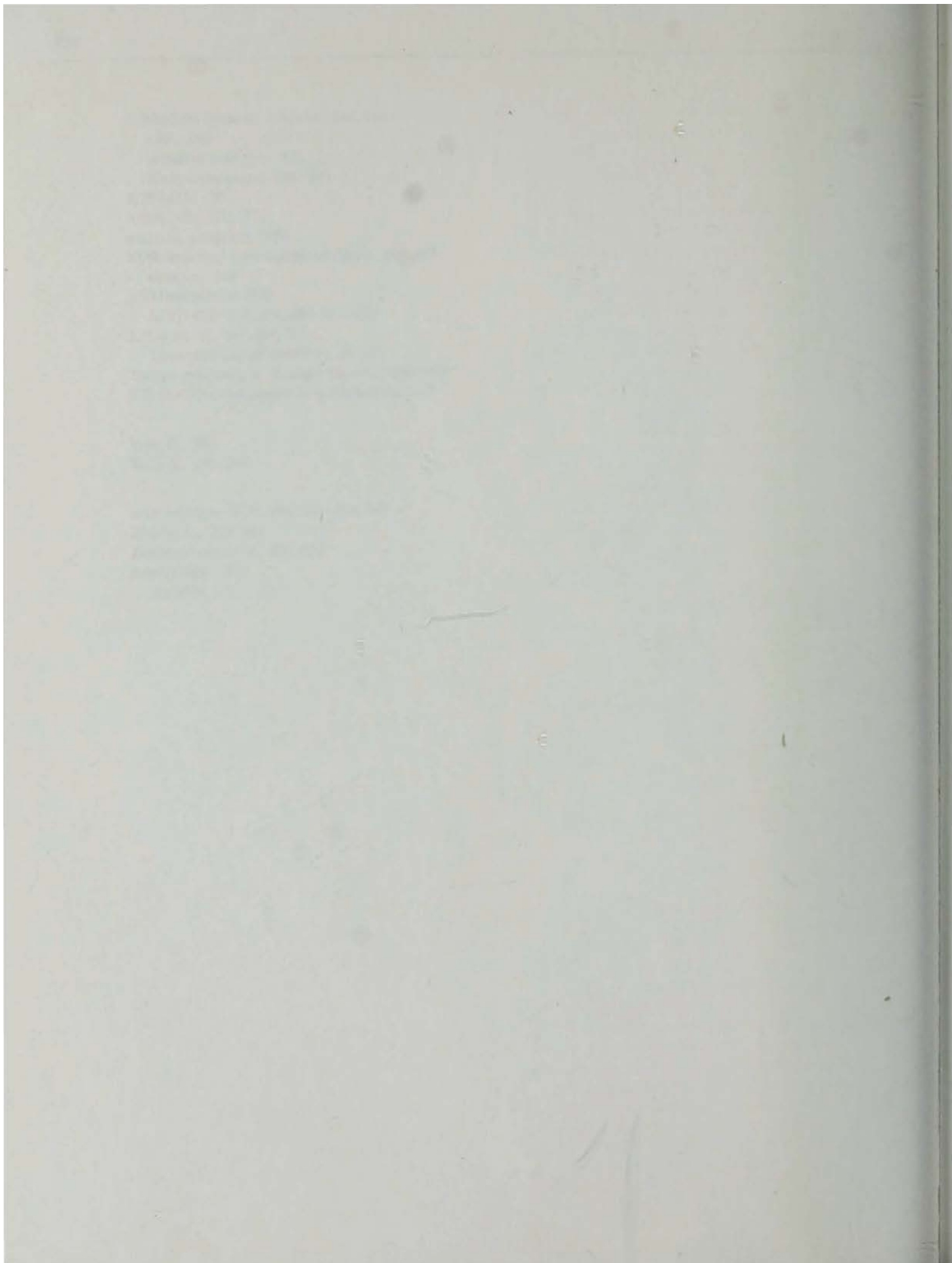
- message, picture of, 210
- protocol, 209–211, 552
- security, 213
- server design, 212
- timeout and retransmission, 81, 211, 213
- /tftpboot file, 213
- Theimer, M., 65, 546
- three-way handshake, TCP, 231, 352
- throughput, serial line, 30–31, 89
- time exceeded, ICMP, 98, 100, 106–107, 158, 182, 384, 510–511
 - picture of, ICMP, 100
- time line, tcpdump, 80–81
- time program, 162
- time server, 16
- time to live, *see* TTL
- timed program, 77
- timeout and retransmission
 - DNS, 206
 - NFS, 159, 476, 478
 - RARP, 66
 - RPC, 463, 523
 - SNMP, 360
 - TCP, 297–322
 - TFTP, 81, 211, 213
- timer
 - IP reassembly, 100, 158–159, 168, 536
 - TCP 2MSL, 297, 345
 - TCP connection establishment, 235–236, 534
 - TCP keepalive, 297, 331–337, 417, 473–474, 505, 520, 527–529, 535, 537
 - TCP persist, 297, 323–330, 399
 - TCP retransmission, 297
- timestamp option
 - IP, 95–96, 168, 514
 - TCP, 253, 349–350, 541, 547
- timestamp request-reply, ICMP, 74–77, 96, 510, 532
 - picture of, ICMP, 74
- TimeTicks datatype, SNMP, 363
- TIME_WAIT
 - assassination, TCP, 518, 544
 - state, TCP, 241–246, 252, 260, 262, 297, 352–353, 356–357, 381, 517–518, 522, 534, 544
- timing mark option, Telnet, 403, 551
- tinygram, 267
- TI-RPC, 463, 542
- TLI (Transport Layer Interface), 17, 461, 463, 542, 551–552
- token ring
 - MTU, 30
 - multicasting, 178, 551
- top-level routing domain, 119
- Topolcic, C., 139–140, 553
- Toporek, J., xix
- TOS (type of service), 34–35, 83, 122, 138, 236, 420, 427, 429, 509, 543
 - queueing, SLIP, 30, 35
- total length field, IP, 36, 144, 149
- TP/IX, 50, 553
- traceroute program, 30, 87, 89, 97–110, 153–154, 197, 340, 383–384, 437, 501, 510–512, 540, 549
 - g option, 105, 107, 384
 - G option, 107–108
 - path MTU, 153–154, 541
- trailer encapsulation, 23–24, 548
- transaction, 352
 - ID, *see* XID
 - ID, BOOTP, 217–218, 222
 - replay, 352
 - TCP, 351–354, 544
- transit AS, 139
- Transmission Control Protocol, *see* TCP
- transmission delay, 289
- transport independent, Sun RPC, 463
- transport layer, 2
- Transport Layer Interface, *see* TLI
- trap operator, SNMP, 360
- traps, SNMP, 385–386
- Trivial File Transfer Protocol, *see* TFTP
- trpt program, 301, 497, 505
- truncated response, DNS, 192, 206
- truncation, UDP datagram, 160
- Tsirigotis, P. G., 484, 552
- Tsuchiya, P. F., 51, 553
- T/TCP, 351–354, 544
- ttcp program, 503, 542
- TTL (time to live)
 - DNS, 194, 202
 - IGMP, 182
 - IP, 36–37, 82, 87, 93, 97–110, 154, 182, 184, 243, 345, 351, 510–511, 527–530, 532–533, 535, 537–538
- TUBA (TCP and UDP with bigger addresses), 50, 544, 546
- type of service, *see* TOS
- typographical conventions, xviii
- UDP (User Datagram Protocol), 143–168, 550
 - and ARP interaction, 157–159
 - checksum, 144–147, 170, 211, 228, 356, 366, 513, 516, 527, 529, 531, 533, 538
 - client IP address and port number, 162
 - datagram truncation, 160
 - destination IP address, 163, 505
 - header, 144
 - header, picture of, 144
 - input queue, 163–164

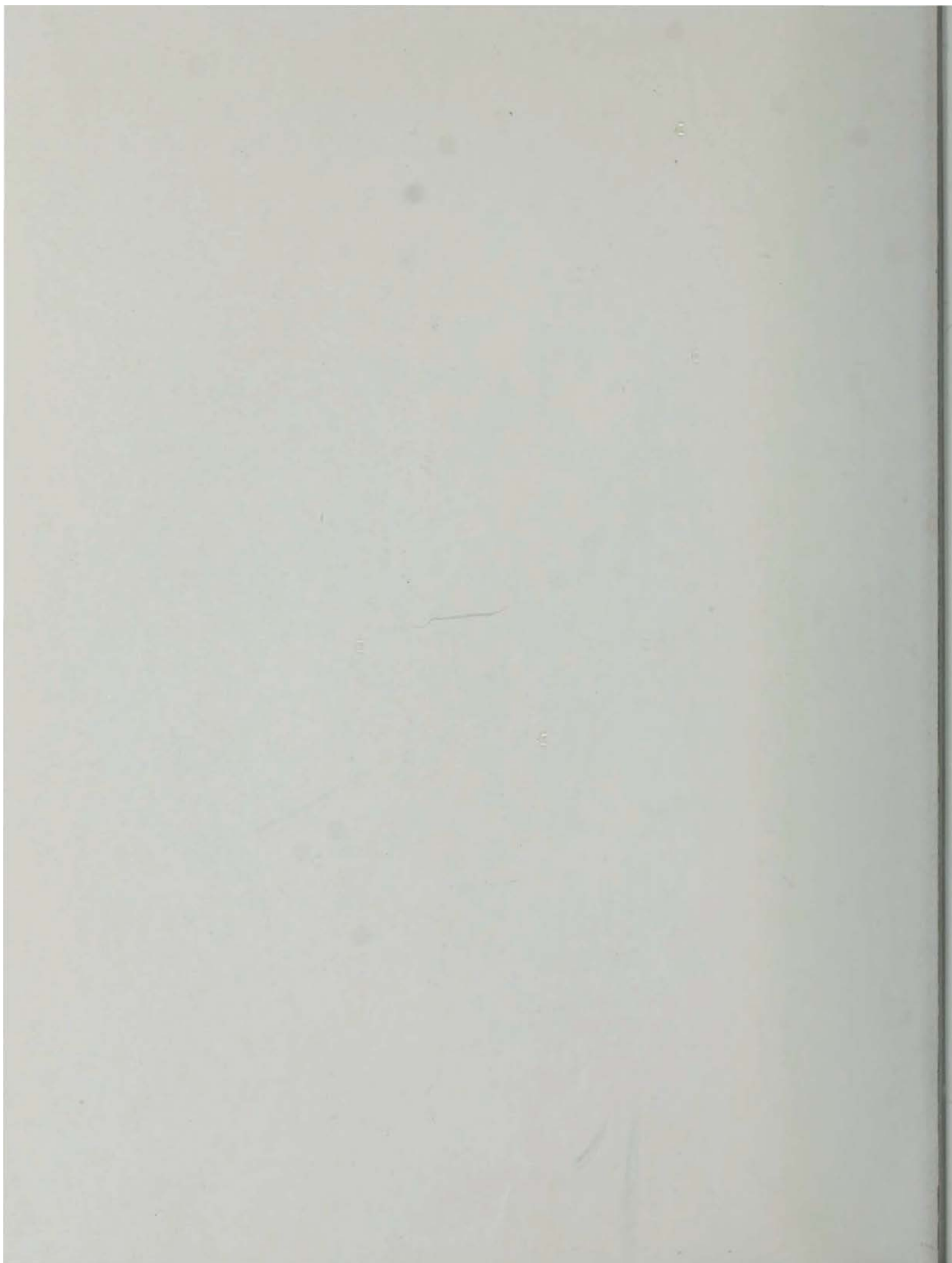
- maximum datagram size, 159–160
- multiple recipients per port, 167
- or TCP, DNS, 206
- path MTU discovery, 151, 155–157
- port number, 144
- pseudo-header, 145
- receive buffer, 159, 163, 506, 527, 529, 537
- restricting foreign IP address, 166, 504
- restricting local IP address, 164–166
- send buffer, 159, 506, 527, 529, 537
- server design, 162–167
- udpcksum variable, 527
- udp_cksum variable, 529
- udp_def_ttl variable, 533
- udp_do_checksum variable, 533
- udp_largest_anon_port variable, 533
- udp_recvspace variable, 527, 529, 537
- udp_sendspace variable, 527, 529, 537
- udp_smallest_anon_port variable, 533
- udp_smallest_nonpriv_port variable, 533
- udp_status variable, 533
- udp_trust_optlen variable, 533
- udp_ttl variable, 527, 529, 537
- udp_wroff_extra variable, 533
- Ullmann, R., 50, 553
- Ultrix, 491–492, 541
- uncompress program, 437
- unicast, 8
 - IP address, 169
- Unix
 - domain protocol, 486
 - domain socket, 487
 - manual pages, xviii
 - routing daemon, 128–129
- Unix-to-Unix Copy, *see* UUCP
- unnumbered network, 138
- unreachable, ICMP, 510
 - picture of, ICMP, 79
- unreliable, 5, 33, 162
- update, TCP window, 279
- URG (urgent pointer flag, TCP header), 227
- urgent
 - mode, TCP, 292–296, 393–394, 396, 398–399, 406, 409, 415, 417, 434, 436, 506, 522, 535
 - pointer flag, TCP header, *see* URG
 - pointer, TCP, 227, 292, 416, 436
- usable window, 280
- useloopback variable, 29
- user agent, 441
- User Datagram Protocol, *see* UDP
- /usr/kvm/sys/netinet/in_proto.c file, 528
- /usr/src/sys/netinet directory, 527
- UTC (Coordinated Universal Time), 74
- UUCP (Unix-to-Unix Copy), 201, 449
- VanBokkelen, J., 404, 408, 553
- Varadhan, K., 140, 546
- variable-length subnet, 46, 138
- vendor-specific information, BOOTP, 221–222
- verifier, RPC, 464
- Veronica, 485
- virtual circuit service, 351
- VMTP, 545
- VRFY command, SMTP, 451–452
- WAIS, 485, 550
- Wait, J. W., v, xix
- Waitzman, D., 185, 408, 553
- Wakeman, I., 518, 545
- Waldbusser, S., 387, 545
- Walquist, C., xix
- WAN (wide area network), 1
- Wang, Z., 518, 545
- Warnock, R. P., 354–355, 553
- Watson, G., 356, 546
- wc program, 211
- Weider, C., 484, 553
- well-known port number, 12
- white pages, 484, 552
- whois program, 483, 524
 - h option, 483
- Whois protocol, 483–484, 547
- wide area network, *see* WAN
- wildcard IP address, 164, 254
- Wimer, W., 215, 553
- window
 - advertisement, TCP, 274
 - close, 280
 - manager, X Window System, 486
 - open, 280
 - probe, TCP, 323
 - scale option, TCP, 253, 347–349, 541, 547
 - shrink, 280
 - size changes, Rlogin, 393–394
 - size option, Telnet, 403, 553
 - size, TCP, 227, 282–284
 - TCP sliding, 275, 280–282
 - update, TCP, 279
- Winterbottom, P., xix
- Wolff, R., xix
- Wolff, S., xix
- Wood, C. P., 97
- World Wide Web, *see* WWW
- worm, Internet, 481, 546, 551
- Wright, G. A., xix
- WWW (World Wide Web), 486, 550

- X Window System, 269, 486–490, 546
 - LBX, 490
 - window manager, 486
 - Xscope program, 488–489
- X.25 MTU, 30
- X.500, 484, 550, 553
- xclock program, 489
- XDR (external data representation), 465, 553
 - opaque, 469
- XID (transaction ID)
 - RPC, 463–464, 474, 480, 523–524
- X/Open, 17, 467, 469, 553
 - Transport Layer Interface, *see* XTI
- Xscope program, X Window System, 488–489
- XTI (X/Open Transport Layer Interface), 17

- Yost, D., 503
- Yu, J. Y., 140, 546

- zero window, TCP, 281, 324–325, 399
- Zhang, L., 245, 547
- Zimmerman, D. P., 481, 553
- zone, DNS, 190
 - transfer, DNS, 190





ACRONYMS

ACK	acknowledgment flag, TCP header
API	application program interface
ARP	Address Resolution Protocol
ARPANET	Advanced Research Projects Agency network
AS	autonomous system
ASCII	American Standard Code for Information Interchange
ASN.1	Abstract Syntax Notation One
BER	Basic Encoding Rules
BGP	Border Gateway Protocol
BIND	Berkeley Internet Name Domain
BOOTP	Bootstrap Protocol
BPF	Berkeley Packet Filter
BSD	Berkeley Software Distribution
CIDR	classless interdomain routing
CIX	Commercial Internet Exchange
CLNP	Connectionless Network Protocol
CRC	cyclic redundancy check
CSLIP	compressed SLIP
CSMA	carrier sense multiple access
DCE	Distributed Computing Environment
DDN	Defense Data Network
DF	don't fragment flag, IP header
DHCP	Dynamic Host Configuration Protocol
DLPI	Data Link Provider Interface
DNS	Domain Name System
DSAP	Destination Service Access Point
DTS	Distributed Time Service
DVMRP	Distance-Vector Multicast Routing Protocol
EBONE	European IP Backbone
EOL	end of option list
EGP	Exterior Gateway Protocol
FCS	frame check sequence
FDDI	Fiber Distributed Data Interface
FIFO	first in, first out
FIN	finish flag, TCP header
FQDN	fully qualified domain name
FTP	File Transfer Protocol
HDLCL	high-level data link control
HELLO	routing protocol
IAB	Internet Architecture Board
IANA	Internet Assigned Number Authority
ICMP	Internet Control Message Protocol
IDRP	Interdomain Routing Protocol
IEEE	Institute of Electrical and Electronics Engineers
IEN	Internet Experiment Notes
IESG	Internet Engineering Steering Group
IETF	Internet Engineering Task Force
IGMP	Internet Group Management Protocol
IGP	interior gateway protocol
IP	Internet Protocol
IRTF	Internet Research Task Force
IS-IS	Intermediate System to Intermediate System Protocol
ISN	initial sequence number
ISO	International Organization for Standardization
ISOC	Internet Society
LAN	local area network
LBX	low bandwidth X
LCP	link control protocol
LFN	long fat network
LIFO	last in, first out
LLC	logical link control

ACRONYMS

LSRR	loose source and record route
MBONE	multicast backbone
MIB	management information base
MILNET	Military Network
MIME	multipurpose Internet mail extensions
MSL	maximum segment lifetime
MSS	maximum segment size
MTA	message transfer agent
MTU	maximum transmission unit
NCP	Network Control Protocol
NFS	Network File System
NIC	Network Information Center
NIT	network interface tap
NNTP	Network News Transfer Protocol
NOAO	National Optical Astronomy Observatories
NOP	no operation
NSFNET	National Science Foundation network
NSI	NASA Science Internet
NTP	Network Time Protocol
NVT	network virtual terminal
OSF	Open Software Foundation
OSI	open systems interconnection
OSPF	open shortest path first
PAWS	protection against wrapped sequence numbers
PDU	protocol data unit
POSIX	Portable Operating System Interface
PPP	Point-to-Point Protocol
PSH	push flag, TCP header
RARP	Reverse Address Resolution Protocol
RFC	Request for Comment
RIP	Routing Information Protocol
RPC	remote procedure call
RR	resource record
RST	reset flag, TCP header
RTO	retransmission time out
RTT	round-trip time
SACK	selective acknowledgment
SLIP	Serial Line Internet Protocol
SMI	structure of management information
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SSAP	source service access point
SSRR	strict source and record route
SWS	silly window syndrome
SYN	synchronize sequence numbers flag, TCP header
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
TLI	Transport Layer Interface
TOS	type-of-service
TTL	time-to-live
TUBA	TCP and UDP with bigger addresses
Telnet	remote terminal protocol
UDP	User Datagram Protocol
URG	urgent pointer flag, TCP header
UTC	Coordinated Universal Time
UUCP	Unix-to-Unix Copy
WAN	wide area network
WWW	World Wide Web
XDR	external data representation
XID	transaction ID
XTI	X/Open Transport Layer Interface

TCP/IP Illustrated, Volume 1

"The word *illustrated* distinguishes this book from its many rivals. Stevens uses the Lawrence Berkeley Laboratories `tcpdump` program to capture packets in promiscuous mode under a variety of OS and TCP/IP implementations. Studying `tcpdump` output helps you understand how the various protocols work."

—Stan Kelly-Bootle, *Unix Review*

TCP/IP Illustrated is a complete and detailed guide to the entire TCP/IP protocol suite—with an important difference from other books on the subject. Rather than just describing what the RFCs say the protocol suite should do, this unique book uses a popular diagnostic tool so you may actually watch the protocols in action.

By forcing various conditions to occur—such as connection establishment, timeout and retransmission, and fragmentation—and then displaying the results, *TCP/IP Illustrated* gives you a much greater understanding of these concepts than words alone could provide. Whether you are new to TCP/IP or you have read other books on the subject, you will come away with an increased understanding of how and why TCP/IP works the way it does, as well as enhanced skill at developing applications that run over TCP/IP.

With this unique approach, *TCP/IP Illustrated* presents the structure and function of TCP/IP from the link layer up through the network, transport, and application layers. You will learn about the protocols that belong to each of these layers and how they operate under numerous implementations, including SunOS™ 4.1.3, Solaris® 2.2, UNIX® System V Release 4, BSD/386™, AIX® 3.2.2, and 4.4BSD.

In *TCP/IP Illustrated* you will find the most thorough coverage of TCP available—8 entire chapters. You will also find coverage of the newest TCP/IP features, including multicasting, path MTU discovery, and long fat pipes.

W. Richard Stevens is the author of the bestselling *Advanced Programming in the UNIX Environment* (Addison-Wesley, 1992) and *UNIX Network Programming* (Prentice-Hall, 1990). He currently consults for companies, helping them with UNIX, TCP/IP, and other networking issues.

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