

# Index

## A

- AAC (Advanced Audio Coding), 590  
Abramson, Norman, 62, 454, 473  
ABR ATM network service, 313  
ABR (available bit-rate), 259  
    spare available bandwidth advantage, 267  
Abstract Syntax Notation One. *See* ASN.1  
access control and SNMPv3, 777–778  
access control lists, 734–736  
access delay, 113  
access ISP, 32–33  
access networks, 12–18  
    cable Internet access, 14–15, 460–461  
    dial-up access, 16  
    DSL (digital subscriber line), 13  
    enterprises, 16–17  
    Ethernet, 16–17  
    FTTH (fiber to the home), 15  
    home access, 13  
    link-layer switches, 4  
    LTE (Long-Term Evolution), 18, 533  
    optical distribution network, 15  
    satellite links, 16  
2G, 3G, 4G (generation) wide-area  
    wireless networks, 18, 547–554  
wide-area wireless access, 18  
    wireless LANs, 17  
access points. *See* AP  
access routers, 492  
Accounting Management, 759, 764  
acknowledgments, 210, 234–237  
    piggybacked, 237  
TCP (Transmission Control Protocol), 235–236, 244  
    Telnet, 237–238  
ACK (positive acknowledgments), 207, 240, 208, 212, 217, 235, 257  
ACK receipt, 242  
active optical networks. *See* AONs  
active queue management algorithms. *See* AQM algorithms  
adapters, 463–465  
    MAC addresses, 471  
    routers, 468  
adaptive congestion control, 201  
adaptive playout delay, 616–618  
adaptive streaming, 600–601  
adaptive HTTP streaming, 593  
additive-increase, multiplicative-decrease.  
    *See also* AIMD  
address aggregation, 342  
address indirection, 406  
addressing  
    Internet, 331–363  
    processes, 90  
Address Resolution Protocol. *See* ARP  
Address Supporting Organization of ICANN, 345  
ad hoc networks, 528  
    802.15.1 networks, 544  
    wireless hosts, 517  
Adleman, Leonard, 684  
Advanced Audio Coding. *See* AAC  
Advanced Encryption Standard. *See* AES  
Advanced Research Projects Agency. *See* ARPA  
AES (Advanced Encryption Standard), 680  
agent advertisement, 566–567  
agent discovery, 565–567  
agent solicitation, 567  
aging time, 478  
AH (Authentication Header) protocol, 720  
AIMD (additive-increase, multiplicative-decrease) algorithm, 277–278, 280  
Akamai, 114, 133, 609, 603–604, 35, 273

- alias hostname, 140
- ALOHA<sup>n</sup>, 62–63, 454, 473
- ALOHA protocol, 62–63, 452, 473, 511, 453, 63, 453–455
- alternating-bit protocols, 214
- Amazon cloud, 608–610
- analog audio, 590
- anchor foreign agent, 563–564
- anchor MSC, 574
- Andreessen, Marc, 64
- anomaly-based IDSs (intrusion detection systems), 742
- anonymity, 738
- anycast, 356
- AONs (active optical networks), 15
- AP (access points), 517, 528–530, 538–540
- Apache Web server, 99, 156
- API (Application Programming Interface), 6, 89
- application architecture, 86–88
- application gateways, 732, 736–738
  - deep packet inspection, 739–740
- application-layer messages, 51, 54–55, 186
- application-layer protocols, 49–50
  - DNS (domain name system), 131, 132
  - electronic mail, 98
  - FTP (File Transfer Protocol), 51
  - HTTP (HyperText Transfer Protocol), 51, 97
  - Internet e-mail application, 97
  - proprietary, 97
  - public domain, 97
  - security, 705
  - SMTP (Simple Mail Transfer Protocol), 51, 97, 121
  - Telnet, 237
- Application Programming Interface. *See* API
- AQM (active queue management) algorithms, 329
- area border routers, 389
- ARPA (Advanced Research Projects Agency), 61, 511
- ARP (Address Resolution Protocol), 465–468, 498
- ARPAnet, 454, 473, 511
- ARP messages 467, 498
- ARP tables, 466–467, 481
- ARQ (Automatic Repeat reQuest) protocols, 207–208, 576–577
- ASN.1 (Abstract Syntax Notation One), 766, 770, 778–782
- ASN (autonomous system number), 394
- AS-PATH attribute, 394
- ASs (autonomous systems), 380–383
- association, 529–531
- assured forwarding PHB, 651
- asynchronous transfer mode. *See* ATM
- ATM ABR (available bit-rate) congestion control, 266–269, 313
- ATM (asynchronous transfer mode), 259, 512
  - complexity and cost, 470
  - services, 312–313
  - multiple service models, 312
  - Q2931b protocol, 654
- audio
  - AAC (Advanced Audio Coding), 590
  - glitches, 591
  - human speech, 590
  - MP3 (MPEG 1 layer 3), 590
  - PCM (pulse code modulation), 590
  - properties, 590–591
  - quantization, 590
  - removing jitter at receiver, 614–618
- authentication
  - cryptographic techniques, 675
  - end-point, 700–705
  - 802.11i, 729–730
  - MD5, 389
  - networks, 700–705
  - secret password, 701–703
  - SNMPv3, 777
  - WEP (Wired Equivalent Privacy), 726
  - 802.11 wireless LANs, 530
  - wireless station, 530
- authentication key, 692–693