Index

Acquisitions, 15, 72
Adaptive request routing, 312
Akamai, 9, 17, 223, 257, 361, 391
Anycasting, 55, 57
Application-Level Multicast (ALM), 47, 84, 89, 90, 102, 137
Autonomous distribution, 380
Autonomous System (AS), 46, 156
Back-end, 106, 116
BackSlash, 282
Betweeness centrality, 356
BitTorrent, 13, 185, 283, 373, 408
Border Gateway Protocol (BGP), 17, 46, 61, 96
Broadband Services Forum (BSF), 10
Bursty traffic, 8, 212, 218
Byte hit ratio, 145
Cache Array Routing Protocol (CARP), 39, 40
Cache digest, 39, 41
Caching proxy, 8, 39
CAN, 87, 283
CDN peering, 55, 58, 390
Centralized directory model, 58
Centralized Directory Service (CDS), 86
Chord, 87, 200, 283
Client automaton, 305, 307
Client latency, 90
Client polling, 137
Client-side redirection, 157, 169, 176
CoDeeN, 22, 139, 357, 394
Code red attack, 279
Collaborative CDNs, 396
Collaborative Learning on-Demand (CLoD), 314
Consolidation, 15, 72, 270, 389
Content Access Point (CAP), 20
Content-Aware Caching (CAC), 117, 118, 136, 361
Content-Blind Caching (CBC), 117, 361
Content Distribution Internetworking (CDI), 393
Content Management and Online Reporting (CMOR), 19
Content negotiation, 4, 376
Content outsourcing, 4, 43, 47, 150, 348
Continuous Route Optimization Software (CROS), 18
Cooperative Association for Internet Data Analysis (CAIDA), 258
CoralCDN, 23, 66, 139, 282, 357, 394
Cumulative Distribution Function (CDF), 101, 145, 215, 334, 400
Data grid, 11
D-dimensional tori, 198
De Bruijn graphs, 197
Delivery support services, 381
Delta consistent, 137
On-demand update, 51, 66, 135, 142
Dispatcher, 157, 399
Distributed database, 13, 294
Distributed Denial of Service (DoS), 14, 60, 109, 130, 207, 277, 377
Distributed Hash Table (DHT), 23, 58, 87, 282
Distributed location services, 87, 88, 89
Distributed Routing and Location (DOLR) system, 80, 94, 102
Distributed Tutored Video Instruction (TVI), 314
DNS-based Request Routing, 55, 288
Document routing model, 58
DotSlash, 281
Download time, 8, 17, 43
Dynamic adaptation, 376
Dynamic cache partition, 133, 142
Dynamic content, 25, 41, 108, 134, 155, 214, 343, 361

415
Edge computing, 26, 110, 114, 136, 361
Edge server, 5, 109, 157, 393
Edge Side Includes (ESI), 18, 113, 135
EdgeStream, 18
Encoded media, 5
End-to-End (E2E), 379
Entire replication, 43
Extensible Rules Engine (XRE), 16, 20
First-mile bottleneck, 252
Flash crowds, 3, 4, 10, 14, 17, 95, 158, 211, 275
Floated request model, 58
Free-riding, 184
Frequent network disconnections, 346
Front-end, 106, 111
Full compression, 143
Gateway, 379, 409
Geographical proximity, 60, 61
Global content caching, 16
Global Server Load Balancing (GSLB), 55
Globule, 24, 54, 139, 395
Gnutella, 33, 98, 184, 408
Head-Of-the-Line (HOL), 400
Heavy-tailed behavior, 277
Hierarchical caching, 9, 281
Hit ratio, 145
Horizontal handover, 372
Hosted server, 395
Hosting server, 395
Hotspot, 3, 23, 275
HTTP redirection, 56, 159, 292
HTTP streaming, 18, 107
Hypertext Caching Protocol (HTCP), 39, 41
Hypertext Transfer Protocol (HTTP), 5, 18, 40, 56, 107, 138, 159
IBM WebSphere, 26, 361
Incentives, 184, 212, 374
Infrastructure services, 381
Intelligent Domain Name Server (IDNS), 394
Inter-cluster caching, 49
Interleaved caching, 112
Internet Cache Protocol (ICP), 39, 40
Internet Congestion Tunnel Through (ICTT), 18
Internet Data Centers (IDCs), 80, 89, 283
Internet Engineering Task Force (IETF), 10, 393
Internet Service Providers (ISPs), 7, 47, 109, 129, 323
Internetworking, 389
Intra-cluster caching, 49
Invalidation, 51, 113, 137
IPTV, 16, 373
KaZaA, 33, 185
Layer 4–7 switch, 9
Limelight Networks, 19, 156
Live streaming, 254, 373
Live Webcasting, 16
Load dissemination, 409
Load index, 409
Materialized Query Table (MQT), 118
Mean response time, 145
Media Independent Handover (MIH), 372
Mergers, 15, 72
Metadata, 5, 322, 382
Middle-mile bottleneck, 252
Mirror Image, 20, 156
Mirroring, 71, 145, 159, 252
Misbehavior-sensitive networks, 380
Mobile Ad-Hoc Networks (MANETs), 353, 355
Mobile nodes constraints, 346
Multihoming, 71, 252, 372, 377
Multimedia content, 107, 140, 211, 320
Mutual consistency, 137
Naïve placement, 92, 94
Nash Equilibria, 192, 195
National Internet Measurement Infrastructure (NIMI), 258
Negotiation and Adaptation Core (NAC), 376
Network Element Control Protocol (NECP), 39
Network fragmentations, 346
Network Mobility (NEMO), 372
Network Operations Control Center (NOCC), 16
Network probing, 60, 257, 378
Network traffic, 3, 58, 128, 282, 328, 343, 383
Open Systems Interconnection (OSI), 5
Origin server, 5, 37, 109, 239
Ortiva Wireless, 28, 350
Overlay, 37, 87, 157, 185, 251
Page fragments, 107, 142
Partial compression, 143
Partial replication, 44, 117, 228
Password cracking, 279
Pastry, 87, 199, 283
Peer-to-Peer (P2P), 11, 139, 183, 214, 282, 340
Percentile-based pricing, 212, 221
Index

Periodic update, 50, 135
Points of Presence (PoP), 47, 61, 109, 130, 391
Policy Decision Point (PDP), 398
Policy Enforcement Point (PEP), 398

Quality of Experience (QoE), 370
Quality of Service (QoS), 3, 8, 37, 61
Query response time, 171, 175

RaDaR, 84
Read-one write-all, 170
Real Time Performance Monitoring Service (RPMS), 18
Real Time Streaming Protocol (RTSP), 5
Reflectors, 255
Remote redirection ratio, 166, 171
Replica placement, 45, 81, 86, 127, 293, 320
Replica search, 90, 94
Replica server, 5, 25, 37, 94, 318, 409
Replicated Directory Service (RDS), 86
Request For Comments (RFCs), 10
Request redirection, 4, 69, 131, 155
Request response time, 164, 171, 177
Resilient Overlay Networks (RON), 258
Reverse proxy, 22, 159, 286
Routing mesh, 87

Search-Insertion-Deletion-Update (SIDU) operations, 140, 144
Segment caching, 112
Self-provisioning, 215, 219
Sequential caching, 112
Server automaton, 305, 306
Server farm, 9, 252
Server load, 43, 63, 90, 135, 281
Server migration, 158, 177
Server placement, 45, 47, 226
Server Sharing, 158
Server-side redirection, 157, 159, 168
Service interaction, 375
Service Level Agreement (SLA), 89, 381, 389
Service Oriented Architecture (SOA), 26, 375
SlashDot, 3, 4, 65, 275
Small to Medium Enterprise (SME), 8
Smart placement, 92, 94
Social optima, 192, 196, 201

Static adaptation, 376
Static cache partition, 132, 142
Static content, 7, 18, 41, 107, 132, 156, 281
Streaming media, 42, 61, 83, 88, 361
Strongly consistent, 137
Surrogate, 5, 43, 45, 87, 110, 130, 286, 345, 357
Surrogate placement, 36, 45
SYN attack, 279
Synthetic workload, 95

Tapestry, 80, 87, 199
Time-To-Live (TTL), 50, 112, 136, 289
Total ordering, 170
Traffic monitoring, 60, 354
Tutored Video Instruction (TVI), 314
Uniform Resource Locator (URL), 5, 9, 55, 157, 293
Unpredictable-update, 135
Update propagation, 51, 119
URL rewriting, 57, 66, 85, 157, 292
User Generated Videos (UGV), 7

Vehicular Ad-Hoc Networks (VANETs), 353, 355
Vehicular Ad-Hoc Server (VAHS), 356
Vehicular Information Transfer Protocol (VITP), 355
Vertical handover, 372
Video-on-Demand (VoD), 10, 380
Virtual Private Networks (VPN), 161, 255, 270
Voice over Internet Protocol (VoIP), 255, 270, 377

Weak consistent, 137
Web Cache Control Protocol (WCCP), 39, 40
Web Cache Invalidation Protocol (WCIP), 137
Web cluster, 5, 71, 158
Web Content Distribution Protocol (WCDP), 137
Web traces, 95, 100, 278, 357
Wireless Mesh Networks (WMN), 372
Wireless Sensor Networks (WSN), 372
Zipf distribution, 202, 279