

# List of Abbreviations

|               |  |
|---------------|--|
| <b>2G</b>     | Second Generation  |
| <b>3G</b>     | Third Generation   |
| <b>3GPP</b>   | Third Generation Partnership Project                                     |
| <b>A-DCH</b>  | Associated Dedicated Channel   |
| <b>ABA</b>    | Adaptive Bandwidth Allocation  |
| <b>ABC</b>    | Always Best Connected  |
| <b>ABR</b>    | Available Bit Rate   |
| <b>AC</b>     | Admission Control  |
| <b>ADSL</b>   | Asymmetric Digital Subscriber Line                                       |
| <b>AF</b>     | Assured Forwarding   |
| <b>AMC</b>    | Adaptive Modulation Coding   |
| <b>AMP</b>    | Adaptive Multi-Path Routing  |
| <b>AMS</b>    | Anick-Mitra-Sondhi   |
| <b>AP</b>     | Absolute Priority  |
| <b>AQM</b>    | Active Queue Management  |
| <b>AQUILA</b> | Adaptive Resource Control for QoS Using an IP-based Layered Architecture |
| <b>ARQ</b>    | Automatic Repeat Request   |
| <b>ASIC</b>   | Application-Specific Integrated Circuit                                  |
| <b>AS</b>     | Active Set   |
| <b>AS</b>     | Autonomous System  |
| <b>ATM</b>    | Asynchronous Transfer Mode   |

|                 |  |
|-----------------|--|
| <b>B-ISDN</b>   | Broadband Integrated Services Data Network         |
| <b>BB</b>       | Bandwidth Broker                                   |
| <b>B2B</b>      | Border-to-Border                                   |
| <b>BBB</b>      | Border-to-Border Budget                            |
| <b>BGP</b>      | Border Gateway Protocol                            |
| <b>BM</b>       | Bimodal Multicast                                  |
| <b>BMAP</b>     | Batch Markovian Arrival Process                    |
| <b>BS</b>       | Base Station                                       |
| <b>BU</b>       | Burstification Unit                                |
| <b>CAC</b>      | Connection Admission Control                       |
| <b>CAI</b>      | Continue after Interruption                        |
| <b>CAIDA</b>    | Cooperative Association for Internet Data Analysis |
| <b>CBR</b>      | Constant Bit Rate                                  |
| <b>CCD</b>      | Complementary Cumulative Distribution              |
| <b>CDMA</b>     | Code Division Multiple Access                      |
| <b>CLT</b>      | Central Limit Theorem                              |
| <b>CO</b>       | Capacity Overprovisioning                          |
| <b>CRC</b>      | Cyclic Redundancy Check                            |
| <b>CSMA</b>     | Carrier Sense Multiple Access                      |
| <b>CTMC</b>     | Continuous-Time Markov Chain                       |
| <b>CoV</b>      | Coefficient of Variation                           |
| <b>DB</b>       | Delay Budget                                       |
| <b>DCF</b>      | Distributed Coordination Function                  |
| <b>DCH</b>      | Dedicated Channel                                  |
| <b>DDR</b>      | Decompose-Design-Reassemble                        |
| <b>DHR</b>      | Decreasing Hazard Rate                             |
| <b>DHT</b>      | Distributed Hash Table                             |
| <b>DiffServ</b> | Differentiated Services                            |
| <b>DLC</b>      | Data Link Control                                  |

|                |  |
|----------------|--|
| <b>DLL</b>     | Data Link Layer  |
| <b>DPMI</b>    | Distributed Passive Measurement Infrastructure         |
| <b>DRR</b>     | Deficit Round-Robin                                    |
| <b>DSCH</b>    | Downlink Shared Channel                                |
| <b>EB</b>      | Egress Budget  |
| <b>ECMP</b>    | Equal Cost Multi-Path                                  |
| <b>ECN</b>     | Explicit Congestion Notification                       |
| <b>EF</b>      | Expedited Forwarding                                   |
| <b>ELB</b>     | Egress Link Budget                                     |
| <b>EM</b>      | Expectation-Maximization                               |
| <b>EMW</b>     | Elwalid-Mitra-Wentworth                                |
| <b>EuroNGI</b> | Design and Engineering of the Next Generation Internet |
| <b>F-RTO</b>   | Forward-Retransmission Timeout Recovery                |
| <b>FACH</b>    | Forward Access Channel                                 |
| <b>FB</b>      | Foreground-Background                                  |
| <b>FBM</b>     | Fractional Brownian Motion                             |
| <b>FCFS</b>    | First-Come-First-Served                                |
| <b>FDL</b>     | Fiber Delay Line                                       |
| <b>FEC</b>     | Forward Error Correction                               |
| <b>FFM</b>     | Fluid Flow Model                                       |
| <b>FH</b>      | Frequency Hopping                                      |
| <b>FHSS</b>    | Frequency Hopping Spread Spectrum                      |
| <b>FIFO</b>    | First-In-First-Out                                     |
| <b>FPI</b>     | First Step of the Policy Iteration                     |
| <b>FTP</b>     | File Transfer Protocol                                 |
| <b>FTDMA</b>   | Fixed Time-Division Multiple Access                    |
| <b>FXC</b>     | Fiber Switching Cross-Connect                          |
| <b>GFA</b>     | Gateway Foreign Agent                                  |
| <b>GMPLS</b>   | Generalized Multi-Protocol Label Switching             |

|                |  |
|----------------|--|
| <b>GPRS</b>    | General Packet Radio Service                           |
| <b>GPS</b>     | Generalized Processor Sharing                          |
| <b>GPS</b>     | Global Positioning System                              |
| <b>GSM</b>     | Global System for Mobile                               |
| <b>HA</b>      | Home Agent   |
| <b>HMM</b>     | Hidden Markov Model                                    |
| <b>HOL</b>     | Head-of-Line   |
| <b>HOL-PJ</b>  | Head-of-Line with Priority Jumps                       |
| <b>HS-DSCH</b> | High-Speed Downlink Shared Channel                     |
| <b>HSDPA</b>   | High-Speed Downlink Packet Access                      |
| <b>HTTP</b>    | HyperText Transfer Protocol                            |
| <b>IB</b>      | Ingress Budget   |
| <b>IB/EB</b>   | Ingress and Egress Budget                              |
| <b>IDAC</b>    | Inter-Domain Admission Control                         |
| <b>IETF</b>    | Internet Engineering Task Force                        |
| <b>iid</b>     | Independent and Identically Distributed                |
| <b>ILB</b>     | Ingress Link Budget                                    |
| <b>ILB/ELB</b> | Ingress and Egress Link Budget                         |
| <b>ILP</b>     | Integer Linear Programming                             |
| <b>IP</b>      | Internet Protocol                                      |
| <b>IPDV</b>    | IP Packet Delay Variation                              |
| <b>IS-IS</b>   | Intermediate System to Intermediate System             |
| <b>ISL</b>     | Inter Satellite Link                                   |
| <b>ISP</b>     | Internet Service Provider                              |
| <b>IST</b>     | Information Society Technologies                       |
| <b>JET</b>     | Just Enough Time                                       |
| <b>JIT</b>     | Just-in-Time   |
| <b>KING</b>    | Key components for the Internet of the Next Generation |
| <b>LAC</b>     | Link Admission Control                                 |

|                |   |
|----------------|---|
| <b>LAN</b>     | Local Area Network  |
| <b>LAS</b>     | Least-Attained Service  |
| <b>LAUC</b>    | Latest Available Unscheduled Channel  |
| <b>LAUC-VF</b> | Latest Available Unscheduled Channel with Void-Filling  |
| <b>LA</b>      | Location Area   |
| <b>LB</b>      | Link Budget   |
| <b>LCA</b>     | Linear to Consumer Activity   |
| <b>LEO</b>     | Low Earth Orbit   |
| <b>LISDLG</b>  | Limit of the Integrated Superposition of Diffusion Processes with Linear Differential Generator |
| <b>LLC</b>     | Logic Link Control  |
| <b>LPC</b>     | Linear Predictive Coding  |
| <b>LPCA</b>    | Linear to Provider and Consumer Activity  |
| <b>LP</b>      | Linear Programming  |
| <b>LRD</b>     | Long Range Dependence/Dependent   |
| <b>LSP</b>     | Label Switched Path   |
| <b>MAC</b>     | Medium Access Control   |
| <b>MAI</b>     | Multiple Access Interference  |
| <b>MAr</b>     | Measurement Area  |
| <b>MArN</b>    | Measurement Area Network  |
| <b>MBAC</b>    | Measurement-Based Admission Control   |
| <b>MDP</b>     | Markov Decision Process   |
| <b>MEDF</b>    | Modified Earliest Deadline First  |
| <b>MEMS</b>    | Micro-Electro-Mechanical System   |
| <b>MG-OXC</b>  | Multi-Granular Optical Cross-Connect  |
| <b>MHD</b>     | Multi-Hour Design   |
| <b>MHS</b>     | Message Handling Service  |
| <b>MIP</b>     | Mobile IP   |
| <b>MLPS</b>    | Multilevel Processor Sharing  |
| <b>MMFP</b>    | Markov Modulated Fluid Process  |

|              |   |
|--------------|---|
| <b>MMPP</b>  | Markov Modulated Poisson Process        |
| <b>MMRP</b>  | Markov Modulated Rate Process           |
| <b>MMS</b>   | Multimedia Messaging Service            |
| <b>MN</b>    | Mobile Node                             |
| <b>MPEG</b>  | Moving Pictures Expert Group            |
| <b>MPLS</b>  | Multi-Protocol Label Switching          |
| <b>MP</b>    | Measurement Point                       |
| <b>MRDV</b>  | Multipath Routing with Dynamic Variance |
| <b>MS</b>    | Mobile Station                          |
| <b>MSD</b>   | Multiple Source Download                |
| <b>MTU</b>   | Maximum Transmission Unit               |
| <b>NAC</b>   | Network Admission Control               |
| <b>NAT</b>   | Network Address Translator              |
| <b>nFA</b>   | new Foreign Agent                       |
| <b>NGN</b>   | Next Generation Network                 |
| <b>NJ</b>    | Negligible Jitter                       |
| <b>NRT</b>   | Non Real-Time                           |
| <b>NTP</b>   | Network Time Protocol                   |
| <b>OBS</b>   | Optical Burst Switching                 |
| <b>OD</b>    | Origin-Destination                      |
| <b>ODE</b>   | Ordinary Differential Equation          |
| <b>O/E/O</b> | Optical/Electronic/Optical              |
| <b>oFA</b>   | old Foreign Agent                       |
| <b>OPS</b>   | Optical Packet Switching                |
| <b>OSNR</b>  | Optical Signal-to-Noise Ratio           |
| <b>OSPF</b>  | Open Shortest Path First                |
| <b>OTDM</b>  | Optical Time Division Multiplexing      |
| <b>OUP</b>   | Ornstein-Uhlenbeck Process              |
| <b>OXC</b>   | Optical Cross-Connect                   |

|                |                                   |
|----------------|-----------------------------------|
| <b>p-RAI</b>   | Partial Repeat after Interruption |
| <b>P2P</b>     | Peer-to-Peer                      |
| <b>PCAP</b>    | Packet CAPture                    |
| <b>PCBR</b>    | Premium Constant Bit Rate         |
| <b>pdf</b>     | Probability Density Function      |
| <b>PDU</b>     | Protocol Data Unit                |
| <b>PF</b>      | Perron-Frobenius                  |
| <b>PFQ</b>     | Priority Fair Queueing            |
| <b>PFS</b>     | Priority Forcing Scheme           |
| <b>PGF</b>     | Probability Generating Function   |
| <b>PH-type</b> | Phase-Type                        |
| <b>PLR</b>     | Packet Loss Ratio                 |
| <b>PLRG</b>    | Power-Law Random Graph            |
| <b>PMC</b>     | Premium Mission Critical          |
| <b>PMF</b>     | Probability Mass Function         |
| <b>PMM</b>     | Premium Multi-Media               |
| <b>POP</b>     | Point of Presence                 |
| <b>PP</b>      | Path Protection                   |
| <b>PQ</b>      | Priority Queueing                 |
| <b>PSTN</b>    | Public Switched Telephone Network |
| <b>PS</b>      | Processor Sharing                 |
| <b>PVBR</b>    | Premium Variable Bit Rate         |
| <b>PVC</b>     | Permanent Virtual Circuit         |
| <b>QBD</b>     | Quasi-Birth-Death                 |
| <b>QoS</b>     | Quality of Service                |
| <b>RAI</b>     | Repeat after Interruption         |
| <b>RAM</b>     | Random Access Memory              |
| <b>RB</b>      | Standby-Random Backoff            |
| <b>RC</b>      | Resource Controller               |

|                |  |
|----------------|--|
| <b>RED</b>     | Random Early Detection                     |
| <b>REM</b>     | Rate Envelope Multiplexing                 |
| <b>RER</b>     | Random Early Reroute                       |
| <b>RFC</b>     | Request for Comments                       |
| <b>RKHS</b>    | Reproducing Kernel Hilbert Space           |
| <b>RMON</b>    | Remote Monitoring                          |
| <b>RNC</b>     | Radio Network Controller                   |
| <b>RSM</b>     | Rate Sharing Multiplexing                  |
| <b>RSR</b>     | Reduced Service Rate                       |
| <b>RSVP</b>    | ReSerVation Protocol                       |
| <b>RT</b>      | Real-Time                                  |
| <b>RT/NRT</b>  | Real-Time/Non-Real-Time                    |
| <b>RTP</b>     | Real Time Protocol                         |
| <b>RTS-CTS</b> | Ready-to-Send-Clear-to-Send                |
| <b>RTT</b>     | Round-Trip Time                            |
| <b>RWA</b>     | Routing and Wavelength Assignment          |
| <b>RWP</b>     | Random Waypoint Model                      |
| <b>S-STPT</b>  | Self-Synchronized Time Packet Transmission |
| <b>SACK</b>    | Selective Acknowledgement                  |
| <b>SB</b>      | Standby-Random Backoff                     |
| <b>SBA</b>     | Static Bandwidth Allocation                |
| <b>semi-BD</b> | Semi-Birth-and-Death                       |
| <b>SFQ</b>     | Start-time Fair Queueing                   |
| <b>SIMA</b>    | Simple Integrated Media Access             |
| <b>SIR</b>     | Signal-to-Interference-Ratio               |
| <b>SLA</b>     | Service Level Agreement                    |
| <b>SMA</b>     | Super Measurement Area                     |
| <b>SNMP</b>    | Simple Network Management Protocol         |
| <b>SNR</b>     | Signal-to-Noise Ratio                      |

|               |  |
|---------------|--|
| <b>SPM</b>    | Self-Protecting Multi-path                 |
| <b>SRM</b>    | Scalable Reliable Multicast                |
| <b>SRR</b>    | Surplus Round-Robin                        |
| <b>SiRM</b>   | Simplified Reference Model                 |
| <b>TCD</b>    | Traffic Class Dependent                    |
| <b>TCP</b>    | Transmission Control Protocol              |
| <b>TD</b>     | Temporary Document                         |
| <b>TDAC</b>   | Traffic Descriptor-based Admission Control |
| <b>TM</b>     | Traffic Matrix                             |
| <b>tMAP</b>   | Transient Markovian Arrival Process        |
| <b>UDP</b>    | User Datagram Protocol                     |
| <b>UMTS</b>   | Universal Mobile Telecommunications System |
| <b>VBR</b>    | Variable Bit Rate                          |
| <b>VoIP</b>   | Voice over IP                              |
| <b>WAN</b>    | Wide Area Network                          |
| <b>WAP</b>    | Wireless Application Protocol              |
| <b>WBXC</b>   | Wave-Band Switching Cross-Connect          |
| <b>WCDMA</b>  | Wideband Code Division Multiple Access     |
| <b>WFQ</b>    | Weighted Fair Queueing                     |
| <b>WIXC</b>   | Wavelength Interchanging Cross-Connect     |
| <b>WLAN</b>   | Wireless Local Area Network                |
| <b>WRR</b>    | Weighted Round-Robin                       |
| <b>WSXC</b>   | Wavelength Selective Cross-Connect         |
| <b>WVPing</b> | Wave-Ping                                  |
| <b>WWW</b>    | World Wide Web                             |
| <b>xDSL</b>   | x Digital Subscriber Line                  |

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