

**Committee on Energy and Commerce**  
**U.S. House of Representatives**  
Witness Disclosure Requirement - "Truth in Testimony"  
Required by House Rule XI, Clause 2(g)(5)

<b>1. Your Name: Peter Rysavy</b>		
<b>2. Your Title: President</b>		
<b>3. The Entity(ies) You are Representing: Rysavy Research</b>		
<b>4. Are you testifying on behalf of the Federal, or a State or local government entity?</b>	<b>Yes</b>	<b>No X</b>
<b>5. Please list any Federal grants or contracts, or contracts or payments originating with a foreign government, that you or the entity(ies) you represent have received on or after January 1, 2015. Only grants, contracts, or payments related to the subject matter of the hearing must be listed.</b>  N/A		
<b>6. Please attach your curriculum vitae to your completed disclosure form.</b>		

Signature:  Date: April 13, 2018

# Peter Rysavy – Curriculum Vitae

**Peter Rysavy is an expert in wireless technology,  
mobile computing, and data networking**

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## 1. Work Experience

### **Rysavy Research. 1993 to Present: President**

Peter Rysavy is president of Rysavy Research LLC, a consulting firm that has specialized in wireless technology and mobile computing since 1993. Projects have included evaluation of wireless technology capabilities, network performance measurement, reports on the evolution of wireless technology, spectrum analysis for broadband services, strategic consultations, system design, articles, courses and webcasts, and test reports.

Peter Rysavy has expertise in IEEE 802.11 (Wi-Fi), wireless hotspots, mesh networks, metro and municipal Wi-Fi, paging technology, 2G, 3G, 4G, 5G, IMT-Advanced, IMT-2020, Global System for Mobile Communications (GSM), General Packet Radio Service (GPRS), Enhanced Data Rates for GSM Evolution (EDGE), Universal Mobile Telecommunications System (UMTS), Code Division Multiple Access (CDMA), Wideband CDMA (WCDMA), High Speed Downlink Packet Access (HSDPA), High Speed Uplink Packet Access (HSUPA), High Speed Packet Access (HSPA), HSPA+, Long Term Evolution (LTE), LTE-Advanced, LTE-Advanced Pro, LTE-Licensed Assisted Access (LAA), LTE-U, CDMA2000, CDMA2000 1XRTT, Evolved Data Optimized (EV-DO), Bluetooth, WiMAX, IEEE 802.16 (IEEE 802.16e, IEEE 802.16m), wireless security, smartphones, smartphone operating systems, Mobile IP, Evolved Packet System (EPS), Evolved Packet Core (EPC), e-mail, wireless e-mail, browsers, mobile browsers, media gateways, orthogonal frequency division multiplexing (OFDM), orthogonal frequency division multiple access (OFDMA), voice over IP (VoIP), mobile video, wireless spectrum, spectrum sharing, spectral efficiency, and capacity analysis.

### **Patent Litigation**

Peter Rysavy has worked in numerous cases, both as testifying and consulting expert. He has trial experience, reports, and depositions. See section 3 for details

## **Analysis**

Rysavy Research analyzes wireless technologies for capability, compatibility, interoperability, and intellectual-property considerations.

## **Training**

Rysavy Research conducts wireless-technology training, both publicly and privately.

## **Testing and Reports**

Rysavy Research tests, evaluates, and reports on all major wireless technologies.

## **Application Development and Deployment**

Rysavy Research works with companies to define architectures, select vendors, perform pilots, and to deploy wireless systems and applications.

## **Clients (excluding confidential litigation cases) from 1993 to 2017 include:**

5G Americas, AltaVista, Anchorage Partners, Antenna Software, AT&T, AT&T Wireless, Aventail, Black Lowe & Graham, Bluetooth SIG, Broadbeam, Cingular Wireless, City of Seattle, CMP Media, Compression Laboratories, Coinstar, Comverse Network Systems, Cricket Wireless, Crosslink Capital, Customer Focused Strategies, Datacomm Research, CTIA – The Wireless Association, Data Communications Magazine, Datacomm Research, Delco Electronics, Epicenter, Epicron, Ericsson, Fish and Richardson, Fluke, Foley Lardner, GE, Gerson Lehrman Group, Gibson Dunn, Good, Google, GSMA, Hillman Company, Hobnob, Hughes Network Systems, IMS Expert Services, Informa, Information Week, Intel, IT World, iWindsurf, Juniper Networks, Kirkland & Ellis, Klarquist Sparkman, MCCI, Medtronic Physio-Control, Microsoft, Mobile Computing Promotion Consortium (MCPC), Mobile Future, Moffatt Thomas, NetMotion Wireless, Network Magazine, Network Computing Magazine, New York State Wireless Association, Nokia, Norcom Networks, Novatel Wireless, OmniSky, Pacific Commware, Portable Computer and Communications Association (PCCA), Portland State University, Powell and Gilbert, Research in Motion (RIM), Park and Associates, Quality in Motion, RKM Holdings, Rogers Communications, Ruckus Wireless, Sanyo, SkyGo, Sprint, Stratos Product Development Group, Superconductor Technologies, Symbian, T-Mobile, TCI, Teklicon, Tektronix, Teledyne Electronic Technologies, Traveling Software (LapLink), United Business Media, University of British Columbia, UCLA, US Department of Defense, Wells Fargo, White & Case, Whitworth Analytics, WiMAX Forum, Wireless Data Forum, Wireless Technology Association, WRQ, Xerox Palo Alto Research Center, and Xircom.

## **Wireless Technology Association. 2000 to 2016: Executive Director.**

Managed all the logistics of a non-profit industry organization that that evaluated wireless technologies, investigated mobile communications architectures, and promoted wireless-data interoperability. Organized and moderated more than fifty industry workshops.

**Traveling Software (LapLink), Bothell, WA, USA. 1992 to 1993: Vice President of Technology.**

Researched and evaluated key technologies. Developed Traveling Software's wireless communications strategy for local area and wide area connections. Helped define overall product and technology directions. Prototyped new technologies. Collaborated with technology partners. Developed license agreements for sale and purchase of technology. Participated in strategic sales efforts. Frequently traveled around the US and Asia. Spoke at conferences. Attended and monitored standards efforts. Managed patent applications and patent issues.

**Traveling Software (LapLink), Bothell, WA, USA. 1988 to 1992: Vice President, Research and Development.**

Developed Traveling Software's Research and Development department. Recruited over thirty professionals, including managers, design engineers, quality assurance engineers and technical writers. Under my management, we implemented: documented design and quality assurance procedures; a version control system; complete archiving with off-site storage; regular performance appraisals; a bonus plan; and well defined career paths. This R&D organization successfully brought in house all strategic technology and also released numerous successful software products for the retail PC market, including LapLink, LapLink Mac, DOS Connect for the HP 95LX, Organizer Link for the Sharp Wizard, and PC Link for the Casio BOSS.

**Fluke Corporation, Everett, WA, USA. 1979 to 1981 and 1983 to 1988: Program Manager, Project Manager, Design Engineer.**

As program manager, managed marketing group to determine target markets, sales channels, positioning and promotion in support of Fluke's operator interface business. As project manager, managed development of an entire family of communications-oriented touch terminals. Fluke introduced the first member, the 1020 Touch Control Screen in May, 1986. Directed software (C code for 68000 family processor), digital hardware (surface mount, semi-custom IC's, computer aided engineering), package design (injection molded plastic parts, steel chassis), and manuals (in English, French, German and Japanese.) Coordinated many groups: design, manufacturing, purchasing, component engineering, and marketing. As design engineer from 1979 to 1981, designed hardware and firmware for various systems, including: RS-232 communications; IEEE-488 communications; RS-485 multi-drop communications; thermal printer interface; cartridge drive interface; vacuum display driver and keypad driver.

**Other Work Experience:**

Time Office Computers, Australia, 1981 to 1983: Ethernet networking, random-access memory, power supply hardware development.

Stanford University, USA, 1976-1979: software consulting services for university/industry collaborations.

**Education:**

BSEE, MSEE Electrical Engineering, Stanford University, 1979.

**Additional information:**

Available at <http://www.rysavy.com>

## 2. Patents

Peter Rysavy is the co-inventor of US4929935A, Apparatus for aligning raster scanned image to touch panel, filed May 2, 1986.

Peter Rysavy is the co-inventor of US4941845 A, Data transfer cable, filed June 7, 1989.

## 3. Testifying and Consulting Experience in Litigation

### Summary

Twenty-five cases as a testifying expert.

Court testimony as testifying expert in one patent-litigation trial.

Five patent-litigation depositions.

One breach-of-contract litigation deposition.

Thirteen expert declarations in Inter Partes Review (seven patents).

Three expert reports on non-infringement (nine patents).

Six expert reports on invalidity (eight patents).

Two expert reports on non-breach-of-contract.

Multiple additional cases as consulting expert.

## 4. Public Speaking

Peter Rysavy has spoken at more than 50 public events, such as conferences, as a keynote presenter, moderator, and panelist. See <https://rysavy.com/speaking/> for details.

## 5. Published Articles and Reports

The more-than-175 articles, reports and white papers that Peter Rysavy has had published, listed from most recent to oldest, include the following:

1. "Small Cells – Suddenly Essential," March 2018. Article published by RCR Wireless.
2. "How 5G Will Solve Rural Broadband," January 2018. Article published by Fierce Wireless.
3. "The Power of Wireless Broadband," November 2017. Report published by Rysavy Research.
4. "Broadband Disruption: How 5G Will Reshape the Competitive Landscape," August 2017. Report published by Datacomm Research.

5. "Why 5G Will Be a Game Changer," August 2017. Article published by Fierce Wireless.
6. "LTE to 5G: Cellular and Broadband Innovation," August 2017. Report published by 5G Americas.
7. Declaration of Peter Rysavy. Exhibit to CTIA Comments to Federal Communications Commission, WC Docket No. 17-108, Restoring Internet Freedom. 2017.
8. "How "Title II" Net Neutrality Undermines 5G," April 2017. Report published by Rysavy Research.
9. "Accelerating Innovation in Unlicensed Spectrum," November 2016. Article published by Fierce Wireless.
10. "IoT & 5G: Wait or Move?" October 2016. Report published by Informa.
11. "Mobile Broadband Transformation," August 2016. Report published by 5G Americas.
12. "Threading the Spectrum Needle - Can LTE and Wi-Fi Coexist?" February 2016. Article published by Fierce Wireless.
13. "5G – Promises and Pitfalls," November 2015. Article published by RCR Wireless News.
14. "LTE and 5G Innovation: Igniting Mobile Broadband," August 2015. Report published by 4G Americas.
15. "Latest FCC Auction Shatters Spectrum Myths," January 2015. Article published by Gigaom.
16. "LTE Congestion Management - Enabling Innovation and Improving the Consumer Experience," January 2015. Report published by Mobile Future.
17. "Mobile Broadband Networks Should Not Be Hampered by Net Neutrality Constraints," September 2014. Article published by Fierce Wireless.
18. "How Wireless is Different - Considerations for the Open Internet Rulemaking," September 2014. Report for Mobile Future.
19. "Beyond LTE: Enabling the Mobile Broadband Explosion," August 2014. Report published by 4G Americas.
20. "Will LTE in Unlicensed Spectrum Unlock a Vast Store of Mobile Broadband Capacity?" June 2014. Article published by MIMO World.
21. "How will 5G compare to fiber, cable or DSL?" May 2014. Article published by Fierce Wireless.
22. "It's Time for a Rational Perspective on Wi-Fi," April 2014. Article published by Gigaom.
23. "Complexities of Spectrum Sharing - How to Move Forward," April 2014. Report published by Mobile Future.
24. "Canadian 700 MHz Auction: Analysis of Results." April 2014. Analysis of auction that concluded February 2014 in Canada.

25. "Challenges and Considerations in Defining Spectrum Efficiency," March 2014. Article for Proceedings of the IEEE.
26. "The High and Wide Future of Radio," March 2014. Column for Fierce Wireless.
27. "Uncertain Government Spectrum Policies Have Far-Reaching Consequences," November, 2013. Article for Bloomberg BNA Insights.
28. "Who Owns the Internet of Things?," September 2013. Column for Fierce Wireless co-authored with Chris Rezendes.
29. "Mobile Broadband Explosion - The 3GPP Wireless Evolution," August 2013. Report for 4G Americas.
30. "Learn How Technology Will Turn Less Desirable Airwaves into 'Beachfront' Spectrum," June 2013. Article for Gigaom.
31. "Efficiency of Spectrum Use," May 2013. Article for Fierce Wireless.
32. "2013 Mobile Commerce Survey," May 2013. Report for Information Week.
33. "Trends in Enterprise Cellular Network Data Usage," March 2013. Market research and report done in conjunction with NetMotion Wireless."
34. "White Spaces Networks Are Not "Super" Nor Even Wi-Fi," March 2013. Article for Gigaom.
35. "Mobile Commerce: State of the Market," February 2013. Coauthored report for Information Week.
36. "Vehicles and Mobility Are Converging but Fragmentation, Lack of Standards May Hinder Progress," February 2013. Column for Fierce Wireless.
37. "4G: Carriers, IT Pros Square Off," December 2012. Report for Information Week.
38. "Spectrum – All Options Essential, Including Incentive Auctions," December 2012. Blog for HighTech Forum.
39. "Spectrum Sharing with LTE is Conceivable But Not Trivial," November 2012. Column for Fierce Wireless.
40. "4G World: The Need For More Spectrum," October 2012. Column for Information Week.
41. "Spectrum Sharing Opens a Potential Attack Route," October 2012. Article for Gigaom.
42. "No Silver Bullets for FCC, NTIA Spectrum Challenge," September 2012. Article for Bloomberg BNA.
43. "Mobile Broadband Explosion – The 3GPP Wireless Evolution," September 2012. Report for 4G Americas.
44. "Spectrum Sharing – The Promise and The Reality," July 2012. Report for Mobile Future.

45. "Mobile Network Design and Deployment: How Incumbent Operators Plan for Technology Upgrades and Related Spectrum Needs," June 2012. Rysavy Research report.
46. "LTE: Huge Technology, Huge Challenges," March 2012. Report for Information Week.
47. "Wireless Spectrum Doomsday Looms," January, 2012. Column for InformationWeek.
48. "Unleashing the Wireless Power of Long-Term Evolution: Spectrum, and Lots of It," December 2011. Article for Bureau of National Affairs (BNA).
49. "Convergence of 3G/4G and Wi-Fi, October 2011. Report for InformationWeek.
50. "Comments on Citi 'Wireless Supply and Demand'," October 2011. Analysis and report.
51. "Mobile Broadband Explosion. 3GPP Broadband Evolution to IMT-Advanced (4G)," September 2011. Detailed report for 4G Americas.
52. "Public Safety Spectrum," July 2011. Analysis and report.
53. "Efficient Use of Spectrum," May, 2011. Report sponsored by CTIA, filed with the FCC.
54. "The Spectrum Imperative: Mobile Broadband Spectrum and its Impacts for U.S. Consumers and the Economy. An Engineering Analysis," March 2011. Report sponsored by Mobile Future.
55. "Application Mobilization: A Rapidly Changing Landscape," January 2011. Report published by Information Week.
56. "Smartphone Efficiency Report," January 2011. Rysavy Research report.
57. "Innovation Enabled by Mobile Wireless Network Management," Report sponsored by Mobile Future, filed with the FCC October, 2010.
58. "Strategic Use of Wi-Fi in Mobile Broadband Networks," October 2010, Rysavy Research white paper.
59. "Transition to 4G – 3GPP Broadband Evolution to IMT-Advanced," September 2010. Rysavy Research report for 4G Americas.
60. "Spectrum Shortfall Consequences," April 2010. Analysis written for CTIA and filed with the FCC.
61. "Beyond Smartphones," February, 2010. Article published by Information Week.
62. "Mobile Broadband Capacity Constraints And the Need for Optimization," February 2010. Rysavy Research report.
63. "The 2.6 GHz Spectrum Band - Unique Opportunity to Realize Global Mobile Broadband," December 2009. Report published by GSMA with Peter Rysavy providing the technology analysis on how best to manage the 2.6 GHz band.
64. "Net Neutrality Regulatory Proposals: Operational and Engineering Implications for Wireless Networks and the Consumers They Serve." Report sponsored by Mobile Future, filed with the FCC January, 2010.



65. "The Mobile Web Imperative," December 2010. Article published by Information Week.
66. "Air Pressure: Why IT Must Sort Out App Mobilization Challenges," October, 2009. Analytics report published by Information Week.
67. "Spectrum Crisis?" October, 2009. Article published by Information Week.
68. "HSPA to LTE-Advanced. 3GPP Broadband Evolution to IMT-Advanced (4G)" September 2009. Detailed report published by 3G Americas.
69. "3G Safeguards: Incomplete, Getting Better," May 2009. Article published by Information Week.
70. "Mobile Broadband Spectrum Demand," December 2008. Report commissioned by CTIA, released at CTIA Wireless March, 2009.
71. "Femtocells Suit Up For Work," January 2009. Article published by Information Week.
72. "Wireless E-Mail Efficiency Assessment," January 2009. Test report.
73. "HSUPA Gets Uploads Almost Up To Download Speeds," September 2008. Article published by Information Week.
74. "EDGE, HSPA and LTE - Broadband Innovation," September 2008. White paper, published by 3G Americas.
75. "Code of the Road," August 2008. Article published by Information Week.
76. "Global Mobile," May 2008. Article published by Information Week.
77. "GPS Performance," March 2008. Test report.
78. "Mobile Application Development Quick Start Guide," March 2008. White paper, published by AT&T.
79. "Harnessing Mobile Middleware", December 2008. White paper published by AT&T.
80. "Security Requirements for Wireless Networking," December 2007. White paper.
81. "Mobile Application Development Best Practices," September 2007. Peter Rysavy co-wrote this white paper, published by AT&T.
82. "EDGE, HSPA, LTE: The Mobile Broadband Advantage", September 2007, White Paper for 3G Americas
83. "Handheld Computing Evolution", June 13, 2007, Network Computing Mobile Observer
84. "Reach Me if You Can", article on wireless application deployment, May 2007, Network Computing Magazine
85. "Global Mobile", May 23, 2007, Network Computing Mobile Observer
86. "Wireless Networks, Wired Bottlenecks", May 2, 2007, Network Computing Mobile Observer
87. "Breaking the Gray Flannel Ceiling", article on mobile IM, April 2007, Network Computing Magazine

88. "QoS and VoIP With 3G: Not an Easy Marriage", Apr 11, 2007, Network Computing Mobile Observer
89. "Mobile Linux Puzzle - Coming Together." March 2007, Network Computing Magazine.
90. "Learning from Bluetooth", Mar 21, 2007, Network Computing Mobile Observer
91. "Disconnect!", Feb 28, 2007, Network Computing Mobile Observer
92. "EV-DO Rev A: Upping the Ante", Feb 7, 2007, Network Computing Mobile Observer
93. "IEEE 802.11n for the Enterprise—Not a Trivial Upgrade", Jan 17, 2007, Network Computing Mobile Observer
94. "Google Embraces Mobile", Dec 20, 2006, Network Computing Mobile Observer
95. "Using VPNs with Wireless Networks", Nov 29, 2006, Network Computing Mobile Observer
96. "Evolved EDGE and the Future of TDMA", Oct 18, 2006, Network Computing Mobile Observer
97. "Wireless E-Mail Efficiency Assessment." Oct 13, 2006. White paper that presents the results of a detailed engineering assessment to compare network efficiency of RIM Blackberry versus Microsoft Direct Push.
98. "Mobile Broadband: EDGE, HSPA & LTE", Sep 2006. White paper published by 3G Americas.
99. "Mobile Computing Policy and De-Perimeterization", Sep 27, 2006, Network Computing Mobile Observer
100. "Trials and Tribulations in Assessing Wireless Network Performance", Sep 6, 2006, Network Computing Mobile Observer
101. "Time to Decide", article on wireless networking, Aug 31, 2006, Network Computing Cover Story
102. "Sprint Nextel, WiMAX and the Mobile Broadband Conundrum", Aug 16, 2006, Network Computing Mobile Observer
103. "Wide-Area Wireless—The Next Five Years", Jul 26, 2006, Network Computing Mobile Observer
104. "Anatomy of a Well-Designed Wireless Application", Jul 5, 2006, Network Computing Mobile Observer
105. "Wireless Network Assessment, EVDO and WiFi Hotspots." A detailed test report on the relative performance of CDMA2000 EVDO and WiFi hotspots. March 21, 2006.
106. "Using Your Cell Phone as a Modem", Jun 14, 2006, Network Computing Mobile Observer
107. "Convergence Update: IMS and UMA", May 24, 2006, Network Computing Mobile Observer

108. "Mobile Broadband - Trying to Catch a Fast-Moving Target", May 3, 2006, Network Computing Mobile Observer
109. "Integrated Voice/Data in 3G", Apr 12, 2006, Network Computing Mobile Observer
110. "Mobile Middleware in the Broadband Era", Mar 22, 2006, Network Computing Mobile Observer
111. "Figuring Out Metro Wi-Fi", Mar 1, 2006, Network Computing Mobile Observer
112. "Sprint Nextel's Jump to the Future", Feb 8, 2006, Network Computing Mobile Observer
113. "The Smartphone Conundrum", Jan 18, 2006, Network Computing Mobile Observer
114. "Municipal and Mesh Wi-Fi", Dec 21, 2005, column, Network Computing Mobile Observer
115. "Linksys WRT54G -- Not What It Used to Be", Nov 30, 2005, column, Network Computing Mobile Observer
116. "Confusion About 4G", Nov 9, 2005, column, Network Computing Mobile Observer
117. "Strong Capabilities, Difficult Decisions", Oct 27, 2005, article, Network Computing Magazine
118. "Hard Numbers and Experts' Insights on Migration to Evolved 3G and 4G Wireless Technology", Oct, 2005, updated public report, published by Datacomm Research
119. "Wireless Data Pricing--One Hundred Times Less Expensive and Still Not Satisfied", Oct 19, 2005, column, Network Computing Mobile Observer
120. "Secure Mobile Access Using SSL VPNs", Oct 2005, white paper, published by Aventail
121. "Embedded Wireless WAN", Sep 28, 2005, column, Network Computing Mobile Observer
122. "Redefining the Endpoint--Wireless Broadband Routers", Sep 7, 2005, column, Network Computing Mobile Observer
123. "Data Capabilities: GPRS to HSDPA and Beyond", Sep 2005, white paper, published by 3G Americas
124. "High Speed Downlink Packet Access (HSDPA)", Aug 17, 2005, column, Network Computing Mobile Observer
125. "The Uneven Uptake of Wireless Data", Jul 21, 2005, column, Network Computing Mobile Observer
126. "Where is WiMAX?", Jul 6, 2005, column, Network Computing Mobile Observer

127. "Mobile Broadband and the Multi-Network Path to 4G", Jul 2005, article, WiMAX Business and Technology Strategies
128. "Freed Up or Tied Down", Jul 21, 2005, article, Network Computing Magazine
129. "Wireless E-Mail for the Masses, Jun 15, 2005, column, Network Computing Mobile Observer
130. "Parallel Mobile Universes", May 25, 2005, column, Network Computing Mobile Observer
131. "Beyond the Airlink- IP Multimedia Subsystem", May 4, 2005, column, Network Computing Mobile Observer
132. "Secure Wireless Networking Using SSL VPNs", May 2005, white paper, published by Avenail
133. "3 Sides to 3G", Apr 13, 2005, column, Network Computing Mobile Observer
134. "Hard Numbers and Experts' Insights on Migration to Evolved 3G and 4G Wireless Technology", Feb, 2005, public report, published by Datacomm Research
135. "Forever Evolving", Oct 14, 2004, article, Network Computing Magazine
136. "Data Capabilities: GPRS to HSDPA", Sep 2004, white paper, published by 3G Americas
137. "Brush up on Bluetooth", Jun 24, 2004, article, Network Computing Magazine
138. "Policing the Airwaves", May 7, 2004, article, Secure Enterprise Magazine
139. "Device Drivers (Smartphones and Wireless PDAs)", Apr 15, 2004, article, Network Computing Magazine
140. "Making the Smart Choice (Smartphone and Wireless PDA Platform Review), Apr 15, 2004, article, Network Computing Magazine
141. "Wireless Instant Messaging: Propelling SMS and Desktop IM to the Next Level", Oct 27, 2003, public report, published by Datacomm Research
142. Common Goals, Unique Strengths – Survey of Hotspot Operators, May 15, 2003, article, Network Computing Magazine
143. "Data Capabilities for GSM Evolution to UMTS", Nov 19, 2002, white paper, published by 3G Americas.
144. "Wireless Nirvana", Oct 21, 2002, article, Network Computing Magazine
145. "Voice Capacity Enhancements for GSM Evolution to UMTS", Jul 18, 2002, white paper, published by 3G Americas.
146. "Networking Standards and Wireless Networks", 2002, white paper, published by NetMotion Wireless
147. "Public Wireless LANs: Challenges, Opportunities and Strategies", Jul 9, 2001, public report, published by Datacomm Research

148. "Break Free With Wireless LANs", Oct 29, 2001, article, Network Computing Magazine
149. "MMDS Struggles to Find a Foothold", Oct 29, 2001, article, Network Computing Magazine
150. "Can MWIF Unify Cellular Protocols?", May 2001, column, M-Business Magazine
151. "M-Wallets: Not Ready Yet", Apr 2001, column, M-Business Magazine
152. "AT&T's GSM Move Could Ignite U.S. Market", Mar 2001, column, M-Business Magazine, March 2001
153. "Lessons From I-Mode", Feb 2001, column, M-Business Magazine
154. "E-Commerce Unleashed", Jan 22, 2001, article, Network Computing Magazine
155. "Mobile-Commerce ASPs Do the Legwork", Jan 22, 2001, article, Network Computing Magazine.
156. "Big Step to Mobile Payments", Jan 2001, column, M-Business Magazine.
157. "Emerging Technology: Clear Signals for General Packet Radio Service", Dec 2000, article, Network Magazine.
158. "WAP: Untangling the Wireless Standard", Nov 2000, article, Network Computing Magazine
159. "The Road to a Wireless Future", Oct 30, 2000, article, Network Computing Magazine
160. "Wireless Wonders (HiperLAN and Bluetooth) Coming Your Way", May 2000, article, Network Magazine.
161. "Managing Mobile Code", Aug 23, 1999, online manual, Network Computing Magazine.
162. "The Evolution of Cellular Data: On the Road to 3G", 1999, article published by Intel "On The Road To PCS", February 15, 1996, article, Network Computing Magazine.
163. "Wireless IP - A Case Study", Apr 30, 1999, article, PCS Data Today online journal
164. "Broadband Wireless: Now Playing in Select Locations", Oct 7, 1999, article, Data Communications Magazine
165. "Satellite Services: Don't Join the Space Race", Sep 21, 1999, column, Data Communications Magazine
166. "Making the Case for Fixed Wireless Technology", Jul 1999, column, Data Communications Magazine
167. "Wireless IP: Ready to Lift Off?", Mar 1999, column, Data Communications Magazine.

168. "Planning and Implementing Wireless LANS", 1999, online manual, Network Computing Magazine.
169. "Wireless Broadband and Other Fixed-Wireless Systems", 1998, online manual, Network Computing Magazine.
170. "General Packet Radio Service (GPRS)", September 30, 1998, GSM Data Today online journal.
171. "Wide-Area Wireless Computing", 1997, online manual, Network Computing Magazine.
172. "Internet-To-Go, Now With Mobile IP", November 1, 1997, article, Network Computing Magazine.
173. "Making The Call With Two-Way Paging", January 15, 1997, article, Network Computing Magazine.
174. "Cellular Data Communications Made Easy", July 1, 1997, article, Network Computing Magazine.
175. "Wireless Data Made To Order", March 15, 1996, article, Network Computing Magazine.
176. "TCP/IP: The Best Protocol for Remote Computing", public white paper, WRQ. 1996.
177. "Message Middleware In A Wireless Environment", April 15, 1996, article, Network Computing Magazine.
178. "On The Road To PCS", Feb 15, 1996, article, Network Computing Magazine
179. "The ABCs of PCS," Nov 7, 1994, article, Network World.

## 6. Wireless Courses

The following lists the public courses that Rysavy Research has taught. These are listed in the order of most recent to oldest. Rysavy Research has also privately taught on wireless technology at AT&T, Bluetooth SIG, Cingular Wireless, Cricket Communications, Intel, Medtronic, Microsoft, NetMotion Wireless, RIM, Tektronix, Teledyne, T-Mobile, and the U.S. Department of Defense.

1. Interop Conference, Las Vegas, May 2013. "Wireless Everywhere: LTE and Beyond," 1 hour course.
2. Bellevue, WA, April 2013. "4G: Deep Technology Insights," 1 day course.
3. Interop Conference, Las Vegas, May 2012. "LTE Update," 1 hour course.
4. Bellevue, WA, April 2012. "Mobile Broadband Explosion," 1 day course.
5. Redmond, WA, December 2010. "Mobile Broadband - Technology Evolution and Strategic Considerations," 1 day course.
6. Portland, OR, November 2010. "Mobile Broadband - Technology Evolution and Strategic Considerations," 1 day course.

7. AT&T Developer Program, March 2010, "Guidelines for Delivering Streaming Services on AT&T's Wireless Network," 1 hour webcast.
8. Bellevue, WA, Oct 2009. "Mobile Broadband - Entering the 4G Decade," 1.5 hour session at IEEE Wireless Workshop.
9. Bellevue, WA, Apr 2009. Portland, OR, May 2009. "Mobile Broadband Innovation - 3G to 4G Evolution and Impacts," 1 day course.
10. 3G Americas, Dec 2008, "EDGE, HSPA, LTE - Broadband Innovation," 1 hour webcast.
11. AT&T Developer Program, August 2008, "Broadband Innovation - Applications for New Broadband Networks," 1 hour webcast.
12. AT&T Developer Program, June 2008, "Emerging Mobile Application Architectures," 1 hour webcast.
13. AT&T Developer Program, March 2008, "Understanding Mobile Application Development Environments: Open Platforms, Tools, Capabilities, Developer Strategies," 1 hour webcast.
14. AT&T Developer Program, Dec 2007, "Harnessing Mobile Middleware - Architectures, Functions and Integration," 1 hour webcast.
15. AT&T Developer Program, Sep 2007, "Best Practices for Mobile Application Development - Strategies, Considerations, and Techniques for Optimal Development," 1 hour webcast.
16. AT&T Developer Program, Apr 2007, "How Enterprises Can Get Ready for IP Multimedia Subsystem (IMS): IMS Strategies and Application Development Approaches," 1 hour webcast.
17. Bellevue, WA, May 2006, "Evolution of Mobile Broadband", 1 day course.
18. Portland State University, Apr 2006, "Wireless Technology Advances: Wi-Fi, 3G, WiMAX, Mobile Broadband", 1 day course.
19. Portland State University, Sep 2005, "3G, Evolved 3G, 4G and WiMAX", 1 day course.
20. Bellevue, WA, April 2005, "Wireless Technology Advances", 1 day course.
21. CTIA Wireless Data University, Mar 2005, "Wi-Fi and WiMAX in Detail", half day course.
22. Portland State University, Jan 2005, "Wi-Fi Technology - Evolution and Integration", 1 day course.
23. CTIA Wireless Data University, Oct 2004, Wi-Fi - Technology, Evolution, Adoption and Hotspots, Added Section: WiMAX", half day course.
24. Portland State University, Jun 2004, "3G, WiMAX and other Wide-Area Broadband Wireless Networks", 1 day course.
25. CTIA Wireless Data University, Mar 2004, "Wi-Fi - Technology, Evolution, Adoption and Hotspots", half day course.

26. Portland State University, Nov 2003, "Wi-Fi - Evolution, Adoption and Hotspots", 1 day course.
27. CTIA Wireless Data University, Oct 2003, "Wi-Fi Technology - Evolution, Adoption and Hotspots", half day course.
28. IEEE Wireless LAN Conference, 2002, "Wireless LAN Business and Marketing Issues", 1 hour.
29. Portland State University, 2002, "WLANs, 3G Cellular and Beyond", 2 day course.
30. Portland State University, 2001, "Next Generation Cellular Data", 1 day course.
31. CMP Web 2001, "The Wireless Web in Detail", 1 day course.
32. IEEE Chapter Evening Presentation, 2001, "Wireless Networking Advances - Setting Reasonable Expectations", 2 hours.
33. UCLA, 2001, "Wireless Data Systems", 1 day course.
34. CMP Web 2000, "Wireless Data Networks", 1 day course.
35. UCLA, 2000, "Wireless Data Systems", 2 day course.
36. UCLA, 1999, "New Third Generation Cellular, Digital PCS and Broadband Mobile Data - What Will Dominate?", 4 day course co-taught with C. R. Baugh Ph.D.
37. Portable Design Conference, 1999, "Wireless Data Integration", 1 day course.
38. Northcon, 1998, "Wireless Data Networking Advances", 1 day course.
39. UCLA, 1998, "Technologies for Wireless Competitive Markets: Cellular, PCS and Wireless Data", 4 day course co-taught with C. R. Baugh Ph.D.
40. UCLA, 1997, "Cellular, PCS and Wireless Data Technology", 4 day course co-taught with C. R. Baugh Ph.D.
41. UCLA, 1996, "Wireless Voice And Data Communications (Personal Communications Services, Digital Cellular, and Wireless Data)", 4 day course co-taught with C. R. Baugh Ph.D.
42. UCLA, 1995, "Wireless Voice And Data Communications (Personal Communications Services, Digital Cellular, and Wireless Data)", 4 day course co-taught with C. R. Baugh Ph.D.
43. UCLA, 1994, "Wireless Voice And Data Communications (Personal Communications Services, Digital Cellular, and Wireless Data)", 4 day course co-taught with C. R. Baugh Ph.D.

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