

WIRELESS TECHNOLOGY ASSOCIATION

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The Innovation and Engineering Dynamics of the Digital Economy: Economic Transformation and Expansion Enabled by 5G

A Technology and Policy Workshop
Held in Partnership with the Georgetown University
Center for Business and Public Policy's
Project on the Evolution of Regulation and Innovation

October 14, 2015

Georgetown University School of Continuing Studies 640 Massachusetts Ave NW Washington, DC 20001

Chair: Peter Rysavy, Rysavy Research

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BACKGROUND

Mobile broadband technology and networks have proven to be potent catalysts for innovation and development in computing, networking, application development, consumer devices, and economic opportunity. The next evolution of mobile broadband, referred to by many as 5G, will soon be upon us. But so far, we know relatively little about the kinds of new uses and applications 5G will enable, the precise network architectures that will bring expanded capabilities and faster broadband speeds to billions, or how 5G networks will integrate with existing 3G and 4G infrastructure. Still, it is not too soon to discuss the kinds of policies that could enable or retard innovations and economic opportunities that "mobile broadband on steroids" will make possible.

Internet architects are also envisioning an entirely new architecture for the Internet called Information Centric Networking (ICN). ICN combined with 5G could provide dramatic new ways for users and devices to interact with the global broadband fabric.

Please join The Wireless Technology Association and The Georgetown Center for Business and Public Policy's Project on the Evolution of Regulation and Innovation for a unique technology and policy workshop October 14th to learn about these issues and more. The workshop will feature engineers, technologists, analysts, service providers, and policymakers at the epicenter of the emerging 5G universe.

The workshop will feature keynote remarks from Federal Trade Commissioner Maureen Olhausen and Cisco Systems Fellow Dr. Paul Polakos.

PRELIMINARY AGENDA

Workshop. Wednesday, October 14, 2015. 8:30 a.m. - 4:00 p.m.

Agenda and schedule subject to change.

8:30 - 9:00 Registration/Breakfast

9:00 – 9:15 Opening Remarks and Welcome by Georgetown and Wireless Technology Association

9:15 – 9:45 Keynote Address. Information-Centric Networking: Evolution of the Internet, Integration with 5G.

Dr. Paul Polakos, Cisco Fellow, Cisco Systems.

9:45 - 10:45 Emerging Internet and Mobile Broadband Architectures

Moderator: Peter Rysavy, President, Rysavy Research.

Dr. Paul Polakos, Cisco Fellow, Cisco Systems.

Brian Markwalter, Senior Vice President of Research and Standards, Consumer Electronics Association.

Tom Sawanobori, Senior Vice President and Chief Technology Officer, CTIA - The Wireless Association.

David Wolter, Assistant Vice President, Radio Technology and Strategy, AT&T Technology and Operations.

10:45 - 11:15 Networking Break

11:15 - 11:45 Keynote Address

Maureen Ohlhausen, Commissioner, Federal Trade Commission.

11:45 - 12:45 The Impact of Regulation on 5G Use Cases - A Policy Discussion

Moderator: Carolyn Brandon, Senior Industry and Innovation Fellow, Georgetown Center for Business and Public Policy.

Roger Entner, Founder and Lead Analyst, Recon Analytics

Jennifer Fritzsche, Managing Director, Wells Fargo Securities

Jim Kohlenberger, President, JK Strategies.

Peter Rysavy, President, Rysavy Research

12:45 - 1:30 Boxed Lunch

1:30 – 2:30 Spectrum and Infrastructure in a 5G World – Upending Current Paradigms

Moderator: Peter Rysavy, President, Rysavy Research.

Reza Arefi, Director Spectrum Strategy, Intel.

John Kuzin, Senior Director and Regulatory Counsel, Qualcomm

Prakash Moorut, Spectrum Lead, North America, Nokia.

Anders Svensson, Principle Solution Manager, Ericsson.

2:30 - 2:45 Break

2:45 – 3:45 Enabling Economic Growth and Innovation in a 5G World — What Does Empirical Data and Literature Tell Us?

Moderator: Larry Downes, Project Director, Georgetown Center for Business and Public Policy.

Tim Brennan, Professor, Public Policy, University of Maryland

Dipayan Ghosh, Policy Advisor, Office of the Chief Technology Officer, White House Office of Science and Technology Policy

Anna-Maria Kovacs, Visiting Senior Policy Scholar, Georgetown Center for Business and Public Policy.

Jonathan Spalter, Chair, Mobile Future.

3:45-4:00 Closing Remarks and Workshop Summary

4:00 – 6:00 Post Workshop No-Host Networking Reception

PRESENTERS (alphabetical by last name)

Reza Arefi Director Spectrum Strategy, Intel



Reza Arefi leads spectrum strategies and global radiocommunication standards at Next Gen-eration systems & Standards division of Intel's Communications & Devices Group. He de-velops market-driven spectrum strategies for Intel's wireless products and assists with global public policy efforts. Reza has been actively contributing to standards and various industry groups on wireless systems for the past fifteen years, often in leadership positions (ITU-R, IEEE, WiGig Alliance, etc.). Since 2004, Reza has regularly represented Intel in regional and international regulatory standards organizations including in World Radio Conferences (WRC). His current focus is on enabling spectrum for 5G cellular systems. He holds several patents in various areas of wireless communications including mm-wave technologies and spectrum sharing. Reza holds an EE bachelor's degree from Sharif University of Technology and a Master's degree from West Virginia University.

Carolyn Brandon

Senior Industry and Innovation Fellow, Georgetown Center for Business and Public Policy



Ms. Brandon formed strategic consulting firm Whitworth Analytics LLC in 2011 to provide decision support, and strategic policy counsel to companies in the high tech, broadband and wireless sectors. Ms. Brandon is also a Senior Industry and Innovation Fellow at the Georgetown Center for Business and Public Policy where she focuses on competition and regulatory policy as applied to networked industries and emerging markets.

Prior to forming Whitworth Analytics, Ms. Brandon served as Vice President, Policy for CTIA-The Wireless Association where she worked for five years with CTIA's more than 200 members to develop strategic, national public policies for the U.S. commercial wireless industry. Brandon focused on policy matters impacting industry structure, competition, innovation and technology development.

Before joining CTIA in 2004, Ms. Brandon was a partner in the Washington, D.C. boutique law firm Wilkinson Barker Knauer, LLP where for 12 years she represented wireless telecommunications providers in proceedings and transactions before the Federal Communications Commission, state public utility commissions, U.S. bankruptcy courts and the U.S. Securities and Exchange Commission.

Voted one of the "Top Ten Women in Wireless" by the publishers of Wireless Week, Ms. Brandon has served on the Advisory Board of the TechPolicy Summit, and was selected to represent the wireless industry on the Federal Communications Commission's Consumer Advisory Committee, an official Federal Advisory Committee. Carolyn has served two terms on the Executive Committee of the Federal Communications Bar Association and two terms on the Steering Committee of the District of Columbia Bar Association's Computer and Telecommunications Committee. Her pro bono activities include representing prospective adoptive parents before the DC Superior Court, Family Division. She currently serves on the Board of Trustees of Green Hedges School, a pre-K through 8 independent school located in Vienna Virginia. Ms. Brandon also serves as an Advisory Board Member to the Northern Virginia Children's Science Museum.

Tim Brennan
Professor, Public Policy, University of Maryland



Tim Brennan is a professor of public policy and economics at the University of Maryland, Baltimore County (UMBC) and a senior fellow with Resources for the Future (RFF). Before coming to UMBC in 1990, he was an economist with the Antitrust Division of the

U.S. Department of Justice and taught in the telecommunications policy program at George Washington University. From 1996-97, he was a senior economist for the White House Council of Economic Advisers and in 2003-05 served as a staff consultant to the U.S. Federal Trade Commission. During 2006, he held the T. D. MacDonald Chair in Industrial Economics at the Canadian Competition Bureau. He has advised on competition law internationally for authorities in countries including Australia, Costa Rica, Mexico, Russia, the Slovak Republic, Sweden, and Uzbekistan.

Prof. Brennan's research has addressed topics in antitrust, regulatory economics, copyright, electricity markets, telecommunications and media policy, environmental economics, and methods and ethics in public policy. His current research is focusing on energy efficiency, the applicability of cost-benefit analysis in climate policy, a critique of behavioral economics, and standards for legality of exclusionary practices. With Karen Palmer and others at RFF, he co-authored two books on electricity deregulation, A Shock to the System (1996) and Alternating Currents: Electricity Markets and Public Policy (2002). He is a co-editor of Economic Inquiry and sits on the editorial boards of the Journal of Regulatory Economics, Information Economics and Policy, Communications Law and Policy, and the International Review of the Economics of Business.

Prof. Brennan received a B.A. in mathematics in 1973 from the University of Maryland, College Park and an M.A. in mathematics in 1975 and Ph.D. in economics in 1978 from the University of Wisconsin in Madison.

Larry Downes

Project Director, Georgetown Center for Business and Public Policy



Larry Downes is a best-selling author on developing business strategies in an age of accelerating technological disruption.

He is the co-author, with Paul F. Nunes, of Big Bang Disruption: Strategy in the Age of Devastating Innovation (Portfolio 2014), now a bestseller. Based on extensive research, the book describes a new kind of disruptive innovation and teaches executives across industries how to adjust their strategies to survive it.

His previous book, The Laws of Disruption: Harnessing the New Forces that Govern Business and Life in the Digital Age explored the accident-prone intersection of law and innovation.

Downes is the author of the New York Times and Business Week bestseller, Unleashing the Killer App: Digital Strategies for Market Dominance, which was named by The Wall Street Journal as one of the five most important books ever published on business and technology.

He writes regularly for Forbes, Harvard Business Review, The Washington Post and CNET, and is frequently quoted in media stories in both mainstream and trade outlets.

He is currently Project Director at the Georgetown Center for Business and Public Policy

and a Research Fellow with the Accenture Institute for High Performance.

He has previously held faculty appointments at the University of Chicago Booth School of Business, Northwestern University School of Law, and the University of California-Berkeley's Haas School of Business, where he was Associate Dean of the School of Information.

Roger Entner Founder and Lead Analyst, Recon Analytics



He is known around the globe as one of the most respected telecom experts. Over the last decade he has been frequently quoted by the world's most prestigious media outlets, such as the Wall Street Journal, the New York Times, USA Today, Financial Times, ABC, CBS, NBC, Fox, CNBC, NPR, PBS, and CNN. In the last year alone, he was referenced more than 4,000 times. In addition, Roger's research has been cited in the FCC's 8th, 11th, 13th, 14th, and 15th Annual Mobile Wireless Competition Reports to Congress. In 2012, his research was cited by the Executive Office of the President's Council of Economic Advisers in its The Economic Benefits of New Spectrum for Wireless Broadband report. Roger also is a regular contributor to CNET and Fierce Wireless, where he writes about customer and industry trends in the connected world.

Roger's main focus is the competitive telecom market place and how the market participants interact. He is one of the leading experts researching the wireless experience, how it influences customer behavior and how customers make choices. Before starting Recon Analytics in January 2011, Roger was the Senior Vice President, Head of Research and Insights for the Telecom Practice of The Nielsen Company. With more than \$5 billion in revenues, Nielsen is the largest consumer market research provider in the United States and around the world. Nielsen is also the largest market research provider to the telecommunications industry. In his role at Nielsen, Roger was responsible for advancing the research and thought leadership position of Nielsen in the world of telecommunications. In particular, he led the research regarding consumer behavior and consulted with the entire range of telecommunications companies—wireless operators, wireline telecommunications providers, cable television and internet service companies, mobile device providers and software providers—on how to improve their products and services.

Before that, Roger was Senior Vice President, Communications Sector at IAG Research and was part of the senior leadership team when Nielsen acquired IAG in April 2008. At IAG he was responsible for helping telecommunications providers improve the effectiveness of their advertising expenditures. Building on IAG's traditional strength in television advertising, Roger was involved in several successful engagements that expanded IAG's traditional television advertising effectiveness measurement to radio, the Internet, and mobile advertising.

Prior to joining IAG Research in 2007, Roger launched the North American coverage for Ovum as Vice President, Telecom. He established the company as one of the leading telecom research providers in North America. Before joining Ovum, Roger headed the wireless carrier research group at the Yankee Group from 2001 to 2004.

From 2002 to 2003, he was a member of a 16-person SBIR/STTR Phase II Panel for the National Science Foundation. He helped direct federal research grants to innovative, high-risk projects with a significant potential for commercial viability.

At both the Yankee Group and Ovum, Roger focused on researching trends in the wireless world and advising clients on current and emerging business and consumer trends that affect the wireless world.

Previously, Roger was Strategic Marketing Manager for LCC International, which designed and built wireless networks around the world. In that role, he assessed the trends and developments in the wireless world and developed strategies to help LCC benefit from emerging opportunities. Part of his focus was understanding and determining the demand for cell sites based on coverage and capacity requirements based on customer behavior.

Roger received a Bachelor of Arts in Business Organization, from the Heriot-Watt University in Edinburgh, United Kingdom, a Master of Business Administration from the George Washington University in Washington, DC, and an Honorary Doctorate of Science from Heriot-Watt University.

Jennifer Fritzsche Managing Director, Wells Fargo Securities



Jennifer Fritzsche is a managing director in the Equity Research department at Wells Fargo Securities where she has focused on the Telecommunication Services and Tower sectors since 1999. Jennifer started in telecom equity research in 1996 with EVEREN Securities, where she was promoted to senior analyst after serving two years as an associate analyst on the telecom research team. In 2000, she tied for second in the "Best Up and Comers" category in Institutional Investor's annual vote. In 2006, Forbes magazine recognized Jennifer as one of the top ten stock pickers from a universe of 4,500 sell-side analysts across all industry sectors. In May 2011, Jennifer was recognized as the No. 1 earnings estimator for wireless telecommunication services by Financial Times/StarMine, a leading provider of objective ratings of equity securities analysts. Most recently, Jennifer was again recognized by StarMine and received the 2014 No. 3 stock picker ranking for the diversified telecom services sector. Jennifer makes numerous media appearances and has often been a guest on Bloomberg and CNBC. She also speaks at many of the industry and trade conferences and often is asked to participate in many Washington, D.C. regulatory telecom seminars and events.

Jennifer has a BA in history from the College of the Holy Cross in Worcester, Massachusetts and an MBA from Northeastern University in Boston, Massachusetts where she graduated summa cum laude.

Dipayan Ghosh

Policy Advisor, Office of the Chief Technology Officer, White House Office of Science and Technology Policy



Dipayan Ghosh is a technology policy advisor at the White House. During his time there, he has worked on a range of technology policy issues including consumer privacy, Internet policy, broadband access, spectrum policy, and educational innovation.

Concurrent with his role at the White House, Dipayan is a research fellow at the University of California, Berkeley, where he studies cybersecurity and consumer privacy issues across the School of Information and the Electrical Engineering and Computing Systems Department. He is also a fellow at the Center for Information Technology Policy at Princeton University.

While in graduate school, Dipayan was an associate with Thomson Reuters at the firm's corporate offices in New York, where he contributed to mobile strategy. Prior, he was an associate at IBM at the company's headquarters in Armonk, where he worked on the corporate management team to develop enterprise risk strategy.

Dipayan received his Ph.D. in electrical engineering and computer science from Cornell University, where he studied the economics of privacy. His doctoral work, supported by the Department of Defense, argued that strong consumer privacy solutions are possible through committed regulation and sound engineering design. Dipayan received his Bachelor's degree as a University Scholar from the University of Connecticut, where he studied electrical and computer engineering, mathematics, and economics.

Jim Kohlenberger President, JK Strategies



Jim Kohlenberger has been at the forefront of innovation and technology policy issues for more than 20 years. He currently is President of JK Strategies, a public policy consulting practice. He also serves as Executive Director for the Center for Copyright Information, serves on the board of the Benton Foundation, and is an advisor to Mobile Future. Previously in the Obama White House, Kohlenberger served as Chief of Staff for the White House Office of Science and Technology Policy (OSTP) where he helped craft the President's innovation strategy and worked to harness innovation to advance economic growth and opportunity for all Americans. He also served for 8 years in the Clinton White House as Senior Domestic Policy Advisor where he helped advanced pragmatic technology policies, worked on the Telecommunication Act of 1996, chaired the inter-agency telecommunications working group, and led White House efforts to advance educational technology, develop and launch the successful E-rate program,

close the digital divide, and help connect every classroom to the Internet. He recently served as executive director of jobs4america – a coalition of forward looking companies who successfully created more than 100,000 new broadband enabled jobs over 2 years, and served as executive director of the "Voice on the Net" or VON Coalition – a coalition of high-tech companies focused on advancing technologies that improve communications over the Internet.

Anna-Maria Kovacs

Visiting Senior Policy Scholar, Georgetown Center for Business and Public Policy



Anna-Maria Kovacs is a Visiting Senior Policy Scholar at Georgetown University's Center for Business and Public Policy. Her expertise is in industry analysis and her area of focus is on the interplay between public policy and investment.

Dr. Kovacs has followed the communications industry for over thirty years, either as a financial analyst or as a consultant. She was the Founder and President of Regulatory Source Associates LLC, which provided investment professionals with analysis of the impact of federal and state regulation on investment in the telecommunication and cable industries. She recently founded Strategic Choices to provide consulting on financial, strategic and regulatory issues that impact the communications industry.

Dr. Kovacs' MBA is from Harvard Business School. Her Ph.D. is from Harvard University, in Comparative Literature, with a focus on the impact of economic and social history on literature. Her B.A. is from Boston University is in Economics and English. She holds the CFA Charter.

John Kuzin Senior Director and Regulatory Counsel, Qualcomm



John Kuzin is Senior Director and Regulatory Counsel in Qualcomm Incorporated's Washington DC office. He represents Qualcomm on communications matters before the FCC and on a multitude of technology issues before other federal and state agencies. His areas of expertise include spectrum policy and new mobile allocations, licensed and unlicensed wireless service regulations, wireless equipment authorization, wireless charging, unmanned aircraft systems, mobile device accessibility, and energy efficiency regulations. John interfaces closely with Qualcomm's business and R&D teams to craft the company's regulatory strategy.

Prior to joining Qualcomm, John worked for a decade in Wiley Rein LLP's communications

practice in Washington, DC, representing clients before the FCC and state commissions on a broad collection of wireless and wireline matters. While at Wiley Rein, John also litigated intellectual property and complex technology cases in federal and state courts. Following law school, John worked for the Weil Gotshal & Manges firm in New York City on patent litigation and licensing matters.

In addition to his legal training, John is an electrical engineer, having worked for six years as a project manager and a senior systems engineer for Bell Communications Research ("Bellcore"). John holds a B.E. in electrical engineering from The Cooper Union, an M.S.E. from Princeton University, and a J.D. from New York University Law School. He also is a registered patent attorney.

Brian Markwalter

SVP of Research and Standards, Consumer Electronics Association



Brian Markwalter is senior vice president of research and standards for the Consumer Electronics Association (CEA) ®, the preeminent trade association promoting growth in the \$285 billion U.S. consumer electronics industry and owner of the International CES. Markwalter is responsible for CEA's extensive consumer research, market data and forecasting capability in addition to CEA's accredited standards development program used by industry in millions of products every year.

Prakash Moorut Spectrum Lead, North America, Nokia



Prakash Moorut is the North America Spectrum Lead for Nokia. In this role, he is responsible for working with regulators, operators and industry members to open more useable Commercial Mobile Broadband spectrum in North America. He has over 18 years of experience working in Europe and USA on numerous communications system, including GSM, CDMA, UMTS, TETRA/Public Safety, WiMAX, LTE, LTE-Advanced (Carrier Aggregation) and is currently enabling Small Cells, 5G technologies and Spectrum Sharing. He also has extensive experience in spectrum regulation and strategy, standardization, spectrum coexistence analysis/simulations and developing efficient spectrum usage solutions for products and operators worldwide. He has earned industry recognition, including from the Director of the European Communications Office for the work he led to open 3.5GHz to mobility in Europe and more recently, as a Co-Chair of one of the technical Working Groups formed by the U.S. Commerce Spectrum Management Advisory Committee (CSMAC) to facilitate the repurposing of the 1695-1710 MHz and 1755-1850 MHz bands for Commercial Mobile Broadband use from Federal

Government use and also as Chair of 3.5GHz Spectrum Access System (SAS) to User Interface Task Group in the Wireless Innovation Forum Spectrum Sharing Committee. He was also the Technical Program Co-Chair of the 7th IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN 2014), the leading international conference dedicated to the advancement of cutting-edge dynamic spectrum access network technologies and associated regulatory policies. He is regularly invited to speak at various FCC workshops and other venues about spectrum management. Before joining Nokia, he worked for Motorola where he created and led a customer facing spectrum engineering group located in USA, France, and China. In this previous role, he also helped pioneer a new approach to inter-system coexistence analysis based on Monte Carlo simulations which led to the first publicly available coexistence simulation tool in CEPT and was also adopted for coexistence studies in 3GPP, CEPT and ITU. He has several publications and patents related to spectrum usage. He received his MSEE degree from "Ecole Supérieure d'Electricité" (SUPELEC) in Paris, France.

Maureen K. Ohlhausen Commissioner, Federal Trade Commission



Maureen K. Ohlhausen was sworn in as a Commissioner of the Federal Trade Commission on April 4, 2012, to a term that expires in September 2018.

Prior to joining the Commission, Ohlhausen was a partner at Wilkinson Barker Knauer, LLP, where she focused on FTC issues, including privacy, data protection, and cybersecurity.

Ohlhausen previously served at the Commission for 11 years, most recently as Director of the Office of Policy Planning from 2004 to 2008, where she led the FTC's Internet Access Task Force. She was also Deputy Director of that office. From 1998 to 2001, Ohlhausen was an attorney advisor for former FTC Commissioner Orson Swindle, advising him on competition and consumer protection matters. She started at the FTC General Counsel's Office in 1997.

Before coming to the FTC, Ohlhausen spent five years at the U.S. Court of Appeals for the D.C. Circuit, serving as a law clerk for Judge David B. Sentelle and as a staff attorney. Ohlhausen also clerked for Judge Robert Yock of the U.S. Court of Federal Claims from 1991 to 1992.

Ohlhausen graduated with distinction from George Mason University School of Law in 1991 and graduated with honors from the University of Virginia in 1984.

Ohlhausen was on the adjunct faculty at George Mason University School of Law, where she taught privacy law and unfair trade practices. She served as a Senior Editor of the Antitrust Law Journal and a member of the American Bar Association Task Force on Competition and Public Policy. She has authored a variety of articles on competition law, privacy, and technology matters.

Ohlhausen lives in Virginia with her husband, Peter Ohlhausen, and their four children.

Dr. Paul Polakos

Cisco Fellow, Cisco Systems



Dr. Paul Polakos is a Cisco Fellow on the Service Provider Mobility CTO team at Cisco Systems. He joined Cisco in May 2012. Prior to that, Paul was the Director of Wireless Networking Research at Bell Labs, Alcatel-Lucent in Murray Hill, NJ and in Paris, France. He spent the past 28 years in Bell Labs working on a broad variety of topics in physics and in wireless networking research. Over his career, he led teams that were instrumental in the creation of key technologies for digital cellular systems including the concept of flat-IP cellular networks (including the basestation router, whose architecture became the foundation of LTE), femtocells, various forms of intelligent antenna and MIMO processing, dynamic network optimization, distributed algorithms for autonomic networking. He is currently leading a research team at Cisco in the study of Information Centric Networking as the foundation for future 5G mobile networks.

Peter Rysavy President, Rysavy Research



Peter Rysavy is the president of Rysavy Research LLC, a consulting firm that has specialized in wireless technology since 1993. Projects include analysis of spectrum requirements for mobile broadband, reports on the evolution of wireless technology, evaluation of wireless technology capabilities, strategic consultations, system design, articles, courses and webcasts, network performance measurement, test reports, and acting as expert in patent-litigation cases. Clients include more than 75 organizations.

Peter is a broadly published expert on the capabilities and evolution of wireless technology. He has written more than 150 articles, reports, columns, and white papers, and has taught more than 40 public wireless courses and webcasts. He has also performed technical evaluations of many wireless technologies including cellular-data services, municipal/mesh Wi-Fi networks, Wi-Fi hotspot networks, mobile browser technologies, wireless e-mail systems, and social networking applications.

From 1988 to 1993, Peter was vice-president of engineering and technology at Traveling Software (later renamed LapLink) where projects included LapLink, LapLink Wireless, and connectivity solutions for a wide variety of mobile platforms. Prior to Traveling Software, he spent seven years at Fluke Corporation where he worked on data-acquisition products and touch-screen technology. More information is available at http://www.rysavy.com.

Tom Sawanobori

SVP and Chief Technology Offficer, CTIA-The Wireless Association



Thomas (Tom) Sawanobori is Senior Vice President and Chief Technology Officer for CTIA, The Wireless Association. He is responsible for technology and technical matters concerning spectrum, network evolution, cybersecurity and other technical areas to aid CTIA's members and as a technical resource to policy makers. He has over 20 years of technology planning, network engineering and operational experience for Verizon, including lead planner for Verizon Wireless' 4G LTE network.

Mr. Sawanobori was Vice President of Network Planning at Verizon, where he was responsible for technology planning and capital budget management. He led the technology evolution of the network including spectrum planning, 3G/4G technology, LTE and LTE-Advanced, core network evolution, and enablement of new services such as VoLTE.

In addition to his 22 years at Verizon, he served in the U.S. Navy and Naval Reserve completing his 20 years as Commander. He was also a member of the Hughes Electronics Technical Staff.

Mr. Sawanobori holds a Bachelor of Science in Mechanical Engineering from Duke University and a Master of Engineering from California State University-Fullerton.

Jonathan Spalter Chair, Mobile Future



Jonathan Spalter has a long track record building innovative technology, mobile, Internet, and research companies in the U.S, Asia/Pacific, and Europe. He founded the independent investment research company, Public Insight, and was CEO of Snocap, the digital music technology company founded by the creators of Napster. He has held senior management roles at the Paris headquarters of Vivendi Universal, the global media and telecommunications group, where he was group senior vice president in charge of the company's public policy and external affairs teams, served as executive vice president of business development and strategy for Vivendi Universal Net, and CEO of company affiliate Atmedica Worldwide.

During the Clinton Administration, Spalter was unanimously confirmed by the U.S. Senate for the position of associate director at the US Information Agency, where he was also appointed chief information officer. He also served in the White House as director of public affairs for the National Security Council, and chief international affairs spokesperson and speech writer for Vice President Al Gore. He also co-founded and chaired the non-profit animation studio Climate Cartoons, which produced media content about global warming. One of its productions recently won the Emmy Award for National

Public Service Announcements/Broadband. Early in his career, Spalter held various productions and editorial roles in broadcast and cable – among them, foreign affairs reporter for PBS' MacNeil/Lehrer NewsHour. He graduated from Harvard College and Cambridge University.

Anders Svensson
Principle Solution Manager, Ericsson North America



Anders Svensson is Head of 4G Solutions/Principal Solution Manager for Ericsson North America. He works in Ericsson's practice for mobile broadband and is responsible for end-to-end mobile broadband solutions and network evolution.

Prior to his current role, Svensson worked for Ericsson as Principal Solution Manager and CTO in a Customer Unit. Svensson also served as a Product Manager for Ericsson's CDMA solution. Before moving to the United State in 2000, he worked in Sweden in System Management of Ericsson's packet core products.

Svensson holds a Master's degree in Engineering Physics from the Chalmers University of Technology in Gothenburg, Sweden.

David Wolter Assistant Vice President, Radio Technology and Strategy, AT&T Technology and Operations



Dave Wolter is the Assistant Vice President of the Radio Technology and Strategy group at AT&T Labs. He directs a team responsible for identification, assessment and evolution of leading edge radio technologies and architecture in support of AT&T's wireless businesses. The scope of his responsibilities includes mobile systems, Wi-Fi, and fixed wireless access systems with a focus on radio system performance. His group also supports strategic analysis, spectrum strategy, and standards development.

Dave began his career with what was then SBC in 1991. Prior to joining SBC, he was a Unit Chief in the Electronics Technology division of the McDonnell Aircraft Company where he performed avionics, communication, and reconnaissance systems simulation and led a team of engineers in the analysis and specification of advanced stealth aircraft communication systems.

Dave holds BS and MS degrees in Electrical Engineering from Washington University in St. Louis.

WORKSHOP LOCATION

The workshop will be held at:

Georgetown University School of Continuing Studies 640 Massachusetts Ave NW Washington, DC 20001

HOTEL AND TRAVEL INFORMATION

Nearby hotels include the following. We do not have a room block.

Marriott Marquis
901 Massachusetts Ave NW, Washington, DC 20001
http://www.marriott.com/hotels/maps/travel/wasco-marriott-marquis-washington-dc/

Embassy Suites 900 10th Street NW,

http://embassysuites3.hilton.com/en/hotels/district-of-columbia/embassy-suites-washington-dc-convention-center-WASCCES/index.html

Marriott Renaissance 999 Ninth St NW

http://www.marriott.com/hotels/travel/wasrb-renaissance-washington-dc-downtown-hotel/

Hampton Inn 901 6th Street

 $\underline{http://hamptoninn3.hilton.com/en/hotels/district-of-columbia/hampton-inn-washington-downtown-convention-center-WASHHHX/index.html$

Hotel Monaco 700 F St NW http://www.monaco-dc.com/

REGISTRATION

The registration deadline is noon, October 13, 2015.

Click here to register using our Eventbrite registration process.

Click here to see a current list of members.

(Normally: Workshops are intended primarily for WTA members. However, non-member organizations may attend for a discounted fee of \$295 per person if registering one month or more before the workshop, otherwise \$495 if less than a month before the workshop. This fee can be applied towards future membership. Executive-level members may send five people, associate-level members may send two people and affiliate-level members may send one person without incurring meeting charges.)

There is no attendance charge for members of the press or government employees.

If you intend to come, please register soon.

INFORMATION FOR PRESENTERS AND PANELISTS

The following information is for people presenting at the WTA workshop:

- Presentations: Approximately 15 minutes before panel discussion.
- Presenters must provide their presentations (PDF or PPT) at least one week prior
 to the workshop to allow for copying to the members area of the WTA Web site, as
 well as to allow detailed questions for discussion.

- Emphasis should be on industry and technology at large, versus selling your product (limit of 3 slides). Consider items such as compatibility, technical alternatives, standardization, deployment considerations, interoperability, certification and adoption.
- Generally, a dynamic and attentive audience of key industry stakeholders attend each workshop, representing a broad spectrum of the mobile computing industry, including operators, infrastructure vendors, device vendors, middleware providers, policy makers, and application developers.
- We will provide a video projector and computer for presenting. Presenters should use their own presentation templates.
- Because WTA workshops are considered public meetings, please do not include any confidential or proprietary information. Please do not mark your presentations with any terminology indicating confidential or proprietary information.

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