EVENT PROGRAM

EXECUTIVE FORUM

**Connecting and Inspiring Leaders
in Optical Communications**

5 March 2012
JW Marriott – Los Angeles, California, USA
Held in conjunction with OFC/NFOEC

Drive
transformational
change

KEYNOTE SPEAKER
Ihab Tarazi, Vice President,
Global Network Planning,
Verizon

POST-EVENT MATERIALS
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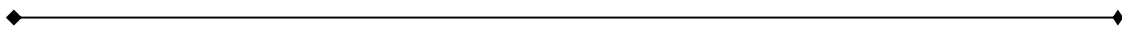
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EXECUTIVE FORUM 2012

Connecting and Inspiring Leaders in Optical Communications

JW Marriott Los Angeles
Los Angeles, California, USA
5 March 2012

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The 2012 Executive Forum, held in conjunction with OFC/NFOEC, provides industry executives with networking opportunities, insights, and analysis from the field's leading business and financial experts on tomorrow's trends and opportunities.

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Corporate Sponsors

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Picometrix, LLC (NYSE Amex: API) has been a leading supplier of high-speed optical receivers and detectors since 1992, serving the telecommunications, data communications, and T&M markets. Our products are found inside a broad range of optical equipment from transmission systems to test equipment for the laboratory and the manufacturing floor and service provider systems. We are vertically integrated from material growth through hybrid assembly and high-speed test.

Picometrix is dedicated to serving our customers by providing high performance products in standard and custom configurations. Our PIN, APD and waveguide based products offer industry leading performance and address the entire range of 10Gbps, 40Gbps and 100Gbps optical communication applications for a variety of modulation formats including NRZ, RZ, ODB, DPSK, DQPSK and DP-QPSK.

Opnext

Opnext (NASDAQ:OPXT) is the optical technology partner of choice, supplying systems providers and OEMs worldwide with one of the industry's largest portfolios of 10G and higher next generation optical products and solutions. Opnext's industry expertise, future-focused thinking and commitment to research and development combine in bringing to market the most advanced technology to the communications, defense, security and biomedical industries. Formed out of Hitachi, Opnext has built on more than 30 years of experience in advanced technology to establish its broad portfolio of solutions and solid reputation for excellence in service and delivering value to its customers. For additional information, visit www.opnext.com.

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Founded in 2000, Light Reading (www.lightreading.com) is the leading online media, research, and focused event company, serving the $3 trillion worldwide communications market. Lightreading.com is the ultimate source for technological and financial analysis of the communications industry, leading the media sector in terms of traffic, content, and reputation. Light Reading produces nearly 20 targeted communications events including TelcoTV and TelcoTV Asia, Ethernet Expo New York and Ethernet Europe, and The Tower Summit at CTIA, as well as, focused one-day events tailored for cable, mobile, and wireline executives in the US, Europe, India, and China.

2012 Executive Forum Planning Committee

❖ Dana Cooperson, Vice President and Practice Leader, Network Infrastructure, *Ovum*

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❖ Reg Wilcox, Vice President Network Marketing and Product Management, *Huawei Technologies USA*

Thank you to the dedicated committee for your time and efforts in developing an outstanding program.

The 2012 Executive Forum is produced by OSA

The Optical Society

Uniting more than 130,000 professionals from 175 countries, the Optical Society (OSA) brings together the global optics community through its programs and initiatives. Since 1916 OSA has worked to advance the common interests of the field, providing educational resources to the scientists, engineers and business leaders who work in the field by promoting the science of light and the advanced technologies made possible by optics and photonics. OSA publications, events, technical groups and programs foster optics knowledge and scientific collaboration among all those with an interest in optics and photonics. For more information, visit www.osa.org.

AGENDA AT-A-GLANCE

5 March 2012

07:00 – 12:00	Registration
07:30 – 08:30	Breakfast
08:30 – 08:45	Welcome and Opening Remarks
08:45 – 09:30	Keynote Speaker: Ihab Tarazi, Verizon
09:30 – 11:00	Panel 1: Exploding Bandwidth's Impact on the Network: 100G and Beyond
11:00 – 11:15	Coffee Break – Sponsored by: Opnext
11:15 – 12:15	Panel 2: Data Center Innovation
12:15 – 13:15	Networking Lunch
13:15 – 14:30	Panel 3: Six Technologies to Watch: Start-Ups Tell Their Story
14:30 – 15:00	Coffee Break
15:00 – 16:00	Panel 4: Mobile Broadband Evolution: Business and Technology Requirements for Meeting Service Demands
16:00 – 17:30	Panel 5: The (Gross) Margin Challenge in the Optical Components Industry - Reasons, Solutions, The Future
17:30	Closing Comments
17:30 – 19:30	Networking Reception – Sponsored by: Picometrix

KEYNOTE PRESENTATION

Keynote Presentation: 5 March 2012; 08:45 – 09:30

Ihab Tarazi, Vice President, Global Network Planning, *Verizon*

Speaker Biography

Ihab Tarazi is a recognized leader in the global telecommunications industry, providing a unique blend of talent and expertise in managing the technology and development underpinnings of one of the world's largest facilities-based telecommunications networks. As Vice President of Verizon's Global Network Planning organization, Tarazi oversees a responsive and dynamic global team who deliver results that combine leading edge and innovative technology with business goals into a high performance network around the world.

Tarazi is responsible for the development of Verizon's Optical, IP and Ethernet global network capabilities, delivering high speed wireless and FiOS broadband access on a converged high performance network and supporting multiple products and classes of service globally in 160 countries. Tarazi is driving the innovation and convergence of Optical and Ethernet networks to support the growth of Mobile, Video and Cloud network demand.

Tarazi is a graduate of the University of Maryland and has a Master's Degree in Telecom Management from Southern Methodist University (SMU) in Dallas, Texas. Tarazi is a Board Member of Southern Cross Cable Network and a Board Member of Australia Japan Cable. His organization holds many key leadership positions in distinguished industry forums.

PANEL DISCUSSIONS

Panel 1: Exploding Bandwidth's Impact on the Network: 100G and Beyond

5 March 2012; 09:30 – 11:00

Moderator

❖ Gurinder Parhar, Chief Business Officer, *Triple Ring Technologies*

Speakers

❖ Paul Baniewicz, Vice President, Optics - North America Region, *Alcatel-Lucent*

❖ Joseph Berthold, Vice President, Network Architecture, Office of the CTO, *Ciena*

❖ Daniel Blumenthal, Director, *Terabit Optical Ethernet Center (TOEC)* and Professor, ECE, *University of California at Santa Barbara*

❖ Dan Sadot, Founder and CTO, *MultiPhy*

❖ Kathy Tse, Director, Photonic Technology Planning, *AT&T*

Panel Description

Most optical networks today have been designed for 10/40G transport, but where are these networks headed? As mobile, social networking, and video content use increases, these optical networks will need to evolve to keep up with the increased demands. 100G networks are being designed and deployed now, but as components continue to mature, how will these networks transform? Will a 100G-based network be enough for the next 3-5 years or will it be like 40G is today, a stepping stone to 400G/1T transport? What are anticipated volumes of 100G (and beyond) over the next 5 years and how will these parts compare cost-wise with 40G components today? This panel will discuss network deployments, transmission technologies and the 100G (and beyond) component industry. A special focus will be on the challenge to move beyond 100G transport.

Panel 2: Data Center Innovation

5 March 2012; 11:15 – 12:15

Moderator

 ❖ Eve Griliches, Managing Partner, *ACG Research*

Speakers

 ❖ Bikash Koley, Technical Lead & Manager, Network Architecture, *Google Inc.*

 ❖ Donn Lee, Senior Network Engineer, *Facebook*

 ❖ Paul Savill, Senior Vice President, Global Core Product Management, *Level 3 Communications*

Panel Description

This panel will focus on innovation at the data center level that is needed to support the evolving needs of 21st century communications: As traffic grows and changes and voice becomes just a different type of data, does the central office, in essence, become a specialized data center? What are the implications of software and infrastructure services moving to the cloud and of end users' desire for more and better content delivered with a better quality of experience, regardless of location or device? We'll discuss equipment, interconnects, and services innovation in the "central office of the future."

Panel 3: Six Technologies to Watch: Start-Ups Tell Their Story

5 March 2012; 13:15 – 14:30

Moderators

- ❖ Albert Kim, Managing Director, *Investor Growth Capital*

- ❖ Shoa-Kai Liu, Senior Advisor, *Rustic Canyon Partners*

Speakers

- ❖ Xiangdong Cao, CEO and Co-Founder, *Hongtuo New Technologies*

- ❖ Matthias Tom Frei, Founder and CEO, *Micram Microelectronic GmbH*

- ❖ Raj Shanmugaraj, President and CEO, *Acacia Communications, Inc.*

- ❖ Paul Voois, Chief Strategy Officer, *ClariPhy*

- ❖ Steve West, CTO, *Cyan*

- ❖ Greg Young, CEO and President, *Luxtera, Inc.*

Panel Description

The photonic industry continues to be a very dynamic market, and rapid innovation requires a constant flow of new technologies, many of which are introduced by start-up companies. A panel of system, sub-system and component vendors will showcase their transformational technologies and their vision on how it will impact the market. Find out how companies strategically maneuver through the start-up phase to augment their product line and enhance their customer base with new technology.

Panel 4: Mobile Broadband Evolution: Business and Technology Requirements for Meeting Service Demands

5 March 2012; 15:00 – 16:00

Moderator

❖ Rob Risser, COO & CFO, *Advanced Photonix, Inc. (API)*; President, *Picometrix, Inc., an API company*

Speakers

❖ Erik Ekudden, Vice President & Head of Group Technology Strategies, *Ericsson*

❖ Madan Jagernauth, Vice President, Wireless Marketing and Product Management, *Huawei Technologies*

❖ Prakash Sangam, Senior Manager – Technical Marketing, *Qualcomm Inc.*

Panel Description

Mobile broadband technology has enabled a whole suite of applications on a wide range of connected devices. As 4G mobile infrastructure is deployed, it creates the need for more advanced bandwidth backhaul infrastructure, mobile/landline interconnection, and innovative consumer electronics devices. In this session, panelists from wireless carriers, consumer electronics products, service operators and wireless chipset providers will address the business and technological drivers behind mobile broadband evolution and how mobile broadband service innovations demand next generation optical communications technology.

Panel 5: The (Gross) Margin Challenge in the Optical Components Industry – Reasons, Solutions, The Future

5 March 2012; 16:00 – 17:30

Moderator

- ❖ Reg Wilcox, Vice President Network Marketing and Product Management, *Huawei*

Speakers

- ❖ Alexei A. Andreev, Managing Director, *Harris & Harris Group, Inc.*

- ❖ Harry Bosco, Chairman and CEO, *Opnext*

- ❖ Ron Johnson, Director Architecture and Technology, Converged Optical and Routing Business, *Cisco Systems*

- ❖ Jerry S. Rawls, Executive Chairman, *Finisar*

- ❖ Natarajan 'Subu' Subrahmanyan, Managing Director, *TheJudaGroup*

Panel Description

The optical component industry has suffered from significant Gross Margin pressure consistently over the past decade (since the bursting of the bubble). Even industry leaders have trouble sustaining GMs above 30%. That is despite the fact that modern optical components are among the most technologically advanced products mankind produces. This panel aims to discuss this particular challenge of the industry, the reasons behind it, and possible ways forward that may allow GMs to float up to levels of other comparably advanced technology sectors.

SPEAKER AND COMPANY PROFILES

Alexei A. Andreev, Managing Director, *Harris & Harris Group, Inc.*

Alexei Andreev has served as an Executive Vice President and as a Managing Director since March 2005. From 2002 to March 2005, he was an Associate with Draper Fisher Jurvetson (DFJ), a venture capital firm, where he was exclusively focused on nanotechnology and material science investment opportunities. While at DFJ, he played an integral role in sourcing and funding EoPlex, Intematix, Solicore and D-Wave Systems, for which he served as an active Board Director or Observer. Previously, he worked for TLcom Capital Partners, a London-based venture capital fund backed by Morgan Stanley. Prior to that, he was employed by Renaissance Capital Group/Sputnik Funds, a venture capital fund in Moscow, Russia. Before he started his business career, he was a researcher at the Centre of Nanotechnology, ISAN (RAS), in Troitsk, Russia, where he focused on optical and electrical properties of Quantum Dot heterostructures. He graduated from the Department of Theoretical Physics of Moscow Steel & Alloys Institute (Ph.D.), where he was a recipient of the Scholarship for Outstanding Young Scientists of Russian Academia of Sciences, the Scholarship from the International Center of Fundamental Physics and Soros Scientific Foundation. He also graduated from Moscow Steel & Alloys Institute (B.S.) with honors in Engineering/Material Sciences and from Stanford Graduate School of Business (M.B.A.).

About Harris & Harris Group, Inc.

Harris & Harris Group, Inc.®, is a publicly traded venture capital firm that specializes in making investments in companies commercializing and integrating products enabled by nanotechnology and microsystems.
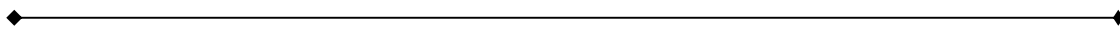
Paul Baniewicz, Vice President, Optics – North America Region, *Alcatel-Lucent*

Paul Baniewicz currently manages the optical competency center for Alcatel-Lucent North America. With this role, he is responsible for business development and network solution activities for Alcatel-Lucent's Optics Division. During the first half of his 25 year career with Alcatel, Baniewicz focused on research and development holding various engineering and senior management positions in the development of Alcatel's access products and market leading digital cross-connect programs. More recently, Baniewicz was responsible for Alcatel's North American network and product strategy organization where he defined product direction and investments for the optical product portfolio. He holds patents in distributed mesh-based restoration algorithms. Baniewicz has a BS in electrical engineering / computer science from Marquette University.

About Alcatel Lucent

Alcatel Lucent is engaged in mobile, fixed, Internet Protocol (IP) and optics technologies, applications and services. The Company is a partner of service providers, enterprises, industries and governments worldwide. Alcatel-Lucent includes Bell Labs centers of research in communications technology. Its operations are in approximately 130 countries. By leveraging its transport innovation leadership, the Optics Division plays a key role in the foundation of Alcatel-Lucent's vision of a high leverage network for application enablement.

Joseph Berthold, Vice President, Network Architecture, Office of the CTO, *Ciena*

Joseph Berthold is Vice President, Network Architecture at Ciena, where he has worked since 1997. There he contributes to the understanding of future network architecture directions, the definition of CIENA's networking products, and is responsible for coordination of CIENA's work in industry standards. He is a Fellow of the IEEE. He is a member of the Board of Directors of ATIS (Alliance for Telecommunications Industry Solutions). He has been a long term contributor to OFC/NFOEC and currently supports its long range planning activity. Prior to Ciena, Berthold held various research and development positions at Bell Labs and Bellcore from 1977-1997. He received a PhD in Physics from Brown University in 1976, and did postdoctoral research at Cornell University from 1975-1977.

About Ciena

Ciena Corporation, the network specialist, offers leading network infrastructure solutions, intelligent software and a comprehensive services practice. Our portfolio of software-centric optical and Ethernet platforms combines network element programmability, operating system commonality and management unification, and Carrier Ethernet-based transformation to enable our customers to change the way they compete. Our solutions form the foundation of many of the largest, most reliable and sophisticated service provider, enterprise, government, and research and education networks across the globe.

Daniel Blumenthal, Director, *Terabit Optical Ethernet Center (TOEC)* and Professor, ECE, *University of California at Santa Barbara*

Daniel J. Blumenthal is Professor in the Department of Electrical and Computer Engineering at the University of California, Santa Barbara. Blumenthal is Director of the Terabit Optical Ethernet Center (TOEC). He serves on the Board of Directors for National LambdaRail and the Internet2 Architecture Advisory Council. He is a co-founder of Calient Networks and Packet Photonics, Inc. Blumenthal's research interests are in optical communications, photonic packet switching and all-optical networks, all-optical wavelength conversion and regeneration, ultra-fast communications, InP Photonic Integrated Circuits (PICS) and nanophotonic device technologies. He has authored or co-authored more than 350 papers, holds 7 patents and is co-author of Tunable Laser Diodes and Related Optical Sources (IEEE Wiley, 2005). Blumenthal is a Fellow of the IEEE and Fellow of the OSA. He is recipient of a Presidential Early Career Award for Scientists and Engineers from the White House, a National Science Foundation Young Investigator Award, and a Office of Naval Research Young Investigator Program Award.

About Terabit Optical Ethernet Center

The Terabit Optical Ethernet Center (TOEC) at the University of California, Santa Barbara, provides the collaborative environment for academia and affiliated industry leaders, to develop the technology necessary for a new generation of Ethernet a thousand times faster, and more energy efficient, than today's advanced networks. The Center is aiming for 1 Terabit Ethernet over optical fiber—1 trillion bits per second—by 2015, with the ultimate goal of enabling 100 Terabit Ethernet by 2020. To meet the complex requirements of future Terabit Ethernet, the Center's research will focus on Green photonic integrated circuits (PICs), high-performance electronics, Ethernet protocols, systems and Terabit applications.

Harry Bosco, Chairman and CEO, *Opnext*

Harry Bosco has a rich background in fiber optic technology and corporate leadership. Before joining Opnext in September of 2000, he was group president of optical networking at Lucent Technologies and also served there as chief technical officer for consumer products, vice president of the wired technology and initial production center, president of the network systems broadband networking unit, chief operating officer for the optical networking group, and chief technical officer for the service provider networks. During his distinguished thirty-five year tenure, Bosco led the development of Lucent's core data networking architecture, helped to put together the company's broadband networking strategy, and deployed Lucent's optical networking product portfolio.

About Opnext, Inc.

Opnext (NASDAQ:OPXT) is the optical technology partner of choice supplying systems providers and OEMs worldwide with one of the industry's largest portfolios of 10G and higher next generation optical products and solutions. The Company's industry expertise, future-focused thinking and commitment to research and development combine in bringing to market the most advanced technology to the communications, defense, security and biomedical industries. Formed out of Hitachi, Opnext has built on more than 30 years of experience in advanced technology to establish its broad portfolio of solutions and solid reputation for excellence in service and delivering value to its customers. For additional information, visit www.opnext.com.

Xiangdong Cao, CEO and Co-Founder, *Hongtuo New Technologies*

Xiangdong Cao is the CEO and co-founder of Hongtuo New Technologies, where he leads the strategy and technology development. Prior to this role, he served as Chief System Architect at T-Networks from 2001-2002, responsible for system applications of 40G InP modulators. Cao was the co-founder and Chief Scientist of Qtera, and was responsible for design and development of ultra-long haul DWDM system. Prior to co-founding Qtera, he was DMTS at Siemens and responsible for PMD compensation for DWDM systems. Cao obtained his Ph.D. from the University of Rochester, continued his postdoc at the University of Michigan working on 100G all-optic switching.

About Hongtuo New Technology

Hongtuo New Technology, founded in 2008, is a high-tech start-up focusing on photonic solutions for ultra-high capacity DWDM systems. The core technologies of the company are related to ultra-high accuracy dispersion management for high-speed(>100GBit/s) optical transmission systems with the benefits of significant reductions in cost and power consumption. The company's next generation dispersion management products will reach general availability starting Q2 in 2012.

Erik Ekudden, Vice President & Head of Group Technology Strategies, *Ericsson Inc.*

Erik Ekudden is Vice President, and Head of Technology Strategies, for the Ericsson group. Since 2005, he has been responsible for Ericsson's technology strategies and industry activities. He is based in San Jose, USA. Prior to assuming his current position, Mr. Ekudden held various positions within research and development in Ericsson, including research area director and vice president of standardization. He joined Ericsson in 1993, working on GSM and 3G. Ekudden holds a Master of Science degree in Electrical Engineering from the Royal Institute of Technology in Stockholm, Sweden.

About Ericsson

LM Ericsson Telephone Company provides communications equipment, professional services, and multimedia solutions to mobile and fixed networks operators worldwide. The Networks segment delivers radio access solutions that interconnect with devices, such as mobile phones, notebooks, and PCs; fixed access solutions for fiber and copper; and IP core network solutions, including softswitches, IP infrastructure for edge- and core routing, IP multimedia subsystem, and media gateways. This segment also offers transmission/backhaul; and microwave and optical transmission solutions for mobile and fixed networks, as well as offers network management tools for configuration, performance monitoring, security management, inventory management, and software upgrades.

The Global Services segment delivers managed services comprising network design and planning, network operations, field operations and site maintenance, and shared solutions, as well as consulting and systems integration, customer support, and network rollout services. The Multimedia segment provides IPTV solutions, video compression, on-demand solutions, content management systems, advertising, and interactive TV applications for operators, service providers, advertisers, and content providers; and business support systems, including revenue management, customer care, provisioning, device management, and analytics. This segment also offers service delivery platforms, communication suite, messaging, social media portal, and location-based services for consumers; and business communication solutions, such as business communication suite and brokering solutions that facilitate payment and distribution of content.

The ST-Ericsson segment develops and sells semiconductors and wireless platforms to handset manufacturers, mobile operators, and device manufacturers. The company was founded in 1876 and is headquartered in Stockholm, Sweden.

Matthias Tom Frei, Founder and CEO, *Micram Microelectronic GmbH*

Matthias Tom Frei founded Micram in 1991 while completing his Ph.D. in Electrical Engineering at Ruhr-University Bochum, Germany. He has more than 20 years of entrepreneurial and senior management experience and has founded several companies in both Germany and New Zealand, engaged in a variety of technology sectors including software, microelectronics design, cloud computing and software distribution. Under Frei's leadership, these companies have achieved multi-million Euro annual revenue success. His key roles have included CEO, CFO, CTO, VP of Marketing, VP of Sales, and Director. With his visionary approach, Frei has recently turned Micram,

already a successful high-speed SiGe design services company, into the now well-known creator of record-breaking VEGA ultrafast signal converters, the world's fastest ADCs and DACs.

About Micram Microelectronic

Founded in 1991, Micram leads in ultrafast silicon. Our VEGA ADC/DAC are the fastest on earth, delivering extraordinary power to visionary developers today, not years into the future. Our TIAs power leading 40G and 100G photo receivers. Micram UltraFastSiGe™ enables rapid development of leading-edge custom silicon. Micram: We design. You win.

Madan Jagernauth, Vice President, Wireless Marketing and Product Management, *Huawei Technologies*

Madan Jagernauth serves currently as Vice President of Wireless Marketing and Product Management at Huawei Technologies USA, with responsibility for the North American market. Jagernauth has seventeen years of experience in the wireless industry in various roles of increasing responsibility as a mobile broadband pioneer managing wireless access products from GSM/GPRS to WiMAX and LTE. Jagernauth's previous experience has also included roles in Technology and Business Development and Operations. Prior to joining Huawei, Madan was with Nortel Networks for 21 years and Honeywell for 9 years. Jagernauth holds a BSc and MSc Engineering degrees from Arizona State University and MBA in Telecommunications Management from University of Dallas.

About Huawei Technologies

Huawei is a leading global information and communications technology (ICT) solutions provider. Through our dedication to customer-centric innovation and strong partnerships, we have established end-to-end advantages in telecom networks, devices and cloud computing. We are committed to creating maximum value for telecom operators, enterprises and consumers by providing competitive solutions and services. Our products and solutions have been deployed in over 140 countries, serving more than one third of the world's population.

Ron Johnson, Director Architecture and Technology, Converged Optical and Routing Business, *Cisco Systems*

Ron Johnson has recently taken on the architecture and technology role in the newly formed Converged Optical and Routing Business Unit. Previously he led the Product Management team focused on optical transport products. He has focused on Service Provider product development for the last 12 years at Cisco. Johnson holds multiple patents related to Cisco's ROADM product offerings. His team is responsible for innovation and integration in DWDM, Packet and TDM technologies. Johnson has been in telecom for the last 16 years. Starting out in Pacific Bell/SBC where he obtained a large carrier operational perspective that has found its way into Cisco's optical portfolio.

About Cisco Systems

Cisco Systems, Inc. is the worldwide leader in networking for the Internet. Today, networks are an essential part of business, education, government and home communications, and Cisco Internet Protocol-based (IP) networking solutions are the foundation of these networks. Cisco hardware, software, and service offerings are used to create Internet solutions that allow individuals, companies, and countries to increase productivity, improve customer satisfaction and strengthen competitive advantage. The Cisco name has become synonymous with the Internet, as well as with the productivity improvements that Internet business solutions provide. At Cisco, our vision is to change the way people work, live, play and learn. Cisco (NASDAQ:CSCO) enables people to make powerful connections - whether in business, education, philanthropy, or creativity. Cisco hardware, software, and service offerings are used to create the Internet solutions that make networks possible - providing easy access to information anywhere, at any time. For more information visit www.cisco.com.

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Bikash Koley, Technical Lead & Manager, Network Architecture, *Google Inc.*

Bikash Koley currently leads the Network Architecture team at Google, where he is focused on network infrastructure scaling, optimization and reliability. In his current role, Koley is also responsible for creating the network technology road-map for Google. Prior to Google, Koley was the CTO of Qstreams Networks, a company he co-founded. He also spent several years at Ciena Corporation in various technical roles developing DWDM and Ethernet technologies. Koley is a frequent speaker in conferences and industry forums and is an active participant in various networking standard bodies. He received 8 patents related to various optical and networking technologies. Koley received a BTech from IIT, India; and MS and PhD degrees from the University of Maryland at College Park, all in Electrical Engineering.

About Google

Google's mission is to organize the world's information and make it universally accessible and useful. Google's innovative search technologies connect millions of people around the world with information every day. Founded in 1998 by Stanford Ph.D. students Larry Page and Sergey Brin, Google today is a top web property in all major global markets. Google's targeted advertising program – the largest and fastest growing in the industry – provides businesses of all sizes with measurable results, while enhancing the overall web experience for users. Google is headquartered in Silicon Valley with offices throughout North America, Europe, and Asia. For more information, visit www.google.com.

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Donn Lee, Senior Network Engineer, *Facebook*

Donn Lee is a senior network engineer at Facebook. His duties include designing networks, evaluating products, optimizing performance, and performing escalation troubleshooting. Previous to Facebook, Lee worked in Google's Network Architecture group for four years and during tremendous growth of Google's backbone, optical, and datacenter networks. While working as a consulting systems engineer at Cisco Systems (CCIE #3262) he worked on large global networks and wrote his book, Enhanced IP Services for Cisco Networks, which is published by Cisco Press. Lee holds a bachelor's degree in Electrical Engineering from UCLA.

About Facebook

Founded in February 2004, Facebook is a social utility that helps people communicate more efficiently with their friends, family and coworkers. The company develops technologies that facilitate the sharing of information through the social graph, the digital mapping of people's real-world social connections. Anyone can sign up for Facebook and interact with the people they know in a trusted environment. Facebook is a part of millions of people's lives all around the world. Facebook is a privately-held company and is headquartered in Palo Alto, Calif.

Jerry S. Rawls, Executive Chairman, *Finisar*

Jerry Rawls was elected Chairman of the Board in 2006. He has also served as President, Chief Executive Officer, and a member of the Board of Directors for Finisar Corporation from 1989 to 2008. From 1968 to 1989, he was employed by Raychem Corporation, a materials science and engineering company. At Raychem he held various management positions including Manager of Product Marketing, National Sales Manager, General Manager of the Aerospace Products Division, and General Manager of the Interconnection Systems Division. Rawls holds a B.S. in Mechanical Engineering from Texas Tech University and an M.S. in Industrial Administration from the Krannert Graduate School of Management at Purdue University. He is a member of Tau Beta Pi and Pi Tau Sigma engineering honorary societies.

About Finisar

Finisar Corporation is a global technology leader in optical communications components and subsystems. These products enable high-speed voice, video and data communications for networking, storage, wireless, and cable TV applications. Over the past two decades, Finisar has provided critical breakthroughs in optics technologies and has supplied system manufacturers with the production volumes needed to meet the exploding demand for network bandwidth and storage. Finisar's industry-leading optical products include transceivers/transponders, active cables, WSS ROADMs, optical instruments, and active and passive components. In 2008, Finisar merged with Optium Corporation, creating the world's largest supplier of optical communication components and subsystems. The company now delivers the industry's broadest product portfolio backed by world-class quality and reliability. Finisar's vertically integrated business model is ideally suited for delivering massive production volumes while providing ready access to most of the critical technologies needed to develop the next generation of products.

Dan Sadot, Founder and CTO, *MultiPhy*

Dan Sadot received his B.Sc., M.Sc., and Ph.D. (Summa Cum Laude) from the Ben Gurion University of the Negev, Beer Sheva, Israel, all in electrical and computer engineering, in 1988, 1990, and 1994, respectively. During 1994-1995, he was a Post- Doctorate Associate in the Optical Communication Research Laboratory at the Department of Electrical Engineering of Stanford University. His Ph.D. studies were supported by the Clore scholarship, and his post-doctorate was supported by both the Fulbright and the Rothchild scholarships. In 1995, Sadot joined the ECE department at Ben Gurion University where he started a new research program in optical fiber communications. In 2001 he was appointed as Associate Professor, and since 2009

he is a full professor. Sadot's current activities include digital signal processing in optical communications, coherent detection, optical OFDM, and dynamic WDM networks. Currently, Sadot is the Chairman of the ECE Department of the Ben Gurion University. He has published more than 150 papers in peer reviewed journals and conference proceedings. Sadot was the founder and CTO of three startup companies: TeraCross (in 1999), Xlight Photonics (in 2000), and MultiPhy (since 2007).

About MultiPhy

MultiPhy is a fabless semiconductor company that provides digital-signal-processing based integrated circuits for high speed networks. Founded in 2007, the company develops 40Gb/s and 100Gb/s CMOS chips for direct detect and coherent transmission solutions. The company is backed by Carmel Ventures, Vertex Venture Capital and Maayan Ventures. The transition from 10Gb/s networks to 40Gb/s and 100Gb/s, made necessary by the dramatic increase in network traffic, has pushed traditional techniques to their limits, as they can no longer achieve the required price-performance in metro, regional and long haul networks. New mixed signal CMOS integrated circuits which incorporate analog to digital conversion (ADC) and digital signal processing (DSP) are now required in order to implement transmission solutions that tolerate the fiber impairments at these high speeds (e.g. chromatic dispersion and polarization mode dispersion) at acceptable price points. MultiPhy has assembled the unique talent required to develop such advanced integrated circuits. Our team has world-class expertise in communications theory, optical communications, algorithms development, as well as analog, digital and mixed signal CMOS VLSI design. The company's differentiated patentable technology enables the development of cost effective, low power, high performance solutions at 40Gb/s and 100Gb/s.

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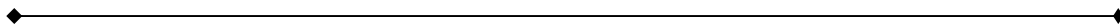
Prakash Sangam, Senior Manager – Technical Marketing, *Qualcomm Inc.*

Prakash Sangam is a senior manager in Qualcomm's Technical Marketing group, responsible for the development and communications of key messages for a variety of wireless technologies supported by Qualcomm. He spearheads the group's social media efforts and regularly contributes technology-focused blogs on Qualcomm's OnQTM Blog. His articles are published in many international magazines. Sangam joined Qualcomm in 1998 and has served in many key roles in engineering and marketing with a focus on developing markets. Prior to joining Qualcomm, he was at Ericsson, where he held a broad spectrum of business and technical roles. Prior to Ericsson, Sangam was at AT&T's Indian JV, helping them deploy some of India's early GSM networks. Sangam holds a bachelor's degree of engineering in electronics and communications from Karnatak University in India and a master's of business administration from San Diego State University.

About Qualcomm

Qualcomm Incorporated (NASDAQ: QCOM) is the world leader in 3G and next-generation mobile technologies. For more than 25 years, Qualcomm ideas and inventions have driven the evolution of digital communications, linking people everywhere more closely to information, entertainment and each other. For more information, visit Qualcomm's website, OnQ blog, Twitter and Facebook pages.

Paul Savill, Senior Vice President, Global Core Product Management, *Level 3 Communications*

Paul Savill is the Senior Vice President of Global Core Product Management for Level 3 Communications. In this role he sets the strategy and leads the product management of Level 3's optical networking, private line, Ethernet, IPVPN, dark fiber, subsea and professional services. His responsibilities also incorporate pricing, product development and product financial performance. Savill has more than twenty years of experience in the telecommunications industry and holds a Bachelor of Science degree in Electrical Engineering and a Master's degree in Business Administration.

About Level 3 Communications

With their highly reliable and secure network, Level 3 enables stronger connections around the globe by delivering integrated IP solutions that address customers' needs for scalability, flexibility and efficiency. Leveraging their expansive metro footprint and global reach, the Level 3 team of dedicated people exemplifies the company's commitment to partnership. Level 3 focuses on understanding customers' business challenges, building relevant worldwide network solutions, and delivering a seamless, industry-leading customer experience. Learn more: www.level3.com.

## Raj Shanmugaraj, President and CEO, *Acacia Communications, Inc.*

Raj Shanmugaraj brings more than 25 years in telecom and communications to Acacia Communications. Prior, he was Corporate Vice President, Alcatel-Lucent, responsible for business development in a variety of market segments in the Americas Region - including Optical Core Convergence and IPTV for Tier 2 markets. Earlier, Shanmugaraj served as Alcatel-Lucent Vice President of Optics, heading up the Business Development and Marketing activities in Americas Region. He was founder and CEO of Astral Point Communications, which was acquired by Alcatel-Lucent in 2002. Additionally, Shanmugaraj has held senior executive level positions at Picturetel and Motorola and holds an M.S. in Electrical and Computer Engineering from the University of Iowa.

About Acacia Communications

Acacia Communications was founded in 2009 by a group of experienced entrepreneurs. The Company vision is to accelerate a new era in optical transmission where for the first time powerful digital signal processing and high-speed optical design combine to enable reliable ultra-high speed fiber-optic connectivity ready for main stream deployments.

Acacia Communication is leveraging these advances to drive adoption of ultra-high speed optical interconnect at 100Gbps and beyond in a way that enables customers to rapidly bring transformative, cost-compelling, easy-to-use fiber optical transmission capabilities to their end customers – the service providers, carriers, and enterprises that power the world's information networks.

Acacia has assembled a world class team of innovative engineers and scientists with extensive experience to design, develop, test and deploy a uniquely competitive solution for long haul, regional and metro applications. The company headquarters are located in Maynard, Massachusetts. Acacia Communications is backed by a group of top tier VCs and strategic investors.

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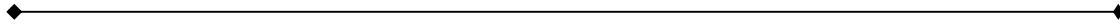
Natarajan 'Subu' Subrahmanyan, Managing Director, *TheJudaGroup*

Natarajan 'Subu' Subrahmanyan, CFA is a Managing Director and lead research analyst for communications equipment companies at Sanders Morris Harris Group. Subrahmanyan's research focuses on leading data and optical networking companies. He was featured on the Wall Street Journal's Best of the Street Analyst List in 2007, and was named the best up-and-comer in telecom equipment in the 2001 Institutional Investor polls. Subrahmanyan joined Sanders Morris in January 2003. Prior to joining Sanders Morris, Subrahmanyan was lead research analyst for data and optical networking companies at Goldman Sachs. He has also worked at Sutro & Co., where he covered the optical networking space and at First Union Securities prior to that. Subrahmanyan holds an MBA from the Owen School at Vanderbilt University and a B.S in Electrical and Electronics Engineering from Madras University.

About TheJudaGroup

TheJudaGroup, a division of Concept Capital Markets, LLC, provides capital markets services to the institutional investment management community. Our knowledge-driven sales and trading group provides institutions with outstanding liquidity and best execution in the US market, with a focus on providing the highest level of attention and client service. We trade primarily the securities of companies in our areas of focus with minimal impact on the markets while always protecting our client's anonymity in the market. TheJudaGroup is a market maker in just under 100 names, has significant daily flow and trades equities in the U.S. market. With a combined experience of over 200 years from our knowledgeable professionals, our sales, trading and execution professionals are consistently striving to add value for our institutional investors.

TheJudaGroup's research efforts cover U.S. equities, with an exclusive focus on Technology companies. Our focus is providing in-depth, objective research in communications equipment, optical, software, semiconductor related names, and other technology companies. Our analysts use a variety of quantitative and qualitative tools focused on market trends, product expertise, component pricing, in-field analysis and ongoing dialogue with the managements of the companies they cover. We utilize the latest technologies to deliver a research product that is timely, differentiated, and tailored to our institutional customer's needs. Our corporate access program provides our institutional clients with the ability to meet with companies and their management teams on a constant basis, including specialized field trips, industry conferences and non-deal roadshows. TheJudaGroup's banking professionals provide technology companies with advisory and underwriting services through equity & equity-linked financing and idea-driven M&A.

Kathy Tse, Director, Photonic Technology Planning, *AT&T*

Kathy Tse has been working on various photonic projects at AT&T for 25 years. She is currently leading a team that is responsible for the planning of new Metro and Core photonic technologies for the AT&T network. She has worked on a number of key projects including AT&T's CNI Mesh network and the ULH backbone. Tse has been involved in OFC/NFOEC in a number of roles, including leading 2 committees and planning Service Provider Summit. Tse has her BSc in Engineering from Cornell University and her PhD from Brown University.

About AT&T

AT&T Inc. (NYSE:T) is a premier communications holding company. Its subsidiaries and affiliates – AT&T operating companies – are the providers of AT&T services in the United States and around the world. With a powerful array of network resources that includes the nation's fastest mobile broadband network, AT&T is a leading provider of wireless, Wi-Fi, high speed Internet and voice services. A leader in mobile broadband, AT&T also offers the best wireless coverage worldwide, offering the most wireless phones that work in the most countries. It also offers advanced TV services under the AT&T U-verse® and AT&T │DIRECTV brands. The company's suite of IP-based business communications services is one of the most advanced in the world. In domestic markets, AT&T Advertising Solutions and AT&T Interactive are known for their leadership in local search and advertising. In 2010, AT&T again ranked among the 50 Most Admired Companies by FORTUNE® magazine.

Paul Voois, Chief Strategy Officer, *ClariPhy*

Paul Voois co-founded ClariPhy in 2002 and served as its Chief Executive Officer until 2011. He previously served as CEO of 8x8, Inc. (NASDAQ:EGHT), a provider of voice over IP technology. Before assuming the CEO role at 8x8, he led the development of 8x8's consumer videophone product line. Voois received an M.S. and Ph.D. in Electrical Engineering from Stanford University, where his research focused on digital communications and signal processing. He received a B.S. in Electrical Engineering from Penn State University, summa cum laude. Voois is an inventor on 14 issued U.S. patents.

About ClariPhy Communications, Inc.

ClariPhy Communications, Inc. is a fabless semiconductor company developing mixed signal, advanced digital signal processing (MXSP) SoC targeting 10, 40, and 100G networks in enterprise backbone, enterprise data center and telecom environments. ClariPhy launched the first merchant 40G coherent SoC for high volume metro, regional, and long haul optical networking (ON) applications. ClariPhy's low power, CMOS SoC enable IT and network management to significantly improve network performance and increase faceplate port density all while lowering system cost. ClariPhy is leading the transition from direct detection systems deployed with low reach and minimal flexibility to the new coherent systems spanning long distances with more hops while mitigating dispersion. ClariPhy's investors include Nokia Siemens Networks, Oclaro, Norwest Venture Partners, Onset Ventures, and Allegis Capital. ClariPhy is headquartered in Irvine, California with offices in Los Altos, California and Cordoba, Argentina. For more information, please visit http://www.clariphy.com.

Steve West, CTO, *Cyan*

Steve West is Co-Founder and Chief Technology Officer of Cyan, a provider of packet-optical networking solutions for wholesale, regional and metropolitan networks. West's 30 years of product development experience includes industrial and telecom semiconductors, hardware, software and systems. His technology focus is the challenge created by the convergence of packet and optical networking. Network operators are faced with a dizzying array of new technology options, including ROADM, OTN, Ethernet, PBB, and MPLS-TP variants. The complexity of technology choice is compounded by the innovator's dilemma prioritizing investment in new packet-optical solutions versus sustaining old SONET/SDH and IP/MPLS equipment. West's mission is to develop hardware and software that tame this complexity and simplify the transition. West has B.Sc. and M.Sc. Electrical Engineering degrees from the University of the Witwatersrand, in Johannesburg, South Africa.

About Cyan

Cyan is an industry-leading, global innovator of multi-layer packet-optical transport platforms, operations support software and SaaS solutions, and professional services. Cyan integrates our hardware with leading-edge software to provide complete turn-key solutions for multi-layer, multi technology, Service Level Aware Networking. Cyan's customers include multi-million line local access service providers, regional transport providers, Data Center Operators, and cable MSOs. Cyan products support high capacity business Ethernet services, wireless backhaul, data center networking, and middle-mile backhaul in Metropolitan networks. Cyan helps network operators scale their network capacity, extend their range of service offerings, while simplifying their network operations. Cyan is based in beautiful Sonoma County, the crucible for leading edge networking technologies. For additional information, please visit www.cyaninc.com or follow Cyan on Twitter at http://twitter.com/CyanNews.
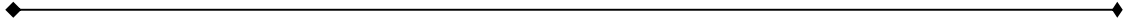
Greg Young, CEO and President, *Luxtera, Inc.*

Greg Young is a twenty year veteran of the semiconductor industry and has spent four years at Luxtera leading the transition of Luxtera from the industry leading pioneer of Silicon Photonics research to shipping Silicon Photonics products in volume. Young is now scaling Luxtera to service the widespread adoption of Silicon Photonics as optical transceivers are being embedded into high volume computing and networking infrastructure systems. Prior to joining Luxtera, he was Vice President and General Manager of the High Speed Ethernet Controller and HD Media PC Video business units at Broadcom. Before Broadcom, Young was at Intel where he held several engineering, marketing and leadership positions.

About Luxtera

Luxtera was founded in 2001 and has been an early pioneer of Silicon Photonics. Luxtera continues to have strong Venture backing from August Capital, NEA, Seven Rosen Funds and Lux Capital and Strategic backing a few Industry Giants. Silicon Photonics allows the

use of traditional CMOS device technology to drastically reduce the cost and complexity of today's optical systems. With key interconnect technologies like 100GbE and PCIe 4.0 being designed into tomorrow's computing and networking platforms, copper is hitting boundaries in density, distance and power required to deliver these connections. Silicon Photonics solves these customer challenges elegantly, in addition to future proofing chassis for several generations of products. Luxtera is focused on delivering solutions to these high volume markets as Silicon Photonics often offers the only viable solution for today's system developers developing tomorrow's compute and networking equipment.

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