SATURDAY

FULL CONFERENCE PROGRAM | SATURDAY, 19 JANUARY 2019
UP-TO-DATE COMPLETE PROGRAM: PTC.ORG/PTC19

11:15–12:15   **PTC BOARD OF GOVERNORS & ADVISORY COUNCIL MEET & GREET LUNCH** | MPCC, South Pacific 3

All outgoing, incoming, and continuing BG and AC members are welcome to attend.

12:15–14:15   **PTC BOARD OF GOVERNORS & ADVISORY COUNCIL LEADERS' FORUM** | MPCC, South Pacific 3

Agenda: Strategic topics and issues related to the development of PTC.

All outgoing, incoming, and continuing BG and AC members are encouraged to attend.

14:00–17:00   **CONFERENCE REGISTRATION** | MPCC, Coral Lounge
Sponsored by IRON MOUNTAIN® DATA CENTERS

PTC HUB/PAVILION REGISTRATION | MPCC, Coral Lounge

14:30–17:00   **PTC BOARD OF GOVERNORS MEETING I** | MPCC, South Pacific 4
For all outgoing, incoming, and continuing Board of Governors members only.

15:00–15:30   **NETWORKING BREAK** | MPCC, Coral & South Pacific Lounge

18:30–20:00   **PTC'19 MEMBERS' SOIRÉE** | Moana Surfrider, Diamond Lawn & Terrace

Roundtrip transportation will be provided from the Hilton Hawaiian Village® Grand Islander Bus Depot to the Moana Surfrider. Please review your RSVP confirmation email.

By invitation only.

07:30–08:30	**PTC MEMBERSHIP COMMITTEE MEETING**	Tapa Tower, Honolulu 3

08:00–16:00 **COFFEE CART OPEN** | MPCC, Coral 3
Sponsored by QTS

SMOOTHIE CART OPEN | MPCC, Coral 3
Sponsored by ADVA Optical Networking

08:00–17:00 **PTC HUB/PAVILION REGISTRATION** | MPCC, Coral Lounge

08:00–18:00 **CONFERENCE REGISTRATION** | MPCC, Coral Lounge
Sponsored by IRON MOUNTAIN® DATA CENTERS

08:00–19:00 **PTC HUB OPEN** | MPCC, Coral 3

08:30–11:00 **PTC ADVISORY COUNCIL MEETING** | Tapa Tower, Honolulu 1
For all outgoing, incoming, and continuing Advisory Council members. PTC Members are invited to attend with advance RSVP to the Secretariat.

09:00–10:15 **WORKSHOPS** | MPCC

09:00–10:15 Submarine Cable Workshop 1: *Global Submarine Cable Update* | Coral 1 & 2
Sponsored by DRFORTRESS *Hawaii's Premier Data Center and Digital Hub*

Join us for PTC's can't-miss annual update of what's happening across the globe with new cable projects and regulation. The number of cables being constructed and planned now is larger than we've seen for many years, as OTT's, private entrepreneurs, and carriers expand the global network in nearly every ocean! This year, as we're seeing more data centers connected to the newest cable networks, we'll get the update from cable/network experts as well as data center experts!

Moderator:
ANTHONY MOSLEY, Director of Business Development, Ocean Specialists, Inc., *Guam*

Presenters:
KENT BRESSIE, Partner, Harris, Wiltshire & Grannis LLP, *USA*
ANDREW HANKINS, Head of Architecture and Strategic Engineering, Telstra, *Hong Kong SAR China*
ARTUR MENDES, CCO, Angola Cables, SA, *Angola*
GIL SANTALIZ, Founder & CEO, NJFX, *USA*
KEITH SHAW, VP, Business Development EMEA, Equinix, *Netherlands*

09:00–10:15 Research Workshop: *Understanding the Asian OTT TV Markets: How Local Audiovisual Industry Players Compete with Overseas OTT Giants* | South Pacific 2

What are major factors to restrict U.S. OTT's market power in Asia: government regulations, market power of the domestic incumbents, or consumer behaviors? What are the developments of OTT industry in Asian countries? How have their incumbent players (e.g., local broadcasters, telecommunication operators, and cable television operators) or new entrants have involved with OTT and developed homegrown services in Asia? What are the strategies for the local OTT TV providers to compete with overseas giants?

SUNDAY

Panelists from Asia will discuss these important issues to shed light on the recent developments of Asian OTT TV industry. They will provide insights and analyses about how the stakeholders in various socio-technical subsystems shape the multi-faceted trajectories of OTT TV industry in five Asian countries that face strong competition from domestic players and foreign OTT TV providers.

Moderator:

MINORU SUGAYA, Visiting Professor, Media Policy and Economics, Hakuoh University, *Japan*

Presenters:

SUWICHIT (SEAN) CHAIDAROON, Senior Lecturer, Public Communication, School of Communication, University of Technology, Sydney, *Australia*

TRISHA T.C. LIN, Associate Professor, Department of Radio and Television College of Communication, National Chengchi University, *Chinese Taipei*

JIA LIU, Ph.D. Student, Taiwan National Chengchi University, *Chinese Taipei*

YOKO NISHIOKA, Professor, Global Media Studies, Komazawa University, *Japan*
How does the Japanese Broadcasting Industry Respond to the Emergence of OTT-V? - Examination Through Comparative Institutional Analysis

FERNANDO PARAGAS, Associate Professor, Department of Communication Research, University of the Philippines Diliman, *Philippines*

10:15–10:45 **NETWORKING BREAK** | MPCC, Coral & South Pacific Lounge
Sponsored by ROGERS

10:45–12:00 **WORKSHOPS** | MPCC

10:45–12:00 Submarine Cable Workshop 2: *Challenging the Industry Norms: Are Yesterday's Truths Right for Tomorrow?* | Coral 1 & 2

A panel of experts from across the industry, including carriers, suppliers, and content providers will debate a spectrum of the submarine cable industry's age-old adages. Come and ask your own questions about whether your least favorite truth might finally become fiction!

Moderator:

ELAINE STAFFORD, Managing Partner, DRG Undersea Consulting, *USA*

Presenters:

MARK ENRIGHT, Vice President, Customer Solutions, TE SubCom, *USA*
TONY FRISCH, Chief Technology Officer, Xtera, Inc., *USA*
ALICE SHELTON, Senior Consultant – Global Submarine Systems, Ciena, *United Kingdom*
MASAHIRO SOMA, Chief Technology Officer, RTI, *Japan*
TIM STUCH, Global Optical Architect, Facebook, *USA*
ALASDAIR WILKIE, Chief Technology Officer, Deep Blue Cable, *Santa Lucia*

SUNDAY

10:45–12:00   Pacific Workshop: *From Pipes to Platforms; The Pacific Context* | South Pacific 1
Organized by

With new investment projects to implement submarine cable connectivity to all Pacific Island economies, and complemented by next generation high speed hybrid satellites, the Pacific Islands stand today much closer to the reality of diminishing the digital gaps and joining the family of economies in the information superhighway. Building strategies to advance from beyond these connectivity will need to be in place, modernizing access networks, develop application layers, and the necessary transformation required. What will be some of the key considerations for the Pacific for strategies, technology, and policies? How would the small island countries leverage on the sub-regional relationships and build confidence for regional approach? What should the islands prioritize?

This session invites discussions and views from eminent persons who can influence the key industry players, with contributions from the audience.

Moderator:
TBD

Presenter:
MALCOLM JOHNSON, Deputy Secretary-General, ITU, *Switzerland*

Panelists:
TBD

10:45–12:00   Research Workshop: *Emerging Business Models* | South Pacific 2

This session examines new business models and strategies in response to broadband-based services and the introduction of 5G. The first paper explains how many information, communications, and entertainment (ICE) companies can acquire market dominance by erecting a platform serving both downstream consumers and upstream ventures, and addresses regulatory and policy issues. The second paper investigates strategies such as joint R&D, partnership, and M&A when telcos enter non-telecom related fields. The third paper explores business strategies to exploit the bandwidth and potential applications of 5G.

Moderator:
HEATHER HUDSON, Affiliate Professor, ISER University of Alaska Anchorage, and Professor Emerita, University of San Francisco, *USA*

Panelists:
ROB FRIEDEN, Pioneers Chair and Professor of Telecommunications and Law, Penn State University, *USA*
Two-sided Internet Markets and the Need to Assess Both Upstream and Downstream Impacts

NIR KSHETRI, Professor, University of North Carolina, Greensboro, *USA*
The Economics of Fifth Generation (5G) Cellular Networks

MIN HO RYU, Assistant Professor, Graduate School of Management of Technology, Hoseo University, *Republic of Korea*
Finding New Ways of Telcos: AHP Approach to Assessing Alternatives

10:45–12:00   WTA Workshop: *LEO/MEO Constellations and the Teleport* | South Pacific 3
Organized by **WTA**

Non-GEO constellations have had their difficulties and only Iridium and O3b have demonstrated longevity as viable businesses. The coming year is critical for the new starts in the non-GEO constellations. OneWeb and LeoSat are joined by Telesat LEO, SpaceX Starlink, perhaps Google, and others. This field is still wide open as none of these companies appear to have invested the bulk of the money needed to install a full operating constellation capable of delivering broadband services to a hungry global market. Established teleport operators in the region question how their business can continue and even thrive from LEO constellations in development. Existing satellite operators are extending their offerings to anticipate what the non-GEOs may be capable of doing that is currently not addressed. A mix like this has not existed since around the year 2000 when tech soared and LEO systems were thought to be the wave of the future. So, it's time to closely examine the assumptions about non-GEOs and what teleport operators and service providers need to consider.

Moderator:
BRUCE ELBERT, President, Application Technology Strategy, LLC, *USA*

Panelists:
MICHAEL DIPAOLO, Vice President Business Development, Comtech EF Data, *Canada*
CHRIS FALETRA, Director of Teleports, COMSAT, *USA*
ROGER TONG, Chief Executive Officer, AsiaSat, *Hong Kong SAR China*
RONALD VAN DER BREGGEN, Chief Commercial Officer, LeoSat Enterprises, *Netherlands*

12:15–13:45   **LUNCH SESSION** | MPCC
Submarine Cable Luncheon: *Facing Tomorrow's Submarine Cable Industry Challenges* | Coral 1 & 2
Sponsored by **SubOptic**

As the undersea network and industry continues to expand, we're facing many age-old as well as new challenges, in particular to address the explosive demand for international capacity. This session, sponsored by SubOptic Association, will include industry leaders who are working to pave the way to address industry challenges and opportunities, discuss the health of our subsea industry (from marine, via technological advancements, and operations, to business models). The chairpersons of SubOptic's newest working groups will also talk about their initiatives on open-network technical specification standards, and recruiting/training new and diverse talent to our industry.

Moderator:
ERICK CONTAG, Executive Chairman, GlobeNet, *USA*

Presenters:

IAN CLARKE, Vice President, Global Submarine Sales, Ciena, *United Kingdom*

DAVID COUGHLAN, President & CEO, TE SubCom, *USA*

LEIGH FRAME, Chief Operating Officer, Xtera, Inc., *United Kingdom*

VALEY KAMALOV, Network Engineer, Google Inc., *USA*

AMY MARKS, Chief Executive Officer, XSite Modular, *USA*

BRUCE NEILSON-WATTS, Managing Director, Telecoms, Global Marine Systems Ltd., *United Kingdom*

ELIZABETH RIVERA-HARTLING, Subsea Optical Network Engineer, Facebook, *USA*

14:00–15:15	**WORKSHOPS** | MPCC

14:00–15:15	TeleGeography Workshop | Coral 1 & 2
	Organized by ⬤⬤ TeleGeography

Back to the Future

Hop into a silver 1982 Delorean and hit 88 mph for an epic, time-traveling presentation that will examine the state of international telecommunications networks in the past, present, and future. Topics to be covered include shifts in bandwidth demand drivers, the development on new hub cities, trends in submarine cable investment, and more.

Expectations and Realities: State of the Data Center Market

The data center sector is pushing toward a brave new world—a world in which sites blanket the network edge, where the last frontiers of network development are brought online, and where high density service provisioning is ubiquitous. But where does the situation stand now? This presentation assesses where data center investment dollars are being put to work, the degree to which high-density provisioning is taking off, pricing movements, and more.

Pricing Update

Wholesale circuit and IP transit prices have been falling for years, but the pace varies widely, and can determine the difference between profits and losses for carriers. How are recent network investments, emerging market players, and the deployment of new technologies affecting international prices? What markets are experiencing the biggest shifts and what is the outlook for bandwidth buyers and sellers?

Presenters:

MICHAEL BISAHA, Senior Analyst, TeleGeography, *USA*
Pricing Update

JONATHAN HJEMBO, Senior Manager, Infrastructure Research, TeleGeography, *USA*
Expectations and Realities: State of the Data Center Market

ALAN MAULDIN, Research Director, TeleGeography, *USA*
Back to the Future

14:00–15:15   Research Workshop: *Cross Market Comparative Approaches* | South Pacific 2

The large-scale societal adoption and use of digital technologies is a key driver of measurable economic, social, and cultural value to tackle social and environmental issues.

In Guam, around 45% of people are using Facebook and around 40.6% are using Pinterest.

South East Asia's digital economy will triple to $240 billion by 2025 (Google). Asia-Pacific is rapidly migrating to higher speed mobile networks, with mobile broadband (3G and above) becoming the dominant technology at the end of 2016. 4G is the primary source of this shift, overtaking 2G to become the leading mobile technology by share of connections in 2017 and is on track to become the world's largest 5G region by 2025.

This session will cover some use cases, comparative, and measurements studies.

Moderator:
ANIL PRAKASH, Director General, Broadband India Forum, *India*

Presenters:
YANG BAI, Ph.D. Student, Pennsylvania State University, *USA*
2019 Yale M. Braunstein Student Prize Award Winner: If You Fund It, Will They Come? The Impact of Broadband Technology Opportunities Program on County Employment

WAYNE BUENTE, Associate Professor, University of Hawaii, Manoa, *USA*
Social Media Use Among Adolescents in Guam

RUYU TANG, Postgraduate Student, Management Science and Engineering, Beijing University of Posts and Telecommunications, *Peoples Rep. of China*
Comparative Study on Digital Economy in Seven Asian Countries

BIN ZHANG, Professor and Doctoral Supervisor, Beijing University of Posts and Telecommunications, *Peoples Rep. of China*
2019 Meheroo Jussawalla Research Prize Award Winner: Study on the Informatization Measurement System Under the Background of [the] Embedded Infosphere

15:15–15:30   **NETWORKING BREAK** | MPCC, Coral & South Pacific Lounge
                Sponsored by Ɓ Biznet

15:30–16:45   **WORKSHOP & TOPICAL SESSION** | MPCC

15:30–16:45   Research Topical Session: *Pipes and Platforms: Challenges for Rural and Developing Regions* | South Pacific 1

The theme of PTC'19 is Pipes and Platforms. These new technologies have the potential to extend availability of broadband and dramatically expand the range of applications and services. However, they also raise challenges. Will 5G increase broadband availability in rural and developing regions or increase the gap between urban and rural customers? Will people in developing regions have the skills to put these new technologies to use, and to develop relevant content and applications? This session will examine these and other challenges facing rural and developing regions as they seek to extend access to new technologies and to harness them for social and economic development.

Moderator:

HEATHER HUDSON, Affiliate Professor, ISER University of Alaska Anchorage, and Professor Emerita, University of San Francisco, *USA*
5G Mobile Broadband: Challenges for Rural and Developing Regions

Presenters:

GORDON GOW, Associate Professor, Faculty of Extension, University of Alberta, *Canada*

BRANDIE NONNECKE, Director, CITRIS Policy Lab, UC Berkeley, *USA*

AYUSHI TANDON, Ph.D. Student, Indian Institute of Management, Ahmedabad, *India*
Exploratory Study on the Use of the Internet for Educational Purposes by Children in the Age Group of 12-15 Years in India

15:30–16:45   Research Workshop: *Telehealth Technology, Service, and Research Trends: Perspectives from Asia, EU, US* | South Pacific 2

This panel will discuss telehealth technology, service, policy, and research trends in the U.S., E.U., and Asia. Telecommunication service platforms have drastically changed every aspect of our lives including health care. Telehealth is at a tipping point of becoming a standard means of health care delivery and provides the capability for improved outreach to underserved and vulnerable populations. Similar to the challenges faced by the telecommunication industry, the health care sector is facing changes in consumer expectations and need to innovatively transform traditional/legacy means of health care service delivery. This panel will discuss innovations and approaches in facilitating this transition.

Moderator:

MINORU SUGAYA, Visiting Professor, Media Policy and Economics, Hakuoh University, *Japan*

Panelists:

ASHIR AHMED, Associate Professor, Department of Advanced Information Technology, Kyushu University, *Japan*

ERIK BOHLIN, Professor, Department of Technology Management & Economics, Chalmers University of Technology, *Sweden*

CHRISTINA HIGA, Co-director, Pacific Basin Telehealth Resource Center, SSRI, University of Hawaii, *USA*

MASAAKI SATO, Project Associate Professor, Keio University, *Japan*

SUNDAY

15:30–16:45   Workshop – *Women in Subsea at PTC* | South Pacific 3

Calling all Women and Champions of Women to an open discussion group regarding the new Women in Subsea initiative.

We would like to take this opportunity to hear from you about your thoughts on what you would like to gain from this group.

• What do you want this group to achieve?
• How do you want us to move forward?
• What topics are you interested in?
• Who in our industry would you want to hear from?

All are welcome to join this informal discussion.

Moderators:

NAAZ BAX, Head of Marketing – Events, Seaborn Networks, *USA*

AMY MARKS, Chief Executive Officer, XSite Modular, *USA*

18:30–20:00   OPENING RECEPTION | Hilton Hawaiian Village, The Great Lawn

07:30–08:15 **PROGRAM PARTICIPANTS' BREAKFAST** | Rainbow Tower, Rainbow Lanai
Sponsored by COMCAST TECHNOLOGY SOLUTIONS

Breakfast is open to all Monday moderators, speakers, and panelists only.

08:00–09:00 **GRAB-AND-GO DELEGATE BREAKFAST** | MPCC, Coral Lounge
Sponsored by COMCAST TECHNOLOGY SOLUTIONS

08:00–16:00 **COFFEE CART OPEN** | MPCC, Coral 3
Sponsored by QTS

SMOOTHIE CART OPEN | MPCC, Coral 3
Sponsored by ADVA Optical Networking

08:00–17:00 **CONFERENCE REGISTRATION** | MPCC, Coral Lounge
Sponsored by IRON MOUNTAIN DATA CENTERS

PTC PAVILION OPEN | MPCC, Coral 4 & 5

08:00–19:00 **PTC HUB OPEN** | MPCC, Coral 3

08:50–10:30 **CENTER STAGE SESSIONS** | Tapa Tower, Tapa 2
Sponsored by NEXUSGUARD

08:50–09:10 Welcome Remarks

Welcome Remarks:
SHARON NAKAMA, CEO, Pacific Telecommunications Council

Convener:
STEPHEN HO, President & Chair, Board of Governors, Pacific Telecommunications Council, and CEO, CITIC Telecom CPC, *Hong Kong SAR China*

09:10–09:30 *Enabling Digital Transformation in a Cloud-First World*

The world is changing at a faster pace than ever before – representing both risk and opportunity for businesses across the globe. As business leaders, we should be both excited and productively paranoid about the pace of innovation and digital disruption and always asking ourselves "are we changing as fast as the world around us?" That is a humbling reality facing every industry and the successful businesses are the ones that will evolve at pace. To thrive in a disruptive, cloud-first world, service providers must remain focused on their distinctive value, but evolve how they deliver that value – "from pipes to platforms". In this keynote, Charles Meyers, CEO & President of Equinix, will discuss how digital transformation is enabled through interconnected digital infrastructure – at the digital edge.

Introducer:
STEPHEN HO, Chief Executive Officer, CITIC Telecom CPC, *Hong Kong SAR China*

Presenter:
CHARLES MEYERS, CEO & President, Equinix, *USA*

09:30–09:50   *How Carriers Must Evolve to Harness Digital 2.0 Opportunities*

We're in the 'as-a-service' age. From transportation to entertainment, traditional business models are being challenged by new-age agile startups redefining the way we conduct business. The world of telecommunication is no different. Telecom carriers are broadening their horizon beyond selling commoditized services such as fixed-line, mobile, and broadband, and are looking to unearth new avenues and harness additional revenue streams with the advent of OTT content, IoT, and other value-added services. What does this mean for wholesale carriers? The CEO of Global Business at Airtel, Pankaj Miglani, takes you on a journey tracing the future of the telecommunication industry and shares insights into how telecom carriers can drive business growth in this age of rapid digitization.

Introducer:
MOHAMED ELAGAZY, President & CEO, CPS Services, Inc., *USA*

Presenter:
PANKAJ MIGLANI, CEO of Global Business, Bharti Airtel Limited, *India*

09:50–10:10   *Africa's Trending Transformation*

Growth and innovation are exceeding expectations. Africa, a continent faced with social inequality, cultural, and political classifications contributing to a challenged business environment is proving especially alluring to the Asia-Pacific region. The Chinese investment in Africa has increased dramatically, making the country the single largest contributor of (FDI) capital and jobs in Africa - since 2005.

The presence of the ICT sector has carved a path to development, bringing positive development with urgency and enthusiasm. New technologies have caused for social and economic change. The adoption of cloud computing has soared in the main markets of sub-Saharan Africa as companies use cloud services as a means to leapfrog to newer technologies due to a lack of infrastructure and to reduce capital expenditure. How will continued investment and technological demands transform the continent? How will continued growth at an exponential pace reshape Africa and its relationship to Asia-Pacific and the world?

Introducer:
SEAN BERGIN, Co-Founder & President, APTelecom, *Cambodia*

Presenter:
MARISA TRISOLINO, Chief Executive Officer, CMC Networks, *Belgium*

10:10–10:30   *Vision for Connectivity in the Pacific*

In recent years, multi-orbit satellite innovation has driven digital transformation across the Pacific region. SES has built a unique infrastructure and service capability designed to respond to the insatiable demand for data. But what is next? A hyper-connected Pacific is only attainable if we make satellite an integral part of the global cloud-scale network ecosystem, in other words, making satellite mainstream. Together with fibre and wireless, a truly automated, virtualized satellite-based network service platform will pave the way for new applications in IoT, 5G, and enable businesses and communities to prosper.

Introducer:
TIMOTHY LOGUE, Senior Director, Sales and Business Development, Thales Alenia Space, *USA*

Presenter:
STEVE COLLAR, President & CEO, SES, *Luxembourg*

10:30–10:45   **NETWORKING BREAK** | Tapa Tower, Palace Lounge, and MPCC, Coral 4 & 5
Sponsored by WINDSTREAM WHOLESALE

10:45–12:00   **CENTER STAGE SESSIONS** | Tapa Tower, Tapa 2
Sponsored by NEXUSGUARD*

10:45–11:10   *Net Neutrality: Regulation for Pipes or Platforms?*

Around the globe, telecom regulators have struggled with adopting regulation that ensures the Internet remains open for innovation. Regulators differentiated in their treatment between those who owned the pipe – network facilities – and those who wanted to use the capacity from the pipe to resell a different service. As the value moves from the pipe to the application layer, or the platform, how have regulators encouraged continued investment in the pipes, and innovation in the platform? Chief executives in this session will debate the best approach for regulators around the world.

Moderator:
PATRICIA PAOLETTA, Partner, Harris, Wiltshire & Grannis LLP, *USA*

Panelists:
DAVE SCHAEFFER, Founder & CEO, Cogent Communications, *USA*
JOHN STRAND, Chief Executive Officer, Strand Consult, *Denmark*

11:10–11:35   *Challenges in International Policy*

Connecting people, countries, and regions has always been at the center of international telecommunications policy. The world has never been more connected and the promise of further global integration is one of the greatest opportunities of the 21st century. Nonetheless, the industry faces significant challenges related to sustainable development, the free flow of information, Internet governance, privacy and security, and emerging technologies. Many international organizations (including the ITU and NTIA which are represented on our panel) are tackling these challenges, and we will explore these topics in our discussion. What goals should animate international policy debates regarding telecommunications? What tools do companies, government agencies, and industry groups have to achieve progress on these priorities? How can the private and public sectors work together to achieve these goals in innovative ways?

Moderator:
TARA GIUNTA, Partner, Paul Hastings LLP, *USA*

Panelists:
MALCOLM JOHNSON, Deputy Secretary-General, ITU, *Switzerland*
DAVID REDL, Assistant Secretary for Communications and Information and Administrator, NTIA, U.S. Department of Commerce, *USA*

11:35–12:00   *Remarks by Senator Brian Schatz*

Introducer:
DAVID LASSNER, President, University of Hawaii, *USA*

Presenter:
BRIAN SCHATZ, Senior United States Senator From Hawaii, United States Senate, *USA*

12:00–14:00   LUNCH SESSIONS

12:00–13:15   **Lunch in PTC Pavilion** | Coral 4 & 5
                 Sponsored by KDDI TELEHOUSE

Must present lunch ticket to redeem lunch in the PTC Pavilion. A ticket can be purchased at the cashier counter for USD 18 each.

12:00–13:45   **New and Non-Member Luncheon** | MPCC, Coral 2
                 Sponsored by CPG

12:00–14:00   **Educators' and Researchers' Luncheon** | MPCC, South Pacific 2

The PTC Educators' and Researchers' Luncheon is a chance for anyone who is interested in research (both academic and applied) to mingle and join in the development of PTC's research community. This is an informal gathering where you can learn about the work of other PTC attendees and explore possibilities for collaboration and knowledge sharing. Also, the PTC 2019 Young Scholars will present their research in a poster session. All are welcome.

12:00–14:00   Satellite Leaders Luncheon | Tapa Tower, Honolulu Suite
Sponsored by   GEOshare   *ManSat*   NSR NORTHERN SKY RESEARCH

The satellite industry is in the midst of a transformation promising to change the very dynamics of how satcom service is delivered globally. Lower pricing, enhanced capacity, and telecom-centric offerings all now place satellite squarely alongside the traditional means of telecom transmission.

In the Pacific, satellite remains as a critical backbone to communications across a vast, dispersed user base. How then will the current satcom market shifts affect users in the Pacific? Are satellite solutions able to meet the complex video and data requirements in the region, at the right price? This panel of satellite industry leaders will explore these questions and plot the path that satcom plays in the Pacific over the next decade.

Moderators:
CHRISTOPHER BAUGH, President, Northern Sky Research (NSR), *USA*
CHRISTOPHER STOTT, Founder, Chairman & CEO, ManSat LLC, *USA*

Panelists:
STEVE COLLAR, President & CEO, SES, *Luxembourg*
MARK DANKBERG, CEO & Chairman of the Board, Viasat Inc., *USA*
CHRIS JOHNSON, President, Boeing Satellite Systems International, Inc., Space & Launch, *USA*
CHRISTIAN PATOURAUX, Founder & CEO, Kacific Broadband Satellites Ltd., *Singapore*
ROGER TONG, Chief Executive Officer, AsiaSat, *Hong Kong SAR China*
JAMES YENBAMROONG, Founder & CEO, mu Space Corp, *Thailand*

14:00–15:30   **CENTER STAGE SESSIONS** | Tapa Tower, Tapa 2
Sponsored by NEXUSGUARD·

14:00–14:25   *Issues and Opportunities at the Application Layer*

The entire raison d'être of networks is to run applications for consumers and businesses, such as collaboration, messaging, entertainment, customer relationship management, and productivity tools. Networks can be critical enablers of these applications, or unwittingly create issues, as we've seen recently with data breaches, invasion of privacy, and political machinations. Long time industry thought-leader and analyst Peter Coffee of Salesforce, and Xoogler Richard Whitt, who is now focused on systems and strategies for trust and accountability, will engage in a far-reaching discussion on the trends, opportunities, and pitfalls of this new world.

Moderator:
JOE WEINMAN, Author, *Cloudnomics* and *Digital Disciplines*, *USA*

Panelists:
PETER COFFEE, VP for Strategic Research, Salesforce, *USA*
RICHARD WHITT, President, NetsEdge, LLC, *USA*

14:25–14:50   *AI, IoT, and 5G for Innovative Industry Development and the Future of the Digital Society*

New, or at least renewed technologies like Artificial Intelligence (AI), the Internet of Things (IoT), and 5G promise to enable a truly digital society, invading all corners of industries previously untouched (or nearly so) by the Internet revolution. What will really enable the Industrial Internet in manufacturing, healthcare, energy grids, smart cities, smart buildings, and agriculture? The panel will explore the current explosion of technology, its history, and its impact.

Moderator:
RICHARD SOLEY, Chairman & CEO, Object Management Group, Inc., *USA*

Panelists:
JUN MURAI, Professor, Faculty of Environment and Information Studies, Keio University, *Japan*
ROBERT PEPPER, Head of Global Connectivity Policy and Planning, Facebook, *USA*
KATSUYA WATANABE, Vice-Minister for Policy Coordination (International Affairs), Ministry of Internal Affairs and Communications (MIC), *Japan*

14:50–15:10   *Air, Land, Sea, and Space: Moving Beyond the Contemporary with mu Space Corp*

The market is demanding a one stop shop in Asia for all communications from the terrestrial to maritime to aviation and space. mu Space Corp is working to address market needs in a holistic fashion. How are they different? What can we learn from their new model, a blend of communications?

Interviewer:
CHRISTOPHER STOTT, Founder, Chairman & CEO, ManSat LLC, *USA*

Interviewee:
JAMES YENBAMROONG, Founder & CEO, mu Space Corp, *Thailand*

15:10–15:30   *Digital Transformation and Integration: What's Next?*

Simply acknowledging that your company needs to shift to a digital business focus is no longer good enough to be a leader. To drive digital business success, your company needs to align its digital transformation to the evolving needs and desires of its customers and how best to achieve those new wants via partner ecosystem integration. The key to accomplishing this objective – drive a digital platform value proposition that empowers all members of your ecosystem (including your customers) to collaborate to drive new value creations and extensions. In this session you will learn the keys to digital business platform strategies and how those who are already leading these efforts are driving market success.

Interviewer:
JAMES STATEN, VP & Principal Analyst - CIOs & Digital Transformation, Forrester Research, *USA*

Interviewee:
OLIVER CAMPLIN-WARNER, CEO - International, Telstra, *Hong Kong SAR China*

15:15–15:30 **NETWORKING BREAK** | MPCC, Coral 4 & 5, and Coral & South Pacific Lounge
Sponsored by ◆ CypressTel

15:30–16:45 **TOPICAL SESSIONS** *(Held Concurrently)* | MPCC
15:30–16:00 Topical Session: *Data Centers: Platform Core and Network Edge* | Coral 2

• Who are the most important players in the data center, edge, and SDN eco-systems?
• How does one balance latency vs. location?
• What are Internet/cloud vs. enterprise data center and connectivity requirements?
• What are the most important demand drivers and technology trends affecting the outlook for conventional data centers, edge data centers, and SDN solutions?

Moderator:
JONATHAN ATKIN, Managing Director, RBC Capital Markets, *USA*

Panelists:
VINCENT ENGLISH, Chief Executive Officer, Megaport Ltd., *Australia*
DAVID MCCALL, VP, Innovation, QTS, *USA*
JOSHUA SNOWHORN, Founder & Chief Strategy Officer, EdgeMicro, *USA*

15:30–16:45 Topical Session: *Submarine Cable* | South Pacific 1

Session description to be confirmed.

Moderator:
KEITH SHAW, VP Business Development EMEA, Equinix, *Netherlands*

Panelists:
NIGEL BAYLIFF, Chief Executive Officer, Aqua Comms Management, *Ireland*
The Submarine Cable Connectivity Evolution: The Past, Present, and Future

SEAN BERGIN, Co-Founder & President, APTelecom, *Cambodia*
South East Asia and the Pacific: Significant Changes 2020 and Beyond

MARK ENRIGHT, Vice-President, Customer Solutions, TE SubCom, *USA*
Submarine Cable Earth Potential – How Much is Really Needed?

SVANTE JURNELL, CEO, Eastern Light, *Sweden*
Who Will Own the International Fiber Infrastructure of the Future? Will Different Types of Routes be Owned by Different Kinds of Players? Will There be an Increased Need for Diversified Ownership?

15:30–16:45   Research Topical Session: *World Coordination of 5G - What is at Stake for the Upcoming WRC-19?* | South Pacific 2

This session focuses on international coordination for radio spectrum management. The up-coming WRC-19 will determine the use of certain portion of spectrum for the next four years and beyond, in particular to support 5G. In preparation to WRC-19, regional organizations are formulating regional positions to be used as starting points for negotiations at WRC-19. Regional coordination and interaction at interregional level are recognized as essential means for successful negotiations at WRC. In this regard, this session aims to address three questions: 1) How are regional organizations conducting preparatory activities? 2) What are the drivers to current regional positions? 3) What are the prospects for international agreements at WRC-19?

Moderator:
ERIK BOHLIN, Professor, Department of Technology Management & Economics, Chalmers University of Technology, *Sweden*

Presenters:
YOUNGSUN KWON, Professor, Korea Advanced Institute of Science and Technology (KAIST), *Republic of Korea*

MARIA MASSARO, Ph.D. Candidate, Chalmers University of Technology, *Sweden*

BRANDIE NONNECKE, Director, CITRIS Policy Lab, UC Berkeley, *USA*

MOINUL ZABER, Associate Professor, Department of Computer Science and Engineering, University of Dhaka, Bangladesh, *Bangladesh*

15:30–16:45   Topical Session: *Edge Computing* | South Pacific 3

The Silver Lining: High value service delivery at the edge of the global cloud computing paradigm. Ever expanding content delivery requirements, together with the explosion of IoT devices, 5G deployment, FTTx connectivity, and global-scale OTT business models, are pressing our technology architectures to quickly evolve from traditional monolithic host platforms, to highly responsive, highly distributed, global cloud solutions. Each of our four panelists will provide their unique view on critical infrastructure and service delivery mechanisms to support global-scale, high performance content delivery, to enable your businesses and institutions to effectively compete at the leading edge.

Moderator:
GARRET YOSHIMI, Vice President for IT & CIO, University of Hawaii, *USA*

Presenters:
MAILE KAISER, SVP Sales, Southwest Region, CoreSite, *USA*
Data Center Interconnection Hubs: Improving Your Digital Transformation Journey

PHILLIP MARANGELLA, Chief Marketing Officer, EdgeConneX, *USA*
5G, IoT and Edge Infrastructure: Enabling the Fourth Industrial Revolution

TIM PARKER, Vice President, Network Strategy, Flexential, *USA*
Delivering Services Between the Edge and the Core Activates Untapped Business Intelligence

TOM PASEKA, Network Strategy, Cloudflare, *USA*
Computing Even Closer to the Edge

15:30–16:45   Topical Session: *Legal* | South Pacific 4
Organized by **PAUL HASTINGS**

This panel will discuss four key challenges presented by emerging technologies and evolving legal frameworks affecting the telecommunications industry:

• **National Security Reviews of Transactions.** We will explore the newly expanded jurisdiction of the Committee on Foreign Investment in the United States (CFIUS) and its many implications for foreign investment in the United States.

• **Cybersecurity.** We will also discuss growing cybersecurity risk and how companies are addressing these risks.

• **M&A.** We will discuss the leading issues affecting M&A in the telecom/tech sector.

• **Convergence.** Finally, we will discuss how telecom and technology companies are responding to convergence and a changing competitive environment.

Moderator:
SHERRESE SMITH, Partner, Paul Hastings LLP, *USA*

Panelists:
ROB FRIEDEN, Pioneers Chair and Professor of Telecommunications and Law, Penn State University, *USA*
TARA GIUNTA, Partner, Paul Hastings LLP, *USA*
TIMOTHY HEWITT, Director, Sales and Commercial Affairs, Asia, Colt Technology Services Co., Ltd., *Japan*

17:00–19:00   **PTC WOMEN'S RECEPTION** (*Women Only*) | Rainbow Tower,
Duke Kahanamoku Suite, 31st Floor
Sponsored by **PAUL HASTINGS**   *Reception Bar Sponsored by* **Teliax**

TUESDAY

FULL CONFERENCE PROGRAM | TUESDAY, 22 JANUARY 2019
UP-TO-DATE COMPLETE PROGRAM: PTC.ORG/PTC19

05:45–08:00   **PTC'19 5K CHARITY RUN/WALK** | Hilton Hawaiian Village, The Great Lawn
Sponsored by **PCCW Global**

07:30–08:15   **PROGRAM PARTICIPANTS' BREAKFAST** | Rainbow Tower, Rainbow Lanai
Sponsored by **COMCAST TECHNOLOGY SOLUTIONS**

Breakfast is open to all Tuesday moderators, speakers, and panelists only.

08:00–09:00   **GRAB-AND-GO DELEGATE BREAKFAST** | MPCC, Coral Lounge
Sponsored by **kt**

08:00–16:00   **COFFEE CART OPEN** | MPCC, Coral 3
Sponsored by **QTS**

SMOOTHIE CART OPEN | MPCC, Coral 3
Sponsored by **ADVA Optical Networking**

08:00–16:30   **CONFERENCE REGISTRATION** | MPCC, Coral Lounge
Sponsored by **IRON MOUNTAIN DATA CENTERS**

08:00–17:00   **PTC PAVILION OPEN** | MPCC, Coral 4 & 5

08:00–19:00   **PTC HUB OPEN** | MPCC, Coral 3

08:30–09:45   **TOPICAL SESSIONS** *(Held Concurrently)* | MPCC

08:30–09:45   Topical Session: *SDN and Network Innovation* | South Pacific 1

The traditional network is already dead and SDN has been hailed as the network of right now. It promises to deliver control to the customer and lower costs while increasing velocity of deployment and quality of applications. But there is still so much room to grow. Many telcos are still stuck in the hardware mindset and have struggled to adopt SDN to transform themselves and take advantage of its benefits. With various standards bodies, the API/protocol landscape is still a bit messy. In this talk, we take a step back and examine where SDN is today, some of the problems and opportunities and where we want to take it next.

Moderator:
JANSEN CHIU, Director of Infrastructure, Cloudflare, *USA*

Presenters:
WILLIAM CIMINELLI, VP of Sales, REDCOM, *USA*
Software Defined Networks

ANNA CLAIBORNE, Co-founder & SVP, Software Engineering, PacketFabric, *USA*
SDN and the Future of Network Automation

NIALL ROBINSON, VP, Global Business Development, ADVA Optical Networking, *USA*
The Road From Software Defined Networking to Autonomous Network Operations

ANURADHA UDUNUWARA, Senior Engineer, Solution Support (SME) - Region I, Sri Lanka Telecom PLC, *Sri Lanka*
Networks to Platforms—What's Delaying Telco Transformation?

08:30–09:45   Topical Session: *Fostering Digital Infrastructure Investment* | South Pacific 2

"Every \$1 Of Infrastructure Spending Boosts The Economy By \$2", (Leduc/Wilson, 2016). Next to classical infrastructure, this effect might even be higher for digital infrastructure. This session will focus on:

• Benefits and barriers of DI as separate asset class
• Investment opportunities & risks
• Fostering DI investment and asset risk management in developing countries
• Relationship to services and business models
• Synergies from wireless and wireline infrastructure
• Parallels and separation to other infrastructure asset classes
• Open access, network neutrality, and platforms

The workshop is organized and supported by Di² - Digital Infrastructure Investment.

Moderator:
NICO GROVE, Co-Founder, Di² - DIgital Infrastructure Investment, *Germany*

Panelists:
SHISHIR BELBASE, Head, Communication and Networks Unit, Asian Development Bank, *Philippines*
JAMES NEUMANN, Senior Counsel-Digital Development, The World Bank, *Singapore*
KNUT SAUER, Co-Founder & CTO, Arrivo, *USA*
JULIAN SCHILLINGER, Co-CEO & Co-Founder, Privé Technologies, *Hong Kong SAR China*
JOERI VAN BOGAERT, Founder & MD, Capabilities BVBA, *Belgium*

08:30–09:45   Topical Session: *5G Business Implications* | South Pacific 3

Is 5G just a faster pipe, or will it transform how sectors across the economy function? 4G enabled a range of unforeseen digital economy platforms, like ride-sharing Uber and Lyft, and the largest vacation rental company on the planet, AirBnB, which doesn't own a foot of real estate. What will 5G bring, beyond enhanced broadband? How will the ability to connect millions of devices impact platforms? How will ultra-reliable low latency communications impact AI and VR apps? What is hype? What is real? This session will explore the implications of network slicing for infrastructure sharing and wholesale services, the role of SDN in 5G, and more, to help clarify the implications 5G will have on your business.

Moderator:
PATRICIA PAOLETTA, Partner, Harris, Wiltshire & Grannis LLP, *USA*

Panelists:
ANDREW EDISON, VP, Wholesale, Colt Technology Services Co., Ltd., *United Kingdom*
The Role of SDN in 5G Networks

GARY KIM, Consultant, *IP Carrier, USA*
Implications of 5G Network Slicing for Infrastructure Sharing and Wholesale Services

BRIAN LAVALLÉE, Senior Director, Portfolio Solutions, Ciena, *Canada*
5G. More Than a Wireless Upgrade

 J. ARMAND MUSEY, CFA Summit Ridge Group, LLC, *USA*

08:30–09:45   PTC Young Scholar 1: *Achieving Broadband's Benefits: Evaluation of Network Deployments in Local and National Markets* | South Pacific 4

The effectiveness of broadband investment and policy measures in a variety of markets are identified in this session which highlights the cutting-edge research of the PTC 2019 Young Scholars. Rigorously gathered empirical data and analytics are presented to show the impact of high-speed broadband on company creation, and business growth. Next, the effects of community broadband networks in rural areas is illuminated. Finally, a virtual model is applied to show national broadband policy and network deployments can be evaluated to plan and predict outcomes.

The PTC Young Scholars presenting in this session will present substantiated results of broadband deployment and approaches for understanding how best to maximize the social and economic benefits of connectivity.

Moderator:
ELIZABETH FIFE, Associate Professor, Technical Com, and EWP, Viterbi School of Engineering, University of Southern California, *USA*

Presenters:
PAOLO GERLI, Ph.D. Student, Northumbria University, *United Kingdom*
2019 Young Scholar Recipient: Community Broadband Networks and Rural Digital Divide: A UK Case Study

MAUDE HASBI, Postdoctoral Researcher, Chalmers University of Technology, *Sweden*
2019 Young Scholar Recipient: Impact of Very High-Speed Broadband on Company Creation: Empirical Evidence

EDWARD OUGHTON, Senior Research Associate, University of Oxford, *United Kingdom*
2019 Young Scholar Recipient: Building a Digital Twin: Testing the Effectiveness of Telecommunication Policies in a Virtual World

09:45–10:00   **NETWORKING BREAK** | Tapa Tower, Palace Lounge, and MPCC, Coral 4 & 5, and South Pacific Lounge
Sponsored by **REDCOM**

10:00–12:00   **CENTER STAGE SESSIONS** | Tapa Tower, Tapa 2

10:00–10:25   *Pipes and Platforms: What Leading Analysts Think Really Matters*

Where are the greatest opportunities and biggest threats to the connectivity business model? Where are the big new revenue sources; the new values to be monetized? Who are the new competitors and platforms? How do incumbents respond? What are the key technologies, and why? How do service, app, platform, and device suppliers maximize their chances of success? What does 5G, edge-computing, and IoT mean for the wholesale and connectivity players? How might thinking about owning or operating infrastructure change? Hear globally influential industry analysts share their views on these and other top issues of the day.

Moderator:
GARY KIM, Consultant, *IP Carrier, USA*

Panelists:
DEAN BUBLEY, Founder, Disruptive Analysis, *United Kingdom*
BENOÎT FELTEN, CEO & Founder, Diffraction Analysis, *Hong Kong SAR China*

10:25-10:50   *A Trillion Things About the Cloud*

The global architecture of distributed computing is shifting dramatically, as workloads move to public, hybrid, and multi-clouds; the Internet of Things, the fog/edge, and mobility create what is now projected to be a trillion endpoints; and network and interconnection capability and complexity grow exponentially. In this session, the architect of Netflix's industry-leading cloud strategy, now at Amazon Web Services, and a leader in interconnection discuss the challenges, key trends, and likely future scenarios for this new world.

Moderator:
JOE WEINMAN, Author, *Cloudnomics* and *Digital Disciplines*, *USA*

Panelists:
ADRIAN COCKCROFT, VP Cloud Architecture Strategy, Amazon Web Services, *USA*
TBD

10:50-11:10   *Doing Well by Doing Good: Are Forcibly Displaced Communities a "Market"?*

Or a charity? Having recently launched the HumanityConnect! Initiative -- a collaboration of stakeholders with an interest in connecting refugees and disaster-affected communities -- Geeks Without Frontiers is collaborating with a "Coalition of the Willing" to enable the delivery of financially sustainable solutions throughout Asia and the world. This presentation will provide an overview of the technologies, business models, regulatory approaches, and key actors involved in bridging the most challenging gaps of the digital divide.

Introducer:
BRUCE DRAKE, *Canada*

Presenter:
CHRISTOPHER STOTT, Founder, Chairman & CEO, ManSat LLC, *USA*

11:10-11:35   *Building the Digital Fabric - Connectivity, Platforms, People*

• What is driving the digital transformation?
• What new requirements is this generating for the connectivity world?
• How will the digital platform economy impact connectivity?
• How should the digital connectivity fabric evolve to address these new requirements?
• What will the connectivity fabric of tomorrow look like - who will be part of this ecosystem?
• What are the success factors of the connected world of tomorrow?
• What types of people can lead this transformation?

Moderator:
ISABELLE PARADIS, President & Founder, HOT TELECOM, *Canada*

Panelists:

KERI GILDER, Chief Commercial Officer, Colt Technology Services, *United Kingdom*

AMY MARKS, Chief Executive Officer, XSite Modular, *USA*

JACQUELINE TEO, Chief Digital Officer, HGC Global Communications Limited, *Hong Kong SAR China*

11:35-12:00   *Data Infrastructure Investment in Asia-Pacific*

In many ways, Asia-Pacific is leading the world on wireless applications and cloud adoption. All of which require leading edge data infrastructure. We will discuss where capital has been spent on Asia-Pacific data infrastructure and where it still needs to be spent. We will also discuss how infrastructure will change to meet changing applications.

• Why is the region ahead of the rest of the world and what are the relative growth rates?
• Is Asia-Pacific doing anything technically different from the rest of the world?
• What are the cultural and infrastructure challenges for building infrastructure in Asia-Pacific?
• How important are the hyperscale Internet companies?
• Lastly, we will discuss the potential for global consolidation of data infrastructure.

Moderator:

TIMOTHY HORAN, Managing Director, Cloud and Communications Research, Oppenheimer & Co. Inc., *USA*

Panelists:

CARLOS KATSUYA, CIO & Head TMT Asia and EMENA, International Finance Corporation (IFC) - World Bank Group, *Singapore*

ANDREW POWER, Chief Financial Officer, Digital Realty, *USA*

CRAIG SCROGGIE, Chief Executive Officer & Managing Director, NEXTDC Limited, *Australia*

12:00-14:00   LUNCH SESSIONS

12:00-13:15   Lunch in PTC Pavilion | MPCC, Coral 4 & 5
Must present lunch ticket to redeem lunch in the PTC Pavilion. A ticket can be purchased at the cashier counter for USD 18 each.

12:00-14:00   Lawyers' & Regulators' Luncheon | Kalia Tower, Hibiscus 1 & 2
Organized by PAUL HASTINGS

By invitation only.

12:00-14:00   Special Interest Group (SIG) on Development and ICT4D Luncheon | MPCC, Nautilus 1 & 2

PTC's SIG on Development and ICT4D Luncheon is open to anyone interested in economic development issues and the role that ICTs can play in furthering sustainability. The meeting is an informal occasion to hear about the work being done in this area by PTC researchers and others. Participants have the opportunity to present "fast pitches" of their innovations, applications, and concepts to address the digital divide.

14:00-15:15   **CENTER STAGE SESSIONS** | Tapa Tower, Tapa 2

14:00-14:25   *New Directions in Media and Entertainment*

Global networks are more relevant than ever across the media and entertainment industry. During content creation and production, global teams need to collaborate to create and edit video content, including pulling dailies from shoots which may happen in remote locations. As streaming continues to grow, network bandwidth and performance are critical to the user experience. Meanwhile, we are on the cusp of 8K and 5G. In this session, industry insiders will review the latest trends, issues, and solutions enabled by and driving the network.

Moderator:
JOE WEINMAN, Author, *Cloudnomics* and *Digital Disciplines*, *USA*

Panelists:
RAMY KATRIB, CEO & Founder, DigitalFilm Tree, *USA*

DAVE TEMKIN, Vice President of Network Strategy and Architecture, Netflix, *USA*

14:25-14:50   *Edge-Capable Data Centers: The Next Wave*

Evolving business needs, the Internet of Things (IoT), and a rising demand for low-latency connectivity and processing are driving data center operators to support the accelerating march to the edge of the Internet. Moderated by TierPoint Chief Revenue Officer Tony Rossabi, the panelists will discuss how emerging technologies, AI, 5G, the need for greater energy efficiency, and other forces are shaping the next wave of edge-capable data centers. How will they evolve? Are hyperscale and microscale deployments contradictory or complementary concepts? What are the prospects for significant improvements in energy efficiency? What will a growing wave of 5G deployments require of data center operators?

Moderator:
ANTHONY ROSSABI, Executive Vice President & Chief Revenue Officer, TierPoint, *USA*

Panelists:
TOM BROWN, President & CEO, DataGryd, *USA*

TODD COLEMAN, CEO & President, eStruxture Data Centers, *USA*

OLIVER JONES, Chief Executive Officer, Chayora Limited, *Hong Kong SAR China*

TUESDAY

14:50-15:15   *Liquid Networks and Edgy Data Centers*
This panel will discuss the role of different stakeholders in delivering content to the edge, and assess factors such as:

• Who are the most important players in the edge eco-system?
• How does one balance balance latency vs. location?
• What are the fastest-growth edge markets?
• What is the role of SDN and emerging technologies such as AR and VR?

Moderator:
JONATHAN ATKIN, Managing Director, RBC Capital Markets, *USA*

Panelists:
DON MACNEIL, Chief Executive Officer, FiberLIght, LLC, *USA*
JEFF UPHUES, Chief Executive Officer, DC BLOX, *USA*
JACK WATERS, CTO & President of Fiber Solutions, Zayo, *USA*

15:15-15:30   **NETWORKING BREAK** | MPCC, Coral 4 & 5, and Coral & South Pacific Lounge
Sponsored by **KDDI** **TELEHOUSE**

15:30-16:45   **TOPICAL SESSIONS** *(Held Concurrently)* | MPCC

15:30-16:45   Topical Session: *Developing Tomorrow's Networks* | *South Pacific 1*

Developing new networks face myriad challenges to address future needs. How can carriers and service providers leverage scalable and agile network infrastructures? How can network operators change the way they build their access networks to deliver disruptive services and cutting-edge capabilities to service 5G densification? How do wireless network operators evolve their networks to support and enable IoT adoption and prepare for 5G? How must networks be secured and subsequently the trillions of dollars of transactions that flow through them? What standards are needed that drive interoperable, transparent and secure next-generation cloud with edge, fog, and mist computing?

Moderator:
TBD

Presenters:
ROBERT CONGER, CTO, Americas, ADTRAN, *USA*
M-CORD: Building Best-of-Breed Backhaul...and Fronthaul, Too

RAY LACHANCE, Chief Executive Officer, ZenFi Networks, *USA*
Dark Fiber 2.0: Supporting C-RAN with Next-Gen Communications Infrastructure

ROY HILLIARD, Vice President of Business Development, NJFX, *USA*
How to Prepare for Threat of Global Disruption

STEVEN WOODWARD, Chief Executive Officer, Cloud Perspectives, *Canada*
Edge Computing and Cloud Federation - Planning for Success

15:30–16:45   Research Topical Session: *The International Telecommunications Union: Three Sectors at a Crossroad* | South Pacific 2

The year 2019 marks the 154th anniversary of the ITU, one of the most influential international organizations in history, with three main areas of activities organized in 'sectors' namely: Radiocommunication, Development, and Standardization.

In view of the decisions taken by the recent Plenipotentiary Conference, including the election of a new management team to lead the ITU as the organization adapts to a rapidly changing telecommunication/ICT environment, it is timely to have the first of its kind panel that accommodates high profile professionals from academia and industry to assess the impact of such changes. Essential measures to be considered and implemented as part of the adaptation process include the expansion of its membership/participant base, as well as the promotion of constructive cooperation and collaboration with other organizations and entities, as well as among the three Sectors of the ITU.

Moderator:
MOHAMED EL-MOGHAZI, Director, Department of Spectrum Management Research and Studies, National Telecommunications Regulatory Authority (NTRA) of Egypt, *Egypt*

Presenters:
ERIK BOHLIN, Professor, Department of Technology Management & Economics, Chalmers University of Technology, *Sweden*

ROB FRIEDEN, Pioneers Chair and Professor of Telecommunications and Law, Penn State University, *USA*

BRUCE GRACIE, Standards Advisor, Ericsson, *Canada*

MARTIN SIMS, Managing Director, Policy Tracker, *United Kingdom*

15:30-16:45   Topical Session: *Satellite and the Internet of Things (IoT) - Ready For Mainstream?* | South Pacific 3
Organized by APSCC

The IoT market stands as a centerpiece for telecom growth over the next decade, via new applications, verticals and use cases. Satellite players are also ramping up for IoT growth as new smallsat constellations and services promise to reduce costs and latency to a truly global audience. However, can satellites compete with terrestrial options given the complex nature of IoT demand? Will the IoT market generate sustainable revenue streams based on ever lower ARPUs and competition? Which verticals, applications and markets represent the sweet spot for satellite IoT offerings? This panel of experts will explore these questions and provide their views on the potential satellite IoT market.

Moderators:
CHRISTOPHER BAUGH, President Northern Sky Research (NSR), *USA*

GREGG DAFFNER, Chief Executive Officer, GapSat, *Hong Kong SAR China*

TUESDAY

Panelists:

HARIM BYEON, Engineer, KTSAT, *Republic of Korea*

BRYAN EAGLE, VP Business Development, Astrocast SA, *USA*

ROB KAMERLING, Business Development Manager, Americas, Hiber, *USA*

SCOTT LARSON, CEO, Helios Wire, *Canada*

JAMES YENBAMROONG, Founder & CEO, mu Space Corp, *Thailand*

15:30-16:45   PTC Young Scholar 2: *From the ICU to the ITU: Blurring Lines of Regulatory Jurisdiction* | South Pacific 4

The Young Scholars Program research session will feature three innovative presentations examining how emerging consumer and 5G technologies challenge existing telecommunications applications and services. The YSP presentations examine how smartphone use in hospitals raise far-reaching regulatory issues concerning appropriate use. Emergence of 5G technologies and services will push spectrum use and coordination into uncharted realms of spectral regulation and enforcement. Finally, Demand Responsive Mobility will offer new capabilities with a presentation evaluating its applicability as a telecommunications service.

Moderator:

LARRY MARTINEZ, Professor, Dept of Political Science, California State University, Long Beach, *USA*

Presenters:

JOHN ROBERT BAUTISTA, Ph.D. Student, Nanyang Technological University, *Singapore*
2019 Young Scholar Recipient: To Support or Not Support: Organizational Issues Faced by Nurse Administrators on Nurses' Use of Smartphones for Work Purposes

JECINTA KAMAU, Ph.D. Student, Kyushu University, *Japan*
2019 Young Scholar Recipient: Design and Implementation of a Demand Responsive Mobility as a Service

J. STEPHANIE ROSE, Ph.D. Student, University of Pittsburgh, *USA*
2019 Young Scholar Recipient: Designing Automated Enforcement for Spectrum Regulation

16:00-18:00   **INNOVATIVE CHALLENGE FROM PIPES TO PLATFORMS - BY PTC JAPAN INNOVATION STUDY GROUP** | Tapa Tower, PTC Japan Suite

Organized by   **PTC J**

It is a mandatory condition to realize the application world by networks which consist of submarine optical cables, inland optical cables, and other networks. This time, we will focus on submarine optical cables, inland optical cables, and one unique application such as global chat system.

Moderator:
Yasuo Sato, Senior Manager, External Relations Division, NEX Corporation, *Japan*

Presenters:
ANTONIO ANGELOV, PR Manager, Welltool., Ltd., *Japan*
To a World with No Language Barriers Where Everyone Can Communicate Freely

TOSHIKAZU KATSUMATA, General Manager of Corporate Planning Department, TEPCO Optical Network Engineering Co., Ltd., *Japan*
Efficient Optical-Fiber Cable Maintenance by "Pole Search System"

KAORI SHIKINAKA, Deputy Director, Kokusai Cable Ship Co., Ltd., *Japan*
REDISCOVERY OF "ZERO" – Link Your Smiles From Under the Sea

18:30-21:30   **2019 PTC INNOVATION AWARDS GALA** | Tapa Tower, Tapa Ballrooms

An evening and experience designed to recognize the individuals and companies that have transformed and continue to transform the ICT industry and the markets PTC serves. As a non-profit organization, the Innovation Awards are a critical fundraising platform that enables PTC to further pursue its mission and to support community initiatives.

FULL CONFERENCE PROGRAM | WEDNESDAY, 23 JANUARY 2019

07:30–08:15   **PROGRAM PARTICIPANTS' BREAKFAST** | Rainbow Tower, Rainbow Lanai

Sponsored by   COMCAST 🦚 TECHNOLOGY SOLUTIONS

Breakfast is open to all Wednesday moderators, speakers, and panelists only.

08:00–11:00   **CONFERENCE REGISTRATION** | MPCC, Coral Lounge

Sponsored by   ▲ IRON MOUNTAIN® DATA CENTERS

08:00–14:00   **PTC HUB OPEN** | MPCC, Coral 3

08:30–09:30   **GRAB-AND-GO DELEGATE BREAKFAST** | MPCC, Coral Lounge

09:00–10:15   **TOPICAL SESSIONS** *(Held Concurrently)* | MPCC

09:00–10:15   Topical Session: *Constellations: From Blue Sky to Crowded Sky?* | South Pacific 1

The concept of using constellations of satellites in non-geostationary orbits has been all the rage in the satellite industry for the last several years. This movement builds upon the first generation of constellations launched in the 1990s and before, mostly for mobile communications. Advances in technology, especially miniaturization and the rethinking of conventional design and parts philosophies, however, have led to new approaches and new challenges. Dozens of proposals for constellations providing all manner of space-based services, from earth observation to broadband telecom and even Internet-of-Things monitoring have been floated. Some are now beginning to launch and others, which could have a profound impact on not just the satellite industry but the global telecom industry, are getting closer to the launch pad. In the meantime, as the classical geostationary operators appear to be retrenching while waiting to gauge the success of these non-geostationary systems, new ways to exploit the Clarke Orbit are also being pursued. This panel will review the progress of key proposals and systems and look at their ongoing challenges and successes.

Moderators:

TIMOTHY LOGUE, Senior Director, Sales and Business Development, Thales Alenia Space, *USA*
DEL SMITH, Space Lawyer, Lunar Development Company, *USA*

Panelists:

ERWIN HUDSON, Vice President, Telesat LEO, *Canada*
LON LEVIN, President & CEO, GEOshare, *USA*
RONALD VAN DER BREGGEN, Chief Commercial Officer, LeoSat Enterprises, *Netherlands*
NICOLAS ZIBELL, CEO, OneWeb solutions, *United Kingdom*

09:00–10:15   Topical Session: *Content Driven Cables - How are They Changing the SubSea Consortium Paradigm?* | South Pacific 2

• Have new entrants to the market changed the fundamentals of what it means to be a carrier?

• Is the next influx of new entrants going to come from the tier 2 content providers?

• How has investing in subsea cable systems allowed content giants to transition into the digital age and adopt a cloud-first approach?

• What's next? – Predicting new routes and the content players are to construct future pioneering subsea system.

Moderator:
ERIC HANDA, Co-Founder & CEO, APTelecom, *USA*

Panelists:
IAN CLARKE, Vice President, Global Submarine Sales, Ciena, *United Kingdom*
Can Content and Service Provider Design Requirements be Equally Addressed Within a Single Cable

IVO IVANOV, Chief Executive Officer, DE-CIX Group AG, *Germany*
How Traditional Traffic Flows are Changing: The Eve of New Global Submarine Cable Networks?

MICHAEL SAUER, Vice President Americas Partner and Federal, Aqua Comms, *USA*
Aqua Comms North Atlantic Loop

DIEGO RICCARDO TEOT, Sales Director, International BU, Retelit, *Italy*
The Role of Regional and Niche Operators in the Submarine Cable Industry

09:00–10:15   Topical Session: *Flexible Networks & Architectures* | South Pacific 3

How can better business decisions be reached in an environment of ever more sophisticated networks? How does new flexibility in optical networks benefit data center interconnects, hybrid cloud applications, service providers and enterprise networks? Is there better traffic volume data that can provide a data-driven basis for service pricing and margin calculation for CSPs? How does blockchain technology and its data "chain of custody" create business opportunities in new network architectures? How can telcos enhance new services by improving systems, applications, and infrastructure through more flexible and scalable solutions to address volatile business demand?

Moderator:
TBD

Presenters:
ANDREAS BECHTOLSHEIM, Chairman & Chief Development Officer, Arista Networks, *USA*
AVI FREEDMAN, Co-Founder & CEO, Kentik, *USA*
How to Monetize Your Network Data
ERAN HAGGIAG, Co-Founder & Executive Chairman, Clear Blockchain Technologies, *Israel*
CHAD LAMB, Chief Systems Architect, XKL, *USA*
Flexible Architecture – No Crystal Ball Needed

WEDNESDAY

10:15–10:30   **NETWORKING BREAK** | Tapa Tower, Palace Lounge, and MPCC, Coral & South Pacific Lounge

10:30–12:00   **CENTER STAGE SESSIONS** | Tapa Tower, Tapa 2

10:30–10:50   *Economic Realities, Policy Myths: A Conversation with George Ford*

Telecom and Internet regulators often create policies that have effects opposite of what they intended. They want more competition and then create policies that lead to less competition. They want more investment in next-generation networks and produce less. Good intentions produce harmful policies. Dr. Ford will discuss a number of key examples, examining policies on competition, investment, network neutrality, broadband deployment, and sponsored data access. He will also discuss how measures of success can be very misleading.

Interviewer:
GARY KIM, Consultant, *IP Carrier, USA*

Interviewee:
GEORGE FORD, Chief Economist, Phoenix Center For Advanced Legal & Economic Public Policy Studies, *USA*

10:50–11:15   *Data Infrastructure Needs for the 21st Century*

Data infrastructure spending is at an all time high, and unprecedented. Data is becoming the new oil for the 21st century. We now have the ability to collect almost infinite amounts of data and use AI to monetize this data. Many investors call this the fourth industrial revolution, whatever you call it, it will dramatically alter current socio/economic constructs. Computing and network architectures will likely be radically different to enable this revolution. Security and privacy will become more important in the 21st century.

• We will discuss how compute and network architecture will need to evolve in the next 20 and 100 years, and what this means for infrastructure.
• We will also discuss how important 5G, blockchain, and virtualization are to this infrastructure and how it could change current requirements.
• What will spending on data infrastructure grow at in the next five and 50 years? What are the bottlenecks to this growth?
• As always, the elephant in the room are the FANG companies. What will they do with their infrastructure investments? How can companies help them?

Moderator:
TIMOTHY HORAN, Managing Director, Cloud and Communications Research, Oppenheimer & Co. Inc., *USA*

Panelists:
RAUL MARTYNEK, Chief Executive Officer, DataBank, *USA*
JONATHAN SCHILDKRAUT, EVP & Chief Strategy Officer, CyrusOne, *USA*

WEDNESDAY

11:15–12:00   *Data to the Masses! An Exploration of Networks and Transformation*

The set of speakers in this session will explore research into network interconnection and transformation. We'll look at the burgeoning volumes of interconnection traffic and what's driving them. You'll hear hyperscaler perspectives and we'll look at transitions in network architecture and operational philosophies. We'll have a lively discussion of how these trends are colliding and shaping future requirements and current operational realities. Join us to explore these market and technology drivers.

11:15-11:17: Moderator introduction
11:17-11:24: TONY BISHOP, GXI Report
11:24-11:31: JAMES STATEN, Forrester Research Report
11:31-11:38: ROBERT PEPPER, Facebook Report
11:38-11:45: ROB VAN DEN DAM, IBM Report
11:45-12:00: Panel discussion

Moderator:
ERIC HANSELMAN, Chief Analyst, 451 Research, *USA*

Panelists:
TONY BISHOP, VP of Global Enterprise Vertical Strategy & Marketing, Equinix, *USA*
ROBERT PEPPER, Head of Global Connectivity Policy and Planning, Facebook, *USA*
JAMES STATEN, VP & Principal Analyst - CIOs & Digital Transformation, Forrester Research, *USA*
ROB VAN DEN DAM, Global Telecommunications, Media and Entertainment Industry Leader, IBM Institute for Business Value, *Netherlands*

12:15–13:45   **PTC MEMBERS' MEETING AND LUNCHEON** | MPCC, Coral 1 & 2

14:00–16:30   **PTC BOARD OF GOVERNORS MEETING II** | MPCC, South Pacific 4
For all incoming and continuing Board of Governors members only.

17:00–21:00   **PTC'19 FOOTBALL MATCH** | Hale Koa Hotel, Kuroda Field
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