Fading Memories

I attended my first SubOptic in 1993 standing day upon day on a stand inside a large heated tent outside the main palace in Versailles. It became the premier event of what would continue every 3 or 4 years thereafter, like the methodic migration of birds to their neutral nesting grounds.

SubOptic has thus become our industry’s titular event where industry friendships are begun and renewed, and colleagues and competitors alike come to learn and compare and rekindle. And for this reason alone I have “abdicated” for the first time in some 9 years my role as publisher/editor of SubTel Forum, and I have done so willingly because I believe as before in the considerable utility of SubOptic.

Our guest Editor and colleague, John Horne, has assembled an excellent special edition of SubTel Forum from some equally excellent industry leaders.

So do like me – put your feet up, read and enjoy.

And when you get the chance in Yokohama, come by and say hi. I’ll most likely be standing on our stand.

Publisher’s Note
Exordium (A beginning or introductory part, especially of a speech or treatise.)

I was going to change the title of my introductory words to this special edition of SubTel Forum introducing SubOptic 2010, but then I decided to look up the meaning of exordium (Wayne is a clever guy) and I realised how appropriate the word is.

To me—having presented a paper at the first SubOptic held in 1986 in Versailles—this series of conferences, the only one which spans the life of optical fibre usage in undersea communications, is a series of snapshots of the beginnings in our industry. Each conference essentially heralding a significant change: the first intercontinental use of the technology, the introduction of optical amplification and wavelength division, private systems, the boom, the bust, the survivors re-union explore best practise and how did we do it, and!!!

Well at SubOptic 2010 we will again take a snapshot of a new beginning of how the industry will develop over the next few years, in both business and technology terms. We do this by bringing together a unique grouping of individuals who represent all of the strands of the community which forms our industry. SubOptic is organised for the industry, by the industry and no other conference can do this.

This special edition of SubTel Forum, and I would like to thank the magazine for giving us this opportunity, gives an insight into what SubOptic as an organisation is, what it is trying to achieve and more detail on the evolving program for SubOptic 2010, our event, which is going to be held in Yokohama in less than three months time.

Fiona Beck our President gives her view of the Magic of SubOptic and its value to our industry. Colin Anderson gives an update of our Program, especially the Master Class/Tutorials which are offered freely to attendees. The Hosts provide information about Yokohama, a City of warmth and culture as well as a seaport, and the Accompanying Persons Program that will be available. Helen Veverka as a previous user of this program gives her perspective of its value in support of her partner.

Keith Schofield talks about the first of our Interim Activities, the development of a Model Contact with Guidelines and Elaine Stafford introduces the second activity we are proposing, the development of a Reference Guide, which we hope will be of similar value to the industry.

There are three articles from Main One, Apollo and Xtera giving their view as to the value of attending SubOptic 2010, why they specifically attend and what they expect to gain from their attendance.

Finally, I have tried to bring all the themes together and present an article on the substance of SubOptic and the depth and breadth of the support we receive from the industry, which enables it to be of value.

Paraphrasing our Constitution “SubOptic exists to promote the interests of the submarine telecommunications community by exchanging ideas and information, educating within the Community and fostering debate.”

It is your organisation, use it and support it—See you at Yokohama!

John Horne
Secretary of the SubOptic Executive Committee
Publisher's Note
Wayne Nielsen

Exordium
John Horne

The Magic of SubOptic
Fiona Beck

石の上に三年
Three Years on a Rock
Colin Anderson

Main One Supports SubOptic
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Yokohama and the Accompanying Person's Program

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Daniel Hughes

The Value of SubOptic Or The Substance Which Underpins Its Magic
John Horne

SubOptic Partner Experience
Helen Veverka

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Working Group Light The Way To A Standardised Construction Contract
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SubOptic 2007 photos
by Steve McClelland

Special Edition
February 2010
#49
SubOptic 2010

enabling the next generation of networks & services

The “MUST ATTEND” Conference of the Industry,
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Register to be part of SubOptic 2010
May 11-14th, 2010
Pacifico Yokohama Conference Center, Yokohama, Japan
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Fujitsu is a leading provider of customer-focused IT and communications solutions for the global marketplace. Headquartered in Tokyo, Fujitsu Limited (TSE:6702) reported consolidated revenues of 5.1 trillion yen (US$43.2 billion) for the fiscal year ended March 31, 2007. In the submarine cable industry, Fujitsu is one of the most experienced players in the world. In 1969, Fujitsu developed the very first Japanese coaxial submarine cable system, and since then, Fujitsu has installed more than 70 submarine cable systems around the globe. Fujitsu provides planning, design, installation, commissioning, and project management services to complete full-turn-key projects of any size, on time and to the full satisfaction of our customers. Fujitsu is also a leading supplier for systems upgrade projects with highly reliable technologies and excellent engineering performance.

NEC Corporation is one of the world’s leading providers of Internet, broadband network and enterprise business solutions dedicated to meeting the specialized needs of its diverse and global base of customers. The NEC Group employs more than 150,000 people worldwide and had net sales of 4,652 billion yen (approx. US $41 billion) in the fiscal year ended March 2007. In the submarine systems industries, NEC is among the world leaders for its innovative technologies and excellent track records, having successfully completed many of the world’s most important cable systems.
SubOptic2010 is supported by many sponsors. These conference sponsors increase the value of conference.

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The Magic of SubOptic

Fiona Beck
SubOptic is one of those industry associations that has been described as dynamic and inspired. Bold words for an industry and association that has “been around” yet these are words I hear often along with, it’s the only one event I make sure I don’t miss. If you talk to anyone you will quickly understand SubOptic is an organisation that fosters a culture of research while, at the same time, bringing the industry together. But there is something else about SubOptic; it is more than just the event that happens every three years. SubOptic is a leadership vehicle, an archive vehicle and a vehicle that fosters co-operation and networking.

As we approach SubOptic 2010 I am very excited by the prospect that the industry is doing very well despite such difficult economic times. If anything we have ridden the downturn a lot better than most industries. It is fair to say though, we have been through many cycles before and we have sharpened our business pencils many times, such that we know how to get through difficult times. Not surprisingly I think the continued growth in broadband and the need for accessibility, reliability, and redundancy has meant that communities are depending on us now more than ever to stay connected.

It is with this in mind that the vision for SubOptic is about enabling the next generation of networks and services. Actually this is also the theme of the next conference in May 2010 in Yokohama Japan. What struck me as unusual in our industry is that where we need to, to get the job done, we will link with companies that are typically competitors. A classic example is the SubOptic conference itself where the co-hosts are NEC and Fujitsu. Both of these companies are important suppliers in the Submarine Network Business and yet have partnered together to work on an event that benefits the industry as a whole. I commend Fujitsu and NEC on their partnership approach to the industry and to this event.

Being your Best – Bring it On

The SubOptic event is the best of the best – this is the one event where not only do we re-connect and we see what is out there but more importantly we see where things are going. It is truly the pinnacle event for our industry.

I have always been proud to be associated with SubOptic. Initially I first became involved through my position as CEO of Southern Cross Cable Network, a submarine cable system. I quickly came to realize that SubOptic is an organization which provides a single voice for the industry and my vision is to empower that voice. More and more the industry, which once
seemed to be narrow in its focus, is becoming more integrated with the rest of the global village. We are seen as a key infrastructure player and, in recent years, with outages caused by various undersea earthquakes and landslides it has become only too clear how important this infrastructure is to an economy. Indeed the value of our infrastructure is becoming more and more evident to governments, security advisors, investors and businesses and consumers at large.

**The Advocate for Change and Catalyst for Research**

SubOptic is not only a forum for exchange of ideas but also a place for carriers to advocate their needs; it is a catalyst for research, an organization for networking and increasingly a body for the development of standards. For the development of standards we have developed the concept of interim working groups. These are voluntary based - industry wide - partnerships of people that come together to bring clarity, guidance and resource to an area of industry significance. The promotion of the working group concept will also provide a mechanism for new topics, debates and progress to be made by the industry in a more enduring manner.

I am very pleased and excited to see the first body of work in this area of standards with the draft framework and guideline for a standard submarine cable construction contract. This framework, once finalized, will be an invaluable resource that can be used by our industry and other players associated with our industry. It is an enduring document and one that has been developed in consultation with all areas associated in the industry. Please make sure you look at this document by logging on to our website www.suboptic.org and follow the link to the Model Contract with Guidelines.

**The Involvement of an Industry**

SubOptic as we know is a nonprofit organisation created by the industry for the industry. It is operated by voluntary contributions and time by its member companies on the Executive Committee and associated other committees. It is unique in that it is not dominated by one company or area but has global representation from all continents and aspects of the submarine value chain. Its membership has varied since its formation from between 14-16 member companies, representing the various strands of our community. The membership changes between each conference cycle, reflecting the changing composition of our community. This allows the Executive Committee’s membership to reflect the changing realities of our industry and ensures new members are encouraged to join.

If you or your company are looking to get involved in the industry and to be truly considered a credible player who adds value then this is not only the event to attend but SubOptic is the organisation to be actively involved with. Whether your involvement is at the Executive, programme or a working group level, all contributions are essential. The SubOptic organisation exists to foster debate, exchange ideas and act as an educational resource for the entire submarine telecommunications community.
I think the Yokohama event will continue the magic that is SubOptic. The global economy is turning the corner with increasing content being developed and with video applications being used, more and more bandwidth is being consumed and needed. Bigger – faster - pipes. Speed that is cost effective and with access that doesn’t go down. Customers know what they want and we need to be a step ahead of the game to deliver.

The Place to be in 2010

This year I am very pleased to say SubOptic 2010 will be bigger and better than ever. We have already sold out the exhibition area and are looking to see other ways we can expand this prime activity. We have more papers than at the last event and the quality of those papers has been vetted by a group of independent referees. Yokohama, Japan is an exciting venue and NEC and Fujitsu have worked tirelessly to make sure this event will be the one to remember. So mark 11th – 14th May in your diary as the must attend event for the year and also think about what you can do to be part of SubOptic. Your support, contribution, and energy are what make SubOptic great.

Ms Beck is the President and Chief Executive Officer for Southern Cross Cable Network. She was appointed to this position in May 2001 where prior to this she represented Telecom NZ as a Director on the Board of Southern Cross Cables and various other major companies such as EDS (NZ) and ConnecTel. Ms Beck was a senior manager within Telecom NZ responsible for Telecom’s corporate planning, EVA analysis, capital investment reviews and corporate advisory service. She is a chartered accountant and holds a Bachelor of Management Studies (Honours) degree in Accounting and Finance from Waikato University, New Zealand.
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Three Years on a Rock

Colin Anderson
For the second time in the history of SubOptic, Japan has the honor of hosting the conference. While Japan may seem far away for some, we should recognise the Japanese proverb 自業自得 (“jigou jitoku”), literally “one’s act, one’s profit / advantage”. It is similar to the English expression “you reap what you sow”. In case of SubOptic 2010, I am personally confident that you will reap many benefits from your investment in time and travel to attend.

The conference in Yokohama this year promises to be a very interesting and lively one. If you have downloaded the preliminary Conference Program from our website www.suboptic.org, you will see that the Program Committee, with the help of many enthusiastic authors, has been able to develop fuller program than any previous conference. And in respect to the location, Yokohama, and our hosts, NEC & Fujitsu, each session of the conference has been given its own Japanese theme.

We hope and expect that each conference participant will take away not only new learning from the program itself, and new business opportunities from related meetings, but also some increased appreciation for Japan.

Another old Japanese proverb, 石の上に三年 (“ishi no ue ni san nen”), (literally “three years on a rock”) aptly captures the time and energy which the SubOptic organising team have put into the upcoming conference. Figuratively, it means “if you sit on a big stone, it takes a long before it becomes warm” or in other words, “you should expect to work at something big for three years before you see real results”.

Well, I think the members of the Program Committee, along with many hard-working staff in NEC & Fujitsu, have had our collective posteriors on the SubOptic 2010 rock for over two and a half years now - and I can assure you that it is definitely warming up!

As this Special Edition of Submarine Telecoms Forum is published, there are less than 3 months until the conference begins. We have had a magnificent turnout from authors. Over 150 original papers will be presented at the conference - which is significantly greater than any past SubOptic.

And in addition to these oral and poster presentations, the conference also includes seven MasterClass Tutorials, one Workshop, and two Round Tables - all open to all registrants at no extra cost.
The complete conference program, including a listing of all of the paper titles and authors, is available for download from the SubOptic web page www.suboptic.org or directly from the link to the SubOptic 2010 pages on the website.

However, the details of these MasterClass Tutorials, Workshops, & Round Tables were not available before this Preliminary Program went to press, so I’d like to use this opportunity to elaborate on them.

One last Japanese proverb 一石二鳥 (“isseki nichō”) - literally means “one stone, two birds”. This is the same as the English “to kill two birds with one stone” or “to achieve two things with one action”. Moving the metaphor from the rock on which the Program Committee has been sitting, to the stone in the hand of the conference attendees, I’m sure that you will find that you will kill several birds with one stone at SubOptic 2010. For example, you will be able to:

- listen to, participate in, and learn through each forum - including the diverse MasterClass Tutorials, the Poster Presentations, the Round Tables, Workshops and Oral Sessions;
- mix in person with your customers, your competitors, your competitors’ customers, your sub-contractors, and many other industry colleagues; and
- enjoy several evening social functions in the attractive city of Yokohama;

all with just one trip to Japan!

I hope that you do attend SubOptic 2010; that you enjoy the conference; and that your business benefits greatly from your participation. And perhaps you may even find a little free time for a closer look at Yokohama. I look forward very much to meeting you there in May!

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### An Overview of the MasterClass Tutorials, Workshops, & Round Tables at SubOptic 2010

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Full details of these conference sessions follow on the next page.
Governments and the general public continue to believe in various myths about undersea cables - to the extent they are aware of undersea cables at all. These myths range from mistaken beliefs about the primacy of satellites in international communications, the environmental harms of cable installation, and an oversupply of international capacity to outlandish but surprisingly common misunderstandings that sharks represent the principal threat to undersea cables or that cables have a diameter of half a meter or more.

This basic ignorance is shocking given the paramount importance of undersea cables to the global economy, national security, and citizens’ daily lives, and it greatly complicates the installation, operation, and maintenance of undersea cable systems around the globe. Governments adopt - or fail to adopt - policies and regulations, thereby driving up costs, lengthening project and repair timelines, and increasing the possibility of conflict with other seabed activities.

To provide but one egregious example from the United States, the White House Task Force on Oceans Policy recently conducted dozens of roundtables in developing a new national plan for coastal and marine planning, yet declined to conduct a roundtable with the telecommunications industry, as there were “too many other issues to consider.” Instead, the Task Force has framed oceans policy largely as a conflict between the energy and the environment.

In recent years, a number of commentators have proposed educating government policymakers and regulators about the legal regime protecting undersea cable-related freedoms. While such efforts are important, they are insufficient and in some cases counterproductive, as international law arguments are often disparaged as an affront to national sovereignty. More than anything, governments need a political reason for acting on undersea cable-related matters.

This Master Class seeks to provide undersea cable operators, suppliers, and service providers with the tools for combating ignorance about undersea cables and thereby improving government policies and regulations.

The presenter for Part 1 will be Kent Bressie, a partner with the law firm of Wiltshire & Grannis LLP in Washington DC, USA. Kent is an expert on telecommunications regulation and international trade and investment.

**Part 2: Key Commercial Contracts in the Submarine Cable Business**

Aside from financing contracts (which this session will not cover) there are a number of important commercial contracts which anybody involved in the submarine cable business should understand. This session will analyse them as follows:

- **Construction & Maintenance Agreement** – or “C&MA”. In the case of a consortium cable this is the key contract entered into between the various member-operators. It governs their relationship and how decisions will be made about the cable as well as how they divide costs and capacity.
- **Cable System Construction Agreement** – this is the contract with the system supplier under which they supply and install the cable. SubOptic’s Legal Working Group has developed a new model contract for this and there is a separate session to go through it so this session will only touch on this briefly.
- **“IRUs” and capacity leases** – contracts by which capacity on a cable system is sold or leased to customers. There is still a great deal of misunderstanding in the industry about the meaning of an “IRU” and this session will attempt to give some clarity on the subject!
- **Landing Party Agreements** – by which a licensed operator in a country where the cable lands agrees to provide a landing station and, usually, backhaul. They may also act as a sales agent of some kind.
- **Maintenance Arrangements** – the contracts by which the cable is to be maintained – either by a specific arrangement or else by means of joining a regional maintenance programme.

The presenter for Part 2 will be Mike Conradi. Mike is a partner at specialist technology law firm Kemp Little LLP, and his focus is on giving both commercial and regulatory advice to clients in the communications and technology sectors.

**MasterClass Tutorial #2: Benefits of Proper Route Engineering to Mitigate Risk During System Design Life**

This Tutorial will look at the important issues related to proper route engineering, and show how effective route engineering can be used to minimise both risk and cost over the lifetime of a submarine cable system.

More details of this MasterClass Tutorial will be advised by e-blast and posted on the SubOptic web site in the near future.

**MasterClass Tutorial #3: Global Capacity Demand Drivers & Network Deployment Trends**

With the glut of undersea capacity gone, the demand for new capacity is fueling new investment in cable construction and system upgrades. The robust pace of demand growth and roll-out of new services present new challenges in the design of undersea cable networks. At the same time operators continue to struggle against rapidly declining capacity prices.
Specific areas of focus in the tutorial include:

- Global Internet backbone capacity traffic growth trends and undersea cable utilization
- Trends in undersea cable system configuration and design
- A review of wholesale capacity pricing trends around the world

The tutorial is suited for attendees seeking a deeper understanding of bandwidth demand trends that drive new system construction and upgrades as well as the capacity price trends that impact cable operators’ business models.

This MasterClass Tutorial will be presented by Alan Mauldin (TeleGeography Research) & Jim Baroni (The David Ross Group).

Alan Mauldin is a Research Director at TeleGeography heading their Global Bandwidth Forecast and Global Internet Geography research services.

James Baroni is VP of Network Engineering for the David Ross Group, providing telecommunications consultation, principally within the undersea cable system industry, with expertise in the areas of network planning, design, engineering and procurement.

MasterClass Tutorial #4: Understanding Permitting

The complex and all important matter of “permits” is the topic of this Tutorial.

It will look at operational permits, landing permits, operator permits, environmental permitting, etc.

More details of this MasterClass Tutorial will be advised by e-blast and posted on the SubOptic web site in the near future.

MasterClass Tutorial #5: Enabling Technologies for Ultra High Speed Transmission


This tutorial will summarize the basics and recent progress of digital coherent technology and its performance in long-haul optical transmission system. At first, functional blocks of digital coherent receiver including both optical and electronic components and digital signal processing (DSP) will be reviewed. Next, electronic equalization algorithms to compensate and/or mitigate both linear and non-linear impairments will be explained in detail. In particular, we will focus on describing the algorithms for improving both the intra- and inter-channel non-linear tolerances and an experimental demonstration of 112 Gb/s dual-polarization QPSK (DP-QPSK) digital coherent transmission. Then the transmission performance will be discussed through the results of recent transmission experiments and simulations in view of dispersion map optimization for long-distance transmission and prospects of digital pre-equalization technology.

Authors: Shoichiro Oda, Toshiki Tanaka, Takeshi Hoshida (Fujitsu Laboratories Ltd)
Presenter: Shoichiro Oda
Session Chairman: Yasuhiro Aoki (NEC Corporation)

Part 2: Forward Error Correction: A Powerful & Indispensable Technology for Ultra High Speed Transmission

In this tutorial, the basics of forward error correction (FEC) will be explained. We will review the deployment history of FEC’s, where concatenated codes classified as second generation have been used for submarine cable networks. We will discuss more powerful FEC based on soft-decision decoding, which is classified as the third generation. The positive impacts on existing systems will also be discussed. We will relate each generation of FEC to the Shannon limit, and discuss the ultimate net coding gain as a function of code rate. The additional useful functionalities obtained by employing FEC’s and the application of FEC to error monitoring for adaptive equalization will be covered. An overview of FEC’s for upcoming multi-level modulation based digital coherent receivers will also be discussed. Although 100 Gb/s dual polarization QPSK performs well, it nevertheless requires a higher coding gain. This has revitalized research interest in soft-decision FEC for implementing digital coherent receivers. Partitioning of the OTU4 framer and DSP will be discussed from the view-point of circuit complexity. The recent challenge of novel LDPC codes for 100 Gb/s systems will be introduced.

Authors: Kiyoshi Onohara, Takashi Mizuochi (Mitsubishi Electric Corporation)
Presenter: Kiyoshi Onohara
Session Chairman: Yasuhiro Aoki (NEC Corporation)

MasterClass Tutorial #6: Lessons Learned in Oil & Gas

With the Gulf of Mexico system recently completed in 2007-8, the latest generation of oil & gas systems is coming into service with sufficient implementation and operations experience yielding real world data.

New systems are planned off the coasts of Australia and West Africa with a variety of possible business models being considered.

Specific areas to be addressed in the tutorial will include:

- Latest trends in oil & gas system designs
- Recent business model considerations for oil & gas systems
- Review of actual implementation issues
- Review of selected operational data provided by operators

The tutorial is aimed at attendees wishing to gain insight into the latest developments in and benefits of undersea communications for offshore oil & gas assets.
The presenters for this MasterClass Tutorial will be Guy Arnos & Stephen Lentz (WFN Strategies). Between them they have over 45 years experience in the planning, implementation and operation of optical communications networks including many in the oil and gas industry.

**MasterClass Tutorial #7: Capacity Upgrades - Extracting Maximum Capacities from Existing Systems**

As installed undersea connectivity continues to increase, operators seek ever more efficient means of extracting maximum capacity from their existing systems. This MasterClass aims to provide a view of the process of evaluating SLTE technology evolution and competence to supply a subsea environment.

It includes discussion of the competitive upgrade environment as well as the upgrade price compression observed in recent years and its influence on the scheduling of upgrades. The tutorial touches on the importance of protecting an operator’s initial investment when electing to upgrade using a vendor other than the original system supplier.

This tutorial is aimed at network planners who seek a better understanding of capacity upgrade options, including technology trade-offs and an evaluation of implementing an upgrade compared with a capacity procurement approach. Specific Topics include:

- Upgrades strategies: segment concatenation, additional channels, higher transmission speeds
- New modulations and 40 Gb/s and 100 Gb/s line rates
- Future client side interfaces such as 100 Gigabit Ethernet
- Intelligent terminal equipment including wavelength provisioning, wavelength switching & rerouting, and inverse multiplexing
- Challenges for upgrade contracts with emergent SLTE suppliers

**Jo Conroy**

Jo Conroy is Principle Network Engineer for European Architecture and Engineering at Level 3 in London.

**Guillermo Canete**

Guillermo Canete is Transmission Technology Manager for Telefonica in Miami, Florida. Guillermo holds a Bachelor’s degree in Electronic Engineering, and Master’s degrees in Digital Telecommunications & Finance all from the Universidad de Buenos Aires, Argentina.

**Simon Cooper**

Simon Cooper is a Vice President of Network Strategy & Architecture for Tata Communications, a member of the US$ 62.5 billion Tata Group. In this role, he works closely across all lines of businesses to identify Tata Communications’ future needs and business opportunities. A graduate of the University of Nottingham, Mr Cooper has a Bachelor’s degree in Electronic Engineering.

**Round Tables & Workshops (Detail)**

**Round Table #1: The Submarine Cable Environment: Physical, Biological, Governmental, Political & Financial**

Organised and moderated by the ICPC, this Round Table will look at the diverse range of aspects which make up the “environment” in which a submarine cable is laid.

The participants will include Mick Green (BT), Graham Evans (EGS Survey), plus other to be advised.

More detail of this Round Table/Workshop will be advised by e-blast and posted on the SubOptic web site in the near future.

**Workshop #1: The SubOptic Construction Contract Workshop: A Model for Successful Submarine Cable System Contracting?**

This workshop is organised & presented by representatives of the SubOptic Interim Activities Working Group, and moderated by Keith Schofield (Pioneer Consulting) who is the IAWG Chair.

At SubOptic 2007, in one of the sessions, four presenters rose to speak about the opportunities for enhancing competition and effectiveness in submarine cable projects. One of those presented the case for all constituencies in the industry to get together to prepare a model construction contract to be offered as a starting point to the industry, to optimise the process of moving from tender to agreed contract. Afterwards, a number of attendees from across the industry expressed their view that not only was this collectively possible, but that they would support such an initiative on a totally voluntary basis.

After taking soundings across the industry, which confirmed interest in the idea, the SubOptic EC sponsored an Interim Activities Working Group to take on the production of a document to benefit the whole industry.

This workshop will introduce the completed result to the industry and explain the potential advantages to be gained from use of the model contract. It will also explain how the IAWG approached the task of producing a fair and balanced document, as well as the reasoning on how a 16-page model contract can serve the industry better than the multiplicity of 99-page templates that are currently used as the basis to commence procurement.

To the sceptical, the workshop, hosted by the IAWG, will be interactive, will include vigorous debate and will clarify why the submarine cable industry, (steeped in procurement competition since 1866) will enhance that tradition for the 21st Century, and finally catch up
with much younger construction industries who long ago discovered the benefits of a common contracting starting point. Come along and have your say!

Round-Table 2 (Plenary): Over the Horizon - The Future of the Industry An Industry Leaders Forum

If we take a step back and look at our industry today, we might well give ourselves a round of applause, or a pat on the back. It has recovered from the great crash of 2001 ~ 2003. We should be happy with the state of the industry in the past few years - but we certainly have no need to be smug - and we ought to ask “why has it been a positive period?”

Well, firstly the industry’s engineers have delivered multiple improvements in technology. The performance improvements in the laboratories have been astounding - and these have generally been translated into real commercial systems in increasingly short time-scales. The ability to create real improvements in capacity and cost per bit has been impressive. Fortunately, as any student of YouTube will tell you, that has recently been matched by the ability for society to consume the bandwidth.

Secondly, these developments were supported, if not driven, by liberalization across the continents, and commercialization of the agreements under which most cable systems are developed.

The typical bottlenecks which existed in the delivery chain have moved closer to the consumer. With the benefit of regulation and investment new technologies have emerged to provide broadband to the end user.

But as we experience continuing massive increases in demand, do we really need to worry? Unfortunately yes! The advances are primarily around the equipage of the system. As a system installer will tell you, the development and installation of a subsea cable is still a lengthy, challenging and capital-intensive endeavor.

Added to that, the resultant system needs to deliver returns over the long term and in the face of continuing technological advancements.

The time to market for a cable system often leaves the door wide open to new competitors, and this is an industry where the advantage often rests with the second entrant as opposed to the pioneer.

Coupled with the rapidly advancing technological environment, this challenges the development of systems with commercial debt. As a result, most systems are funded on a pure equity basis. This situation needs to change, particularly to support the under-developed parts of the world.

Finally, we always need to bear in mind that success is usually determined by the availability of applications to consume the supply that we create. In this industry, the ultimate demand for its services is somewhat remote from the supply. On the demand side, guaranteed end-to-end service delivery is paramount to focus on bandwidth intensive applications such as content distribution, video streaming, and private networks – all delivered with High Definition resolution. Close engagement with the demand side is critical to provide what the customer is ultimately prepared to pay for.

Not surprisingly, we face an environment where industry players may easily focus on “cash recovery” rather than margins and sustainability.

This is the time to reflect and reassess. This is also the time to speculate and to challenge the scenarios in live debate with the Leaders who are influential in shaping that future of our industry. This is the time to look “Over the Horizon” at the SubOptic 2010 Leaders Forum plenary Round Table.

The panel for this session will comprise a diverse group of top level executives and board members from the key stakeholders in the industry – including financiers; developers; installers; providers of Next Generation Network technologies; Data Centre operators, and maintenance providers.

The organiser & moderator for this Round Table will be Ed McCormack (MC Corporate Services). Ed has over thirty years experience in International business, including 12 years at FLAG Telecom (now Reliance Globalcom), serving as an officer throughout and a member of the board for eight years.

Colin Anderson has been involved in the international telecommunications networks industry for over 20 years, and has held a range of marketing and engineering roles in the areas of terrestrial optical networks and digital radio networks, before entering the submarine networks industry, where he has played a significant role in the design, bidding, award, and implementation of many international submarine cable projects - among them SEA-ME-WE 3, Southern Cross, Japan-US, FNAL, SEA-ME-WE 4, FLAG FEA, AJC, AAG, & Unity.
Seven seas. One solution.

In the submarine telecommunication business, NSW offers
- repeatered and unrepeatered cable systems
- turnkey cable supply and installation
- consulting, survey and post-lay services

Visit us at the Suboptic
May 11–14, 2010
Booth nº 39!
It’s A Family Affair

For those of you that are considering attending Suboptic 2010 for the first time and are uncertain regarding its merits, I hope this story tips the balance and provides you with both the reasons and the justification for travel, as, believe me, this unique event provides both by the bucket load!

Anyone wanting to understand Submarine Systems, or wishing to network with its industry captains, cable owners, operators or system suppliers alike, then this is the place to be. This year will be my first year attending as a System Owner. The Main One Cable System connecting West Africa to the UK. The timing of Suboptic happens to coincide with Main One Cable System inauguration, a vital time for any project.

Of course this is not the first time I have attended Suboptic. Although Suboptic only occurs every three years, I first attended as a supplier through STC, the Submarine Cable and Equipment Supplier, not the Saudi incumbent. I then attended as Alcatel Submarine Networks after they purchased STC (ASN is now known as Alcatel Lucent). When my career moved to Tyco Telecommunications (Previously known as AT&T Submarine Systems), my name tag changed again. Last Suboptic in Baltimore 2007 I attended as an Independent Consultant. I am not highlighting my career choices over the past 20 odd years, I am merely using this chronological list to demonstrate that the subsea industry and its people are constantly progressing, moving and being reinvented, all of which you need to comprehend to stay ahead of the game. I would also take this opportunity to warn you that the Subsea industry grabs you, body and soul, it being rare to hear of someone leaving the industry before retirement.

As my wife has pointed out to me on several occasions, the faces of the industry remain the same, it is just their business cards that change! In the past my wife has accompanied me to Suboptic as this is the one event where, every day, while you attend lectures or visit exhibitions stands, our partners are entertained by what Suboptic call ‘Accompanying Partner Programmes’. Through the years these programmes have enabled my wife to develop life long friendships with the ‘significant others’ of Industry piers and colleagues alike. It truly is a family affair!

With Suboptic only being held every three years each supplier is keen to show something new, better, faster than their rivals. It’s the one event where you can see actual equipment and speak to the engineers and designers themselves. In one week you can see and learn more about the industry than a dozen flights and meetings will provide you. Even if like me you have been around the industry for many years there is always something new to learn. Look out for the new entrants to the industry this year!

For me this year, as a new cable owner and operator, I will be keen to learn more about first line wet maintenance, restoration planning and improvements in Network Management. This event being spread over a generous few days, rather than hours, provides the forum for stalwarts of the industry to impart their knowledge and compare stories of mistakes to avoid. It allows you the time to network (see who is working for who!). With never less than 600 people attending and sometimes more than a 1000, if you have something to say, hear or learn you will find it at Suboptic.

Stop by my ‘Poster Session’ this year and you won’t be able to stop me telling you all about Main One, how we are an independent and privately owned company providing much needed capacity in multiple Terabits between West Africa and the UK.

It’s a great industry to be in, I hope to see you there.

Mr. Bernard Logan is the Commercial Director at Main One Cable Company. Mr. Logan has been involved in submarine cable systems for over 20 years, and has held positions of both Bid Manager and Senior Projects Manager in France and Singapore on a number of projects including SeaMeWe3, TAT12/13, Telic Phil and Jakarta Surabaya. He joined Tyco Telecommunications in 1998 as Director of Sales and Marketing in the UK, responsible for business development within the EMEA region and contracts, where his specific involvement included Yellow; TWA1; Esat2; Hugo; SMW4; Farice
Yokohama
and the Accompanying Person’s Program
SubOptic 2010 will be held in the Pacifico Yokohama Convention Center. The center has an integrated hotel, the InterContinental Yokohama Grand which will act as the hotel base for the conference. This will combine the intimacy of the Baltimore venue which was used for the 2007 conference, with the many advantages of a purpose-built conference center.

The city of Yokohama, one of the major port cities of Japan, is adjacent to Tokyo, and is part of the wider 'Tokyo Megalopolis'. It’s the world’s largest metropolis, with a combined population of some 33 million people - and is an exciting, attractive, cultural group of cities with a history spanning over 400 years. Together with it’s status as a major port for Japan, Yokohama has a long history of interaction with foreigners, even during the Edo period when Japan was under seclusion policy. Early May is a good time for weather in Japan - not too hot, not too cold, nor rainy.

**Beautiful night view of Yokohama: Minato Mirai 21**
Minato Mirai literally means “the harbor of the future”. It is a futuristic, new city area in Central Yokohama consisting of office and residential space, hotels, shopping centers, restaurants, convention centers and public parks. Development of Minato Mirai was started in 1983, and it is still going on.

The Landmark Tower (296 m) is one of Japan’s tallest buildings and the symbol of Minato Mirai 21. Visitors can access the building’s observatory deck, the "Sky Garden" on the 69th floor by means of one of the world's fastest elevators (750 meters per minute). Under good air conditions, Mt. Fuji can be seen from the observatory deck.

**Useful Websites**

City of Yokohama  

Yokohama Visitors’ Guide  

Yokohama Minato Mirai 21  

Visit Japan Campaign  
(Japan National Tourism Organization - JNTO)  
[http://www.visitjapan.jp/](http://www.visitjapan.jp/)
### Accompanying Person’s Programs & Excursions

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**Accompanying Person’s Programs & Excursions**

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**F. Hakone 1 day (JPY13,000)**

**SubOptic 2010 will offer several optional tours. For more details and online application, please visit us at www.suboptic.org.**

**A. Yokohama walking tour half day**

- **Yokohama Doll Museum**: This museum of fantasies exhibits over 9,800 dolls from about 140 countries all over the world.

- **Silk Museum**: This unique museum exhibits the process of raising silkworms and producing silk, references on the history of silk and its extravagant use. The various silk products on exhibit are all sure to attract the interest of the visitor.

**Yokohama Archives of History**: Housed in the reconstructed former British Consulate building, this museum’s exhibits, references and storage total as many as 140,000 pieces, including photographs, ukiyo-e woodblock prints and Yokohama newspapers.

**B. Ikebana & Tea Ceremony**

All participants will have the opportunity to try Ikebana. Enjoy experiencing tea ceremony to touch the heart of Japanese culture.

**C. Old Capital “Kamakura” 1 day**

- **Tsurugaoka Hachimangu Shrine**: One of the most famous Shinto Shrines in Kamakura.


**D. Japanese Garden and Shopping**

- **Sankei-en Garden**: Sankei-en is a stroll-type garden full of masterpieces of architecture. Hara Tomitaro, a silk merchant, created the garden in the image of the Nara countryside. He opened the garden to the public in 1906. Sankei-en evolved as Hara scoured ancient capitals for buildings.

- **Motomachi Shopping Street**: Located in proximity to China town on the other side of the O-oka River, this street is a shopper’s paradise in Yokohama and is lined with many chic and fashionable clothing shops, interior goods stores, accessory shops, famous restaurants, coffee shops and bakeries

**E. Edo (old tokyo) Downtown 1 day**

- **Sumo Museum**: The museum underlines the role of Sumo as the Japanese national sport through collecting and maintaining artifacts and supports historical studies. Facilities include more than 150 square meters of exhibition space, a library, a study and over 160 additional square meters of storage space for artifacts not on display.

- **Edo-Tokyo Museum**: The Edo-Tokyo Museum shows how the 15th-century village of Edo grew to be Tokyo, one of the largest cities in the world. The museum, established in 1993, recounts this...
story of remarkable
growth through life-
size replicas and
detailed scale models. 
There is a life-size
reconstruction of the
Kabuki Theater, and
reconstructions of
Edo Castle and Nihonbashi Bridge.

F. Hakone 1 day

Lake Ashi: Excursion boats
give cruises around
beautiful Lake Ashi,
a crater lake with
a circumference
of nearly 18
kilometers. Lake
Ashi is also well known for the inverted reflection of
Mt. Fuji on a calm, clear day.
Useful Japanese Phrases

Greetings
Good morning.  Ohayo gozaimasu.
Good afternoon.  Konnichiwa.
Good evening.  Kombanwa.
How do you do.  Hajimemashite.
My name is …  Wtashi wa … to moshimasu.
I’m from ...  Watashi wa ... kara kimashita.
Nice to meet you.  Oai dekite ureshii desu.
How are you?   Ogenki desuka?
Good-bye.   Sayonara.
Good night.   Oyasuminasai.

Gratitude and apology
Thank you.   Arigato gozaimasu.
You are welcome.   Doitashimashite.
Excuse me.   Sumimasen.
I’m sorry.   Gomennasai.
Fibre optical submarine cables - longer, deeper and beyond limits

Within the area of submarine fibre-optic cable systems, Nexans has a solid technology base, gained from completing more than one hundred projects worldwide and installation of over 23,000 km of cable. Nexans also holds the world record for the number of fibres installed in one single submarine cable – 768.

Unrepeated Cable No. 1, URC-1, is our FO cable used for systems up to 500 km length. Repeated Optical Cable No. 1, ROC-1, is used for systems up to 2,000 km length and 3,000 meters water depth. For transatlantic/pacific ranges with lengths up to 10,000 km and at 8,000 meters depth, we have developed the new ROC-2. The ROC-2 is also developed for combined power and signal feeding to subsea installations and for scientific sensors, seismic arrays etc.

SubOptic 2010

www.nexans.no/sfs
SubOptic 2010 – Why You Should Attend

It is now just 4 months until the Submarine Cable Industry congregates in Japan for SubOptic 2010 and the planning for what is the industry’s preeminent conference is nearing completion. The programme promises to deliver a wide and varied range of papers and posters from many of the industries leading firms. I would recommend that you review the preliminary programme as displayed on the www.suboptic.com website to see the subject areas being covered through the various presentations.

A frequently asked question is why attendance at SubOptic would be beneficial to a company noting the time involved and the expense. As the Sales and Marketing Director of Apollo SCS Ltd I look at this question from the perspective of a cable owner and here I convey why Apollo SCS Ltd supports and attends SubOptic and what Apollo hopes to gain from the conference.

Participation at SubOptic is of great importance for any stakeholder in the industry for two basic reasons.

Firstly the Conference is designed to provide a participant with the latest news and updates from the various segments of the industry ranging from route planners, equipment manufacturers to Telecom Carriers. The ability to understand the latest developments and how they will affect and filter down across our industry enhances decision making and therefore can improve the effectiveness of any related business.

Secondly, SubOptic is a must attend event for Apollo due to the great networking opportunities afforded by a conference designed for the whole industry by the industry. SubOptic represents a rare occasion when many specialists of various aspects of the submarine cable industry can congregate allowing relationships to develop and allowing issues to be discussed and understood from new angles. It is a great opportunity to both liaise with customers of Apollo interested in transatlantic capacity products while speaking with our suppliers and gaining a better understanding of new technologies and what may be possible in the future to help us support our partners.

In 2010 there is an additional level of interest for SubOptic where the business is entering a very interesting period where we are seeing a dramatic technology step change.

Technical developments coinciding with the effects of the wider economic climate have made the discussion and understanding of upgrade possibilities vital for the supply of capacity to the market place. Much has been made of possible transition to 40Gbit/s channels and even 100Gbit/s channels on existing transoceanic cables. For Apollo, SubOptic represents a great opportunity to more fully understand both the customer demand for such a transition and the technical and commercial limitations and possibilities from the suppliers.

We are fortunate that this triennial conference coincides with a step change in networking technology and look forward to productive and lively discussion of future initiatives.

Mr Daniel Hughes is the Sales and Marketing Director for the Apollo Submarine Cable System Ltd, the owner and operator of the Apollo transatlantic submarine cable system providing capacity between the USA, UK and France by way of two fully diverse cables. He holds a BSc in Applied and Environmental Geology and an MSc in Applied Geophysics and Petroleum Geology from The University of Birmingham.
The Value of SubOptic
Or the substance which underpins its Magic

John Horne
The Value of SubOptic – or the substance which underpins its Magic

In another article in this edition, Fiona Beck our President describes the magic of SubOptic. This article attempts to identify the underpinning substance that illuminates that magic, both in the conferences we hold and the interim activity we are now developing.

The SubOptic series of conferences started in 1986, with the first being held in Versailles, near Paris. Since then a further six have been organised, if you include our forthcoming event SubOptic 2010. This longevity and the success of each, underpins our claim to be “The Olympics” of the industry. By holding each event at initially 4 yearly and now 3 yearly intervals, we have ensured that sufficient time elapses so that each event has something new to say to the industry and reflects the changing nature of industry over the past 20 plus years.

The reduction in interval a sign of the increasing velocity with which our industry works.

The success of this strategy can be measured by the approaching 4000 registrants who have attended for our events, during both the peaks and the troughs of the business cycles.

Paraphrasing our Constitution “SubOptic exists to promote the interests of the submarine telecommunications community by exchanging ideas and information, educating within the Community and fostering debate”.

How do we do it and also ensure the inclusivity of our Community.

Essentially we have three main conduits:
- The Conferences themselves
- Our website and web based Archive
- The Interim Activities that are being developed.

The Conferences

Each conference is Hosted by an organisation within our industry, who is a member of the SubOptic Executive Committee.. They provide the resources necessary to plan and implement the event through to its completion. A project in its own right. For SubOptic 2010 we have a first in that two organisations who normally compete, NEC and Fujitsu have joined forces to Co-host the Event, a situation that is quite analogous to what happens in practise within our industry.

For each conference we ensure that the program is selected from a representative sample of the industry itself and covers areas, which will be of value to the segments that make up whole community. The papers that are offered are “Peer Reviewed” and this helps involve the whole industry as well as making sure that quality is maintained. We therefore have a breadth and depth of program, which is unsurpassed by any other undersea communications event and can be demonstrated by the nearly 1000 presentations made since SubOptic’s inception.

We also top these up with a range of other presentations, some educational like our tutorial/master class programme and others such as topical Keynote Speakers and Roundtable discussions. In addition if we feel an important area is not covered in sufficient depth, we invite experts in the field to deliver additional presentations.

Fiona Beck has already mentioned how in our industry competing organisations, can come together to undertake joint enterprises when required and this again is one of the unique features of SubOptic. The whole event is strategically governed by an Executive Committee of 14-16 organisations, the program developed by a Program Committee of 6-8 organisations and the quality control maintained by a “Peer Review” Team of about 70 individuals representative of the entire community. This is without the support of the 150 or more authors who offer on a voluntarily basis to present at each conference.

Each conference is therefore truly representative of our industry and it is the only place where you can network with between 600 – 1000 or more individuals who cover...
not only different organisations, from capacity buyer to system provider, together with their important financial and legal/regulatory suppliers, but also the different functions within these organisations, from Chief Executive to Engineer. Or learn what is new within the industry and help to influence the way the industry moves forward in both a business and technical sense.

There is truly no other event in our industry where this is possible.

To assist the Networking an Exhibition is organised and many organisations find this an attractive way of introducing themselves to the industry or new potential customers, or showcasing what is new to their existing customer base.

This is also supported by a full Social Networking Programme, the highlights of which are the Opening Reception and the Gala Dinner. These offer opportunities to re-establish friendships, make new contacts and a way of saying goodbye in style. We are also fortunate that many organisations undertake their own social events, which support the overall networking opportunities provided by SubOptic itself.

We also recognise the value of having partners attend a conference such as ours, as in many cases they can be an integral part of our community. We therefore always hope to be able to provide an interesting and culturally significant programme, whilst the conference itself is underway.

Helen Veverka in a separate article in this edition gives an attendees view of the value these programs provide and the Hosts for SubOptic 2010 have also provided some additional information on the excursions that will be available at Yokohama.

To read more about the highlights of the Program for our forthcoming event, SubOptic 2010, read the article in this edition from Colin Anderson Chairman of the Program Committee.

The industry knows what it wants to achieve at such events, and it is only when an event is organised by the industry for the industry that such an event is achievable!

The Website and Web based Archive

The website at www.suboptic.org is our main conduit for informing the industry of our activities. Eblasts are sent out at regular intervals, giving not only an update on our activities, but providing a portal into our conference specific areas. These cover everything from our initial “Call for Papers”, “Exhibition and Sponsorship” opportunities, to finally an online “Registration” facility.

Robin Russell CEO Australia
Japan Cable:

“Sub Optic is the must-attend event on the Submarine Networks. There is no better way to find out what is happening, with sessions covering the full spectrum from commercial and regulatory to engineering, and the who’s who of the business in attendance.”

Nigel Bayliff CEO Huawei Marine Networks:

“SubOptic is recognised throughout the industry as the major event for showcasing technology and developments in this vital part of the global telecommunications infrastructure. Huawei Marine, whilst formed from two parents with significant histories, is just beginning its first growth phase, delivering innovation and a new view to the turn-key systems delivery field. By sponsoring and attending this conference, we will be able to showcase our unique product set to a much respected community of technical peers, operational users and thought-leaders across the whole landscape of the submarine marketplace. Whilst other regular events give us access to business contacts, this event specifically allows us to communicate with the technical, legal, commercial and operations people who deliver projects and operate networks across the globe.”
The pride of our website and possibly the current element with the most enduring value is our Web Based Archive. Since SubOptic 2007, our event held in Baltimore, SubOptic has prided itself on making the archives of its previous conferences, freely available.

To date those for SubOptic 2004 and 2007 can be downloaded directly from the website and those for SubOptic 1997 and 2001 are available by application to the author at john-horne@btconnect.com. Unfortunately those for the two earlier conferences are no longer electronically available.

The combination of these resources, make several hundred presentations covering the range from commercial to technical and operational areas available to our industry.

A record of downloads is kept and to date well over 300 web based applications have been made. In addition a number of requests have been received for the earlier material. This is important marketing information and goes into the mix, when we plan our next event.

It will be our intention to place the presentations made at SubOptic 2010 onto our website, some 6-9 months after the conclusion of the event. The website is also the Host of the documents that have been and will be developed from our programme of Interim Activities and these are described in more detail below.

The Interim Activities

Our first Interim Activity arose from a paper presented at SubOptic 2007, asking why in our industry no Model Contact for the provision of a system existed. This approach has worked well in other industries, improving the efficiency and speed of contract negotiation, without raising the issue of anti-competitiveness.

Since Baltimore an Interim Working Group of 12 individuals from a broad spectrum of our industry has been working to produce such a document. After two internal reviews, the document “A Model Contract with Guidelines” was placed onto our website, inviting all members of our industry to review it and provide their comments.
A second draft taking into account the comments received will be launched at Yokohama and form the basis of a planned “Workshop” by the IWG.

Keith Schofield from Pioneer Consulting, who chaired the IWG, gives a fuller picture of the challenges that needed to be overcome to develop this document, in a separate article in this edition.

A second Interim Activity being proposed to commence at Yokohama is the preparation of an Industry Reference Guide. This has been suggested as an initiative by Elaine Stafford from the David Ross Group.

In summary it is hoped to develop an online document, with appropriate links to other information. This guide could be used by new entrants to familiarise them with the industry, existing workers who wish to expand their horizons, provide an opportunity to capture best practise or an educational tool for those outside the industry, be they lawyers, financiers or government agencies.

Elaine has written a separate article in this edition providing more detail about this initiative and more details will be provided during SubOptic 2010.

These two may not be the only Interim Activity that SubOptic undertakes. The organisation is always interested in undertaking activities that are of value to our industry – And if something of real interest and value were to arise from discussions and debate at Yokohama, we would consider how we could support a further initiative.

**Finale**

SubOptic is unique in the industry as a mutual, non incorporated, non profit making international organisation that exists to promote the entire industry and advance the well being of our community.

It is steered and sponsored by leading members of the industry and its activities are open to every level, from those who manufacture systems, cables or their components to purchasers of cable networks and system capacity to business analysts and investors.

*It runs on an entirely voluntarily basis and depends upon the goodwill of the industry it promotes to continue in existence. It is your organisation, use it and support it!*

See you at Yokohama!!

---

**Simon Cooper**  
Vice President  
Network Strategy  
TATA Communications:

“For me it is its independence as a not for profit conference organised by Operators, Suppliers and related companies from many parts of the food chain that makes it interesting. It is an opportunity to hear multiple views, without the ‘professional conference company’ theme being super imposed, nor the typical roll out of the ‘look at what we do’ content of 80% of any presentation since the papers and presentations are thought through & filtered in advance; plus the conference’s reputation for quality and relevance. I also look forward to hearing opposing views and debate, something which is key to keeping the industry alive and something which a more profit/loss focussed conference agency will always struggle to achieve I believe.”

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John Horne has been involved with telecommunications networks for nearly 40 years, most of the time in the international field. John’s involvement with SubOptic started with the first conference in 1986, where he presented a paper on the branching potential for optical fibre systems. He was a Vice-Chairman of the Papers Committee for SubOptic 2001 and has been Secretary to the SubOptic EC since then. John is a Fellow of the UK’s Institution of Engineering Technology and holds a Diploma in Management Studies from Middlesex University.
Being part of the Sub Optic experience as a partner is one not to be missed.

I count myself very fortunate as I have accompanied my partner to two Sub Optics – Kyoto in 2001 and Baltimore in 2007. Both destinations were great and as I had never been to either destination before, I found the experience educational, enjoyable and exciting. But that’s not the only draw card. At Sub Optic you have an opportunity to meet your partner’s work colleagues, offer support when needed, familiarise yourself with the latest technology Sub Optic offers, make new acquaintances and friendships while enjoying the many cultural and social events, and there is always shopping!!. You will be given every opportunity to enjoy yourself, attending as many or as few of the organised events that appear in the partners program.

There are so many wonderful people in the telecommunications industry that I can now call my friends. Dean is great at introducing me to his mates and work colleagues and I really enjoy catching up with them and their partners. I have established many lifelong friendships and with that comes many international connections – which is always convenient when you travel!!!! I am not as shallow as that sounds – as I truly value friendship over location!!

When I arrived in Baltimore three years ago I was a little disappointed to find that my usual mates did not accompany their partners. Fortunately I met the most amazing lady Tracey Firth and her gorgeous partner Mick and had the most fun you can have in five days!!!! My jaw was tired from smiling (and probably talking too much)!!! Days were spent shopping and sightseeing, while evenings were spent dressing up attending gorgeous parties hosted either by Alcatel, Tyco, etc. The nights usually finished with singing and drinking at the nearby Irish Bar till closing time, I’m just sorry people have photographic evidence!!

My one regret is that I didn’t attend Sub Optic in Monaco!!! All I heard about was how amazing the Gala Evening was in the Grand Ballroom of the Monaco Convention Centre – but unfortunately some of us have to work.

There is certainly no stereotypical age or style at Sub Optic as delegates are all ages and come from all around the globe. Perhaps that’s why the overall feel of the convention is so appealing, friendly and welcoming.

I have come to learn that the submarine cable industry is like a big family and sub-optic is the big family reunion that occurs every three years.

I look forward to seeing many familiar friendly faces in Yokohama and hope that I convinced some of you to accompany your partners to Sub Optic. If it’s your first time – don’t miss it; or even if it’s your fifth - think of it as if you are supporting your partner through a work forum, and at the same time enjoying the cultural and social events organised by Sub Optic.

Make Yokohama a life experience for you – hope to see you there as I haven’t applied for leave from my workplace yet, but that shouldn’t be a problem as I know Fiona Beck and she will write a note for my Boss!
SubOptic Interim Activities Working Group
Light The Way To A Standardised Construction Contract

Keith Schofield
The Task

In his presentation at SubOptic 2007 Michael Carter of Alcatel Lucent proposed that there would be significant benefits if, like other comparable industries, the Submarine Cable Community could agree to standardise certain key aspects of the terms of engagement for a submarine cable construction contract.

I, like others, agreed that this would be a worthy collaborative endeavour, and within three months the SubOptic Interim activities working group (http://www.suboptic.org/About-SubOptic/Interim-Activity-Work-Groups.aspx) was formed to seek a collaborative endeavour from all parts of the industry to see if before SubOptic 2010, this could be turned into a reality.

Effort and Reward

Terms of reference were quickly agreed and by the end of 2007 the basic framework for a standard submarine cable contract had been discussed with representatives of the group (http://www.suboptic.org/About-SubOptic/Interim-Activity-Work-Groups/Working-Group-Members.aspx), drawn from all quarters of the industry (http://www.suboptic.org/About-SubOptic/Interim-Activity-Work-Groups/Working-Group-Companies.aspx). We would prepare a document that was usable by the whole industry. It would be simplified to the minimum commercial terms necessary to allow those engaged in competitive procurement to identify the key terms that would reflect the industry expectations for the appropriate allocation of commercial risk between potential suppliers and purchasers, whether they be for a consortium or private project. Furthermore, it was agreed that it was not the task of the group to impose one commercial solution on the industry, but that the standardised terms should allow full room for commercial negotiation and indeed modification of the standard terms to suit individual contractual needs. The areas for discussion would be collected into comments in guidelines, and potential areas of contention would also be addressed in guidelines to accompany the document.

Furthermore, the Interim Activities Working Group would submit the document to review by all the SubOptic Executive Committee, plus a number of others who had requested to participate in a ‘peer review’ process once the preliminary draft had been prepared.

At PTC 2009 the status was reported on, and for the next six months there followed a voluntary but intensive period of drafting to cover both the standardised terms and the guidelines.

In many respects this followed the familiar pattern of negotiation that occurs between supplier and purchaser. However, all sides were mindful of the duty to propose to the industry a document that was broadly-enough conceived to permit parties to take it and negotiate in a competitive tendering environment, simplified to eliminate the duplication that had made previous drafts unwieldy, yet comprehensive enough to define all the key terms that the industry needs to be resolved in a commercial construction contract for a submarine cable system.

In July 2009 the entire IAWG agreed that this stage had been met, and the document was issued for peer review for the following two months, with many comments and suggestions
received back from reviewing persons spanning a wide variety of constituencies, notably the carriers.

Late 2009

By October 2009 the SubOptic IAWG had a complete set of peer review comments assembled, and by December debated and incorporated these as appropriate. A face-to-face meeting in London addressed areas that were more taxing to achieve an industry consensus. This was achieved while fully encouraging competitive tendering and procurement through the provision to the industry of a balanced contract.

Where next

Prior to PTC 2010 SubOptic published a draft on our website www.suboptic.org for the whole industry to comment upon, and a number of entities commented upon the usefulness of having an independently conceived draft as a reference. In the same way as the peer reviewers had comments on the first draft, we expect the industry will have its own comments on the document. It is the intention that by SubOptic 2010 these comments will have been processed and the next version will have been issued and be available for issue to all the industry at the event itself.

...And so to the future

The issue of standardisation within a competitive framework has been raised again by the industry since SubOptic 2007, and it is expected that many questions and debates will be raised at SubOptic 2010 – for instance, why does the carrier community not have a more legally sound ‘standard’ IRU agreement? What opportunities are there to standardise on already pseudo-standardised technical activities within survey, burial and maintenance? How can standardisation occur in a manner that does not prevent commercial advantage of one side over another, but does permit competition? How can standardisation help to prevent ‘re-inventing the wheel’ thereby contributing to cost reduction in the industry?

All these issues and more will be debated in the halls and corridors of SubOptic 2010. I look forward to seeing you there!

The SubOptic Interim Activities Working Group is Chaired by Keith Schofield. For over 28 years, Keith has worked internationally in the submarine communications industry, initially in cable/process development and project management for a supplier, then for 17 years in a carrier, where he worked on both consortium and private contracts as a Director of Commercial Development, engaging in system management, due diligence, engineering and implementation consultancy. During that time Keith has worked on the commercial and engineering aspects of over 20 contracts both in repeatered and unrepeatered cables. He is a regular contributor to SubOptic, having presented papers at every event since 1997. Keith presently works in Pioneer Consulting as Director of Submarine Networks, providing expertise for carriers, suppliers and investors.
SubOptic’s Newest Industry Initiative:
SubOptic’s Industry Reference Guide

Elaine Stafford
Have you ever wondered:
• “Who can answer this question regarding submarine telecommunications?”, or
• “Is there a source of information to which I can refer new employees, to familiarize them with the submarine cable industry?”, or
• like some of us who have been in the undersea world for decades longer than we want to admit, “How can others benefit from my hard-learned lessons?”

SubOptic was conceived nearly 25 years ago as a forum to exchange information within our industry. Since that time, its conferences have served as the premier events of our industry, enabling key industry participants to share their expertise. Six SubOptic conferences have been held, collectively attended by over approximately 4000 people, and industry experts have presented nearly 1000 papers and many tutorials/workshops.

Over time, the SubOptic conference has evolved from an exchange of predominantly technical information to an exchange of information across the broad spectrum of business, financial, technical and service-related submarine communication topics. These conferences have provided a place to share new ideas; stimulated new business concepts and opportunities; and provided industry insight to newcomers to the undersea system marketplace. The conference proceedings should provide a rich insight into the evolution of the industry. However, tapping into this wealth of knowledge retrospectively is not easy, despite the value much of it retains today.

SubOptic’s newest initiative, targeted at capturing the existing information and encouraging information sharing in ways that extend beyond the tri-annual conference, is SubOptic’s own online industry reference guide. The concept was proposed last year by The David Ross Group (DRG) to the SubOptic Executive Committee, who endorsed the plan its most recent meeting.

There have been some very informative submarine communications publications in the past (none of them affiliated with SubOptic). These, however, have been focused primarily on the technology of submarine cables. You may remember an AT&T Bell Laboratories ‘Bell System Technical Journal’; a special edition of the IEEE Journal in the ’90’s, and most recently (and still available), the textbook edited by Jose Chesnoy (“Undersea Fibre Communication Systems”)and there have also been a number of books written on the history of submarine cable communications over the past few decades. But it is difficult to find a general, full-spectrum reference book documenting the set of issues influencing the development, construction, ownership and operation of a submarine communications network.

SubOptic’s industry reference guide aims to fill that void, with insights and information. It will be an information resource, but will not prescribe solutions. For example, there are many cable ownership structures, which vary from project to project. The guide will broadly describe the differences among the various categories – consortium, private, and the hybrid forms – and may describe different approaches taken by owners in each case, but will not purport to recommend one over another.

Similarly, a chapter on wet maintenance may provide an overview of the services provided by wet maintenance suppliers to cable owners throughout the industry, and how zone solutions generally compare to private agreements, but it is specifically not SubOptic’s intent to endorse one approach or vendor over the other. Rather, the intent is to educate the reader by broadly describing the types of options. The reference guide is intended to be as objective as possible; independent reviews of any newly-contributed material will be undertaken to assure this objectivity.
The goal of the guide is to make it easier for anyone to access helpful information about our industry. One user may be an individual who is very experienced in undersea technologies, but wants to know more about cable operations. Another user may be a financier new to the industry, who has been approached for money and needs to know more as part of due diligence.

As the aim is to make information readily available to those who need it, the information will reside on the SubOptic website, where it may be accessed free of charge. The cost of developing the reference guide will be borne by SubOptic, and kept to a minimum by using volunteers from the across the industry to build and maintain the guide.

The project will start by implementing an online searchable database of past conference presentations and papers. SubOptic will complement this historical perspective with more current industry-expert insight on key topics, through the addition of FAQ’s, lessons learned, and topic-overviews. The guide will also provide links to other helpful, relevant resources, such as the websites of associated industry associations. Think of the guide as an industry-specific encyclopedia, providing insight to a broad array of submarine communications topics, building upon past publications with commentary by the industry’s current experts.

The scope and depth of the guide will be determined by the volunteers who participate in this project. Our hope is that the guide covers at least the following topics, arranged as chapters in the reference guide:

1) Justifying Undersea Networks (Drivers, Markets, Success Prerequisites)

2) Network Planning Basics (Business Plans, Network Design Options and Approaches, Technology Fundamentals and Trends)

3) Building a Business Plan (Costs, Financing Methods, Demand and Revenue Models)

4) Organizing a Network Development Project (MOU, Ownership Structures, C&MA’s, Consortium Committees, Private Approaches, etc)

5) Commercial & Legal Factors (Regulatory Issues, Licenses, Permits, Landing Party Arrangements, Crossing Agreements, EIAs, Financing)

6) Procurement Process (Suppliers, ROMS, Competitive/Direct Awards; Scope of an RFP; DTS; ITPs; Pre-Contract Surveys; Supply Contracts)

7) Related critical construction activities (Stations, Backhaul, PoPs, NOCs)

8) Operating, Maintaining and Retiring a Network (Wet Maintenance Agreements and Options; Basics of Wet Maintenance Tools and Techniques; Cable Awareness Basics; Operations Planning; Provisioning; Administration)

9) Industry Association Overviews & Contact Information: ICPC, Maintenance Zones, etc. Reference Data: Glossary, Links, SubTelForum/SubOptic World Cable Map, etc
Wherever it is practical and appropriate, the guide will endeavor to provide representative, non-proprietary high-level samples of relevant plans, agreements, and other project documents. For example, a typical Table of Contents may be provided for a generic Landing Party Agreement; the scope of a typical desk top study may be summarized; and project timelines be characterized.

The guide will be launched formally at SubOptic 2010 this May, where SubOptic will solicit volunteers willing to commit their time and expertise to support the development of this resource. Our goal is to secure one individual editor per chapter, who will commit time and energy, to lead the development of a chapter focused on a specific topic in which they are expert.

Chapter editors will be part of the larger guide team, developing the guide as a whole. Together, the team will shape the guide. As individuals, chapter editors will be responsible to organize existing relevant publications from past conferences, write an introductory perspective for their chapter, prepare template examples of relevant documents, and develop FAQs, a glossary, and “lessons learned” sections. This new SubOptic industry reference guide is a significant undertaking, and will require each volunteer to dedicate significant time to the project.

The team will be supported by the SubOptic Executive Committee, specifically by John Horne (Secretary of the SubOptic), and by SubOptic’s software development subcontractor. SubOptic envisions an approximate two year project-development interval, as we appreciate that contributors are likely to have other obligations that limit their ability to complete the first issue of the guide in any less time.

As with the SubOptic program committee (also made up of volunteers), the team of editors will meet occasionally, as necessary to discuss and resolve common issues. Wherever practical, these meetings will be held via conference call, or will be coincident with major industry events to limit incremental individual travel demands. Our hope is that capable individuals will enthusiastically embrace the opportunity to work with other experts from across the globe on a project that has the potential to make a truly meaningful contribution to the industry.

If you are interested in participating in this project, SubOptic would certainly like to hear from you. Ideas and suggestions regarding this initiative are also most welcome. If you are interested in joining SubOptic’s industry reference guide development team, or have a suggestion regarding the project, please contact the author, Elaine Stafford, or John Horne at john-horne@btconnect.com.

Elaine has over thirty years of experience in international telecommunications, and specializes in the project development, planning, and construction management of undersea networks. Since 2002, she has been with the David Ross Group, supporting customers across the globe with their new international cable development and construction projects. In recent years, she has supported projects in Europe, Asia, Africa and the Middle East for incumbent carriers, mobile operators, and private developers. Elaine holds her degrees from Stanford University in California (MSEE) and Union College in NY (BSEE).
The Value of SubOptic to Xtera

Premium Industry Event

SubOptic is the biggest, most significant event and gathering in the submarine telecommunications industry. It is targeted and focused on the industry, and the program is comprehensive and dedicated to all aspects related to submarine telecommunications, from fiber to cable, electronic equipment, marine operations, legal, project management, and more. SubOptic is to the submarine telecommunications industry what the Olympics are to sports.

Relevant Industry Sessions

SubOptic provides a valued forum to obtain a snapshot of where the industry is currently positioned and to hear from industry experts on the current trends and issues in the industry. It is an ideal venue to learn about technological advances and industry direction. Both industry experts and novices benefit from the sessions which are given at a high technical level; it allows novices to learn about areas outside their field of expertise. Topics in the submarine telecommunications industry are covered in more depth and breadth than at any other venue.

Impactful Exhibition

The exhibition covers a wide range of equipment and services in the industry. For Xtera, the exhibition provides a targeted venue to market our products and services to highly receptive attendees. The SubOptic poster sessions and exhibition are very conducive to interactions between participants and foster an excellent networking experience.

Networking Opportunities

We meet a large number of people at SubOptic that we normally don’t see at other conferences. SubOptic offers a first-rate venue where all players, from suppliers to providers, in the submarine telecommunications industry come together. It’s a great forum to meet with peers and exchange ideas. This industry is relatively small, and SubOptic is the venue for the industry’s community gathering, giving attendees the opportunity to reconnect with old or lost acquaintances.

Expectations

We come to SubOptic to garner new views, see papers with elements of rigour and originality, and we hope to leave with fresh, thought-provoking ideas and many new industry contacts.

Dr. Herve Fevrier is the EVP and COO of Xtera Communications and has been with Xtera since 2000. Prior to this assignment, he was in charge of Photonics Development as well as Marketing, Business Development and Sales. Herve provides both the strategic and tactical leadership that leads to the acquisition of new customers, development of new products and partnerships with vendors and developers of complementary technologies. Prior to Xtera, Herve spent more than 17 years with Alcatel in a wide variety of responsibilities including Director of the Photonic Networks research unit, Senior Director for DWDM Product Development Worldwide, VP & GM Optical Networks Alcatel USA and VP Network and Product Strategy Alcatel Optics. Herve received his doctoral degree in Physics from the University of Paris and holds a Physics engineering degree from the Ecole Centrale de Paris.
Australia Japan Cable operates a multi-award winning submarine cable network linking Australia to the rapidly expanding Internet and data world. Our network architecture, combined with the latest technology, ensures we meet customer demands for voice, high speed data and multimedia service capacity at competitive prices. In the Northern Hemisphere, high capacity, low cost information super-highways link North America, Asia and Europe. Australia is directly connected to these information super-highways via the 12,700 km Australia Japan Cable network along a proven historically safe route.

Alcatel-Lucent provides solutions that enable service providers, enterprises and governments worldwide, to deliver voice, data and video communication services to end-users. As a leader in fixed, mobile and converged broadband networking, IP technologies, applications, and services, Alcatel-Lucent offers the end-to-end solutions that enable compelling communications services for people at home, at work and on the move. With more than 461,500 km of installed submarine networks, Alcatel-Lucent has played a key role in the development and implementation of the most important submarine cable networks in operation today.

Fujitsu is a leading provider of customer-focused IT and communications solutions for the global marketplace. Pace-setting device technologies, highly reliable computing and communications products, and a worldwide corps of systems and services experts uniquely position Fujitsu to deliver comprehensive solutions that open up infinite possibilities for its customers’ success. In the submarine cable industry, Fujitsu is one of the most experienced players in the world. Fujitsu provides planning, design, installation, commissioning, and project management services to complete full-turn-key projects of any size, on time and to the full satisfaction of our customers.

Fugro supports energy, civil industries and government organisations worldwide, collecting, processing and interpreting data relating to the surface and subsurface of the earth and sea. Maximise the investment in your submarine cable survey by using Fugro’s complete survey solutions and leverage significant savings over the lifetime of your network.

Glimmerglass is the premier provider of intelligent optical layer management solutions for telecommunications service providers and government. Customers worldwide deploy Glimmerglass solutions at submarine
cable landing stations to remotely provision, monitor and reconfigure optical paths in real time, greatly improving network availability and reducing OPEX.

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 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 the Americas, Europe and Asia.

Infinera provides Digital Optical Networking systems to telecommunications carriers worldwide. Infinera’s systems are unique in their use of a breakthrough semiconductor technology: the photonic integrated circuit (PIC). Infinera’s systems and PIC technology are designed to provide optical networks with simpler and more flexible engineering and operations, faster time-to-service, and the ability to rapidly deliver differentiated services without reengineering their optical infrastructure.

Mitsubishi Electric is a premier submarine cable system manufacturer and actively upgrading existing cables, mostly as prime contractor. Mitsubishi has been continually developing its product range to increase the volume of traffic that can be transmitted via existing submarine cable networks.

NEC Corporation is one of the world’s leading providers of Internet, broadband network and enterprise business solutions dedicated to meeting the specialized needs of a diversified global base of customers. NEC delivers tailored solutions in the key fields of computer, networking and electron devices, by integrating its technical strengths in IT and Networks, and by providing advanced semiconductor solutions through NEC Electronics Corporation. The NEC Group employs more than 150,000 people worldwide.

NSW is a leading manufacturer of submarine communication, power and offshore cables. In the field of submarine telecommunication cables, we offer turnkey solutions for both repeaterless and repeatered fiber-optic cable systems. This includes assessment and planning, sea survey, implementation, repair and maintenance services. NSW is part of the General Cable Group.

NTT-WEM is principally a submarine cable installation and maintenance company with vessels and resources in Japan and South East Asia. Additionally NTT-WEM maintains customer LTE throughout Japan and carries out fisherman negotiations and permitting work. With 114 years experience NTT-WEM has built global recognition as a high quality service provider.
Parkburn Precision Handling Systems Ltd (PPHS) is the world’s most experienced provider of specialist telecoms submarine cable handling systems. Since 1969, PPHS has designed and manufactured systems and equipment for a total of 73 cable ships and depots, providing the world’s leading operator’s unrivalled quality, reliability and performance, through a mix of technical innovation and tried and trusted methodology.

SBSS is a technology driven marine service provider specializing in submarine cable installation and maintenance, based in Shanghai, China. The purpose-built facilities and extensive experience enable SBSS keep building on our successful track record. The deep burial technologies, capability of burial up to 5m, further strengthens our services in providing our customers with optimized solutions. The company is also dedicated to providing maintenance support to the Yokohama Zone.

Southern Cross Cable Network provides the fastest, most direct, and most secure international bandwidth from Australia, New Zealand and Hawaii to the heart of the Internet in the USA. Southern Cross has the huge capacity bandwidth required for the widespread adoption of broadband in its markets. With offices in Bermuda, Sydney, Auckland and Wellington, Southern Cross has potential to provide for Australasia’s growing bandwidth requirements and is fuelling the broadband revolution.

Tyco Telecommunications is an industry pioneer in undersea communications technology and marine services. The company is a turnkey supplier of undersea telecommunications systems and operates a fleet of modern vessels and ROVs serving global undersea cable and offshore markets. Tyco Telecommunications is dedicated to providing total solutions and support for the construction and maintenance of undersea systems.

WFN Strategies provides telecoms engineering solutions for remote and unique communication requirements. WFN Strategies provides system strategy, acquisition and implementation support for all aspects of telecoms services, including developing the standards for system design, the tender process, contract forming, construction, physical deployment and maintenance.

Tata Communications is a leading global provider of a new world of communications. With a leadership position in emerging markets, Tata Communications leverages its advanced solutions capabilities and domain expertise across its global and pan-India network to deliver managed solutions to multi-national enterprises, service providers and Indian consumers.
Engineering submarine optical cable for telecom, oil & gas and government clients
What you’ve just been reading is the first of what we hope to be many special editions of SubTel Forum. This issue has been in the works for some time now, and I’d like to thank Mr. John Horne for stepping in as guest editor for this issue. I believe that John has assembled a great collection of authors for this issue—some familiar faces as well as some new contributors to SubTel Forum.

What is it that brings us all together? SubOptic.

SubOptic is the premier event in our industry, an event we’ve been building toward for the past 3 years. In that time, our industry has weathered a global economic crisis. Some players have gone off the board, while others have merged to form stronger organizations. What does the future hold? The place to find that out is at SubOptic 2010.

I think you’ll agree with me that the programs for SubOptic look amazing. I’m particularly intrigued by the Round Table discussions mentioned in Colin’s article. For an industry that’s all about communications, people don’t talk much, with apparent exception being at SubOptic.

While I have this platform, I would like to publically extend my thanks to the members of the SubOptic Executive and Program Committees, in particular Elaine Stafford, who were all so helpful in the execution of our 2010 Submarine Cable Map. Have you received yours yet? If not, it should be arriving soon in the mail.

I’ve done most of the layout for this issue while stranded in my home due to a massive blizzard that struck the east coast of the United States. The woods outside my office window look like Narnia, and Christmas is a long, long way away. Japan in Spring is looking pretty nice from where I’m sitting.

What else can I say? Call the airline, make your travel arrangements, and get yourself to Yokohama in May.