

COMMSDAY INTERNATIONAL

MONDAY 18 JANUARY 2010

The telecom capacity industry's daily

International bandwidth demand is recession-proof says Telegeography

The global recession has had no impact on international Internet bandwidth demand, according to TeleGeography strategy vice president Stephen Beckert. Speaking to Pacific Telecommunications Council attendees in Honolulu, he said international Internet bandwidth was showing no signs of strain with plenty of unlit capacity to take up the slack.

Nevertheless, international capacity was likely to be maxed out within four years at current growth rates. Bandwidth demand has topped 60% for the past three years, requiring capacity to double every 18 months. The trend forced suppliers to add more capacity last year than was operational in 2007.

But operators enjoy a healthy buffer. TeleGeography estimates just 13Tbps of the 53Tbps of potential transatlantic capacity has been lit, with just 10Tbps of that sold onward to customers. And just 4.6Tbps of that lit capacity is actually in use. Beckert said the Internet accounted for 77.3% of that bandwidth.

Video continues to be a prime driver for bandwidth, although P2P is now believed to account for just a fifth of Internet traffic thanks to the rise of legitimate Web venues such as Hulu. TeleGeography believes much of this consumption has shifted to HTTP services, which now comprise 41% of total Internet traffic. Streaming services represent 8% of Internet usage.

Beckert said capacity prices had collapsed by a weighted average of 70% over the past decade and were likely to continue the downward trend. "Prices really only go in one direction, and that's down." That performance would have been even worse were it not for tremendous growth in mobile termination. Average traffic growth of 12% to 16% annually over the past few years has also mitigated against further price declines. But this growth was not necessarily good news for operators as the number of competitors had skyrocketed in recent years. The result is a market that barely outpaces inflation, Beckert said. "The trend, at least right now, is not our friend."

New cables are coming online at rates "comparable to the peak of the boom" at the turn of the century, Beckert said. The industry added 14 cables last year and 15 the year before. It's expected to see another 13 come online by December. And pricing isn't helped by largely flat utilization rates caused by local access bandwidth outpacing new subscriptions.

But capacity providers can take heart in cratering costs. Investment is now around a fifth of 2001 bubble levels, thanks in part to shorter cables and a preference for single-span systems instead of costlier rings. Beckert said actual costs had also declined, meaning operators were unlikely to run into the disastrous financial challenges that characterized the last boom. "Every operator we've surveyed is adding capacity to their networks," he said.

Beckert said the 2014 deadline for capacity was based on current technologies and reminded the audience wavelength compression techniques had doubled transatlantic bandwidth over the last five years. "There is a vast amount of capacity that can be wrung out of these networks," he predicted.

VoIP REVOLUTION: Switched voice accounted for just 0.3% of used international bandwidth last year, and the segment is quickly falling to VoIP for international calls. Beckert cautioned even a modest market penetration would affect the fixed market, claiming German prices have fallen despite VoIP claiming just a 20% share of the customer base. TeleGeography believes VoIP now accounts for more than half the international voice traffic originating in France.

Skype remains the sole VoIP juggernaut, responsible for 54 billion of the 406 billion total international voice minutes used last year. "By our estimates, just under half of Skype's traffic is cross-border," Beckert said, adding he knew Skype hit a tipping point when his grandmother started using it. He said Skype was cannibalizing PSTN traffic at least in part and speculated international PSTN growth rates would be around 12%

Top 10 wholesale destinations

- 1 Mexico
- 2 India
- 3 Philippines
- 4 Morocco
- 5 United Arab Emirates
- 6 France
- 7 Ukraine
- 8 Pakistan
- 9 Turkey
- 10 Germany

Source: Telegeography

annually if Skype was a traditional carrier.

Beckert said the data showed voice was leaving the PSTN and would likely increasingly be used as a loss leader for other services. He predicted mobile operators would increasingly focus on ILD and said iBasis' recent acquisition by KPN was a sign of things to come. "It's not easy to get rich in the international voice market anymore."

Total voice traffic grew 8% in aggregate last year, signaling a slowdown that shows no sign of ending. Beckert blamed the global recession and said the US housing bust had decimated traffic into Latin America. The segment surged 35% in 2005 but suffered a rare contraction last year as immigrant laborers returned home after US construction work dried up. "For some destinations in Latin America, traffic has fallen by 20%," he warned. Operators carried a collective 405 billion minutes of voice last year.

The wholesale market is now growing faster than retail, although revenue growth is down. "A bit of a bright spot," Beckert told attendees, noting the African segment doubled between 2004 and 2008. But carriers have been impacted by regulatory shaping in some markets, with European minutes down 1.5 billion thanks to EU interference in mobile termination and other issues.

Mobiles now account for about half of all terminated traffic, thanks in part to fixed mobile substitution and the propensity of subscribers in emerging markets to bypass fixed services altogether. "A lot of mobile operators in developing countries have paid much more attention to the international market," Beckert observed. "If you're a mobile subscriber in Kenya, you'll find that Safaricom's international calling rates are much cheaper than fixed-line calling rates from Telkom Kenya."

Patrick Neighly

Subnet sector's optimism: suppliers still getting paid!

The submarine cable market weathered the financial crisis largely unscathed, according to industry bosses at this year's Pacific Telecommunications Council. Alcatel-Lucent submarine projects vice president Leigh

Frame said the last year had proven better than carriers had any right to expect, noting suppliers were still being paid. "The financial crisis didn't impact our industry as feared," he said, noting an unanticipated upside as speculative cables were grounded thanks to "a serious outbreak of common sense."

But NEC submarine networks sales senior manager Motoyoshi Tokioka admitted the downturn meant bankrolling investment was "getting harder than before" but said suppliers were probably not going to make up the shortfall created by banks' tightening purse strings.

"I don't think vendor financing is a viable option," concurred Tyco Telecommunications project management managing director Debra Brask. Instead, suppliers should help operators secure financing by educating banks and investors about the submarine business model. "But as far as the being a vendor and being able to finance a project - I don't foresee that happening."

Alcatel-Lucent's Frame agreed. "Been there, done that," he said to laughter from the crowd.

CYCLICAL MARKET: Panelists agreed the submarine market was subject to cyclical downturns, with Hibernia Atlantic US CEO Bjarni Thorvardarson warning a drop in end-user demand—either in the number of users or the amount of average usage per user—could lead to a repeat of the transatlantic market bust at the turn of the century. The cycle could be exacerbated by reckless builds coming online before current capacity is filled. Brasil Telecom sales director Erick Contag agreed, arguing a fourth South American cable would have a "disruptive" impact on the regional capacity market.

MainOne Cable commercial director Bernard Logal predicted cable launches in the 2012 timeframe would suffer from current economic woes, especially as it was getting harder to service debt. "We were lucky at getting in at the right time," he said. But Huawei Marine Networks CEO Nigel Bayliff noted there were other drivers for investment aside from customers' business plans. "There are plenty of natural disasters," he noted. "We're not expected to close down in a few years."

DEMAND DRIVERS: "It's all driven by broadband growth," Contag said. Growing consumer demand for



From left: Brasil Telecom's Erick Contag, Hibernia Atlantic's Bjarni Thorvardarson and MainOne's Bernard Logal

multimedia content is in turn spurring international bandwidth demand, although regionally traffic remains asymmetrical. Brasil Telecom is seeing 90% of its traffic directed north/south thanks to demand for US termination.

Thorvardarson said the industry witnessed an unprecedented pullback in the first half of last year, as consumers disconnected their broadband connections for the first time ever. He characterized the phenomenon as a “brief temporary slowdown” and noted growth had remained a consistent 50% annually over the past few years.

Several panelists singled out Africa as an unique exception, with basic connectivity driving demand rather than multimedia services. “The west coast of Africa is not served at all, except by one single cable,” noted Logal. Nigeria has one 10Gb international link, throttling access and providing a platform for a thriving black market in illegal circuits. Logal said regional capacity was so underserved it recently took him 10 hours to email a 3Mb file.

Thorvardarson said Africa illustrated the earliest stage of the submarine market life cycle peaking in the transatlantic model, with South America currently representing an interim point. This meant legacy business models were uniquely appropriate, with Logal claiming the half circuit was now only possible in Africa. But panelists were mixed on whether ownership models would revert to the consortia of old or remain largely a private (but open) club. “There’s not an awful lot of money around for a single private company to build a new cable,” Contag opined.

Thorvardarson agreed, predicting an eventual hike in prices to boot. “Last time I looked, it wasn’t free,” he said, fretting the new breed of debt-free cables arising out of the turn-of-the-century bubble bust were operating as if there was no tomorrow. “Half a billion dollars is still a large amount of money.”

Patrick Neighly

Southern Cross Cable claims diminishing advantages as competition heats up

The submarine cable market is growing increasingly competitive as differentiators fall away, Southern Cross Cable CEO Fiona Beck told PTC attendees yesterday. The operator enjoys diminishing advantages from being first to market but “everyone is really close these days.”

Southern Cross’ traffic transits Australia and New Zealand and the US, driven in part by voracious demand for bootleg downloads of US television shows. Beck said Australia was the top market for illegal US TV content, quipping she didn’t know whether this reflected worse on Australia or the quality of American programming. But that demand, as well as the growing interest in legal multimedia content, had kept the market “relatively stable” over the past year despite global economic headwinds.

“My customers are asking for 40G,” Beck said of plans for the next two years, calling on vendors in the crowd to step up to the plate. Faster connections were unlikely to serve as a differentiator in the increasingly crowded Australian market, with operators instead forced to rely on performance guarantees and quality of service.

But she dismissed the possibility customers would choose to leapfrog 40G in favor of 100G services, thereby skipping out on an entire investment cycle. Such increases might work for some operators depending on their infrastructure assets, but most customers are likely to migrate from 10G to 40G to 100G over time, Beck said, cautioning the capacity sector had a tendency to throw up unanticipated developments.

Beck singled out regulatory issues as the most significant challenge ahead. Regulatory uncertainty was prompting customers to sit on their plans “for the next few years” instead of investing now. Beck said this uncertainty wasn’t limited to emerging markets, citing pending regulatory shifts in the US and Australia. Industry growth rates would be higher if carrier customers didn’t have to worry about regulatory shifts impacting their business plans, she said.

Regulators can also pose direct challenges to growth. Beck said wholesale costs had to stay at 5% to 7% to avoid regulatory scrutiny, claiming authorities “start getting interested” around the 10% mark. Cable operators can keep costs low by focusing on upgrades as well as new plant. Overhauling existing infrastructure was up to 90% cheaper than unspooling new undersea fiber in some cases, she told attendees.

Beck was as keen to promote the forthcoming SubOptic conference as she was Southern Cross itself, describing the meet as a useful educational tool for banks and other third parties confused about the utility of submarine networks versus satellite. “We need, as an industry, to do a better job saying cable is better than satellite,” she said.

Beck called the actual building of submarine networks “a boy’s thing” but said she felt a “real sense of



family” thanks to community interests and accomplishments. “The cycles themselves are interesting, although somewhat hair-raising sometimes.”

Patrick Neighly

Satellite to undergo a bandwidth revolution, says Viasat

The satellite industry is due for a revolution, according to ViaSat CEO Mark Dankberg, and that revolution will come from significant leaps in bandwidth capacity. Presenting the satellite keynote at PTC, Dankberg said that satellite has earned a bad reputation as a technology, but said the problem was not with satellite tech itself but the limited bandwidth on offer.

“What causes disruption is when some invention which wasn’t important in the industry in the past suddenly becomes very important to its customers. And you can tell that because these disruptors compete on a different dimension. I think in the satellite industry, that dimension is bandwidth,” Dankberg said.

ViaSat is currently moving to launch the world’s highest-capacity satellite at 140Gbps, and Dankberg already has his eyes set on a 1Tbps satellite. He said that for years the satellite industry has had a problem where “no one really, really wanted to... drive down bandwidth costs,” saying incumbents were content to replicate existing technologies. “If you’re in an environment where people expect you to deliver more value for the same amount of money, now and in the future, building the same thing over and over again is not a recipe for success.”

“Everybody thinks satellite is bad. Satellite’s not bad because it’s satellite, satellite’s bad because it doesn’t have enough bandwidth,” he said.

Satellites had to move into a high-capacity era, he said, to keep up with the cloud computing boom. “The whole point of cloud computing is to take computer applications off your desktop, out away from the server... and put those application servers in data centres,” he said. “What’s really, really becoming cheap and plentiful is bandwidth... clearly where the rest of the world is going is embracing low-cost bandwidth. And that is going to be the future for information technology.”

A NEW FLAVOUR OF SATELLITE: Dankberg said that satellite operators needed to follow the lead of wireless players who were good at promoting new generations of wireless from 2G to EDGE to 3G and onto 4G. “There’s not one flavour of satellite,” he said. “We haven’t really made the case as strongly as we can, just like in wireless, that there’s different generations [of technology].”

Luke Coleman

Pacnet sees more than one form of cloud

Cloud computing will come in various forms for different companies in a range of regions, according to Pacnet CEO Bill Barney. Speaking with CommsDay at PTC ’10, Barney said he sees larger companies constructing their own ‘cloud’ infrastructure while smaller businesses opt for outsourced models – adding that Asia will likely take a different path to the US and Europe.

“Cloud computing, in some ways I think, it’s just a new form of unified communications,” Barney said. “A lot of people think that large Fortune 100 companies will outsource into a cloud environment. We’re sort of sceptical – we think it’s largely going to be the small companies that can’t afford the applications that will outsource to the cloud.”

“There’s a huge amount of investment going on in this space and we’re not sure yet which way it’s going to play,” he said. “Video will cause the need for large server farms and outsourced for media-type companies... and we also see it in the SME space. But we don’t see it in the Fortune 100. We think they’ll build their own clouds. Cloud computing is the way of the world, but I don’t know whether it’s going to be an outsourced cloud or an in-sourced cloud.”

But business models for cloud applications may work differently in Asia compared to the US and Europe due to the prevalence of submarine cables over terrestrial. “[In] Asia, submarine cables are the connectivity... if someone’s using a cloud platform, they actually have to have cables or they have to be using cables. So I think [Pacnet will] play a role... the United States and Europe have very, very low cost intercity bandwidth, [Asia has] very expensive intercity bandwidth, and so that will change the business model a little bit.”

STILL A BUMPY ROAD AHEAD: Barney said that even with an ever-increasing demand for bandwidth, the economy would still bring “some bumps in the road.”

“The bandwidth market last year was the largest growth ever... we actually did more last year than we did in the prior two years, which is extraordinary,” he said. “We’re cautious. I think you’re going to see bandwidth continuing to grow... I think our industry is insulated to a certain extent, but I wouldn’t say the Asian



economies are insulated. I think that you're still going to see broadband growth and that's going to play out very, very well for our industry... Multinationals are going to be cautious as they expand into Asia. You're going to see small and medium enterprise, which is an area that got hit very, very hard... is really starting to grow, and that's a portion of our business we're very excited about."

Luke Coleman

Tata: The future is wholesale 'white-label' managed services

While the traditional network wholesale model won't be going away any time soon, a new breed of global services is now bringing a new facet to the wholesale market.

For services like telepresence, it's an opportunity for operators who have built a global network and have the capital and expertise to host such a platform on a global scale to now wholesale the capability to smaller carriers who might want to deliver the service to customers, but don't want to spend the effort and money to build a global presence.

Wholesale is now no longer about just network capacity, but actual services that can be layered on top of a global network. It's about getting more out of network investments that have already been made, according to Byron Clatterbuck, senior vice president for Global Transmission Services at Tata Communications.

Clatterbuck, who is set to head Tata Communications service provider business division as the operator reorganises its operations around two sets of services – basically retail and wholesale although the names of each division have not been set, told CommsDay International that while the company will continue to compete in the capacity and transmission space to recoup the sunk investment in its global network, it is now preparing to extend its portfolio of managed services to third party carriers.

WHOLESALING MANAGED SERVICES: Basically, it is "white labelling" services like telepresence, managed security and so on, and then offering those to domestic or regional players, he explained.

"For us, the incremental network cost of putting up a telepresence network is minimal. We have a network that runs a hundred 10G waves across some segments, what's another STM-1? It just doesn't impact that. But the value proposition of telepresence, what a customer sees is great," he said. "You might be a small player in Vietnam, you could go out and set up POPs everywhere around the world and try to compete, or you can say 'I'm going to focus on my customers, in Vietnam, who I can provide additional value proposition to them through partnerships. And for them, the value proposition for their customers is that they can push a button and there's a Vietnamese speaker on the other line.'"

It's a strategy that Tata Communications has already adopted for its telepresence offering. In the Philippines for example, it has a partnership with PLDT, who has partnered with Tata to set up a telepresence service for the country. While PLDT operates the room in Manila, it leverages Tata global network to interconnect that room with others across the world.

"The model is still bilateral – it's not that much different from the old bilateral agreements, where you have the incumbent carriers saying – I've got China, you've got US, I've got traffic that needs to go to your place, you've got traffic that needs to come to me – we've established that relationship, and now really what we are saying is, it's a similar model," he said. "You might say to a partner in the Philippines, 'we've got telepresence rooms in 15 countries and expanding, you've got Philippines covered - can we work together?' You're interconnecting the networks, you are offering the service capability as you would for IPL in the old days. The model has been there, and you rely on somebody else to deliver the other part of that network. Carriers are not unfamiliar with that – it is part of how you do business."

According to Clatterbuck, it's about layering more and more services, such as managed security, on top of the network and driving volume over its network, which it has already invested in.

"Mobile operators might never have thought about security, but now they have problems because they are running more and more apps on handsets. With voice and cheap handsets, it really didn't matter, but now it matters much more. Can we offer that to them??"

Tony Chan



It's all about the cloud in 2010 says Level 3

Cloud computing is set to dominate this year's Pacific Telecommunications Council sessions, giving providers an unprecedented platform to sell carriers on the merit of virtualized services. "PTC is going to be a great

opportunity for international carriers to understand the significance of cloud computing and further flesh out what that means for their business,” Level 3 international carrier business head Roger Greene told CommsDay. “It’s this nascent category which seems to be picking up a lot of speed. I think for carriers, it’s important to realize that cloud computing is a virtuous cycle. It’s enabled by bandwidth consumption and fuels bandwidth consumption. If international carriers are looking to expand their capabilities and be able to provide connectivity to cloud computing services, they’ll look to the carrier that has the greatest reach.”

That cycle could prove virtuous for capacity providers such as Level 3 as well. “To be able to provide cloud computing services, you need to have network connectivity to those services. Level 3 is connected to all the major content providers and cable landing stations and major data centers,” Greene explained. He said PTC would also allow the carrier to highlight some of its early responses to the fledgling cloud marketplace. “One of the things Level 3 is doing is deploying a new Ethernet edge that comes with both Ethernet and VPN capabilities that will help enable that cloud computing architecture to sit on top of it.”

Cloud operators also require highly scalable networks, giving Level 3 another angle of attack. “One of the advantages of cloud computing is they tend to be usage-based offers as it relates to accessing the service, so you need to be able to scale the network and the service being consumed. You also look for a really secure solution depending on the sensitivity of the cloud computing service that’s riding over the network. So international carriers are trying to understand what cloud computing means to them. As they’re delivering network services to their enterprise customers in the US, they’re going to look at carrier like Level 3 that can provide that connectivity, that scale and that security,” Greene told CommsDay.

“PTC is actually a really important show for us,” he elaborated. “We’ve been going to it for many years. It’s a great opportunity for us to connect with all of our Asian carrier customers. We also see a lot of Canadian carrier customers, I suspect for obvious weather-related reasons. We also see a few European carriers. But for the most part, it’s just a great opportunity for us to connect with our customers, understand what their plans are for 2010. It tends to be a good bit of strategic discussion about where we see the industry going. It’s also a good working session, too.”

Patrick Neighly

ATCi, Solana combine on satellite, fiber services

Antenna Technology Communications and Solana HK, a Hong Kong based co-location facility signed a new cooperation agreement to jointly offer industry broadband satellite and fiber services to underserved markets throughout Asia, Africa and the Middle East.

The new partnership will bring together ATCi’s proprietary “Skyway to Highway” technology to Solana HK’s facilities. Starting March 31, 2010, voice, data and video IP services will be provided to numerous key government and commercial customers throughout the region.

ATCi said it will implement DVB S2 ACM-latest generation IP broadcast and signaling with up to 60% more efficiency than previous platforms. ATCi’s packaged solution coupled with interlaced RF to digital IP optimizer technology will enable GSM operators to reduce their backhaul bandwidth requirements through proven network optimization and voice compression methods.

Mobile banking evolves into mobile money

Mobile banking is likely to cut the bank out of the equation as developing nations adopt ‘mobile money’, according to TeleCall CEO Allan Ajuz. Speaking at PTC ’10, Ajuz said that mobile operators in emerging markets like Africa and South America were likely to act as the new retail banking system, opening up banking to millions of new mobile users.

Ajuz said the idea of mobile money had blossomed from the ‘old world’ of pre-paid calling cards, which are increasingly ditching the physical cards for wireless re-charges. 90% of mobile users in developing countries rely on pre-paid cards to make calls, he said, but added that sellers can now use their own mobile as a distribution method, being sent recharge codes to handsets which are then given to customers. Users can also share call credit with other users on the same network, called ‘load sharing’, effectively turning mobile credit into its own form of currency in developing nations.

Ajuz pointed out that while there are some 4 billion mobile users in the world, there are only 2 billion people with bank accounts and 1 billion with credit cards, making mobile accounts a natural fit for the multitude of users without – or unable to access – banking services. Mobile currency, or m-money, is increasingly being used by companies to pay staff, he said, with ‘m-remittance’ claimed to account for some US\$28b in payments in the Phillipines each year.

Bahamas cable hit by quake

Last week's disastrous Haitian earthquake claimed the BDSNi submarine cable, according to the Bahamas Telecommunications Co. "Service into Haiti via the extension of the Bahamas Domestic Submarine Network was disrupted," carrier representative Alveta Moss told TeleGeography.

"We are currently remotely assessing the extent of the damage, pending contact with our partners in Haiti. Until we are able to thoroughly assess the damage, I am unable at this time to indicate how long repairs will take or when service will be restored."

BDSNi carried a minority of international traffic into Haiti, which still relies primarily on satellite connectivity for service. The max 1.92Tbps link connects Port-au-Prince to the Bahamas' Great Inagua Island under the aegis of local fixed carrier Teleco. Mobile operators report functional but highly degraded service, including spotty coverage and interconnectivity challenges. Top operator Digicel said relief efforts were hampering its ability to boost capacity. "We've been trying to get into Haiti but our plane got turned back because the airport's full," public relations head Antonia Graham told reporters.

IBASIS, TELECOM ITALIA CLAIM IP FIRST

iBasis and Telecom Italia Group international wholesale unit Sparkle claim to be the first in the business to successfully migrate their bilateral voice traffic to IP in compliance with i3 Forum guidelines. The move follows a series of trials demonstrated the ability of SIP-I to support advanced call features such as ISDN data and international roaming. "We're thrilled to have achieved this migration with Telecom Italia," iBasis COO Paul Floyd said in a statement. "There is widespread demand among fixed and mobile operators to migrate international voice bilaterals to IP in order to take advantage of the efficiencies and potential of IP while maintaining very high quality of service. Our Premium Voice service over managed IP offers that capability. This approach is also a great step towards the IPX hubbing model, which will allow mobile and fixed-line operators alike to easily monetize all kinds of traffic, including chats, video conferencing and presence through standardized IP interconnects."

MOTOROLA RETHINKS UNIT SELL-OFF

With the lack of acceptable bids from potential buyers, Motorola is reportedly rethinking the sale of its mobile phone and networking business unit, according to The Wall Street Journal. The report said unnamed sources revealed that the business unit hasn't elicited high enough bids, with Motorola looking for an offer in the range of \$4 billion to \$5 billion. The firm has so far received bids between \$3 billion and \$4 billion. The company is also reconsidering whether phones and set-top boxes need to be sold off as one, or separately. There is another round of bids for the phone and set-top unit scheduled in mid-February.

TELKOM JOINS SJC

Indonesia Telkom agreed to join the South East Asia Japan cable consortium, signing an agreement in Honolulu as the annual Pacific Telecommunications Council meeting kicked off overnight. The cable will connect Singapore, Hong Kong, Japan and other Asian countries and boasts Reliance Globalcom, Google and SingTel as founding partners. The so-called SJC cable is expected to become operational in 2011. SJC was announced in Manila last month and is expected to carry 17-23Tbps of capacity.

WLAN SHIPMENTS RISE IN 2010

802.11n WLAN access point shipments into SOHO and consumer markets are expected to reach 32.2 million in 2010, said ABI Research industry analyst Serene Fong. Last year, 802.11n WLAN access point shipments went up nearly 44% over the previous year. According to ABI Research's market data, over 400,000 thousand enterprise access points were shipped in the first three quarters of 2009.

COMMSDAY

CommsDay International
is published by
Decisive Publishing

Publisher:

Grahame Lynch
grahamelynch@
commsdaymail.com

Business Development:

Glend de Leon
Glend@commsdaymail.com

Marketing & Sales:

Mascy Cabuhat
mascy@commsdaymail.com

Decisive Mail:

PO Box A191 Sydney South
NSW 1235
AUSTRALIA.

Decisive Fax:

+612 9261 5434

Decisive Internet:

www.commsday.com

For advertising or payment
details contact Sally Lloyd
sally@commsday
.com.au or call +61-
292615435

THIS PUBLICATION IS COPYRIGHT

Editor at large:

Tony Chan (Hong Kong)
Tony@commsdaymail.com

Editor, United States:

Patrick Neighly (Los Angeles)
Patrick@commsdaymail.com

Assistant editor:

Pamela Perez (Manila)
Pamela@commsdaymail.com

Correspondent, Kuala Lumpur:

Cat Yong
catyong88@gmail.com

Editor, Australia:

Luke Coleman
Luke@commsday.com.au

Assistant editor, Australia

Petroc Wilton
Petroc@commsdaymail.com

Don't miss out on CommsDay International after PTC'10 ends

As a special offer for PTC delegates, CommsDay is offering a 50% discount on new subscriptions received by Wednesday 27 January

Get the latest news, analysis and commentary of your industry peers each and every weekday in your in-box written by a team of expert writers including former Advanstar Telecom Group editorial director Grahame Lynch, former America's Network managing editor Patrick Neighly and former Wireless Asia editor Tony Chan.

Don't miss out on tomorrow's wisdom. Subscribe today.

I want to subscribe to CommsDay International

10-user 12 months US\$1532 (50% off usual price until January 27)

Personal 12 months US\$553 (50% off usual price until January 27)

Personal 6 months US\$267 ((50% off usual price until January 27)

Personal 3 months US\$147 (50% off usual price until January 27)

* GST added for Australian residents

Name _____

Position _____ Company _____

Street Address _____

City _____ State/Province/Region _____

Zip/Postal Code _____ Phone Number _____

Country _____

Email Address for delivery _____

Name on Card _____

Credit Card / Payment Type: Mastercard Visa Amex Diner's Club

Credit Card Number _____

Expiration Date (mm/yy) _____

Decisive Publishing Pty Ltd: 4/276 Pitt St, Sydney NSW Australia 2000 ACN 13 065 084 960 Phone: +612 9261 5435
Mailing address: PO Box A191, Sydney South, NSW 1235 Australia License: Decisive Publishing grants subscriber a non-exclusive non-transferable right to use and distribute internally within its organization the number of copies of each edition of the newsletter equal to the number of subscriptions paid for.

OUR MONEY BACK GUARANTEE: We will refund you the unused portion of your subscription if you wish to cancel. No questions asked? Not quite. We would like to know why, so we can improve our newsletters and hopefully be of future service for you!

FAX THIS FORM NOW TO +61292615435 *or*

SUBSCRIBE ONLINE AT OUR SECURE SERVER AT

<http://bit.ly/4sRTOM> *or*

EMAIL mascy@commsdaymail.com for more details
