Expanding service portfolios, bridging the digital divide

Introduction

Welcome to the 16th edition of Inside Telecommunications. Our quarterly sector review draws on EY’s deep industry skills to provide unparalleled market intelligence of the critical issues impacting the sector around the world.

The global information security market is worth more than US$70 billion, and in this issue we explore operator strategies to meet fast-changing enterprise needs in this space. At the same time, a growing number of carriers are pursuing e-commerce initiatives, as the smartphone continues to redefine the shopping experience. Service innovation is a priority for many players, but web giants are also testing new technologies that can extend internet connectivity to remote regions of the world.

Mergers and acquisitions remain very much a key theme in the sector, with 577 deals announced in 2014. An increase in average deal value underlines the appetite for horizontal consolidation, particularly in EMEIA, while established operators are also seeking opportunities in adjacent market segments. More transformational deals can be expected as operators continue to seek scale economies while also widening their service portfolios.

Against this backdrop, we hope you find this material. Please do not hesitate to share your feedback with me or any of my colleagues at EY.

Prashant K. Singhal
Global Telecommunications Leader
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2014 was an important year for the telecommunications – the number of commercial 4G networks worldwide crossed the 300 mark, global smartphone shipments grew 28% year-on-year and copper-only networks’ share of global broadband subscriptions fell below 50% as fiber take-up accelerates.¹

Such figures augur well for an industry that is engaged in large-scale network migration in both mobile and fixed sectors, and where customer experiences continue to be shaped by increasingly sophisticated devices and apps.

Meanwhile, industry watchers are predicting a concomitant slowdown in network expenditure, paving the way for operators to focus on innovative services that can help widen addressable markets and cement existing customer relationships.

Even so, Mobile World Congress 2015 in Barcelona saw operators, vendors and policy-makers alike detail the importance of 5G to the industry’s future health. In this light, long-term network upgrade programs remain very much in focus for all stakeholders.

However, disruptive competition continues to make its presence felt in a number of new ways. The rise of social-messaging apps has already had a marked effect on the SMS market, and there are now eight mobile instant messaging brands with more than 100m monthly active users.²

At the same time, disruptive forces affecting the sector are evolving well beyond over-the-top instant messaging and content streaming services. Mobile payments have traditionally been an area where operators have acted as disruptors, but technology providers are now scaling up their ambitions in this sphere.

Chinese heavyweights Alibaba and Tencent are both acquiring licenses to open online banks in 2015, Apple Pay – launched in September – already counts more than 80 participating financial institutions, and Samsung is taking aim at retail point-of-sale (POS) payments following its acquisition of LoopPay.

Such initiatives suggest that operators need to accelerate existing initiatives, focusing on time-to-market and scalability, if they are to punch above their weight in a wider competitive landscape at a time when m-payments usage is growing faster than ever.

**Figure 1. Number of global m-payments transactions**

Transactions (billions)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014F</th>
<th>2015F</th>
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<tbody>
<tr>
<td>Banks</td>
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<tr>
<td>Non-banks</td>
<td></td>
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Source: RBS/Capgemini.

Sizing up other adjacent market opportunities is no less vital, particularly as new devices, apps and customer needs blur the boundaries between shopping, payments and marketing.

In this edition of *Inside Telecommunications* we take stock of current operator initiatives in e-commerce, highlighting how operators are seeking new routes to compete and collaborate with other value chain entities as they overhaul their business models to accommodate an increasingly diverse range of customers.

Yet, unnervingly, there are growing signs that large technology players see opportunities in telecommunications infrastructure itself, an area thought to be largely impervious to disruption.

As newcomers consider low-cost routes to bridging the global digital divide as a way of enhancing their advertising-led revenue streams, operators should ensure that they do not overlook new challenges to their long-term infrastructure road maps.

². wearesocial.com
Operators step up managed security initiatives

Security and privacy issues loom ever larger for enterprises as new services, technologies and working practices allied to growing security threats and breaches challenge existing company risk profiles. According to Gartner, global spending on information security reached US$71.1b in 2014 — a near 8% increase on levels the previous year — reflecting the growing importance organizations attach to security at a time when malware has never been more easily available and vulnerabilities continue to grow.3

EY research shows that enterprises are devoting greater budgets to security issues — particularly when it comes to securing emerging technologies such as cloud and mobile — while also building out business continuity capabilities and tackling data leakage. At the same time, organizations are spending more to improve the security of personal data to comply with new regulatory guidelines in regions such as Europe and Asia.

Many businesses are also taking advantage of cloud-based service delivery models to maximize their initiatives, while training is a focus area as organizations look to offset the lack of resources available to tackle information security.

**Figure 2. Enterprise spending intentions on security capabilities**

Question: Compared to the previous year, does your organization plan to spend more, less or relatively the same amount over the coming year on the following activities?

Source: Global Information Security Survey 2014, EY, October 2014 (survey of 1,800 enterprises worldwide).

Established operators have been offering managed security services for a number of years. Historically, these offerings have been network-centric but are growing in scope to include web and cloud-based capabilities. Enterprise security needs are evolving well beyond “perimeter” approaches: threat management, identity management and analytics are now being integrated into the services mix, as is evident from carrier announcements in recent quarters.

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Global players serving multinational corporates are ramping up their managed security services portfolios. In July last year, China Telecom Global introduced the China Telecom Security Cloud (CTSC), a new cloud-based offering that helps guard enterprises against cyber attacks that is available in more than 21 cities in China as well as 12 others in Asia-Pacific.  

As enterprise security needs become more complex, and demand rises for analytics, threat protection and compliance solutions, operators are turning to partnerships to broaden their offerings. In January, Japan’s NTT teamed up with network security specialist Fortinet to provide cloud-based antivirus and traffic filtering capabilities. A few months before, Verizon added services from security specialist FireEye to help provide real-time dynamic threat protection and monitoring tools for mobile devices.  

Meanwhile, Telefonica and Kaspersky Lab have also announced a strategic cooperation to provide customers with new security services, including botnet threat tracking and raw intelligence data feeds, as well as cybersecurity education tools to help transfer knowledge to information security officers.  

Partnerships with global IT players are also a feature of the collaborative landscape: last year, AT&T and IBM announced a strategic relationship to provide businesses with single source for secure network infrastructure and analytics to combat cyber threats. Horizontal alliances are also coming to the fore. In June, Telefonica and Etisalat signed an information security agreement to collaborate on a state-of-the-art security operations center (SOC) in the UAE, building on a previous agreement signed in 2011.  

Acquisitions represent another route to wider security services portfolios and greater mindshare with enterprise clients. Last year, Orange Business Services announced the acquisition of Atheos, a France-based pioneer of IT identity and security management that works with enterprises to define, implement and control their security strategies. Following the deal, the French carrier will have a stronger set of access control and data-loss prevention policies as well as new capabilities in on-site crisis management and the detection of “low noise” attack signals.  

In October, Hong Kong-based PCCW Global acquired Crypteia Networks, a European specialist that has 150 customer installations worldwide across a number of industry sectors and provides Security-as-a-service (SaaS) solutions that are designed to be lightweight, automated and affordable. Earlier in the year, Telstra acquired Australia-based managed network and security provider O2 Networks, before taking a controlling stake in another local security firm, SNP Security, and strategically investing in US-based authentication and mobile identity firm TeleSign.  

Looking ahead, the prognosis for managed security services is positive, yet growing pains need to be confronted. Operators are under pressure to evolve their portfolios to accommodate demands for new cybersecurity capabilities, while also ensuring that their solution sets provide pre-emptive and predictive capabilities through the use of analytics.  

At the same time, the Internet of Things (IoT) will start to alter enterprise demand scenarios, putting carriers under pressure to keep pace with new imperatives in identity and access management, for example. Add to this the different use cases presented by IoT and it is clear that the nature of threat management is likely to change considerably over time.  

8. “Etisalat and Telefonica collaborate to bring new-age cyber security services to UAE,” Telefonica Global Solutions, 23 June 2014.  
10. “PCCW Global acquires Crypteia Networks to address cyber security issues facing most organizations today,” PCCW Global, 20 October 2014.
Looking ahead, carriers must clearly delineate between the need to partner or acquire as they ramp up their product sets in identity management and cybersecurity. Organizations must consider to what degree their partnerships involve collaboration in both sales and product development, and some players may well decide to reduce their number of partners as they forge long-term strategic alliances.

Aligning delivery capabilities with solution sets is also vital. Operators should decide on the optimal combination of customized solutions, cloud delivery and managed services, recognizing that mobile security will loom ever larger as an enterprise concern. Segmenting the enterprise market in new ways is no less important – security needs are fast-changing in the small and medium enterprise (SME) segment while security imperatives will vary according to industry sector.

Organizational structures will also need to flex to support operators’ growing focus on security as a differential offering. Some operators are already taking steps to realign their business units – witness Verizon’s move to set up the Verizon Cyber Intelligence Center (VCIC). Adding new skill sets and forms of expertise will also play a vital supporting role to any organizational realignment prompted by changing enterprise needs.

Operators eye new opportunities in e-commerce

Digital service portfolios are top of mind for operators worldwide. Services such as pay-TV, mobile financial services and enterprise cloud feature heavily on the growth agendas of many, but the sheer pace of service innovation in the technology sector, led by disruptive start-ups, continue to break down the barriers between traditional product categories, in turn prompting telcos to explore new avenues to service innovation.

Internet and mobile commerce is a case in point. The shift from physical to online retail is accelerating, giving rise to a new breed of online specialists as traditional retailers contend with a continuing...
decline in store traffic. According to figures from Moody’s, store count growth among the largest US retailers has slowed from 12% to less than 3% over the last three years. Meanwhile, double-digit growth in global business-to-consumer e-commerce sales is expected in the next three years, with Asia-Pacific set to surpass North America as the leading e-commerce region this year.

Figure 4. B2C e-commerce sales worldwide (2013–18) US$ million

Source: eMarketer.

Meanwhile, the smartphone is playing a key role in the shift toward online shopping. Industry estimates suggest that smartphones and tablets will account for more than 75% of global online transactions and more than 50% of equivalent spending. While Australia, UK and the US lead the way in m-commerce terms among developed markets, the proportion of internet users in China and India purchasing items via mobile devices already stands at over 10%.

Mobile operators have already entered the world of digital retail through mobile payments and marketing initiatives. Yet strong take-up of device-based shopping, changing merchant needs and the shift to online retail are spurring carriers to refresh their approaches to digital commerce. Partnerships with both local and multi-market e-commerce specialists are playing an important role, while accelerator initiatives represent another route toward driving innovation and entrepreneurship in e-commerce services.

Mobile operators in emerging markets are particularly keen to take advantage of new digital behaviors as gaming, social media and shopping capabilities converge on mobile devices. In Africa, the e-commerce market is set to reach US$50b by 2018, according to Frost & Sullivan, and start-ups such as Jumia, Konga and Takealot have all received new rounds of funding in recent months. As a result, many operator-led local incubator initiatives now count e-commerce services among their service portfolios.

Meanwhile, Millicom and MTN each have equal stakes in global incubator Rocket Internet’s Africa Internet Holding (AIH), which is responsible for ventures such as Lendco, a South African person-to-person lending platform. Examples of collaboration between stakeholders include leveraging MTN Mobile Money as the payment platform for AIH’s Jumia, the leading e-commerce platform in Ivory Coast.

Indonesia is also home to a number of initiatives featuring a range of business models as operators look to take advantage of an e-commerce market that is set to show a 39% CAGR between 2014 and 2022. Last year, Indosat established a new unit called Dunia Digital to spearhead its move into e-commerce, in the process bringing together previously separate payments and advertising initiatives.

 Meanwhile, fellow Indonesian operator PT Telkom has collaborated with eBay to create PT MetraPlasa, which operates e-commerce site Plasa.com. By contrast, XL Axiata is cooperating with South Korean carrier SK Telecom through a joint venture. Last year the two companies launched online marketplace Elevenia, which generates income from its partner merchants’ sales commissions. SK Telecom is very much a global pioneer in operator e-commerce, having launched its 11th Street online store back in 2008.

Japan’s SoftBank Corp. also has ambitions in the Indonesian market, having acquired a US$100m stake in Indonesian online marketplace Tokopedia along with Sequoia Capital in October. In the same month, the Japanese carrier invested US$627m in Snapchat, one of India’s largest e-commerce sites, with 25 million registered users and 50,000 vendors.

India’s e-commerce boom is proving attractive to a number of players. China’s Alibaba recently invested US$200 million in One97, the owner of Paytm, a mobile payments service that is aiming to quadruple its client base to 100 million by the end of the year.

While partnering, venture capital and incubator initiatives involving online start-ups are gathering steam in Asia and Africa, carriers in other regions are also seeking upside by providing new forms of online marketplaces for consumers and businesses.

Last July, Orange Horizons and starMedia, a Spanish-language portal, launched an online store selling smart devices to American and Mexican consumers. Orange Horizons started activities in South Africa in 2013 and is tasked with seeking out new opportunities for Orange in markets where it is not present as a mass-market service provider. In this way, online shopping portals represent an opportunity to leverage the Orange brand and distribution capabilities worldwide. Meanwhile, Singtel has pioneered a number of location-sensitive services in recent years such as Go! Shopping – which provides indoor maps of shopping malls – and Property Buddy, which provides virtual maps of maps and properties for rent.

On the business-to-business (B2B) side, a number of operators worldwide include e-commerce as part of their packages to enterprises. For example, AT&T and IBM offer an e-commerce solution to retailers that combines cloud and network services with software, enabling customers to scale up without incurring steep software licensing fees or infrastructure-related capex.

Since 2013, Belgacom has offered a service to small office and home office (SOHO) and SME customers who want to offer services online but do not have the required IT skills or budget. Leveraging a partnership with online shop software provider ePages, the service costs €20 per month, is available across Benelux and offers integration with a wide range of payment platforms. Meanwhile, operator services for retailers are becoming increasingly sophisticated, moving beyond the traditional focus on online shopping platforms and software towards services that link online and offline shopping experiences. One such example is the UK mobile operator joint venture Weve. Originally set up to provide POS mobile payments, the initiative is now focusing on location-sensitive advertising, having launched a mobile display service last year.

Figure 5. Service taxonomy of operator e-commerce initiatives

While online and mobile commerce represents fertile ground for operators to develop new services, such initiatives brings their own set of challenges. Segmenting the market opportunity is no mean feat, partly because the boundaries between payments, advertising and shopping are blurring in a digital environment.

Carriers with ambitions to act directly as service providers as well as service enablers should explore areas of both synergy and divergence in terms of product development and go-to-market, revisiting their legacy partnering frameworks in the process.

A better understanding of innovation rates and rapidly changing competitive landscapes is essential. Competition is rising among start-ups as they target loyalty apps for retailers and/or provide new forms of social functionality. In this light, operators must carefully consider where they are best placed to add value directly to consumers and merchants or take a more discrete ecosystem position.

At the same time, telcos may need to sensitize existing venture capital and incubator initiatives to local markets where e-commerce needs are particularly pronounced. All the while, business models will require scrutiny: many online marketplaces now generate revenues by charging sellers for additional product promotion rather than charging transaction fees, for example.


New routes to connecting the unconnected

The global mobile infrastructure landscape continues to develop at breakneck speed: by January 2015 there were 360 active commercial LTE networks available in 124 countries. Looking ahead, analysts expect LTE to account for mobile than one billion mobile connections by 2017, while the data throughput capability of LTE networks is increasing as operators explore carrier aggregation techniques and deploy LTE-Advanced (LTE-A) infrastructure.

The rollout and take-up rate of 4G networks and services far exceeds equivalent timelines for 2G and 3G mobile technology, suggesting the industry is well placed to meet fast-growing demand. However, very real problems persist in terms of digital inclusion, with a significant proportion of the global population — typically those living in remote areas in emerging markets — lying beyond the reach of mobile infrastructure.

This is reflected in mobile penetration growth forecasts, which show that although emerging market levels are catching up with adoption rates in developed markets, a pronounced gap is set to remain.

Figure 6. Unique mobile subscriber penetration forecast

% unique mobile subscriber penetration

Source: GSMA Intelligence.

While mobile operators and vendors themselves are pursuing a number of avenues toward improving coverage levels, from network sharing initiatives and tower sale-and-leaseback approaches to solar-powered base stations that provide “off-grid” connectivity in areas without electricity supply, more radical solutions are also gaining traction.

Technology companies whose ad-led business models are predicated on a growing online population are exploring new routes to widening infrastructure access. Internet access via drone technology is one such area.

Last year, Google acquired Titan Aerospace, a manufacturer of solar-powered drones, citing online access in remote areas as a use case enabled by the deal, and Facebook acquired Ascenta, a UK-based drone designer, for US$30m as part of plans to connect the world’s most remote locations. During Mobile World Congress 2015, Google revealed that it would be conducting test flights of its Titan drones later in the year.

Other forms of stratospheric internet delivery are also being investigated. In 2013, Google announced Project Loon, an R&D project that uses high-altitude balloons operating in unlicensed 2.4 GHz and 5.8 GHz frequency bands to deliver 3G-like speeds. In a recent letter to the Federal Communications Commission, Google suggested that higher spectrum bands have an important role to play in supporting broadband services of the future.23

Looking ahead, Google sees Project Loon complementing its more recent drone initiative, and is also looking to partner with local ISPs with a view to providing a seamless service to end users in remote areas.24

Facebook is already partnering with mobile operators to provide free access to basic web services in emerging markets and during Mobile World Congress, Internet.org — the Facebook-led initiative responsible for these tie-ups — revealed plans to expand its coverage from 6 countries to 100 over the next year.25

Figure 7. Comparison of stratospheric internet coverage solutions

<table>
<thead>
<tr>
<th>Transceiver medium</th>
<th>Balloon</th>
<th>Drone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>32 km</td>
<td>20 km</td>
</tr>
<tr>
<td>Duration</td>
<td>100 days</td>
<td>5 years</td>
</tr>
<tr>
<td>Coverage</td>
<td>1,250 km²</td>
<td>17,800 km²</td>
</tr>
<tr>
<td>Spectrum</td>
<td>2.4 GHz and 5.8 GHz</td>
<td>5.8 GHz</td>
</tr>
<tr>
<td>Data rate</td>
<td>1Mbps</td>
<td>1Gbps</td>
</tr>
<tr>
<td>Potential additional services</td>
<td>VoIP</td>
<td>Surveillance, imaging</td>
</tr>
</tbody>
</table>

Source: EY analysis.

24. “Google’s Titan drones to take flight within months,” The Guardian and Computerworld, 3 March 2015.
25. Internet.org hopes to reach 100 countries in a year, up from six now,” Computerworld, 3 March 2015.
Beyond operator partnerships, the social network provider sees a range of alternative access technologies broadening the reach of the internet, with satellites deemed effective for low-density areas and solar-powered planes better suited to suburban environments.26

Indeed, satellite technology in various guises is proving attractive to technology companies that have expansion of internet reach in mind. In January, Google and Fidelity Investments invested US$1b in SpaceX, giving them a near 10% stake in the company. Last year the spacecraft manufacturer revealed plans to invest US$2b on building and launching a fleet of micro satellites that could improve global internet coverage.27

January also saw US-based Qualcomm and UK-based Virgin announce investments in OneWeb, a satellite constellation that is planning to deliver fast internet services in rural and emerging markets, as well as for airlines.28 Last year, Outernet, a US-based broadcast data start-up, revealed that it would use both small satellites and more conventional geostationary communications satellites to provide free web content to Wi-Fi-enabled devices.29

These new attempts to provide both stratospheric and satellite-based platforms for internet delivery present plenty of potential. In the case of balloon and drone initiatives, constellations of light vehicles that travel above the altitude of aircraft but closer to the earth than satellites score well as relatively low-cost solutions that provide limited latency.

While such moves can be seen as a challenge to both terrestrial telecommunications networks and the backhauling business of traditional satellite players, various obstacles still need to be addressed. For one, the backbone required for stratospheric solutions is unclear, given it would have to communicate with optical links on ranges of up to 100 miles while also achieving multiple Gbps transmission rates.

Although recent initiatives point to a step change in the cost and performance profile of aerial platforms, throughput rates in some cases will still lag behind terrestrial alternatives, while the potential for data collection and use of national airspace may present political and regulatory hurdles. On the technical side, any plans to leverage optical-laser technology for micro satellites could prove difficult given that, unlike radio waves, lasers do not pass easily through clouds.

Nevertheless, such high-risk, high-reward projects underline that solutions to connect the unconnected are now emerging from well beyond the traditional carrier peer group. Other new entry points for rural coverage providers are also in the ascendancy: regulators are starting to open up TV white-space spectrum for commercial use and trial broadband networks are in place in the likes of the UK and the US as a result.

Technology advances also hold the potential for disruption: engineers are already exploring metamaterials that can bend electromagnetic waves, while LTE Direct, a form of device-to-device connectivity that can reduce dependence on towers, has the potential to rewrite the traditional network/service paradigm.29 Looking forward, operators cannot ignore such innovations given how digital divide considerations shape their capex programs and interactions with policymakers.

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Fiber rollout gathering steam across Africa

Although question marks remain as to how the digital divide can best be bridged in Africa, broadband connectivity levels continue to improve. While mobile technology remains the primary access infrastructure for the majority of the region, fixed-line infrastructure take-up is accelerating thanks to the greater availability of subsea cable systems that have increased bandwidth availability and brought down prices.

The vast majority of African countries have some form of fiber connectivity to one or more submarine cable landing stations, and some markets have more than one national fiber network. Consumer take-up rates of fixed broadband are encouraging: the last three years have seen household penetration nearly double to 11% in the region, with broadband prices as a percentage of gross national income (GNI) more than halving between 2011 and 2013.30

In recent months a number of countries have increased their fiber backbone investments as a foundation for long-term growth in fixed and mobile telecommunications. In December, Cameroon’s state-owned incumbent Camtel announced plans to extend its national fiber-optic backbone with the help of a US$81.4m loan from China’s Export-Import Bank. The project is set to nearly double the length of the backbone to 6,000 km.31

Meanwhile, Nigeria is taking steps to improve its fiber infrastructure reach. In 2013, the Nigerian Communications Commission (NCC) highlighted that 44% of local government areas lacked any form of fiber-optic backbone. The NCC has subsequently decided to license a number of infrastructure companies to deploy fiber connectivity and has earmarked a minimum of US$500m investment as part of a public-private partnership scheme. The plans form part of an ultimate ambition to increase national broadband penetration to 30% by 2018.32

Nor are national incumbents the only entities spearheading an overhaul of the terrestrial fiber landscape. In December, Zimbabwe Electricity Supply Authority (ZESA) Holdings revealed plans to invest US$32m in a fiber-optic backbone, as part of a project that would require 1850 km of cable. Power companies are no strangers to backbone deployments – in 2013, Zambia’s Zesco launched a national backbone that was linked to five neighboring countries.

Liquid Telecom is another player transforming the region’s fiber landscape. Having launched a cross-border fiber-optic network linking Southern Africa to the rest of the world in 2009, it now has 8 operating companies serving 10 African countries. In October, it announced the expansion of its Ugandan backbone through subsidiary Infocom, before completing a 4,200 km fiber rollout in Kenya in December.33

Google is another entity with ambitions as a wholesaler to African ISPs, having laid a fiber broadband network in Uganda’s capital Kampala in 2013 as part of Project Link.

Despite rapid improvements in terrestrial cabling, challenges persist, with some African regions struggling to improve their infrastructure profile. In October, reports

emerged that the US$215m Central African Backbone (CAB) program, funded by the World Bank, may run out of money before it is completed. In a report, the Republic of the Congo said that 53 of 66 CAB projects have been completed but that an expenses review would be necessary to avoid exhausting funds before the entire program is rolled out.34

Such a setback would have damaging repercussions. Central Africa has some of the lowest-quality and highest-cost telecommunications services in Africa, with users paying up to twice the monthly rates than people in other African countries pay for internet access.

However, some elements of the program are on track. In October, Gabon awarded a contract to China Communications Service International to lay a fiber-optic cable in the country, with an extension to the Republic of the Congo.35

Other promising news regarding cross-border initiatives came in January, as Kenya and South Sudan signed an agreement that would see the two countries connected via fiber-optic cable, in a project again funded by the World Bank.

For its part, Liquid Telecom has announced it will launch retail and wholesale FTTH services in Kenya, Rwanda and two other African countries during the course of 2015. Its FTTH services are already available in Zambia and Zimbabwe.36

As the fiber ecosystem matures, new business models and digital policies are spurring innovation in last-mile connectivity. For instance, Dark Fibre Africa (DFA) is proactively rolling out fiber infrastructure to end-premises in South Africa, setting up aggregation nodes where other ISPs can link. This reduces provisioning costs for service providers, paving the way for more affordable end-users tariffs. Meanwhile, the first phase of South Africa Connect, the country’s national broadband policy, is slated to begin in April, as part of plans to increase penetration of 100Mbps to 50% by 2020.

Nevertheless, challenges remain. Competition levels remain weak in many markets, with no more than one national fiber provider in three-quarters of Sub-Saharan Africa. As a result fiber prices can be excessively high in cities that are some distance from subsea cable landing stations.

Public-private partnerships (PPP) will continue to help offset the costs and risks of long-distance fiber in both national and cross-border contexts, but a wide range of ownership structures and operating models are likely to find favor, from consortia of national operators that can operate national backbones to models that separate ownership and operation of fiber infrastructure.

Much will also depend on national broadband plans that can provide household penetration targets, while also enabling a range of technology choices and commercial arrangements. Formulating the right kind of long-term infrastructure policies is no easy task: at one end, competition may be lacking in national fiber markets, while at the other end, a range of new business models and technology combinations have already stepped in to meet demand for data, particularly for high-end business users.

In this light, balancing the needs of long-term investment, competition and innovation will prove a delicate task for policymakers. For carriers themselves, there are plenty of operational challenges to contend with as they continue to roll out fiber. Robust processes for fault management have never been more important, particularly given inconsistencies in how deep fiber is buried or problems with manhole maintenance. At the same time, shifts in the regulatory landscape should be expected as policymakers seek new ways to stimulate fiber investment.
3. Regulation

Latin American regulators move to reduce mobile termination rates

Mobile termination rate (MTR) reductions mandated by regulators are a continuing feature of the telecommunications sector. Industry research shows that MTRs are falling in all regions, yet rates in Latin America remain the highest worldwide. Despite substantial reductions in recent years, average MTRs in the region stood at US$0.06 at the end of 2013, one and half times the global average and twice the levels observable in Europe.

Historically, MTRs in emerging markets have been elevated compared to other regions, helping to subsidize network rollout and widen infrastructure reach during the early stages of mobile penetration growth. However, regulators have been keen to reduce interconnection rates as markets mature in order to make services more affordable and reduce perceived competitive advantages enjoyed by larger mobile operators, who tend to be the net beneficiaries of MTR regimes. Scenarios where operators voluntarily strike bilateral agreements have been superseded by staggered annual reductions enforced by national regulators.

Source: TMG.

Figure 10. Evolution of Latin America mobile termination rates

Latin American regulators have tended to focus on overhaul of MTR regimes later than their global counterparts – until recently operator negotiations were the dominant form of rate setting. Nevertheless, mandated reductions have already produced a near-halving of the average regional rate between 2009 and 2013, and recent quarters have seen operators contend with both pre-existing MTR cuts and a new wave of proposed reductions.

In July last year, Mexico’s Chamber of Deputies passed a new telecommunications bill promoting substantial reform of the sector in order to promote competition and foreign investment. Previously only the largest player, Telcel, was obliged to use a specific cost...
model to set rates while other operators were free to negotiate charges, but the new law seeks a gradual move to a “bill and keep” system for both fixed and mobile termination rates across the market.

Furthermore, Telcel was mandated to eliminate MTRs as a result of its status as a “preponderant economic agent” with greater than 50% market share. Telcel is taking steps to reduce its market share to below 50%, which will put its MTR obligations on an equal footing with its peers.

In January last year, Chilean regulator Subtel announced a 70% cut in mobile termination rates for the 2014 — bringing the country to just above the global average — with further smaller cuts expected through to 2018. Chile has been reasonably well aligned with international practice regarding MTRs, applying models to determine rates directly oriented by costs, and the new glide path follows a wave of cuts between 2009 and 2014 that produced a 44.6% decrease over a five-year period.

**Figure 11. Chile mobile termination rate glide path**

Brazil has also seen large cuts to mobile termination rates, having held the distinction of having one of the highest mobile termination rates worldwide at US$0.12. Last year the regulator, Anatel, instituted a new cost model for MTRs that will see a phased decrease over a five-year period, resulting in a 90% cut, from BRL0.23 to BRL0.02. Anatel expects the measure to bring off-net call charges down and closer to on-net ones and even prompt price reductions in fixed-to-mobile calls.37

Other changes to Latin American mobile termination rate regimes may be in the offing. Peruvian regulator Osiptel usually reviews interconnection charges once every four years, with the most recent glide path of MTR reductions ending in September 2014. Meanwhile, despite substantial mandated reductions between 2011 and 2015, the Colombian regulator published a new MTR glidepath in December last year that propose further reductions to 2017. Previously, the Organisation for Economic Co-operation and Development (OECD) had recommended a reduction in MTRs to close to zero as part of inputs into Colombia’s OECD accession.38 Elsewhere the Argentine National Communications Commission (CNC) has begun a process to develop a new cost model for regulating termination rates in fixed and mobile.

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38. “Colombia telecoms regulator needs more power to increase competition, says OECD,” OECD, 9 April 2014.
While sharp reductions in MTRs are being felt in some markets, others remain comparatively untouched by mandated reductions. Argentinian regulator CNC does not set MTRs, although it does require operators with significant market power to set their own rates using a cost model. Meanwhile, regulatory approaches to SMS termination in Latin America remain divergent: while Colombia has established a cost-based glide path and dominant Mexican players have to pay SMS MTRs, there are no rules regarding SMS in Argentina or Brazil.

All told, the rate of MTR decline across Latin America in recent years has been on a par with trends observable in Europe, with both regions achieving the sharpest reductions worldwide, as well as a strong correlation between MTR reductions and retail rate reductions.

Regulators in other emerging markets are also looking to bring down rates, with MTR averages set to fall in a number of regions. In February, the Telecom Regulatory Authority of India (TRAI) announced a 30% cut in fees, the first adjustment for local calls since 2009. Meanwhile, a number of regulators in Africa are leveraging MTR reductions to increase the affordability.

Looking ahead, the lack of a supranational regulatory framework in Latin America means that divergent approaches to MTRs are likely to remain. Nevertheless, the region as a whole continues to migrate toward more robust MTR regimes, which should be seen in the context of overall sector reform in the likes of Brazil, Chile and Mexico, where regulators are increasingly focused on measures to promote competition and protect consumers.

UK regulator gives green light to white-space spectrum

High levels of demand for mobile data continue to place pressure on existing spectrum release programs in many markets. Digital dividend spectrum has proved vital to supporting LTE rollouts worldwide: a number of carriers have deployed 4G in the 800 MHz band, while the APT-700 MHz band is also gaining traction, with eight LTE networks now commercially available using these frequencies.

Yet mobile data demand scenarios mean that more additional spectrum will be required in the long term. Both the UK and US governments have outlined the need to free up an additional 500 MHz of mobile spectrum by 2020, with public sector spectrum holdings and unlicensed TV white-space frequencies – which refer to gaps in current radio spectrum frequency bands – both attracting attention from the mobile industry.

Following a series of successful industry trials, UK regulator Ofcom announced in February that it would allow wireless technology access to unused white-space spectrum in the 490 MHz to 790 MHz frequency band. As a result, white-space devices will share this band with existing users of these frequencies, namely digital terrestrial television (DTT), including local TV and Programmed Making and Special Events (PMSE), which includes wireless microphone users. The decision follows a number of successful trials leveraging a range of use cases, from Wi-Fi to sensor networks and digital signage.

The sharing of white-space frequencies will take place dynamically, controlled by databases that will hold information on the location of DTT and PMSE users as well as white-space devices, in order to avoid interference issues. Ofcom’s plan marks the first time it has implemented spectrum sharing through a database approach.

White-space spectrum is attractive for mobile internet use because of its signal propagation characteristics, meaning it can travel longer distances and pass into buildings more effectively than the bands used for other wireless technologies such as Bluetooth and Wi-Fi.

The UK regulator’s approval of white-space devices follows its decisions last year to repurpose digital TV spectrum in the 700 MHz band for mobile broadband without the need for another digital switchover – and to auction off public sector spectrum in the 2.3 GHz and 3.4 GHz bands by early 2016, which could be used to enhance 4G coverage.

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**Figure 12. Selected UK white-space trials**

<table>
<thead>
<tr>
<th>Service provider</th>
<th>Database</th>
<th>Devices</th>
<th>Trial location</th>
<th>Trial application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for White Space Communications, University of Strathclyde</td>
<td>Spectrum Bridge</td>
<td>6Harmonics</td>
<td>Glasgow</td>
<td>External Wi-Fi and webcam backhaul</td>
</tr>
<tr>
<td>Click4Internet</td>
<td>N/A</td>
<td>Neul/6Harmonics</td>
<td>Isle of Wight</td>
<td>Land &lt;&gt; Private boat broadband</td>
</tr>
<tr>
<td>Cloudnet Solutions</td>
<td>Fairspectrum</td>
<td>Carlson Wireless</td>
<td>Orkney Islands</td>
<td>Land &lt;&gt; Ferry broadband</td>
</tr>
<tr>
<td>CYP (UK) Ltd.</td>
<td>Spectrum Bridge</td>
<td>MELD Technology</td>
<td>Shepperton</td>
<td>Digital signage</td>
</tr>
<tr>
<td>Google, ZSL London Zoo</td>
<td>Google</td>
<td>MediaTek/6Harmonics</td>
<td>London Zoo</td>
<td>Live video feeds of animal enclosures</td>
</tr>
<tr>
<td>King’s College, London (collaboration with Joint Research Centre of the EC and Eurecom)</td>
<td>Fairspectrum/ Spectrum Bridge</td>
<td>Sinecom, KTS Wireless, Carlson Wireless, Eurecom, Runcom, InterDigital, NICT</td>
<td>London and others</td>
<td>Research and development</td>
</tr>
<tr>
<td>Love Hz Ltd. and Nominet Ltd.</td>
<td>Nominet</td>
<td>Adaptrum</td>
<td>Oxford</td>
<td>Community sensor network (flood detection)</td>
</tr>
<tr>
<td>Peerless-AV</td>
<td>Spectrum Bridge</td>
<td>MELD Technology</td>
<td>Watford</td>
<td>Digital signage</td>
</tr>
</tbody>
</table>

Source: Ofcom.
Although Ofcom’s white spaces announcement marks a European first regarding mobile use of these gaps between low-frequency bands, the United States has also been an early mover in this regard. The Federal Communications Commission first approved unlicensed use of TV white spaces in 2008, later creating a database identifying incumbent users of these frequencies that would be entitled to interference protection.

However, opposition from TV broadcasters and other groups meant that rules regarding white-spectrum use in the UHF TV band (470 MHz to 698 MHz) were only agreed to in 2010. Since then, progress in terms of commercial deployments has been sporadic. In 2012, the FCC approved commercial operations of a smart city wireless network in Wilmington, North Carolina,42 and a wireless broadband system from Carlson Wireless Technologies was approved last year.

The UK and US are not the only countries moving forward in terms of reusing white spaces for internet access. In January, the Ghanaian regulator granted the first license to operate a commercial white-spaces network in Africa. Using a service provided by local networking firm Spectra Wireless and backed by Microsoft, college students can receive a Wi-Fi service from $0.61 per day.43 There are also significant trials underway in Asia, including a disaster relief project in the Philippines and a number of smart sensor initiatives in Singapore.

Looking ahead, ensuring that new and incumbent users of white space frequencies can co-exist happily will still require regulatory attention. For example, plans for a 600 MHz incentive auction in the US – intended to allow mobile access to current TV frequencies – requires a revisiting of rules on white-space devices to ensure that they work well after the reordering of TV bands.

In addition, there is scope for white-space technology to move beyond TV spectrum in the long term, yet much will depend on the flexibility of standards and regulation to support this. In the meantime, it is clear is that TV white spaces have an important role to play in supporting a range of connectivity use cases, ranging from affordable broadband in rural areas to localized IoT deployments.

43. “Microsoft-backed TV white spaces trial goes commercial in Ghana,” ZDNet, 30 January 2015.
Global telecommunications M&A activity remains at healthy levels. Deal volume in Q4 2014 was the highest quarterly total of the year, standing at 167 transactions. While deal value of US$55.2b was down US$22b on levels registered for the preceding quarter, deal value for the full year stood at US$289b, up very slightly on the total registered for 2013. The 577 deals announced in 2014 was down on 2013 volumes, but an increase in average deal value underlines the more transformational M&A activity currently underway in the sector.

The top 10 M&A deals of Q4 2014 amounted to US$45b, of which Western Europe accounted for the lion’s share, highlighting ongoing consolidation and footprint growth in the region. The two largest deals of the quarter saw UK incumbent BT re-enter the mobile market through its acquisition of EE, while Altice struck a deal to acquire the Portuguese assets of Portugal Telecom, beefing up its presence in a market where it already owns two cable businesses, Cabovisao and Oni.

Private equity acted as acquirers in the third-largest and fifth-largest deals of Q4 2014, highlighting how non-industry buyers are confident of renewed sector opportunities. The largest private-equity-backed transaction saw a consortium of partners acquire the French operations of telecoms masts group TDF for US$4.44b. Elsewhere, tower operating companies were also active during the quarter, signaling continued confidence in the sale-and-leaseback model for mobile infrastructure.

Considering transactions by target geography, Europe, Middle East, India and Africa (EMEIA) led the way, accounting for 71% of global M&A in the last three months of the year. Deal value fell in the Americas fell by 85% quarter-on-quarter, a marked decline from elevated levels of M&A activity earlier in the year. Meanwhile, transaction value nearly quadrupled in Asia-Pacific compared to the preceding quarter, with a number of adjacent market acquisitions valued at over US$100m coming to the fore.

Figure 13. Telecoms M&A deal value by target area Q4 2014 (US$m)
Convergence drives consolidation in the UK

In-market consolidation has been a consistent feature of European telecoms M&A activity of late, with key deals occurring in markets such as France, Germany and Spain. Generally such in-market deals fall into two camps: consolidation in a single sub-segment or consolidation motivated by opportunities in a converging service landscape.

The latter scenario has seen cable companies extend into the mobile sector and vice versa, and in December it was the turn of UK incumbent BT to take a sideways step, as it announced it was in exclusive talks to acquire EE, the country’s largest mobile carrier.44 In February, BT agreed to definitive terms to acquire EE for US$19.6b in a deal that creates a new market leader and opens up substantial cross-selling opportunities. EE’s base includes 24.5 million direct mobile customers, 3.7 million virtual mobile customers, 1.9 million machine-to-machine connections and 834,000 fixed broadband customers.

Looking ahead, the UK incumbent foresees revenue synergies with a net present value of approximately £1.6b resulting from the acquisition, while current EE owners Deutsche Telekom and Orange are set to take 12% and 4% stakes in BT, respectively.45

BT’s acquisition follows a number of moves signalling its renewed ambitions in the mobile market. In 2013, the UK incumbent acquired 2.6 GHz spectrum during an auction of 4G frequencies, while last year saw it launch One Phone, an integrated office and mobile phone system for enterprises. In recent years BT has acted as a mobile virtual network operator (MVNO), most recently leveraging EE’s network to provide connectivity to businesses.

The takeover of EE marks a landmark step in BT’s convergence strategy and follows its acquisition of Premier League soccer rights in 2012 and the launch of BT Sport one year later. It comes at a time when a number of UK players are sizing up opportunities in quad-play services – combinations of broadband, pay-TV, fixed telephony and mobile for residential customers – as a means of boosting customer satisfaction and reducing churn.

Historically, quad-play offers have been conspicuous by their absence in the UK compared to markets such as France and Spain. At the end of 2013, only 4% of UK broadband households took a bundle package including mobile, and only half of these were quad-play customers. Yet the bundle landscape is all set for change now that the UK’s leading broadband provider – which spun off the O2 mobile business back in 2002 – is once again a mobile network operator.

Figure 14. UK residential bundle take-up by type, 2013

<table>
<thead>
<tr>
<th>Type</th>
<th>% respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>No bundle</td>
<td>18</td>
</tr>
<tr>
<td>Broadband, telephony, TV and mobile</td>
<td>31</td>
</tr>
<tr>
<td>Broadband, mobile and TV</td>
<td>9</td>
</tr>
<tr>
<td>Broadband, telephony and TV</td>
<td>10</td>
</tr>
<tr>
<td>Broadband and TV</td>
<td>8</td>
</tr>
<tr>
<td>Broadband and mobile</td>
<td>2</td>
</tr>
<tr>
<td>Broadband, telephony and mobile</td>
<td>2</td>
</tr>
<tr>
<td>Broadband and telephony</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Broadband and line rental is not counted as a bundle.

---

44. “BT enters into exclusive negotiations to acquire EE,” BT press release, 15 December 2014.
45. “BT agrees definitive terms to acquire EE for £12.5bn to create the UK’s leading communications provider,” BT press release, 5 February 2014.
Russian operators seek wider national footprints

Russia was the second-most-active target country for telecommunications M&A during the quarter, accounting for 23 announced deals with an aggregate disclosed value of US$65m. In terms of deal value, Russian mobile operator MTS led the way with the acquisition of three regional assets of fellow mobile player SMARTS. The deals, announced in December, saw MTS unit Telecom Povolzhye acquire Penza-GSM, SMARTS-Ivanovo and SMARTS-Ufa for US$59.4m including debt, boosting MTS’s 900 MHz and 1800 MHz spectrum positions and paving the way for the re-farming of spectrum for 4G services.

VimpelCom was also active during the final quarter of 2014, acquiring regional Russian mobile assets in the form of Yaroslavl-GSM, which operates a mobile service northeast of Moscow, and SMARTS units Astrakhan GSM Zao and SMARTS-Cheboksary. The Netherlands-based carrier also acquired at 62% stake in VestBalt Telekom, a fixed-line operator based in Kaliningrad.

In further evidence of the need for scale in the Russian market, VimpelCom Russia and MTS announced a partnership to develop and operate LTE networks. Under the terms of the agreement, MTS is set to build and operate LTE base station in 19 Russian regions between 2014 and 2016, while VimpelCom will do the same in an additional 17 regions. Both operators will retain their core networks, and the partnership does not preclude either party from constructing new base stations to provide additional coverage solely for their respective customers.

While network sharing and regional consolidation in Russia’s mobile market reflects a challenging operating environment coupled with additional pressures to maximize available spectrum, adjacent market acquisitions are also gaining ground. During the quarter, Rostelecom acquired three online streaming video providers: Now.ru and RuTune from Gazprom and Zoomby.ru from WebMediaGroup. Rostelecom plans to merge the three providers into a single company that will be 74% owned by the operator, with Gazprom holding the remainder.

However, the fixed-line player also remains alive to opportunities closer to its legacy business, and in October received antitrust approval to acquire city WiMAX operator FreshTel Group. Although FreshTel uses 3.5GHz frequencies to provide wireless data transmission, Rostelecom plans to use its infrastructure to provide fixed wireless access (FWA) internet services. In this way, it avoids competing with its recently formed joint venture with Tele2, T2 RTC Holding, which provides mobile services.

**Figure 15. Top 10 telecoms M&A worldwide by deal value, Q4 2014**

<table>
<thead>
<tr>
<th>Buyer/target</th>
<th>Deal value (US$m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT Group/EE</td>
<td>$19,551</td>
</tr>
<tr>
<td>Altice/Portugal Telecom</td>
<td>$9,214</td>
</tr>
<tr>
<td>Investor Group/TDF</td>
<td>$4,440</td>
</tr>
<tr>
<td>Cable &amp; Wireless/Columbus Communications</td>
<td>$3,025</td>
</tr>
<tr>
<td>NJJ Capital/Orange Switzerland</td>
<td>$2,858</td>
</tr>
<tr>
<td>AT&amp;T/iusacell</td>
<td>$2,500</td>
</tr>
<tr>
<td>American Tower/TIM Celular Brazilian towers</td>
<td>$1,193</td>
</tr>
<tr>
<td>American Tower/Bharti Airtel Nigerian towers</td>
<td>$1,050</td>
</tr>
<tr>
<td>KPN/Reggefibre</td>
<td>$764</td>
</tr>
<tr>
<td>Telstra/Pacnet</td>
<td>$697</td>
</tr>
</tbody>
</table>

Sources: ThomsonOne, Capital IQ, Mergermarket.
Foreign investment on the rise in Latin America

Latin America has been the scene of a number of transformational deals in recent quarters, and the three months to December saw another slew of high-value deals. In the fourth-largest deal of the quarter, UK-based Cable & Wireless Communications (CWC) acquired Columbus International Inc., a carrier with operations in the Caribbean, Central America and the Andean region, for US$3b, including the assumption of debt.50

Columbus International is a leading provider of triple-play services using its proprietary fiber-optic infrastructure and also provides backhaul connectivity to 42 countries in the region. On the enterprise side, Columbus’ solutions include cloud and IT services and data center services. The acquisition is seen as furthering CWC’s stated strategy of obtaining leadership in mobile in its region, scaling up its quad-play and pay-TV capabilities and growing its B2B offerings.

Elsewhere, US-based AT&T announced the US$2.5b acquisition of Iusacell, Mexico’s third-largest mobile operator, in November. The deal brings AT&T an additional 8.6m wireless subscribers and network assets that cover 70% of Mexico’s 120 million population. Commenting on the deal, AT&T highlighted the reforms instituted by Mexico to encourage more foreign direct investment as a catalyst for the deal.51

Looking ahead, the US carrier sees plenty of opportunities for growth given the country’s early stages of smartphone and mobile internet adoption compared to developed economies, and it plans to bring better network speeds and quality to Latin America’s second-largest economy. Meanwhile, the combination of US and Mexico wireless capabilities will allow AT&T to take advantage of demand from the US’s large and growing Hispanic population that has close ties with Mexico, as well as AT&T’s enterprise customers that have operations in Mexico.

Figure 16. Mexico smartphone penetration forecast

<table>
<thead>
<tr>
<th>Year</th>
<th>Smartphone users in millions</th>
<th>% Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>2015</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>2016</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>2017</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>2018</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: eMarketer.

Mobile tower infrastructure in Latin America is also the scene of rising foreign investment. In November, American Tower Corporation announced that it would acquire two portfolios of towers from Brazil’s TIM Celular, representing 5,480 towers in total, in a US$1.2b deal. Globally, tower sale-and-leaseback arrangements remain popular, with American Tower and IHS Holdings acquiring tower assets from Bharti Airtel in Africa during the fourth quarter.

Asia-Pacific operators look well beyond core capabilities

Asia-Pacific operators continue to look at M&A opportunities as a way of building new capabilities and competencies. In this regard they continue to prove more aggressive than their European peers, with only a select group of North American carriers demonstrating a similar appetite for transformational M&A.

During the quarter, Australia’s Telstra was active on a number of fronts, making a renewed effort to expand across the Asian region, with a focus on the enterprise segment and the health care vertical in particular.

In Asia’s largest telecoms deal of Q4 2014, Telstra acquired regional enterprise and wholesale specialist Pacnet for US$697m. Following the acquisition, Telstra has new multi-market capabilities in software-defined networking, data centers and submarine infrastructure, and wider range of services it can offer to businesses that are expanding in Asia. Pacnet has 2,400 enterprise customers – with strong penetration of financial services, internet, e-commerce, technology and professional services sectors – as well as 220 carrier clients.52
At the same time, Telstra is targeting opportunities in the health care sector. In October the Australian incumbent launched a new stand-alone business division, Telstra Health, outlining plans to become the leading provider of integrated e-health solutions in its home health care market. Australian health care spending represents nearly 10% of GDP and is growing twice as fast as the overall economy, creating demand for technology-led efficiencies.53

During the fourth quarter Telstra made a number of acquisitions, purchasing iCareHealth, an aged-care software provider, for US$16m, as well as Cloud9 Software, a health information exchange platform. Telstra’s health care ambitions are stretching beyond its domestic market — during the quarter it acquired a stakes in two overseas software developers, paying US$20m for a 2% stake in New Zealand’s Orion Health, while also acquiring India’s IdeaObject for an undisclosed amount.

Meanwhile, Japan-based carriers continue to seek new forms of exposure to the digital ecosystem. SoftBank proved particularly active in Q4 2014: in October the Japanese player acquired a minority stake in Legendary Entertainment — a US-based film and TV production and distribution business – for US$250m, while spending a similar amount on GrabTaxi Holdings of Malaysia, a taxi app developer that operates in 17 countries across Asia.54

Opportunities in e-commerce also remain firmly on SoftBank’s radar. In October it led a US$100m investment round in Indonesia’s PT Tokopedia, while also spending US$627m on Indian online marketplace Snapdeal and leading another round of funding for Ola Cabs, an Indian taxi app provider. Given its one-third ownership of Chinese e-commerce giant Alibaba, SoftBank now has high levels of exposure to a number of high-growth online marketplace and taxi platforms in the region.

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### Figure 17. Adjacent market acquisitions by Asian operators, Q4 2014

<table>
<thead>
<tr>
<th>Date</th>
<th>Bidder</th>
<th>Target</th>
<th>Value (stake)</th>
<th>Business nature of target</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 Dec 2014</td>
<td>Telstra (Australia)</td>
<td>Pacnet (Singapore)</td>
<td>US$697 million (100%)</td>
<td>Asian undersea cable operator</td>
</tr>
<tr>
<td>22 Dec 2014</td>
<td>SK Telecom (South Korea)</td>
<td>IRIVER Ltd. (South Korea)</td>
<td>US$23 million (16%)</td>
<td>MP3 player and electronic device manufacturer</td>
</tr>
<tr>
<td>19 Dec 2014</td>
<td>Telstra Health (Australia)</td>
<td>Cloud9 Software (Australia)</td>
<td>N/A (100%)</td>
<td>Cloud health information exchange platform</td>
</tr>
<tr>
<td>19 Dec 2014</td>
<td>Telstra Health (Australia)</td>
<td>IdeaObject (India)</td>
<td>N/A (100%)</td>
<td>Health care software developer</td>
</tr>
<tr>
<td>19 Dec 2014</td>
<td>SingTel Optus (Australia)</td>
<td>Ensyst Pty (Australia)</td>
<td>US$11 million (100%)</td>
<td>IT and telecoms solution provider</td>
</tr>
<tr>
<td>17 Dec 2014</td>
<td>Vocus Communications (Australia)</td>
<td>Amcom Telecommunications (Australia)</td>
<td>US$514 million (90%)</td>
<td>IT and telecom company</td>
</tr>
<tr>
<td>10 Dec 2014</td>
<td>Telstra Ventures (Australia)</td>
<td>Panviva (Australia)</td>
<td>N/A (minority stake)</td>
<td>Cloud-based business process software company</td>
</tr>
<tr>
<td>5 Dec 2014</td>
<td>Telstra Health (Australia)</td>
<td>Emerging Systems (Australia)</td>
<td>N/A (100%)</td>
<td>Acute care IT specialist</td>
</tr>
<tr>
<td>4 Dec 2014</td>
<td>SoftBank Corp. (Japan)</td>
<td>GrabTaxi Holdings (Malaysia)</td>
<td>US$250 million (N/A)</td>
<td>Regional taxi app provider</td>
</tr>
<tr>
<td>19 Nov 2014</td>
<td>SoftBank Corp. (Japan)</td>
<td>Locon Solutions Pvt Ltd. (India)</td>
<td>US$70 million (30%)</td>
<td>Online map-based real estate search portal</td>
</tr>
<tr>
<td>17 Nov 2014</td>
<td>Telstra (Australia)</td>
<td>iCareHealth Pty (Australia)</td>
<td>US$16 million (100%)</td>
<td>Health care software provider</td>
</tr>
<tr>
<td>13 Nov 2014</td>
<td>Telstra Health (Australia)</td>
<td>Orion Health (NZ)</td>
<td>US$20 million (2%)</td>
<td>Health care management software developer</td>
</tr>
<tr>
<td>22 Oct 2014</td>
<td>SoftBank Internet and Media, Inc. (United States)</td>
<td>PT Tokopedia (Indonesia)</td>
<td>US$100 million (N/A)</td>
<td>Online retail platform</td>
</tr>
<tr>
<td>20 Oct 2014</td>
<td>PCCW Global (Hong Kong)</td>
<td>Crypteia Networks (Greece)</td>
<td>N/A (100%)</td>
<td>Security-as-a-service solutions provider</td>
</tr>
<tr>
<td>15 Oct 2014</td>
<td>Telstra (Australia)</td>
<td>Bridge Point Communications (Australia)</td>
<td>N/A (100%)</td>
<td>Provider of information security, network integration and DC solution</td>
</tr>
<tr>
<td>2 Oct 2014</td>
<td>SoftBank (Japan)</td>
<td>Legendary Entertainment (US)</td>
<td>US$250 million (N/A)</td>
<td>Media company</td>
</tr>
</tbody>
</table>

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