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3G Wireless Broadband

3G, LTE, Next-generation networks, WiMAX, convergent networks, IMS
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MEET OUR ANALYSTS



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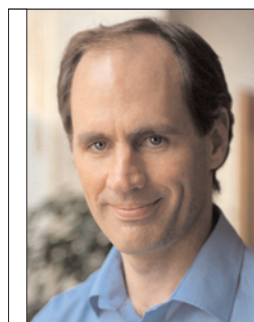
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Informa Telecoms & Media analysts regularly attend industry conferences, either to deliver presentations, chair a session or simply to research a specific topic. Below we list those events that our analysts are due to attend over the coming months.

Please e-mail the relevant analyst directly if you would like to set up a meeting at or around one of the conferences.

Event	City, Country	Date	Web Site	Analyst
Optimising & Evolving 3G Networks	Barcelona, Spain	15-18 June	www.iir-events.com/IIR-conf/Telecoms/EventView.aspx?EventID=2216	julian.bright@informa.com
Femtocells World Summit	London, UK	23-25 June	www.avrenevents.com/FemtocellsEurope2009	julian.bright@informa.com
Service Delivery Platforms	Prague, Czech Republic	15-17 Sept	http://europe.sdpsummit.com	peter.dykes@informa.com

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LTE's supporters warn of fragmentation over voice strategy

Disagreement over how to provide support for voice services over LTE networks is dividing opinion, at a time when work toward commercializing next-generation technology is gaining momentum. Vendors and operators have failed to reach a consensus on which of several proposals to adopt and are warning of fragmentation if the industry cannot agree on a common approach.

The question of how to support voice services over LTE networks is proving something of a sticking point for the LTE community and has led to warnings of fragmentation if all parties cannot agree on the best approach to adopt, particularly in the short-to-medium term.

The debate has been reignited by the creation of the Voice-over-LTE Generic Access (VoLGA) Forum earlier this year. The forum lists among its members wireless vendors Alcatel-Lucent, Ericsson, Huawei, Motorola and ZTE, and favors an approach based on the 3GPP's generic-access-network (GAN) standard, using a tunneling approach to deliver voice services over LTE using an operator's existing core network.

The most vocal supporters of the VoLGA approach are T-Mobile – the only mobile operator to sign up to the forum – and UMA specialist Kineto Wireless. T-Mobile has stated that it aims to launch LTE in 2010 and that it strongly believes that voice service needs to be a key element of its LTE offering from the outset.

Other operators favor an alternative, circuit-switched (CS) fallback, which hands over from the LTE network to the 2G or 3G network when a customer sets up a voice call. Both approaches are considered interim solutions pending the introduction of IMS-based VoIP, expected around 2011.

The 3GPP has failed to adopt VoLGA's LTE GAN approach as part of its current work on Release 9, preferring the CS-fallback option until its preferred technology, IMS, becomes available. "3GPP has rejected the [LTE GAN] proposal not because it's bad, but because of the split between LTE with voice now vs. in the future," a spokesman for 3GPP said. "If you have CS fallback, IMS eventually and VoLGA in the meantime, you would have the complexity of three approaches. That's why 3GPP hasn't endorsed VoLGA so far."

Speaking at Informa's LTE World summit in Berlin in May, Franz Seiser, head of core-network architecture at T-Mobile International, said that once deployed, LTE should be used as much as possible because it was the main factor in reducing production costs. "More and more people see that voice in LTE is much more important than originally thought," he said. "We feel voice and SMS support is very important to position LTE as a next-generation mobile broadband network."

Voice and SMS still account for 70% of revenues, but circuit-switched voice had provided a high benchmark, Seiser said. The options proposed by 3GPP – CS fallback and, ultimately, IMS – don't fulfill T-Mobile's requirements to move traffic onto its most efficient engine, he added (see fig. 1).

Seiser cited a number of concerns with CS fallback, including longer call-setup times, the likelihood of a data session being interrupted if the fallback network is 2G rather than 3G, the risk of 2G service not being available where a femtocell has been deployed in a poor coverage area, and the need to upgrade existing Release 4 MSC servers before CS fallback can be implemented on an operator's network.

"It's a lot of effort to end up with something unsatisfactory from a user perspective," Seiser said.

IMS will be the solution in the long term, but it is complex and hasn't been widely deployed or proved under heavy load conditions, Seiser said. "It's a huge thing to implement, and that's not feasible in the near term," he said. "Most mobile operators agree it won't be there in the 2010-12 time frame. It's more in the next five years. If we're proposing something different, our key criteria are retaining investment in Release 4 and using it as long as possible."

Fragmentation will follow, because the industry wants to go from CS fallback to IMS using SIP, which is disruptive, Seiser said. "The fragmentation is not coming from VoLGA."

Fig. 1: Comparison of voice-over-LTE approaches

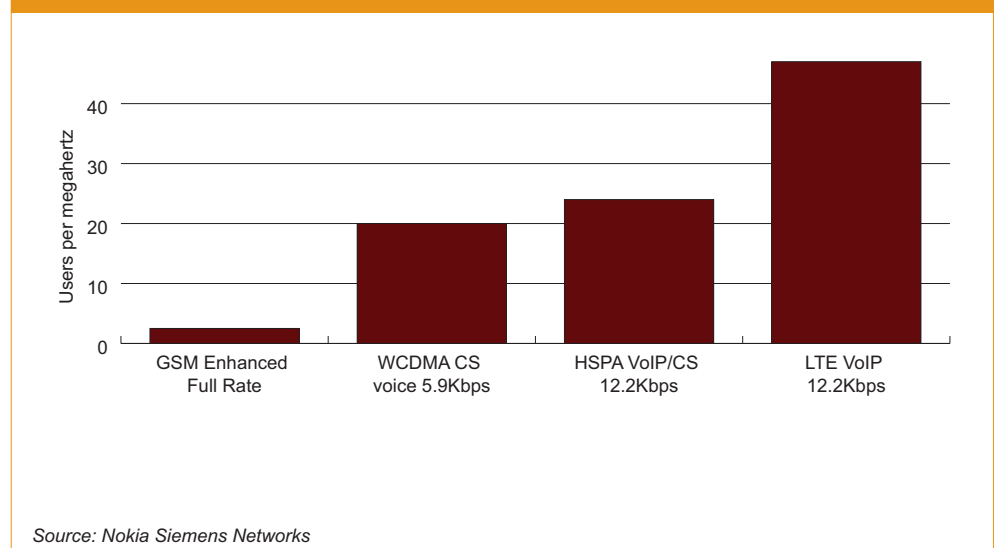
CS Fallback	IMS	VoLGA
Requires changes to Rel. 4 architecture MSC servers	Requires IMS platform, application servers and a major upgrade/change to Rel. 4 architecture MSC servers. Also requires updates/changes to many IT systems and processes	Requires no change to existing MSCs and operational systems
Problems with customer experience: Call-setup time more than 1.5 sec., no parallel voice/data if legacy network is 2G without dynamic-synchronous-transfer-mode functionality	No ecosystem in place for IMS voice/SMS roaming and interconnection. (Only GPRS-data and CS ecosystems are available)	Supports handover of active calls between LTE and GSM/UMTS. Also supports IMS RCS and combinational services (CS+IMS) over LTE
Doesn't use LTE radio for voice		Supports expected LTE femtocell deployments

Source: VoLGA Forum/T-Mobile International

But Marc Fossier, former group CTO at France Telecom/Orange, which has been a strong supporter of UMA via its Unik service, said that the operator would be backing 2G/3G fallback in the short term, even though it is “not a very nice solution.”

One leading vendor that has not signed up to the VoLGA Forum's initiative is Nokia Siemens Networks. The company is proposing its own “fast track” to voice-over-LTE (VoLTE) that it says will provide a smooth transition from CS fallback to IMS VoIP using a Nokia Siemens Voice Server (NVS).

Even though adoption of LTE will be linked mainly to growth in mobile data use, VoLTE will be important for operators, especially since they can combine it with other services, Michael Clever, head of next-generation voice and multimedia at Nokia Siemens Networks, said in a recent webcast. If the user were not even aware he was using VoIP, operators could apply the same charging mechanisms and enjoy the higher spectral efficiency of LTE, Clever said (see fig. 2).

Fig. 2: Comparison of voice capacity on mobile networks

The huge installed base of MSC servers will still be required to cope with 2G and 3G circuit-switched traffic, but the question is how to move from the current arrangement to an LTE environment where IMS is the glue that brings together all types of services, encompassing multimedia and voice.

Running on an MSC server, the NVS software would provide SIP-based connectivity to enable existing CS voice services to be accessed from an IP environment, Clever said. Everything that the MSC server already provides, such as billing interfaces, would be reused, and unlike in a CS-fallback situation, there would be no difference in the voice features available to the user. The existing call-control functionality in the MSC server would also be used for all calls, whether originating from the IP or the CS network, so there would be no need to set up a new system initially for just a few VoIP subscribers.

The NVS software is also compatible with IMS and would eventually become the VoIP server on top of the IMS, Clever said.

But according to Seiser, there is a lack of willingness or readiness among operators to tackle IMS. "It has not ever been deemed to be a one-to-one replacement for the CS infrastructure, and people who think it is are surprised to find out it's so complex," he said.

Another risk with CS fallback is its lack of support for SMS, even though voice-enabled LTE handsets won't be available until end-2011 or early 2012, Seiser said. "On the data sticks you buy today, if you buy the T-Mobile broadband proposition, SMS is a big piece of it," he said.

SMS support is important not just for personal messaging but for service messages, such as warnings of potentially large bills, and the transfer of PLMN lists when roaming. "It's for us to have good customer service," Seiser said. "There's a significant risk if we don't have SMS support. CS fallback doesn't give support for SMS."

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Analysis ■

Developers still to be convinced by operators' new openness rhetoric

Various players in the mobile content and applications sector were brought together in London recently to discuss the industry's changing landscape, and the ensuing debates hinted that even though leading carrier groups have changed tack, they still find it difficult to placate most application developers.

Mobile operators are often eager to publicize how they have left the era of the "walled garden" behind them – an era when they effectively had a stranglehold on the mobile content industry. They are now more likely to be heard promoting their newfound openness to competition through "open source" and "open API" rhetoric.

But application developers are not necessarily convinced that operators are genuine when uttering such words. They say that even a year after the launch of the Apple App Store, many mobile operators have failed to simplify their certification procedures and are slow to improve their revenue-share deals.

Operators are used to effectively holding all the cards and taking a large share of any revenue from content sales in exchange for giving developers access to mobile users. But content providers believe the terms insisted upon by most carriers leave them laden with the majority of the effort for only a minority of the resulting revenue.

Meanwhile, companies whose origins lie in IT and the fixed Internet, such as Apple and Google, are winning the hearts and minds of developers as they increasingly encroach on the mobile space, generating new revenue streams from channels traditionally seen as operator turf. Even though outlets such as the Android Market and App Store reach only a minority of mobile users, compared with mobile operator portals, developers see them as promising a far greater return on investment.

Operator strategies

Yet operators are probably much less inert than most developers would suggest. Many carrier groups are modifying their content and services strategies, investing in developer-partnership programs aimed at encouraging take-up of applications among the majority of mobile users with feature handsets – not high-end ones, such as the iPhone and BlackBerry.

Speaking at Smart Pipes and Applications, a conference recently held in London by Informa Telecoms & Media, Erik de Kroon, head of marketing for Internet discovery at Vodafone Group, said that there is a demand for Internet-type services among the majority of mobile users and that the biggest task facing operators is to remove barriers in the market.

He conceded that until mid-2008 there was disagreement among interest groups within Vodafone on how to advance the carrier group's content and services strategy, but he said there is now consensus. Members of Vodafone's content-retail team were "resistant" to the sale of flat-rate data plans to the majority of Vodafone customers, presumably because they

feared that such a move would expose their content channels to stiff competition from Internet brands. But since then, there has been a change in the mindset within the group.

De Kroon said that the fixed Internet is the measure of openness that Vodafone has to match up to if its mobile applications and Web strategy is to stay competitive, even if it diminishes Vodafone's on-portal content revenues.

Peter Knook, Internet-services director at Vodafone, described how the carrier's participation in the Joint Innovation Lab (see fig. 1) is aimed at facilitating its transition to a new business model through direct engagement with application developers. JIL members are investing in their own widget-developer programs and opening up access to their networks' capabilities, starting with location and billing APIs, according to Knook.

Fig. 1: Joint Innovation Lab members

Members	Subscriptions, 2Q09 (mil.)	Market presence	Assets for application developers
Vodafone Group	303.0	Various (27 markets)	Widespread customer base
China Mobile	483.0	China	Largest carrier in the world, by subscriber count
Verizon Wireless	88.1	US	Largest carrier, by subscriber count, in the world's richest market
SoftBank	20.7	Japan	Present in the world's most advanced market, in terms of mobile content and services take-up

Source: Informa Telecoms & Media

But this enthusiasm for simplifying developers' route to market is far from universal. A Vodafone representative told conference delegates that only 50 of the 750 GSMA members were active in the organization's "One API" initiative. Enthusiasm for the program has reached "critical mass" in Europe, but there is little interest in it elsewhere, he added.

Knook further explained Vodafone's vision that the bulk of its subscribers would use "single-purpose, simple applications" offering quick access to a personalized mini Web page from devices that cost less than €100 (US\$139).

Vodafone also wants to promote widespread use of such services by modifying its data fees, even for prepaid customers. Knook said the carrier wants to overcome subscribers' fears of bill shock by developing simple postpaid and prepaid tariffs, such as the £0.50 (US\$0.80) daily Internet package it makes available to prepaid users in the UK.

Steve Glasgow, vice president of Orange's Partner Program, said his team's three main priorities would focus on increasing the number of applications available in its Orange Application Shop (see fig. 2), which was launched in April. The outlet already has 400,000 active users. Glasgow added that almost 40% of all content sales at the store were generated by subscribers using three handset models: the Sony Ericsson W90i, the Nokia N6500 Slide and the Nokia N95.

Fig. 2: Orange Partner Program focus, 2009

1. API initiatives (sharing APIs with developers)
2. Open innovation
3. Orange Application Shop

Source: Orange

Developer criticisms

However, Mark Newman, chief research officer at Informa, criticized the Orange Application Shop, which is located on the Orange World portal, for being too difficult to find. He also pointed out that the store was stocked mainly with premium content, while the success of Apple and Google's platforms is seemingly based on the offer of free content.

John Holloway, chief technology officer at application developer Zing Magic, criticized Orange's policy of putting all application submissions – even those that are already verified by Java or Symbian – through "compatibility testing." Such strategies are patronizing and delay developers' route to market, costing smaller developers dearly, he said. Orange's procedures are heavily weighted in favor of big content and application providers, such as No. 1 games publisher EA Mobile, he added, noting that smaller developers are forced to make their submissions to operators via aggregators, further eating into their profit margins.

Holloway also said he has high hopes for Nokia's application outlet, Ovi Store, because of the handset makers' deep market penetration, though he did express concern that many operators would remove the Ovi Store client from Nokia handsets after they have purchased them from the manufacturer. He posed the question to various Vodafone delegates in attendance, but all of them declined to comment.

The general consensus from most developers in attendance was that most operators are too prescriptive with their applications-approval procedures. Many were not that tactful in their criticisms of operator development programs.

"Get out of my way and stop trying to be helpful to me," said Matt Millar, CEO of development company Live Talkback, when asked to send one message to operators. Millar compared the approval procedures of most mobile operators with the comparatively lax guidelines advocated by Apple and said the former were much less conducive to a dynamic market.

He cited his own company's success with iPod Touch users as an example of how application success stories can occur without the guiding hand of mobile operators. iPod Touch users download applications from an online portal with absolutely no involvement from mobile operators, he said. "They [mobile subscribers] are my customers as well!" he said.

When asked about mobile operators' renewed enthusiasm for partnering with content developers, most of the application developers attending the conference were cynical. Paul Golding, a "mobile innovation" consultant for development firm Wireless Wanderer, said that most operators "don't have it in their DNA."

"They can't move quickly enough," he said, referring to operators' apparent inability to trust most application developers to operate freely in a self-publishing model.

A sign that some operators have moved to a much more open model for mobile content is the fact that the Web sites of Vodafone UK and O2 UK make no mention of their respective mobile portal brands, Live and Active, both of which used to lie at the heart of their content marketing.

JIL initiative

Vodafone will provide mobile-Internet-application developers with a single access point to all its networks, a move it hopes will create new revenues it will share with service providers. It plans to give developers 30% of revenues, the same percentage Apple gives its developers.

The services that are developed will work on any device that has an up-to-date browser installed, such as Firefox and Internet Explorer. The company says it is also looking at ways to expand the service to devices that don't have the latest browsers installed.

Vodafone hopes the move will mean that developers won't have to create applications for a myriad of devices, as they do now. Vodafone is hoping that will make it more compelling for developers to create services for Vodafone subscribers.

"It's the scale that sets this initiative apart, because developers will be able to reach so many users in a single hit," a Vodafone spokesman told Informa. "We'll provide a layer of abstraction over operating companies' networks that will enable developers to access Vodafone subscribers."

Developers will be able to charge for services directly through Vodafone's billing system, and any services bought will be charged through Vodafone prepaid and postpaid accounts.

Vodafone will also provide partners and developers with customer-controlled access to other network capabilities, such as location awareness.

"By giving developers access to location-awareness capabilities, Vodafone will enable a new generation of highly personalized user-activated and -controlled services and applications that are tailored to meet the customer's immediate requirements," the company said.

Vodafone is making the enhancements through the creation of a set of network application-programming interfaces. The APIs, which provide a link between the applications and the Vodafone network's capabilities, will work across the entire Vodafone footprint through a new layer of management technology based on service-oriented architecture, the company said.

Vodafone will offer access to selected network enablers through the JIL initiative, which is designed to help developers create useful widgets for a combined audience of up to 1 billion customers across the four JIL partner networks: Vodafone, Verizon Wireless, China Mobile and Japan's SoftBank.

JIL will release a Web site and a software-development kit in the summer. Vodafone says it is exploring a range of other ways to expose its network enablers to the broadest possible audience.

Airplus, FLO eye German mobile TV as regulators ponder next step

The development of broadcast mobile television in Germany could be set for an unexpected turn as the country's media regulators are talking with backers of European pay-OTT operator Airplus TV and with technology provider Qualcomm.

A group associated with Airplus TV, the company behind Finland's PlusTV and putative pay-OTT platform Dahlia in Spain, has expressed to the regulators its interest in backing a mobile-television service in Germany.

The regulators are also increasingly making noises about technology neutrality, which could yet see alternative technologies such as Qualcomm's MediaFLO and DVB-T win out over DVB-H, the European Commission's preferred standard for mobile television.

Qualcomm, the US chip maker that developed mobile-broadcast technology MediaFLO, is talking to German regulators about how its technology could be used for mobile television.

Germany's first attempt at launching a DVB-H broadcast mobile-television service ended ignominiously last year, when platform operator Mobile 3.0 had to hand back its license after failing to launch a commercial service.

The country has also had little luck with rival technology DMB, with the Watcha service folding last year in the wake of poor consumer demand.

German state media regulators have set up a task force to gauge how much market interest remains in launching a broadcast mobile-television service and to identify potential new bidders for the license.

The task force is due to report back in the middle of May and the regulators will then make a decision on what to do about mobile television in Germany.

They have said in the past that they are under no obligation to retender the DVB-H license and are prepared to scrap the German mobile-television project altogether if no viable business model can be agreed on.

Hans Hege, director of the Berlin-Brandenburg media authority, said that the task force had been talking to Qualcomm as well as the Airplus TV group and would also seek further discussions with Media Broadcast, the TDF-owned company that was originally charged with building Germany's DVB-H network infrastructure.

He added that discussions had not been limited to DVB-H and MediaFLO and that the Airplus TV group was looking at using a version of the DVB-T digital-terrestrial standard to launch mobile television.

Airplus TV declined to comment but stressed that the German project would not be conducted by Airplus TV itself but through a separate company set up by some of its founders.

Mobile 3.0's downfall was largely attributable to its failure to agree distribution deals with German mobile-phone operators after being awarded the license. The company, backed by media groups Burda and Naspers, also struggled to get deals with broadcasters and program makers.

Hege said that the regulators would therefore insist next time around that the operator license be awarded to a bidder which already had distribution and program deals in place.

Top candidates for a new DVB-H license initially included mobile-telephone operators such as T-Mobile, Vodafone and O2, which lost out to Mobile 3.0 when the license was first tendered. But their interest in mobile television has waned and most operators are now focused on mobile broadband instead.

"I'm sure if someone came along and offered them a mobile-TV product, they'd probably consider it, but the question is who's going to carry the risk," said Hege.

Hege added that the Airplus TV group, Qualcomm and Media Broadcast had yet to submit detailed business plans.

Bernhard von Canstein, director of business development for Europe for Qualcomm MediaFLO, said that Germany was an "extremely attractive" market for MediaFLO because of its size and the availability of free-to-air channels.

MediaFLO favors a hybrid business model for mobile television, with a mixture of paid-for

and free-to-air programs. It argues that its technology is better suited to such a model because it allows operators to offer more channels than can be done by DVB-H.

“With DVB-H you can typically offer 14 or 15 channels, whereas MediaFLO can give you 30,” said von Canstein. “If you hand over eight or nine channels to free-to-air broadcasters, then DVB-H doesn’t leave you with much to get your return on investment.”

Von Canstein added that the failure of Watcha and Mobile 3.0 also meant that Qualcomm might find it easier to make its case for MediaFLO in Germany than in other European countries.

In the US, Qualcomm has opted to kick-start the market for MediaFLO by taking on all the risk of building the network infrastructure itself and then partnering with mobile-phone operators to get its products into the market.

Von Canstein said that it was too early to say whether Qualcomm would pursue a similar strategy in Germany. “If the prospects are good, there would certainly be a willingness on Qualcomm’s part to make a commitment in Germany.”

He added that the company would continue to talk to all parties involved in the German market. “Qualcomm already has good working relationships with the mobile-phone operators and we’re having constructive and productive conversations, but we’re not yet at the stage where we would want to make a decision about any precise business model,” he said.

But von Canstein warned that, before Qualcomm could take its next step toward offering mobile television in Germany, certain parts of the country’s regulatory regime would have to become more technology neutral.

Mobile-television services in Germany require two licenses: a media license from the state media regulators and a telecommunications license from the country’s federal telecommunications regulator, the Bundesnetzagentur.

Von Canstein said that the state regulators had proven to be “commendably open” about technology, but this was not yet the case with the federal regulator.

“At the moment, the telecommunications license is defined for DVB-T and therefore, by extension, DVB-H,” he said.

“There are many in the market who recognize the advantages of what MediaFLO has to offer, but what we need is a clear regulatory signal toward true technology neutrality.”

He added that, for the time being, Qualcomm was focused on encouraging the media regulators not to rush into a decision on mobile television.

“I think we should be careful not to repeat the DMB and DVB-H disasters,” he said. “It would be a mistake to try and force a decision just for the sake of it.”

This sentiment was echoed by Hege, who said that the regulators had not set themselves a deadline for their decision.

“The task force is going to report back in May and then we’ll see what happens,” he said. “We believe that another debacle along the lines of DVB-H would probably damage the prospects of mobile television in Germany far more than if we launch something in 2010 rather than 2009.”

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Global, WiMAX-network deployments, 1Q09

Region/ country	Operator	Spectrum band (MHz)	Technology	Launch month	Comments
AFRICA					
Guinea	Sotelgui	3500	WiMAX	Mar	Sotelgui is still selecting an infrastructure supplier.
Libya	Libya Telecom and Technology	2500	Mobile WiMAX	Feb	LTT launched WiMAX in January. The network covers 18 cities, with capacity for 300,000 subscribers in the first phase of the deployment.
ASIA PACIFIC					
India	BSNL	2500	Mobile WiMAX	Feb	SOMA mobile WiMAX network based on 802.16e-2005 standard is being deployed in Gujarat, Maharashtra and Goa.
India	MTNL	2500	WiMAX	Jan	MTNL has set up WiMAX towers in Delhi and Mumbai.
Philippines	S&R Telecom		WiMAX	Mar	
EASTERN EUROPE					
Armenia	Icon	3400	Mobile WiMAX	Mar	Icon launched services in Yerevan in March 2009. Expansion of coverage is planned throughout 2009.
Azerbaijan	Azqtel	3500	WiMAX	Mar	First deploying the network in Baku before extending it nationwide.
Lithuania	SC Lithuanian Radio & TV Center	3500	Mobile WiMAX	Mar	On Sept. 29, 2008, LRTC confirmed that it had signed a contract with Samsung, which will provide mobile WiMAX base stations, access-service network gateways and all the related equipment. Lithuanian Radio & TV Centre (LRTC) commercially launched the first mobile WiMAX service in Lithuania. LRTC is selling mobile WiMAX devices in outlets in Lithuania's major cities and plans to expand its service all over the country by 2010. LRTC plans to introduce voice-over-IP (VoIP) telephony and video transmission at a later date.
MIDDLE EAST					
Jordan	Mada Communications	3500	Mobile WiMAX	Mar	Mada Communications has chosen Motorola to deploy WiMAX network in Jordan.

Source: Informa Telecoms & Media

Global, WiMAX-contract awards, 1Q09

Region/country	Operator	Vendor	Month contract awarded	Technology	Purpose
AFRICA					
Burkina Faso	Ministry of Post and Information Communication Technology	Alvarion	Mar	Mobile WiMAX	Broadband access
Democratic Rep. of Congo	Cielux Telecom	Alvarion	Feb	Mobile WiMAX	Broadband access
Sudan	NEU	Huawei	Mar	WiMAX	Broadband access
ASIA PACIFIC					
Cambodia	Chuan Wei	Alcatel-Lucent	Feb	WiMAX	Broadband access
Malaysia	Packet One (P1)	ZTE	Mar	Mobile WiMAX	Broadband access
NORTH AMERICA					
US	Sacred Wind	Fujitsu	Mar	WiMAX	Broadband access

Source: Informa Telecoms & Media

Global, WiMAX-license awards, 1Q09					
Region/country	Operator	Frequency allocation	Month awarded	Geographic scope	Award type
AFRICA					
Burkina Faso	Ministry of Post and Information Communication Technology	2,5GHz	Mar	National	Granted
Rwanda	Comium	–	Feb	National	Granted
Sudan	NEU	2,5GHz	Mar	National	Granted
Note: All licenses are technology-agnostic.					
<i>Source: Informa Telecoms & Media</i>					

Asia Pacific, WiMAX-market update, 1Q09

1Q09 saw a sprinkling of launch announcements and supply contracts as WiMAX operators in Asia Pacific planned network rollouts, hopeful of building on early growth in subscription counts in the region. But they are set to face a challenging environment, particularly in countries with high fixed- and mobile-broadband penetration.

Malaysia's Packet One (P1) reported that its subscription count doubled in 1Q09, from about 10,000 at end-2008 to 20,000. Encouraged by what it says is a huge pent-up demand for broadband services in Malaysia, where there are just 1.7 million broadband subscriptions among a population of about 28 million, the operator is upgrading its forecast from 100,000 subscribers at end-2009 to 250,000.

In March, P1 awarded a contract to China's ZTE for mobile WiMAX equipment for the second phase of a program to expand its nationwide WiMAX network. Under the agreement, ZTE will also provide network planning and design, engineering services and network optimization. The expansion project is set to involve the deployment of equipment in more than 450 new sites, and P1 aims to expand its WiMAX coverage by more than 900 sites by year-end.

The operator has allocated a capex of MYR1 billion (US\$285 million) to support its network-rollout plan over the next five years, and has a target of covering 40% of Malaysia's population by end-1H10 with a network of 3,000 base stations. Phase three is set to cover 65% of Malaysia by 2012, the company says.

Also in Malaysia, Samsung announced a US\$684 million deal in April for local firm YTL e-Solutions to supply WiMAX infrastructure and devices. Samsung plans to provide WiMAX base stations, an IMS system and mobile Internet devices. YTL, which is one of four operators to have been awarded spectrum in the 2.3GHz band in 2007, plans to offer VoIP services from the outset.

In contrast, Taiwan's six WiMAX licensees, all of which have announced launch dates for services in 2009 or early 2010, are entering a market where fixed-line-broadband penetration is already high and mobile broadband services widely available. Fixed-line penetration is headed toward 80%, and incumbent Chunghwa Telecom already has a 90% share of the broadband market. In addition, four mobile operators in the country – CHT, Taiwan Mobile, Far EasTone and Vibo Telecom – are offering HSPA-based mobile broadband services.

The Taiwanese government's Mobile Taiwan (M-Taiwan) initiative, which is designed to cover up to 90% of urban areas and 40% of rural areas with wireless broadband, is using mobile WiMAX to extend coverage, support new public and private services – such as health care and security – and help build a domestic industry focused on WiMAX technology that Taiwan can export around the world.

Tatung Infocomm, which launched WiMAX services in the islands of Penghu in April and plans to launch in Kaohsiung City on July 1, says it will deploy 2,100 macro base stations and 1,000 or more micro and pico base stations by end-2010, to cover 90% of the population of the major cities in its Southern Taiwan coverage area (Penghu, Kaohsiung, Taichung, Tainan and Chiayi). It plans to cover over 70% of the population outside these centers, including in rural areas, by end-2012, by which time it says it expects to have 1 million customers (see fig.).

Tatung Infocomm is also implementing a US\$33 million government-funded network as part of the M-Taiwan project, to provide WiMAX connectivity for industries, technology, tourism, culture and education in the Kaohsiung, PingTung and HuaLien County areas. Tatung has installed 197 base stations and says it has more than 1,300 users. The service is set to launch commercially in 4Q09.

Among Taiwan's other five WiMAX operators, V-Max plans to launch in Taipei in 2H09, and Far EasTone and WeiTa both plan to launch services in Taichung in 4Q09. Greenfield operator Global Mobile says it is in the process of selecting its vendors and will launch services in 4Q09. First International Telecom plans to cover the northern part of Taiwan in 2Q09 and kick off WiMAX operations in Taipei and Hsinchu.

But Taiwan's WiMAX licensees have been unsuccessful in lobbying the National

Tatung Infocomm business plan

	Phase 1 2008-2010	Phase 2 2009-2011	Phase 3 2010-2012
Customers	400,000	750,000	1 million
Network	Major cities	Major countries	Optimization
Devices	USB dongles CPE Convergence	Embedded notebooks Handsets	MID Embedded devices Dual mode handsets
Products/services	Mobile broadband Internet access	Mobile voice	Mobile TV
Market strategy	Tatung 3C (retail) Tatung SI (enterprise)	+ MVNOs	+ alliances

Source: Tatung Infocomm

Communications Commission to allow them to offer voice services alongside their mobile broadband offerings. Demands from WiMAX operators to offer voice services are nothing new. Even South Korean giant KT has long argued – unsuccessfully – that it should be allowed to offer voice services to increase the attractiveness of its WiBro network.

Also entering a highly developed broadband market is Japan's UQ Communications, which says it will start offering commercial services in Japan July 1, covering about 20-30% of the population at launch. UQ plans to roll out WiMAX services to most of Japan's cities by end-2010 and cover 93% of the population by end-2011. The company launched a free pilot service in February, under the UQ WiMAX brand, using data cards and about 500 base stations in central Tokyo, Yokohama and Kawasaki.

In India, BSNL deployed an 802.16e-2005 mobile WiMAX network in the 2.5GHz band in Gujarat, Maharashtra and Goa in 1Q09. MTNL, meanwhile, has set up WiMAX towers for a 2.5GHz deployment in Delhi and Mumbai.

Pakistan's Wateen Telecom said in April that it is providing WiMAX service in the 3.5GHz band in 22 cities and expects to extend coverage to 100 by year-end. Out of a population of 165 million, only 4.8 million have fixed-line access and 1.9 million wireless-local-loop access, Wateen says. But a major concern for the company is the price of WiMAX CPE equipment, which stands at US\$150-200, compared with US\$25 for a DSL modem.

In February, Alcatel-Lucent received a contract from Cambodia's Chuan Wei, for 802.16e-2005 equipment for a nationwide network. Commercial services are set to launch in mid-2009.

Chuan Wei aims to cover 1 million subscribers, roughly four-fifths of the country's business and enterprise population, within two years of launch. Alcatel-Lucent is also providing integration, design, installation, commissioning and maintenance services.

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Licensing

Nigeria WiMAX licenses 'to be canceled'

The recent controversial award of three national 2.3GHz frequency licenses in Nigeria is to be canceled, according to local reports. Nigeria's Minister of Information and Communications Dora Akunyili has reportedly issued a directive canceling the licenses and instructed that a new licensing round be held. Licenses for the 2.3GHz spectrum, which is suited to WiMAX services, were awarded to Mobitel, Spectranet and Multilinks earlier this month. A fourth license was not awarded. Mobitel planned to launch WiMAX services by September, in Lagos, Port Harcourt and Abuja.

Russia's first MVNO receives license

Russia's telecoms regulator Roskomnadzor has issued the country's first MVNO license to NMT (Narodniy Mobilniy Telefon). The company has been granted licenses for 17 regions of Russia, including Moscow and its surrounding area and provinces in the Volga and North Caucasus. NMT plans to offer services over SkyLink's CDMA450 network in Moscow and over regional operator SMARTS' GSM network in other areas. NMT plans to make an initial investment of just US\$2-3 million in the project and the terms of its commercial agreements with the host network operators are still being negotiated. NMT was established in September 2004 with the support of the Moscow government to provide services for veterans and other underprivileged Muscovites but has had to wait nearly five years to receive a license.

Swiss regulator renews GSM licenses

Swiss regulator the Federal Communications Commission (ComCom) has renewed the GSM licenses of mobile operators Swisscom Mobile, TDC and Orange until 2013. ComCom is also allowing operators to use the licenses to deploy UMTS and says this will require a minor reallocation of frequencies, with Swisscom and TDC giving additional 900MHz spectrum to Orange in return for 1800MHz frequencies. Meanwhile, Switzerland's Federal Office of Communications (Ofcom) is carrying out a public consultation on the usage of all existing mobile frequencies and those set to become available in 2013 and 2016.

France Telecom joins Tunisian license contest

France Telecom has submitted a bid in the tender for a new fixed and mobile license in Tunisia, according to the Tunisian authorities. The authorities confirmed that Turkcell has also submitted a bid, as had been reported earlier.

Spectrum

Mexican regulator publishes AWS, PCS auction guidelines

Mexico's telecoms regulator Cofetel has issued technical guidelines for the auctions of 1.7GHz Advanced Wireless Services (AWS) and 1.9GHz Personal Communications Services (PCS) spectrum. The nation's antitrust regulator, the Federal Competition Commission, must review Cofetel's proposed guidelines for the auctions, which, having faced numerous delays, are now expected to take place before year's end. Cofetel wants to auction the spectrum in the AWS and PCS bands simultaneously so bidders will have more freedom to pursue the exact frequencies that most interest them. Cofetel has recommended auctioning 90 megahertz of AWS and 30 megahertz of PCS spectrum, with a 40-megahertz block of the AWS spectrum being set aside for new market entrants.

WiMAX

Promonte concludes project

Promonte, Telenor's Montenegrin subsidiary, has concluded the final phase of a WiMAX project with equipment provider Comarch. The project included the delivery and installation

of WiMAX base stations in 7 major cities, the rollout of Wi-Fi access in main tourist locations and the integration of core equipment. Comarch built the network infrastructure in two and a half months. Telenor is using Montenegro as a test bed for next-generation mobile technologies, including HSPA, WiMAX and Wi-Fi.

Huawei wins in Italy

Italian WiMAX licensee Retelit has selected Huawei to deploy its commercial WiMAX 802.16e network, covering north and central parts of Italy, where the company owns 3.5GHz licenses. Huawei will deliver network equipment and mobile WiMAX terminals.

DOT to put 3G, WiMAX on front burner

India's Department of Telecommunications is planning to accelerate the process of auctioning off 3G and WiMAX spectrum following the completion of the federal elections, according to DOT secretary Siddharth Behura. 3G and WiMAX licensing has been delayed since January because of bureaucratic wrangling over spectrum pricing but Behura says the DOT wants to get the process moving again. "Our first priority is to go ahead with the much-delayed auctions for 3G and WiMAX spectrum," he told local press.

IMS

Bouygues Telecom strikes deal

French operator Bouygues Telecom has selected Alcatel-Lucent for the provision of an IMS pilot network. The network will allow the operator to test multimedia services based on the industry's Rich Communication Suite initiative. Alcatel-Lucent will deploy and integrate the IMS core network and applications, with tests planned for the second half of this year. France's three mobile operators have agreed to test interoperability between new IMS multimedia services on a national scale.

LTE

Ericsson and TeliaSonera unveil commercial LTE site

Ericsson has unveiled a commercial LTE site in Stockholm on TeliaSonera's network. The site will be part of a commercial network scheduled to go live in 2010. TeliaSonera Sweden was awarded 2x20MHz of FDD spectrum in the 2.6GHz band in May 2008, which it will use for LTE. The operator announced in January that it had signed an infrastructure-supply contract with Ericsson.

OSS/BSS

MetroPCS deploys Amdocs platform

MetroPCS Communications, a regional US provider of flat-rate, unlimited calling plans, completed the migration of all of its customers onto the Amdocs CES 7.5 platform. The conversion was done under a six-year managed services agreement announced on Oct. 6, 2008. MetroPCS is using Amdocs' integrated software for convergent real-time charging and billing, customer relationship management and operational support systems to support pay-in-advance, roaming and retail offerings.

China brings cheer to gloomy mobile-network vendors, says Mike Roberts

The long-awaited 3G-capex boom in China is like a warm fire on a cold night for mobile network vendors, many of which are struggling with a variety of issues, including slack sales, falling margins and lingering integration problems.

Network-vendor first-quarter results and subsequent announcements show that China's three mobile operators are starting to make good on their plans to spend a whopping US\$29 billion this year to roll out 3G services across many parts of the country. But it is also clear that China's mobile operators are taking advantage of their strong bargaining position in a down mobile-network market, leading some vendors to take a hit on margins for the initial 3G roll-outs in China, in the hope that margins will increase with network expansions and upgrades.

China's network vendors are particularly happy, of course, given that they're already growing faster than their rivals and look set to take the majority of China's 3G business. For example, ZTE recently declared itself the top 3G vendor in China, claiming it had won a 34% share of the TD-SCDMA projects awarded by China Mobile, 28% of CDMA2000 deals from China Telecom and 21% of WCDMA business from China Unicom.

Much of the 47% revenue increase in its carrier-networks business was "driven by 3G construction projects in China," ZTE says. The results also show the importance of its domestic market, with China accounting for 39% of 2008 revenues.

Huawei says that in 2008 it "ranked No. 1 in shipments in China's 3G market," having helped upgrade China Telecom's 1xRTT network to support 1xEV-DO in 52 cities, including eight of the 10 largest cities, such as Beijing and Tianjin. China Telecom launched the first commercial 3G services in China in April 2009.

But China is only part of the story for Huawei, which says the domestic market accounted for less than 25% of its sales in 2008. Notable network achievements for the vendor outside China include landing arguably the first commercial LTE/SAE-network contract, alongside Ericsson, though it is for a relatively modest deployment planned by TeliaSonera.

In addition, like ZTE and unlike most Western network vendors, Huawei reported strong 2008 results, with net income up 20%, to US\$1.2 billion, on sales that were up 43%, to US\$18.3 billion. However, the much stronger increase in sales compared with net income suggests that Huawei was still using low prices to gain market share.

Most major western vendors have also landed key contracts in China and say the deals are already generating significant revenues. Ericsson says that in 1Q09 its networks operating margin increased one percentage point, to 10%, on sales that were up 12%, to SEK33.5 billion (US\$4.5 billion), with "especially strong performance in China, India and the US."

However, its gross margin excluding restructuring charges declined to 36.3% in 1Q09, compared with 38.6% in 1Q08, with the drop "mainly due to large initial rollouts of 3G in China, higher sales in India, higher proportion of services sales and the transfer of Ericsson Mobile Platforms." In March, China Unicom awarded Ericsson a contract to deploy WCDMA services in 15 provinces.

Asia Pacific was the vendor's top region in the first quarter, seeing sales increase 26% year-on-year, to SEK16.3 billion. Its second-largest region was Central and Eastern Europe, the Middle East and Africa, which saw sales increase 12%, to SEK12.5 billion. In Western Europe, the vendor saw sales decline 4%, to SEK11.2 billion, largely because of the divestiture of Ericsson Mobile Platforms and a PBX business.

For Nokia Siemens Networks (NSN), China was one of the few bright spots in 1Q09, with sales in the region up 6%, to €284 million (US\$402.6 million), compared with €269 million in 1Q08. In 1Q09, NSN won a WCDMA deal with China Unicom that will see the vendor deploy services in 11 provinces, and it also won a TD-SCDMA and GSM contract with China Mobile in the quarter. NSN says the deals with the two operators could be worth about €880 million.

NSN's sales may have been up in China in 1Q09, but they were down in all other regions, leading global sales to decline 12% year-on-year in 1Q09, to €3 billion, from €3.4 billion in 1Q08. The drop was the main reason NSN's operating loss jumped to €361 million in 1Q09,

compared with a loss of €74 million in 1Q08, the vendor says. To make matters worse, it says it now expects the global telecoms-network market, including mobile and fixed networks and related services, to decline about 10% in 2009 in euro terms, compared with its previous view that the market would decline 5% or more. But at least NSN says it expects its market share to remain steady in 2009.

In late April, Alcatel-Lucent (A-L) unveiled two framework agreements, with China Mobile and China Telecom, worth a total of US\$1.7 billion in 2009. A-L also recently signed a deal with China Unicom to deploy WCDMA networks in 14 Chinese provinces. The three deals make A-L the only Western vendor to have 3G contracts with all three of China's major mobile operators and could make it the top Western 3G vendor in China, though it would still trail far behind ZTE and Huawei.

A-L says its contract with China Mobile is worth nearly US\$1 billion and will see it provide radio equipment for TD-SCDMA and GSM/EDGE networks. Its framework agreement with China Telecom is worth US\$700 million and covers CDMA and EV-DO radio equipment, application platforms, optical and IP transmission platforms, IP routers and network-maintenance services.

Among other network vendors, Motorola recently announced a deal to deploy WCDMA networks for China Unicom in 1H09, but it is not clear whether the deal had a significant impact on its gloomy 1Q09 network results. Motorola says operating earnings in its Home and Networks Mobility unit dropped 25%, to US\$115 million, in 1Q09, compared with US\$153 million in 1Q08, on sales that fell 16%, to US\$2 billion, in 1Q09 compared with US\$2.4 billion in 1Q08.

Both Motorola and Nortel have CDMA deals with China Telecom, but neither has announced EV-DO deals with the operator. Nortel's filing for bankruptcy protection might have taken it out of the running for China's 3G contracts, with rumors swirling that the only way forward for the vendor is to sell its business units to rivals.

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