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Key Topics:

- The ecosystem of LTE in Russia and CIS. Market trends and prospects
- Conversion of radio spectrum for LTE networks
- Common use of radio–frequency spectrum in Russia and CIS
- The principle of technological neutrality in practice: challenges and drivers
- Opportunities and existing mechanisms of frequencies' exchange between operators
- International and national roaming in LTE networks
- Prospects for LTE equipment production in Russia
- Prospects and opportunities for LTE networks deployment in 1800 MHz band
- LTE–Advanced networks. Trends and prospects
- MVNO model over LTE networks
- LTE networks' infrastructure joint construction and use
- Chips for LTE Terminals, 2G/3G networks support. Multi–standard terminals
- The market of end user equipment for LTE networks
- VoLTE and other voice solutions for LTE networks

Speakers



Bjørn Amundsen,
VP, Director of coverage,
Telenor Norway



Balazs Bertenyi,
3GPP Service and System
Aspects Chairman, CTO
Industry Environment,
NSN LLC



Eduard Ilatkovskiy,
Leading Expert,
Technological Development
Department, Vimpelcom



Gulnara Khasyanova,
Executive Director,
LTE Union



Albert Nalbandian,
Chairman, Working group
on preparation for WRC-15;
Councillor to the Minister
of Transport and
Communications
of Armenia



Mikhail Petrov,
CEO,
Osnova Telecom



Natalia Rudenko,
Deputy CTO,
Multinet Group



Vasily Skrynnikov,
Expert, MTS



Victor Strelets,
Member of Regional
Committee, ITU



Valery Tikhvinsky,
Professor, Deputy General
Director, Innovative
Technologies,
IComInvest

To register:

+7 495 933 5483,

conf@comnews.ru,

www.comnews-conferences.ru/lte2014

◆ **TTK's Broadband Initiative**

One of the largest players of the Russian broadband market – TransTeleCom Company (TTK) brought up a proposal to limit the number of licenses for data services awarded per one region, similarly with the mobile market. According to the operator, licensing will protect the investments made by carriers, which will be able to roll out in low-rise and sparsely populated areas, said TTK President Artem Kudryavtsev at Telecom 2014 Forum held in Moscow in the end of April.

“Launched in 2011, our retail business was targeted at small towns, and today nearly the whole of our subscriber base – 1.6 million users – is concentrated in the so called digital inequality area – small provincial towns”, Kudryavtsev reminded. “Our example proves that businesses can solve this task through commercial projects, but we need regulatory framework, which would allow cutting costs on regional infrastructure.”

The top manager believes that one of the regulatory measures to spur broadband technology in Russia could be limitation of the number of licenses for data services per one region. “Since a license allows to secure operators’ investment to some extent, the latter will be ready to

build infrastructure in low-rise and sparsely populated areas, which would be unprofitable in the normal course of business”, explained Artem Kudryavtsev. TTK’s press service specified to ComNews, that licensing terms may be similar to those enforced in the cellular market, i.e. they will compel operators to fully cover the region with communication services.

“Ministry of Communications is currently devising a project for expansion of backbone networks in remote territories at cost of the government. This is a very important step”, commented the head of TTK. “That said, in all towns reached by such backbone line, TTK and other commercial operators will be willing to build infrastructure for local networks and connect subscribers at our own expense”. According to Kudryavtsev, this makes such issues as cost of backbone capacity in these regions and regulated tariff design for access to government-owned infrastructure even more important.

Ministry of Communications hasn’t yet received any official proposal from TTK, but the authority believes “such initiatives actually restrain competition”, ComNews was told by a spokesperson for the Ministry. ◆

◆ **Beeline Switched 4G On In Sheremetievo**

VimpelCom (Beeline brand) launched LTE network in the largest international Moscow airport – Sheremetievo. 4G services are now available throughout the entire Terminal D. The press service of the operator communicated that in November 2013, a 4G network was put into operation in another Moscow airport – Domodedovo. Over 5 months, LTE data traffic tripled, while 3G traffic was up by 1.6 times.

In 2013, VimpelCom was the last of Russia’s Big Three mobile operators to launch LTE network in Moscow. Until the end of 2014, it will be expanded into the areas of the Moscow region closest to the Russian capital. ◆


TTK To Launch WiMax

Until the end of 2014, TransTeleCom Company (TTK) will build and put into operation WiMax networks in 19 cities of Russia. The launch of these networks was previously scheduled for 2013. "We view the WiMax project as an evolution of our fixed business, and we are using this technology to develop wireless last miles in sparsely populated areas", explained to ComNews a source in TTK.

Initially, the company planned to commission WiMAX networks in the end of 2012. However, timelines were shifted to November 2013 due to long drawn selection of equipment suppliers. Then TTK announced a tender worth \$5m for construction of WiMAX networks in 19 cities. Based on tender papers, network construction is expected to be completed until January 31, technologically covering 600,000


households. In 19 cities TTK will install about 290 base stations, each capable to service at least 400 subscribers.

According to a spokesperson for TTK, the company had initially planned its WiMax networks to be LTE-ready, providing for further migration to LTE. "Elaboration of tender brief with vendors and search for the solutions which can fill our needs took more time than we had initially allowed. This had no effect on TTK's license commitments", emphasized our source in TTK.

TTK was awarded licenses for construction of wireless broadband networks in the 3.5 GHz band in 25 cities back in September 2011, when Roskomnadzor put up 3 tenders to allocate 20 MHz bands in the 3.4-3.55 GHz and 3.5-3.55 GHz ranges. 

Regulator Gave LTE-Advanced Green Light

Ministry of Communications and Mass Media has devised a regulatory framework for LTE-Advanced technology in Russia – the requirements to operator and user equipment. An official release by the authority says that it has submitted for public discussion draft orders which specify mandatory requirements to base stations and subscriber equipment supporting new generation technology LTE-Advanced. These requirements will serve as legal framework for mandatory certification and declaring of equipment, thus ensuring

consistency, continuity and security of communication networks. Sources in the Ministry pointed out that LTE-Advanced is modified version of LTE standard which allows operators to aggregate available frequency channels. "LTE-Advanced makes it possible to pump up data rates by 2-4 times. The implementation of this technology is especially timely today, as mobile traffic usage is steadily going up", said Deputy Minister of Communications Dmitry Alkhazov. 

◆ **Broadband Penetration Exceeded 50%**

Early April 2014, Russia had 27.6 million broadband subscribers, and penetration of this technology in households reached 50.4% households, compared with 27.1 million subscribers and 49.5% penetration in the preceding quarter, as follows from a Telecom Daily report.

Analysts claim that two operators were mostly responsible for the growth in broadband subscriber base in Q1 2014 – Rostelecom and TransTeleCom (TTK). According to Telecom Daily, these two accounted for nearly half of 500,000 new subscribers connected in January – March. In Q1, five largest Russian B2C broadband operators combined (Rostelecom, ER-telecom Holding, MTS, VimpelCom and TTK) catered to almost 70% of Russian users of fixed Internet.

Analysts admit that broadband market in Russian regions is nearing saturation. Subscriber growth is decelerating: over 2012 subscriber

base was up by more than 6%, compared with 5% in 2013. Most Russian broadband users are concentrated in large cities, where the majority of households are already connected to broadband Internet.

Further growth in this segment could be spurred by operators' expansion into small communities, where competition is low and broadband penetration hardly ever exceeds 20-30%. High subscriber growth rates of Rostelecom and TTK could be the results of their efforts targeting such small communities: the former has a strong footprint in small localities, including rural areas, and TTK's backbone channels go along railroads, and this explains why it has networks in areas which can't be reached by other providers. Penetration of broadband services in Russia is rather erratic: reaching 80% in Moscow, in the province it doesn't exceed 40%, and local players control up to one third of the market. ◆

◆ **SRFC Gave Foreign Satellites One More Year**

In April, State Radio Frequency Commission (SRFC) extended temporary rules of business for foreign satellite communication networks in the Russian Federation for one more year. The previous permit expired on February 28th, unveiled CTO of GTNT Evgeny Usov at Satellite Russia & CIS 2014 International Conference organized by ComNews Conferences.

“Existing rules of business for foreign operators was extended for another year with the same restrictions, there used to be before”, Usov explained. “Actually, the frequency allocations we held had expired on February 28th. Since then, the meeting of SRFC was postponed twice, and we were ordered to remedy the breach numerous times”.

However, a press statement released by Ministry of Communications and Mass Media in follow-up to the SRFC meeting on April 16th, says

nothing about such resolution. The Commission hasn't yet released the final documents to the public. The press service of the authority wasn't available for comment on this matter either.

In March 1 – April 16, Russian VSAT operators which use foreign satellites, de jure worked illegally, confirmed to ComNews a well-informed source. Press service of Roskomnadzor declined to comment on this matter. Deputy Director of the Department of Infrastructure Projects Mikhail Kaygorodov emphasized in a talk to ComNews, that legislative initiatives meant to level out the rights of Russian and international satellite systems are being negotiated, but at this point there are no specific dates as to when a corresponding initiative can be submitted to the government. ◆

⌘ **Whose 4G Is The Quickest In Moscow**

4GSpeed measured 4G mobile Internet speeds in Russia. MegaFon came ahead with the highest average data transfer rate – 9. Mbps, while figures registered for MTS and VimpelCom were 5.5 and 4.6 Mbps, respectively. However, mobile companies do not confirm such rates.

In the course of the project, 4GSpeed carried out more than 130,000 measurements on user devices with LTE support – smartphones (Alcatel One Touch Idol, ZTE MS4A, Nokia 625) and modems (Huawei e3272, Huawei E3276, Huawei e392, ZTE mf821d). Measurements fully covered the Russian capital within the boundaries of the Moscow MKAD Ring Road and employed own software developed by 4GSpeed. The research was designed to measure data transfer to the most popular Internet resources – Vkontakte social network and services from

Google, Yandex and Mail.ru. All tests were conducted in 4G network only.

MegaFon gained the lead owing to its stability in different areas of Moscow. Operator equipment hadn't lost 4G network connectivity virtually anywhere", says a press release issued by 4GSpeed. "As for MTS and Beeline, in some areas they run very fast with downlink speeds reaching 30-40 Mbps, but it's nothing but a local accomplishment, it's not consistent". Experts identified "numerous places where Beeline and MTS either don't have 4G coverage at all, or for some reason modems and smartphones lose 4G connectivity and switch to 3G". MegaFon showed the best result in 63 districts of Moscow, MTS – in 27, and VimpelCom – in 17.

⌘ **WiFi For Students Worth \$20m**

Moscow city government wants to build a WiFi network for local universities, which could be one of the largest in the Russian capital. This summer, Moscow authorities will announce a tender for roll-out of WiFi Internet in higher institutions. Works are projected to start in the middle of the summer, and completed towards the beginning of new school year, when the new network is scheduled for launch, unveiled a source in the IT Department of the Moscow government (DIT). Deadlines are tight, so the plan is to source three contractors and conclude a 3-year agreement with each of them: the contractor will build networks and WiFi hotspots at their own expense, while the Moscow government will pay for their services.

Starting budget of the project is a little more than \$20m, but the bidding process may cut the price tag down, says a spokesperson for

DIT. According to them, the university network will comprise 5,700 WiFi hotspots, although the final configuration of the network will depend on how many institutions will apply for participation in the project, since the city government cannot spend public funds without proper regard to the procedural requirements.

In 2013, the Moscow government allocated \$2.2m in subsidies to the federal universities, which were supposed to use these funds to purchase WiFi services for their students, but the efficiency of this project turned out to be low, says a source in the authority. But they are convinced that the new tender is bound to catch operators' interest, because the project in question relates to their core business.

Tricolor TV Will Launch Broadband Services in 2016

Tricolor TV, the largest Russian and European operator of direct satellite broadcasting, may start offering broadband Internet services after the launch of a new communications satellite in late 2015, communicated company's acting CEO Sergey Stavropoltsev.

"AMU-1 satellite carrying KA-band transponders will become operational in the end of 2015, which will enable us to offer broadband

services. We are calculating broadband business model in the pay TV market. In the long run, it could be possible for Tricolor TV to increase ARPU by 2-3 times. Among other things, this can be achieved through non-linear services, which so far Tricolor TV doesn't command", said Stavropoltsev.

TTK Has Faith In MVNO

In a few years, TransTeleCom Company (TTK) will become an LTE VNO in order to expand its broadband services into mid-sized and small towns of Russia, announced TTK President Artem Kudryavtsev. According to him, in the coming years development of LTE networks by the Big Four operators will be extensive enough to propel VNO operators, something TTK intends to become. "We are currently studying this opportunity. At this point, coverage and capacity of networks run by federal operators don't always satisfy our needs, but it's only a matter of time. When situation changes, we will resume negotiations", Kudryavtsev explained to ComNews.

TTK President also added that this service will primarily target the consumer segment, but didn't rule out the possibility of corporate LTE services. He is convinced that LTE MVNO will naturally complement broadband services currently rolled out by TTK in the Russian regions.

President of national Association of Regional Telecom Operators Yury Dombrovsky considers TTK's plan to be realistic and economically viable in the long run.

Voice of Yota

Yota may soon launch voice mobile services and unlimited LTE as MVNO operator, using networks of its parent company MegaFon. The organization intends to build up a 10 million subscriber base over 5 years. According to the Head of Yota Anatoly Smorgonsky, at an early stage of the project, his company will be offering limited voice services under MVNO model in the two capitals of Russia, along with Moscow

and Leningrad regions. Further on, the company will expand its services into the whole territory of Russia.

"We will market our services through universal SIM-cards with embedded NFC module, which is designed for further development of Yota's payment service", commented Anatoly Smorgonsky. Yota's 999-prefixed numbering capacity will be federal.

⌘ **Frequencies For 30 Million Russians**

Russian Minister of Communications and Mass Media Nikolay Nikiforov personally headed a meeting of State Radio Frequency Commission (SRFC), the prime outcome of which was a 10-year renewal of frequency allocations (453-457.4 MHz and 463-467.4 MHz) to Astarta – a subsidiary of national operator Rostelecom OJSC. Pursuant to this decision, Roskomnadzor was committed to amend operator’s license in terms of provision of services in small communities.

The Ministry is implementing a package of measures aimed to ensure access to advanced communication services countrywide, to the intent that by the end of 2018 such technologies become available to 93% of Russian population. Thus, in December 2013, SRFC introduced special conditions for radio frequency usage which vary subject to the band used. Now operators which need to renew or

obtain a new license for frequency in the range lower than 1 GHz will be compelled to provide coverage in all localities with population over 1,000 pers., for frequency allocations in the 1-2.2 GHz range – in all localities with population over 2,000 pers., and for allocations in the 2.2-3 GHz range – in all localities over 10,000 pers. across the licensed area. Operators which will use their frequency allocations to develop advanced technologies, not listed in previous allocation resolutions, will be compelled to provide communication services in all towns with population over 10,000 pers.

“As a result of the renewal of radio frequency allocations, in the next few years, operators will connect to advanced communication services small communities of 1,000 people and more, with a combined population of about 30 million people”, emphasized Minister of Communications.

⌘ **Frequencies For Underground WiFi**

State Radio Frequency Commission (SRFC) authorized operators to use the 5150-5350 MHz band for WiFi services in Moscow and the Moscow region. The request thereof was submitted to SRFC by Maximatelecom, provider of WiFi services in the Moscow metro. Bandwidth of the WiFi networks, which operate on these frequencies, is expanding, and this is good news for owners of cutting edge smartphones – the most active users of data services underground.

Maximatelecom is controlled by a group of private investors headed by former CEO of Sitronics Sergey Aslanyan. In July 2013, it became the sole bidder and winner of an auction for construction of WiFi net-

work, held by the Moscow metro administration. In turn, Maximatelecom contracted system integrator NVision Group, a subsidiary of Sistema JFC. The operator committed to build a wireless network on all metro lines, for which it was awarded a status of service provider for 15 years. Maxima promised it would offer WiFi access free of charge, their plan is to cash on small advertising videos shown to users. By April 2014, Maximatelecom has enabled Wi-Fi access in four metro lines, and according to the company, they have already poured about \$50m of investments into the project.

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Contacts

ComNews Moscow
2/1 Verkhnyaya Krasnoselskaya Ulitsa, Building 1, Office 428
107140 Moscow, Russia
Tel.: +7 495 933 5483

ComNews Saint Petersburg
22 Moskovsky Prospect, Litera L, Office 36N
190013 St. Petersburg, Russia
Tel.: +7 812 670 2030

<http://www.comnews.ru>