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5G STANDALONE NETWORK (SA) –  
RELEASE 16

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# 5G Standalone Network (SA) - Release 16

By Ricardo Barretto Ferreira and Sylvia Werdmüller von Elgg Roberto

The telecommunications sector in Brazil is waiting for the events that will result in the future public notice of the 5G auction in the country, the requirements and technical aspects of which have not yet been definitively stipulated, even though, by means of Ordinance No. 1924/SEI-MCOM dated January 29, 2021, the Ministry of Communications has established guidelines for the bidding of the 700 MHz, 2.3 GHz, 3.5 GHz, and 26 GHz radio frequency bands, among other provisions.

The draft of the public notice is being analyzed within the scope of the National Telecommunications Agency ("ANATEL") and the Federal Accounting Court ("TCU") will be responsible for analyzing the document following approval of the final draft by said Agency.

Therefore, until the final version of the public notice is published in the Brazilian Official Gazette, changes may be made.

One point included in the public notice proposal prepared by ANATEL, yet to be confirmed, concerns the possible requirement for the adoption of 3GPP 5G

NR Release 16 technology in the 3.5 GHz band. The 3GPP - 3rd Generation Partnership Project, it is worth mentioning, is a global initiative, which brings together organizations for the development of telecommunications standards, working on the establishment of standards for mobile telecommunications.

Release 16 is the set of protocols, completed in July 2020, which stipulates the minimum requirements for the establishment of ultra-reliable low latency communication ("URLLC"), as well as requirements for the use of unlicensed spectrum to increase 5G and provisions regarding increased efficiency, mitigation of interference, energy consumption, possible use of satellites in 5G networks, among others. In fact, 3GPP Release 16 outlines the operation of the Internet of Things ("IoT") in the 5G environment.

The possible requirement for Release 16 was a surprise for both operators and telecommunications providers. As announced, if approved, said technology may require the adoption of a "standalone" (SA) network. At this point, it is worth

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mentioning that the fifth-generation network architectures can be SA or “non-standalone” (NSA). In the case of the NSA network, there is the use of the 4G core network, and this does not occur in the case of SA networks.

The SA and NSA 5G networks were specified by the 3GPP in the previous Release 15, which provided for the use of 4G as part of the 5G networks, in addition to containing specifications on improvements to LTE technology for NSA networks, anticipating the coexistence of both networks for a long period. Massive IoT was also introduced by Release 15, with the expansion of the capacity for the connection of objects and mobile radio base stations. Release 16, in turn, contains provisions on SA improvements, defining requirements related to massive machine-to-machine (“M2M”) connections, URLLC connections mentioned above, among others, as reported by the specialized press.

According to Ericsson, the first deployments of 5G networks are NSA installations, with a focus on the improvement of mobile broadband in order to provide superior data broadband and reliable connectivity. In this case, there is the support of the existing 4G infrastructure, so that, after the 5G coverage is established, 5G SA is implemented. However, it is important to note that, as the same company explains, in cases where the use of 5G requires an ultra-low latency and much higher capacities, meeting the demand will only be feasible with 5G SA.

According to Juarez Quadros do Nascimento, former Minister of Communications and also former President of ANATEL itself, with the requirement regarding the adoption of 5G SA, which requires the implementation of a new autonomous network, there will be a rupture with the current mobile networks, in addition to impacts regarding the legacy and investments already made by the operators, resulting in potential difficulties for the sale of frequencies.

In line with the above, Huawei has also expressed its opinion in the sense of understanding that the requirement may delay and increase the costs for the implementation of 5G networks in Brazil, since it implies complex interactions with all operators' systems, in addition to impacting the price of the respective equipment. The company also considers that the market and operators could be given the choice between the options of 5G SA and NSA.

On the other hand, the association of operators TelComp is in favor of adopting Release 16, having mentioned that the requirement is important from the point of view of technical standard, technological developments and increased competitiveness.

Large telecommunications operators acting in Brazil also diverge regarding the requirement for Release 16.

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In fact, Claro expressed its understanding that the SA network will imply marketing values incompatible with the Brazilian reality and defends the gradual implementation of the technology. According to the company, the obligation to adopt the SA network will imply a "cost four times greater than current investments".

On the other hand, TIM disagrees with the positioning of Claro and mentions that the requirement will bring isonomy to companies, since all of them should start building the network from the same point. In addition, the company considers that, with the use of 5G SA, opportunities will be created, such as network slicing ("slicing") and multi-connectivity ("mMTC"), which are not feasible with the NSA standard.

Vivo, in turn, mentions that the implementation of the 5G network based on Release 16 should be carried out progressively, as occurs worldwide.

As published by the GSA - Global mobile Suppliers Association, data included as of the end of January 2021 shows that 144 operators have launched commercial 5G networks in 61 countries/territories. Among these, it was identified that 65 are investing in 5G SA, including those that are evaluating, testing, conducting pilots, planning and implementing such networks, in addition to those companies which have already launched them, such as T-Mobile in USA, the first in the world to launch a 5G SA network with national coverage.

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**Authors**

**Ricardo Barretto Ferreira da Silva - Senior Partner**  
barretto@azevedosette.com.br



**Sylvia Werdmüller von Elgg Roberto - Associate**  
selgg@azevedosette.com.br