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According to ITU estimates,[25] as of Q4 2012 there were 2996 million active mobile-broadband(vague) subscribers worldwide out of a total of 6835 million subscribers[26] which is about 30%. About half the mobile-broadband subscriptions are for subscribers in developed nations, 934 million out of 1600 million total, well over 50%. Note that population, according[25] to Concise 1998, was 6.1 billion in 2011 and 7.1 billion in 2012. The US population is 312 million, and the EU population is 507 million. In 2012, the 3G penetration was similar to about 81% for 3G smart phone ownership, which was about 179% in China, the other was 48% million 3G subscribers in 2012, 27% in population of 1,385,566,373 (2013 UN estimate). Since the increasing adoption of 4G networks across the globe, 3G use has been in decline. Several operators around the world have already or are in the process of shutting down their 3G networks (see table below). In several places, 3G is being switched back while its predecessor 2G is being kept in operation; Vodafone UK is doing this, citing 2G's usefulness as a low-power fallback.[28] EE in the UK, plans to switch off their 3G networks in early 2024.[29] In the US, Verizon shutdown their 3G services on 31 December 2022.[30] T-Mobile shut down Sprint's networks on 31 March 2022 and shutdown their main networks on 1 July 2022.[31] and AT&T has done so on 22 February 2022.[32]Currently 3G around the world is declining in availability and support. Technology that depends on 3G for use are becoming inoperable in many places. For example, the European Union plans to ensure that member countries maintain 2G networks as a fallback[citation needed], so 3G devices that are backwards compatible with 2G frequencies can continue to be used. However, in countries that plan to decommission 2G networks or have already done so as well, such as the United States and Singapore, devices supporting only 3G and backwards compatible with 2G are becoming inoperable.[33] As of February 2022, less than 1% of cell phone customers in the United States used 3G; AT&T offered free replacement devices to some customers in the run-up to its shutdown.[34]It has been estimated that there are almost 8,000 patents declared essential (FRAND) related to the 4G3 technical specifications which form the 3GPP and 3GPP2 standards.[35][36] Twelve companies accounted in 2004 for 90% of the 8,000 patents. The most significant milestone in cellular communication is as 3G became the first network to enable such a broad range of use cases.[42] By expanding its functionality beyond traditional mobile phone usage, 3G set the stage for the integration of cellular networks into a wide array of technologies and services, paving the way for further advancements with subsequent generations of mobile networks.Both 3GPP and 3GPP2 are working on the extensions to 3G standards that are based on an all-IP network infrastructure and using advanced wireless technologies such as MIMO. These specifications already display features characteristic for IMT-Advanced (4G), the successor of 3G. However, falling short of the bandwidth requirements for 4G (which is 1Gbit/s for stationary and 100Mbit/s for mobile operation), these standards are classified as 3.9G or Pre-4G.3GPP plans to meet the 4G goals with LTE Advanced, whereas Qualcomm has halted UMB development in favour of the LTE family.[43]On 14 December 2009, TelsaSonera announced in an official press release that "We are very proud to be the first operator in the world to offer our customers 4G services."[[44] With the launch of their LTE network, initially they are offering pre-4G (or beyond 3G) services in Stockholm, Sweden and Oslo, Norway.CountryStatusNetworkShutdown dateStandardReferencesNotes ArgentinaPersonalTBDUMTS[45]Local shutdowns commenced in Q1 2023. AustraliaNo ServiceOptus2024-10-28UMTS[46][47]Telstra2024-10-28UMTS[48][49] Vodafone2025-12-15UMTS[50][51] AustriaMagenta Telekom2024 (est.)UMTS[52] BelgioOrange2025-12-31 (est.)UMTS[53] [54]Local shutdowns commenced in Jan 2024.Telenor2024-09-30 (est.)UMTS[55]Local shutdowns commenced in Sep 2024.Proximus2024-12-31 (est.)UMTS[56] CanadaBell2025-12-31 (est.)UMTS[57] Rogers2025-07-31UMTS[58][59][60][61][62]1900 MHz shutdown in Jun 2021.850MHz remains active until 31 July 2025.(est.)UMTS[52-12-31] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85] [86] [87] [88] [89] [90] [91] [92] [93] [94] [95] [96] [97] [98] [99] [100] [101] [102] [103] [104] [105] [106] [107] [108] [109] [110] [111] [112] [113] [114] [115] [116] [117] [118] [119] [120] [121] [122] [123] [124] [125] [126] [127] [128] [129] [130] [131] [132] [133] [134] [135] [136] [137] [138] [139] [140] [141] [142] [143] [144] [145] [146] [147] [148] [149] [150] [151] 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