Operator view on 5G NR

SK telecom

RP-182733

1. Background and Status

5G spectrum auction in South Korea finished (June, 2018)

- SK telecom acquired 100MHz(3,600~3,700MHz) bandwidth in 3.5GHz band and 800MHz(28.1~28.9GHz) bandwidth in 28GHz band.
- South Korea's regulator, the Ministry of Science and ICT confirmed that operators can start using the 5G frequencies from December 1st

Early 5G deployment and commercialization with NSA-NR

- SK telecom has already started deploying 5G infrastructure. Initial deployments are taking place in major cities through spectrum in the 3.5 GHz band.
- **SK telecom has considered starting early 5G commercialization** with NSA-NR specification based on Option 3, and then migrating it into SA-NR based on Option 2.
- **When 5G smartphone is commercialized in March 2019, it would comply with 3GPP specification based on September 2018 version of ASN.1.**
- **SK telecom has considered deploying 28GHz infrastructure in the first half of 2019.**

We see non-backward compatibility issues in multiple drops of Rel.15

- NSA NR has still non-backward compatible Change Requests in September, 2018.

1. Background and Status

Lots of users do not care about updating new UE firmware

- There are many users who do not want to update to a new firmware.

Data collected during a 7-day period ending on July 23, 2018.
Any versions with less than 0.1% distribution are not shown.

Version	Codename	API	Distribution
2.3.3 - 2.3.7	Gingerbread	10	0.2%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	0.3%
4.1.x	Jelly Bean	16	1.2%
4.2.x		17	1.9%
4.3		18	0.5%
4.4	KitKat	19	9.1%
5.0	Lollipop	21	4.2%
5.1		22	16.2%
6.0	Marshmallow	23	23.5%
7.0	Nougat	24	21.2%
7.1		25	9.6%
8.0	Oreo	26	10.1%
8.1		27	2.0%

[Source : Google]

From the perspective of operator, non-backward compatibility would make a major confusion in the market

- In order to overcome non-backward compatibility issue, UE firmware should be upgraded but not a few users upgrade firmware.
- Users who have not updated UE firmware will experience communication failure issue

2. Proposal

Proposal 1: NR NSA should support fully backward compatibility from September 2018 version of ASN.1.

- Future versions should support complete backward compatibility to September 2018 version of ASN.1 assumed as the baseline for 5G commercial network without any backward compatibility issue.

Proposal 2: NR-NR DC(synchronous) shall be completed by March 2019 in the late drop

- It is also required to complete NR-NR dual connectivity at least before/in the late drop of Rel. 15 NR specification because we see various SA-NR deployment scenarios

SK telecom 5GX