
Source: Nokia
Agenda Item: 8.3.2
Title: Mandatory features reliability assurance

Introduction

This document discusses the current requirements for mandatory features. It highlights the advantages/disadvantages of making a given feature mandatory, but it concentrates on the related risks incurred by the operators and handset manufacturers.

It does not concentrate on the need for mandatory features as such, but suggests a way of taking commercial pressures into account without jeopardising the quality of the standard and system.

Nokia initiated the discussion of this issue upon the presentation of the CRs for introduction of F-DPCH, and in document [R2-050334](#) in RAN2 #46.

We feel this is a necessary discussion to assure the reliability of mandatory features.

Background

Mandatory features are a way to ensure operators have a certain feature available in UEs with a certain release.

It has been mentioned several times that mandatory features are particularly needed when there is enough support for a certain feature but it does not provide any direct end user benefit (, F-DPCH, UTRAN sharing, SRB mapping on E-DCH, etc). This point has been taken into account, but it strictly speaking out of the scope of this document.

Experience from R99 tells us that there is more commercial pressure for certain features than others. This is unavoidable, since this comes also from external factors to the technology (e.g. competing technologies). It is a known fact that the commercial pressures in R99, lead to prioritisation of features, mainly on the UTRAN vendor side. This leads to a situation where not all features can be reliably tested before UEs are available commercially, as this would depend on significant UTRAN vendors support and IOT.

This situation poses a risk for the UE vendors and the operators. For the UE vendors, it is always a risk deploying handsets with insufficiently tested features, because this may cause product recalls. Therefore, handset manufacturers will try by all means to test all features. Still this is not sufficient to guarantee that the feature will work against many possible real life cases, and due to different vendors interpretations of the specification. For the operators, this represents a risk in terms of difficulties in using these untested features at a later stage, because the feature may not work at all with the legacy UEs. In some cases, these UEs may impact the whole UE population (e.g. if a UE did not support a certain RRC state correctly), because the UTRAN cannot distinguish between the two types.

Another kind of risk is not on the feature itself, but on more developed parts of it. For example, in R99 we have compressed mode that has been heavily tested. However, CM2 has not been sufficiently tested and hence feature may be not working reliably enough.

The risks stated above will always exist in future releases, depending on the commercial drive behind mandatory and optional features. For example, in Rel-6 there are features with major commercial drive, HSUPA and MBMS (note: both features are agreed to be optional). However, there are other features that are mandatory from the terminal point of view (e.g. F-DPCH, UTRAN Sharing, etc). This means that at least in principle, we will face similar situations as in R99, Rel-4 and Rel-5.

It is also important to notice that even if an early UE solution is used, all the legacy UEs that have already implemented correctly and have tested it sufficiently would also not work because the UTRAN only distinguishes the 'new' UEs (with early UE indication). Therefore, this solution is only advantageous for last resort cases of field failure.

It would be beneficial if these risks can be minimised in the future. This would ensure all features would be used when available with minimal legacy risks. Minimising this risk would also mean that the technology could be deployed at faster pace, because the industry would not move at the speed of the last prioritised mandatory feature and the speed of the last reliable implementation.

Proposal: It is proposed to discuss the issues presented above and whether there is some support to minimise these future risks, **and at same time get faster rollout of commercially important features.**

Solution

During the discussion in RAN2, it was discussed that one way to best solve this issue was to have a 'reliability' flag. This reliability flag would then at a certain point in time, be mandated to TRUE in the standard and there would be a test available to ensure all UEs are compliant.

There are two approaches on how to introduce this ('+' represents an advantage, '-' represents a disadvantage).

- A) Introduce 'reliability' flag when feature is introduced **into the specification**
 - + less space is consumed on signalling (in relation to B)
 - + the feature deployment is more favourable to market competition, because the fastest reliable implementation to market would set the reliability flag to TRUE.
- B) Introduce the flag when the decision is made that the feature is reliable to be used commercially.
 - more space is consumed in signalling (in relation to A).
 - the feature deployment depends on agreement in 3GPP and does not favour market competitiveness.

During some offline discussions it was also mentioned this 'reliability' flag could represent more than one feature. This effectively would almost mean creating a sub-release tag that, depending on the number of items under it, is basically creating the same problem as a normal release.

Proposal: Given the **clear time to** market advantages of option A, we would propose it as solution. The details of it could then be worked out in future RAN2 meetings (considering optimised signalling, etc).

Proposal

It is proposed that RAN discusses the current situation with mandatory features in general, taking market interest into account and decides if a method to ensure that mandatory features are in a reliable condition at the time of commercial availability, and to minimise the risks described above, is desirable.

It is also proposed that if RAN decides that this reliability issue is taken into account in the signalling, method A described above is chosen.