Direktoratet for samfunnssikkerhet og beredskap

2017/10653

Next Generation Nødnett in commercial mobile networks

Request for information (RFI) to the commercial mobile operators with their own nationwide radio networks

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1 Background and objective

The current Norwegian Emergency Public Safety Network (Nødnett) serves the emergency services and preparedness agencies in Norway and provides voice services and basic data services for management and collaboration purposes in connection with their activities. Nødnett is based on the TETRA technology and is operated and maintained by Motorola Solutions Norway AS (Motorola). The agreement with Motorola has validity until the end of 2026. Irrespective of this, there is an expectation among emergency services and preparedness agencies that mobile broadband for critical data communication should be implemented in parallel with the current Nødnett.

The emergency services' and preparedness agencies' need for good and mobile broadband services is growing. This need cannot be fully met with the current Nødnett. Based on this and the life expectancy of Nødnett, it will be necessary to already now evaluate solutions for a Next-generation Nødnett (hereinafter NGN).

On 8 December 2017[1] , the Government decided that frequency resources in the 700 MHz band will be made available to interested commercial providers of electronic communications in Norway. By making this decision, the Government has followed-up the Digital Agenda for Norway[2]. The decision is also in line with the Norwegian Communications Authority's (Nkom's) recommendation of June 2017. Based on the latter documents, Nkom and the Norwegian Directorate for Civil Protection (DSB) have prepared a joint memorandum dated 26 October 2017: "Next-generation nødnett in commercial networks - Approach for further work"[3].

In the work on evaluating solutions for NGN, it is desirable to enter into a dialogue with the commercial operators who have their own, nationwide mobile networks. The purpose of this request for information (RFI) is to obtain information and assessments from the operators to ensure the best possible basis for the further work. The information obtained will be used as basis for a report to be prepared on behalf of the Ministry of Justice and Public Security, where issues such as the following will be addressed:

1. *Evaluation of unpriced consequences of various alternative solutions as outlined in the report prepared by Nexia/Menon on assignment from the Norwegian Communications Authority (Nkom), dated February 2017.*
2. *Studies of whether or not it is feasible to satisfactorily fulfil requirements relating to the robustness, accessibility and security of a future solution based on public mobile networks, as well as how this may be achieved.*
3. *Evaluations of whether or not the commercial providers will in actuality provide the necessary services, and at what price.*
4. *Study what measures, regulatory orders, investments, involvement, funding and resources will be required on the part of the State in order to ensure that the future emergency and preparedness communication may be based on public mobile networks rather than building a dedicated mobile network specifically for this purpose.*

The request for information has been prepared with input from Nkom, the Norwegian National Security Authority (NSM) and the Norwegian Defence Materiel Agency (NDMA). The Armed Forces and the emergency services have common interests linked to security, accessibility and functionality. Thus, responses to this RFI may therefore form the basis for how the Armed Forces will resolve their future communications needs incorporating commercial 3GPP technology and infrastructure.

[1] https://www.regjeringen.no/no/aktuelt/mer-bandbredde-for-bedre-mobile-tjenester/id2581485/ (in Norwegian)
[2] https://www.dsb.no/globalassets/dokumenter/nyheter/neste-generasjon-nodnett-i-kommersielle-nett---fremgangsmate-for-videre-arbeid.pdf (in Norwegian)

The Long Term Defence Plan emphasises the need for being able to collaborate and cooperate in a total defence concept. According to the Armed Forces, mobile networks are also used in war situations to a great extent. Thus, from a defence perspective, it is important to ensure that the mobile networks used in a possible defence of Norway have the properties requested in this RFI. For a nation as small as Norway, it is especially important that all the resources used in the total defence are able to collaborate in a crisis and war. The requirement for robust civil communication systems are also one of NATO's "seven baseline requirements".

2 On the current and future emergency public safety radio networks

2.1 Existing Nødnett

The current Nødnett is described in detail on Nødnett's website www.nodnett.no.

Nødnett is a nationwide, TETRA-based mobile network with a separate core network and separate radio network. The network is wiretap-proofed with air interface encryption and end-to-end encryption. Nødnett has good voice quality, good coverage, high availability and good capacity to handle the current 54,000 or so users. Nødnett supports communication in pre-defined talk groups across organisational and geographical boundaries. The setup time for group communication is in the vicinity of 300-500 ms. With Nødnett, the users have a well-suited tool for communication and collaboration during their daily activities and in connection with major incidents.

2.2 Next Generation Nødnett

The emergency services and preparedness agencies in Norway must be ensured a suitable communication tool in the future as well.

The primary requirements relating to NGN may be summarised as follows (details are listed on the questionnaire):

- NGN must be a standardised, mobile broadband solution with high robustness and security (voice and data). There will be a need for various types of priority mechanisms.
- NGN must support a broad range of services for critical use:
  - Tools for collaboration, both internally within each agency and across agency boundaries.
  - Access to digital information, anywhere and at any time, in the daily work and during major incidents. Transfer of data must be possible between agencies in the field and between field personnel and public safety answering points.
  - Transfer of live images, also from drones, to facilitate common situational awareness and improve the ability to handle incidents in an efficient and precise manner.
  - Use of technically advanced medical equipment in the field.
  - Use of the "Internet of Things" (surveillance cameras, tracking, remote control, machine-to-machine communication).

DSB refers to the mobile operators' statement at the breakfast seminar on 23 November 2017 that NGN in commercial networks will be a good solution for the country. Such a solution will not require dedicated radio frequencies, transmission lines or base stations. In addition, operations and field services can also be handled using the personnel already at the disposal of the operator(s). Thus, DSB has the expectation that NGN in commercial networks will be feasible, and that such a solution will be considerably less costly for the State than the current dedicated TETRA network.

At the same time, such a solution will require investments, in particular in robustness measures, but this will benefit all users of the mobile networks in the country.

3 References

Some additional information on NGN in commercial mobile networks is available in these references. We have included material from the UK and the United States because these are the countries that have made the strongest headway towards the development of solutions for emergency and preparedness communication using commercial mobile networks.

- «Next-generation Nødnett in commercial networks – Approach for further work», joint memorandum from DSB and Nkom, 26 October 2017, see http://nodnett.no/en/About-The-Directorate/News-Archive/Joint-memorandum-on-the-next-generation-nodnett/
- «Future use of the 700 MHz band – socio-economic analysis», report prepared by Nexia Management Consulting and Menon Economics on behalf of Nkom, February 2017, see https://www.nkom.no/aktuelt/nyheter/samfunns%C3%B8konomisk-analyse-av-700-mhz-b%C3%A5ndet (in Norwegian)
- UK Home Office's presentation «UK Progress on 4G LTE for PPDR», November 2017, see https://www.psc-europe.eu/conference-material/bb-transition-uk-perspective-s-whatson-pdf/download.html
- US FirstNet's presentation «FirstNet Data Collection and Outreach - Obtaining the Needs and Wants of Public Safety for Their Network», November 2017, see https://www.psc-europe.eu/conference-material/bb-transition-us-perspective-r-reed-j-bratcher-pdf/download.html

4 Administrative information

4.1 Announcement and communication

This request for information is sent to the three relevant operators via e-mail in accordance with the schedule shown below. Any questions from the operators must be submitted to the following point of contact at DSB:

Berit Isaksen
berit.isaksen@dsb.no
Mobile. +47 41 65 22 91

Any questions received will be anonymised and answered and made available as supplementary information to the other mobile operators.

4.2 Schedule

The following schedule has been established for the conduct of the RFI process:

Activity	Date/week
Notification of the mobile operators	14 November 2017

The RFI is sent directly to the mobile operators via e-mail	14 December 2017
Deadline for submission of the operators' responses	9 February 2018
The operators' presentation of their responses	Week 9 2018

4.3 Response to the request for information

The operator is requested to reply to this request for information as follows, and enclose the following documents:

- **An introductory letter (executive summary) -** A brief account of the reply as well as an account of what the operator considers to be the most appropriate way to establish NGN, and the operator's opinion regarding carrying NGN in his infrastructure.
- **List of questions** – Enclosure 1 to the RFI completed with the operator's replies entered directly in the document.
- **Additional information** – Enclosure 2 to the RFI completed with any supplementary information relating to the replies provided in Enclosure 1.

The response to the request for information need to be in Norwegian or English. The response is to be submitted via e-mail to the following point of contact at DSB by the deadline designated above:

berit.isaksen@dsb.no

4.4 Confidentiality and publicity

DSB is obliged to prevent unauthorised personnel from gaining access to or knowledge of information concerning technical installations and approaches, or operational or business circumstances that should be kept confidential due to competition considerations on behalf of the party that the information relates to. Please note, however, that the provisions of the Freedom of Information Act on access to information will apply after the gathering of information has been concluded.

If any request for access is received after the RFI process has been completed, DSB will clarify the matter with the relevant operator in order to sanitise the relevant documents.

DSB requests that the response to the request for information includes an indication of what information should be kept confidential according to the operator.

DSB also assumes that the replies to some of the questions may contain information that is classified according to the provisions of the Norwegian National Security Authority's standard cryptographic requirements. DSB is obliged to ensure that any such information is received and stored as proscribed. If such information is to be submitted, the operator is requested to contact DSB directly, as described in pt. 4.1 above.

Nkom has been of assistance to DSB during the preparation of this RFI. Questions linked to security have been prepared in dialogue with NSM. The Norwegian Defence Materiel Agency has provided input regarding the needs of the Armed Forces. It may be relevant to share some of the information received with these agencies. If so, this will be handled in accordance with applicable rules and regulations, cf. the above.

4.5 Disclaimer of liability

It is emphasised that DSB does not intend to sign any contracts regarding delivery of a Next Generation Nødnett based on this inquiry. DSB is also not at liberty to provide the operators with any compensation for the preparation of replies to the RFI nor for any other expenses relating to the participation in this process.