

Critical Broadband in Europe - Updates from the Government Operators

Webinar 07 October 2020

View the webinar recording [here](#).

This document sets out the questions and answers from the webinar.

What is the role of Capita in this (ESN) consortium...?

(ESN UK) – Capita are one of our ICCS – fully on board with programme, they have completed a large chunk of their development against Kodiak 9.1 and have demonstrated that to us and their users. They are now working against Kodiak Release 10 to add in additional functionality. Capita is a large presence in the UK and may well also pick up a lot of work with user organisations, they support the Metropolitan Police for example.

ESN - How does Interoperability of MCX fit into your roadmap?

(UK) Our roadmap shows a clear move to being 3GPP standards based and this will then allow us to take advantage of interoperability, assuming suppliers are also adhering to those standards.

ESN - Will you have only one vendor (Motorola) for MCPTT? Some US networks are expected to offer users two vendor options for MCPTT ... Are there benefits or drawbacks to that implementation plan?

(UK) We will have one vendor, Motorola with the Kodiak product. In the US they are looking to have two vendors to offer up a choice for the users but that does add complexity as you have to make sure the two solutions work together properly, and that is not a step to be underestimated. Potentially another way is to go for a pure MCPTT app that complies exactly with the standards, if you specified a standards-based approach to your server end you could have an open client that you could run on any device that you wanted to, but in the UK we've gone for the simpler option which is to start with just one.

What are your (UK) observations on aerial LTE coverage so far? Which flight levels seem to be the most favourable signal strength wise? In Finland we had 22 forest fire monitoring Cessnas deployed last summer and we noticed some LTE connection issues with the video solution.

(UK) We carried out a series of flight trials about a year ago at different heights looking at the coverage available at each level and across a series of frequency bands, mainly 800MHz and 1800MHz. The result was that although there is coverage the percentage likelihood of a successful call was around 70%, and that was not high enough for our users. Therefore we took the decision to build an A2G overlay network, and currently have four test sites live. This will provide coverage at 2345MHz. One of the big drivers behind this is that the higher you go, the more base stations you

can see, and therefore the interference goes up. Moving to a separate frequency avoids that. So for up to 500 feet coverage is provided by the terrestrial network, above that it will seamlessly switch to 2345MHz to provide coverage up to 10,000ft.

What is the strategy to support DMO when users are migrated to a broadband network (as there is no device that can support ProSe on the market today)?

(UK) We are awaiting approval to go to market for a Device to Device solution, we are currently looking at a Remote Speaker Mic with a TETRA modem built in, that provides DMO capability. We are also interested in re-purposing existing TETRA devices to acts as RSMs and DMO devices. Both options would be connected and controlled by the ESN device.

Is there a specification for back-up power for towers used for the critical comms network? e.g. in Germany 72 hours are used for their towers?

(UK) Resilience is a key part of the ESN architecture, but isn't necessarily based upon specific towers, as the design of a commercial 4G network is significantly different from a dedicated TETRA network, with a lot of inbuilt resilience, due to multiple sites offering coverage into the same physical area. Therefore we are more focused on availability and key sites, than simply asking for x hours power resilience at all sites.

Are there any MCX features missing in the LTE solution in the UK that 5G will solve?

(UK) Standardised features within 3GPP will be available to our users as they are delivered within the Kodiak software releases –it will be an iterative process before delivering everything that is standardised, so we will initially look to deploy Kodiak 10 but would accept that some features will be in a later release that users will take in time.

What about the implementation starting from 2022 of a dedicated 5G network in 700 MHz PPDR bands?

(Denmark) Our requirements for the next generation SINE will be functional so the vendors will have the option of basing them on the technology they would like as long as it fulfils our requirements.

(UK) We are using the spectrum provided by our mobile operator EE and they do not have any 700MHz spectrum – only 800, 1800 and 2600. We are using those and some spectrum for specific tasks such as A2G. Other countries however will use 700MHz if it has been reserved for PPDR use.

What about a hybrid implementation model based on MVNO sharing an MNO RAN and a dedicated 700 MHz network?

(Finland) The Finnish model comes from the responses to the RFI, and this was that if we want to make sure of availability and security over commercial RAN then we needed to go MOCN (multi-operator core network). MVNO with a dedicated 700MHz probably could be an option in some countries but there is no 700MHz public safety frequency in Finland.

Are you thinking of a MVNO model in the future with more than one MNOs RAN sharing agreement?

(Finland) We have legislation supporting national roaming. But we will start with one.

(Norway) The Norwegian model for critical broadband services is not yet decided.

(UK) This is not part of our current deployment model, but the concept of using multiple MNOs is one that is of interest going forward.

Have you started some experimentation of 700 MHz 5G network for mission critical services?

A no from all except Finland where the answer is yes but it is not being done by Erillisverkot.

Is Foraya Tele using a dedicated or common commercial infrastructure?

(Denmark) It is shared infrastructure with security in place to protect our part of it.

So Virve uses MNO's RAN yet its own EPC...?

Yes.

With regard to hardening - what are the parameters you are aiming for and for what amount/percentage of Elisa's 4G/5G sites? E.g. x hours battery backups on y sites, power generators static/mobile, redundant IP transmission networks and use of optical fibres/MW/satellite, use of IOPS?

(Finland) The details of the contract with Elisa are not in the public domain.

Which kind of role do you think Beyond Visual Line of Sight (BVLoS) drones could have in 5G mission critical services?

(Finland) – Drones are really exciting – however at the moment, someone looks at the pictures, someone flies them – we are trying to get rid of both in the long term. We would like to see them, hypothetically for example, fly across the eastern border, but if there are drones coming and going they will generate so much video that we would need to implement AI to recognise if there is something that interests us, otherwise we are just going to tie up a lot of resources analysing the video data

Do you accept to have a Chinese vendor RAN and/or core network?

(UK) The Government position is quite clear on that, and that is position that we would work towards with our suppliers who are equally bound by the Government decision.

(Norway) Telecom operators are moving in the same direction, not choosing Chinese technology.

(Finland) The nationality of the core network didn't score any points in our RFI. Our choice was Ericsson, it is up to the regulator to steer the operators in whatever direction.

What is the difference between Nødnett and Virve 2.0

(Finland) We will see what the difference is in the future - Finland is a little bit ahead, we have made the procurement. From an organisational point of view we have a lot more technical personnel, we do a bit more in house.

(Norway) From the Nødnett viewpoint we are very happy with the cooperation that we have, and the cross-border communication.

How are agencies looking at integrating voice and data recording solutions for the new networks?

(Finland) We are going to repeat what we are doing in TETRA so we will have a centralised service offer for our users. However, cybersecurity is really an issue there because the material is classified to a degree and has to be per organisation so each can manage their own material. One new thing is that they would like to use AI to transcribe the voice recording into text then perhaps generate some situational awareness and find trends from that.

(UK) Here it is down to the user organisations, they procure and manage their own voice recording solutions and that will continue with ESN. The programme is working with third party control room suppliers to make sure they have the information available to them to make any changes they need to their software so it integrates with ESN.

Today there are very limited options for 3GPP MCPTT devices. Traditional TETRA device suppliers are reluctant to put MCPTT into the types of hardened terminals used by police and fire. What government strategies exist to get MCPTT into something more than a rugged smartphone?

(UK) The market will continue to develop. You have heard today where five countries are in their adoption of critical broadband, and there are a number of other countries out there as well a long way down the path to rolling out solutions. As they do that then the market in devices will increase as there will be are greater opportunities for those suppliers to come on board. There are big decisions to be made by users as to whether they want hard buttons on devices which moves it more into the bespoke area, or whether a more off the shelf product with a soft button for PTT and emergency, or potentially use the existing buttons on the side of a COTS device.

(Finland) We have an RFI out on mission critical terminals and will be publishing the white paper that comes out of it. In terminals more than anything I would like to see more international cooperation to harmonise our needs so we don't each have individual national needs for the big terminal vendors – hopefully we can raise a big enough ecosystem to attract their interest.

Finland mentioned that Virve 2.0 is too early for standardised IWF, to what extent are the other government operators involved in defining the standard for this interface (eg IWF) in 3GPP, ETSI etc?

(Finland) Yes we are involved in 3GPP and also ETSI WG4 which is doing IWF recommendation.

(Norway) DSB is not an ETSI-member but follows the 3GPP standardisation process very closely through TCCA. We also have a close cooperation with the Norwegian regulator.

Do the Nordic operators have evaluated to do an international RFI / tender for a RAN in the Nordic countries to facilitate benefits as achieved by ISI in Norway Sweden and Finland?

(Finland) Tenders are national, but we all aim to make sure interoperability is there. Some countries are very active in the Broadway project which aims to solve this.

(Norway) DSB recognises the need for close cooperation in order to secure cross border communications also in the broadband networks, and we have signed a Letter of intent.

Are any of the solutions using the PPDR 2x3 + 2x5 MHz in the 700 MHz band? How can it be used in 5G (5 MHz is minimum in 5G) the 5 provided is filtered out in most MNO networks as guardband?

(Finland) No.

(Norway) We do not have dedicated spectrum.

(UK) We don't have any dedicated spectrum in the 700MHz band.

What is ERC in this context?

(Finland) The ERC system - [Emergency Response Centres](#) - must be integrated into the 2.0 communication solution. It shall be integrated, but not procured as part of the Virve 2.0 program. The ERC have their own new system that currently integrates into TETRA – Virve, and in future Virve 2.0.

Ends