



DEFENCE: EXPERIMENTING IN MAJOR
PEREGRINE SWORD EXERCISE

Situational awareness important in command post exercise

Precise operational information is essential for Defence. It is the basis for commanders to be able to take better decisions. During the most recent Peregrine Sword exercise of the first German-Dutch army corps, improved information exchange technology was tested within the 11 Airborne Brigade (11 LMB), with a major role for the Fox DataDiode and SkyTale.

Some six thousand people from a variety of NATO countries participated in Peregrine Sword exercise in Germany. In essence this was a so-called validation exercise for 11 LMB. The supporting Purple NECTar experimental platform was constructed for optimum information exchange within 11 LMB. Innovation in technologies and networks offers new possibilities, which Defence is testing in exercises like Peregrine Sword. One of the objectives this year was to obtain a better 'situational awareness': the best possible insight into the current situation 'in the field'. After all, command posts always work with limited information from operational units. By improving this information provision, commanders acquire a better picture of the situation and – remotely from the command post – they can take better decisions.

DEPLOYMENT OF FOX DATADIODE

An example is the use of blue force tracking: around 250 people, vehicles and helicopters were equipped with GPS trackers the size of a smartphone. Thanks to this device the command post could see all the units on a digital map. Fox DataDiode was also deployed here. This is a data valve which guarantees that information can only flow in one direction. The product has a Common Criteria EAL7+ certificate and the AIVD (Dutch General Intelligence and Security Service) has approved it up to and including the SECRET classification level. NATO has certified the Fox DataDiode for use up to the NATO SECRET level.

Lieutenant-colonel and senior operational architect Duco Brongers: 'The Fox DataDiode was chosen because it's the only accredited tool with which information can flow from unclassified sources to the "secret" level. The information from the trackers comes into our secret command network through the Internet. The web cannot be trusted, and of course we do not want information from our secret network within the command post to go back to the Internet. The Fox DataDiode prevents this.' Defence has amassed considerable experience with the Fox DataDiode and is very satisfied with it, according to Brongers.

ENCRYPTING RECONNAISSANCE IMAGES

For a different experiment called sensor-to-effector, two Fennek reconnaissance vehicles were equipped with sensors like infra-red cameras. The Fenneks could also place separate sensors like cameras and radars out in the field. 'The information from these sensors formerly stayed in the vehicle. Or it was brought back to the command post indirectly and with considerable delay, for example by a batman,' explained lieutenant-colonel and project leader Siegmund van Iwaarden. 'In our test we forwarded the information directly to the command post. With the receiving of virtually real-time photos from the field, the commander could make a better assessment of the situation.'

'PLE [SkyTale] was chosen because it requires little to no overhead, thus little bandwidth, and the quality of service is extremely convenient' Siegmund van Iwaarden, Defensie



MAINTAINING SECURITY

Because such operational information has the secrecy status, it is necessary to apply state-of-the-art encryption to the data. Fox-IT's SkyTale was deployed for this – a robust hardware IP-crypto solution for information at the NATO and national confidential level. SkyTale was developed for use in MANETs (mobile ad hoc networks) and combines an optimized network protocol and high network performance with extremely low overhead and multicast support. Because both IPv4 and IPv6 are supported, SkyTale can be integrated in existing systems largely without reconfiguration. Defence uses SkyTale under the name Payload Encryptor (PLE), in combination with an ad-hoc router. 'We use the encryptor on both sides of the connection with the reconnaissance vehicles,' explains Van Iwaarden. 'With the special ad-hoc router on board the armored vehicles, you can choose which communication channels you use, for example the one with the fastest transfer. One of the Fenneks also had a SatCom on board; the second vehicle could make use of it via Wi-Fi.'

INNOVATION SPEARHEAD

Defence's intention is to continue with experiments as in Purple NECTar. Innovation is also one of the Defence leadership's spearheads. 'Here Purple NECTar offers an excellent platform to achieve pragmatic solutions together with all the sections of the armed forces, public order and security, and along with the commercial world,' says Duco Brongers. 'Converting a successful experiment into implementation certainly bears challenges, but these can also be resolved if we put our heads together.'