Firefly
Fact sheet

NATO OTAN

NCI AGENCY

Overview

The NATO Response Force (NRF) provides a rapidly deployable, credible force for collective defence and crisis operations. The NRF is a high readiness joint and combined force, capable of performing missions on its own, and participating in an operation as part of a larger force.

The Deployable Communications and Information System (DCIS) provides the NRF with Command Control (C2) services for NATO-led operations and enables collaboration between static and deployed users supporting Major Joint Operations (MJO) or Small Joint Operations (SJO).

The Firefly project will deliver eight DCIS Points of Presence (DPOP) in support of the small and medium headquarters of the NRF. Six of the DPOPs will support operations, and the remaining two will be used for training and reference.

The DPOPs will provide:

- Communication services between deployed forces;
- Communications with NATO Commands; and
- Applications and information services for the deployed forces.

The new Firefly system will provide a secure, modular, scalable, deployable and sustainable capability to the NRF.

Firefly system and components

The Firefly DPOPs will complement and interoperate with the current generation of the DCIS, such as Dragonfly, in support of data and voice communications between deployed elements of the NRF and the static headquarters of the NATO Command Structure (NCS).

Firefly will provide Federated Mission Networking (FMN) connectivity to Nations and partners so that they can communicate effectively on operations, missions and exercises.

The Firefly services consist of the following:

- Communications services such as IP routing and switching, multimedia (voice and video) and transmission (wired and wireless, both Line of Sight (LOS) and Beyond LOS.
- Infrastructure services that enable the business support services and other military applications accessed through or hosted on the Firefly.

- Business support services (core services) such as informal messaging (email), database, document collaboration, web services.

- Staging and deployment environment that will allow automatic provisioning of the infrastructure services to speed up deployment.

Frequently asked questions

Does the Firefly implement cloud services?

With Firefly, we will bring private cloud to the deployable headquarters. You may look at the services provided through the Firefly as a private cloud at the edge. That means that it uses concepts we take for granted in the cloud today, such as edge computing, automated orchestration of services and Infrastructure as a Service (IaaS). That means that NATO is able to push an ICT service for the soldier by merely executing an automated workflow that is developed in advance and thoroughly tested, but deployed in hours, rather than days or weeks. The DCIS, and the Firefly, will utilize services from the NATO data centres and be autonomous in case of communications failure by using edge computing.

How does the Firefly improve the ability to deploy quickly?

The orchestration allows for a high level of automation when installing, configuring and activing ICT services. This means that we expect to deploy a new or updated service within hours, instead of days or weeks.

Does orchestration affect the security of the services?

The orchestration uses blueprints, or templates, of the service that are automatically executed through a workflow engine. These blueprints are developed and tested in advance, and implement the latest security policies.

What is the DCIS Cube?

The DCIS Cube architecting initiative is a collaboration between NCI Agency and ICT Industry to develop a state-of-the-art architecture for NATO deployable systems. The initiative started in 2017 with 12 companies actively contributing. Today, more than 30 companies are contributing to the initiative. The initiative has developed an architecture for the deployable Infrastructure as a Service, which is hardware agnostic, virtualized and orchestrated. The Firefly implements key aspects of this architecture.

Is the DCIS Cube architecting initiative now done with its work?

No. With its second edition called "Connecting the Cube," the initiative's participants are developing an architecture for communications that addresses advanced usage of satellite communications, and technologies such as 5G. The new architecture is software-defined and reduces the complexity for the operator.

The initiative is further developing the architecture to employ DevSecOps concepts to develop, test and deploy services. Participants are also developing the architecture for handling, storing, moving and protecting data. The initiative is also considering the possibility of more suitable user devices to access services at various security classifications.

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