

C2 in the Combat Cloud

Framework for Future Capability Development

LtCol Bart Hoebe

RNLAf HQ – C4ISR branch / Section Head AirC2

Find a professional for all your jobs in and around the house

Post your job free of charge

[Post a job](#)[Register as a professional](#)

How does it work?



1. Post your job

Post your job in a couple easy steps. Professionals are informed.



2. Professionals react

Available professionals usually react within 24 hours after posting your job.



3. Compare and select

Compare the professionals based on the reactions, price, experience and reviews. Choose who you want to contact.

Find a professional for all your jobs in and around the battle space

Post your job free of charge

[Post a job](#)[Register as a professional](#)

How does it work?



1. Post your job

Post your job in a couple easy steps. Professionals are informed.



2. Professionals react

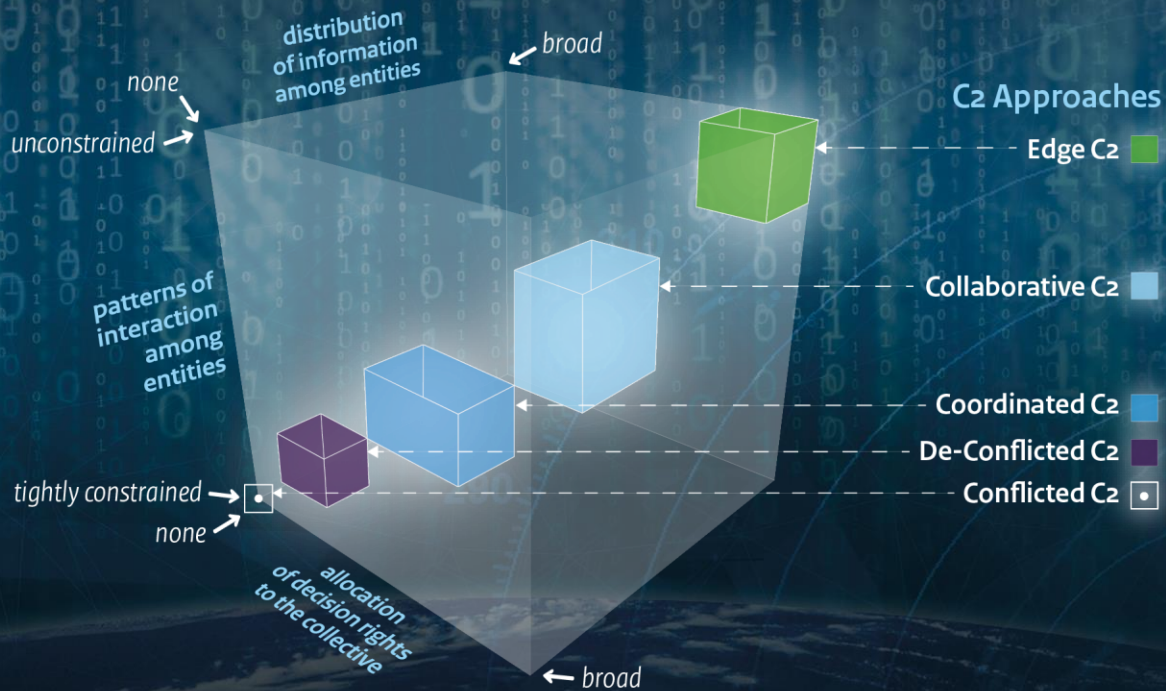
Available professionals usually react within 24 hours after posting your job.



3. Compare and select

Compare the professionals based on the reactions, price, experience and reviews. Choose who you want to contact.

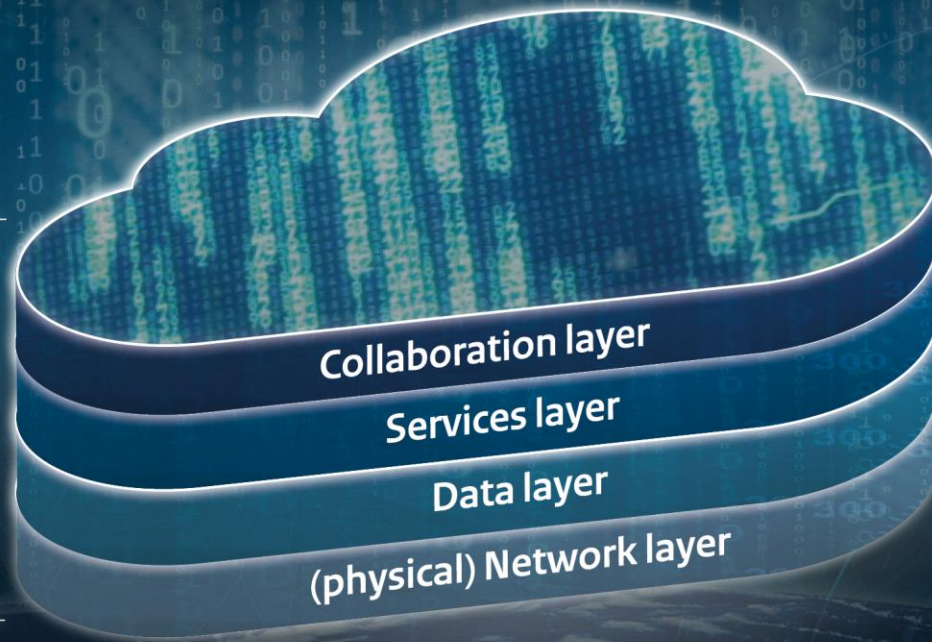
NATO NEC C2 Maturity Model





Combat Cloud

**Combat
Cloud**



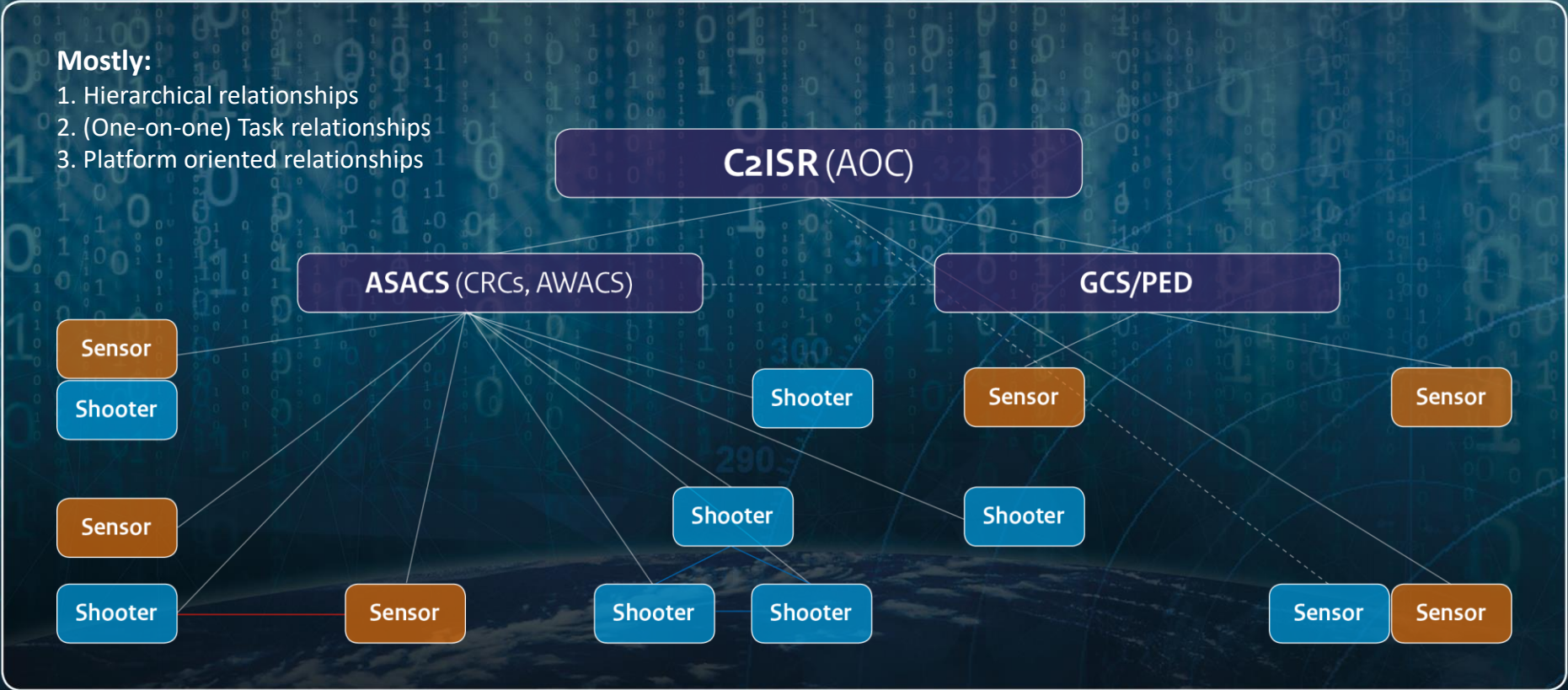
‘Classic’ AirC2

Mostly:

1. Hierarchical relationships
2. (One-on-one) Task relationships
3. Platform oriented relationships

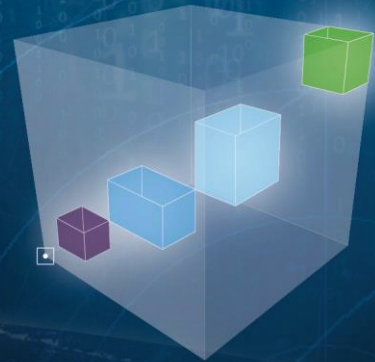
The diagram illustrates a C2ISR (AOC) network architecture. At the top is the **C2ISR (AOC)** command center. It connects to two main operational centers: **ASACS (CRCs, AWACS)** and **GCS/PED**. The **ASACS (CRCs, AWACS)** center is connected to a **Sensor** and a **Shooter**. The **GCS/PED** center is connected to a **Sensor** and a **Shooter**. Additionally, the **ASACS (CRCs, AWACS)** center is connected to a **Sensor** and a **Shooter** that are both connected to a **Shooter**. The **GCS/PED** center is connected to a **Sensor** and a **Shooter** that are both connected to a **Sensor**. The **ASACS (CRCs, AWACS)** center is also connected to a **Sensor** and a **Shooter** that are both connected to a **Shooter**. The **GCS/PED** center is also connected to a **Sensor** and a **Shooter** that are both connected to a **Sensor**.

-
- Mostly:**
1. Hierarchical relationships
 2. (One-on-one) Task relationships
 3. Platform oriented relationships
- The diagram illustrates a C2ISR (AOC) network architecture. At the top is the **C2ISR (AOC)** node. Below it are two main functional areas: **ASACS (CRCs, AWACS)** on the left and **GCS/PED** on the right. The **ASACS (CRCs, AWACS)** area includes a vertical stack of **Sensor** and **Shooter** nodes, and a cluster of **Sensor** and **Shooter** nodes at the bottom. The **GCS/PED** area includes a vertical stack of **Sensor** and **Shooter** nodes, and a cluster of **Sensor** and **Shooter** nodes at the bottom. Solid lines represent hierarchical relationships, dashed lines represent one-on-one task relationships, and solid lines represent platform-oriented relationships.



Towards edge C2

- From hierarchical relationships to collaborative relationship
 - Increased peer-to-peer
 - Based on commanders intent and trust
- From task-centric (one-on-one) relationships to effects-centric collaboration
 - Service orientation
- From platform-centric to information-centric



Step 1: Functional Nodes

C2ISR (AOC)

ASACS/TACS (CRCs, AWACS)

GCS/PED

Sensor

Sensor

Sensor

Shooter

Sensor

Shooter

Shooter

Shooter

Shooter

Sensor

Shooter

Shooter

Shooter

Sensor

C2 Nodes

C2ISR (AOC)

ASACS/TACS (CRCs, AWACS)

GCS/PED

Sensor

Shooter

Sensor

Shooter

Sensor

Shooter

Sensor

Shooter

Shooter

Sensor

Shooter

Shooter

Shooter

Sensor

Sensor Nodes

C2ISR(AOC)

ASACS/TACS (GRCS, AWACS)

GCS/PED

Sensor

Sensor

Sensor

Shooter

Sensor

Shooter

Shooter

Shooter

Shooter

Sensor

Shooter

Shooter

Shooter

Sensor

Effector Nodes

C2ISR(AOC)

ASACS/TACS (CRCs, AWACS)

GCS/PED

Sensor

Sensor

Sensor

Shooter

Sensor

Shooter

Shooter

Shooter

Shooter

Sensor

Shooter

Shooter

Shooter

Sensor

Knowledge Nodes

C2ISR (AOC)

ASACS/TACS (CRCs, AWACS)

GCS/PED

Sensor

Sensor

Sensor

Shooter

Sensor

Shooter

Shooter

Shooter

Shooter

Sensor

Shooter

Shooter

Shooter

Sensor

Step 2: Nodes in grids

C2 Grid



Effector Grid



Sensor Grid

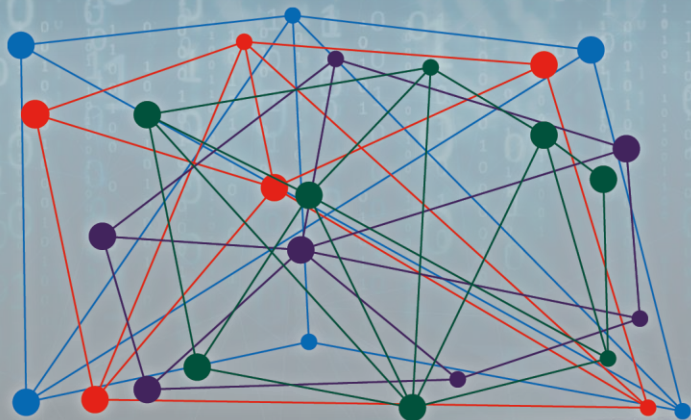


Knowledge Grid

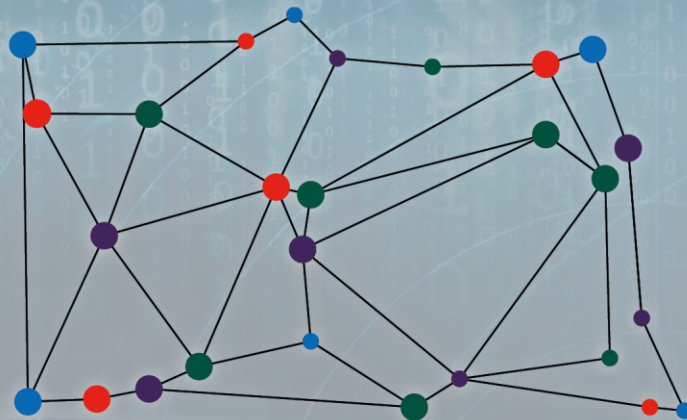


Step 3: Intra- and inter-grid collaboration

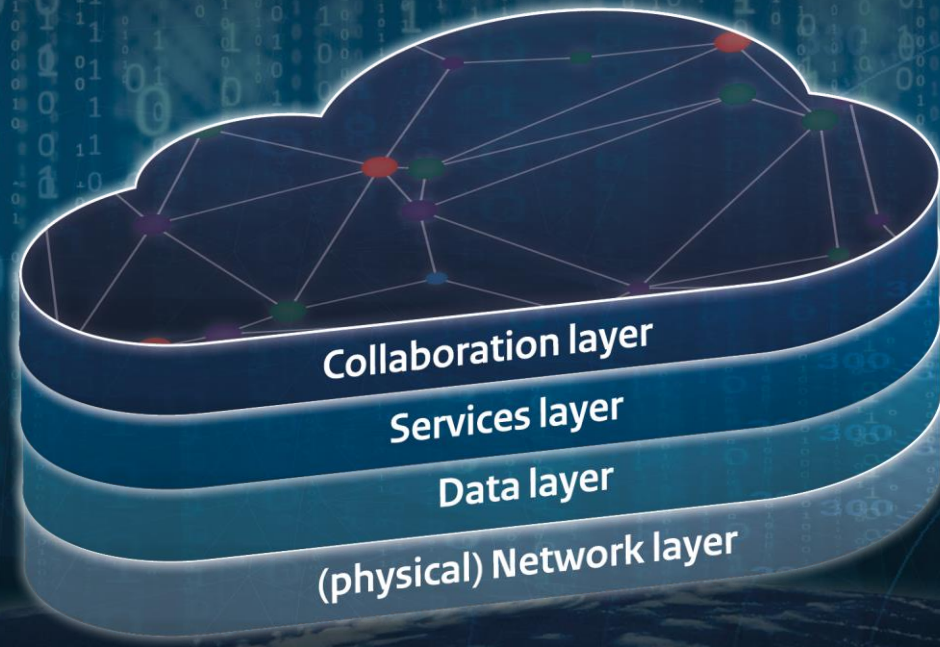
Intra-grid collaboration



Inter-grid collaboration




Step 4: Into the Combat Cloud



Step 4: Into the Combat Cloud

**Data
sub-layers**



Real-time data
Near-real-time data
Non-real-time data

Find an effector for all your desired effects in and around the battle space

Post your the desired effect free of charge

[Post a desired effect](#)[Register as an effector](#)

How does it work?



1. Post your desired effect

Post the desired effect. Effectors are informed.



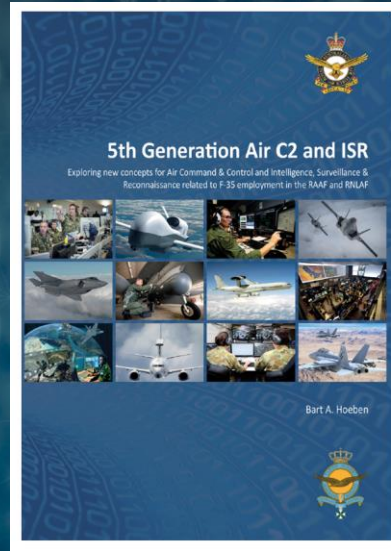
2. Effectors react

Available effectors react real-time upon posting your desired effect.



3. Compare and create effect

Effectors compare among each other and create the desired effect.



C2 in the Combat Cloud Framework for Future Capability Development

LtCol Bart Hoebe

RNLAF HQ – C4ISR branch / Section Head AirC2