

NATO LVC - Close Air Support Vignette

Jan van Geest (NC3A)
Wim Huiskamp (TNO)

November 4, 2010
NATO JFTC, Bydgoszcz, Poland
TNO, The Hague, The Netherlands
Dstl, Porton Down, United Kingdom

Health

Alt. 6009ft
Set 6001

Speed 66kts
Set 26

Position
17939908

3.60x

12:34:39

TPOS 18330008

TNO | Knowledge for business



Gaps in Live training

- Training area limitations
- Lack of collective training opportunities (national, NATO)
- Realism, sparse environment
- Cost, risks, availability
- ...



LVC is Live, Virtual, Constructive Simulation



- Real People, Real Systems

*Top Gun, Red Flag,
MCTC, Marnehuizen....*



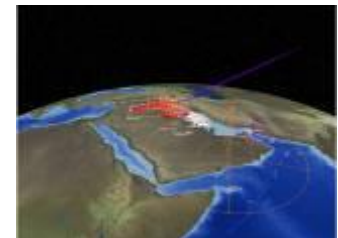
- Real People, Simulated systems

*KM Bridgesim, F16 ULTs,
FACsim, VBS2, MS Flight Sim...*



- Simulated people, Simulated systems

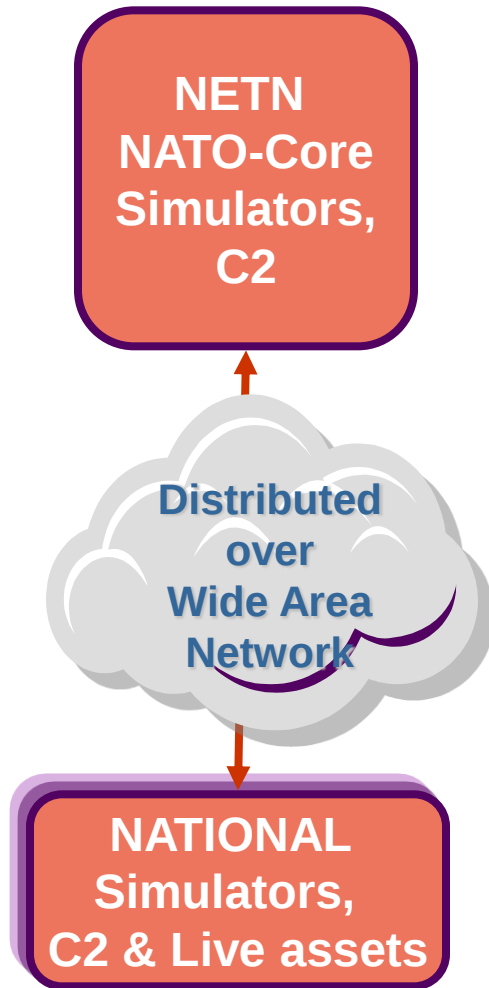
*VR-Forces, OneSAF,
JROADS, IWARS, ...*



NATO ACT Programme Snow Leopard, aka NATO Education and Training Network (NETN)



Distributed Training for NATO and Nations

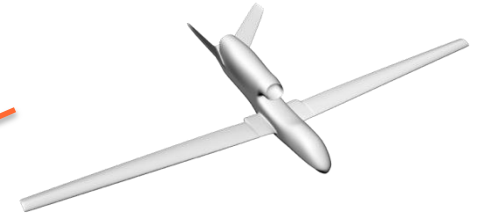


Distributed Multi-National Close Air Support vignette

Validate concept



The Hague, The Netherlands



Porton Down, United Kingdom
Bydgoszcz, Poland
The Hague, The Netherlands



Bydgoszcz, Poland

Why Close Air Support?

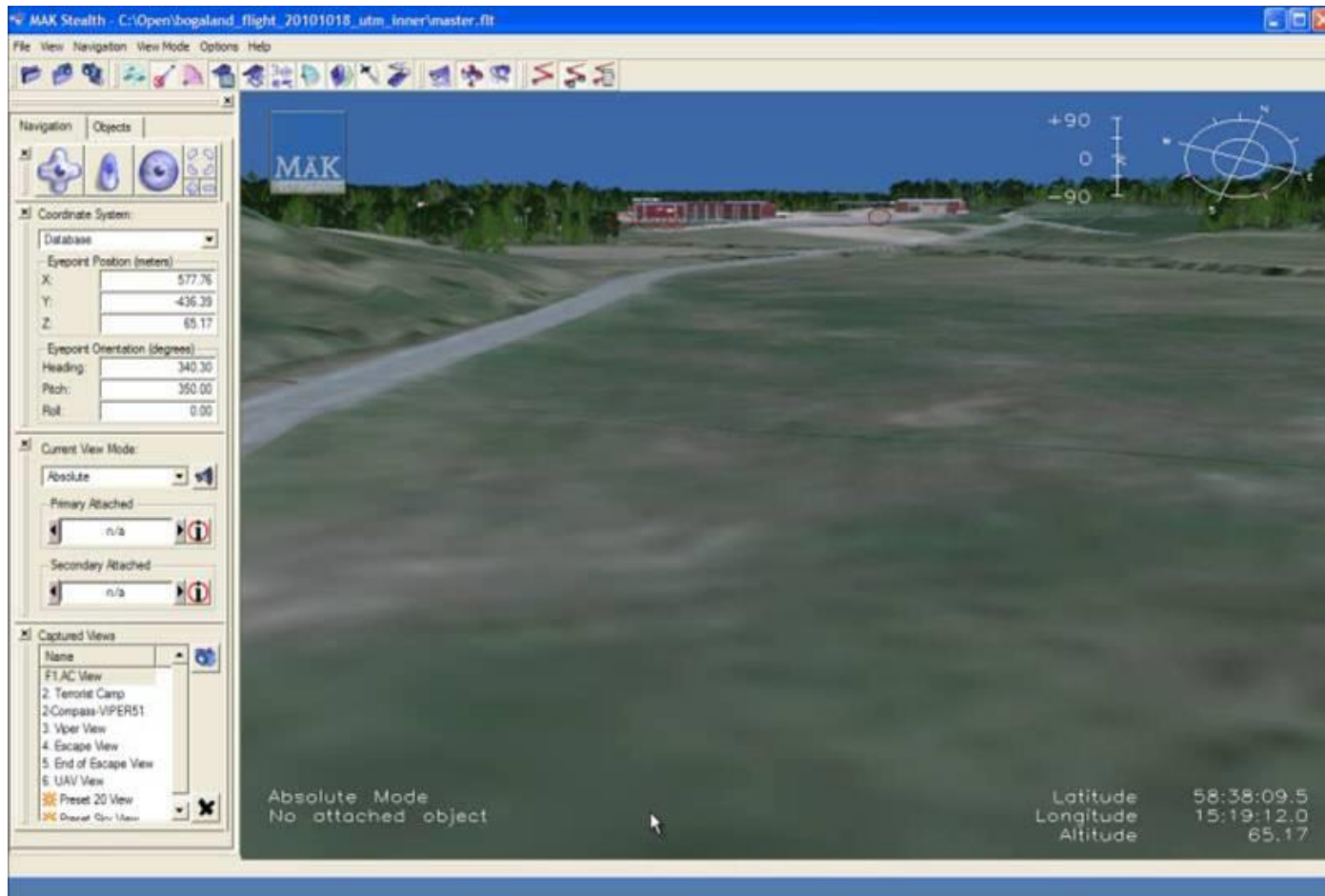
- Operational requirement related to ISAF
 - Stated by ACT, several nations and NATO AWACS
- Combined and Joint
- Technically feasible

Nine-liner briefing

- Red Baron (German FAC, Bydgoszcz, Poland) provides nine-line briefing to Viper 51 (Dutch F-16 in The Hague, The Netherlands)
- Observed from FAC position

➤ [Link to Video](#)

Stealth View – FAC position





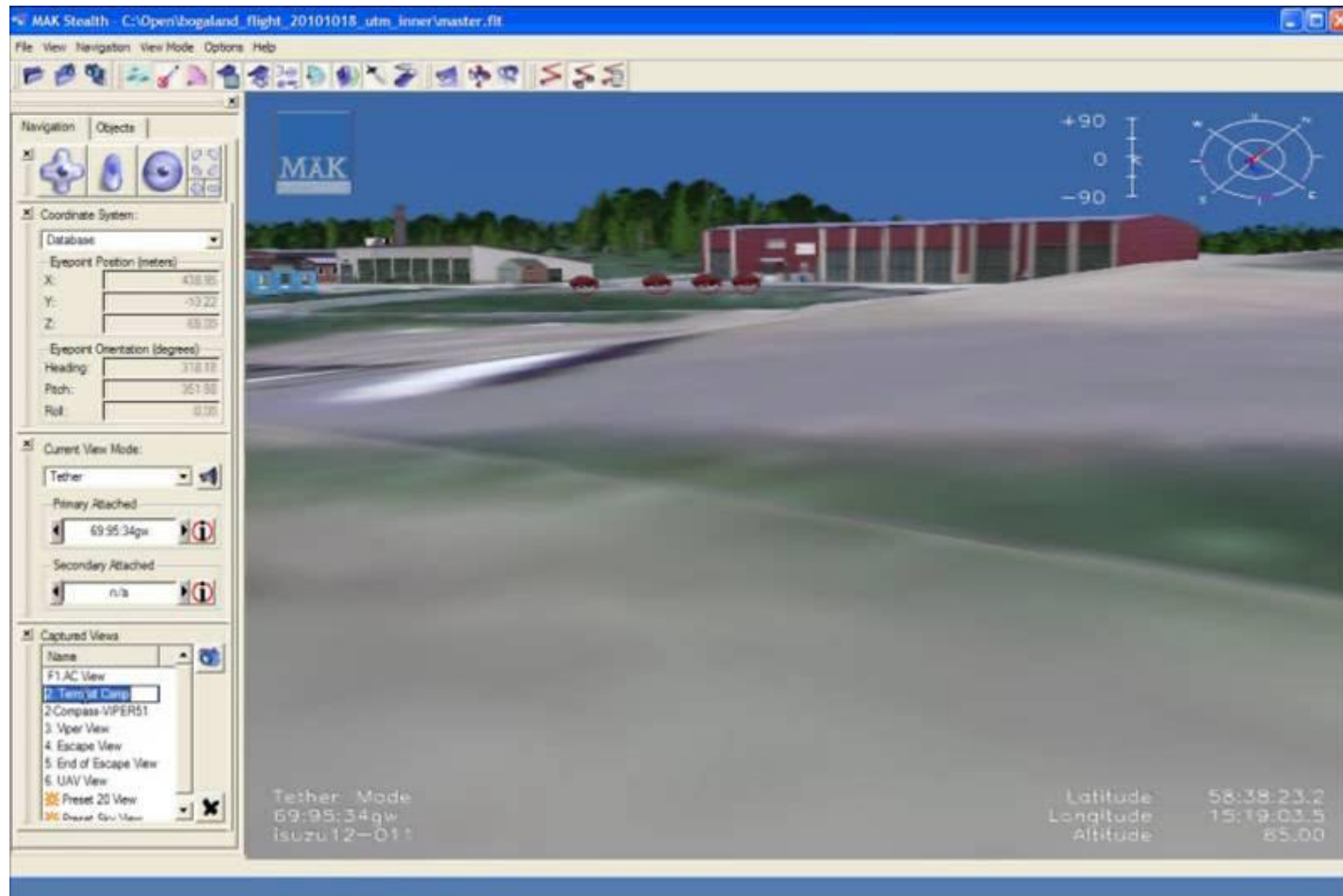
Possible Targets: Buildings, Vehicles, Individuals (See red circles)

Mk-82 attack

- After a couple of aborted attacks, Viper 51 successfully engages target vehicles with Mk-82 bombs
- Observed from FAC position, then from UAV
- Note the F-16 coming in from right upper corner

➤ [Link to video](#)

Stealth View – Targets





F16 simulator piloted in NLD within the FACSIM simulation
destroys vehicles generated by JCATS at JFTC
ALL ON THE SAME SYNTHETIC BATTLEFIELD.

UAV View – Targets



Vehicle escape

- Ground commander notifies FAC of escaping vehicle
- FAC is linked to Herti (UAV operator, Porton Down, UK)
- Observed from UAV
- Note vehicle driving out of shelter top right

➤ [Link to video](#)

UAV View – Escaping Vehicle



Strafing engagement

- F-16 Viper 51 successfully strafes escaped vehicle
- UAV Herti provides Battle Damage Assessment
- Observed from UAV

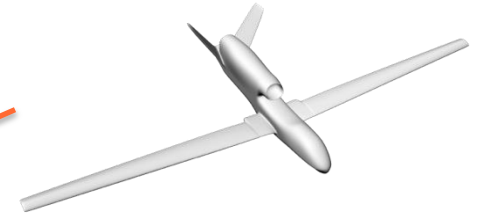
➤ [Link to video](#)

Distributed Multi-National Close Air Support vignette

Validate concept



The Hague, The Netherlands



Porton Down, United Kingdom
Bydgoszcz, Poland
The Hague, The Netherlands



Bydgoszcz, Poland

NATO MSG-068 Simulation Reference Architecture

NATO LVC CAS Demo Nov 2010 & IITSEC 2010

Thursday, February 03, 2011
Text Size

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED COMMAND TRANSFORMATION

[Home](#) [Organization](#) [Events Calendar](#) [Multimedia](#) [Search](#)

Viper 51 Meets Rattlesnake 4 In The Virtual World

"Viper 51 this is Rattlesnake 4, let me know when you clear the IP (Initial Point) for your run".
"Roger, Rattlesnake 4".

The pilot of Viper 51 was flying his F-16 at 300 knots just 200 feet off the ground with six 500-pound MK-82 high-drag bombs under his wings.

At this speed and altitude the trees blur into one green mass as he scans the terrain.

"Cleared IP." The Forward Air Controller (FAC) has only seconds to visually acquire the aircraft. One moment it will be a dot on the horizon and the next it will flash overhead.

Rattlesnake 4 has been a FAC for years and has many combat missions in ISAF. He takes one last look at the terrorist vehicles, checking also with the ROVER UAV feed to make sure they have not moved, and that there are not any non-combatants near.

"Tip up", calls Viper 51. The F-16 begins a pull up manoeuvre to gain altitude. As he levels out, he sees the targets as his aiming dot on his heads-up display creeps across the ground toward the vehicles.

"Rattlesnake 4, tally target."
"Viper 51, cleared hot."

Viper 51 barely gets his clearance to drop before leaving the target area. He drops the bombs as he pulls a high G turn to escape the weapon's fragmentation envelope. The explosion destroys all three vehicles; a successful high-threat low altitude target engagement.

This event did not occur in some far off land on a battlefield between two unnamed mountains. Instead, it took place all around Europe. The UAV pilot was located in Great Britain's Defence Science and Technology Laboratory. The Dutch pilot was flying his F-16 on a desktop simulator at TNO in The Hague, The Netherlands. The FAC was conducting his mission at NATO's Joint Force Training Centre, Bydgoszcz, Poland, wearing a virtual reality helmet. All of them were wrapped in a virtual environment created by the NATO Live, Virtual and Constructive simulation infrastructure. ACT, NC3A, The Netherlands and Great Britain put together this experiment hosted in part by JFTC.

Some comments from the forward air controllers, after the event, included, "doing simulated exercises before the initial live run is critical for making these more productive and for decreasing the number of failed runs". And, "practice of procedures with pilots of the different nations is essential for being ready for real operations. For example, it is critical to deal with different accents or to handle particular ways to describe objects".

"I think this is a huge step forward to improve the training for FACs and air support pilots engaged in multinational operations," said U.S. Navy Commander David James, Fratricide Prevention Integrated Program Team leader. He continued, "Distributed multinational training events such as the one demonstrated here are crucial for pre-deployment and mission rehearsal preparations in order to produce the desired effects for the Alliance in a timely and accurate manner".

LVC programme: Enhance Live Training



QUESTIONS ?

COMMENTS ?

Wim Huiskamp

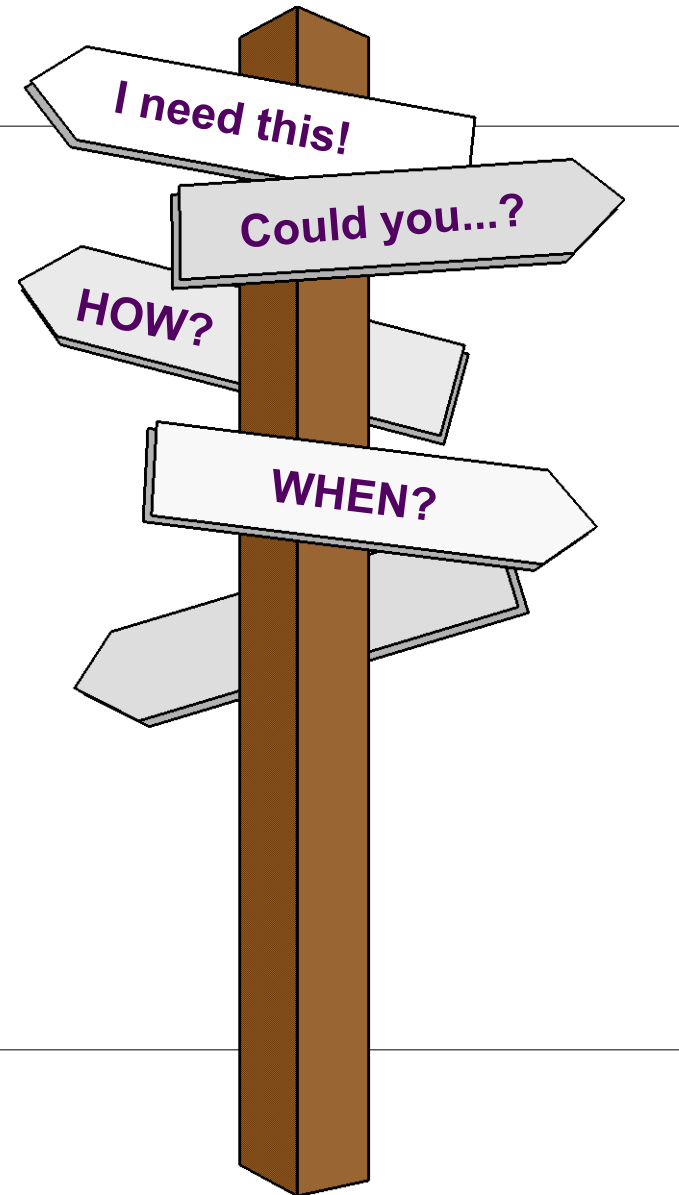
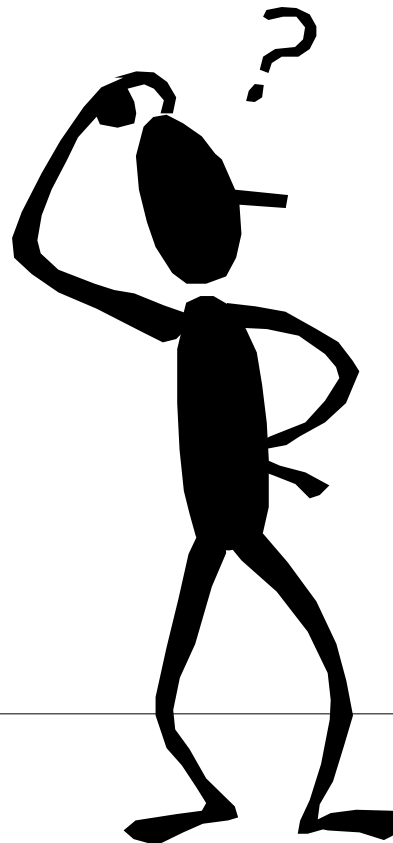
wim.huiskamp@tno.nl

Tel +31 - 888663965

Jan van Geest

Jan.van.geest@nc3a.nato.int

tel +31-70-3743730

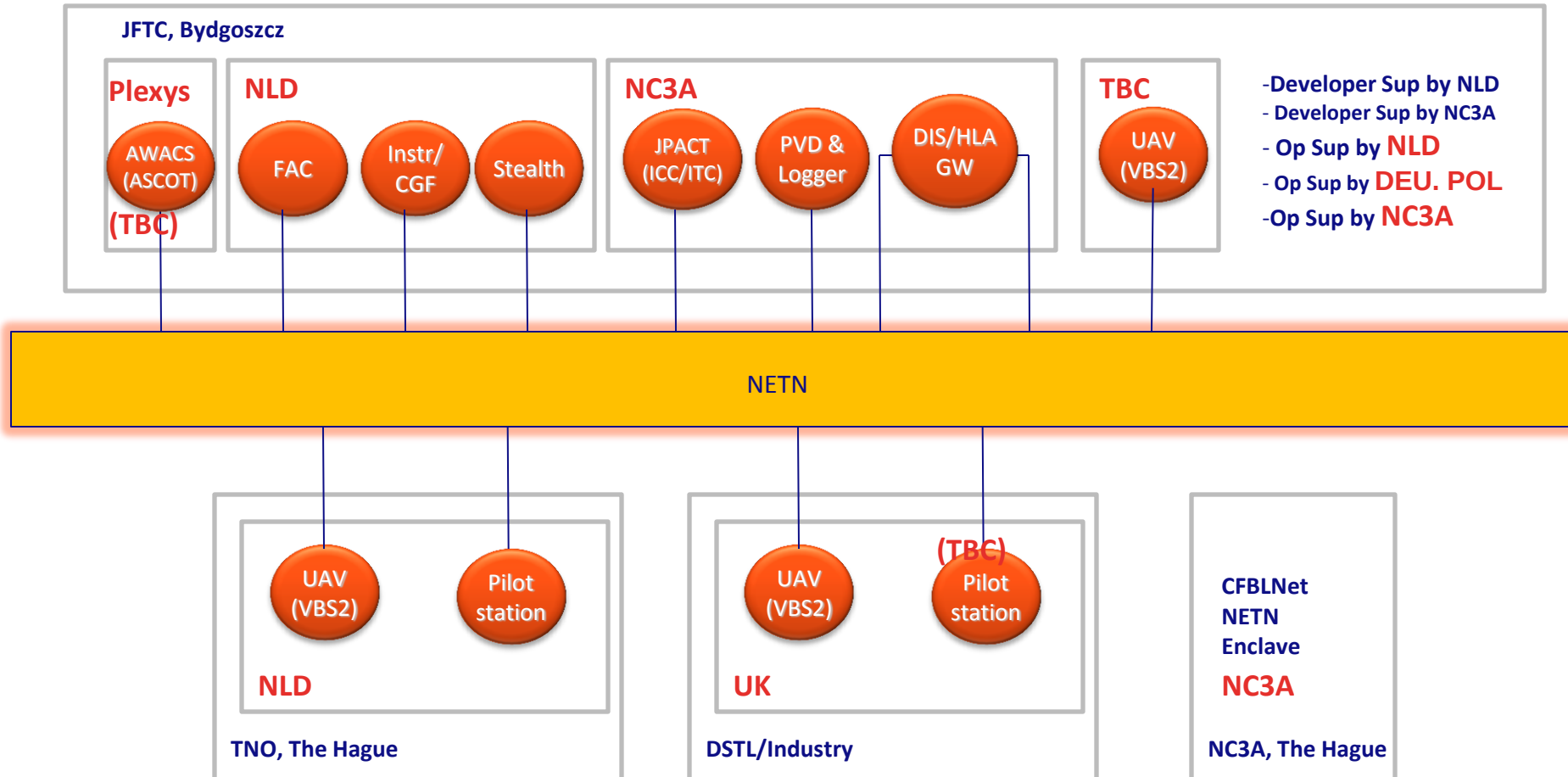


Back Up

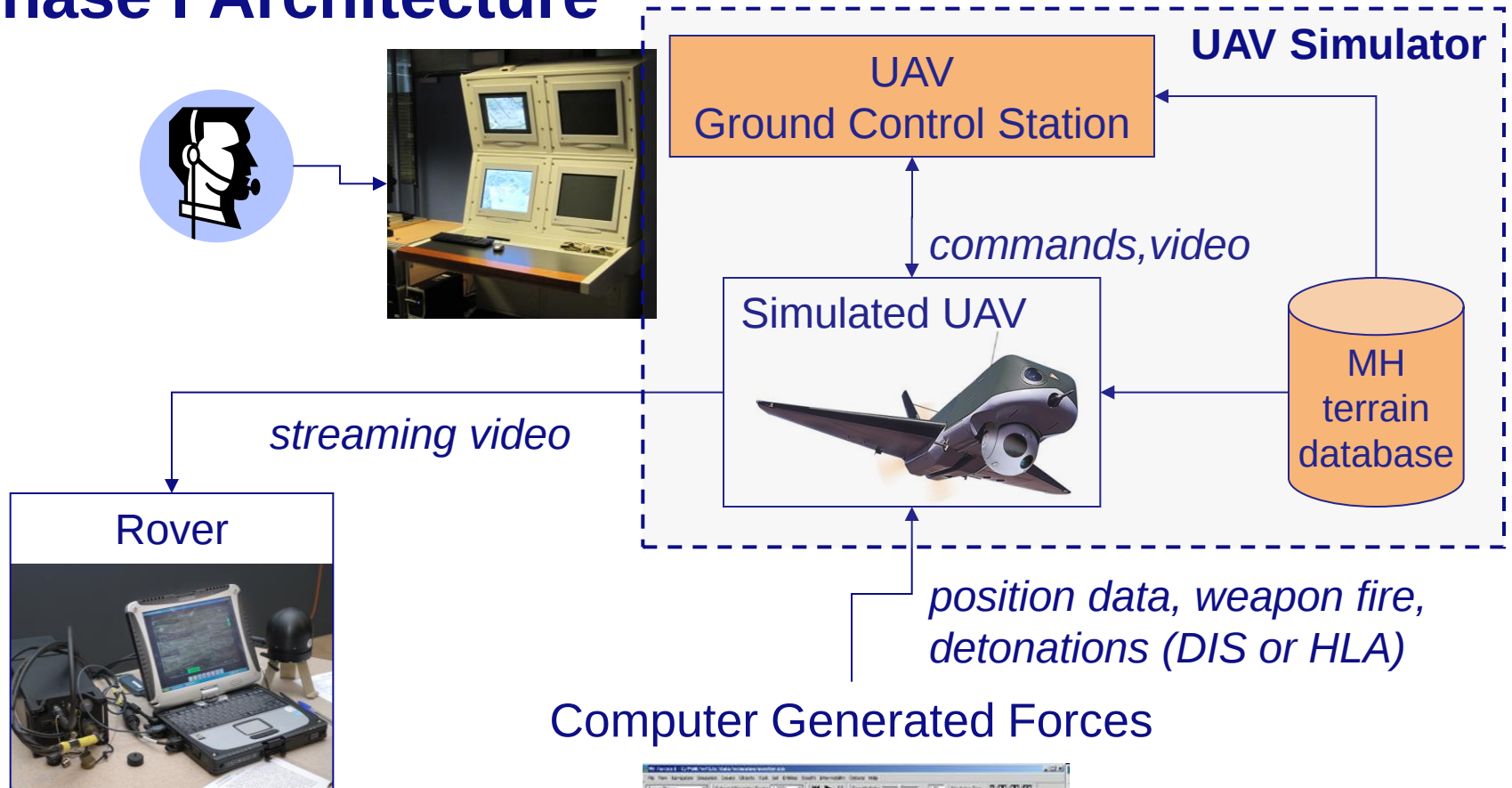


NLVC Federation and Locations in the Experiment

4 Nov 2010



Phase I Architecture



Computer Generated Forces

