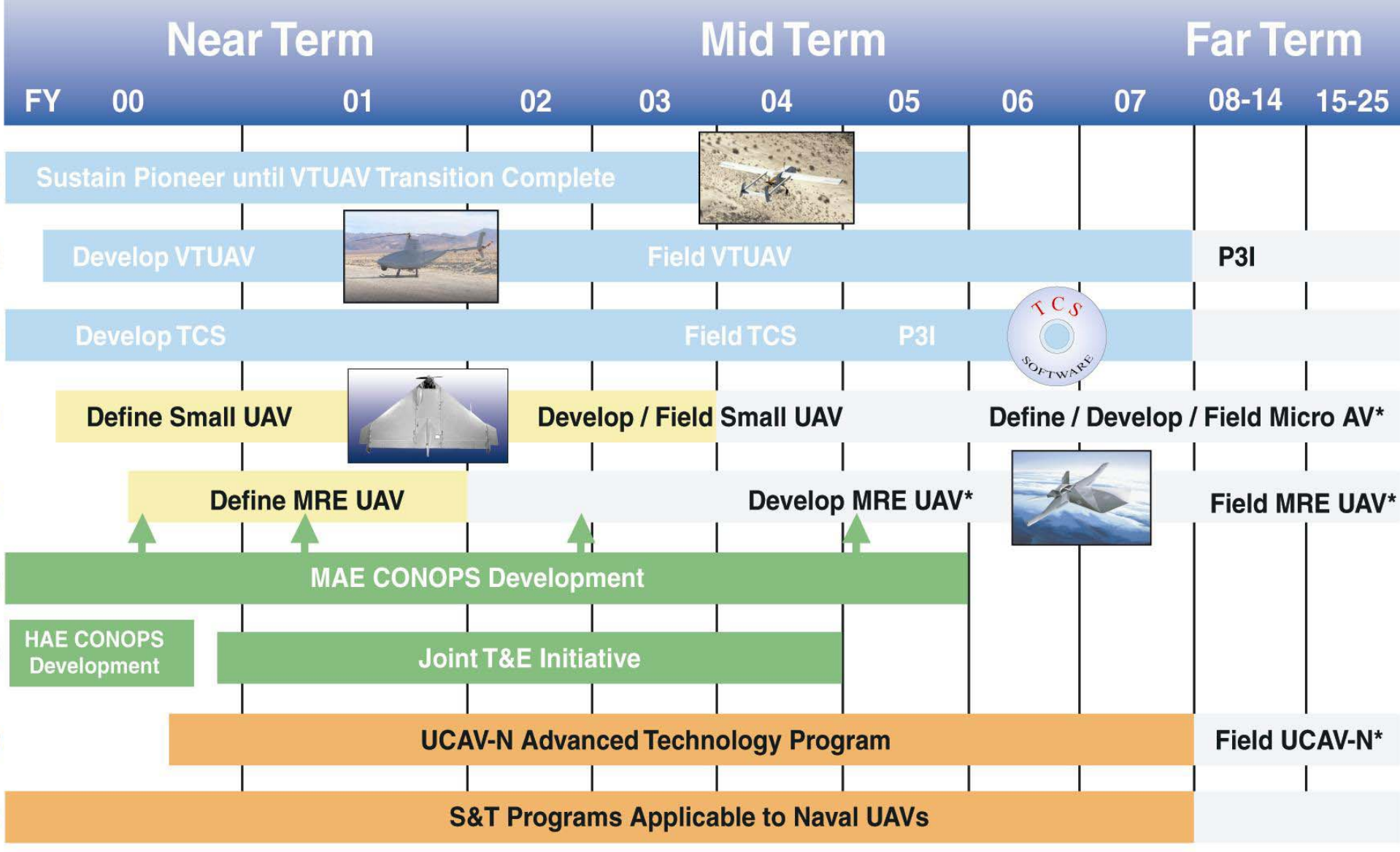
Background

NAVAL UAV ROADMAP

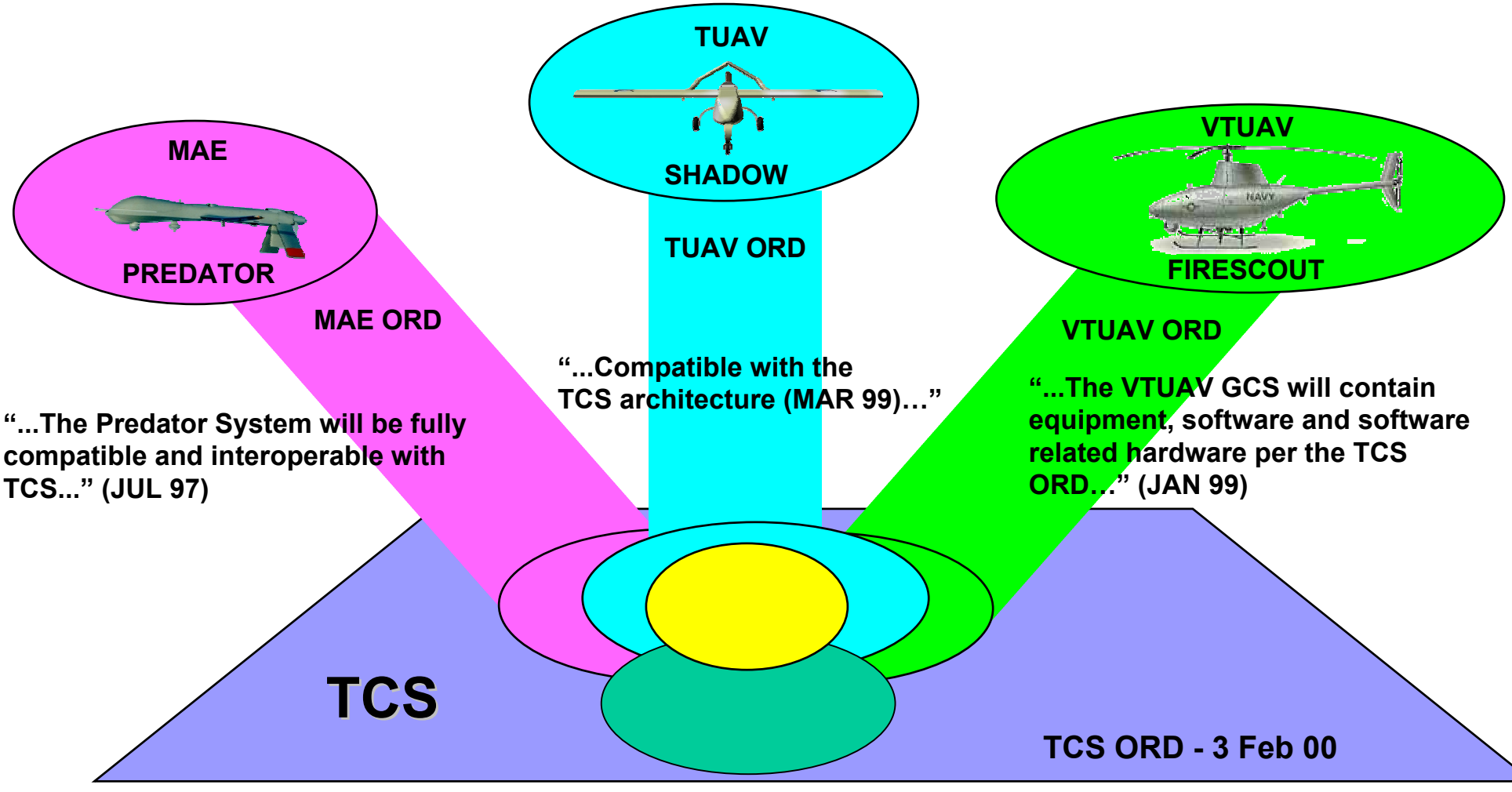


Fielded and E&MD Programs | Requirements Definition | CONOPS Development | S&T Effort | Planned

Colors Designate FY00 Status

* If Determined to be a Naval requirement

JOINT & SERVICE SPECIFIC REQUIREMENTS



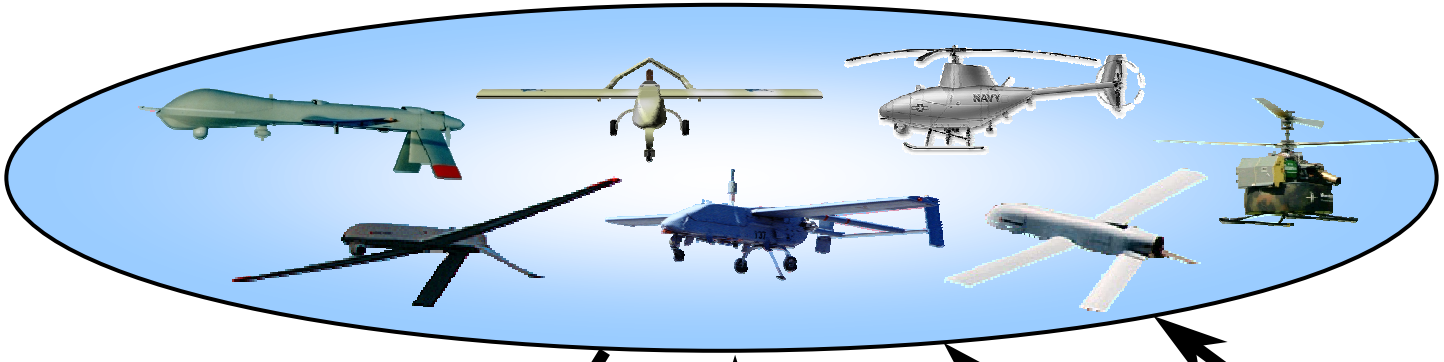
FUTURE OPTIONS

HAE

UCAV

SMALL UAV

TCS ORD DEFINED LEVELS OF UAV COMMAND & CONTROL



LEVEL I

- Secondary Product

LEVEL II

- Direct Data receipt

LEVEL III

- Payload Control
- Direct Data Receipt

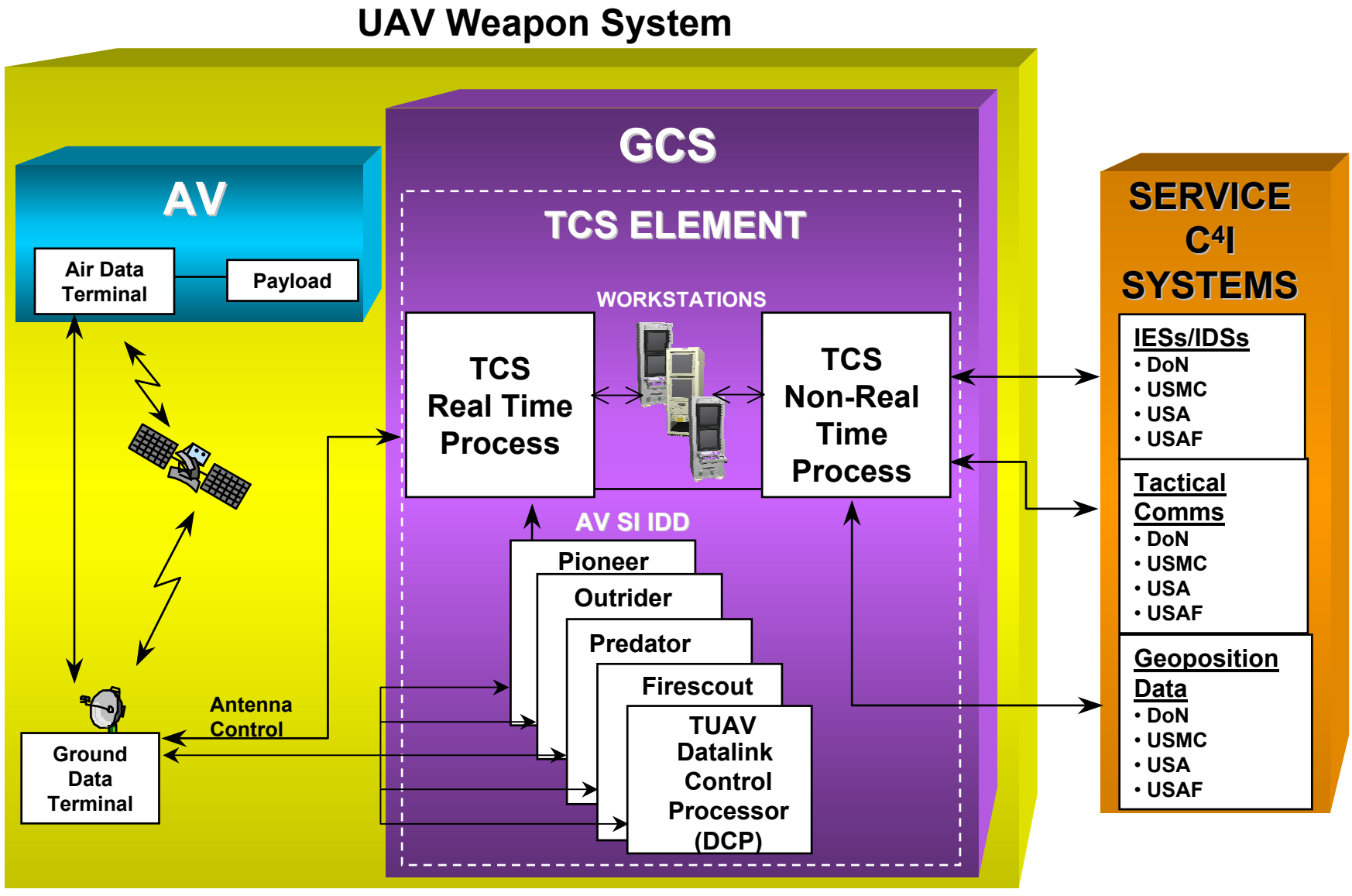
LEVEL IV

- Flight Control
- Payload Control
- Direct Data Receipt

LEVEL V

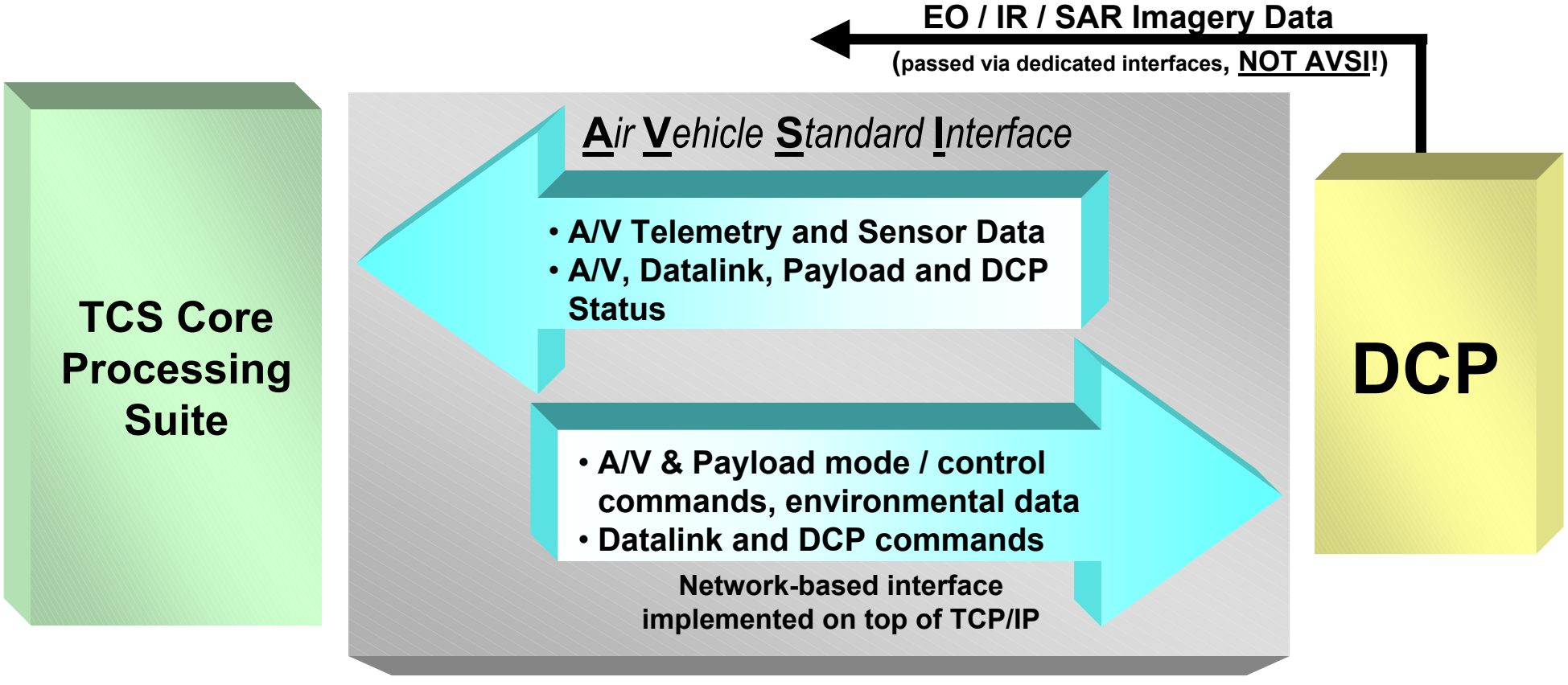
- Launch & Recovery
- Flight Control
- Payload Control
- Direct Data Receipt

TCS FUNCTIONAL ARCHITECTURE



WHAT IS THE AIR VEHICLE STANDARD INTERFACE?

AVSI provides a common interface message standard for the TCS Core to communicate with A/Vs via the DCPS



AREAS OF MUTUAL COOPERATION

TUAV lead

- Army C^4I systems
- GCS hardware design

TCS/VTUAV lead

- TCDL
- Data link encryption
- JTA compliance-full digital video
- Multiple A/V operation
- Plug-n-play payloads

TCS AND VTUAV

Near term objective

VTUAV

Long term option

EDU ALLOCATION

EDU 1

TRAINING/HCI
Ship based configuration
NAWCAD Patuxent River
EB 6, Lab asset 1st Qtr 01

EDU 2

US JOINT FORCES COMMAND
HMMWV based 788 shelter
JOTBS BOVI
Ft. Huachuca, USJFCOM (Predator) 1st Qtr 01

EDU 3

BLOCK 1 (TUAV) ASSET
HMMWV based 788 shelter
US Army Shadow TUAV Block 1
Delivered in plant JUL 01
Fly Shadow OCT 01
Raytheon

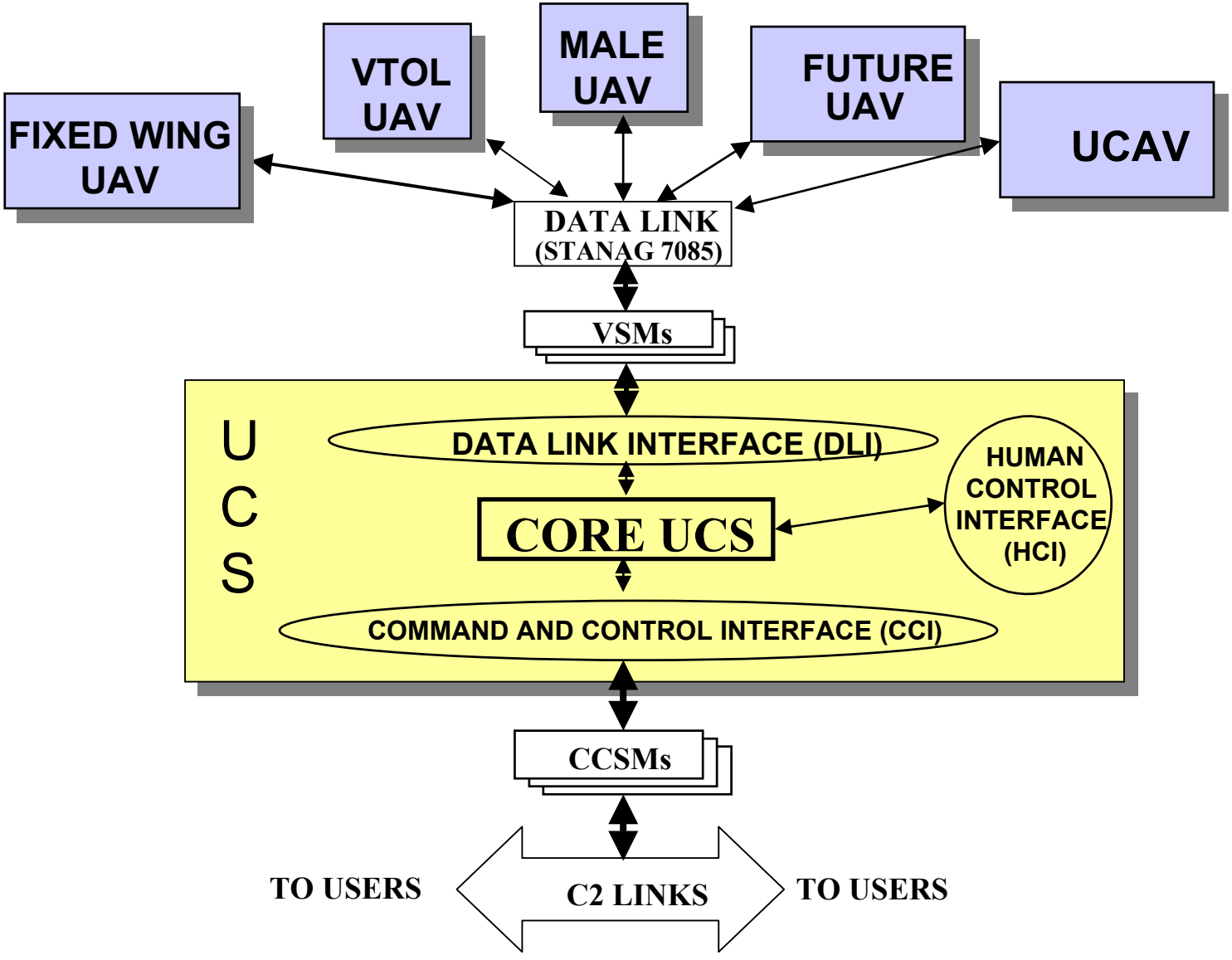
EDU 4

BLOCK 2 (VTUAV) ASSET
Purple asset- Multiple Air Vehicles/Multiple C^4I
S280 shelter
TCS asset OCT 02
Raytheon

NATO APPROACH

- NATO industry/government team
- Working for UAV control system (UCS) architecture
- STANAG 4586 will be a NATO standard
- Allow individual national development for interoperable UAV systems
- NATO funded

NATO STANAG 4586



STANAG ADHERANCE

STANAG 4586
National Applications

CANADA

3 TCS

–MAE
–JOINT TACTICAL

UNITED KINGDOM

3 TCS

–WATCHKEEPER
–NAVY UAV

UNITED STATES

4 TCS (EDU)

Additional TCS

–AF PREDATOR
–ARMY SHADOW
–NAVY VTUAV

NETHERLANDS

–NAVY UAV
–Army UAV

FRANCE

–LEVEL 2 NATO
–LEVEL 4 4586
OTHERS

GERMANY

–MBCS
–KZO
–CL289
–SEAMOS
–LUNA

ITALY

–MAE
–NAVY VTUAV

TCS CONTROL STATION REQUIREMENT

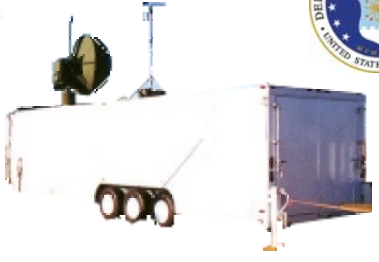
11 VTUAV SYSTEMS
22 GCSs (LAND BASED)
LEVEL V VTUAV
LEVEL IV MAE

12 VTUAV SYSTEMS
4 GCSs (LAND BASED)
12 SCSs (LHA/LHD)
8 SCSs (DDG)
11 SCSs (CV/CVN)
108 GCSs for other ships

JOINT WARFIGHTERS GCSs/SCSs

44 TUAV SYSTEMS
88 GCSs
44 PGCSs
176 RVTs
LEVEL V VTUAV
LEVEL IV MAE

12 MAE SYSTEMS
12 GCSs
LEVEL II MAE



TCS SUMMARY

- On track to meet ORD requirements
- Next event of note: JOTBS (EDU 2) flight test at Ft. Huachuca in FEB 01, Level 5 Predator
- TCS ready to respond to future requirements
- Implementation paths identified for VTUAV, TUAV and MAE
- TCS is the ongoing program to ensure UAV interoperability on the battlefield