

**Open architecture
The solution for coalition operations?**



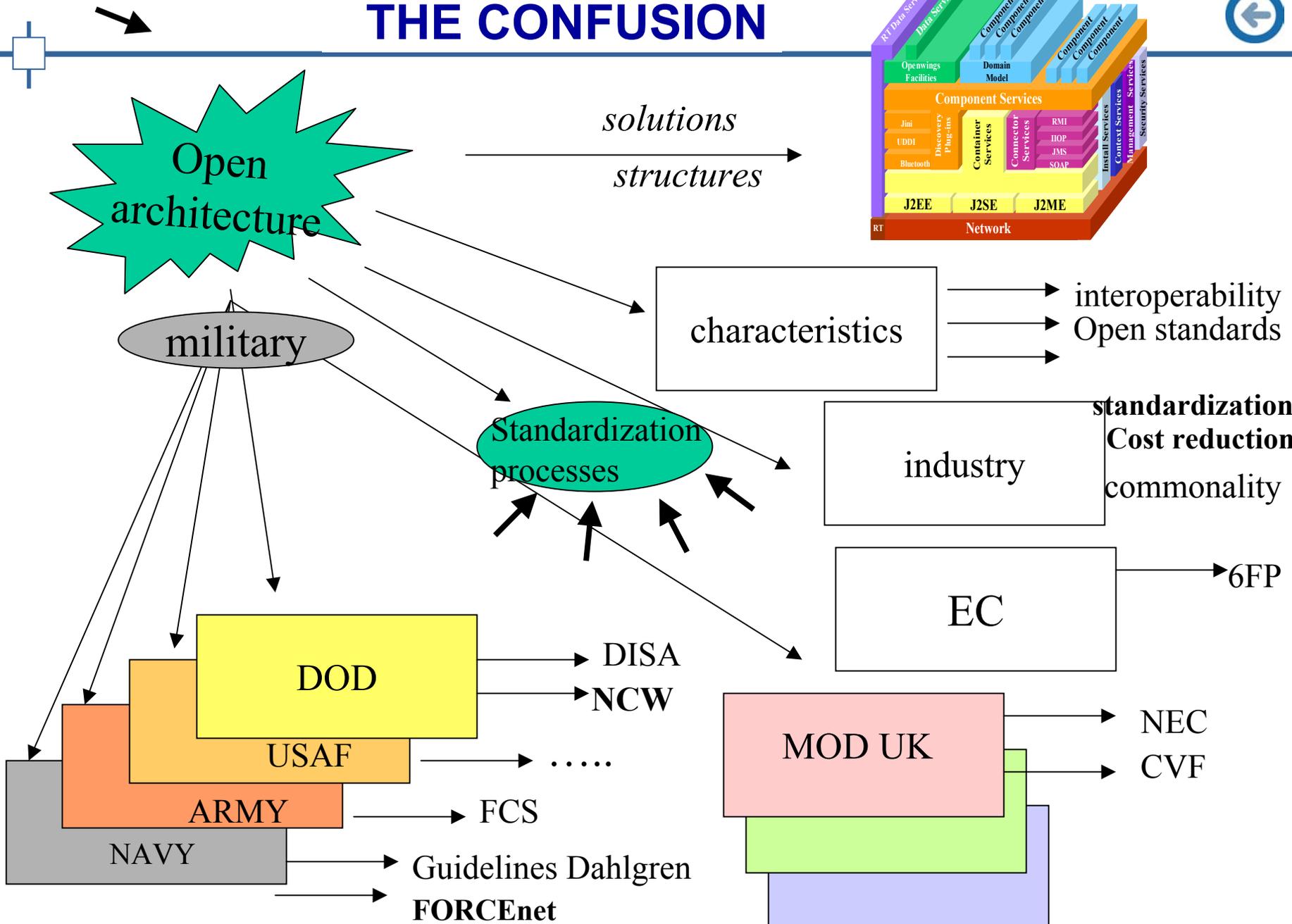
D.Arnold

Navy-Industry R&D partnership conference

August 4, 2003

- The confusion
- What is open architecture?
- Rationale
- Open architecture as strategy
- Strong need for open architecture
- European cluster
- Conclusions

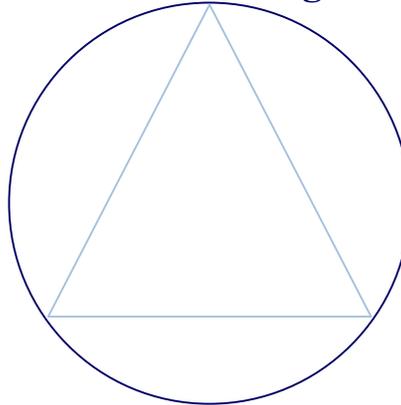
THE CONFUSION





Open Architecture

- Full Cots Technology
- Real Time Open Middleware
- Choice Of Assets (Provider, Time Of Procurement)
- Customer Plug-able



Construction Methodology

- Assets Based
- Capability Construction
From Assets
- Secure System Properties
- Ontology Centric
- User Centric

Non Functional Properties

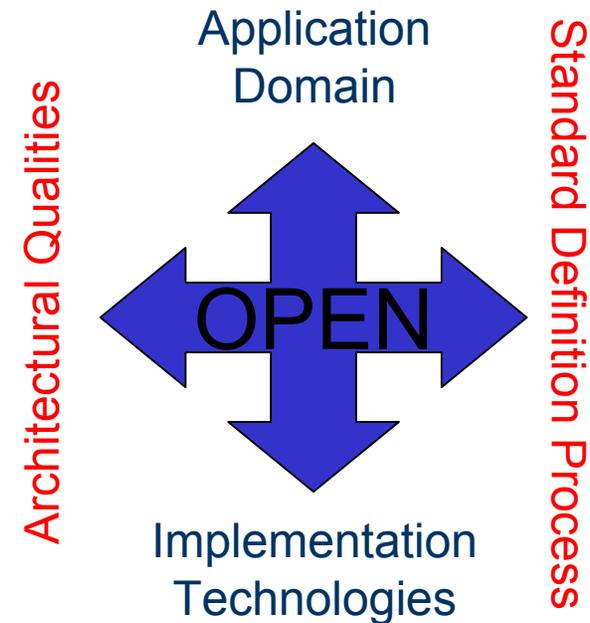
- Real Time
- Security
- Interoperability
- Segmentation
- Usability

WHAT DOES « OPEN ARCHITECTURE » MEAN ?



“Open” Means at least

- Open
 - Available information !
 - Architectural qualities of the design, open to integration, evolution, portability, functional variability ...
- Standard
 - Accepted by the the various actors in the field
 - Public and open definition process

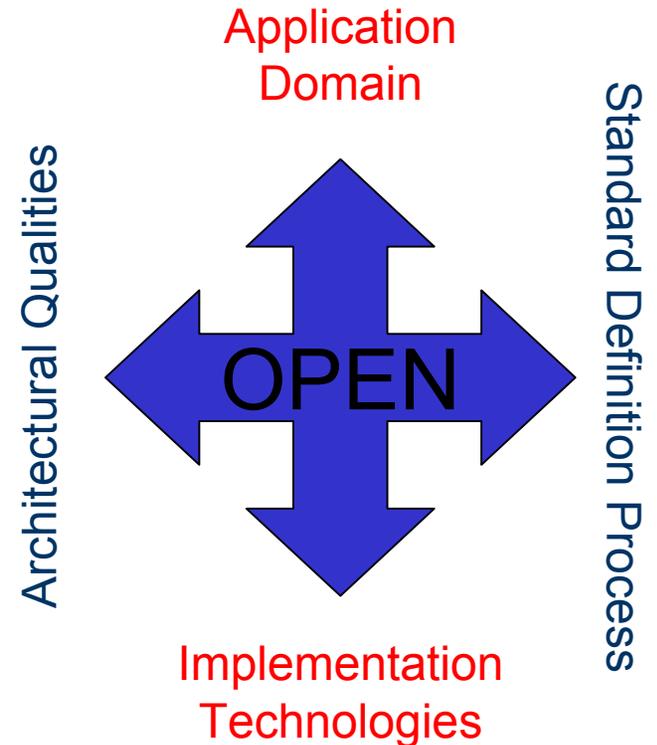


WHAT DOES « OPEN ARCHITECTURE » MEAN ?



“Open” Means at least:

- Free
 - Open to several possible implementations, some of them ... open source
 - Free market for products and support





Client Viewpoint

- Avoid contractor locking on specific technologies (proprietary SW)
- Make updates more cost effective
- Allow integration of modules coming from different contractors
- Allow independent support and evolution of their systems
- Allow better competition

Industrial Viewpoint

- Help focussing on the company added-value
- Create new opportunities



Industrial Viewpoint (continued)

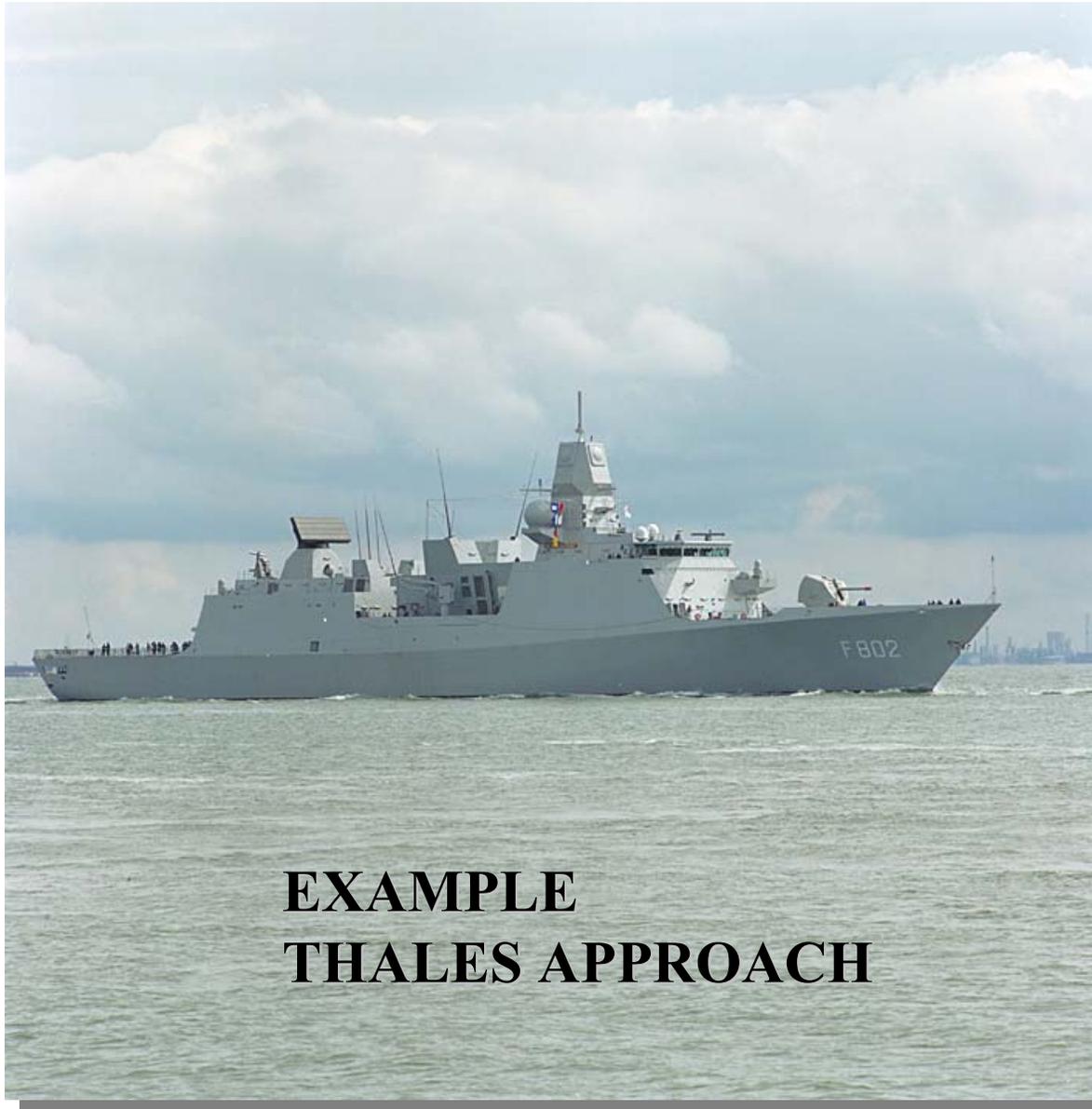
- Enable more effective partnership with other companies (better design, allocation of work and integration)
- Allow the use of COTS and third party products with a better controlled risk of obsolescence

IT Market Viewpoint

- Help focussing market strategies and fundings (R&T)
- Get wider and more stable market

EC (6th framework program)

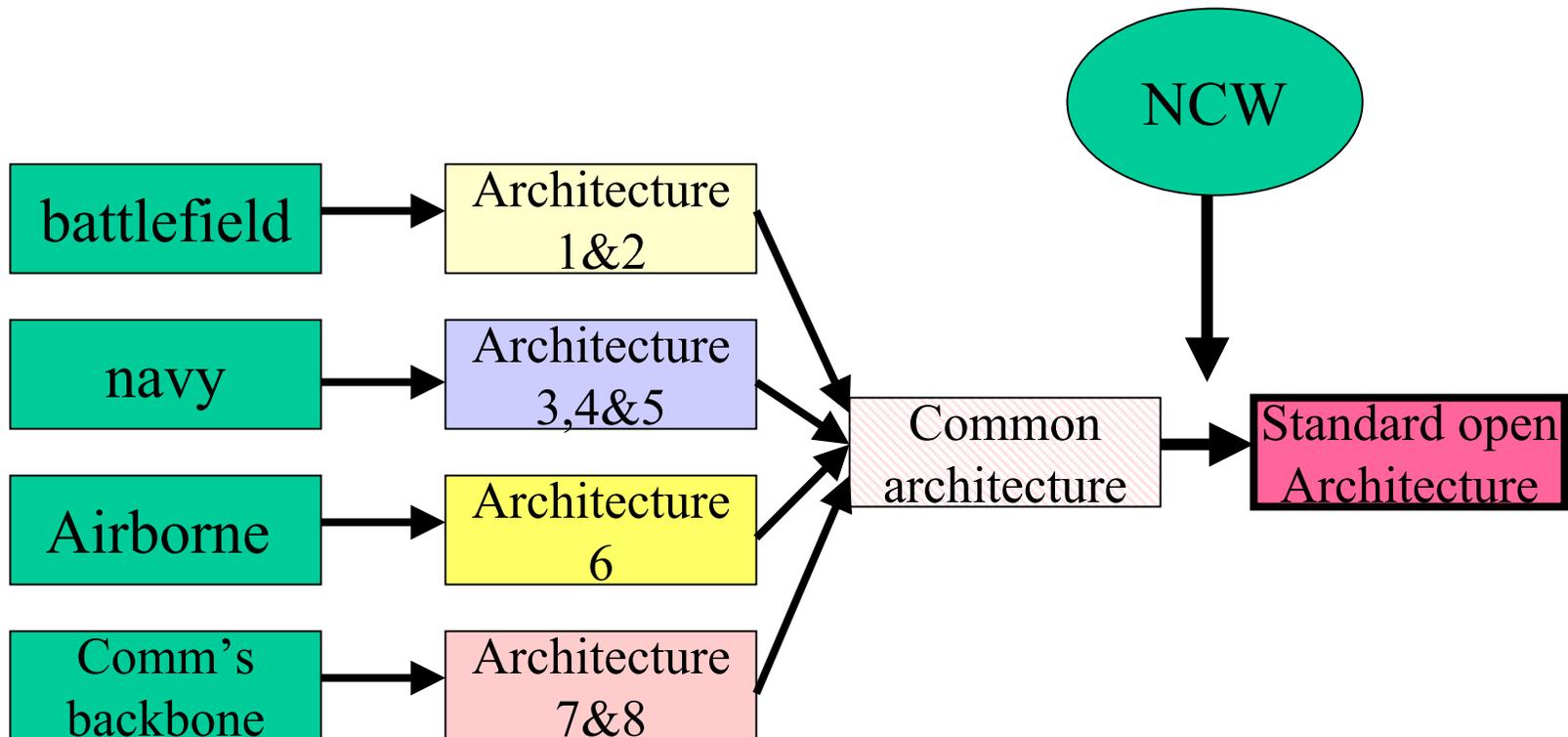
- provide funding for “advanced architectures” that enable reconfiguration at all layers
- develop technology for interoperability (autonomous, self adaptive, self configurable, scalable,.....)

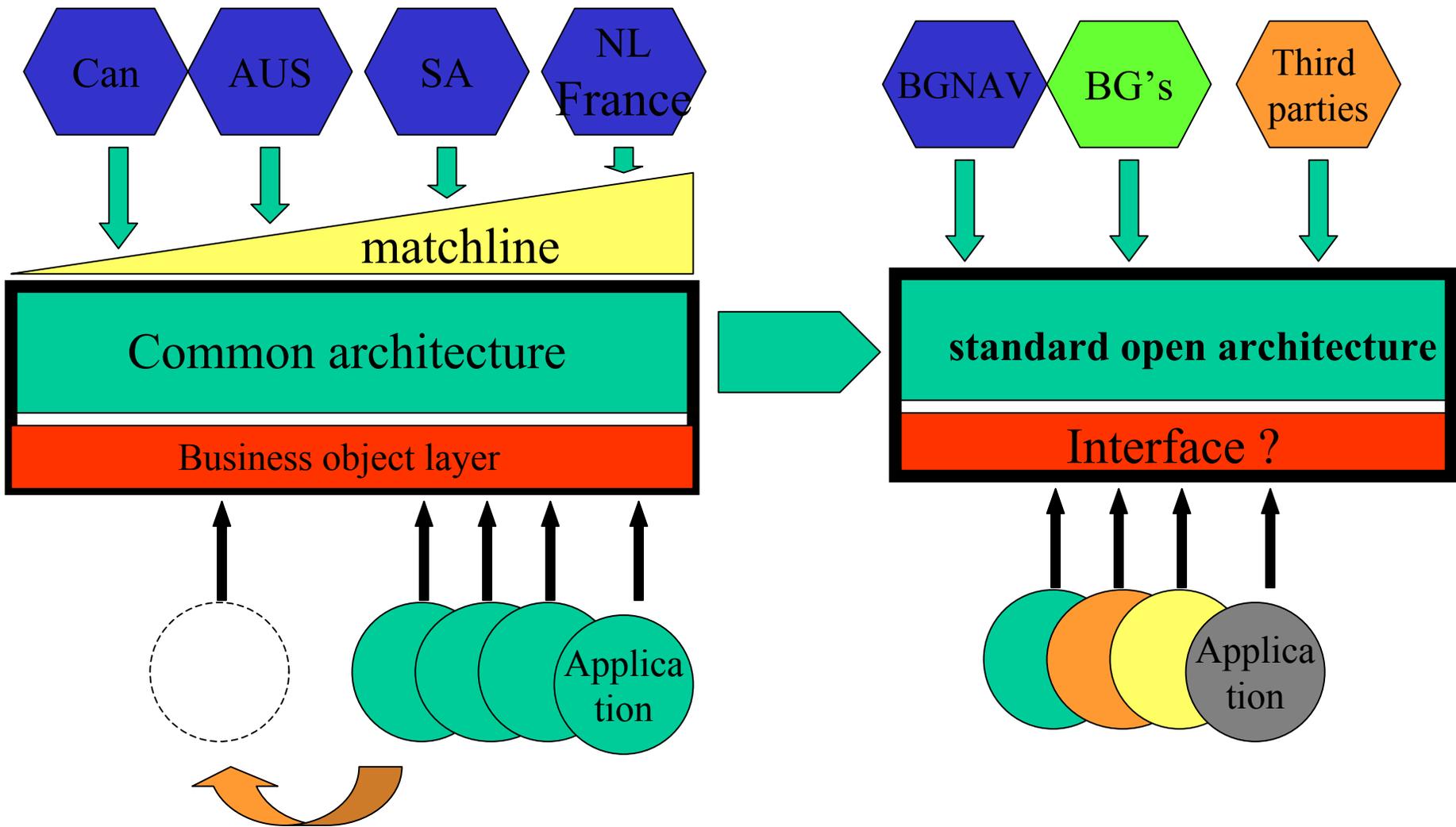


**EXAMPLE
THALES APPROACH**



(Open) architecture now very much determined by program sub-optimized for customer and application

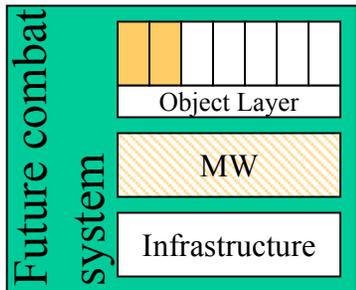
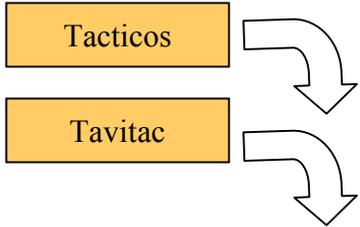




Reuse other type of systems

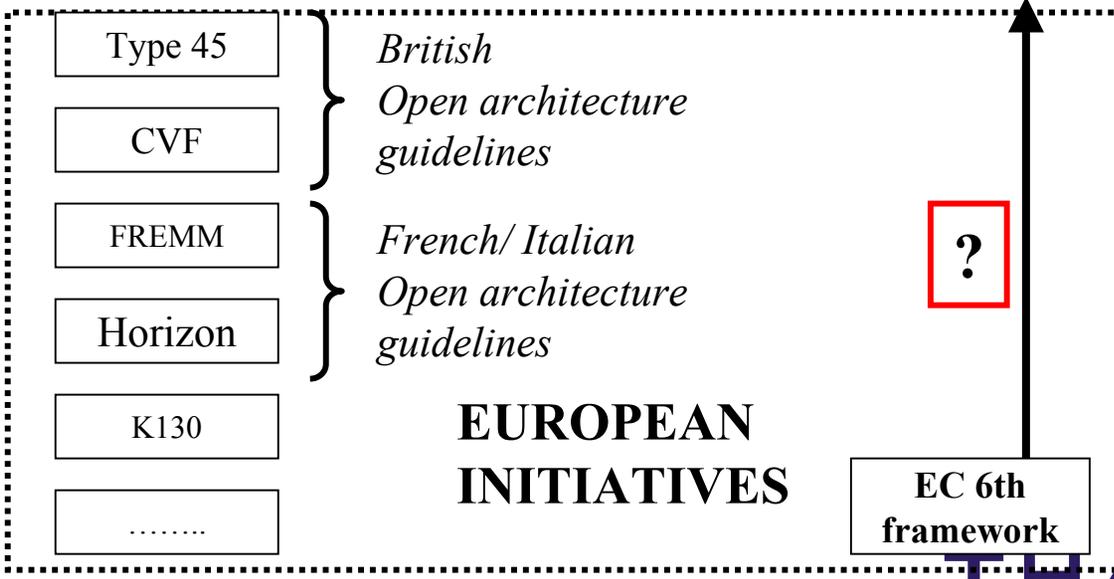
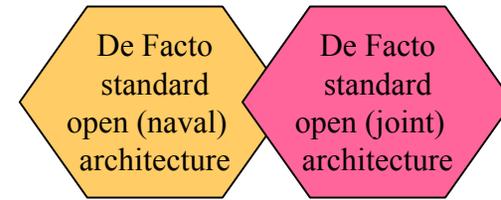
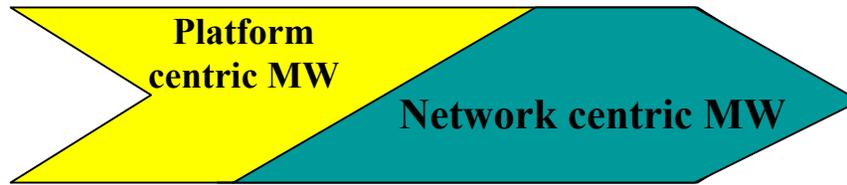
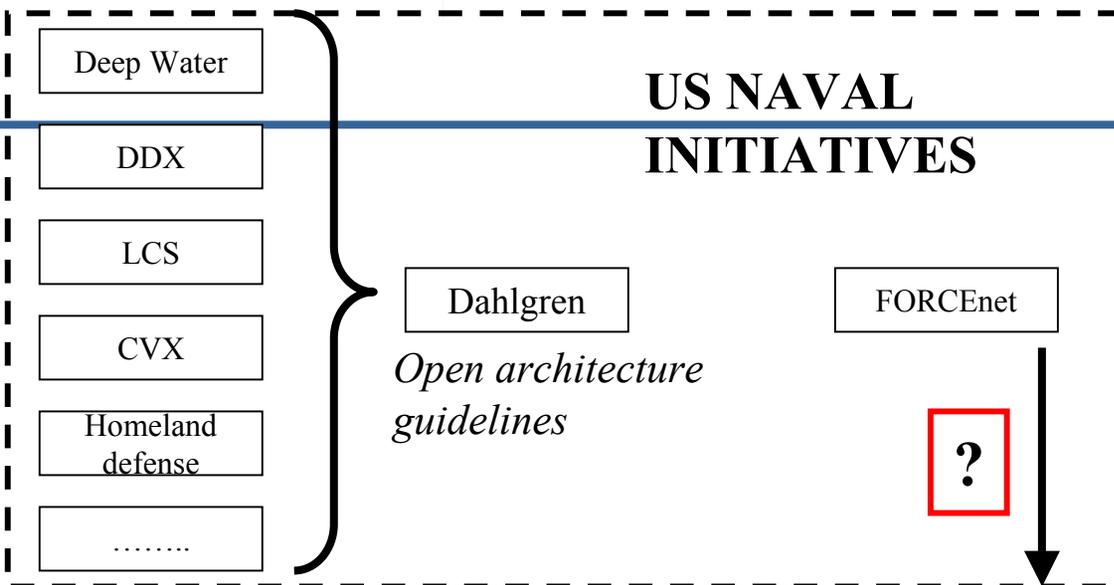


Thales integration naval systems



Common architecture

- TNN (NL/GE)
- TNF
- AUS
- CAN
- S-KOR
- S-AFR
- UK



EC 6th framework

- ✦ Open Architecture is not a technical problem
- ✦ Operational problem (process and organization)
- ✦ **Political problem**
- ✦ **Too many initiatives**
 - ✦ FCS, FORCEnet, NEC (UK, NATO,..), NBD,....
 - ✦ 6th framework EC,...
- ✦ **Too many approaches**
 - ✦ national
 - ✦ bilateral
 - ✦ European
 - ✦ industrial





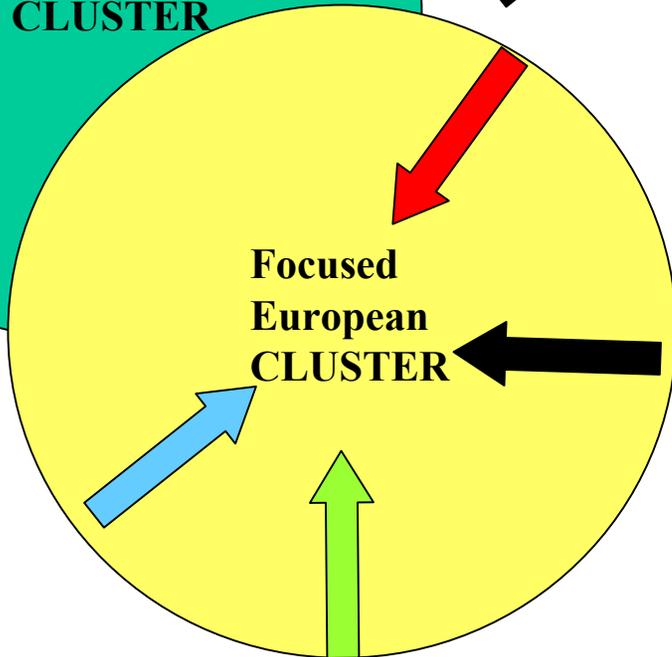
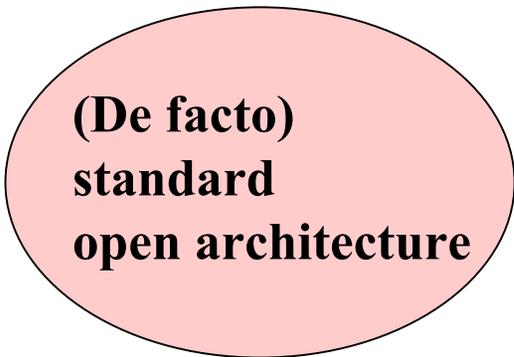
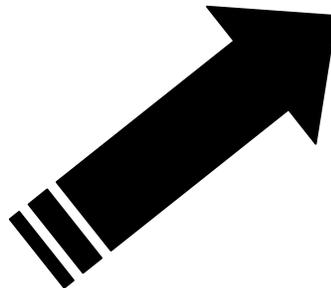
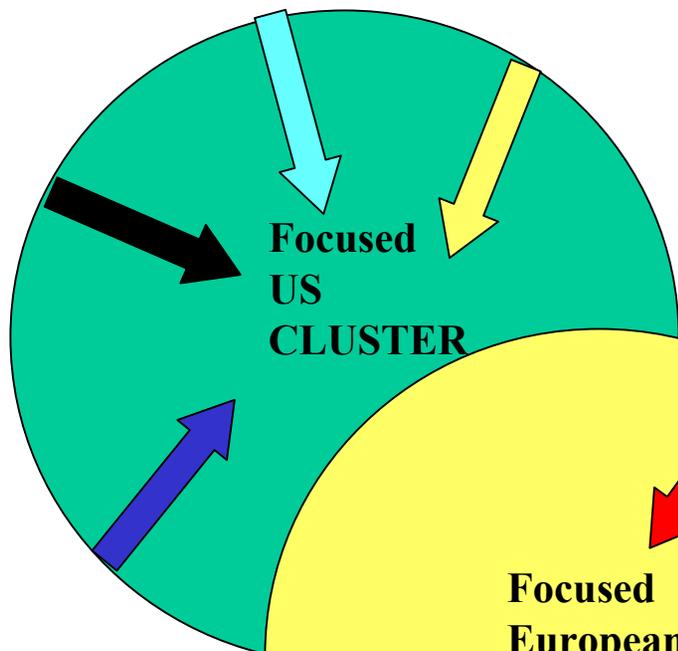
- Diversity of different uncontrolled initiatives
- Different approaches for standardization process
- There will be a standard
- US “centric” approach for standardization
- Open architecture discussions not in line with definition.
- Hampered by:
 - TAA
 - ITAR difficult to talk scenario’s,
 - IP regulations over the Atlantic
- European participation required



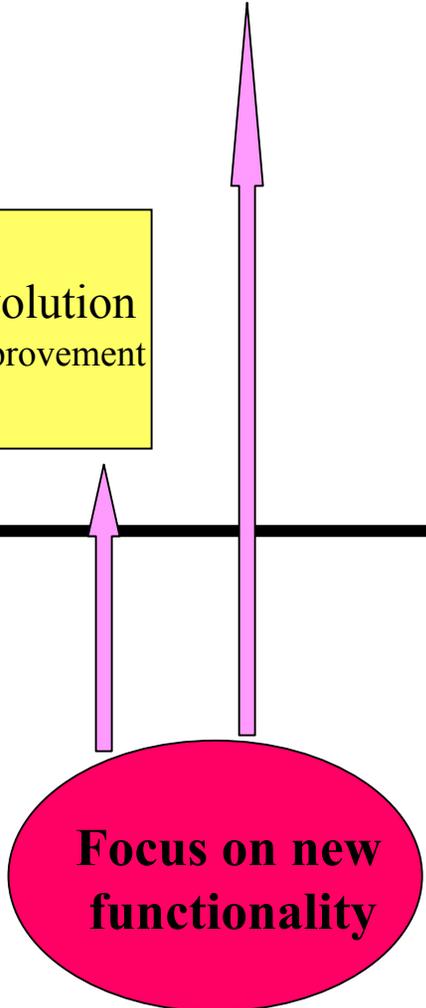
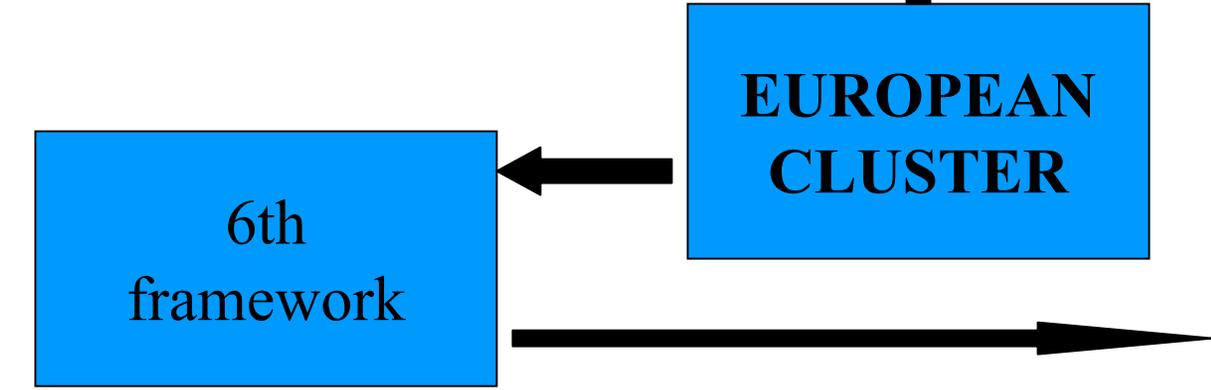
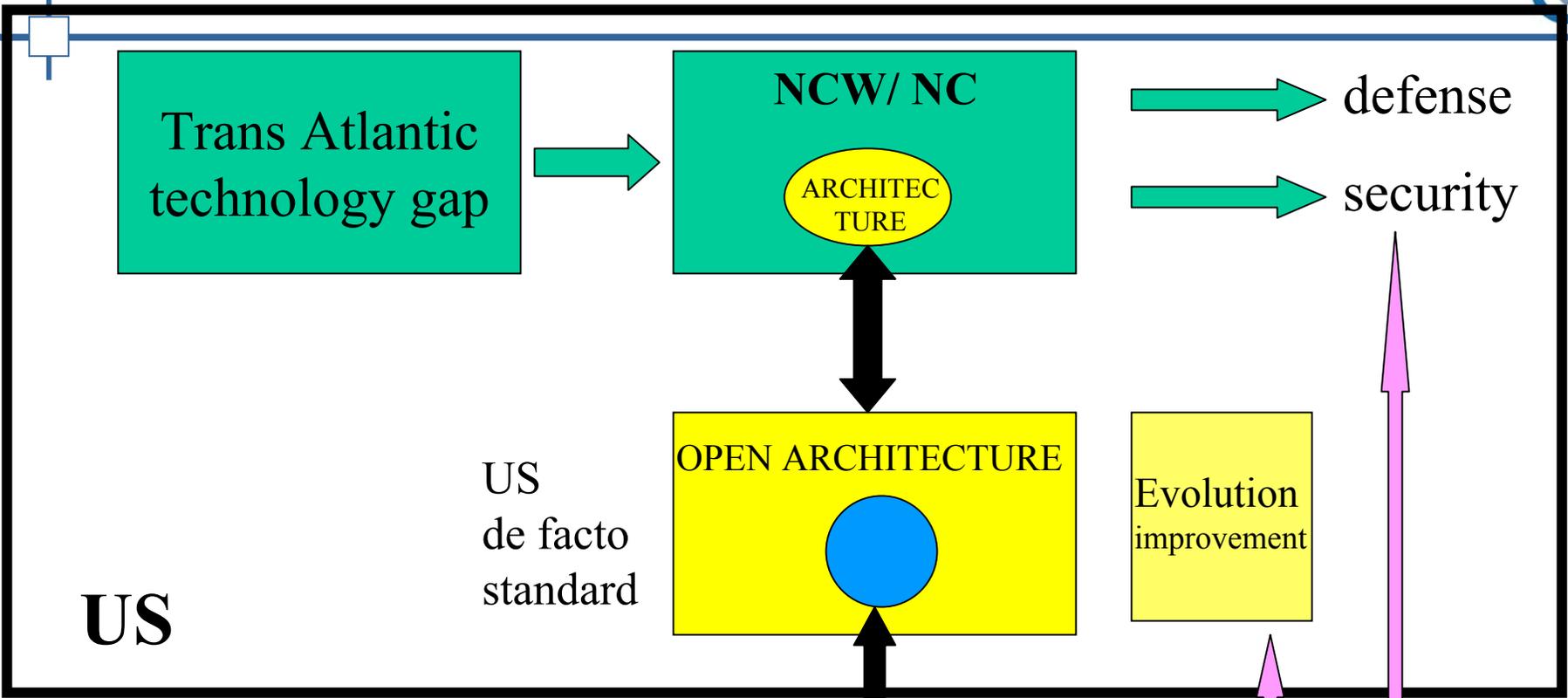
FOCUS initiatives for

(De Facto) standard of open architecture for COALITION partners

Organize focus for US



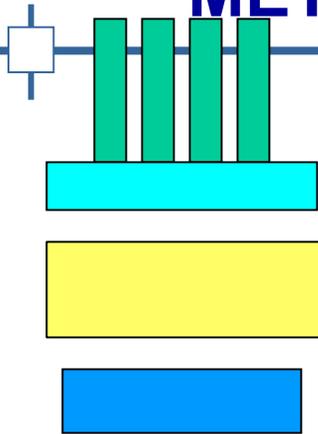
Organize focus for Europe





- Partner selection (on going)
- Analyses of:
 - features
 - services
 - emerging SoS services
 - domain specific add on's
 - needs for NC battlespace
- Based on SOSE (Shipborn Open Systems Environment) approach.

METHOD OF WORKING EUROPEAN CLUSTER



Analyses
(SOSE)

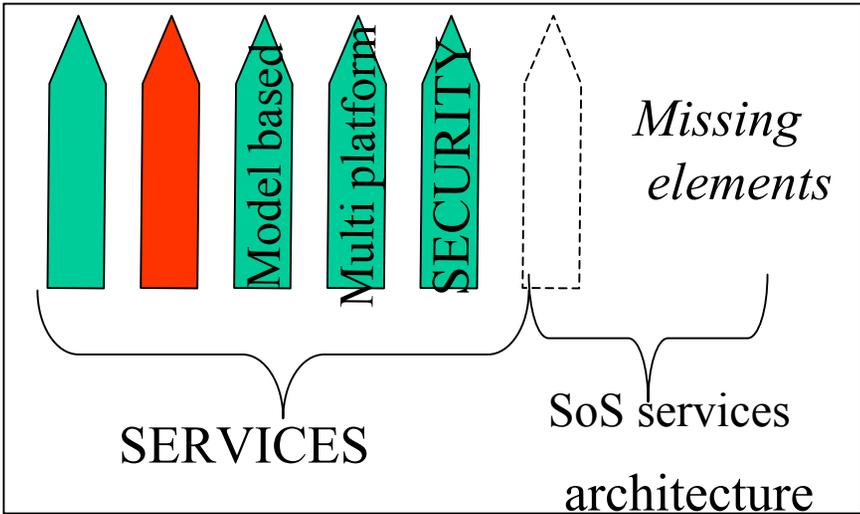
US solutions
standardization

Collaboration
participation



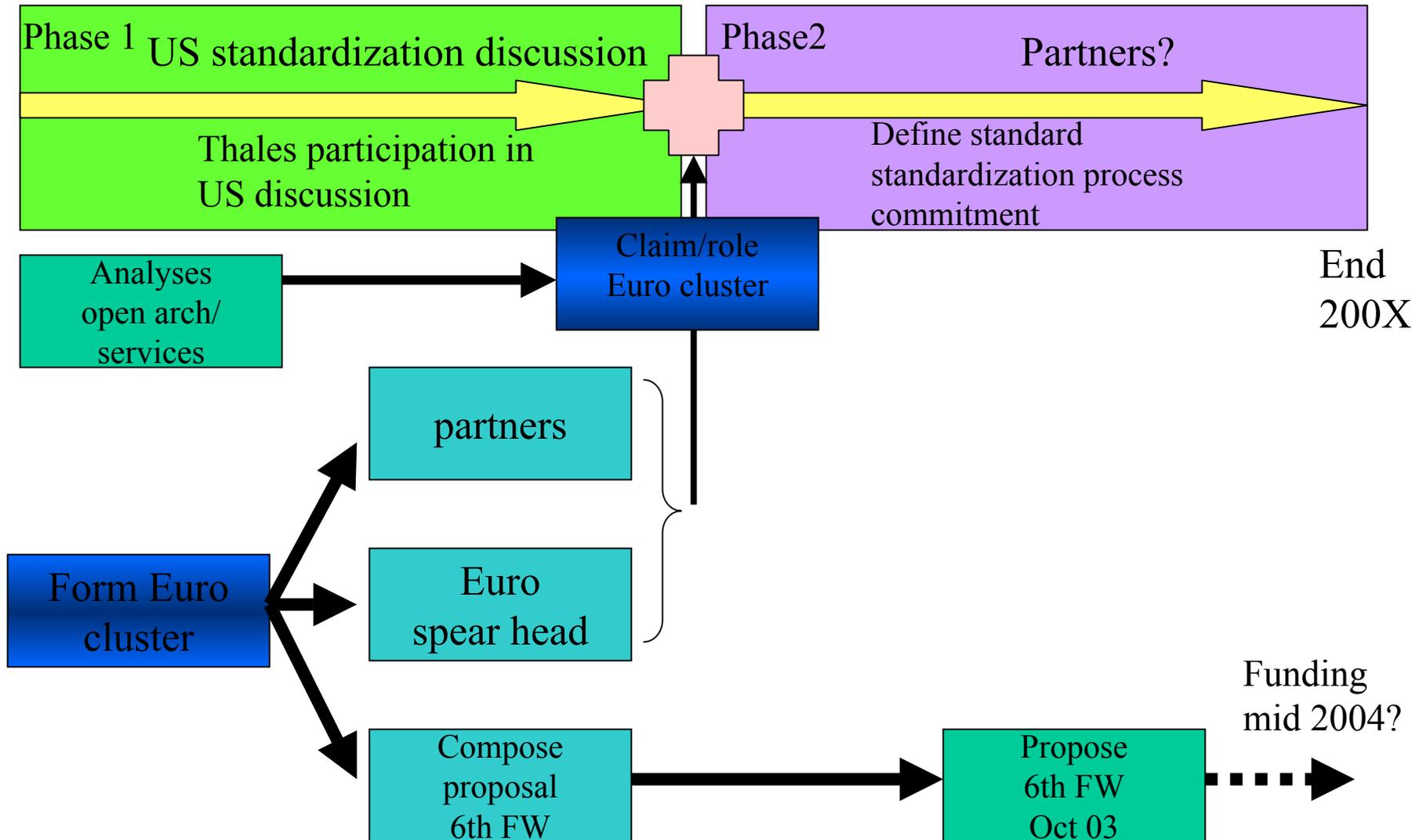
European
selection

European
programs



- Features
- services
- emerging SoS services
- domain specific add on's
- needs for NC

THALES PREFERRED ROADMAP





- Open architecture is a political problem.
- Need for open standards (COTS)
- Open architecture discussion should be transatlantic.
- More required for interoperability (information model: ontology, semantics,..)
- NATO could play roll in standardization of information model
- Open architecture rules should be employed
 - Global participation: free and open
 - ITAR problems should be solved



When will interoperability Coalition Forces realized?



Ever ?