



# DoD Unified Profile for DoDAF & MoDAF (UPDM) DoD Enterprise Architecture Conference 2009 UPDM Status in the OMG 04 June 2009

Walt Okon  
Senior Architect Engineer for Standards  
Senior Architect Engineer for Information Sharing  
Enterprise Architecture and Standards Directorate  
DoD Chief Information Officer  
(703) 607- 0502 • [walt.okon@osd.mil](mailto:walt.okon@osd.mil)

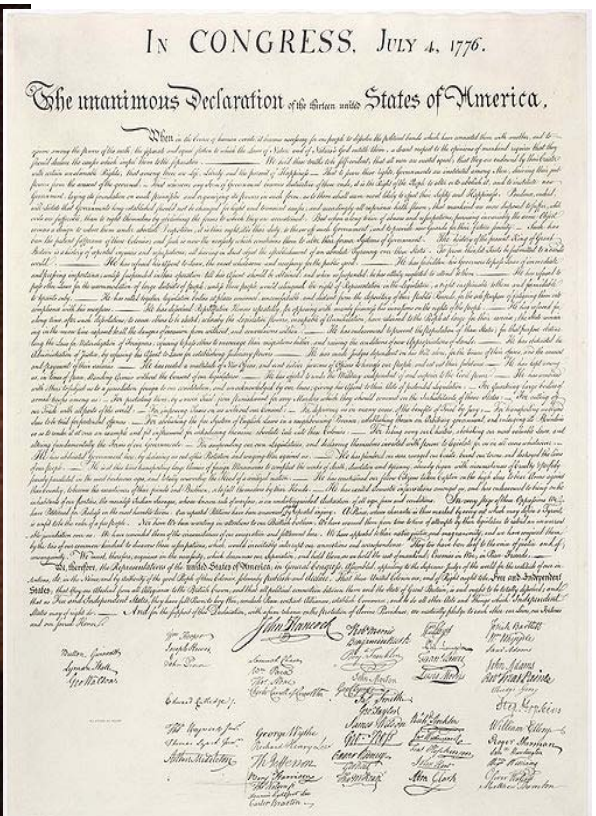
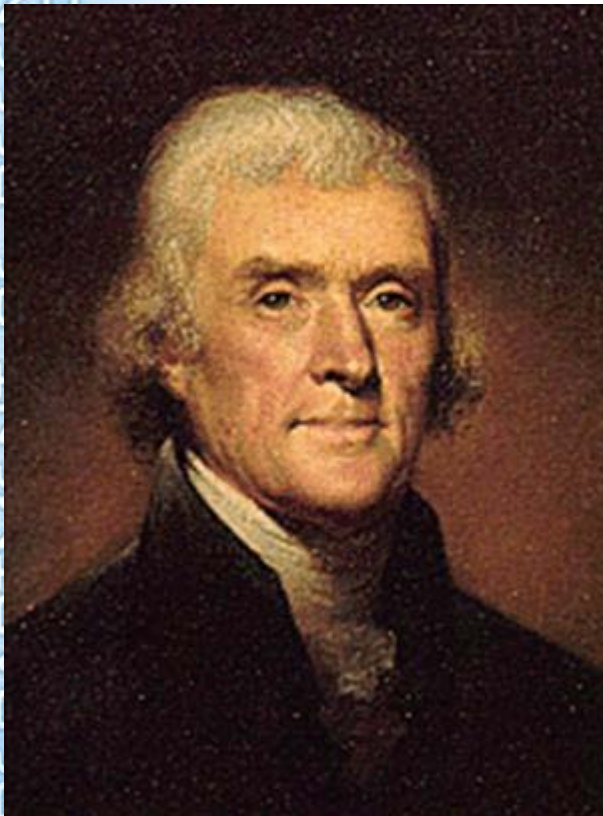
Matthew Hause  
Co-Chair UPDM Group at OMG  
(Object Management Group)  
Member of INCOSE  
Principal Consultant Artisan Software Tools  
[Matthew.Hause@ArtisanSoftwareTools.com](mailto:Matthew.Hause@ArtisanSoftwareTools.com)  
(917) 514 7581

Creating an Information Advantage

# UPDM - Unified Profile for DoDAF/MODAF

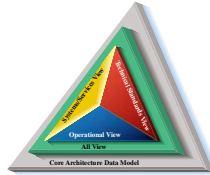


## Unalienable Rights: Life, Liberty and pursuit of Happiness





# Defense-Industry Challenge: Synchronization of DoDAF-UPDM Lifecycles

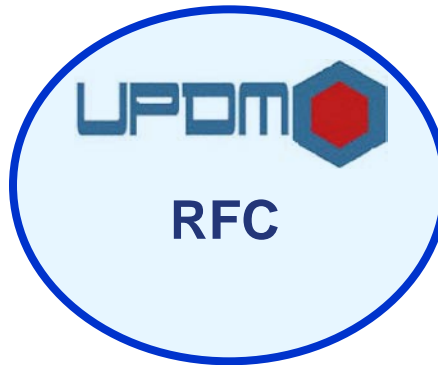


## 1. Governments Produce Baselines

Develop, Evolve & Harmonize Defense Enterprise Architecture Frameworks For Acquisition

## 2. Industry Produces

Develops Generic Modeling & Engineering Standards



Leverages Vendors Standards-Based Tools & Government Frameworks

## 3. Vendors Produce Product Versions

Defense Domain Tools "Just-In-Time"



**DoDAF v2.0**



# DoD at OMG

**DoD and MOD Recommended the C4i TF to vote and recommend formal Issuance of the UPDM Request For Comment (RFC):**

- Critical Role for Enterprise Architecture**
- Time is now for Baseline Requirements**
- Sound Methodology - UPDM RFC**
- DoD long standing policy on standards**
- Strong Inter-Governmental Support**



# Critical Role of UPDM Architecture Exchange

- DoD Architecture Framework (DoDAF)
- DoD/MOD needs standards-based specification and standards based tools to bridge the gaps among enterprise architecture policy, guidance, and the engineering of actual hardware, software, and human systems
- UPDM RFC meets DoDAF 1.5 & MoDAF 1.2
  - DoD and MOD Baseline; Signed & Published.

Timing is Right →

Creating an Information Advantage



# Vendor Development

- **Vendors are ready for speedy implementation of UPDM RFC.**



# UPDM Sound Methodology

- **Model Driven Architecture (MDA)**
  - Based on analysis of DoDAF 1.5, MODAF 1.2, and NAF3
- **Supports Exchange & Reuse of architecture models through XML standard**
- **Leverages existing tools based on UML 2 as well as SysML**
- **Future-oriented**
  - Maximization of shared Core Concepts & Elements
  - Convergence between DoDAF & MoDAF
  - Specialization into DoDAF only Elements & MoDAF only
  - Elements bodes well for future flexibility & openness to evolving ideas, international requirements, & continued fulfillment of national needs.
  - Sys ML you have a syml definition for flow down



# DoD and MOD Support for UPDM

- **DoD and MOD Strongly Supports Industry Standardization of UPDM at OMG and Ultimately International Standardization at ISO**
  - 08-12 Dec 08 OMG Adoption in Santa Clara
  - 23-27 Mar 09 OMG Finalization
  - 22-26 Jun 09 OMG Costa Rica
  
- **DoD will**
  - Recommend to move it to Emerging Standard status
  - Upgrade to Mandated Standard
  - Promote internationalization through OMG and ISO
  - Present status at ITSC February 2009





# DoD and MOD Position

- **Joint Statement (18 Sep 08)**
  - **Brian G. Wilczynski, Director, Enterprise Architecture & Standards, Office of the Department of Defense Deputy Chief Information Officer**
  - **John Keefe, United Kingdom Ministry of Defence**
  - **“UK MOD fully endorses and supports the position stated by the US DoD”.**



# Key Meetings

- **UPDM Engineering Development Team**
- **11 June 09 - DARS Users Group Meeting**
- **12 June 09 - UPDM Vendors Engineering Team Meeting**

**MITRE-1 Building #3, Room : IT510**

7525 Colshire Drive

McLean, VA 22102-7539

Reception Desk: (703) 983-6004

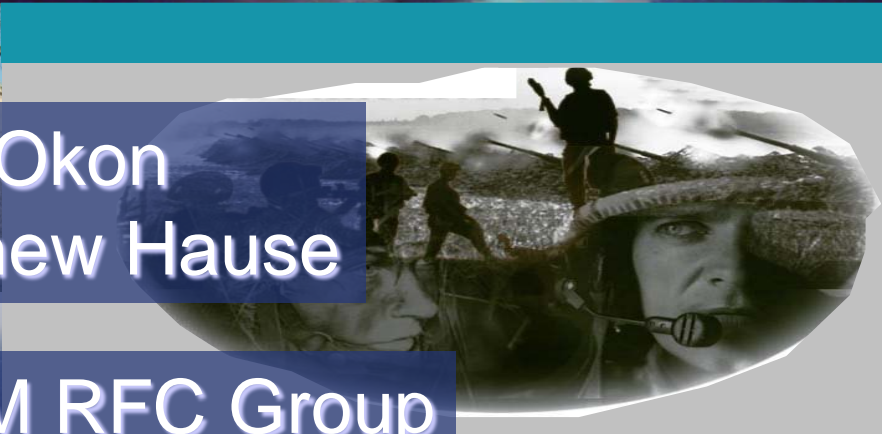
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# UPDM – Unified Profile for DoDAF/MODAF



Walt Okon  
Matthew Hause



UPDM RFC Group



- |                    |               |
|--------------------|---------------|
| Adaptive           | Mitre         |
| Artisan Software   | L3 Comms      |
| ASMG               | MOD           |
| BAE Systems        | NoMagic       |
| DoD                | Raytheon      |
| DND                | Rolls Royce   |
| embeddedPlus       | Sparx Systems |
| Generic            | VisumPoint    |
| IBM                | Selex SI      |
| Lockheed Martin Co | Thales        |
| Mega               | Unisys        |



June, 2009





## Outline

- Why?
  - The need for UPDM.
- When?
  - The history and projected timetable for UPDM.
- Who and Where?
  - Who is in the UPDM RFC Group?
- How?
  - How was the specification created?
- What?
  - What is UPDM in general?
  - A detailed look at a few things.
- Questions and answers?

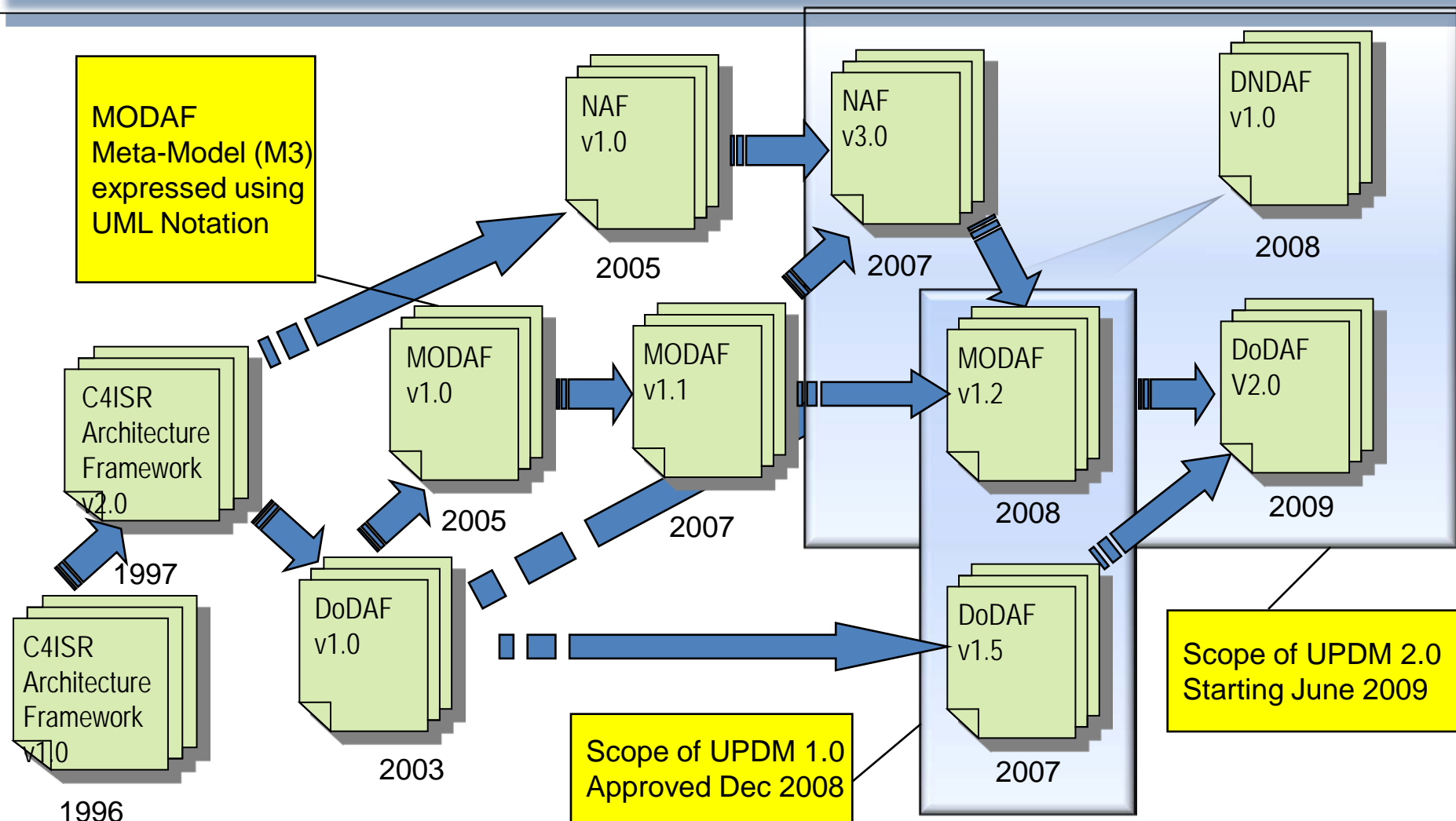


# Why: The need for UPDM.

- Motivation
  - US DoD and UK MOD interested in leveraging commercial standards for their Military Architecture Framework
  - Military Architecture Framework Tool Interoperability
    - Key Goal for DoD, MOD, Enterprise and System Architects and Engineers
  - Formal MetaModel basis for the Military Architecture Framework
    - Critical to Interoperability Objectives
    - Critical to Understanding Profile Requirements
- Proliferation of Military Architectural frameworks
  - DoDAF, MODAF, DNDAF, NAF, AGATE, ADOAF, MDAF, etc.
  - Defence organizations, contractors and tool vendors are hoping to find a way out of the alphabet soup.

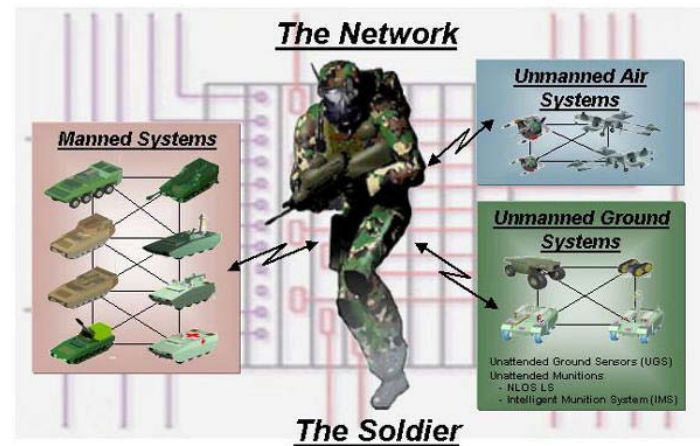


## Why: Historical Development of AF's.





## Why: Benefits of a Standard Profile



- DoDAF v1.5 Volume II provides guidance on using UML
- Based on UML 1.x which has been superseded by UML 2 and SysML
- UML is used extensively to represent DoDAF architecture products across industry; however, UML alone lacks the semantics, constraints and rules to ensure a well-formed model.
- UPDM will provide a rigorous model leading to architecture modeling precision and architecture data exchange



## When: UPDM 1.0 Roadmap

- Submission – Sept 2008
- OMG vote to adopt UPDM Dec 2008
  - Start of FTF process
- Completion of FTF/UPDM 1.0 June 2009
- Adoption of UPDM Sept 2009





## How: UPDM 1.0 Requirements

- **Mandatory Requirements**
  - Domain Metamodel
  - Metamodel (abstract syntax and constraints)
  - Profile
  - Notation (concrete syntax)
  - DoDAF 1.5 and MODAF 1.2 artifacts
  - Support for custom views and viewpoints
  - Element taxonomy reference
  - Data interchange
- **Optional Requirements**
  - Extensibility to Other Architecture Frameworks
  - Representation of Architectural Patterns



## How: UPDM Features

- Integrates with SOAML – The Service Oriented Architecture Modeling Language
- SysML Extensions with UPDM level 1
  - Facilitates integration of DoDAF and MODAF models for system of systems modeling with SysML models for systems modeling
  - Enables UPDM to fully leverage SysML features



## How: UPDM Level 1 Compliance SysML Extensions

- Enables UPDM to leverage SysML features
  - SysML blocks to represent structural elements such as operational nodes, artifacts (systems), capability configurations, which enable the use of flow ports, item flows, and value properties with units and distributions
  - SysML activities to support continuous flow modeling, activity hierarchies, and support for enhanced functional flow block diagrams
  - SysML parametrics to enable the integration of engineering analysis with the architecture models (e.g., performance parameters in an SV-7 can be captured in parametric equations)
  - SysML allocations to support various types of mappings such as an SV-5 that maps system functions to operational activities
- Other SysML Features
  - SysML requirements enable text based requirements to be captured and traced to other model elements using the satisfy, derive, verify and refine relationships
  - SysML view and viewpoint enable provide for multiple perspectives of the model, and to manage, control, and organize information.
  - Callout notation

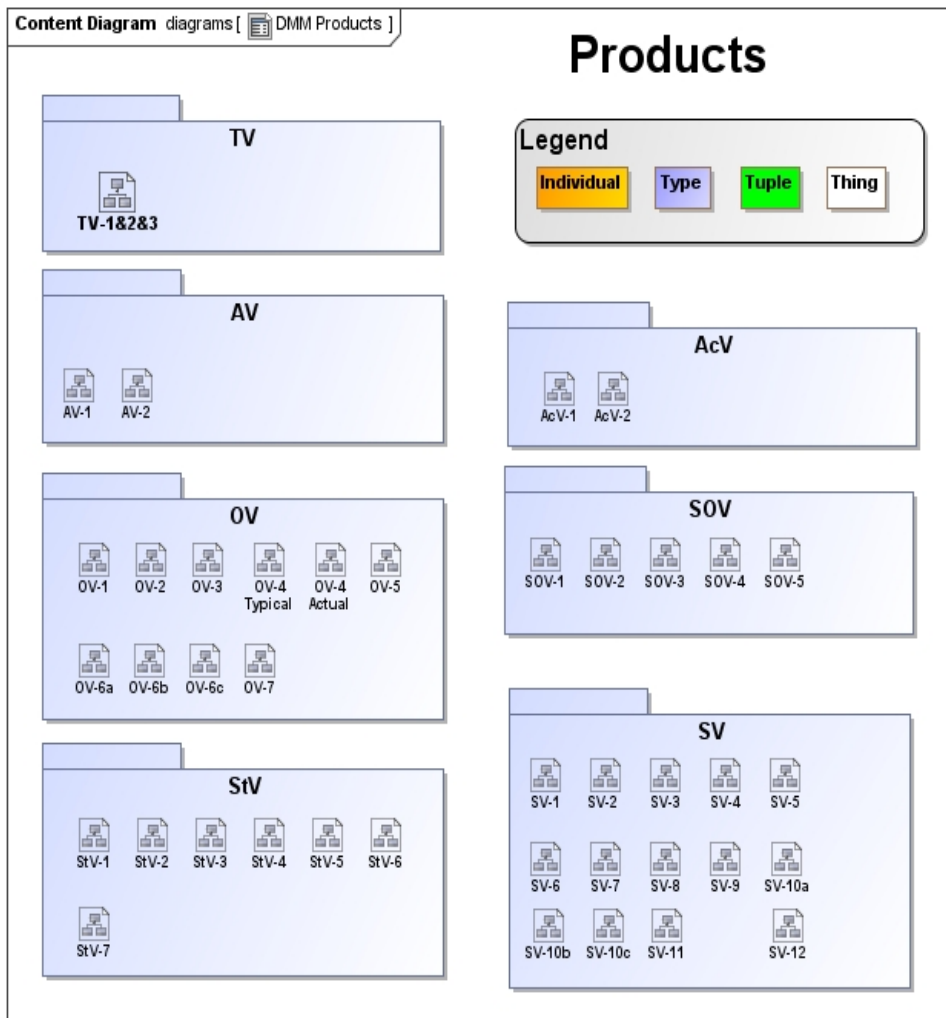
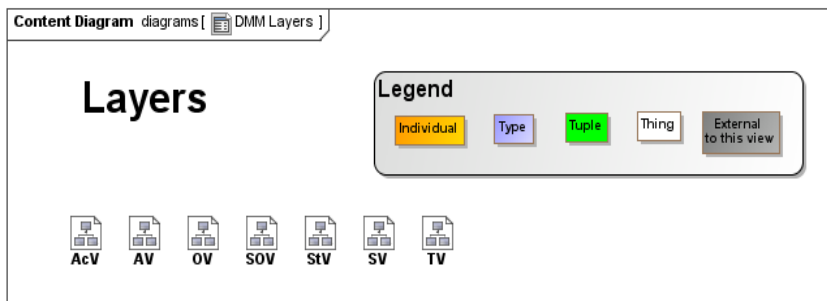
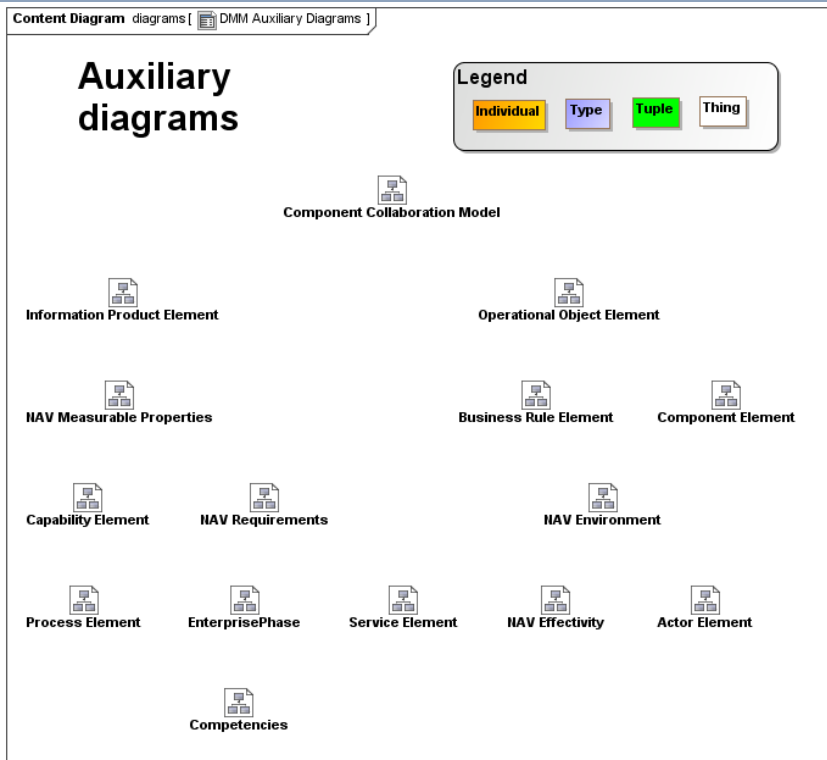


# What is UPDM?

UPDM - Domain Meta Model

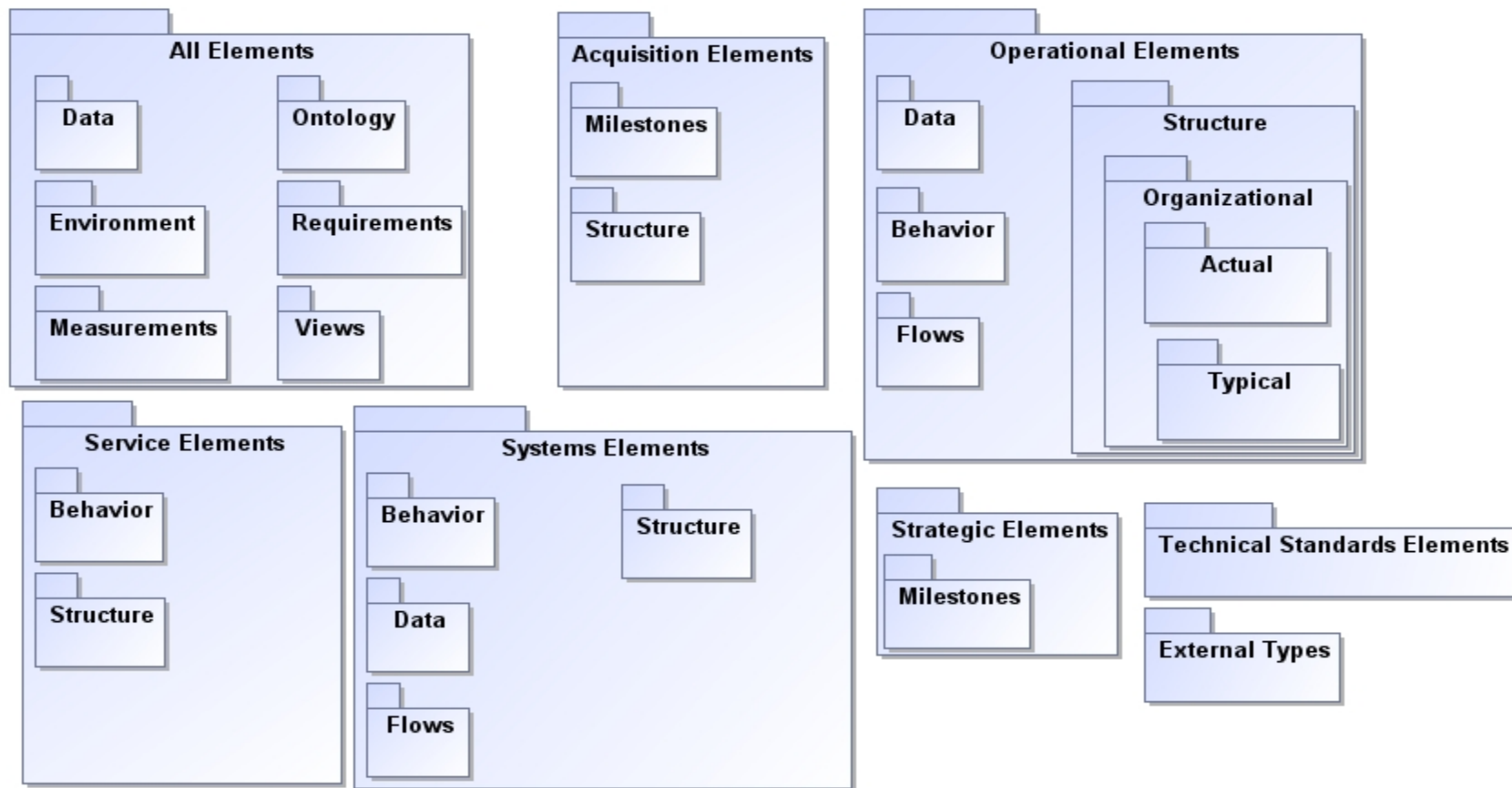


## UPDM RFC - Domain Meta Model Summary





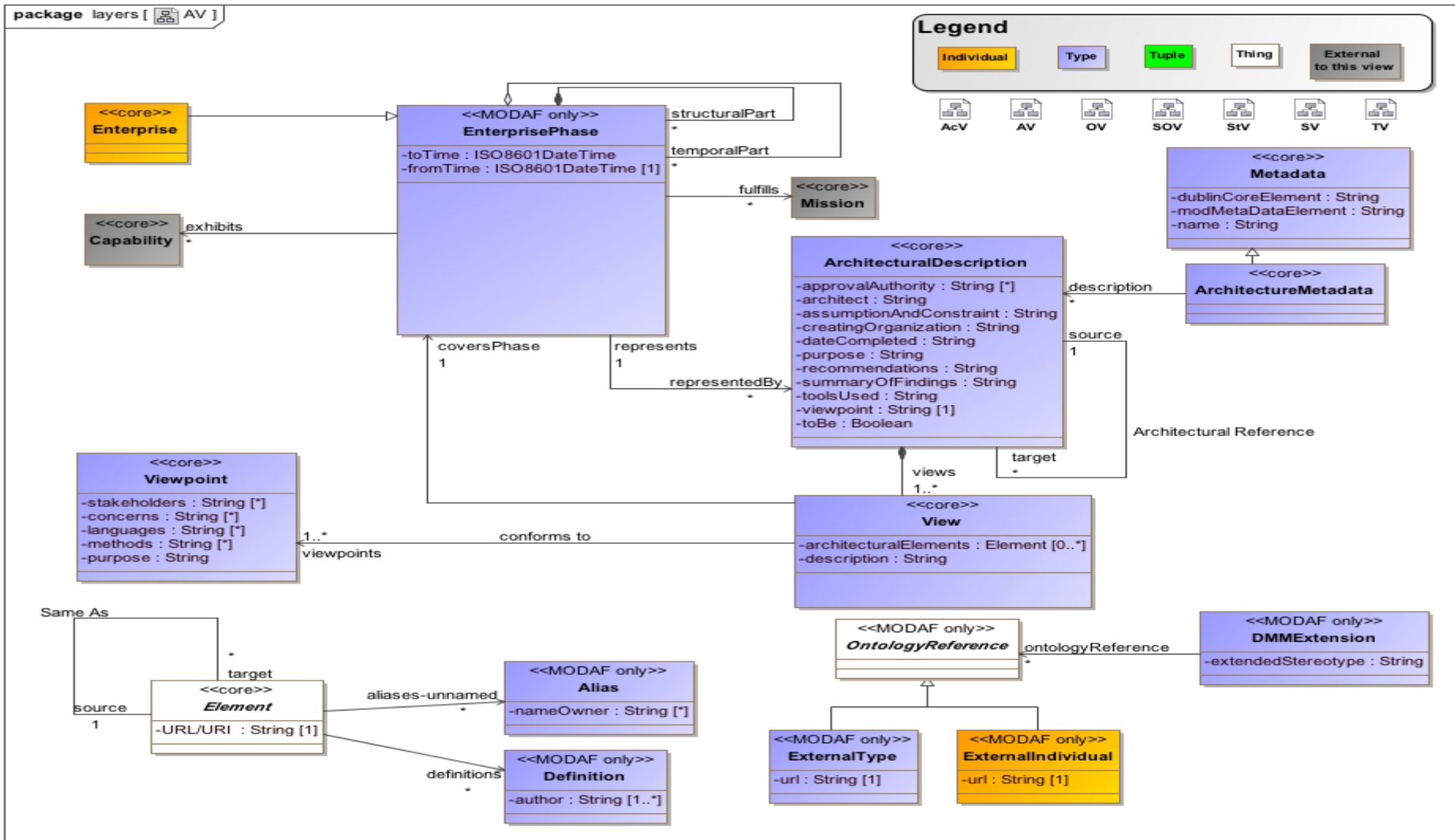
## UPDM RFC - Domain Meta Model Summary (Packages.)



- Package structure organizes stereotypes by viewpoint
- Multiple viewpoints manage model complexity



## UPDM RFC - Domain Meta Model Summary (AV)



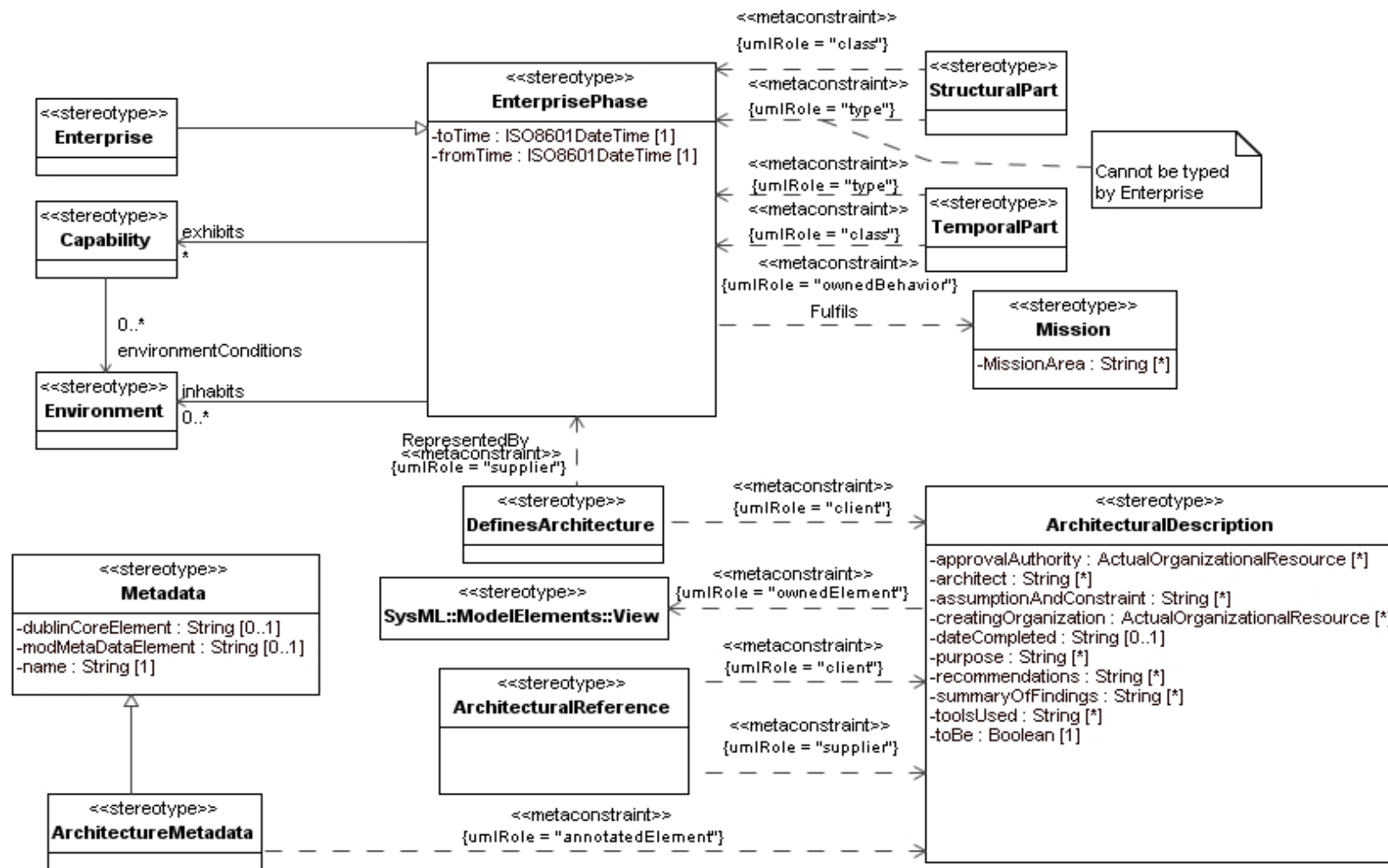


## UPDM - Profile Example



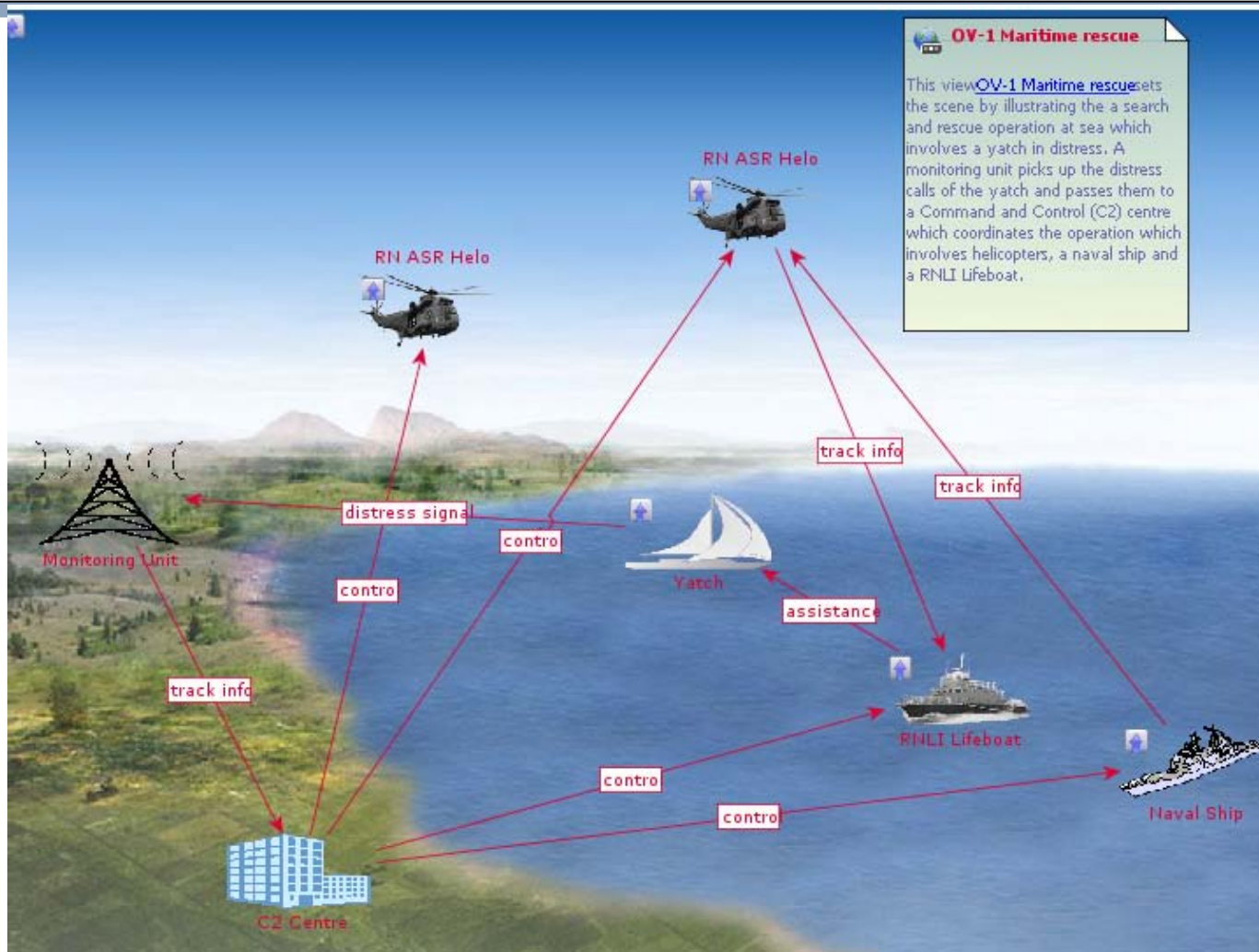


## UPDM RFC - Profile Summary (AV-1)



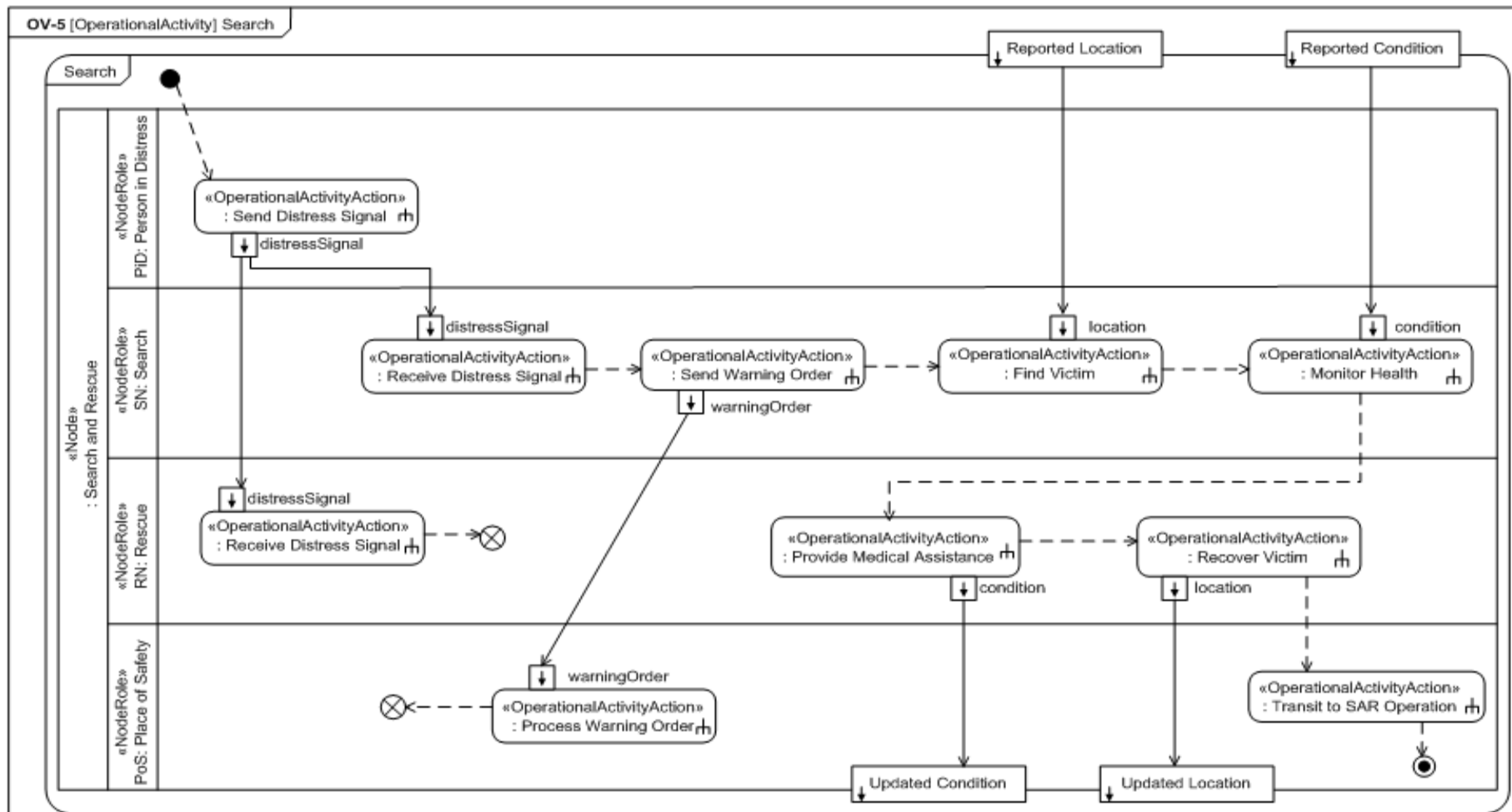


## OV-1: Operational Context Graphic





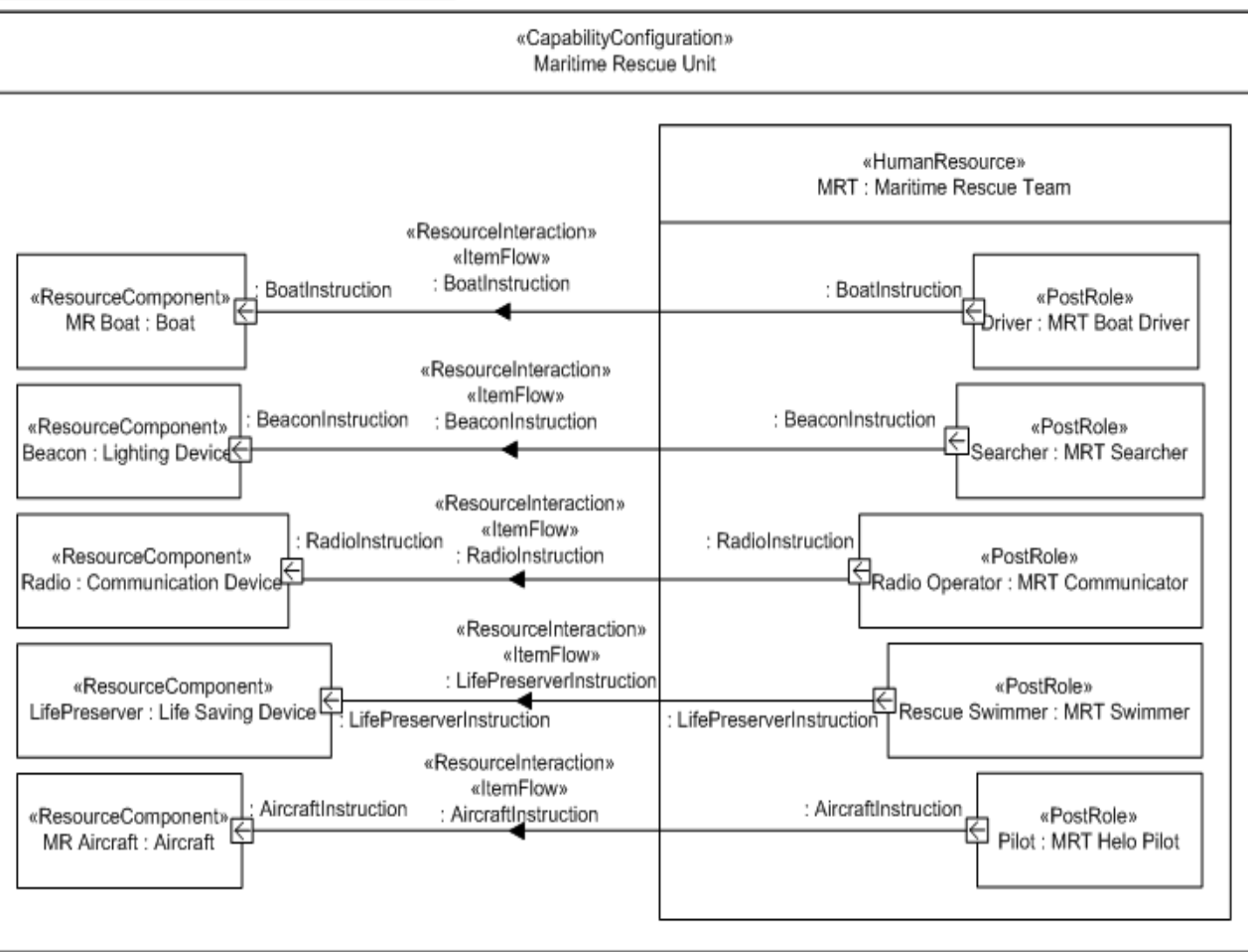
## OV-5 Activity Diagram





## SV-1: Resource Interaction Specification

SV-1 [Capability Configuration] Maritime Rescue Unit

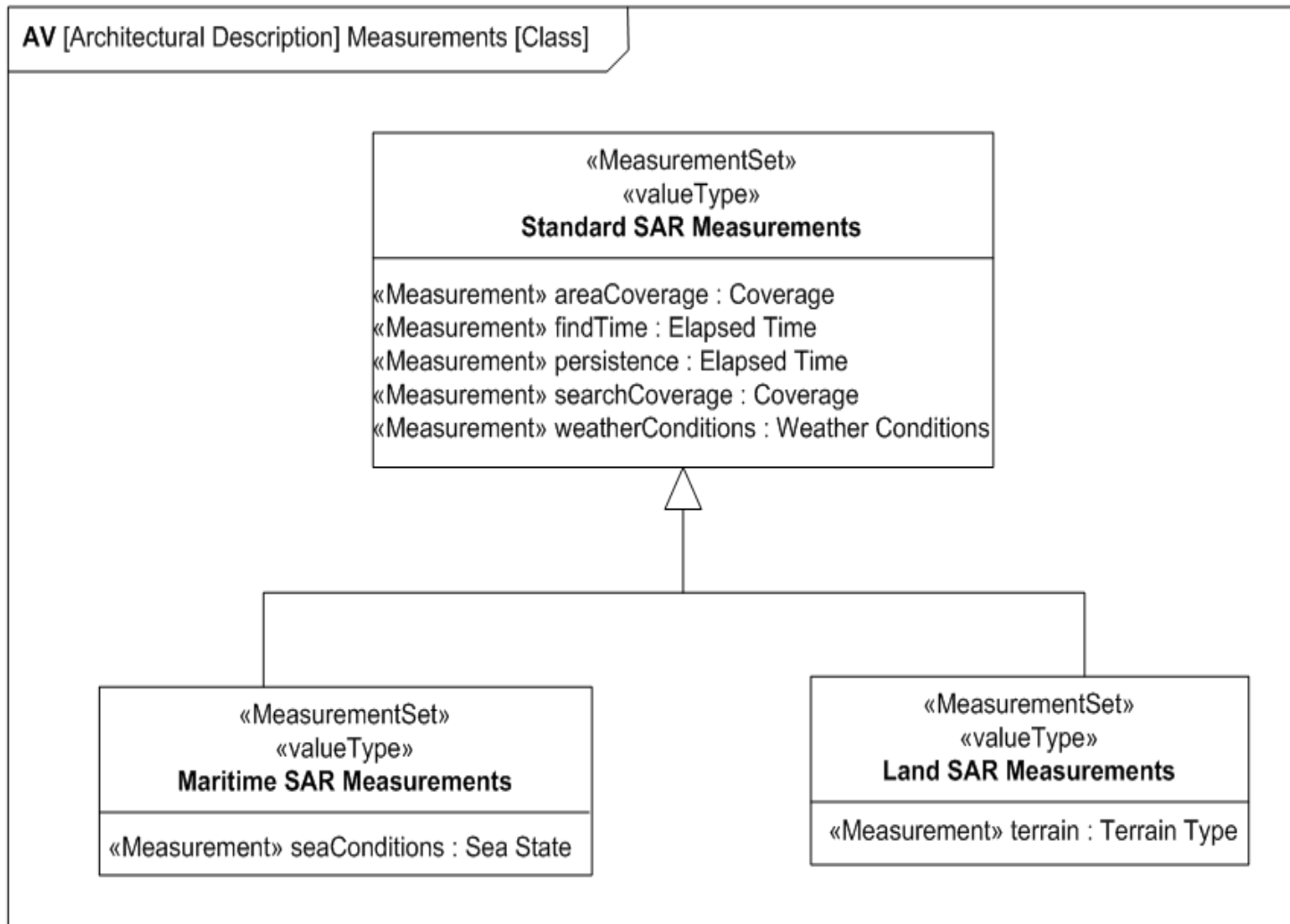


This view defines the structure and internal flows of the Capability Configuration. The figure shows the Capability Configuration of a Maritime Rescue Unit. It is comprised of the Maritime Rescue Team (MRT), and the roles that make up the MRT, as well as the components that enable them to fulfill their role. This example shows that the Role of Driver is filled by a MRT Member who must interact with a MR Boat.



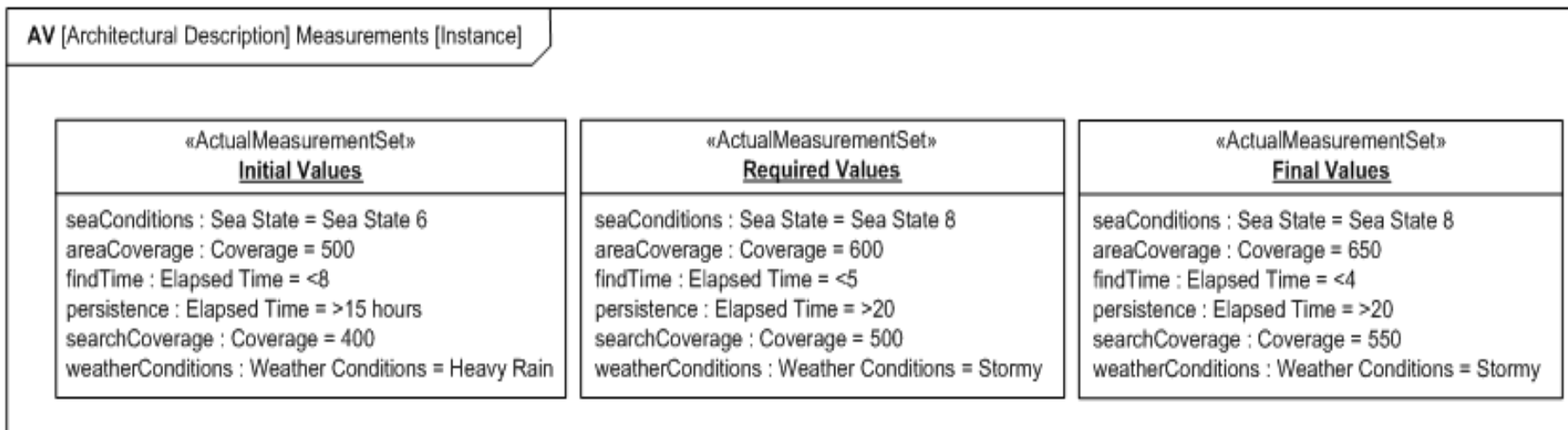
# SysML Example: AV-3

Definition of the required measurements





## SysML Example: StV-2

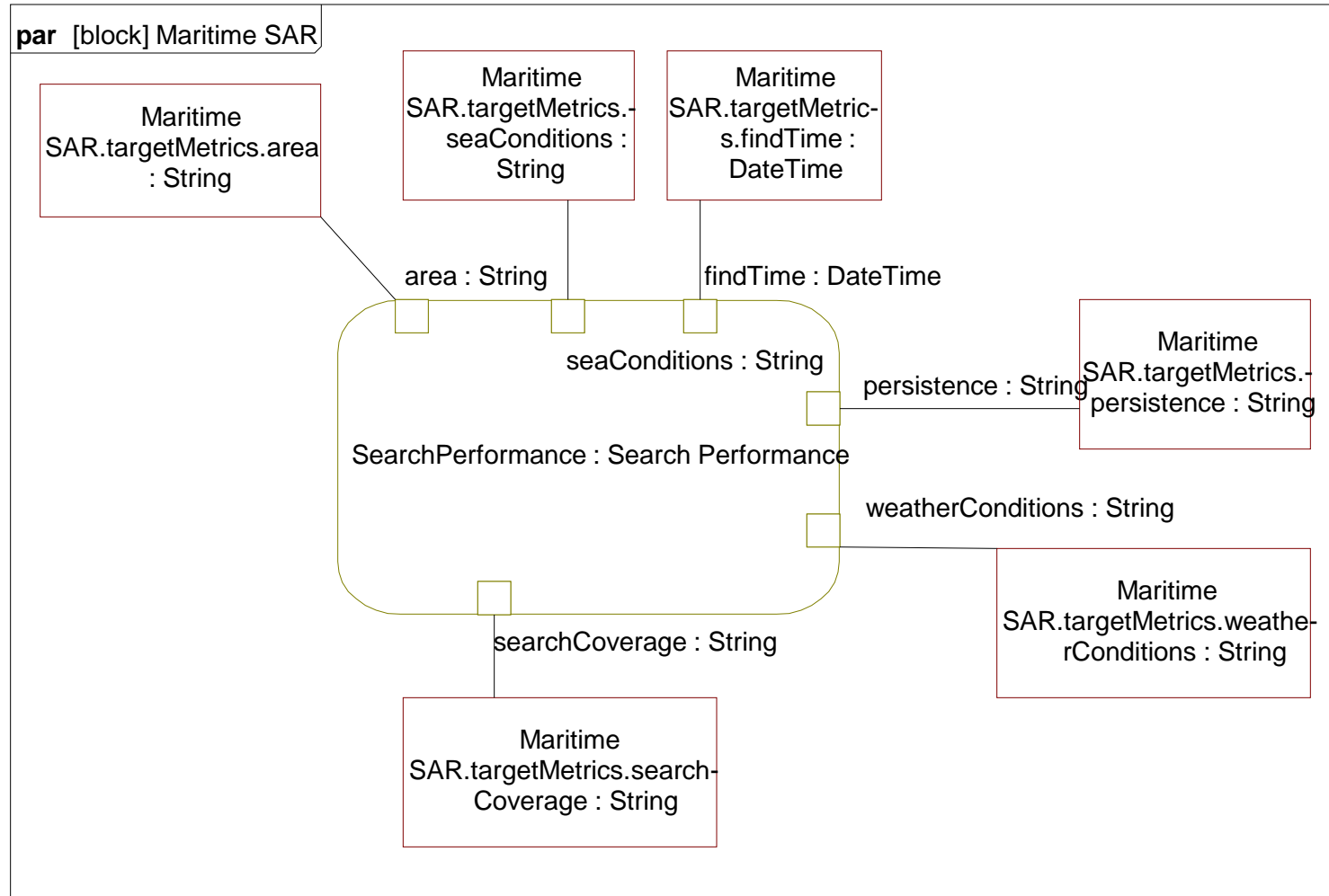


Maritime SAR can be characterized in terms of the length of a Maritime SAR operation, the sea conditions in which Maritime SAR must be deliverable, the search area covered by an operation and the time to find a victim.



# SysML Example: Parametric Diagram

- Parametric diagram allowing trade-off analysis





## When: UPDM 2.0 Roadmap

- Signed and Released DoDAF 2.0 anticipated in June 2009
- Preparation of RFP for UPDM 2.0 (Next Slide)
- Issue UPDM 2.0 RFP Sept 2009
- ....





## When: UPDM 2.0 Roadmap

- Preparation of RFP for UPDM 2.0
  - Inclusion of DoDAF 2.0
  - Support for NAF 3
  - Information and Security views from DNDAF
  - Human Factors Views based on MODAF and DNDAF
  - Business Motivational Modeling/SBVR profile integration
  - Business process Modeling Notation
    - UPDM v2 optionally could use BPMN to model operational views
  - Others?

# Discussion



Questions?

DEPARTMENT OF DEFENSE  
CHIEF INFORMATION OFFICER

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