



Unmanned Maritime Autonomy Architecture (UMAA)



DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.





PEO USC Portfolio



LCS delivers mission-focused capability to the Fleet



LCS 1 Variant

LCS 2 Variant

International Small Combatants



KNIFEFISH

LUSV

XLUUV/AUP

MUSV

RAZORBACK

LDUUV

GHOST FLEET

MHUs

ASW Mission Pkg



MCM Mission Pkg

SUW Mission Pkg



Comms



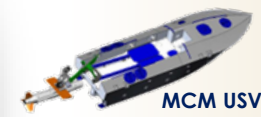
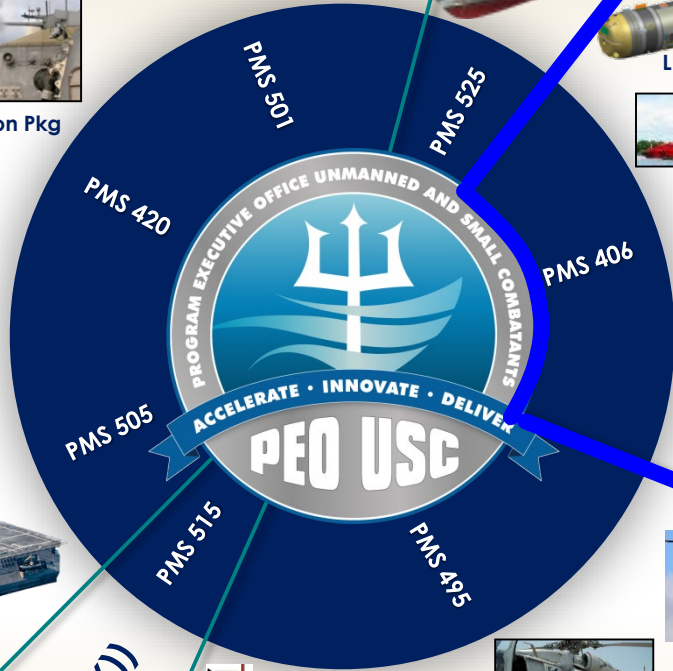
Fire Scout



MH-60 Helo



Software



MCM USV



UISS



AN/AQS-20

- PEO USC SUMMARY (ACAT or Equivalent)
- 3 – ACAT I
 - 4 – ACAT II
 - 3 – ACAT III
 - 0 – ACAT IV
 - 7 – Pre-ACAT
 - 9 – Non-ACAT/Other



Frigate (FFG(X))



In-Service Support (Ships & Mission Packages)



LCS Training



Hammerhead



QUICKSTRIKE



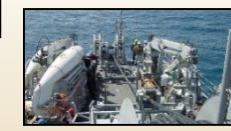
ALMDS



MH-53 AMCM



COBRA



MCM 1 Ship Systems



AMNS



BARRACUDA



MIW C2

As of March 2019



Unmanned Maritime Systems

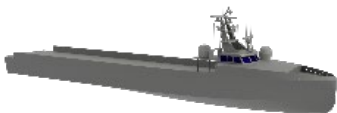
Unmanned Surface Warfare



PROTOTYPES



LARGE USV



MEDIUM USV



SNAKEHEAD LDUUV



Unmanned Expeditionary Warfare



MINE COUNTERMEASURES USV

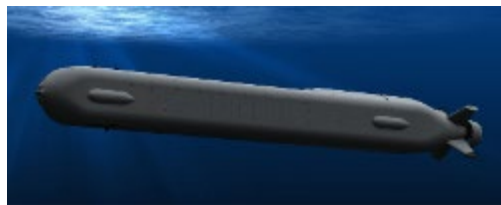


MINEHUNTING USV



KNIFEFISH

Unmanned Undersea Warfare



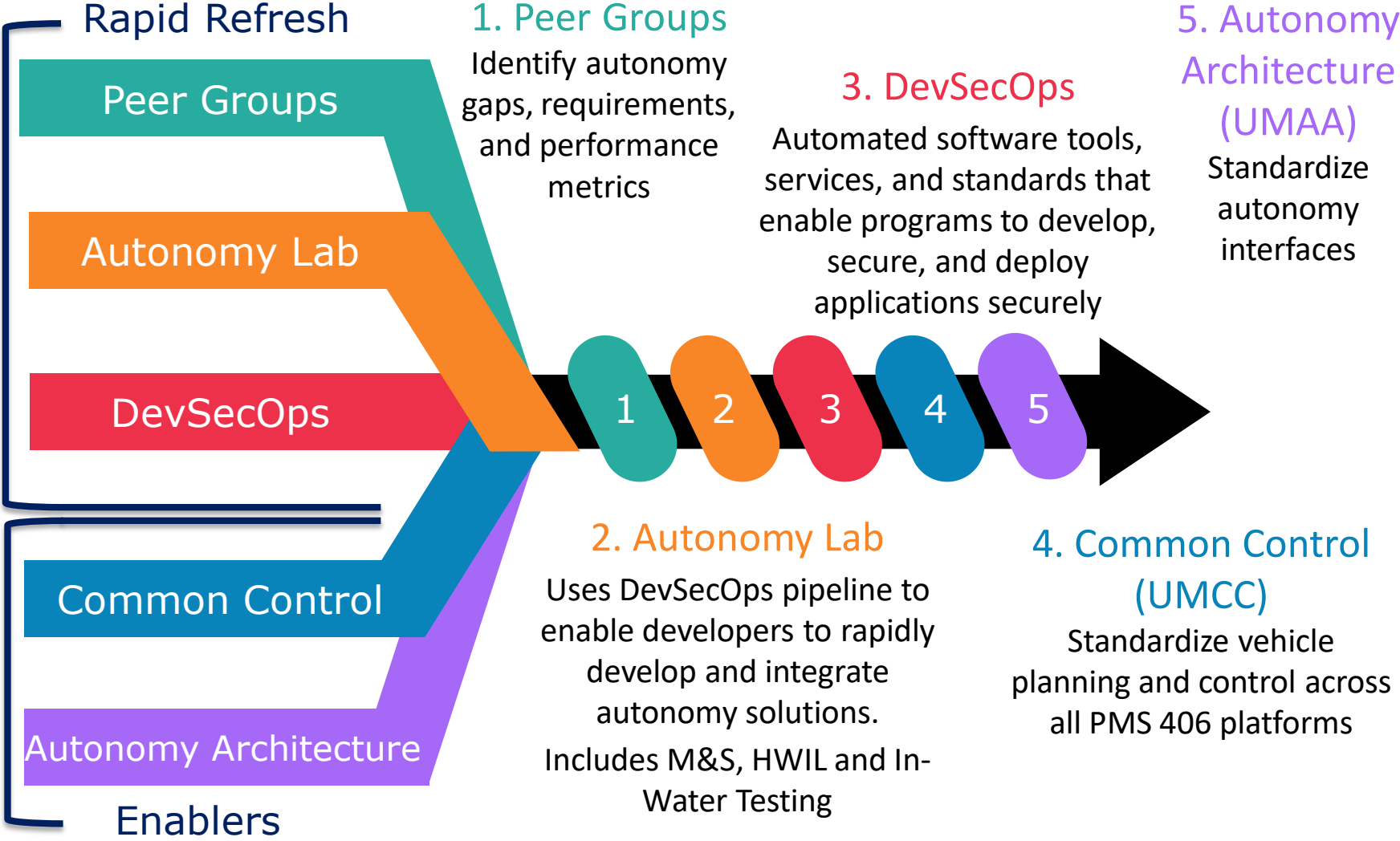
ORCA XLUUV



RAZORBACK

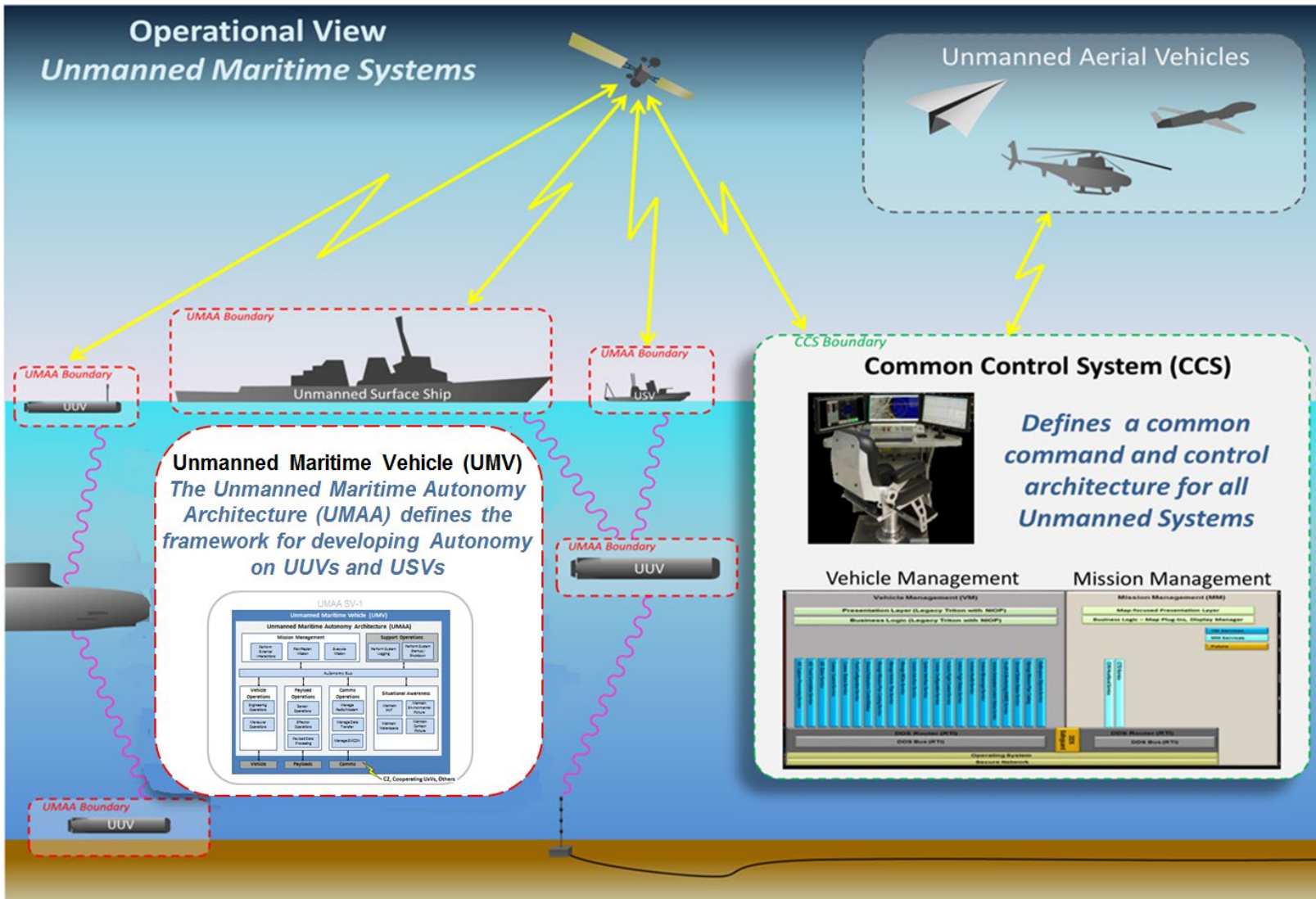


Accelerating Autonomy





UMAA Scope





Unmanned Maritime Autonomy Architecture

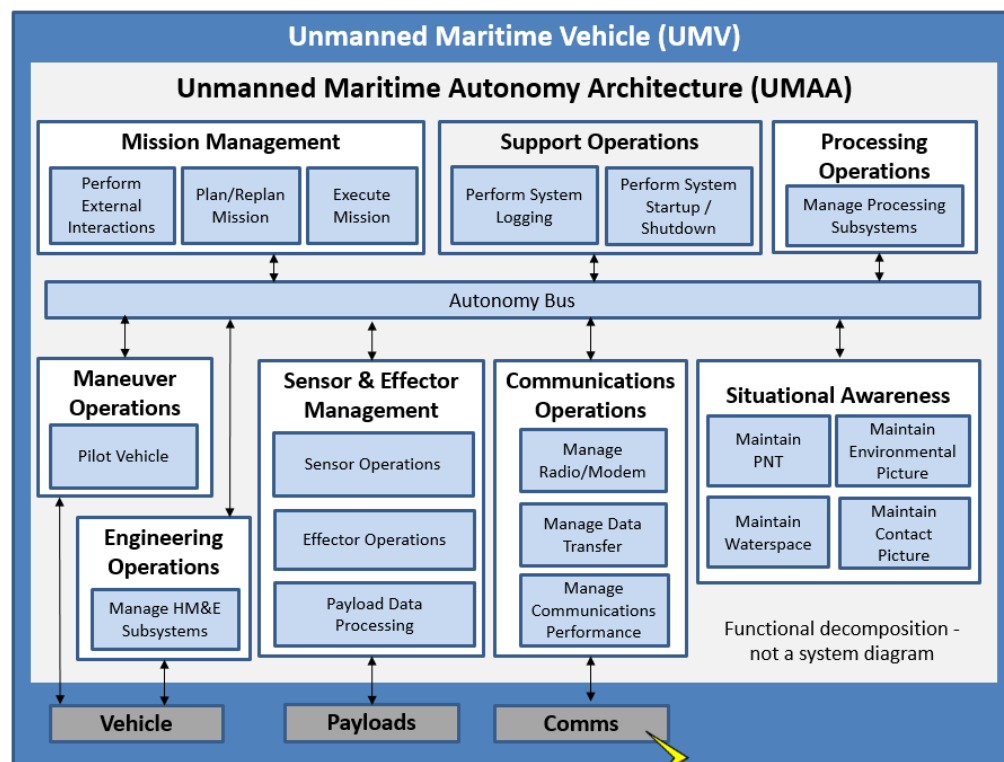


Purpose: Defines the architectural framework for unmanned maritime autonomous systems

Scope: Vehicle-based autonomy architecture onboard unmanned maritime platforms

- Common interface and protocol
- Functional breakout to support standard component interfaces
- Government defines interfaces
- Developers provide software and components
- Component definition next
 - Criteria: standardized interfaces where commonality provides value
 - Modularity goal: different component providers
- Independent component development enabled

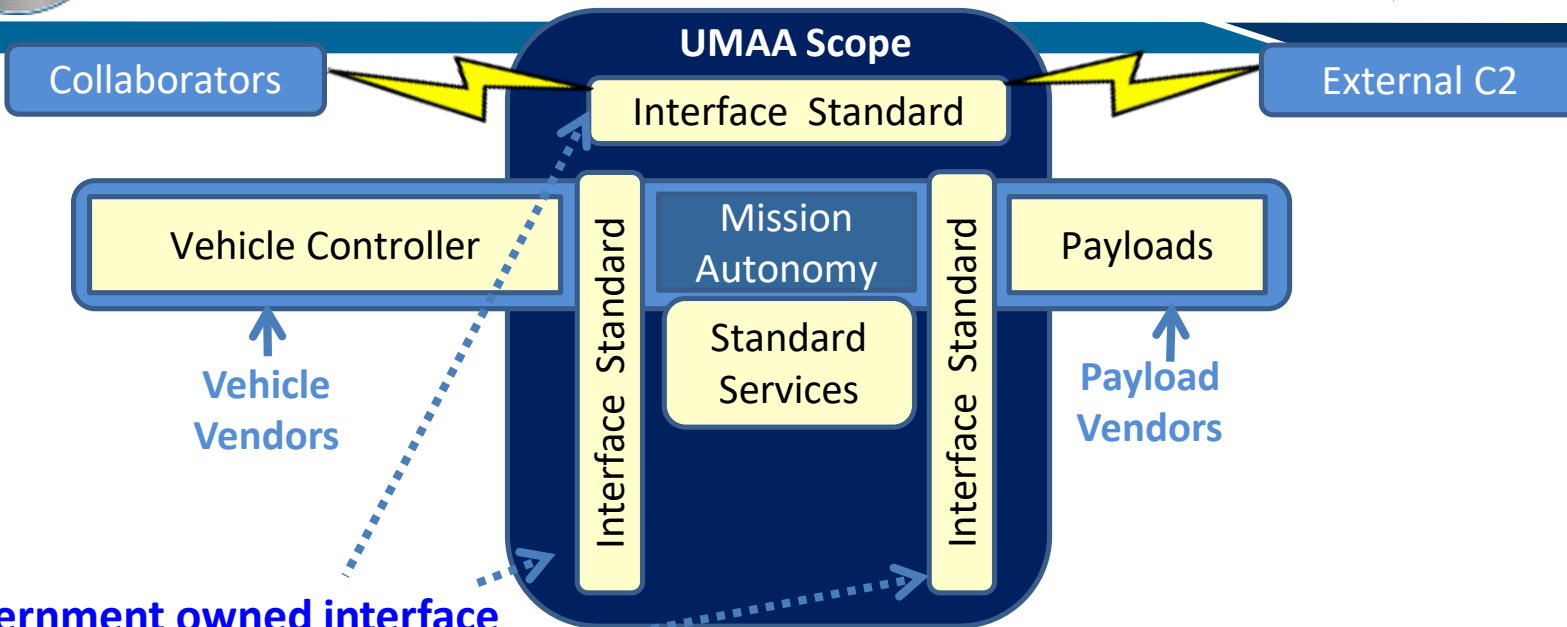
Top Level Functional Breakout*



C2, Cooperating UxVs, Others



UMAA Standards



Government owned interface standard

- Open published interfaces
- Software reuse
- Component/service competition



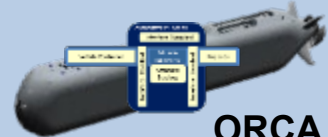
Portability of capabilities

- Vehicle portability (USV and UUV)
- Payload portability
- Services portability

Commonality Across the Family of Fleet Vehicles



Razorback



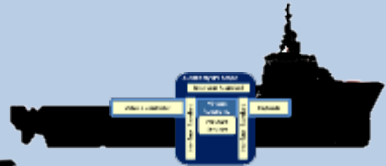
ORCA



Snakehead



MUSV

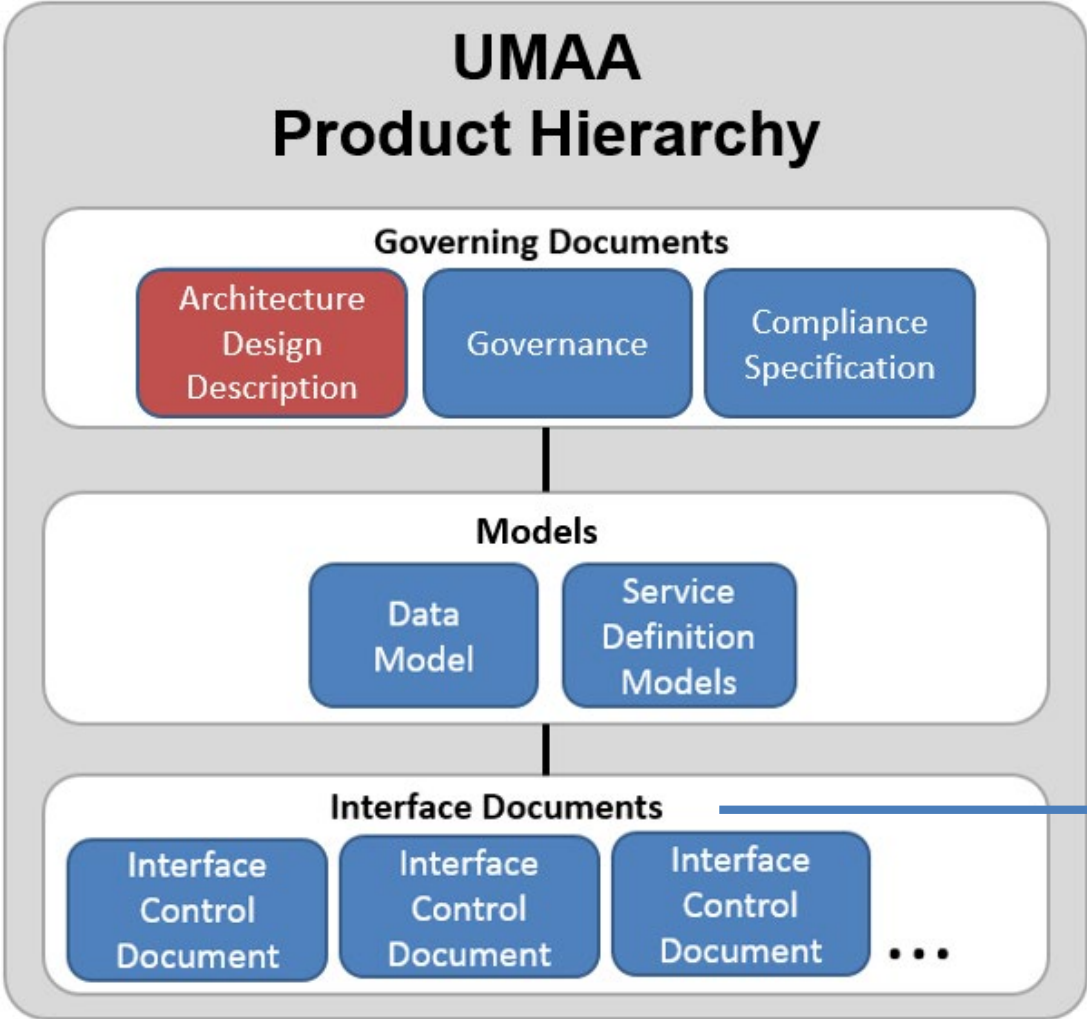


LUSV

others...



UMAA Products



Corresponding
auto-generated
IDL code

Currently going through
Distribution Statement A
release review



Architecture Design Description

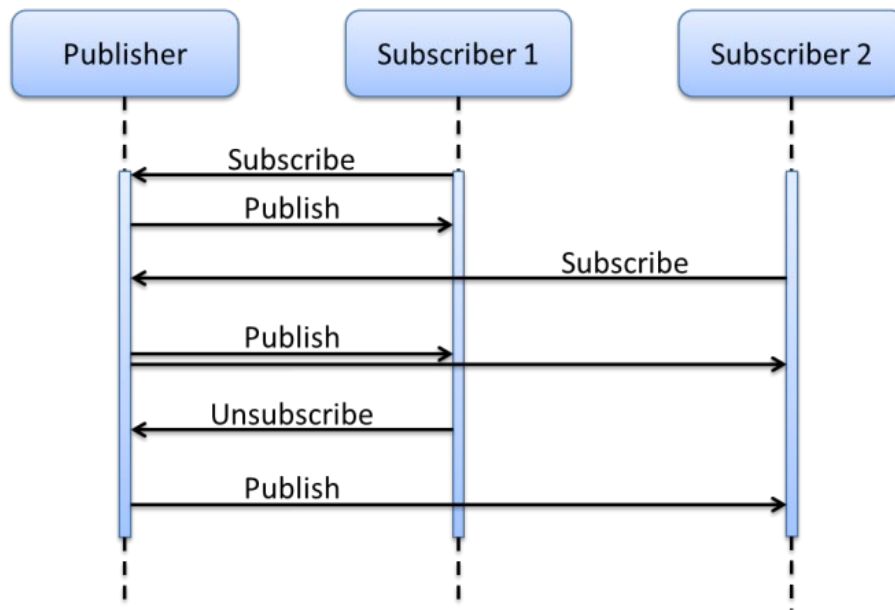


Unmanned Maritime Autonomy Architecture
(UMAA)
Architecture Design Description
(ADD)



Version 1.1a*
(UMAA-INF-ADD)
December 19, 2019

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Communications Infrastructure



Compliance



T0300-BE-IDS-010

NAVSEA TECHNICAL PUBLICATION

**Unmanned Maritime Autonomy Architecture (UMAA)
Compliance Specification**



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3.1 DEFINITIONS

Service – A resource that enables access to one or more capabilities where a capability is the ability to provide data and/or effect change within a system. A Service is defined by its message set and functionality as specified by UMAA ICDs.

Service Provider – A realization (or implementation) of a Service

Service Consumer – Any software that utilizes a Service Provider either to obtain data and/or to effect change within a system

Service Participant – A Service Provider or Service Consumer

Component - A deployable software unit that is no further decomposed into separately managed units. It may consist of one or more Service Providers and/or one or more Service Consumers. A 5 UNCLASSIFIED Component may be implemented as a single process running on a single processor or as multiple processes running over multiple, possibly networked, processors.