Next Generation (NexGen) of Modelling and Simulation

Architecture Volume



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This document describes Operational, Systems/Services and Standards Models for the Next Generation (NexGen) of Modelling and Simulation.

Products are working and not final

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# NATO Architecture Framework Overview

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| The NexGen M&S Capability Architecture describes the capability change programme, and the envisioned capability. This design is communicated through models that reside in the Business, Information, Application, and Technology Domains, Models are constructed and named in accordance with NAFv4, and collectively serve as the "design" of the NexGen M&S Capability. Architectures at the Capability-Level are used to support the delivery of large, multi-phased and multi-project change initiatives (e.g. capability packages). They are used to:   * Support the elimination of duplicates and identify gaps in NATO investments within and between the nations, and identifying opportunities for improving efficiencies * Support interoperability and strengthen security for NATO nation missions Direct, monitor, and evaluate the execution of a set of related projects   This architecture covers the following Architecture types:   * Business Architecture - describing the business strategy, management, organization, and key business processes including process ownership and key decisions) of the organization * Information Architecture - describing the structure of an organization's logical and physical information assets and the associated data management resources and linking the information required to the key business processes and decisions * Application Architecture - providing a blueprint for the individual application systems to be deployed, the information which they provide, the interactions between the application systems and their relationships to the core business processes of the organization with the frameworks for services to be exposed as business functions for integration   Technology Architecture - describing the hardware, software and network infrastructure needed to support the deployment of the application systems. The NATO Architecture Framework (NAF) provides a set of standardized Viewpoints that can be used for NAF-Compliant architecture efforts. However, not all of the standardized Viewpoints will be required for each architecture effort, and for specific architecture efforts additional Viewpoints might be suitable. The NAF Grid Representation (see Figure 3-1 below) is a two-dimensional classification scheme for the standardized NAF viewpoints, which serve as the baseline for any NAF-Compliant architecture effort. However, the selection of Viewpoints must be tailored to the specific architecture effort, i.e. suitable Viewpoints need to be identified in the grid, and additional Viewpoints must be defined, if and when required. |  |

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| C3 – Capability Dependencies | **NAFv3: NCV-4** |
| The C3 Viewpoint is concerned with identification of dependencies between capabilities, and defining the logical composition of capabilities (i.e. capability clusters). Views implementing this Viewpoint:   * Shall include all dependencies between capabilities relevant for the architecture. * May defines logical groupings of capabilities by means of composition. | |

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| C4 – Standard Processes (Mission processes - overview) | **NAFv3: NCV-6** |
| The C4 Viewpoint is concerned with identification of standard activities (e.g. doctrinal) and optionally with their traceability to the capabilities they support.  Views implementing this Viewpoint:   * Shall identify all standard activities relevant for the architecture. * May provide a composition of these standard activities. * May link capabilities to supporting standard activities. | |



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| C4 – Standard Processes (NexGen technical activities, use cases) | **NAFv3: NCV-6** |
| The C4 Viewpoint is concerned with identification of standard activities (e.g. doctrinal) and optionally with their traceability to the capabilities they support.  Views implementing this Viewpoint:   * Shall identify all standard activities relevant for the architecture. * May provide a composition of these standard activities. * May link capabilities to supporting standard activities. | |



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| C4 – Standard Processes (Use case threads) | **NAFv3: NCV-6** |
| The C4 Viewpoint is concerned with identification of standard activities (e.g. doctrinal) and optionally with their traceability to the capabilities they support.  Views implementing this Viewpoint: | |

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| S1 – System/Service Taxonomy | **NAFv3** |
| The S1 Viewpoint is concerned with the identification of service specifications, and their organization into specialization hierarchies (taxonomies). Views implementing this Viewpoint:   * Shall include all service specifications relevant for the architecture. * May organize all service specifications into a specialization hierarchy. | |



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| L1– Node Types | **NAFv3: NOV-2** |
| The L1 Viewpoint is concerned with the identification of nodes, and their organization into specialization hierarchies (taxonomies). In the NAF, nodes are logical entities (i.e. defined independent of their implementation) that are able to perform behaviour. Views implementing this Viewpoint:   * Shall identify all nodes relevant for the architecture. May show a specialization hierarchy for nodes. * May trace nodes to capabilities they need. May trace nodes to roles they are performing in activities. | |



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| L2-L3 – Logical Concept (Operational concept graphic) | **NAFv3: NOV-1** |
| The L2-L3 Viewpoint is concerned with providing an executive level, scenario-based communication of the architecture purpose, scope and content. A View implementing this Viewpoint:   * Shall show the main elements in scope of the Architecture Description. Shall show the main interactions of these elements. May show interactions of the main elements with elements outside the scope. * May include any meta-model element. May include rich picture or graphics. | |

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| L2-L3 – Logical Concept (Technical environment - Do Max) | **NAFv3: NOV-1** |
| The L2-L3 Viewpoint is concerned with providing an executive level, scenario-based communication of the architecture purpose, scope and content. A View implementing this Viewpoint:   * Shall show the main elements in scope of the Architecture Description. Shall show the main interactions of these elements. May show interactions of the main elements with elements outside the scope. * May include any meta-model element. May include rich picture or graphics. | |



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# Annex A: Miscellaneous Architecture Information

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| L7 – Information Model (Setting & Scenario data ONLY) | **NAFv3: NOV-7** |
| The L7 Viewpoint is concerned with identifying information elements and describing their relationships. Views implementing this Viewpoint:   * Shall identify information elements relevant for the architecture. * May identify relationships between information elements. * May identify attributes of information elements. * May associate attributes with data entities. | |



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