MAGTF INTEGRATED FIRE CONTROL ARCHITECTURE DEVELOPMENT

THE CHALLENGE

Currently the Services are working to integrate multiple programs into a system of systems (SoS) to conduct integrated fire control (IFC) across the Joint Force. The Marine Corps is experimenting with advanced concepts using the functions and capabilities of aviation command and control, sensors, and weapons. Alternatives with different fielding timelines are being considered by the Marine Corps and the other Services. System upgrades are being designed to execute Joint Force IFC, in keeping with multi-Service operating concepts and CJCS mandates for improved "jointness" in systems development. By following a SoS approach, the USMC IFC development effort is able to leverage the R&D efforts of other Services to achieve economy and efficiency in any required changes to DOTMLPF. These activities have revealed a need for the Marine Corps to identify specifically what capabilities must be implemented to articulate the doctrinal and TTP considerations for how IFC will be conducted within the Marine Air Ground Task Force (MAGTF) and to clarify the upgrades that USMC systems must implement to participate in Joint Force IFC operations.

THE STRATEGY

Through Joint Service simulations the current effort allows operators and system developers to observe the many advantages of joint IFC and to estimate the improvements needed for USMC operational facilities and systems to participate in a real world joint IFC environment. The next step is to accurately define the operational architecture and potential system implementation strategies. Since the execution of IFC is highly dependent on C2 system performance, an analysis of data exchanges must first be conducted to verify details of message formats, processing speed, correlation capabilities, and other communications factors critical to IFC. One of the main purposes of the MAGTF IFC Architecture effort is to provide message mapping and reveal the activities/system functions conducted by each platform for each step of the IFC process. The architecture is developed within the International Business Machines (IBM) Rational System Architect (RSA) tool, providing a Department of Defense Architecture Framework (DoDAF) 2.0 compliant set of data and viewpoints that use illustrations and plain language to explain the operational and system IFC requirements for the Marine Corps. With these products in hand, combat planners will be able to make informed decisions about the scope of the integration effort for the IFC capability.

Architecture products are compliant with the CJCSI 6212.01F Net Ready Key Performance Parameter (NR-KPP) requirements and intent. The architecture will make explicit the data produced and used by the program's implemented operations, and they will be shared with the user community. The architecture views are being developed based on the DoDAF V2.02 and United States Marine Corps Integrated Architecture Process and Viewpoint Guide, V 1.01, 21 Sep 2011 documents.

THE RESULTS

This architecture was developed to illustrate how the MAGTF can achieve an IFC operational capability. Additionally, it depicts the system-of-systems implementation required to enable this operational capability. The architecture models are representations of the underlying data and analysis and will be suitable for presentation to decision makers. They portray the basic information and relationships that constitute an architectural description and are necessary to integrate (or "interface") and correlate multiple architectures with each other. The architecture models depict the relationships between the functional elements and identify operational activities associated with IFC. The goal of the architecture is to clearly show how the MAGTF achieves an IFC capability and enables Naval and Joint Force IFC operational capabilities, the details of the operational capability, and the interrelationship of the involved Naval and Joint Force systems.