Topic N251-004 – Kill Web Conceptual Modeling for Wargaming

Parametrics Considered

CMR ID	Parametric	Parametric Description	Conceptual Model Requirements
F33	Future organizations that mix USMC infantry platoons (advance unmanned systems, expeditionary medicine, logistics, and intelligence augments) with special forces teams (A, B, psychological operations (PSYOPS), and Civil affairs--to conduct population engagement and community assistance projects to win the population's support) to conduct theater security cooperation activities including support to embassy security forces.	Represent future Marine force capabilities	Simulate future Marine **laser** communication capability.
F34			Simulate future Marine force fires capabilities as systems and systems of systems level kill chains.
F35	Capabilities with multiple functions (fires and intelligence, surveillance, and reconnaissance (ISR) example) with dynamic re-tasking ability The tasking should track "who" is requesting the tasking changes to model a conflicting priority request from friendly forces with tasking authority to stimulate a prioritization dilemma	The LVC simulation provides the functionality to prioritize taskings to sensors, C2, intelligence processing, exploitation and dissemination nodes and effectors, and to dynamically retask these assets in response to the changing tactical and operational situation.	Simulate the tasking and dynamic retasking of effectors through logical and communications links as part of a networked kill chain in the LVC simulation at the entity level.
F36			Simulate the tasking and dynamic retasking of effectors through logical and communications links in a networked kill chain in the LVC simulation at the aggregate level.
F37			Integrate response cells through logical and communications links in the LVC simulation that enable the simulation of effectors at the entity level.
F38			Integrate response cells through logical and communications links in the LVC simulation that enable the simulation of effectors at the aggregate level.
C26			Simulate C2 nodes that task and dynamically retask sensors, PED (Processing, Exploitation, and Dissemination) cells, and effectors through logical and communications links in the LVC simulation at the entity level.

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C27			Simulate C2 nodes that task and dynamically retask sensors, PED (Processing, Exploitation, and Dissemination) cells, and effectors through logical and communications links in the LVC simulation at the aggregate level.
C28			Integrate response cells that represent C2 nodes through logical and communications links in the LVC simulation of networked kill chains.
Int69			Simulate the tasking and dynamic retasking of sensors through logical and communications links in a networked kill chain in the LVC simulation at the entity level.
Int70			Simulate the tasking and dynamic retasking of sensors through logical and communications links in a networked kill chain in the LVC simulation at the aggregate level.
Int71			Simulate the tasking and dynamic retasking of PED cells through logical and communications links in a networked kill chain in the LVC simulation.
Int72			Integrate response cells that respond to tasking and dynamic retasking of sensors and PED cells through logical and communications links in the LVC simulation.
Int04	Intel actions consistent with planning, directing, collecting, processing, producing, and disseminating		Simulate intel actions consistent with planning, directing, collecting, processing, producing, and disseminating.
C04	Network on the Move (NotM).	Provide digital connectivity for forces that are not stationary, e.g. man-portable, vehicle mounted, air mounted. What impacts does that NotM have on "shoot, move,	Represent the network architecture at the level of nodes, links, and network architecture including physical locations and platforms.
C05			Represent network performance at the level of nodes and links: latency, jitter, delay, throughput, message delivery, bandwidth.
C06			Measure changes in message delivery as impacted by changes to the network.
C07			Output actions that result in changes to the network.
C08			Output changes in message accuracy.

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C09		and communicate?"	Represent wireless signal propagation as impacted by the environment: line of sight, beyond line of sight, signal strength, signal range.
C10	C2 tasking up and down the chain of command.	Constructive representation of the tasks resulting from C2 messages, not the actual, properly formatted C2 messages.	Output distribution of C2 actions between constructive entities and organizations based on command relationships: senior-adjacent-subordinate, direct support-general support, main effort-supporting effort, and supported unit-supporting unit.
C11			Output all C2 actions including warfighting actions and C2 cyber defense actions.
C12	C2 actions to include destroying, denying, degrading, and deceiving C2 elements.	Constructive representation of the actions resulting from C2 messages, not the actual, properly formatted C2 messages.	Represent degree of effects achieved through blue and red C2 actions: destroy = a damage state for a C2 node; denying = C2 node operational, but denied connectivity to execute C2 mission; degrading = dropped C2 messages or portions thereof; deceiving = manipulation of C2 messages causing perceived truth differing from ground truth; disrupt = breaking or interrupting the flow of information to a C2 node (100% degradation)
C15	Size, weight, power constraints of the network hardware.		Represent the impacts on network performance induced by resource constraints: batteries, network generators, transportation weight.
C18	Virtual private network (VPN) establishment and communication effects		Represent VPN connection status.
C23	C2 network compatibility of communications equipment.		Represent compatibility / incompatibility of communications equipment with the C2 network based on C2 system part numbers, installed software version numbers, and hardware version numbers.
C24	Digitally Aided Close Air Support (DaCAS)/Fires Messages.		Simulate the transmission of DaCAS messages formatted for tactical data links (TDLs), e.g. Link 16.
C25	Intelligence community databases, personnel, systems, and processes that aid intelligence efforts via C2 networks/comms.		Represent future capability for digital reachback to garrison for intelligence data: intelligence database identification, intelligence system identification, intelligence policy, intelligence user identification.

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O21	SATCOM enables communication and data interoperability between US forces internally and coalition forces. The types of communication are data, voice, and common operational picture C2 data. Both SATCOM and PNT can be eliminated by adversary actions which will eliminate these communication/effectiveness.	Represent satellite supported communications between friendly forces, to include coalition forces.	Simulate the interoperability of satellite systems and communications over varying frequencies using encrypted and unencrypted data standards and frequency hopping to transfer and receive digital messages, voice, video, and imagery.
O22	SATCOM enables tactical voice and data comms to provide clear, reliable, and secure connections that can be "on the move", "beyond line of sight" or "over the horizon" to effect communication or fires effects. The secure connection is related to frequency hopping and cryptologic synchronization. The data connection includes access to unmanned aerial system (UAS) feeds, Marine Corps Enterprise Network (MCEN)-Unclassified / Secret (N/S), and Joint Worldwide Intelligence Communications System (JWICS).	Represent secure satellite connection.	Simulate secure satellite voice, data, and video connections linking US, Allied and Partner Nation forces including UAS feeds, MCEN-N/S, and JWICS.
O23			Simulate characteristics of secure connections including network IDs, encryption method, frequency hopping, and secure communications latency on the move, beyond line of sight, and over the horizon.
O29	Space based ISR can be US, Allied, or commercially owned (which will have a cost for consideration). These assets are available for requests from the Marine Air Ground Task Force (MAGTF) versus being under the control of the MAGTF. The assets have flight paths to avoid/mitigate by the corresponding adversary. Counter-counter actions could be introduced to change the flight path to prevent avoidance.	Represent multiple sources of spaced based ISR.	Simulate space-based ISR resources including satellite sensor availability, type, and communications as well as the process to request satellite ISR resources.
Int13	How IMINT is generated and transmitted		Simulate transmission of imagery.