

OPERATION BLENDED WARRIOR



Readiness Through LVC

OBW Booth 339



2015

I/ITSEC



Interservice/Industry Training,
Simulation and Education
Conference

I/ITSEC 2015 features a Live, Virtual, Constructive Special Event taking place throughout the conference floor across four days divided into five blocks and 15 vignettes.

This special event is Operation Blended Warrior (OBW).



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Letter from the NTSA President

Welcome to Operation Blended Warrior at I/ITSEC. We are very excited this year to begin a multi-year journey to explore the potential for Live, Virtual and Constructive capabilities to revolutionize training, education and testing for the defense and security sectors. What LVC capabilities need to be in the force? How will it enhance training? How much will it cost? What are the challenges? These are all questions the OBW team is taking on and we invite you to observe, participate and innovate with us at I/ITSEC.

NTSA is committed to helping “forge the future through innovation” by helping our leaders inside the government shape the requirements for synthetic environments and LVC and effectively communicating them to industry so that they can align their own research and development towards common objectives. We are also bringing industry ideas and innovations to the same forums, and through intense dialogue and debate, we will speed these capabilities to the force. However, successful use of LVC capabilities depends on being able to bring these capabilities together in a robust and secure network environment. So, in parallel, we are engaging the IT, IA and Cyber Security leaders to be part of the solution asking them to directly address the challenges of providing secure and persistent environments to every level of training. OBW is not just a demonstration; it is research, requirements, testing and results.

These are exciting times for LVC. I have personally seen a tremendous interest at all levels of government and industry to tap into this vast mountain of capability and to make smart investments in the use of synthetic environments in support of training and education and OBW will showcase many of these concepts and innovations on the I/ITSEC show floor. While the main audience viewing area for this weeks’ series of OBW vignette presentations is located in our NTSA Booth 339, many of our industry and government participants are planning their own simultaneous presentations as well as separate demonstrations of their own. The schedule of vignettes and list of participants is provided in the following pages.

The OBW team has worked tirelessly to bring you this inaugural event. My special thanks to the US Navy for leading this year’s effort with special tip of the hat to Kent Gritton and Gary Fraas for their spectacular leadership. I would also like to recognize this years’ participants and a special thanks to this year’s sponsors, Rockwell Collins, Cubic, CAE, L-3, as well as Cisco who is providing vital network equipment. We will expand next year to include external links to the internet and bringing coalition partners inside the net. We are pursuing a structured research agenda that will have an impact, so, get involved, ask questions and give us your feedback as we forge the future of training and education through innovation.



A handwritten signature in black ink, appearing to read "J. Robb".

RADM James Robb
President

OPERATION BLENDED WARRIOR/ LIVE, VIRTUAL, AND CONSTRUCTIVE

WHAT IS OBW?

OBW is an LVC event conducted between DoD and Industry to showcase new capabilities while documenting LVC integration and execution challenges.

WHAT IS LVC?

Live, Virtual, and Constructive (LVC)

Simulation - A broadly used taxonomy describing a mixture of live, virtual, and constructive simulation.

Live Simulation - Live simulation involves real people operating real systems. Military training events using real equipment are live simulations. They are considered simulations because they are not conducted against a live enemy.

Virtual Simulation - A simulation involving real people operating simulated systems. Virtual simulations inject human-in-the-loop in a central role by exercising motor control skills (i.e., flying an airplane), decision skills (i.e., committing fire control resources to action) or communication skills (i.e., as members of a C4I team).

Constructive Simulation - A constructive simulation includes simulated people operating simulated systems. Real people stimulate (make inputs) to such simulations, but are not involved in determining the outcomes. A constructive simulation is a computer program. For example, a military user may input data instructing a unit to move and to engage an enemy target. The constructive simulation determines the speed of movement, the effect of the engagement with the enemy and any battle damage that may occur.

WHY OBW/LVC?

In the age of shrinking budgets and ever increasing adversary capabilities/complexities, it is becoming more difficult and expensive to conduct realistic, effective and flexible training.

LVC can be used to increase the fidelity of training and the number of people trained while simultaneously reducing the cost. Additional progress can be made as integration of LVC assets is a lengthy and resource intensive effort.

OBW is a representative LVC event. While the objectives are different, OBW was planned and its technologies integrated similar to the real world. The challenges uncovered will be addressed through LVC communities. The goal is to reduce the time and resources to employ this important capability.

LVC is the future of readiness. The Warfighter and their platforms need LVC. The taxpayer deserves a fiscally prudent LVC. OBW is designed to improve LVC.

OVERARCHING SCENARIO

SCENE SETTER



The United States' ally, the country of Balboa, is surrounded by countries and militant groups that are openly hostile to both the US and Balboa. The US routinely conducts exercises, as well as deploys forces to Balboa, so it is not uncommon to have any particular mix of assets in theater at any given time.

On Day 1 of the OBW exercise, Balboa will experience a "black swan" event requiring Humanitarian Assistance/ Disaster Response that will both cause great infrastructure damage as well as encourage the surrounding unfriendly forces to take advantage of the situation.

Throughout the exercise, numerous injects, scenarios and missions consistent with real-world possibilities will be introduced such as Embassy requests to DoD, news

coverage, military-civilian interactions, joint operations, HA/DR operations, and force escalation.

All simulations will be conducted at the Unclassified level, and during the daylight/visible hours to facilitate the widest dissemination/demonstration. Vignette operations and capabilities are notional in nature and will be unclassified—please remember to keep discussions/questions of the demonstrations unclassified as well.

All events will be viewable and narrated in the NTSA booth (#339). Each event is also viewable in the individual booths in which each participant company is operating their simulators. Each Vignette will be 30 minutes long including any needed introduction/scene setter and closeout/summary.

AGENDA

OBW IS DIVIDED INTO FIVE BLOCKS OF THREE VIGNETTES EACH. BELOW IS A SHORT DESCRIPTION OF EACH. MORE DETAILS ARE AVAILABLE ON THE FOLLOWING PAGES.

BLOCK 1	Disaster Strikes	Monday 30 Nov 2015 1430-1600	Vignette #1 Disaster & Humanitarian Relief Vignette #2 Command and Control Vignette #3 Supply Convoy
BLOCK 2	Immediate Response	Tuesday 01 Dec 2015 1530-1700	Vignette #4 MEDEVAC Operations Vignette #5 Cyber Degraded Operations Vignette #6 Maritime Threat
BLOCK 3	Countering Exploitation	Wednesday 02 Dec 2015 1030-1200	Vignette #7 Airlift Protection Vignette #8 Integrated Cyber Operations Vignette #9 Air-to-Air Operations
BLOCK 4	Securing the Skies	Wednesday 02 Dec 2015 1600-1730	Vignette #10 Close Air Support Operations Vignette #11 Hostile UAVs Vignette #12 Air-to-Air Operations
BLOCK 5	Forward from the Sea	Thursday 03 Dec 2015 1030-1200	Vignette #13 Amphibious Landing Vignette #14 Amphibious Assault Vignette #15 Final Strike

BLOCK I

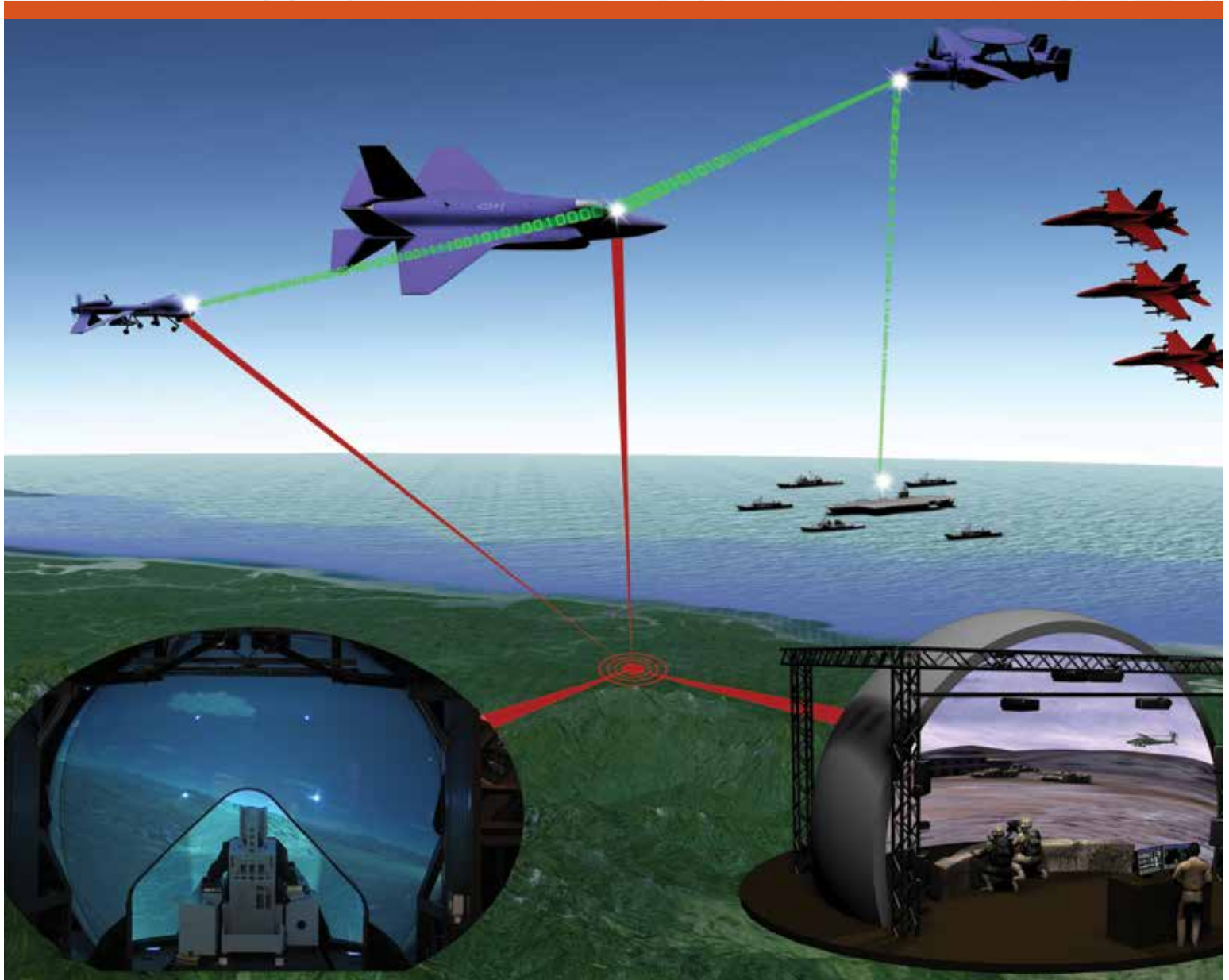
(MONDAY, 30 NOV 2015 | 1430-1600)

BLOCK I CONSISTS OF EVENTS THAT TAKE PLACE FROM DAY 1 TO DAY 4. THE EVENTS AVAILABLE FOR VIEWING ARE VIGNETTE 1 (DISASTER & HUMANITARIAN RELIEF), VIGNETTE 2 (COMMAND AND CONTROL), AND VIGNETTE 3 (SUPPLY CONVOY).

VIGNETTE 1	Disaster & Humanitarian Relief - Start Exercise	Monday 30 Nov 2015 1430-1500 Booths 339, 1463	<p>The world is shocked as it watches the country of Balboa endure a natural disaster. Relief organizations, and a coalition force lead by the United States, stream to the area in support. C4I Consultants (339) and Engineering & Computer Simulations, Inc. (1463) provide the narrative and background for this foundation to Operation Blended Warrior.</p>
VIGNETTE 2	Command and Control	Monday 30 Nov 2015 1500-1530 Booths 339, 2435, 2201, 1463, 1449, 2235, 1901	<p>With regional threats to security and the need to protect relief efforts, the US Military establishes an overwatch and begins to coordinate efforts of military and civilian agencies. PLEXSYS Interface Products, Inc. (2435) is providing an AWACS simulation, led the organization of assets provided by Rockwell Collins (2201), Engineering & Computer Simulations, Inc. (1463), L-3 Communications (1449), Lockheed Martin (2235) and AEGIS Technologies Group, Inc. (1901).</p>
VIGNETTE 3	Supply Convoy	Monday 30 Nov 2015 1530-1600 Booths 339, 249, 2248, 827, 1101, 1734	<p>A group of refugees and residents in a remote area have been isolated from their normal supplies of food and water. A supply convoy, protected by the military, is sent in response and comes under attack. Cubic (249) has provided simulations of the convoy and led the development of the operation, which highlights behaviors and imagery from Bohemia Interactive Simulations (2248), VT MÄK (827), TRU Simulation & Training (1101), and CAE (1734).</p>

Enabling Live Virtual Constructive (LVC) training

Achieve the proficiency you need



LVC benefits

- Enhanced training effectiveness
- Allows wider training boundaries
- Optimal for distributed joint exercises
- Greater safety
- Cost efficient

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Building trust every day

BLOCK 2

(TUESDAY, 1 DEC 2015 | 1530-1700)

BLOCK 2 CONSISTS OF EVENTS THAT TAKE PLACE ON DAY 5. THE EVENTS AVAILABLE FOR VIEWING ARE VIGNETTE 4 (MEDEVAC OPERATIONS), VIGNETTE 5 (CYBER DEGRADED OPERATIONS), AND VIGNETTE 6 (MARITIME THREAT).

VIGNETTE 4

MEDEVAC Operations

Tuesday
1 Dec 2015
1530-1600
Booths 339, 1463,
1734, 249, 1101,
1401, 2435

With the supply convoy trapped and taking fire, a rescue mission is mounted to retrieve casualties. Medics perform battlefield triage prior to evacuation, and field hospitals demonstrate critical care skills for the wounded. Engineering & Computer Simulations, Inc. (1463) led the effort and integrated their Tactical Combat Casualty Care (TC3) simulator with CAE's (1734) Aeromedical Evacuation Training System, including human patient simulators, and convoy and air assets from Cubic (249), TRU Simulation & Training (1101), FlightSafety International (1401) and PLEXSYS Interface Products, Inc. (2435)

VIGNETTE 5

Cyber Degraded Operations

Tuesday
1 Dec 2015
1600-1630
Booths 339, 2435,
2201, 1463, 1901

While continuing the convoy rescue effort, critical communications are interrupted. Eventually, the source of the interference is traced to a proxy force being employed by a near-peer threat to the north. The effectiveness of the cyber operation leads to an increased threat posture by the military. USPACOM J8I (1539) and NAWCTSD (339), in conjunction with Camber (1225), SOAR Technology, Inc. (2200) and Alion Science & Technology (835), demonstrate the transference of cyber effects from a cyber engagement into demonstrable effects within the broader LVC environment.

VIGNETTE 6

Maritime Threat

Tuesday
1 Dec 2015
1630-1700
Booths 339, 827,
2435, 2248, 439,
1273, 2200

Validating the threats posed by the neighboring country, small boats and fishing vessels, loaded with munitions, begin to make the trip south in an attempt to supply militants operating in the northern hills. Using maritime surveillance and a limited surface force, suspected arms shipments are intercepted. VT MÄK (827) partnered with Zedasoft (2435), Bohemia Interactive Simulations (2248), NAWCTSD (439), SAIC (1273) and SOAR Technology, Inc. (2200) to demonstrate their respective maritime capabilities working together.



Blended Training

Cubic Global Defense is driving secure, interoperable solutions for operating in a Live, Virtual and Constructive (LVC) training environment. Visit our Operation Blended Warrior booth where we will be demonstrating the integration of LVC assets used in military/civilian operations, including:

- P5 Combat Training System™ (P5CTS)
- Cubic Miniature Encryptor™ (CME)
- Individual Combat Aircrew Display System™ (ICADS) and L-3 Link SimuStrike™ F-16 simulator
- Engagement Skills Trainer (EST) 3000™
- Reconfigurable Vehicle Simulator
- Social Media Replication Toolkit™

Visit us at I/ITSEC in booths #1748 and #249



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BLOCK 3

(WEDNESDAY, 2 DEC 2015 | 1030-1200)

BLOCK 3 CONSISTS OF EVENTS THAT TAKE PLACE ON DAY 6. THE EVENTS AVAILABLE FOR VIEWING ARE VIGNETTE 7 (AIRLIFT PROTECTION), VIGNETTE 8 (INTEGRATED CYBER OPERATIONS), AND VIGNETTE 9 (AIR-TO-AIR OPERATIONS).

VIGNETTE 7	Airlift Protection	Wednesday 2 Dec 2015 1030-1100 Booths 339, 2201, 2235, 439, 2200, 429	The world begins to respond with additional aid through an airlift operation. Tensions mount as flights are threatened by hostile aircraft. A US carrier patrols a no-fly zone, and protects the flights in and out of a resupply airfield. Rockwell Collins (2201), Lockheed Martin (2235), NAVAIR 5.4 (439), and SOAR Technology, Inc. (2200), teamed up with ONR (439) and NAWCTSD (439) in this air-centric engagement; BGI (439) and Aptima (429) provide performance measurement capabilities.
VIGNETTE 8	Integrated Cyber Operations	Wednesday 2 Dec 2015 1100-1130 Booths 339, 1539, 1225, 2200, 835	The proxy forces interfering with US operations force a military response. A cyber attack on the remainder of the convoy seems to be a prelude to an attack. The US forces respond with a military intervention, and active operations against the militants are underway. US PACOM J81 (1539) and NAWCTSD (339), again in conjunction with Camber (1225), SOAR Technology, Inc. (2200) and Alion Science & Technology (835), demonstrate a different way of transferring cyber effects from a cyber engagement into effects within the broader LVC environment culminating with a kinetic response.
VIGNETTE 9	Air-to-Air Operations	Wednesday 2 Dec 2015 1130-1200 Booths 339, 439, 1700, 1449, 2435, 2201, 2200, 2235, 429	Knowing that the northern neighbor has vowed to support the militants, the US sets up an exclusion zone to protect the ground operations. The wisdom of that decision is validated when several sets of attack aircraft are intercepted. This 8v8 Defensive Counter Air vignette led by NAVAIR 5.4 (439) and their Next Generation Threat System, incorporates air assets from Boeing (1700), L-3 Communications (1449), PLEXSYS Interface Products, Inc. (2435), Rockwell Collins (2201), SOAR Technology, Inc. (2200), Lockheed Martin (2235) and USAF DTOC (339); BGI (439) and Aptima (429) provide performance measurement capabilities.

CAE

CAE

CAE is a global leader in delivery of training for the civil aviation, defense, and healthcare markets. At I/ITSEC 2015, two of CAE's business units – Defense & Security and Healthcare – will participate in the Operation Blended Warrior (OBW) Live-Virtual-Constructive (LVC) event.

CAE's Defense & Security business unit focuses on helping prepare customers to develop and maintain the highest levels of mission readiness. The company is a world-class training systems integrator offering a comprehensive portfolio of training centers, training services and simulation products across the air, land, sea and public safety market segments.

CAE Healthcare is a medical simulation business unit with a mission to improve healthcare education and patient safety. The company designs and builds products for patient simulation, surgical simulation, ultrasound simulation and clinical simulation management. CAE Healthcare's global adjunct faculty and clinicians develop medical simulation scenarios for medicine, nursing, health sciences, hospital systems and the military.

CAE and the OBW LVC Event

CAE will showcase two solutions as part of Operation Blended Warrior.



MQ-9 Reaper UAS Mission Trainer

CAE's MQ-9 Reaper UAS mission trainer will be used to provide intelligence, surveillance and reconnaissance (ISR) as well as strike capabilities during the OBW LVC mission. This UAS simulator comes complete with an immersive synthetic environment that provides an ideal platform for ab-initio training, pilot training, and sensor operator training. The MQ-9 Reaper UAS mission trainer features aircraft-specific operational scenarios tailored to customers' training needs; high-fidelity, accurate sensor simulation; Common Database (CDB); physics-based computer generated forces (CGF); and support for distributed mission operations (DMO) and training. As the prime contractor supporting the U.S. Air Force's MQ-1 Predator and MQ-9 Reaper training program, CAE has a range of experience delivering classroom, simulator, and live flying training for these remotely piloted aircraft. CAE also provides the USAF with courseware development for the MQ-1/MQ-9 training program, and is currently developing a high-fidelity Predator/Reaper UAS mission trainer for the Italian Air Force.



Aeromedical Evacuation Training System

CAE's Aeromedical Evacuation Training System will be featured during the OBW LVC aeromedical evacuation scenario. CAE's demonstration will include a C-130 fuselage trainer measuring approximately 28 feet in length and outfitted for the aeromedical evacuation mission. This particular C-130 fuselage trainer will be delivered to the U.S. Air Force and used at Dobbins Air Force Reserve Command immediately following I/ITSEC. Inside the C-130 fuselage trainer will be human patient simulators developed by CAE Healthcare. The medical manikins from CAE Healthcare to be demonstrated include:

- ✓ iStan, an advanced wireless patient simulator certified for inflight use aboard major military aircraft;
- ✓ Caesar, a patient simulator built for trauma, disaster response and combat casualty care;
- ✓ Lucina, a childbirth simulator developed to prepare teams for normal deliveries as well as childbirth complications and obstetrical emergencies;
- ✓ CAE Replay, a streamlined audiovisual solution for intelligent recording and easy debrief.

Summary

CAE firmly believes that integrated Live-Virtual-Constructive training capabilities will be an increasing requirement from global defense forces, and many are putting the foundation in place to enable more LVC training. This is evidenced by recent exercises such as Coalition Virtual Flag (CVF), which was held in parallel with Exercise Red Flag so that live-flying and simulated aircraft could participate in the joint, multi-national air combat training exercise. CAE supported the Royal Australian Air Force's participation in CVF, and this type of LVC training is not without technical challenges related to networking, interoperability, and security. CAE has focused much of its internal research and development efforts in recent years to distributed mission operations and integrated LVC training, which we believe will be increasingly important to military customers. We are pleased the NTSA has spearheaded the Operation Blended Warrior LVC Event during I/ITSEC so that government, academia and industry can continue to advance this critical capability.

BLOCK 4

(WEDNESDAY, 2 DEC 2015 | 1600-1730)

BLOCK 4 CONSISTS OF EVENTS THAT TAKE PLACE ON DAY 6. THE EVENTS AVAILABLE FOR VIEWING ARE VIGNETTE 10 (CLOSE AIR SUPPORT OPERATIONS), VIGNETTE 11 (HOSTILE UAVS), AND VIGNETTE 12 (AIR-TO-AIR OPERATIONS).

VIGNETTE 10	<p>Close Air Support Operations</p>	<p>Wednesday 2 Dec 2015 1600-1630 Booths 339, 2201, 2248, 1700, 1449, 2435, 249, 2235, 827</p>	<p>Ground operations come under fire in an area too difficult to support by land. An embedded Tactical Air Control Party calls for air support, and uses a digital 9-line message to provide targeting. The effort, led by Rockwell Collins (2201), includes their own Joint Terminal Air Control simulation and various air assets from Bohemia Interactive Simulations (2248), Boeing (1700), L-3 Communications (1449) and PLEXSYS Interface Products, Inc. (2435), and ground assets from Cubic (249), Lockheed Martin (2235) and VT MÄK (827).</p>
VIGNETTE 11	<p>Hostile UAVs</p>	<p>Wednesday 2 Dec 2015 1630-1700 Booths 339, 439, 2435, 2201, 827</p>	<p>In an ironic twist, unmanned vehicles launch from the north in large numbers and begin to fly towards the active operations area. Unsure whether they represent surveillance or offensive capability, manned aircraft are sent to intercept. Led by NAVAIR 5.4 (439) and their Next Generation Threat System, air assets from PLEXSYS Interface Products, Inc. (2435), Rockwell Collins (2201) and VT MÄK (827) integrate their systems to demonstrate this counter to an overwater threat. BGI (439) provides performance measurement.</p>
VIGNETTE 12	<p>Air-to-Air Operations</p>	<p>Wednesday 2 Dec 2015 1700-1730 Booths 339, 439, 1700, 1449, 2435, 2201, 2200, 429</p>	<p>Additional air threats present themselves in an attempt to keep the US forces from increasing their presence or coming ashore. The air operations center responds decisively when it learns that the UAVs and attack aircraft are focused on a nuclear storage facility along the beach near the northern border. A different look at Defensive Counter Air led by NAVAIR 5.4 (439) and their Next Generation Threat System incorporates air assets from Boeing (1700), L-3 Communications (1449), PLEXSYS Interface Products, Inc. (2435), Rockwell Collins (2201), SOAR Technology, Inc. (2200) and USAF DTOC (339); BGI (439) and Aptima (429) provide performance measurement capabilities.</p>



L-3 Link Simulation & Training, a Total Training Solution provider, is proud to participate in Operational Blended Warrior. Integrating virtual aircrew training products into the Live-Virtual-Constructive (LVC) training event demonstrates L-3 Link's expertise and versatility to maximize LVC training effectiveness. Guided by achievement of cost-effectiveness and combat realism, Link provides LVC tailored Total Training Solutions able to use existing infrastructure and integrate with current and future training capabilities to generate the best training possible to meet your unit level or large force exercise training requirements. Stop by Booth 1449 to discover more.

Link Simulation & Training

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BLOCK 5

(THURSDAY, 3 DEC 2015 | 1030-1200)

BLOCK 5 CONSIST OF EVENTS THAT TAKE PLACE ON DAY 7. THE EVENTS AVAILABLE FOR VIEWING ARE VIGNETTE 13 (AMPHIBIOUS LANDING), VIGNETTE 14 (AMPHIBIOUS ASSAULT), AND VIGNETTE 15 (FINAL STRIKE).

VIGNETTE 13	Amphibious Landing	Thursday 3 Dec 2015 1030-1100 Booths 339, 1273, 1734, 2248, 827, 249, 1101, 1533, 2435, 429	<p>Knowing that a show of force and physical presence is required to secure the area around the storage facility, the Marines are called in. Coming ashore in boats and aircraft, they quickly establish a beachhead and organize a defensive perimeter. SAIC (1273) led a strong grouping of surface, ground and air assets from CAE (1734), Bohemia Interactive Simulations (2248), VT MÄK (827), Cubic (249), Tru Simulation & Training (1101), PM TRASYS (1533) and Zedasoft (2435); SAIC is showcasing their SIMaaS (Simulation as a Service) and Aptima (429) is providing performance measurement capability.</p> <p><small>*Due to extent of activity, there will be no break between the Amphibious Operations vignettes.</small></p>
VIGNETTE 14	Amphibious Assault	Thursday 3 Dec 2015 1100-1130 Booths 339, 1273, 1734, 2248, 827, 249, 1101, 1533, 2435, 429	<p>The on-scene commander assesses the situation and directs the units to establish blocking positions along the logical attack axes. Marines fight their way to these objectives and secure roads. SAIC (1273), CAE (1734), Bohemia Interactive Simulations (2248), VT MÄK (827), Cubic (249), Tru Simulation & Training (1101), PM TRASYS (1533), Zedasoft (2435) and Aptima (429).</p> <p><small>*Due to extent of activity, there will be no break between the Amphibious Operations vignettes.</small></p>
VIGNETTE 15	Final Strike	Thursday 3 Dec 2015 1130-1200 Booths 339, 439, 1700, 249, 1449, 2435, 2200, 2235, 2201, 439, 429	<p>With the relief effort secure, the northern neighbor bottled up and the storage facility protected, the militants are the last remaining threat to the area. A final strike is called in to eliminate the last thoroughfare from the hills, effectively ending their ability to interfere. Military offensive operations are successfully concluded. NAVAIR 5.4 (439) uses their Next Generation Threat System and teams up with Boeing (1700), Cubic (249), L-3 Communications (1449), PLEXSYS Interface Products, Inc. (2435), SOAR Technology, Inc. (2200), Lockheed Martin (2235) and Rockwell Collins (2201) for this Air to Ground vignette; BGI (439) and Aptima (429) provide performance measurement capabilities.</p>



How do you connect all of the elements of an LVC event?

Cisco provides the networking solutions for next generation LVC training



Networking

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Brief, debrief and pause events with VTC, Voice Mission playback

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Connecting Live, Virtual and Constructive

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FLOOR PLAN



FLOOR MAP LEGEND

- | | |
|--|---|
| 1 Aegis Technologies Group (Booth 1901) | 12 Lockheed Martin (Booth 2235) |
| 2 Alion Science & Technology (835) | 13 NTSA, C4IC, Immersaview, QinetiQ, Booz Allen Hamilton & DTOC (339) |
| 3 Aptima (429) | 14 PLEXSYS Interface Products, Inc., & Zedsoft (2435) |
| 4 Boeing (1700) | 15 Rockwell Collins (2201) |
| 5 Bohemia Interactive Simulations (2248) | 16 SAIC (1273) |
| 6 CAE (1734) | 17 Soar Technology, Inc. (2200) |
| 7 Camber (1225) | 18 TRU Simulation + Training (1101) |
| 8 Cubic (249) | 19 VT MÅK (827) |
| 9 ECS (1463) | 20 NAWCTSD, BGI, ONR, SWOS & NAVAIR 5.4 (439) |
| 10 FlightSafety International (1401) | 21 PMTRASYS (1533) |
| 11 L-3 Communications (1449) | 22 AFAMS/USPACOM (1539) |

Participants - Distributed Training Center

▶ **National Training and Simulation Association** **Booth 339**

The NTSA booth is the primary OBW audience viewing area and performs a number of important functions. The booth is serving as a prototype Distributed Training Center (DTC) similar to that which can be found at military training sites. The DTC functions as the “hub” for performing network management and control, exercise management and execution, and exercise observation. Behind the scenes, it provides technical control of the exercise environment and enterprise solutions for converting between different interoperability protocols. Positions being manned for OBW include Battle Master, Exercise Director, white-cell/exercise operators and audio/visual control.

▶ **Naval Air Warfare Center** **Training Systems Division** **Booth 339**

NAWCTSD is the technical lead and primary integrator for OBW, and is the design agent of the OBW network and Distributed Training Center (DTC) concept. In addition, capabilities NAWCTSD has integrated into the DTC include Naval Air Forces’ principal Semi-Automated Force (JSAF), two different simulation language translators (Joint Simulation Bus - JBUS and Architecture Management Integration Environment - AMIE), and the cyber warfare effects simulator Network Effects Emulation System (NE2S). NE2S integrates traditional test and training environments with cyber-attack scenarios to provide realistic emulation of network and host-based cyberspace attacks.

▶ **132 Wing; Det 1;** **Distributed Training Operations Center** **Booth 339**

The Air National Guard’s DTOC is bringing its professional networking, modeling & simulation and manned white force capabilities to OBW. DTOC SMEs have in-depth experience integrating virtual and constructive players for a host of DoD platforms/MDSs and constructively simulate a multitude of platforms and their TTPs, IAW current doctrine, simulating the entire combat environment. Our network engineers architect and maintain DMO training networks at their respective combat capability (security) levels to enable full

spectrum training & mission rehearsal activities. Our M&S experts understand distributed simulation applications/standards and how to manipulate DIS application tools to stimulate/ emulate combat capabilities.

▶ **Booz | Allen | Hamilton** **Booth 339**

Booz Allen Hamilton has been at the forefront of strategy, technology, and engineering for more than 100 years, partnering with clients across the globe to solve their most difficult challenges. Booz Allen assisted in Operation Blended Warrior (OBW) 2015 early conceptualization and planning discussions, offering the firm’s well-established DoD expertise in Live, Virtual, Constructive (LVC) exercise support, analytics, and policy alignment. During OBW 2015, our LVC Training Environment team will support the NTSA White Cell, assisting in exercise observation, control, execution, and after action review. Meet with us to discuss taking your operational readiness to the next level using LVC. www.boozallen.com

▶ **Immersaview** **Booth 339**

Immersaview’s VADAAR helps bring OBW together by providing context for participants and observers. Booth 339 can observe participants during an exercise, despite being geographically separated, through VADAAR’s video, audio and data streaming capabilities. Importantly, all of this can be simultaneously recorded, allowing for during and after action review. The VADAAR Sender software is installed at each source on the remote booths, making them available over the network. The Viewer software displays these sources from the network, whether on a large display wall, or in a window on an instrument panel. Through capturing the display exactly as it appears, you can rely on VADAAR in every scenario, no matter the software or terrain in use.

Participants - Exhibit Floor

► **The Aegis Technologies Group Inc.** **Booth 1901**

MONARCH is a user configurable data, translation and routing engine capability. The philosophy and design of Monarch is centered on the idea of providing a flexible, powerful set of translation capabilities. To achieve this goal the system is based on a generic translation engine that relies on user defined input specifications to determine its operation. Since the core engine is independent of any particular translation requirement, solutions can be formed by changing the set of instructions given to the engine without modifying the software. A family of editors is provided to make modifying the operation of the system intuitive and quick.

► **Alion Science and Technology Corporation** **Booth 835**

Alion Science and Technology develops and maintains the Navy's primary Fleet Synthetic Training (FST) constructive simulation suite, the Navy Training Baseline (NTB). During this event the team integrates an active cyber range with the Fleet Synthetic Training environment. Cyber capabilities are modeled in COATS on an isolated network and the cyber effects are sent to the JBUS and transmitted to NE2S to stimulate the FST simulation environment and provide cyber degraded products to the Warfighter. JSAF is the primary constructive simulation with RAVE streaming full motion video unmanned system representations.

► **Aptima, Inc.** **Booth 429**

PM Engine™ is Aptima's system-based measurement tool that enables you to collect data from many different types of data sources, including: neurological, physiological, simulator data (HLA, DIS), built-in instructor operator station control, communications, and audio. The core power behind PM Engine is the ability to take in all of the different types of data, fuse it into one data model, and allow users to analyze and run computations on top of that data to provide a better understanding of exactly what is going on in the simulation or training environment. Users can then pull out critical information, link it to performance, and assess how well an individual or team is performing.

► **BGI, LLC** **Booth 439**

BGI's Analysis and Reporting Client (ARC) is a mature and proven software suite optimized for aviation data and adapted to the LVC domain. ARC can operate standalone on locally stored data or as a client to server based data warehouses. ARC users can create

and validate logic that operates on this data then examine the results in animation and reporting visualizations. ARC has many features important to data scientists including a robust scripting language with a visual programming language, timeline playback, event browsers, strip charts and report modules. ARC can be extended to include time synchronized video or sensor recordings.

► **The Boeing Company** **Booth 1700**

Boeing is a leader in the development of distributed simulation and training capabilities for U.S. and international militaries. The company develops technology that enhances live aircraft training through the integration of proven virtual and constructive systems with avionics mission computers to present a blended LVC picture for the Warfighter. Boeing is bringing its F/A-18 Low Cost Trainer and InSight Exercise Control and Monitoring stations to participate in the Operation Blended Warrior LVC event and demonstrate its Integrated-LVC capabilities.

► **Bohemia Interactive Simulations** **Booth 2248**

Bohemia Interactive Simulations offers video game-based simulation software adapted to support Live, Virtual and Constructive simulations. High-fidelity virtual environments are enabled on the desktop with VBS3 and for part-task and full mission simulators with VBS-IG. VBS Gateway provides native DIS/HLA connectivity. With little or no development, VBS can virtually simulate any entity whether it be an avatar, a vehicle, or complex weapon systems needed for exercises on land, sea, littoral, or in the air. BISim is providing a correlated terrain database built with TerraTools from TerraSim that, combined with VBS, will be used in every Operation Blended Warrior vignette.

► **C4i Consultants** **Booth 339**

C4i Consultants is pleased to provide EDMSIM (Emergency and Disaster Management Simulation) to the OBW event. EDMSIM is an interactive, electronic tabletop training solution for emergency response and crisis rehearsal training designed specifically for Emergency Management staff, Emergency Operations Centers and Civil Leadership. A highly flexible and adaptable tool, EDMSIM allows teams to improve communications, validate contingency plans and procedures and perform better in an environment which realistically portrays a natural or man-made disaster. EDMSIM is a proven performer used by US Northern Command, US Army and US National Guard for the conduct of training exercises.

► CAE

Booth 1734

CAE will showcase two solutions as part of the Operation Blended Warrior (OBW) live-virtual-constructive event. CAE's MQ-9 Reaper unmanned aerial system (UAS) mission trainer will be used to provide intelligence, surveillance and reconnaissance (ISR) during the mission. This UAS simulator features a range of CAE's simulation technologies, such as high-fidelity sensor simulation and common database (CDB). CAE will also showcase an Aeromedical Evacuation Training System. CAE's demonstration will include a C-130 fuselage trainer outfitted for the aeromedical evacuation mission. This particular C-130 fuselage trainer will be delivered to the U.S. Air Force and used at Dobbins Air Force Reserve Command immediately following I/ITSEC. Inside the C-130 fuselage trainer will be human patient simulators developed by CAE Healthcare.

► Camber Corporation

Booth 1225

Cyber ranges in the CENTS portfolio expose operators to real cyber threats to advance their technical skills, all without harming production equipment. CENTS is used in validating solutions and the development of innovative approaches enhancing operational competencies. The risk-free environment of CENTS and its scenario based stimuli allow crews to experience and conduct aggressive activities to: disrupt, obstruct, and destroy the integrity of the network. Fidelity, realism, and engineering solutions within a full-lifecycle product provide realism in traffic generation, cyber-attacks, and a synthetic Internet topology. Specific uses of the CENTS product include: appliance testing, team training, and workforce assessments.

► Cubic Global Defense

Booth 249

Cubic Global Defense is an industry leader in combat training systems. Our Operation Blended Warrior Live, Virtual, and Constructive demonstration integrates military and civilian operations through an architecture of DoD fielded systems, utilizing P5 Combat Training System (P5CTS), Cubic Miniature Encryptor (CME), Individual Combat Aircrew Display System (ICADS), and L-3 SimuStrike™ F-16 simulator. Cubic is also showcasing our Engagement Skills Trainer (EST) 3000 for virtual marksmanship training, Reconfigurable Vehicle Simulator (RVS) for convoy operations, and Social Media Replication ToolKit to deliver a visualization of real-world environments. Cubic is enabling a safer world through its innovative, scalable, and secure training systems.

► Engineering & Computer Simulations, Inc.

Booth 1463

Engineering & Computer Simulations (ECS) is a small business with

over 18 years of experience providing Simulation and Training products and services across a wide range of commercial and government customers. Our Emergency Management Staff Trainer (EMST), funded through the National Guard Bureau is being used within OBW to demonstrate how we teach the complexities of providing assistance within a large scale humanitarian disaster. Our Tactical Combat Casualty Care Simulation (TC3Sim), funded through the U.S. Army is being used within OBW to demonstrate how individuals and teams are able to train together to better learn, understand, and practice the complexities of providing battlefield medicine

► FlightSafety International

Booth 1401

FlightSafety International is providing a rotary-wing virtual simulator, the EC135, for the first phase of this multi-year event. The primary showcase will be during convoy and MEDEVAC missions. Emulating a humanitarian aid mission in the North Hills region of the fictional nation of Balboa, we will demonstrate our high fidelity rotary-wing aircraft simulator and our ability to integrate with and participate in robust LVC environments.

► L-3 Communications, Link Simulation & Training

Booth 1449

L-3 Link Simulation & Training, a Total Training Solution provider, is proud to participate in Operational Blended Warrior by integrating some of its virtual aircrew training products to highlight Link's expertise and versatility at meeting an integrated Live-Virtual-Constructive (LVC) training event's capability requirements and learning objectives. For this event, two of Link's SimuStrike Part Task Trainers will be used as a virtual and "Live" surrogate F-16 for air-to-air and air-to-ground operations. Additionally, Link will provide a virtual adversary fighter aircraft using a high-fidelity and reconfigurable Desktop Trainer simulator.

► Lockheed Martin Mission Systems and Training

Booth 2235

Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems and products. As part of the Operation Blended Warrior event, we will demonstrate two capabilities: 1) Multi-Function Pilot Training Aids (MFTA) used for Pilot Vehicle Interface (PVI) familiarization on the C-130 and based on the Prepar3D flight training software application. Pilots use this device to prepare for progress to the full mission trainer, and 2) crew training using a desktop Advanced Gunnery Training System (AGTS) combined with VBS3, and is used by armored gunnery crews prior to live fire training.

► **Naval Air Systems Command**
Booth 439

NAVAIR's Next Generation Threat System (NGTS) is a synthetic environment generator used to support training, testing, analysis, and research and development. NGTS models friendly and threat aircraft, ground and surface platforms, and their corresponding weapons and subsystems. The Architecture Management Integration Environment (AMIE) is a cross-platform middleware that provides an interface abstraction, a collection of libraries, and a set of tools that help solve reusability problems associated with the direct implementation of distributed simulation protocols. These systems will play a key role in several OBW vignettes.

► **Marine Corps Systems Command,
PM Training Systems**
Booth 1533

The Deployable Virtual Training Environment (DVTE) utilizes Virtual Battle Space 3 (VBS3) for small unit tactical decision-making training aligned with Training & Readiness (T&R) manual requirements. DVTE is fielded to Battle Simulation Centers (BSC) throughout the Marine Corps, deployed units and Navy ships. VBS3 has proven interoperability with other simulations using realistic geo-typical and geo-specific terrain. For Operation Blended Warrior, Marines will utilize VBS3 to conduct an amphibious assault using Combat Rubber Raiding Crafts (CRRC) and Amphibious Assault Vehicles (AAV). In addition, VBS3 will provide real-time video from an Unmanned Aerial System (UAS) patrolling the area of operations.

► **Office of Naval Research**
Booth 439

The Office of Naval Research, working with the Naval Air Warfare Center Training Systems Division, is completing the first phase of a multiyear effort investigating training fidelity issues. The primary showcase for this effort will be during a carrier airwing support mission within OBW. Emulating a strike training mission at NAS Fallon, our participants will demonstrate new methods for integrating live aircraft into robust LVC environments, enabling greater complexity, scale and flexibility in live training events.

► **PLEXSYS Interface Products, Inc.**
Booth 2435

PLEXSYS Interface Products, Inc., is demonstrating its Advanced Simulation Combat Operations Trainer (ASCOT), the sonomarc platform communications simulator and the U.S. AWACS Block 30/35 Simulator. ASCOT is a multi-purpose environment generator capable of providing a wide variety of entity types, data-link simulation and emitter interactions for training across the simulation spectrum. Somomarc is a communications system used to simulate a wide range of radio types, provide translations for LVC communications,

as well as speech to text and text to speech for automated white force inputs. The AWACS Block 30/35 Mission Training Centers are used by USAF Air Battle Managers around the world for all phases of aircrew training.

► **QinetiQ Training and Simulation**
Booth 2039

QinetiQ (QQ) is a global business based in the UK, which include US subsidiaries: QinetiQ Training & Simulation and QinetiQ North America - Foster Miller. QQ supported over one hundred LVC training and experimentation events over the last 10 years. For Operation Blended Warrior, QQ provides advice and experience on policy and interoperability SMEs to include our AIME gateway. AIME is middleware used to connect multiple LVC systems together and enables interoperability. This includes functionality that supports exercise management, after action review, and multi-level security.

► **Rockwell Collins, Simulation & Training Solutions**
Booth 2201

Rockwell Collins offers military pilots an immersive, highly realistic collaborative training environment. Join us for demonstrations and see how LVC-enabled, blended training from Rockwell Collins is open, secure, interoperable and available now. Product offerings demonstrations include the Joint Secure Air combat training System (JSAS), with the first certified, four-level Multiple Independent Levels of Security (MILS) training equipment. JTAC Real Fires™ transportable trainer allows for portable realistic training between live and virtual players. Common Open Reusable Elements (CORE™) simulation architecture helps to keep your aircraft and simulator software concurrent. The high-fidelity EP@8100 image generator and Whole-Earth synthetic environment provide unparalleled realism in a completely immersive and adaptive environment.

► **SAIC**
Booth 1273

SAIC and VMware are providing a cloud solution called High Fidelity Network (HiFiNet) where high fidelity applications are delivered via the cloud to low-cost end point user devices. SAIC cloud and simulation engineering combined with VMware GPU virtualization technology will provide a view of the OBW warfight using MÄK simulation applications. The applications will be fully functional on zero client, low-end computing devices, and interoperable with other OBW participants. HiFiNet can facilitate high-fidelity training in locations with little infrastructure and computing hardware. By providing our customers with graphics-intensive applications via the cloud, significant cost savings and greater control of their simulation environments can be realized.

► **Soar Technology, Inc.**
Booth 2200

In the OBW Cyber Vignettes, Soar Technology's (SoarTech's) Simulated Cognitive Cyber Red Agent Model (SC2RAM) serves as intelligent OPFOR to degrade or deny civilian and military C2 network infrastructure while adapting to defensive responses. In the Maritime vignette, Soar Technology will provide interactive, speech-enabled, role-playing agents that simulate crewmember behavior for the P-8A aircraft. In the Fallon, Strike, and Air2Air vignettes, Soar Technology's Training Executive Agent (TXA) dynamically adapts SAF behavior to ensure that the SAFs are compliant with range-training and range-safety requirements (even when those requirements change during execution).

► **TRU Simulation + Training, Inc.**
Booth 1101

The V-280 flight simulator manufactured by TRU Simulation + Training is a high fidelity Flight Training Device (FTD) and Interactive Multi Media Instruction (IMI) virtual Maintenance Trainer for the Bell V-280 Valor™. The FTD gives the pilots a true sense of the aircraft's next generation tiltrotor operation. The Bell V-280 will be operating as a MEDEVAC. See how the V-280 performs a multitude of vertical lift missions unachievable with current aircraft. This FTD will familiarize the legacy helicopter pilot community with the transformational acceleration, deceleration, low speed agility, and high speed maneuverability of a next generation V-280 tiltrotor that will fundamentally change the way pilots employ, fly and fight in future conflicts.

► **US Pacific Command Cyber War Innovation Center**
Booth 1539

The Cyber Operational Architecture Training System (COATS) is a U.S. DoD Modeling & Simulation Coordination Office High-Level Task, led by the U.S. Pacific Command Cyber War Innovation Center, that integrates existing cyber range environments, traditional simulation architectures, operational networks, and cyber emulations to safely and securely synchronize and deliver realistic cyber effects to the entire battlestaff – cyber for all. In doing so COATS provides an integrated and contested training environment where red and blue operators plan, execute and experience realistic cyberspace operations and conditions in all domains.

► **US Navy Surface Warfare Officer School**
Booth 439

SWOS is the nation's premiere military institution with the responsibility for training our nation's Surface Warriors with the skills and art of maneuvering and navigating the world's most sophisticated warships. The SWOS exhibit showcases one of the school's fundamental trainers for teaching seaman basic and advanced

ship handling skills. The Conning Officers Virtual Environment III trainer replicates all the controls, displays, and the 'out the window' scenes of being on an actual Navy Warship Bridge. This OBW demonstration consists of a Virtual Ship and the US Navy's simulation models and harbor databases.

► **VT MÄK**
Booth 827

VT MÄK is demonstrating commitment to the Live/Virtual/Constructive training community with a full suite of simulation and interoperability tools. MÄK is leading the 'Maritime Vignette' and supporting several others. VR-Forces provides naval vessels, civilian shipping and relief boats, and a rotary-wing UAV search and rescue mission. DI-Guy Scenario and ECOSim Tactics simulate ground forces defending a facility, civilian populations in distress during convoy missions, and targets for CAS missions. VR-Vantage provides situational awareness and demonstration support. MÄK is helping the preparation phases of this multi-organization exercise by providing VR-Exchange gateways and the MÄK Data Logger for scenarios recording and playback.

► **ZedaSoft, Inc.**
Booth 2435

ZedaSoft, Inc., is demonstrating its Mockingbird product, a reconfigurable UAV/RPA virtual simulator with EO/IR and SAR payloads. UAV/RPA performance is configurable from small low altitude platforms to large high altitude performance. It provides streaming EO/IR video to H.264 protocol media viewers over the network. The product includes a verified DIS v6 protocol interface for Distributed Mission Operations exercises. MetaVR, Inc., has provided their VRSG image generator and Southwest US region database to generate the EO/IR and SAR imagery. Hundreds of 3-D fixed ground, ground, air and sea vehicle models are also in their provided libraries.



OBW Thank You Letter

When we began Operation Blended Warrior eight months ago, we were not sure what to expect. It was unclear who exactly would participate, what vignettes would comprise OBW nor the degree of difficulty in enacting such a demanding and expansive Special Event. Since then, we have been overwhelmed by what has transpired. The anticipated difficult tasks and undertakings were made much easier by the collegial approach by all who participated in OBW planning.

The result of our combined efforts has been 15 discrete vignettes spanning 7.5 hours and pulling from capabilities offered by 31 companies/organizations. But, as is true with most things in life, the most impressive part of OBW has been the people involved. While we cannot mention by name all the people who provided so much to make Operation Blended Warrior a reality, there are a few that absolutely need recognition.

First and foremost deserving recognition is **Dr. Angus T. McLean** (Rockwell Collins) for leading the vignette creation portion of OBW. Equally important on the technical side are **David Kotick** and **Troy Bennett** (NAWC TSD) for designing the Distributed Training Network that made the virtual environment possible. And last, but not least, are the vignette leads for organizing their teams of people in creating compelling vignettes (in alphabetical order): **Ron Allen** (CUBIC), **Kirk Bonnevier** (NAVAIR 5.4), **Derek Bryan** (USPACOM J81), **Charles Caldwell** (C4IC), **Brent Smith** (ECS), **Bryan Spaulding** (VT MÄK), **Sandra Velez** (NAWCTSD), **Homer Walden** (PLEXSYS), and **Dr. Michael Woodman** (SAIC).

It has been a real pleasure working with everyone. Thank You for making Operation Blended Warrior successful!



Gary R. Fraas
OBW Lead
NTSA



Kent Gritton
OBW Director
NAWCTSD

PARTICIPANTS AND SPONSORS

THE STAFF FOR THE OBW EVENT WOULD LIKE TO EXTEND A SPECIAL
THANK YOU TO ALL THE PARTICIPANTS AND SPONSORS INVOLVED.

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