TOPIC NUMBER: N161-043 | **SBIR INVESTMENT: $1,613,517** | **PHASE III FUNDING: $13,001,964**
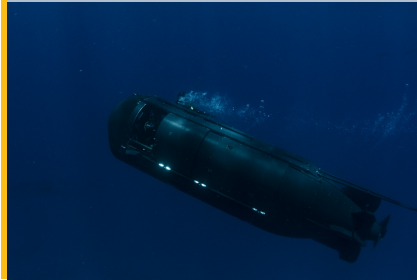
NAVY SBIR/STTR SUCCESS STORY

AUTOMATED VERIFICATION AND VALIDATION FOR DISTRIBUTED TESTING

With the help of critical SBIR funding, IDT met the Navy's Automated Verification and Validation goals for distributed testing while reducing costs and eliminating the manpower bottleneck.

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THE CHALLENGE

There is a need to implement Automated Verification and Validation (V&V) to support distributed testing between the Navy's AN/SQQ-89 Undersea Warfare Combat System, AEGIS Weapon System (AWS), and other combat system elements. Capabilities at the time did not support distributed testing with stand-alone or wrap-around simulation and stimulation (SIM/STIM) tools. Because of this, NAVSEA sought an innovative technology, via the SBIR program, that would reduce lifecycle costs through improved V&V coverage, and would reduce the manpower required for setup and testing.

THE TECHNOLOGY

Innovative Defense Technologies (IDT) set out to address these issues by providing an Automated V&V framework for distributed testing that also supports the necessary SIM/STIM to conduct testing in a variety of configurations. Drawing from the company's hugely successful Automated Test and Re-Test (ATRT) software suite, the novel approach increases SIM/STIM capability while providing an automated tool suite that leverages a model-based systems engineering approach. By leveraging these core technologies, IDT provided the necessary infrastructure needed to achieve the Navy's automated V&V goals for distributed testing while reducing development costs.

THE TRANSITION

After successful Phase I and Phase II SBIR projects with NAVSEA, the Office of Naval Research (ONR) awarded IDT a Phase III cost-plus-fixed-fee contract (N00014-19-C-1054) for the Cloud-to-Edge (CTE) development worth over $13 million. The goal of the Phase III project was to leverage IDT's innovative approaches to build and share a complete and accurate operational picture. By harnessing the power of cloud computing and big-data fusion, the CTE environment enhances the agility and responsiveness of naval warfighters. The CTE environment is designed for use by Sailors and Marines across land, sea and air domains. It enables secure combat system development, automated software testing/analysis, and scalable simulation.

THE NAVAL BENEFIT

Automated V&V for Distributed Testing yields long-term cost and quality benefits for the SQQ-89 program, increases V&V coverage, and reduces the 18-month average lag time between software baseline freeze and combat system certification to 12 months or less. It improves readiness for the CTE program through extensive pre-mission training, feedback, and assessment, while enhancing operational information-gathering and decision-making. In addition, the CTE program has created a new pathway to revolutionize the speed at which the Navy can modernize current systems and keep pace with future threats.

THE FUTURE

While IDT continues to work on its current Phase III contract with ONR until 2024, the ultimate goal is to enable the Navy to make software changes without requiring additional authorities and to assess the performance of CTE environments either on single vessels or within larger carrier strike groups against a variety of defined mission scenarios. The result will be certified software, deployable by the Navy on demand, for all carrier strike groups. This is one of over 125 Navy projects that leverage IDT's ATRT capabilities in support of NAVSEA, NAVAIR, NAVWAR, and ONR. Using the core technologies of ATRT, the company continues to enable the combination of combat system virtualization with near real-time system analysis.