This paper describes objective technical results and analysis. Any subjective views or opinions that might be expressed in the paper do not necessarily represent the views of the U.S. Department of Energy or the United States Government.

TechConnect Innovation Challenge and Defense TechConnect Chal Submission Form

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	Organization Information
Company or Organization:	**Sandia National Laboratories**
Website URL:	**www.sandia.gov**
Organization size:	[ ] 1 - 19 [ ] 20 - 99 [ ] 100 - 499 [ ] 500 - 2499 [x] 2500 or more
	Technology Details
	List as you want printed in the program.
Technology/Solution Name:	**HADES - High-Fidelity Adaptive Deception & Emulation System**
Brief Description of Technology in layman's terms:	**Method and apparatus for protecting virtual machines. Computer system creates a copy of a group of virtual machines in an operating network in a deception network to form a group of cloned virtual machines in the deception network when the group of the virtual machines is accessed by an adversary.**
	50 words max.
Technology Development Status:	[ ] Concept [x] Prototype [ ] Proven Manufacturability [ ] Ready to Market [ ] Commercial Product
Organization Type:	[x] Academic/Gov Lab [ ] Early-stage Startup (Seed) [ ] Mid-stage Startup (A or B) [ ] Commercial Startup (C+) [ ] Small to Medium Enterprise [ ] Corporation
Primary Application Area:	[ ] Materials, Chemical [ ] Electronics, Sensors, Communications [x] Cyber, AI, Data, Software [ ] Space, Defense, Mobility [ ] Energy, Efficiency, Resilience [ ] Water, Waste, Environmental [ ] Medical Devices [ ] Biotech, Pharma [ ] Manufacturing, Instrumentation

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Secondary Application Areas: (select all that apply)	[ ] Materials, Chemical [ ] Electronics, Sensors, Communications [ ] Cyber, AI, Data, Software [x] Space, Defense, Mobility [ ] Energy, Efficiency, Resilience [ ] Water, Waste, Environmental [ ] Medical Devices [ ] Biotech, Pharma [ ] Manufacturing, Instrumentation [ ] Other
Other:	
	(if you selected Other above)
Technology Keywords:	**Cybersecurity, Deception Technologies, VMI**
	Enter up to 3 technology keywords separated by commas.
Market Keywords:	**Cybersecurity, Network Defense**
	Enter up to 3 market keywords separated by commas.
Detailed Technology Summary:	The HADES platform is a deception environment that utilizes Software Defined Networks (SDN), cloud computing, dynamic deception, and agentless Virtual Machine Introspection (VMI). These elements fuse to not only create complex, high-fidelity deception networks, but also provide mechanisms to directly interact with the adversary—something current deception products do not facilitate. At the onset of an attack, adversaries are migrated into an emulated deception environment, where they are able to carry out their attacks without any indication that they have been detected or are being observed. HADES then allows the defender to react to adversarial attacks in a methodical and proactive manner by modifying the environment, host attributes, files, and the network itself in real-time. Through a rich set of data and analytics, cybersecurity practitioners gain valuable information about the tools and techniques used by their adversaries, which can then be fed back to the network defender as threat intelligence.
	What is transformational about this technology? How is it different from existing technologies? What is the potential impact on industry, markets and society? 200 words max.
Value Proposition:	The HADES platform is the only comprehensive solution to deceive, interact with, and analyze adversaries in real-time. The unique insight gathered while using HADES can be used to implement stronger network defenses and prevent future attacks. HADES creates high-fidelity deception environments based on real system attributes; provides granular insight into attacker's tools and tactics (malware, behavior, workflow); allows interaction with adversaries through host, network, and file modification; and provides varying operating and deployment modes to facilitate various network models
	Why should a prospector or funder be interested in this technology? faster/lighter/stronger/cheaper/efficient, etc. 200 words max.
List any Vetted Programs/Awards your tech has been acknowledged	R&D 100 Award
	i.e, Prize, Challenge, Accelerator, Award Programs. 50 words max.
Any Government Awards/Contracts (list agency, amount, award-date)**:**	
	i.e, SBIR, OTA, Grants, etc. 50 words max.
Any External Funding to Date (non-Gov.)**:**	
	VC, corporate, angel, grants, etc. 50 words max.
Market Strategy, Customers & Partners:	
	200 words max.
Please document top 3 executive team members and experience:	**Vincent Urias is a Principal Member of Technical Staff at Sandia National Laboratories, where he has spent the last twelve years conducting cyber security research and development. His research areas include cyber test-bedding, cyber modeling and simulation, as well as cyber analytics, cloud**

	computing, and networking. **William Stout is a Senior Member of Technical Staff at Sandia. His research interests include emulation platforms, network virtualization, software-defined networking, and cyber-security systems design and assessment. He holds a Master’s in degree in Computer Engineering from the Air Force Institute of Technology.** **Caleb Loverro is a Principal Member of the Technical Staff at Sandia where he has worked as a reverse engineer in Cybersecurity since 2009. He holds a master’s in Computer Science from the Naval Postgraduate School.**
	200 words max.
Would you like your tech to be considered for XXXXXX	[ ] Yes [ ] No