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Virtual Blue Team/Red Team tabletop exercise advancements using AVERT Virtual Tabletop (AVERT-VT)

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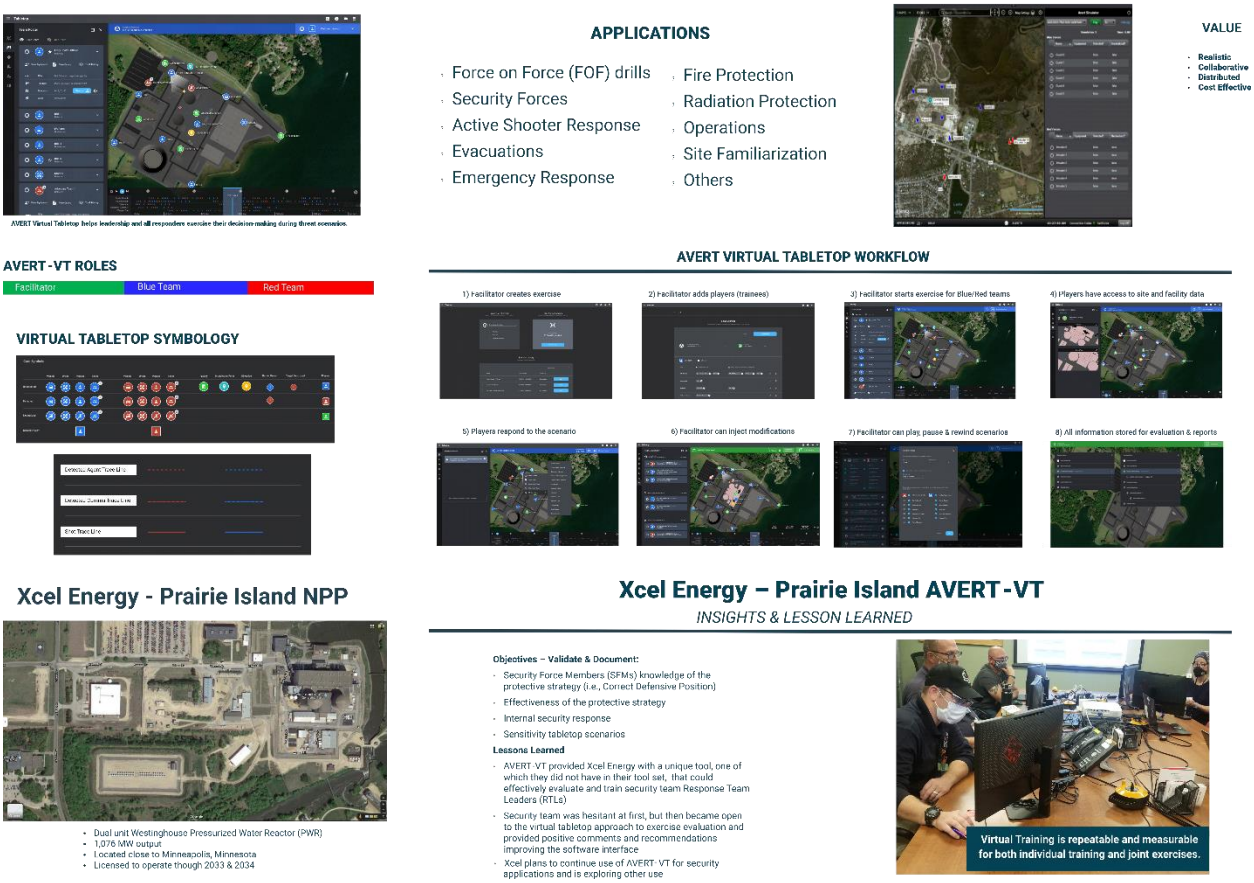
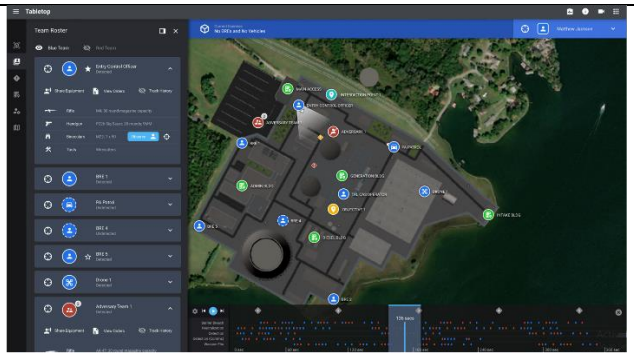
ABSTRACT

Security tabletops and Force on Force (FOF) drills and exercises (both full and limited scope) are very beneficial for assessing and improving security posture. While tabletops can involve only a few individuals at a time, larger scale FOF drills and exercises need to engage many participants simultaneously to test and validate the overall protective strategy and all of the required supporting activities. However, during pandemic times, such as COVID-19, doing live FOF exercises with multiple team members and different security teams participating at the same time (i.e., > 10 in a given location) can result in increased and unacceptable risk of exposure. This results in postponing FOF exercises and it risks deterioration of security personnel's protective strategy knowledge. FOF drills are expensive and time-consuming activities that can benefit from the use of modern modeling, simulation and gaming technologies. Using the same technology that is deployed for multi-player video games, performing FOF using software in a virtual environment offers several advantages including addressing COVID-19 social distancing. In the fall of 2020, ARES Security Corporation (ARES) deployed the first commercial version of AVERT Virtual Tabletop (AVERT-VT) to Xcel Energy's Prairie Island nuclear plant, which is located outside of Minneapolis, Minnesota. AVERT-VT provides an interactive environment for security forces (Blue Team), hostile forces (Red Team) and the exercise facilitator to walk through and respond to a threat scenario. This exercise environment is based upon the integration of ARES' AVERT Physical Security (AVERT-PS) modeling and simulation software and AVERT Command and Control (AVERT-C2) software, both of which have large market deployments. This paper will present the AVERT-VT software, discuss the benefits and provide insights and lessons learned from the Prairie Island deployment.

Poster Discussion



The following is a summary of the poster presented at the conference.

The AVERT Virtual Tabletop (AVERT-VT) software is an interactive, state-of-the-art tool to perform tabletop exercises. The advantage of the AVERT-VT tool is, unlike conventional tabletop tools, realistic modeling of guard and adversary response is modeled instead of relying on a roll of the dice.	 AVERT Virtual Tabletop helps leadership and all responders exercise their decision-making during threat scenarios.

<table>
<tr>
<td>The applications for AVERT-VT vary from security Force on Force (FOF) preparation & limited scope drills to Emergency Response and Site Familiarization. Any activity that involves the movement of people based upon a criteria can be accommodated.</td>
<td>APPLICATIONS
. Force on Force (FOF) drills
. Security Forces
. Active Shooter Response
. Evacuations
. Emergency Response
. Fire Protection
. Radiation Protection
. Operations
. Site Familiarization
. Others</td>
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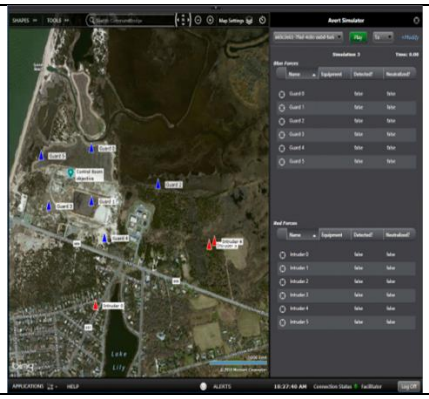
<td>AVERT-VT provides:
• Realistic exercise experiences
• An interactive and Collaborative environment
• Technology that can easily be Distributed for multi-player & organization participation, including outside organizations
• Cost Effective</td>
<td> 
VALUE
· Realistic
· Collaborative
· Distributed
· Cost Effective</td>
</tr>
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<td>Player Roles:
• Facilitator – sets up and controls the exercise. Able to view all participants.
• Blue team – Response Team Leader (RTL), facility leaders, supervisors and officers. Sees only blue force and detected red forces during tabletop exercise.
• Red team - Plays as adversaries; can execute coordinated attack scenarios. Sees only red and detected blue forces during tabletop exercise.</td>
<td>AVERT-VT ROLES
Facilitator
Blue Team
Red Team</td>
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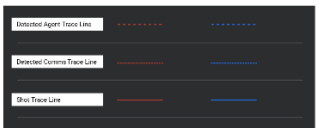
<td>AVERT-VT uses an easy to understand color and symbols to interact with the user. Both people, gun traces, detection and related information is presented in an easy to digest manner.</td>
<td>VIRTUAL TABLETOP SYMBOLOGY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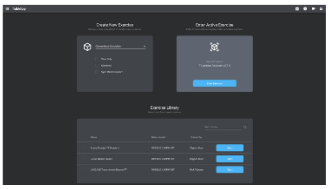
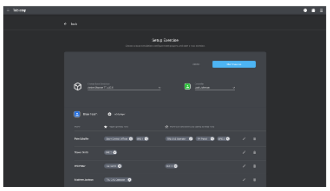
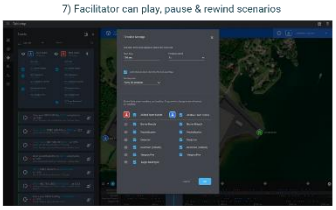
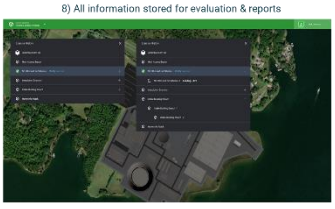
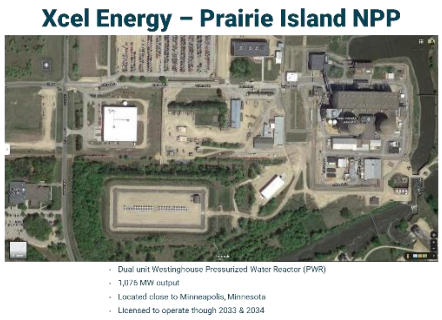
The following present the AVERT-VT workflow: 1. The Facilitator creates the exercise based upon the task at hand. Either a new simulation or an existing simulation can be used. 2. The Facilitator then adds players (trainees) and configures unique settings and loadouts.	**AVERT VIRTUAL TABLETOP WORKFLOW** 1) Facilitator creates exercise  2) Facilitator adds players (trainees) 
3. The exercise is started, and Blue/Red teams are created. Each team will only see their own assets, until adversaries are detected. Note: Users can play without Red Team live players or Facilitator. 4. Players have access to critical site and facility data, such as floorplans, that they can utilize throughout the exercise. Dissemination of data can be controlled by Facilitator.	**AVERT VIRTUAL TABLETOP WORKFLOW** 3) Facilitator starts exercise for Blue/Red teams 4) Players have access to site and facility data
5. Players respond to the incidents utilizing a variety of modifications within the system. AVERT simulates the outcomes of these decisions to show how they affect the ongoing scenario. 6. The Facilitator can also introduce modifications into the exercise which can change the scenario, attack and response. A modification history is also available to keep track.	**AVERT VIRTUAL TABLETOP WORKFLOW** 5) Players respond to the scenario. 6) Facilitator can inject modifications
7. The Facilitator can play scenarios, pause, interject new behavior for AVERT to simulate, review results and make further adjustments. 8. Exercise changes and scenarios are stored in a “Simulation Tree” to easily switch between different exercises and scenarios.	**AVERT VIRTUAL TABLETOP WORKFLOW** 7) Facilitator can play, pause & rewind scenarios  8) All information stored for evaluation & reports 

The AVERT-VT software was deployed at the Xcel Energy Prairie Island plant in 2020. The Prairie Island plant is a dual unit Westinghouse PWR rated at 1,076 MW, located close to Minneapolis, Minnesota and is licensed to operate through 2033 & 2034.



Xcel Energy selected the AVERT-VT product in 2020 to validate some security modifications, while addressing COVID-19 social Distancing requirements.

Xcel's objectives were to Validate & Document:

- Security Force Members (SFMs) knowledge of the protective strategy (i.e., Correct Defensive Position)
- Effectiveness of the protective strategy
- Internal security response
- Sensitivity tabletop scenarios

Lessons Learned

- AVERT-VT provided Xcel Energy with a unique tool, one of which they did not have in their tool set, that could effective evaluate and train security team Response Team Leaders (RTLs)
- Security team was hesitant at first, but then became open to the virtual tabletop approach to exercise evaluation and provided positive comments and recommendations for improving the software interface
- Xcel plans to continue use of AVERT-VT for security applications and is exploring other use