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The Integrator

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Hacking Back

From the Executive Director

Thank you all for the warm welcome as I've come on board to SoSE&I over the past few weeks. Kevin Fahey left some big shoes to fill, but I'm thrilled to be here, and I'm confident this team will not miss a beat.

Many of you I already know from previous jobs, and I look forward to meeting the rest of you soon. We have a lot on our plate as we head into 2016, including executing Network Integration Evaluation 16.2 and the first Army Warfighting Assessment, finalizing cyber requirements, advancing the Common Operating Environment, implementing an expanding Engineering & Integration mission including the ASA(ALT) Integrated Master Schedule, and progressing the Army's Positioning, Navigation and Timing programs.

In the meantime, please get some rest and enjoy the holidays. Be safe in your celebrations, and keep in your thoughts those deployed men and women who are spending the season far from home. Their sacrifice is the real gift this time of year.

FAMILY: Wife Elizabeth, son Douglas, daughter Megan

HOMETOWN: Charleston, SC

FAVORITE TEAMS: NY Giants and NY Yankees

WORDS TO LIVE BY: "Have fun at what you are doing."

OFF THE GRID: Crossfitter (yes, it is a cult), skiing, and whatever my wife tells me to do.

Cyber SA Innovation Challenge

Situational awareness – knowing precisely what's happening on the battlefield, where and when – can make the difference between mission success and mission failure. Now, the Army wants to extend commanders' situational awareness into cyberspace.

"It is the Army's number one gap to start to look to fill," said Russ Fenton, of the U.S. Army Training and Doctrine Command (TRADOC) Cyber Center of Excellence.

To investigate new technology and solutions that could help tactical commanders visualize the cyber domain and calculate risk from cyber threats, the Army kicked off a Cyber Innovation Challenge with an industry day, Nov. 18.

The innovation challenge looks to industry partners – especially non-traditional defense contractors – to deliver prototype solutions for rapid evaluation using a flexible acquisition model known as Other Transaction Authority. These prototypes are then placed in the hands of cyber Soldiers for operational evaluation to inform specifications prior to fielding decisions and

A cyber Soldier, assigned to the 780th Military Intelligence Brigade, prepares his equipment inside a Stryker vehicle.

potential broader procurement.

The Army plans to conduct an initial down-select in January 2016, evaluate technologies in a lab setting in March, and award potential Other Transaction agreements in April.

TRADOC and Army Cyber Command provided visuals and demonstrations of notional versions of potential Cyber SA tools that would scan a wealth of information sources, crunch millions of lines of data to identify cyber threats, and deliver a risk assessment to commanders through a customizable interface overlaid with detailed battlefield maps.

"We're trying to inform requirements and inform materiel solutions," Col. Bryan J. Stephens, director of the ASA(ALT) Cyber Focal, SoSE&I, told industry partners. "We're looking for feedback on whether we're headed down the right path – help us shape it." ∎

Kendall, Williamson applaud NIE

The Under Secretary of Defense for Acquisition, Technology and Logistics, Hon. Frank Kendall, and the Principal Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics and Technology, Lt. Gen. Michael Williamson, explored Fort Bliss, Texas in October to interact with Soldiers and technologies during the Network Integration Evaluation 16.1.

NIE 16.1 was the final proof-of-concept for the Army Warfighting Assessments, large-scale exercises that begin next year as a venue to assess new concepts and capabilities supporting Force 2025 and Beyond.

"I think it's fantastic," Kendall said of the NIE. "The opportunity to marry the Soldiers with different technologies, the organization, the training and all of those things – I don't think there is another place within the Army that you have the

Defense Acquisition Executive Hon. Frank Kendall visits NIE 16.1.

opportunity to do this."

NIE 16.1 involved approximately 12,000 Soldiers from the I Corps, 1st Armored Division, and other units. More than 1,140 personnel from 13 NATO countries also took part through a coalition network.

Kendall and Williamson spent time with Soldiers and viewed expeditionary command posts, operational energy capabilities and air and ground robotics.

Williamson, who has been involved in the NIE process since it began, praised its evolution.

"What I am seeing now is a better integration of the operational, the training, the doctrine," he said. "I think before we were really looking at 'things.' Now we have oriented ourselves to looking at a capability and what it takes to exploit that capability, and asking how do we make it better."

Col. Terrence Harris, director of Capability Package, SoSE&I, escorted Kendall and Williamson during their visit.

"Our senior leaders receive plenty of briefings, but having the opportunity to see the capabilities and Soldiers together, while receiving real-time feedback, is essential to holistically informing critical modernization and procurement decisions," Harris said. ∎

The 2nd Armored Brigade Combat Team, 1st Armored Division's brigade headquarters and tactical operations center at NIE 16.1.

Cyber improvements a 'team sport' at NIE

Imagine taking a test and not learning the results until three or four months later. It's a long time to wait before knowing what you need to work on to improve.

But that's how the Soldiers responsible for cyber network defense at the Army's NIEs typically measured their performance – through a report governed by formal programmatic test constraints.

Now those Soldiers are teaming with mock hackers to get feedback in real time. It's one of several cybersecurity process improvements made possible by the Army's recent shift to holding one annual NIE and one annual AWA – a new event featuring Soldier-led evaluations of concepts and capabilities, but with-

out formal system tests for record.

"Instead of saying, 'you didn't catch this, we'll let you know more in a report that comes out three to four months later,' we had our cyber network defenders sit down with the Red Team every three days," said Chief Warrant Officer 3 Greg Olivo, cyber information protection technician for the Brigade Modernization Command. "It was open book both ways, so I think it was a great learning session for the cyber network defenders and for the Red Team as well. The beauty of this is they'll get a lot smarter – they'll use the lessons learned during AWA to apply to an NIE."

The cyber Soldiers' interaction with the Red Team – a group of

trained hackers from the U.S. Army Threat Systems Management Office – occurred throughout NIE 16.1, the final proof-of-concept for the AWAs, which formally begin in the fall of 2016.

The Red Team collaboration was one of several changes the Army is implementing for NIE and AWA to improve Soldiers' and systems' security posture. For example, the ASA(ALT) Cyber Focal worked with Blue Team network defense personnel from the Army Research Laboratory and the 1st Information Operations Command on several steps to formalize and smooth the transition from lab-based risk reduction activities at Aberdeen Proving Ground, Md., to field

operations at Fort Bliss, Texas.

Based on the results, SoSE&I is now implementing a tracking mechanism that will allow NIE and AWA participants to monitor Blue Team findings across past and current events, so the Army can better address consistent cyber trends.

Additionally, to boost security in the AWAs' coalition network environment, SoSE&I is extending by two weeks the Validation Exercise phase that takes place prior to the start of field operations. The extra time to verify that systems are properly configured and secured will reduce cyber risk for U.S. and partner nation units, while again providing better training opportunities for cyber Soldiers. ■

Q&A: Pseudolite Program

MAJ TROY HOUSTON, ASSISTANT PRODUCT MANAGER PSEUDOLITES

Q: *Many have heard of Pseudolites as a key part of the Assured PNT program. But what exactly are they, and why are they needed?*

MAJ TROY HOUSTON: Think of Pseudolites as a specialized tool in a commander's arsenal that will be utilized to distribute PNT information, while maintaining integrity and assurance, in a combat environment. Although we all trust GPS, there are vulnerabilities – and as a civilian you wouldn't notice because nobody is interfering with it. But on the battlefield, our adversaries try to exploit those vulnerabilities. So what Pseudolites do – through a combination of transmitters, receivers, and a command

and control system – is "pull down" the GPS satellite constellation closer to the ground, which delivers a much more powerful signal that's more difficult to exploit or deny. This technology will also support upgrades for Precision Guided Munitions.

Q: *What is the program's current status?*

MAJ HOUSTON: The Pseudolite Sub-Program is currently Post-Milestone A. We have contracted with two vendors to develop prototypes and conduct various trade studies to inform the Engineering and Manufacturing Development (EMD) design requirements.

For Milestone B, planned for 2QFY18, we will conduct a full and open competition; we plan to issue a Request for Proposals in FY17.

Q: *What's the ultimate vision?*

MAJ HOUSTON: We are designing a modular, scalable system that is flexible to commanders' needs and is capable of incorporating future evolutions in antennas, receivers and other technology. The ultimate goal for a Pseudolite is to have the capability of turning it on, and the Pseudolite will be able to determine its PNT, anywhere in the world, without the aid of the GPS constellation. ■

A Closer Look: Our Military Workforce

Born between 1964 and 1979

Assignments have included: Alaska, Iraq, Afghanistan, Korea, Turkey, Germany, Hawaii, Kuwait, Saudi Arabia, Bosnia and Yugoslavia

Awards ranging from the Army Achievement Medal to the Bronze Star

13 Master's Degrees

13 Acquisition Corps; **4** Non-Acquisition Corps

Jobs have included: Logistics, Armor, Military Police, Military Intelligence, Signal, Field Artillery, Infantry, Finance and Ordnance

300 years of combined Active Duty Service

1 West Point grad

SoSE&I Team Spotlight

NAMES: MAJ Greg Sandifer, Brandon Little-Darku, Davin O'Neill, Fred Sampson, Rick Wallace, Art Wright, Ming Lau, Daniel Buschmann

ORGANIZATION: NIE/AWA Architecture and Thread Development Team, **Engineering & Integration Directorate**

ACHIEVEMENT: The team works feverishly behind the scenes to build the technical blueprints that enable the Army to execute Network Integration Evaluations (NIE) and Army Warfighting Assessments (AWA). These products – which include technical threads and a system of systems (SoS) view of the transport architecture – are critical to informing stakeholders about the capabilities in each NIE. They serve as key references that enable engineers and Soldiers to validate system interoperability, integration and configuration *(pictured above)* both prior to and during operational missions. While this is a major task for every exercise, the AWAs' joint/multinational emphasis has significantly increased the magnitude. The documentation the team produces now has to account not only for the network architecture for the 2nd Brigade Combat Team, 1st Armored Division, but also illustrate SoS interoperability with various coalition/mission partners and corresponding systems.

WORDS TO LIVE BY: "If at first you don't succeed....try, try again." ∎

Employee Spotlight

NAME: Phil Minor

ORGANIZATION & TITLE: Deputy Director, **Common Operating Environment (COE) Directorate**

ACHIEVEMENT: Minor will be recognized at the 30th Annual Black Engineer of the Year Award Science, Technology, Engineering, and Mathematics Conference in February. He will be presented the Modern Day Technology Leader Award, based on his body of work, education and service as a role model and mentor for minorities in technology.

CAREER HIGHLIGHTS: Minor served in the Army for over 21 years, rising from enlisted logistician to Signal Officer assigned to the Defense Intelligence Agency. Minor retired in 1999 after attaining the rank of lieutenant colonel, and spent 10 years as an engineer at The MITRE Corporation before rejoining government service in 2009. He has been instrumental in the Army's transition from current information technology systems to COE.

OFF DUTY: A Detroit native, Minor is married with four daughters. He has taught Sunday school for almost 15 years. Hobbies include golfing, kayaking and hiking.

WORDS TO LIVE BY: "Serve God first, take care of family always, treat others as you want to be treated." ∎

Focus on Fahey Farewell

1 "King" Kevin M. Fahey, who retired as SoSE&I Exec. Director on 1 December, says goodbye to the team.

2 Standing ovation for Mr. Fahey during his Michigan farewell on 23 November.

3 Steve Palczewski and Ben Intoy attending Mr. Fahey's Michigan farewell on 23 November.

4 HON Heidi Shyu, Army Acquisition Executive, presents Mr. Fahey with awards at his retirement dinner at Fort Myer, Va. on 17 November.

5 BG David Bassett, PEO GCS; Mike Viggato, former Deputy to the Commander, TACOM LCMC; and Mr. Fahey at his Michigan farewell on 23 November. ∎