The Readiness Analytics and Visualization Engine (RAVEn) Initiative

SPACE

SYSTEMS COMMAND

February 2022

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Space Systems Command Cross-Mission Ground and Communications Enterprise (SSC/ECX) Team

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Development Team

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Team

RAVEn Initiative Background

- November 2020
 - USSF Chief Operations Officer (COO), Lt Gen B. Chance Saltzman, established the requirement for a strategic dashboard
 - COO team reaches out to the SSC/ECX Data Analytics and Visualization (DAV) team to deliver a dashboard
- January 2021
 - Continuous fact-finding efforts with the COO team indicated much of the operational capability and system capability (OPSCAP/SYSCAP) data needed to populate the strategic dashboard was not available through machine-to-machine (M2M) connections
 - Much of the OPSCAP/SYSCAP data is delivered via: systems of record, manual reporting processes such as phone calls, emails, and power points with "current as of" dates
 - SSC/ECX connected with Delta 8 Combat Development Team (CDT) and began work on RAVEn Delta 8 (R-Del 8)

RAVEn Initiative Overview

- So, what is The RAVEn Initiative?
 - RAVEn stands for <u>Readiness Analytics & Visualization Engine</u>
 - The RAVEn initiative is the effort to create a consolidated system designed to provide a highly accurate and near-real time sight picture of OPSCAP/SYSCAP for tactical, operational, and strategic levels of the USSF
 - This system leverages Space Command and Control (C2) Data as a Service (DaaS) to provide Guardians and other DoD partners of <u>varying technical ability and subject matter expertise</u>, the ability to work meaningfully with data
 - RAVEn leverages capabilities from the SSC/ECX Cross Mission Data Team to: <u>source, connect, and</u> <u>transform data</u>
 - This ensures all information brought in is postured for developing capabilities in <u>machine</u> <u>learning and artificial intelligence</u>

RAVEn Initiative Overview

- So what is an R-Del?
 - The nomenclature of R-Del is just a shortening of <u>RAVEn Delta and is followed by the number</u> <u>corresponding to the Delta</u> the interfaces are there to support
 - The R-Del portion of the RAVEn initiative is the <u>targeted approach to overcoming data flow gaps at each</u> of the Deltas involved with OPSCAP/SYSCAP reporting
 - This is accomplished through the development of <u>web-based applications that integrate and surface</u> <u>critical data systems and feeds</u>
 - If M2M connections cannot be made, the development team tailors the application to allow the users to input the information manually
 - The information is immediately sorted to provide near real-time reporting of OPSCAP/SYSCAP across USSF for data-driven analyses and decision-making



Digital Service



Digitally Integrated System Status



The added benefit that the RAVEn Initiative brings to the space community as a whole is: Once the data is aggregated in the Data as a Service, that data can be shared with partner agencies within the DoD and external mission partners as well

Digitally Integrated System Status

- Shortening the Information Cycle
 - OPSCAP/SYSCAP is reported at the NSDC and CSpOC through manual updates within applications such as:
 - COMET
 - BlueStat
 - Spaceboard
 - When the RAVEn Initiative integrates OPSCAP/SYSCAP from tactical units, that information can be surfaced in near real time for users of those applications



Implementation

- What does implementation look like?
 - The RAVEn Initiative Team partners with the Delta Commander and the CDT to identify the OPSCAP/SYSCAP data the Delta provides
 - Through the CDT, the RAVEn team organizes fact finding sessions between the team's engineers and tactical users at the respective squadrons/detachments to determine the <u>most efficient and effective means to</u> <u>integrate the data</u>
 - If a M2M connection can be made, the engineering team will work with the users to determine the data owner to bring that information into WC
 - If no M2M connection can be made, the RAVEn team will work with the CDT and users to design and implement an intuitive application for users to provide the updates
 - All data integrated will be presented to users at each echelon as a custom web application

Implementation

Rapid Implementation

- The RAVEn team is capable of rapid application implementation due to the following advantages:
 - Warp Core (WC) enabled brand of DevSecOps
 - Dev- WC contains sub-applications which enable Guardians and engineers alike to develop applications in a <u>low-code/no-code environment</u>
 - Sec- Applications built within the WC framework do not need a separate <u>Authorization to Operate</u> (ATO)
 - Ops- Rapid fixes and capability releases, on the orders of <u>hours/days</u> are enabled
 - Government, SETA, and Engineering team cleared to the <u>TS/SCI level and above</u>
 - <u>Empowers Guardians</u> at every level with the ability to be a part of the development process

The Metrics Do Not Lie

- R-Del 8 pathfinder effort in partnership with Delta 8 and its subordinate units, 2nd Space Operations Squadron (2 SOPS) and 4th Space Operations Squadron (4 SOPS)
 - 86 total active users (43 at 2 SOPS, 38 at 4 SOPS, 5 for both 2 SOPS and 4 SOPS)
 - Decreased labor needed to update OPSCAP/SYSCAP by over 50%
 - Reduced the 4 SOPS lead time to visualize Resident Satellite Object location from 2 hrs to near-real time
 - Reduced the reliance of 2 SOPS on a hard copy logic matrix to update OPSCAP/SYSCAP, reducing the time needed per update by 2 to 5 min per OPSCAP/SYSCAP
 - Reduced the reliance of 4 SOPS on a hard copy logic matrix to update OPSCAP/SYSCAP, reducing the time needed per update by 5 to 10 min per OPSCAP/SYSCAP
 - Automated Notice Advisory to Navigation Users information pulls saving users at 2 SOPS 15 to 20 min per data pull
 - Automated Schedule Request (SR) reporting overcoming onsite system limitations and manual process to save users at 2 SOPS 20 to 30 min per SR update

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Contact Information

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