SMART SOLDIERS

Accelerating Mission Operational Efficiencies

Imagine soldiers in enemy terrain. They are continuously alerted to risks based on events, safe routes, friendly locales and precautions they should take. They are instantly told the sources of threats and how best to combat them. Help arrives when needed. Uniform sensors measure every vital and ensure they are in optimal physical condition and can perform in the most hostile circumstances. Any injury is diagnosed, aid administered and recovery actions taken. The exoskeleton they wear takes over when needed, transmitting critical information to the command center, enabling faster decisions.

With technological innovations like sensors, robotics, communications, geospatial and analytics technologies, this *art of the possible* is within reach.

Force Protection Requirement:
The Connected Soldier

A military mandate requires that before undertaking a mission, a warfighter's probability of success and safety be guaranteed. Real-time situational awareness and continuous knowledge on the health of the solider are critical for this initiative.

Warfighters are more connected than ever thanks to the ambitious network-centric warfare initiative. Embedded sensors in uniforms, weaponry and equipment offer unprecedented levels of insights on the activities, health and even the psychology of a warfighter. Information correlated from various sources can create enhanced situational awareness for all the stakeholders. Integrating real-time intelligence across various sources and the battlefield can accelerate the sensor-to-shooter loop. The introduction of exoskeletons can help soldiers last longer, be safer and carry more equipment. Sensors in the exoskeleton can further monitor soldiers, allowing the military to deliver a highly customized and efficient support structure in real time.

Industry Solution:
Smart Soldier Operations Center

A transportation network operations center offers service providers end-to-end visibility into their operations. The center aims to provide a single pane-of-glass into the various phases of activities of the assets being monitored. For example, an aircraft being monitored goes through active flight, maintenance and repair phases. Insights into these phases allows operators to ensure optimal efficacy of these assets over their lifecycle. Similarly, a *Smart Soldier Operations Center* could provide the lens across the soldiers' phases of activities. They could be segmented as training, performance, injury and recovery. Real-time data collected from soldiers offers insights into attributes including their condition, performance capability and recovery time. These insights help deliver optimal support to soldiers while making decisions on when to activate the exoskeleton and backup deployments. Combining this information with historical medical diagnosis data would offer further enrichment to ensure a high level of confidence in decisions and predict outcomes.

Training	Monitoring assets during training yields insights into stress thresholds, behaviors and reactions, optimal performance conditions, limitations due to health or environment conditions, reactions to external stimuli. This information is valuable in predicting conduct and response in various situations and helps prescribe actions and conditioning of the solider.
Performance	Real-time information from various sensors while in battle offers information on performance and well being. Insights can be rapidly turned into decisions on how to proactively engage the soldier, administer support or commands and assistance needed.
Injury	A soldier is most vulnerable when injured. Information on the state of the soldier's health and the type of injury can be quickly gleaned from vitals such as oxygen saturation, heart rate, temperature and perspiration. Combined with medical history, effective first aid could be administered. The evacuation and medical teams can have immediate insights into the severity of injury, priority for evacuation and a host of other life-saving decisions.
Recovery	Continuous monitoring of vitals can provide insights into rate of recovery, help prevent illness and time to active operations.

The Smart Soldier Operation Center can scale from monitoring and precision-managing one solider to a company and further to geographically dispersed units. The more information gathered from a higher number of warfighters, the keener the enrichment and the insights. For example, a successful outcome with an injured soldier can be prescribed for another soldier in a different location, in a similar situation.

Enter Splunk

Fast and confident decisions require powerful insights in real time. Every smart or connected instrument generates data. When this *machine data*

is aggregated from all relevant sources, it can be harnessed and correlated with contextual information to deliver unprecedented insights across discrete operations. This can be challenging since the number of technologies used introduces heterogeneity and increases the spread of non-standard communication protocols. Further complicating the issue, other sources of intelligence can make data formats and types unpredictable and inconsistent.

The Splunk platform can ingest raw machine data—regardless of source—and accommodate its velocity, variety, variability and volume. This includes data from sensors, systems and applications, SIGINT, HUMINT, GEOINT and various other intelligence sources. The machine data can be further enriched with contextual information from relational databases and meta data sources.

Splunk software uses schema-on-read technology to freely analyze and correlate data without the limitations of traditional database schemas. Scaling to hundreds of terabytes per day, Splunk software can meet the needs of any organization and supports clustering, high availability and disaster recovery configurations. It provides consistent end-to-end visibility and enables analysts and operators to ask any questions, and progressively drill down to understand the situation to increase awareness across stakeholders and enable fast decisions. Operators and commanders can predict and prescribe actions, extend the appropriate support structure, ensure fleet availability on demand, strategically plan across various missions and ensure human safety.

Learn more about how the public sector can leverage machine data.

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