

The US homeland defence landscape has changed and expanded rapidly over the last five years. There are significant protection, detection and response programmes being developed and executed by both the Department of Defense and the Department of Homeland Security (DHS) and state and local governments. These programmes have many operational aspects in common. These include detection and response technologies, policies, and training and information management. Not until recently have there been consistent and co-ordinated efforts to integrate and leverage these disparate efforts. The Joint Project Manager Guardian (JPMG) has been at the forefront of these efforts. Guardian's driving vision has been to ultimately provide an integrated and interoperable protection and response capability that not only meets DoD but also DHS, state, and local government requirements. This approach to improved consequence management capabilities includes security, hazmat, CBRNE detection, robust analytics and information management. Efforts with DHS have included representation and participation on the DHS BioWatch Advisory Committee and membership on the National Capital Region (NCR) Bio-notification Working Group.

Rise of the machines

JPMG and BioWatch have conducted several technology demonstrations and evaluations to better understand emerging technologies and to ensure compatibility and interoperability on military installations. JPMG and BioWatch developed and implemented the NCR Site Optimization effort. This programme supports the repositioning of DHS biological collectors within NCR to military installations to enhance overall coverage. JPMG has also sponsored the establishment of military and civilian co-ordination advisory groups. These advisory groups sponsor regional forums between military installations and local and state responders to share best practices and identify national guidance/policy needs. Guardian has also developed and implemented a centralised database management system that provides responders with the ability to

query multiple information databases across both DoD and DHS.

A critical element to the success of future integrated military and civilian protection and response capabilities is the effective convergence and integration of existing and emerging technologies and information management systems. Over the last five years the phenomenon and benefits of technological convergence have increasingly gained our attention. In this unique form of technological change, the coming-together of previously distinct technological or operational components gives rise to the creation of new applications and operational and tactical models. These models can more effectively leverage the advantages or strengths of the individual components or elements to create a new solution with greater



JPM Guardian is required to be able to interoperate with a wide variety of civil and military agencies ©DoD

Rise of the machines

capability and operational flexibility to support dual-purpose applications.

CBR and physical security technologies, data and information have been planned, executed and managed as separate solutions with distinct owners. The operational environments in which we work are rapidly changing, requiring rapid access to more comprehensive and timely information on which to make critical decisions. This requirement for information is driving a change to our construct of how we receive CBR and physical security requirements and solutions. Our operational environment is transforming from independent solutions to unified and integrated systems capable of more effectively leveraging the capabilities being developed and implemented in the homeland defence arena. The focus of our protection capabilities has moved from the development of better sensors to how we can better capture, process and distribute critical information. The

requirement for comprehensive, accurate and timely information has now become the driving factor in how we plan for and execute our mission requirements.

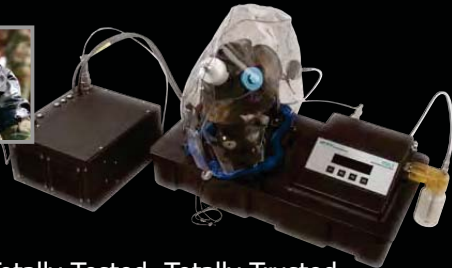
Refined information is now the key operational consideration through which enterprise-wide, cross-disciplinary management and operations decisions can be made. The key challenge for our convergence efforts has evolved from enabling the infrastructure to support one specific application to enabling it to meet the tailored service requirements of all deployed applications while maintaining interoperability with DHS materiel solutions.

The Joint Project Manager Guardian is aggressively pursuing the convergence of chemical, biological and radiological capabilities with force protection and physical security capabilities. This is being done through a variety of joint experiments, and with the execution of the Joint Force Protection Advanced Security System (JFPASS) Joint

Capability Technology Demonstration (JCTD). The mission of JFPASS is to demonstrate, operationally assess, and transition advanced force protection capabilities. These are intended to enable the integration, automation, and fusion of information among mature force protection systems. The goal of the JCTD is to provide a more effective, automated, layered, and comprehensive joint force protection solution that fulfils a specified capability shortfall for a combatant command. The JFPASS JCTD capabilities will dramatically improve access control, perimeter security, non-intrusive inspection, waterside security, and chemical, biological, radiological, nuclear and explosive (CBRNE) sensing and protection. The desired end-state is a synergistic transformation of the CBRNE and physical security constructs that merges the two areas to enhance the integration, automation, and fusion of information via a robust command and control (C2) architecture that will



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become the standard for future force protection systems. This capability will demonstrate a security architecture that provides integrated single-point situational awareness (SA), leverage unattended ground sensors (UGS) and unmanned systems (UMS), and be tied into current legacy systems.

A key enabler of this effort is the integrated information management architecture and next generation decision support systems. These capabilities are the key to effectively integrating disparate, highly sophisticated sensors across all potential operational environments. There are several JPMG efforts currently underway in collaboration with JPM Information Systems and Joint Program Executive Office for Chemical and Biological Defense to address cross-portfolio and operation mission space requirements that transcend operational levels. These efforts include the Joint Installation Protection Command and Control (JIICC) system and the Joint Crisis Action Management Systems (JCAMS). JIICC provides next-generation decision support capabilities to the installation protection programme. This capability supports the integration of multiple CBR sensors and commercial support packages into a single integrated system providing a common operating picture to the responder community. The principle of JIICC with its openness, peer-to-peer design, sharing and acting via the global information grid to protect fixed, semi-fixed and mobile sites will help transform installation protection and response management capabilities and procedures. JCAMS will provide that common architecture or backbone capable of supporting a wide variety of disparate sensors to include CBR and physical security systems. This architecture will also support the integration of detection, identification, protection and response capabilities across the homeland defence and tactical operational environments. Ultimately it will support the convergence of sensor data from various sources including physical security, CBRN sensors, explosive detection, unmanned ground vehicles (UGVs), and unmanned aerial vehicle (UAVs) into actionable information for decision makers via the encrypted medium (including wire, wireless, and satellites) and over the horizon via distributed common operational picture (COP) using Internet Protocol Version 6 (IPv6) compatible infrastructure in a joint/coalition net-centric environment. These developmental efforts will support the transition to a common operating system and underlying architecture that enhances tactical response capabilities while simultaneously supporting operational and strategic protection of the force.

As we move forward in time to the next conflict, general trends for saturating all environments with sensors will force operators at every level to embrace DSS technologies. Advances in this capability will invariably affect a wider variety of mission-related tasks than ever before. The challenge before us is to find ways to simplify training, operation, and support to these systems so they can fulfil their primary mission of allowing leaders to take effective and timely actions that preserve combat power. Everything else may best be left to a machine.

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