

US Army RDECOM

Mobile Information Distribution & Access-control System (MIDAS) Program

1. Program Description: Today, the modern DoD warfighter is not only expected to win the conventional war, but is also expected to “win the peace,” by establishing and maintaining civil order after large populated areas have been militarily secured. Moreover, they must also provide many civil services, to local foreign citizens, that we take for granted (e.g., law enforcement – local and regional, emergency medical services (EMS), fire department, FBI, Boarder Patrol, etc.). The warfighter must often perform these arduous and complex tasks in regions of the world that lack even the most basic infrastructure support (reliable power, water, communications, etc.), and with tools and systems that were designed to win conventional force-on-force battles. Although there are currently some communications and computer system tools that support the DoD warfighters, and their efforts to maintain civil order, ferret out insurgents, and support the growth of a fledgling government agencies – at all levels, there is a considerable need to expand their capabilities to include mobile broadband communications, distributed multimedia data processing, distribution and management, and powerful Homeland Security (HLS) first responder (e.g., federal, state & local law enforcement, EMS, fire departments, Coastguard, Boarder Patrol, FBI, etc.) products and services.

The HLS warfighters, or first responders, are currently reasonably well equipped to fight terrorism on a national level due to the relatively low cost commercially-based products and communications infrastructures that have been developed and deployed over the years. A significant constraint, however, inhibiting information flow and collaboration between first responders today is the lack of compatibility between legacy systems that support different agencies within federal, state and local governments. That is, even today, command, control, communications and computer (C4) systems sold to local police and fire departments are not completely compatible, and distributed databases tracking critically important data is not always accessible by those that need the information in order to prevent a critical disruptive event. This shortcoming is universally recognized and is even now being addressed by the commercial marketplace.

The MIDAS program was created in an effort to provide the warfighter with a mobile, low cost and highly capable distributed multimedia compute environment that leverages capabilities, products and services from the commercial sector and specifically the HLS domain. Sponsored by the US Army TARDEC’s National Automotive Center (NAC), the program seeks to quickly and cost effectively provide the warfighter, and those peacekeepers that may be deployed in regions of the world that lack basic communications and power infrastructures, with a rapidly deployable (i.e., vehicle-based), broadband, and secure communications infrastructure, and the existing “nation building, “peacekeeping,” and “first responder” tools and solutions that will provide unprecedented capabilities to Homeland Defense (HLD) and HLS field units. MIDAS will be designed to support the critical information and computer services needs of peacekeepers, whether under the auspices of the Departments of Homeland Defense (DHD), Homeland Security (DHS), or the agencies of our coalition partners. It will also seek to provide greater interoperability within and between currently available HLD, HLS, and coalition systems – on a global scale. MIDAS will be deployed and demonstrated on military vehicles, and will provide the sustainable and flexible foundation upon which our next generation distributed Logistics applications can be built.

2. Capability Gap: Today the modern warfighter is increasingly expected to perform non-combat activities such as: (1) establishing and maintaining civil order (after large populated areas have been militarily secured); (2) collaborating with various US and non-US HLS organizations; and (3) supporting a local foreign government’s peaceful transition to self rule. The warfighter must often perform these tasks (more typically first-responder activities executed by local and regional law enforcement, EMS, fire department, etc.) in regions of the world that lack even the most basic infrastructure support (e.g., reliable power, water, communications, etc.), and with tools and systems that were designed to win conventional force-on-force battles. There is a great need for a mobile, low cost, sustainable, and highly capable distributed compute environment, with broadband communications capabilities,

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that can provide secure collaboration among cross-domain teams, and the services that can support the DoD's extended non-combat activities, the world over, with greater efficiency and efficacy.

3. Execution Lead: The TARDEC's National Automotive Center (NAC) has been involved in dealing with commercial (i.e., non-military industrial base) technology transfer since its inception. Consequently, the organization already has the relationships, both technical and managerial, with those commercial companies currently involved in creating the technologies required in support of the MIDAS effort.

4. JFCOM & COCOM Support: Direct and indirect conversations with JFCOM, EUCOM, SOCOM, NORTHCOM, and other DoD organizations, have indicated a great need for the MIDAS system and its ability to be rapidly deployed and used in areas of the world that lack basic power and communications infrastructure; its ability to enable collaboration and the orchestration of critical resources – including personnel, down to a pervasive device level; and its ability to be continuously and quickly upgraded with emerging and evolving solutions. Many have indicated that due to its commercial technology/solution base, rapidly deployable nature, and civilian authority utility (i.e., the system will support joint civilian authority and DoD use – while interfacing/interoperating with existing DoD legacy systems in the area), MIDAS will enjoy substantial civilian authority support (e.g., Iraqi local, regional and national organizations). Consequently, unlike a system based on military technologies, MIDAS could easily be left behind to support the expansion and growth of a friendly government – in an act of good will.

5. Force Operation Capability or Gap Addressed: The MIDAS program will leverage the systems and tools currently supporting global first responder organizations, and the commercial technologies and products (e.g., advanced middleware, pervasive and autonomic computing, WiFi, WiMAX, etc.) that are even now providing advanced connectivity, interoperability, and controlled information flow to companies and consumers around the world. By leveraging these commercial solutions for military use, systems critical to the warfighter can be made available in the field quickly and in a highly cost effective way. This commercial foundation will facilitate growth at minimal cost, and will allow common coalition services to be easily deployed and remotely maintained. The following products and services will be part of the initial offering to the warfighter in theater:

- Crisis and Resource Management via E Team (www.eteam.com)
- Intelligence gathering via NC4 (<http://www.nc4.us/nc4/index.php>).
- Collaboration via Apple Computer's QuickTime Infrastructure (chat, media streaming/broadcast, voice over IP, multimedia training, etc. – www.apple.com/quicktime, <http://www.apple.com/macosx/features/ichat/>, etc.).
- Multimedia Information Management and Distribution via EchoStorm solutions (www.echostorm.net).
- Text Translation Services via IBM Translation Server (web pages, email, chat – in real-time – http://www-306.ibm.com/software/pervasive/ws_translation_server/).
- System-Wide Integration and Interoperability via IBM WebSphere Business Integrator (<http://www-306.ibm.com/software/websphere/>)
- ObjectVideo Video Surveillance Systems (www.objectvideo.com).
- Asset (e.g., vehicle, weapons system, etc., hardware and software systems) Remote Monitoring, Diagnostics, Prognostics & System Autonomics via IBM's Parametric Analysis Center (PAC)
- Vehicle Systems Diagnostics, Prognostics & Asset Management via Vetronix (a subsidiary of the ETAS Group – www.vetronix.com).
- Asset Configuration Management via Dassault System's SmarTeam (www.smarteam.com/homepage.asp) or PTC Windchill (www.ptc.com), as required.
- Legacy Communications Systems Interoperability via Cisco IPICS (<http://www.cisco.com/en/US/products/ps6718/index.html>)
- In-Vehicle Processing via Global Electronics and Visteon TACNET system (www.evisteon.com/prod_serv/tacnet)
- Secure and Dynamic Community-of-Service (COI) Services via Cryptek – www.cryptek.com.
- Wireless Infrastructure and Services via IBM Secure Wireless Infrastructure Solutions (SWIS) and Future Technologies (<http://www.futuretechllc.com/>).
- Other Services Upon Request.

Once the base infrastructure is in place, other services/capabilities can be added quickly and can be maintained remotely at low cost. This feature is built within the infrastructure software itself since it supports the commercial marketplaces need to efficiently and cost effectively manage and upgrade thousands, or even tens of thousands, of pervasive devices in the field. The mobile computing systems and infrastructure required to provide many of the services described above have already been developed, tested and fielded to many HLS organizations across the country. RDECOM proposes to acquire, integrate, interface (to various Army systems) and deploy these commercial solutions in support of the warfighter. These commercial systems and solutions, properly configured and integrated, will be installed on various military vehicles, for optimum mobility, and be deployed to help the warfighter maintain civil order, identify, process and track down insurgence, and monitor and support large and densely populated areas with as few people as possible. More broadly, this capability will allow in-theater coalition forces to quickly and efficiently react to critical events (e.g., insurgent and terrorist activities), and more effectively orchestrate anti-terror activities on a theater or even global level.

6. Recent Demonstrations: MIDAS, under the name of the Coalition Partners Mobile Command Center (CP-MCC), was demonstrated at the Coalition Warrior Interoperability Demonstration (CWID), in June of 2005. The MIDAS system demonstrated at CWID also used the collaboration technologies supplied by the IBM collaboration trial. Plans are being developed for next year's CWID conference (CY07) when more of the functionality described in this document will be demonstrated (see <http://www.cryptek.com/index.php?page=cwid.php> for more information). Although our current MIDAS secure communications infrastructure is composed of the following products: (1) the Redline Communications, Inc. WiMAX wireless communications systems, (2) Cisco routers, voice over Internet Protocol (VOIP), and WiFi systems, and (3) Cryptek secure Community of Interest (COI) systems, other commercial or government off-the-shelf (COTS/GOTS) systems can easily be substituted.

7. Technical, Schedule and Funding Risk: Given that the secure communications infrastructure has been already been demonstrated in CWID and much of the technology and products to be integrated are commercial and already being used by customers around the world, there is little technical or schedule risk. Moreover since the technology is being developed and supported by commercial vendors that are funding product development from product revenue cash flow, the bulk of system sustainment funding will not be required by the government.

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