

WHITE PAPER

CRITICAL NATIONAL NEED IDEA

**CRITICAL INCIDENT RESPONSE &
DISASTER RECOVERY ASSISTANCE**
(CIRDRA II)

Submitted to
Technology Innovation Program (TIP)
National Institute of Standards and Technology (NIST)
U.S. Department of Commerce

Submitted by
The National Law Enforcement and Corrections Technology Center (NLECTC)
Border Research & Technology Center (BRTC)
Sheriffs' Association of Texas (SAT)

Administrative Point-of-Contact

Fred B. Davis, Project Manager
NLECTC/BRTC/SAT
1601 South IH-35
Austin, Texas 78741

Phone: 512-413-0049
FAX: 919-848-7929
fdavis@txsheriffs.org

Technical Point-of-Contact

Marc L. Bracken, Senior System Architect
C4DB
5016 Spedale Ct. #256
Spring Hill, TN 37174

Phone: 615-973-3300
FAX: 615-973-3300
marcbracken@c4db.com

Joe M. Peters, Director
NLECTC / BRTC / SAT
Authorizing Official

NIST Point(s)-of-Contact
Thomas Wiggins (301-975-5416)
Richard Spivack (301-975-5306)
tipwhitepaper@nist.gov

October 1, 2008

Critical National Need Idea

CIRDRA II

EXECUTIVE SUMMARY

As our nation repeatedly strives to respond to and deal with natural disasters and terrorist related catastrophic events, we have to ask ourselves, "Are we honestly and truly prepared by having all the critical information we need to effectively and efficiently deliver emergency response assets and resources to the appropriate location, to the appropriate people, and at the appropriate time?"

Currently in our nation, there is no federated repository of information related to local, state, or federal emergency assets and resources that decision makers can access in order to develop an effective and proper response to a critical incident. First responders, whether they are local, state, or federal personnel, need to have access to an integrated and shared database of available emergency resources. Vertical and lateral communications providing instant information sharing across all levels of government is the key to an expedient and successful response to any critical incident.

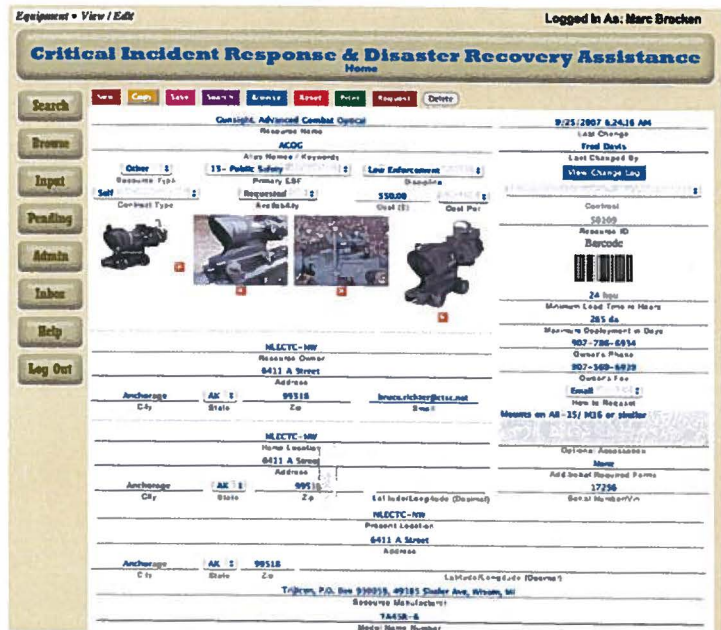
Additionally, without such a national resource knowledgebase, rapid and accurate assessment of national or regional preparedness for a given threat scenario is virtually impossible.

This concept document offers a simple but effective solution to help offset this critical national need:

Take a recently created government owned open-source database and inventory system; expand and enhance its basic capabilities; implement the system within a governing agency, and provide the new and innovative system free of charge to all federal, state and local law enforcement, public safety, public health, and emergency management agencies across the nation.

BACKGROUND

The asset inventory and resource management system commissioned by the National Law Enforcement and Corrections Technology Center System (NLECTC) for the National Institute of Justice (NIJ) known as **CIRDRA** (Critical Incident Response & Disaster Recovery Assistance) completed its Phase I development in November 2007. The software system is a simple, highly-visual, easy to use Incident Command System (ICS) forms-like computer database that serves as a universal "rolodex" and rapid locator for the categorizing, indexing, locating, tracking and sharing of critical resources for purposes of emergency preparedness, readiness, response and recovery.



The primary purpose of **CIRDRA** is to assist state and local law enforcement and emergency management departments to organize all of their actionable resources according to the Resource Typing imperative of the National Incident Management System (NIMS). Not only does **CIRDRA** provide a single place for

Critical National Need Idea

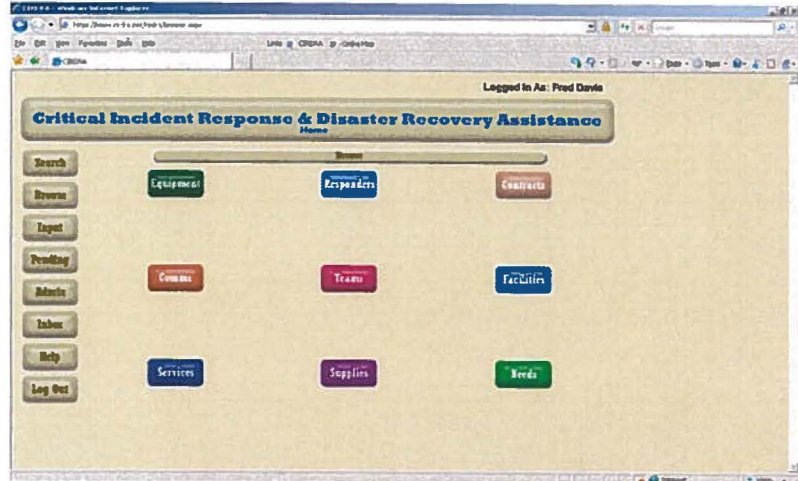
CIRDRA II

all resources, but also provides the environment in which local resources may become classified (“typed”) according to their capability and capacity.

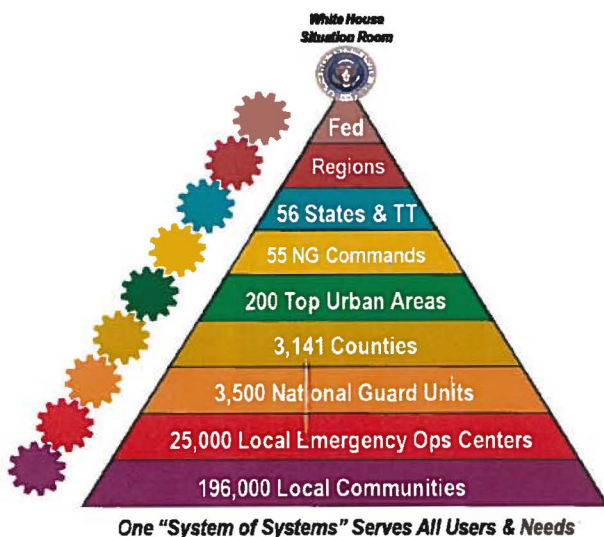
CIRDRA is offered free to the law enforcement or emergency management agency, as is the underlying development, database and server software on which it runs.

TECHNICAL CONCEPT

The look of the system is purposely simple, like that of a radio, light bar control or other piece of standard electronic equipment that employs buttons to engage different functions. As a simplified system, **CIRDRA** is not meant to replace complex full spectrum incident management, computer aided dispatch or logistical management systems, but rather to provide an easy, intuitive resource organizing system for responding as needed to critical incidents.



In Phase II of the program, it is envisioned that **CIRDRA** will develop into an all-hazard, all-agency, all-jurisdiction fully interoperable solution on a national platform, intimately aligned with the National Information Exchange Model (NIEM), the Emergency Data Exchange Language (EDXL), and the Enterprise Architecture Framework for the Information Sharing Environment (ISE) utilizing Web Services to seamlessly and securely pass timely information among a nation of **CIRDRA** users; including federal, state, local, tribal and commercial-based systems.



CIRDRA is designed to communicate in logical hierarchical tiers from the officer at an incident to decision makers at the highest levels of government. Accordingly, look-down views will provide leaders at all levels with never before available accurate assessments of our nation’s preparedness for all-hazards and events.

Simply speaking, **CIRDRA** operating on a national platform would enable decision makers to locate the specific asset or emergency resource they need to adequately respond to and manage a critical incident, before, during or subsequent to the event, no matter if it is a federal, state or local asset or resource. Information sharing at all levels is the key to success of this program.

Failure to address the lack of information sharing between emergency first responders maintains the status quo, resulting in continued confusion, frustration, and inadequacies in response efforts to critical incidents affecting the personal lives and welfare of our communities.

Critical National Need Idea

CIRDRA II

OPERATIONAL CONCEPT

The problematic lack of information sharing, or access to pertinent information is not new. For years, many first responder organizations have operated within their own realm of expertise, relying on their individual resources for completing a mission. Unfortunately, situations have changed in recent years and the need to share information with our neighbors and business associates has never been more important.

The concept of sharing emergency response information across various levels of government is illustrated in the following graphic. Historically, the standard procedure for flowing asset and emergency resource information was from the bottom to the top, upon request of the next hierarchical level as illustrated in Figure 1. In a completely integrated and federated system, Figure 2, information is shared instantly upon request with everyone in the collective system regardless of their physical location and/or position within the government hierarchy.

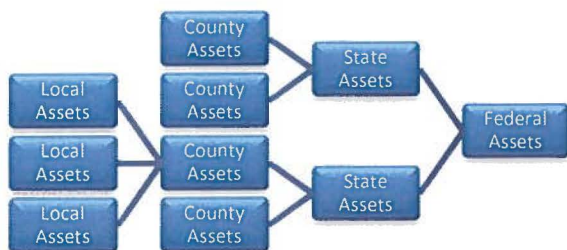


Figure 1

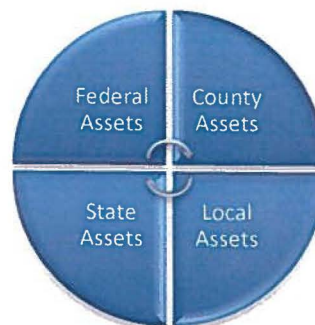


Figure 2

MEETING THE SELECTION CRITERIA

Maps to Administrative Guidance:

The magnitude of this critical need is almost incalculable. All levels of our society need to be working in unison in order to overcome this challenge. The following excerpts from **The Federal Response to Hurricane Katrina: Lessons Learned**¹ guided by Frances Fragos Townsend, Assistant to the President for Homeland Security and Counterterrorism, on February 23, 2006 state it well:

“Awakening to reports of Katrina’s landfall on the Gulf Coast the morning of Monday, August 29, American citizens watched events unfold with an initial curiosity that soon turned to concern and sorrow. The awe that viewers held for the sheer ferocity of nature was soon matched with disappointment and frustration at the seeming inability of the “government”—local, State, and Federal—to respond effectively to the crisis. Hurricane Katrina and the subsequent sustained flooding of New Orleans exposed significant flaws in Federal, State, and local preparedness for catastrophic events and our capacity to respond to them. Emergency plans at all levels of government, from small town plans to the 600-page National Response Plan—the Federal government’s plan to coordinate all

¹ <http://www.whitehouse.gov/reports/katrina-lessons-learned.pdf>

Critical National Need Idea

CIRDRA II

its departments and agencies and integrate them with State, local, and private sector partners—were put to the ultimate test, and came up short.” p. 1

“The President made clear that we must do better in the future. The objective of this Report is to identify and establish a roadmap on how to do that, and lay the groundwork for transforming how this Nation—from every level of government to the private sector to individual citizens and communities—pursues a real and lasting vision of preparedness. To get there will require significant change to the status quo, to include adjustments to policy, structure, and mindset.” p.2

“17. Establish a National Reporting System. Departments and agencies, through the NOC, should establish a single reporting system to establish a uniform information flow to senior decision makers. A single reporting system should be used to provision relevant information for the right decision maker, at the right time, and in a usable format. This reporting system should incorporate the existing uniform reports utilized in the ICS.” p. 92

Thus, the initial responsibility for responding to a critical incident may reside with the state and local authorities, however, other entities such as Federal agencies and NGOs have a significant role to play to successfully achieve positive results. Consider the catastrophic impact on our nation from wildfires and earthquakes in California; hurricanes along the Gulf and East Coast; tornadoes and floods in the Midwest; collapse and failure of major highway and transportation infrastructure, i.e. bridges and overpasses; record breaking and paralyzing snow and ice storms in the northern urban-metropolitan areas; and, of course the worst of the worst, the potential for future terrorist attacks that would disrupt and severely hamper the day-to-day activities of our country.

Justification for Government Attention:

The lack of information gathering and sharing across multiple disciplines and levels of government is not a technology problem. The technology exists to do the job – it is a cultural and societal problem that can be solved. A simple solution, such as this proposal, can establish a “common thread” that holds together the fabric of our first responder community. All it takes is a responsible and committed champion of the cause to step forward, put forward the principles of cooperation and trust and make it happen.

Several years ago, the government created and established a “National Response Plan” (NRP). In part, this plan states:

“The NRP provides the framework for Federal interaction with State, local, and tribal governments; the private sector; and NGOs (nongovernmental organizations) in the context of domestic incident prevention, preparedness, response, and recovery activities. It describes capabilities and resources and establishes responsibilities, operational processes, and protocols to help protect the Nation from terrorist attacks and other natural and manmade hazards; save lives; protect public health, safety, property, and the environment; and reduce adverse psychological consequences and disruptions. Finally, the NRP serves as the foundation for the development of detailed supplemental plans and procedures to effectively and efficiently implement Federal incident management activities and assistance in the context of specific types of incidents.”

Critical National Need Idea

CIRDRA II

“The NRP, using the National Incident Management System (NIMS), establishes mechanisms to:

- Maximize the integration of incident-related prevention, preparedness, response, and recovery activities;
- Improve coordination and integration of Federal, State, local, tribal, regional, private-sector, and nongovernmental organization partners;
- Maximize efficient utilization of resources needed for effective incident management and Critical Infrastructure/Key Resources (CI/KR) protection and restoration;
- Improve incident management communications and increase situational awareness across jurisdictions and between the public and private sectors;
- Facilitate emergency mutual aid and Federal emergency support to State, local, and tribal governments;
- Facilitate Federal-to-Federal interaction and emergency support;
- Provide a proactive and integrated Federal response to catastrophic events; and
- Address linkages to other Federal incident management and emergency response plans developed for specific types of incidents or hazards”²

The NRP is a wonderful plan addressing a wide range of issues, but still, no federated data repository of local, county, state, or federal assets and/or emergency resources subject to participant query is available to our nation’s first responders. No one, no department, or no agency has stepped up and accepted the challenge of organizing and implementing this vital need.

Essentials for TIP Funding:

How important is national preparedness? Are we ready for the next catastrophic event? Who responds? What resources are immediately available? Who do first responders contact and how long will it take for resources to arrive in the area of need? All of these questions are typical in the everyday life of our nation’s first responders. Generally speaking, local governments are eager to volunteer and offer their participation in sharing resources. The primary obstacle is the lack of a common freely available tool or systematic process to get them involved. It only takes one occurrence of personal involvement in trying to recover from a devastating event to understand the value of critical incident response and emergency preparedness.

CIRDRA was initially developed for use within the National Law Enforcement & Corrections Technology Center system; however, a number of small and rural law enforcement and public safety agencies have shown interest in using the tool to document and share resource information among themselves. Funding for initial development was small and limited, thus reducing the sophistication and restricting the richness of features within the application. No additional funding sources are available at the current time within the National Institute of Justice for further development and enhancement of *CIRDRA*. Without the financial help of the TIP program and the National Institute of Standards and Technology, *CIRDRA* will continue to serve the NLECTC program and struggle as a grass roots application for circulation amongst the nation’s first responder agencies.

² **National Response Plan**
December 2004
Department of Homeland Security

Critical National Need Idea

CIRDRA II

Funding of this concept would provide dramatic and positive benefits for our nation's emergency preparedness capabilities.

DELIVERABLES

CIRDRA Phase II will incorporate the following enhancements to the basic application:

- **Web Services Implementation**
 - CIRDRA will seamlessly share information between the federated system of federal, state, county and local governments, plus various separate non-governmental organizations (NGOs) choosing to participate.
 - A NIEM (National Information Exchange Model) EDXL (Emergency Data Exchange Language) interface will be provided to exchange data with legacy and other resource management systems through Web Services.
 - Commonly used NIEM compliant commercial applications such as WebEOC will also be able to connect to CIRDRA for resource management.
- **Reports**
 - Standardized reports will be created and organized under the Administrative menu as a series of buttons. Initial system will include up to 12 standardized reports. Additional reports will be available. An Export Function will be provided to enable the use of external report writers and report formatting via Microsoft Excel or any Excel-compatible electronic spreadsheet or database (such as Microsoft Access).
 - Current NIMS ICS forms will be supported (automated ICS).
- **Enhanced Federal-Standards Security**
 - Financial-industry (electronic banking) standard Secure Sockets Layer (SSL) security will be the connectivity security standard. Administrator selectable user privileges by screen and function. Administrator created and defined user roles and permissions. Optional two-factor pseudo random number generator PKI (Public Key Infrastructure) based hardware device (SecurID) user authentication system deployed supportive of emerging smartcard standards such as DoD's CAC.
 - GSA standard FIPS-140-2 encryption will be deployed via existing MS SQL constructs.
- **Barcode Support**
 - Existing primary barcode format will be upgraded to high-capacity PDF-417 (current driver's license standard) and the ability to incorporate four other standards as chosen by the System Administrator incorporated. Smartcard support included.
- **Redundant Co-Location Backup Support**
 - Secure remote system backup (alternate system) will enable the system to be securely accessed via the Internet, HSIN or Nlets from anywhere by whatever communications link is available (landline, wireless or satellite). This remotely backed up master national system will serve as the backup of local, county, state and individual agency systems as well as a single searchable data repository for preparedness analysis and grant – budget decision support at all levels of government.

Critical National Need Idea

CIRDRA II

- **GIS Enablement with Live Maps of Resource Locations**
 - Microsoft Visual Earth mapping capability, geocoding of all resources for sharing with GIS legacy systems (such as crime mapping solutions) will be provided.
 - User will have the ability to display search results on a Virtual Earth map and link back from the map to the individual record. Pushpin popup will have specified data from the record it refers to for easy resource identification indicating resource owner and contract type (mutual aid, commercial, etc.).
 - Application Programming Interface (API) will be supplied for aligning to systems for GPS tracking-locating (AVL) systems and “geo-fencing” event resource utilization logging.
- **Credentials Tree**
 - Comprehensive ability to add any credential including dependent and perishable credentials will be included. Email and CIRDRA messaging support for expiration notices of perishable credentials.
- **Event Management**
 - Time and Attendance style event management including ability to geo-fence assets in and out of a defined event boundary. Microsoft Excel formatted exportable log for accounting purposes. (Local reimbursement for state and nationally declared disasters.)
- **Data Standardization for Exchange and Global Interoperability**
 - Conversion of data elements and exchange (import/export) protocols to align with published federal data exchange standards as defined by the National Information Exchange Model as of January 2009 will be included.

MANAGEMENT PLAN

This proposal recommends the **International Justice and Public Safety Network**, better known as **Nlets**³ to manage the proposed system using a federated database model on the national network. Nlets is a 501(c)(3) not-for-profit organization, located in Phoenix, Arizona, and is owned and governed by the states. Representatives from each state elect a Board of Directors and Officers annually. They set policies and procedures, define standards, approve members, establish fees, etc. A professional staff is responsible for the day-to-day administration and operations of the system.

Nlets seamlessly connects tens of thousands of local, county, state, federal and tribal law enforcement organizations, so that information is instantly available to personnel who need it, when they need it.

Harnessing technology allows Nlets to provide unparalleled support for the needs of its stakeholders. Information is encrypted end-to-end across the Nlets network. The 24/7/365 operation has a sterling record of dependability, enhanced by a fully redundant disaster recovery site in Idaho. Highly trained, certified professionals, who troubleshoot, isolate and correct potential problems before they affect the delivery of critical information, proactively monitor the operations center.

³ <http://www.nlets.org/>

Critical National Need Idea

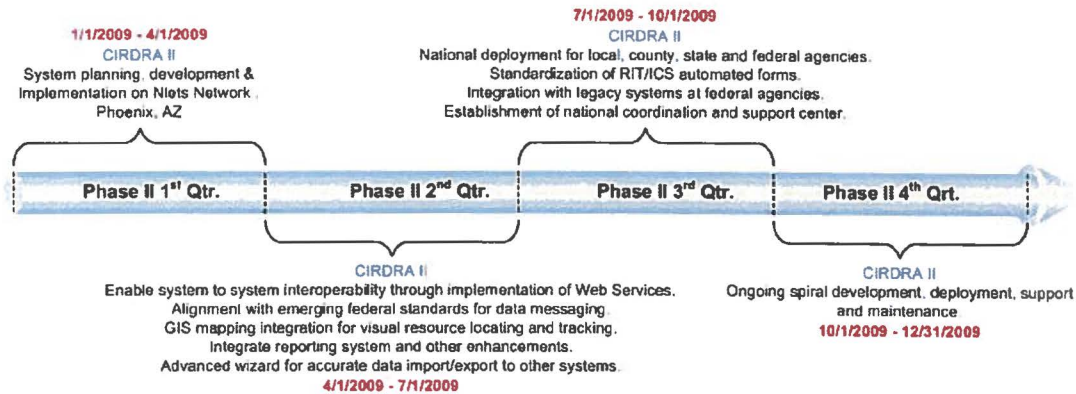
CIRDRA II

Nlets is committed to enabling timely and accurate information sharing among and between the public safety sector - particularly police, fire and emergency (EMS) services.

DEVELOPMENT TIMELINE

CIRDRA II Development Timeline

Critical Incident Response & Disaster Recovery Assistance (CIRDRA II)
A program of the National Law Enforcement and Corrections Technology Center



SMALL BUSINESS CONSIDERATIONS

As promoter of this plan, the Border Research & Technology Center (BRTC), a component of the National Law Enforcement and Corrections Technology Center System, is committed to the use of small business concerns. Therefore, BRTC proposes to engage the original software designer and developer of CIRDRA Phase I, C4DB, of Spring Hill, Tennessee to design, develop and implement proposed software enhancements as described.

C4DB is a geographically disbursed team of highly experienced emergency management systems and interoperability specialists dedicated to helping America's emergency response community with simple, intuitive and affordable best-of-class solutions that save lives and bring responders home to their families. Supporting the emergency management community through thoughtful innovation, C4DB offers system design, development, customization, installation, support, consulting, standards alignment, and subject matter expertise in an economical package.