



Perspectives on Information and Communications Technology (ICT) for Civil-Military Coordination in Crisis

Gerard Christman

Office of the Assistant Secretary of Defense for
Networks and Information Integration (OASD(NII)),

Directorate for Contingency Support and Migration Planning (CSMP)

Franklin Kramer, Stuart Starr, Larry Wentz

National Defense University (NDU), Center for Technology and National Security
Policy (CTNSP)

2006 CCRTS



Agenda



- Introduction
 - Crisis operations landscape
 - Context
- Primer snapshot
 - Nature of the challenge
 - Current knowledge of ICT
 - Best practice example
- Summary



Crisis Operations Landscape



- Categories of crises
 - Humanitarian assistance and disaster relief (HADR)
 - Stabilization and Reconstruction (S&R) operations
 - Complex emergencies
- Diverse civilian and military participants and capabilities
 - Mix of military, civilian government, International Organizations (IOs), Nongovernmental Organizations (NGOs), contractors, media, and local population and leaders
 - Military and/or civilian authorities have little control over many of the participants
 - At best, limited unity of effort
 - Differing responsibilities, agendas, experiences, expectations, accountability, and understanding of each others roles and capabilities
 - Wide range of ICT capabilities and “stove-piped” deployments
 - Civil-military collaboration and information sharing problematic



Context



- Types of crises can differ in their causes and specific impacts, but... *there are significant **similarities** in the information and ICT support needed to enable each of them*
- Partnership established between CSMP, OASD(NII) and CTNSP, NDU, in conjunction with military, civilian government, IO, and NGO elements, to identify
 - Common civil-military information needs
 - Current commercial ICT state of the practice supporting recent crisis operations
- Major product from partnership
 - A Primer on ICT Support for Civil-Military Coordination in Disaster Relief and S&R Operations
 - Designed to identify current knowledge and best practices



ICT Primer Snapshot

PART ONE – The Nature Of The Challenge

- Participants in Civil-Military Coordination
- Information Needs
- Civil-Military Cultures and Challenges
- Guiding Principles

PART TWO – Tool Kits And Best Practices

- ICT Toolkits
- Data and Information Management
- Best Practices
- Trends in the Use of Commercial ICTs



**A Primer on ICT Support for
Civil-Military Coordination in
Disaster Relief and Stabilization
& Reconstruction Operations**



Nature of the Challenge

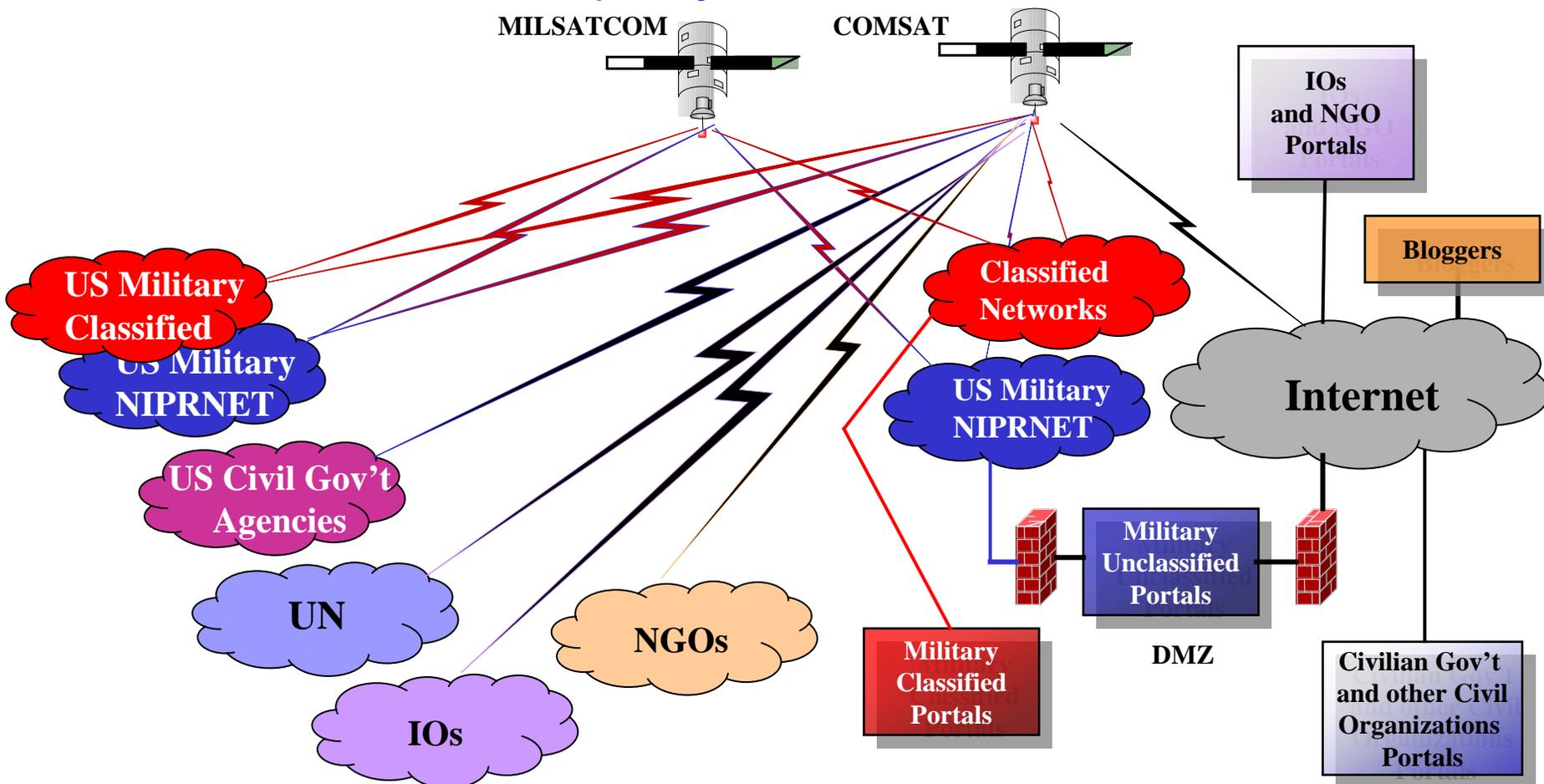


- No single responding entity can be the source of all the necessary information -- operationally there is the need to share
- Responding civil-military elements bring their own ICT
 - Lack agreed ICT strategy, CONOPS, and architecture
 - Some with lesser capabilities than others
 - However, common commercial ICT capabilities becoming more pervasive
- There are several civil-military collaboration and information sharing issues
 - Information sharing versus intelligence gathering
 - Military classification (e.g., operations security) versus civilian need for transparency
 - Trust building and shared use of commercial ICT as enablers
- Furthermore, there are issues with cultural awareness and language; e.g.,
 - Responding organizations and participants
 - Affected nation (including information culture)



Civil-Military ICT Baseline

Internet is the “default” civil-military collaborative information network and commercial SATCOM the primary remote access communications means



Commercial ICT Capability Packages



Shortfalls in the ICT Baseline (1 of 2)



- Very limited “shared informational awareness” to enable everyone to understand
 - What data/information are/will be available
 - What has been or needs to be done to it
 - Who needs it, or
 - Who has it
- Multiple organizations producing the same information products
- Organizational use of obsolete data (i.e., “stale” data)
- Stove-piped and incompatible systems that were unable to share information when operating in austere ICT environments because of issues in
 - Format or
 - Bandwidth/connectivity



Shortfalls in the ICT Baseline (2 of 2)



- Numerous applications were incompatible with data/information formats of others
- Pushing large amounts of data to multiple locations, multiple times
- End users who's access bandwidth could not support downloading large data files (e.g., maps)
- Difficult for those on the ground to find needed information; e.g.,
 - Lack of understanding of what was available and how to access
 - Information overload



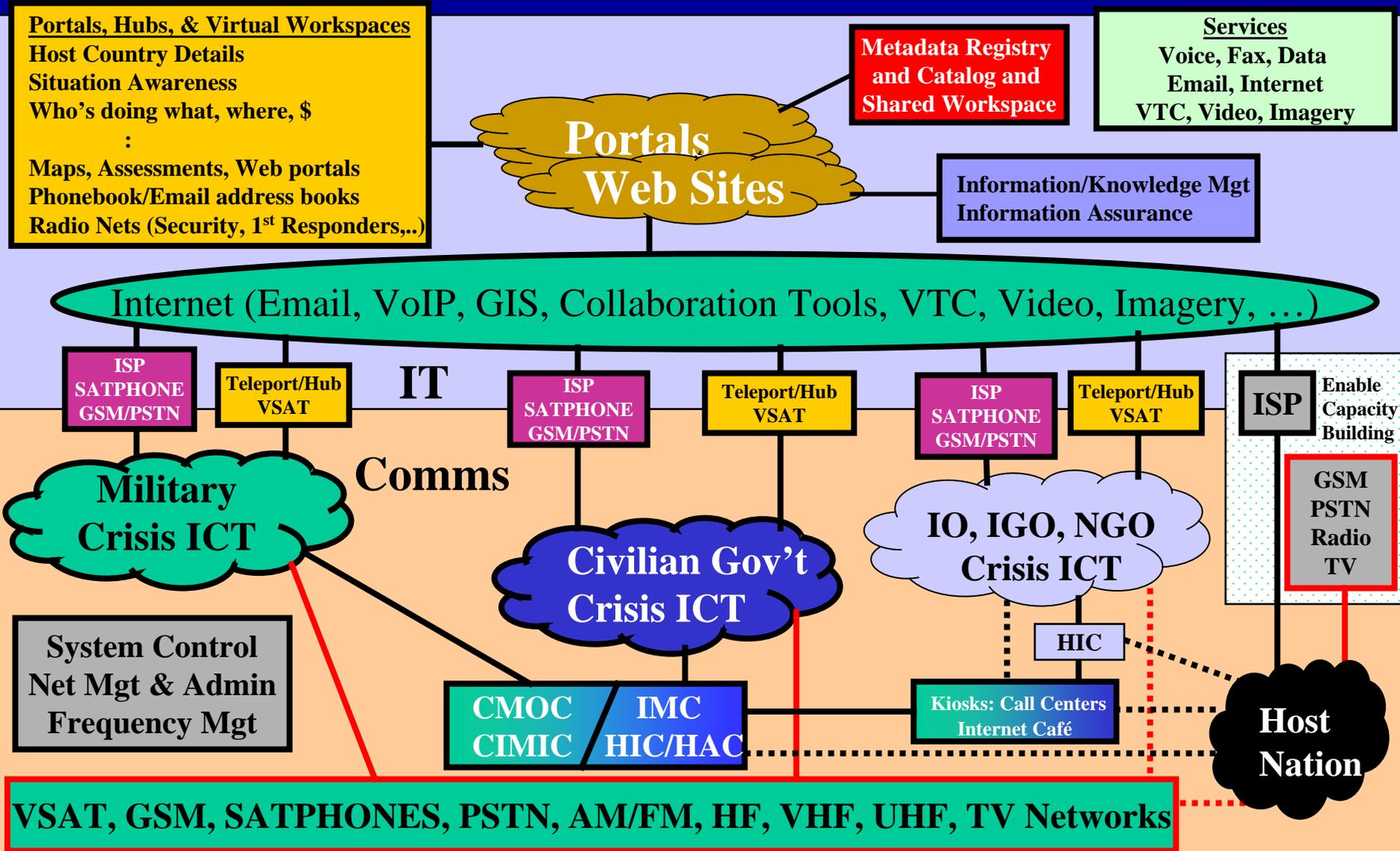
Options to Mitigate Shortfalls



- Use a common ICT response architecture employing
 - The Internet, WiFi, cellular, and satellite as preferred media
 - Commercial satellite service as primary access from remote area
 - Commercial ICT products and services
 - Web portals
 - Metadata repositories
 - Network administration and management
 - Information assurance and knowledge management
- Create a suite of interoperable ICT “toolkits”
- Agree on data sharing goals and actions to ensure data are visible, available, usable when needed and where needed, and “tagged” and geo-referenced to enable discovery



Common ICT Response Architecture





Interoperable ICT "Toolkits"

Forward Deployed Capabilities

- Wired and Wireless LAN
- Internet Access (VoIP, Email, Data, Video, Imagery, Browsers, Portals, Metadata Repository)
- Collaboration, Assessment, Visualization Maps/Mapping Tools, GIS, GPS
- Distributed Information Environment (One stop shopping)

Laptops, desktops, M/S office, Adobe

Cellular and Public Phones

HF, VHF, UHF Radios

Satellite phones, VSAT

VHF G/A Radios

WiFi

Cell on Wheels

Portable PABX

LOS Tx

Radio/TV

Print

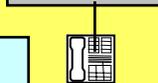


WiFi

COW

LOS Tx

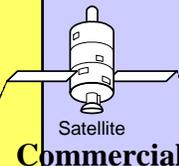
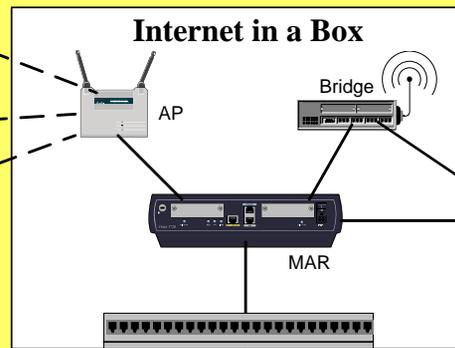
Radio/TV



Inmarsat Phone (2.4 to 4.8 kb/s)



RBGAN to VSAT (144Kb/s to Mb/s)

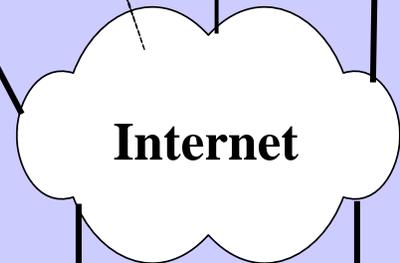


Satellite Commercial

Military Unclassified Portals

International Organizations NGO Portals

Civilian Agency Portals



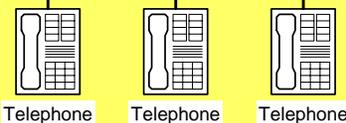
COEs Academia Industry Data Repositories

Metadata Repository

Registry Catalog Shared space

Distributed Information Network

Other Military Elements



Telephone Telephone Telephone



Laptop computer Laptop computer Laptop computer

ICT Capability Package



Best Practice Example: Preparing for an Operation (1 of 2)



- Maintain preparedness “toolboxes” for on-line, off-line distribution
 - Toolboxes provide guidelines and reference tools for the rapid-deployment of ICT packages and/or the establishment of Web sites, intranets and databases under a variety of field conditions
 - Toolboxes should include data standards, operating procedures, training materials, database templates, and manuals
- Develop surge capacities for rapid deployment
 - Maintain rosters of experienced ICT professionals
 - Formulate equipment caches
 - Establish training and exercise programs
- Develop contact lists
 - Lists should feature key humanitarian responders and local personnel, with phone numbers and email addresses



Best Practice Example: Preparing for an Operation (2 of 2)



- Develop cultural awareness and civil-military situation awareness
- Review host-nation ICT related legal, regulatory, and institutional considerations
- Use a rapid response ICT assessment team (2-4 persons) in advance of full deployment to establish needs and conditions on the ground
- Determine communications requirements
- Identify alternative power sources, spares, and repairs
- Setup and test ICT capability packages to be deployed



Summary



- This paper has addressed two major issues
 - ICT for civil-military coordination in crises
 - Baseline
 - Shortfalls
 - Options to mitigate shortfalls
 - Best practices developed from experience
 - Civil-military information sharing
 - Establishing a collaborative information environment
 - Collecting data, managing information, and seeking knowledge
 - Preparing for a deployment
 - Selecting VSAT systems and services
 - Conducting an operation
 - Employing a Web site
- The Primer is a “living document” that will be refined as we continue to develop insights from real world crises