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# Systems Break-out Session

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18 February 2005



# Agenda



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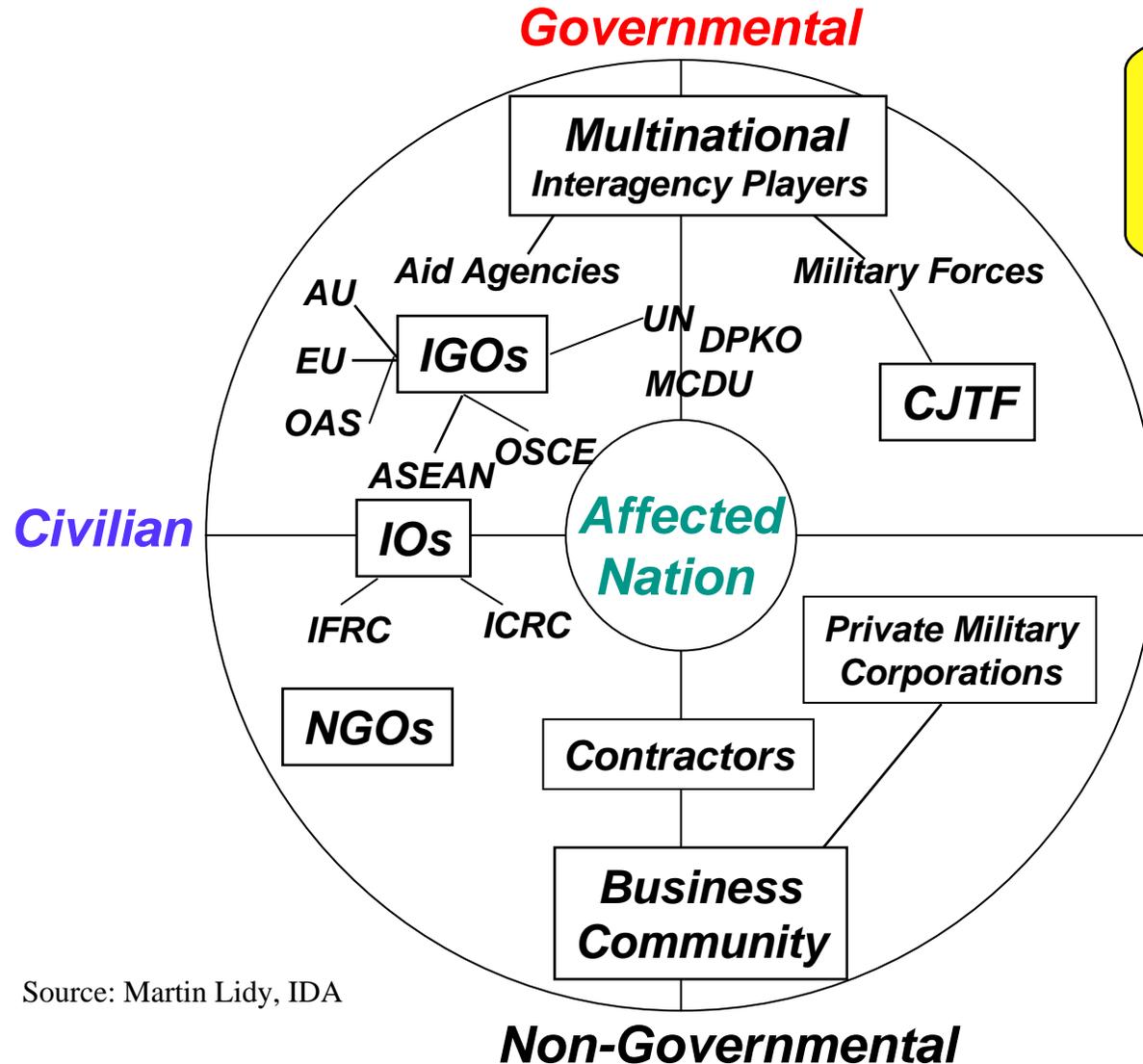
- Review “S&R Civil-Military ICT Baseline”
  - Global Partners and C-M ICT Environment
  - Challenges
  - “De Facto Civil-Military ICT Architecture”
  - “As IS C-M ICT Baseline”
    - Austere, moderate, extensive environments
    - Tactical, operational, and strategic levels of operation
  - S&R C-M ICT Gaps
- Way ahead
  - Strategy, CONOPS and DoDAF-like architecture
  - Demonstration proposal



# Potential Global Partners During S&R Ops



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**(1) Partners have different responsibilities, authorities, and capabilities**

**Military**

**(2) Roles of Partners vary**

- Based on cause and urgency of operation
- Over time as conditions change

Source: Martin Lidy, IDA



# Civil-Military ICT Environment



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- **Availability of reliable communications and IT (especially for Austere environment)**
  - Physical, environmental, administrative, and operational vulnerabilities
- **Ad hoc, stove-piped implementation and operation the norm**
  - No CONOPs, doctrine and formal mechanism to coordinate planning and implementation
  - Lack standardization of capabilities and procedures
  - Voice and IT Network and System Administration (including Directories) and O/M
  - Spectrum management and trans-border use (Tampere agreement)
- **Coverage, Robustness, and Performance**
  - World wide and short and long range capabilities
  - Works well under “all circumstances” inside and outside buildings
  - Field HQs versus remote sites versus host nation leaders and population
  - Quality of Service, ease of use and user training
  - Sources and quality and relevance of information (Information Management and Assurance)
  - Power (Power Supplies, Local, Transportable, Car Battery, Rechargeable Batteries)
- **Costs (Purchase and Operational) and Funding**
- **Decision aids, visualization and collaboration tools**
- **Organization culture impacts collaboration and information sharing**
  - IO/IGO/NGO impartiality sensitivities
  - Military security and release restrictions

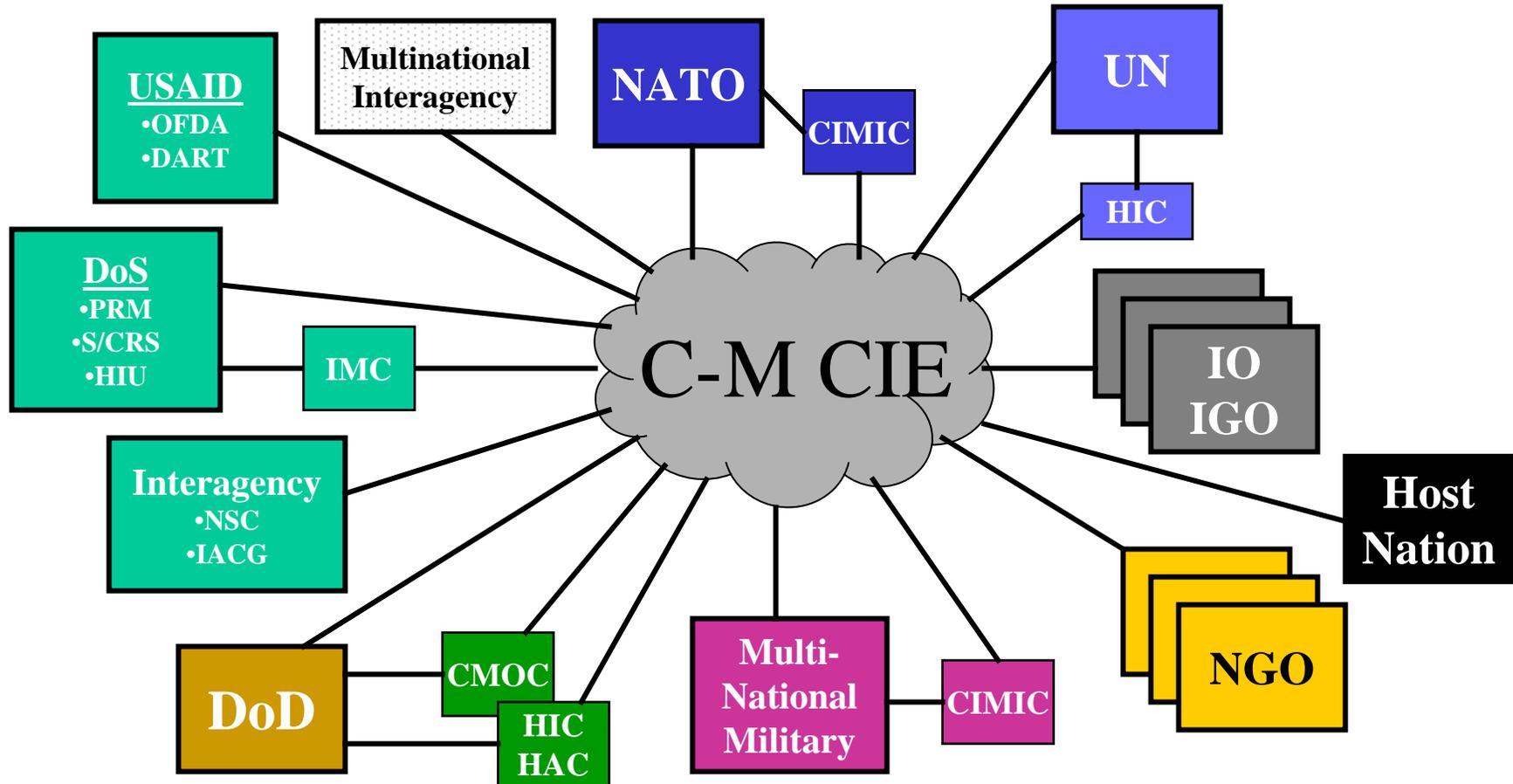


# S&R Ops Civil-Military

## Collaborative Information Environment



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**Challenge: Participant Communications and Information Systems Capabilities Range from Face-to-Face to State-of-the-Art Information Communications Technology**



# S&R C-M ICT Challenges



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- Political “will”
- Organization cultures and IO/NGO impartiality sensitivities
- Policy, doctrine, tactics, techniques, procedures
- Funding and security restrictions
- Integrating ad hoc stove-piped capabilities
- Complex and enormous data problem
- Information needs and exchange requirements
- Shared understanding among participants
- S&R Ops Civil-Military ICT Architecture and CONOPS
- Civil-military ICT organization authority and resources

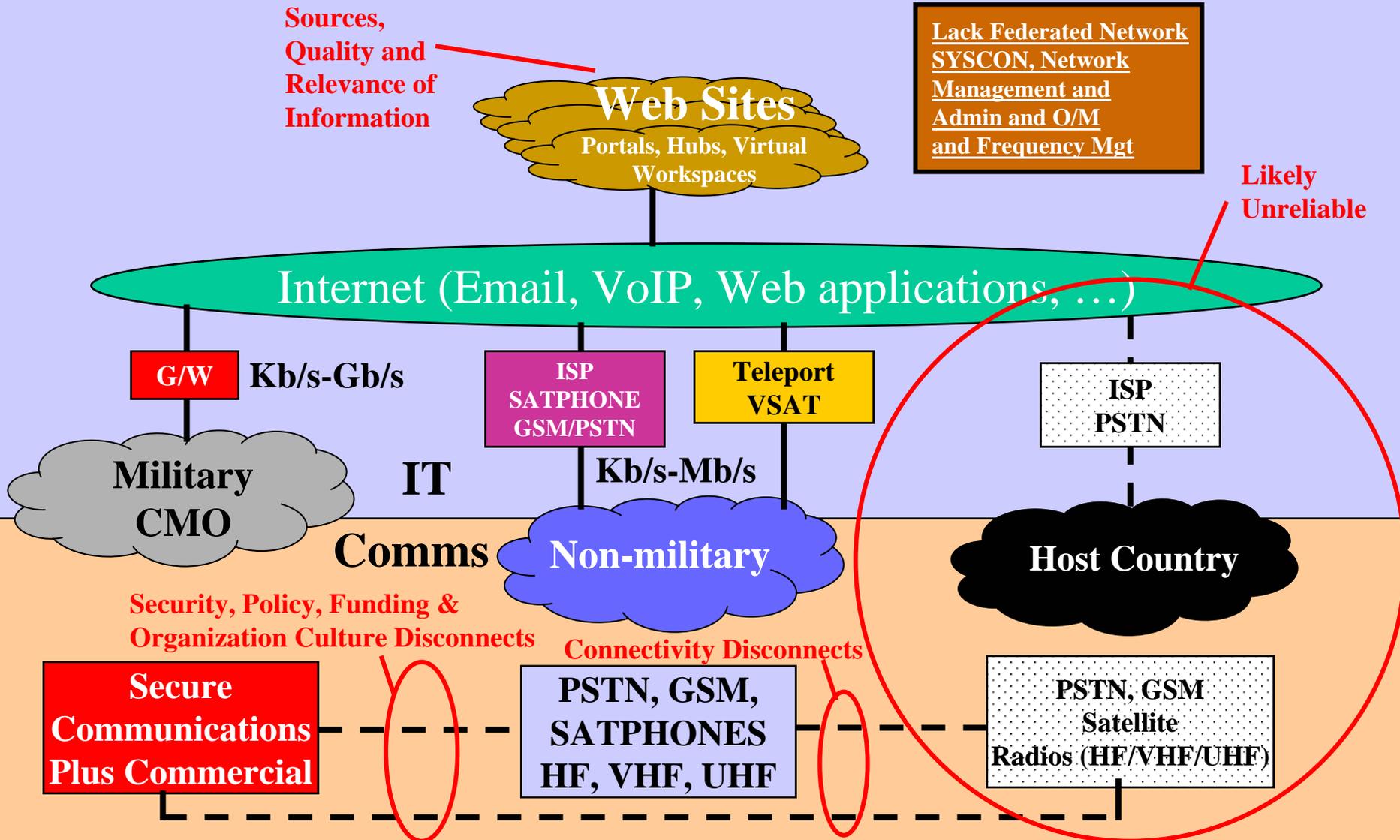
Technology is an “Enabler”



# S&R "C-M ICT Operational Challenges"



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# "Baseline S&R C-M ICT Capabilities"



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HIU eRoom/NGA GIS

Afghanistan stabilization

AIMS/ReliefWeb

Internet (Email, VoIP, Web applications, ...)

NIPRNET

VSAT  
INMARSAT  
Iridium  
THURAYA  
MPDS  
RBGAN  
GSM  
PSTN  
HF  
VHF  
UHF  
GPS  
VTC/Video  
GIS  
IWS/Groove  
Digital Camera

SIPRNET

CENTRIXS

MCFL, CNFC,  
ISAF, GCTF, 4 Eyes

JWICS

Military

Teleport/ISP

VSAT  
INMARSAT  
Iridium  
THURAYA  
MPDS  
RBGAN  
GSM  
PSTN

USAID/OFDA/DART  
Interagency

HF  
VHF  
UHF  
GPS  
VTC/Video  
GIS  
Groove  
Digital Camera

Civilian Gov't

Teleport/ISP

VSAT  
INMARSAT  
THURAYA  
RBGAN  
GSM  
PSTN

United Nations

HF  
VHF  
Wireless LANs  
VoIP  
PABX  
GPS  
VTC  
GIS  
Groove

Non-Military

Teleport/ISP

INMARSAT  
THURAYA  
RBGAN  
GSM  
PSTN

IO, IGO, NGOs

Pencil/Paper  
HF  
VHF  
VSAT  
GPS  
Wireless LANs  
VoIP  
VTC/Video  
GIS  
Groove

Host Nation

ISP  
GSM  
PSTN



# S&R C-M ICT Commonalities



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**Military      Civilian  
Gov't (US)      UN      IO/IGO      NGO      Host Country**

**Apps**

Web- Site Microsoft GIS	Web- Site Microsoft GIS	Web-Site Microsoft GIS	Web-Site Microsoft GIS	Web-Site Microsoft <i>GIS</i>	
IWS/Groove	Groove	Groove	<i>Groove</i>	<i>Groove</i>	
Secure VTC	VTC/Video	VTC/Video	<i>VTC/Video</i>	<i>VTC/Video</i>	
GPS	GPS	GPS	GPS	<i>GPS (some)</i>	

**IT**

Internet	Internet	Internet	Internet	Internet	<i>ISP</i>
(Kb/s-Gb/s)	(Kb/s- Mb/s)	(Kb/s-Mb/s)	(Kb/s-Mb/s)	(Kb/s)	
Laptops/WS	Laptops/WS	Laptops/WS Wireless LANs VoIP	Laptops/WS <i>Wireless LANs</i> <i>VOIP</i>	Laptops <i>Wireless LANs</i> <i>VoIP</i>	
JMICS (TS) SIPRNET (S)	SIPRNET (S)				
CENTRIXS					

**Comms**

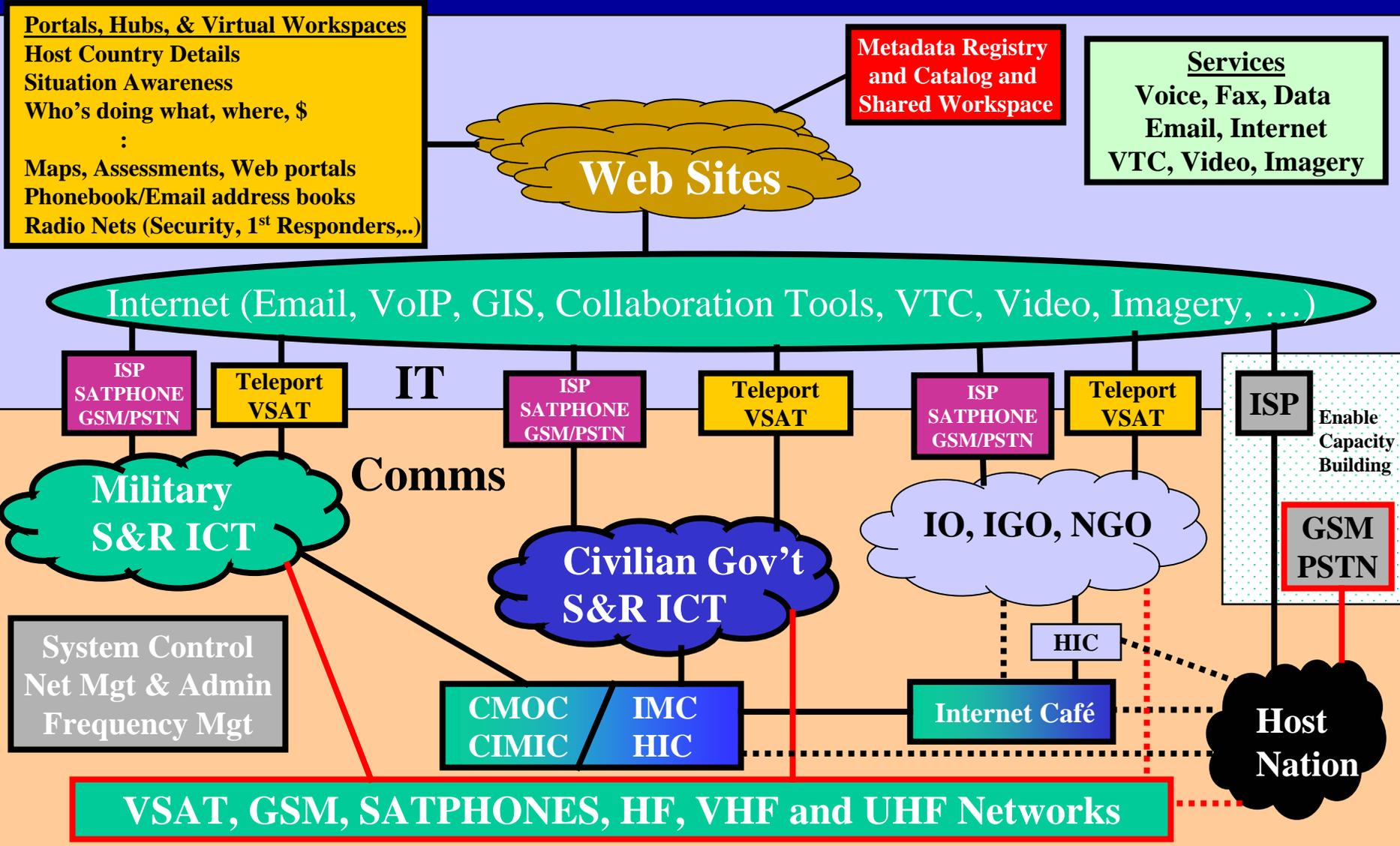
<i>PSTN</i>	<i>PSTN</i>	<i>PSTN</i>	<i>PSTN</i>	<i>PSTN</i>	<i>PSTN</i>
GSM SATPHONE MILSAT & VSAT Radios	GSM SATPHONE VSAT Radios	GSM SATPHONE VSAT Radios	GSM SATPHONE VSAT Radios	GSM SATPHONE VSAT Radios	<i>GSM Network</i>  <i>Radios</i>
NSA Secure	NSA Secure	Commercial Secure			



# "De Facto S&R C-M ICT Architecture"



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# "Austere Ops Baseline" (Tsunami-like Ops)



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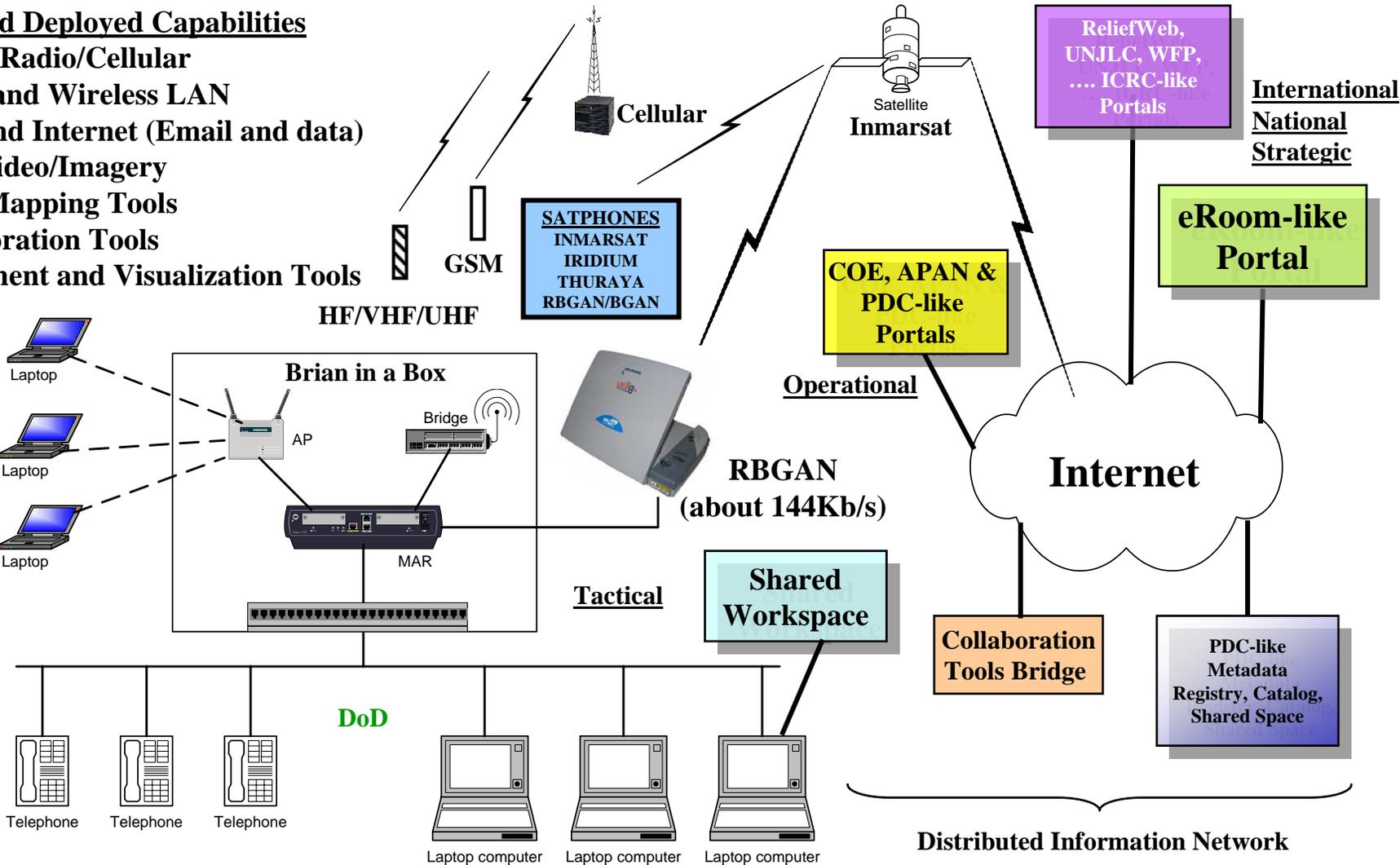
## Forward Deployed Capabilities

- Mobile Radio/Cellular
- Wired and Wireless LAN
- VoIP and Internet (Email and data)
- VTC/Video/Imagery
- Maps/Mapping Tools
- Collaboration Tools
- Assessment and Visualization Tools

**DoS  
USAID**

**UN  
IO/NGO**

**Local  
Nationals**



**Distributed Information Network**



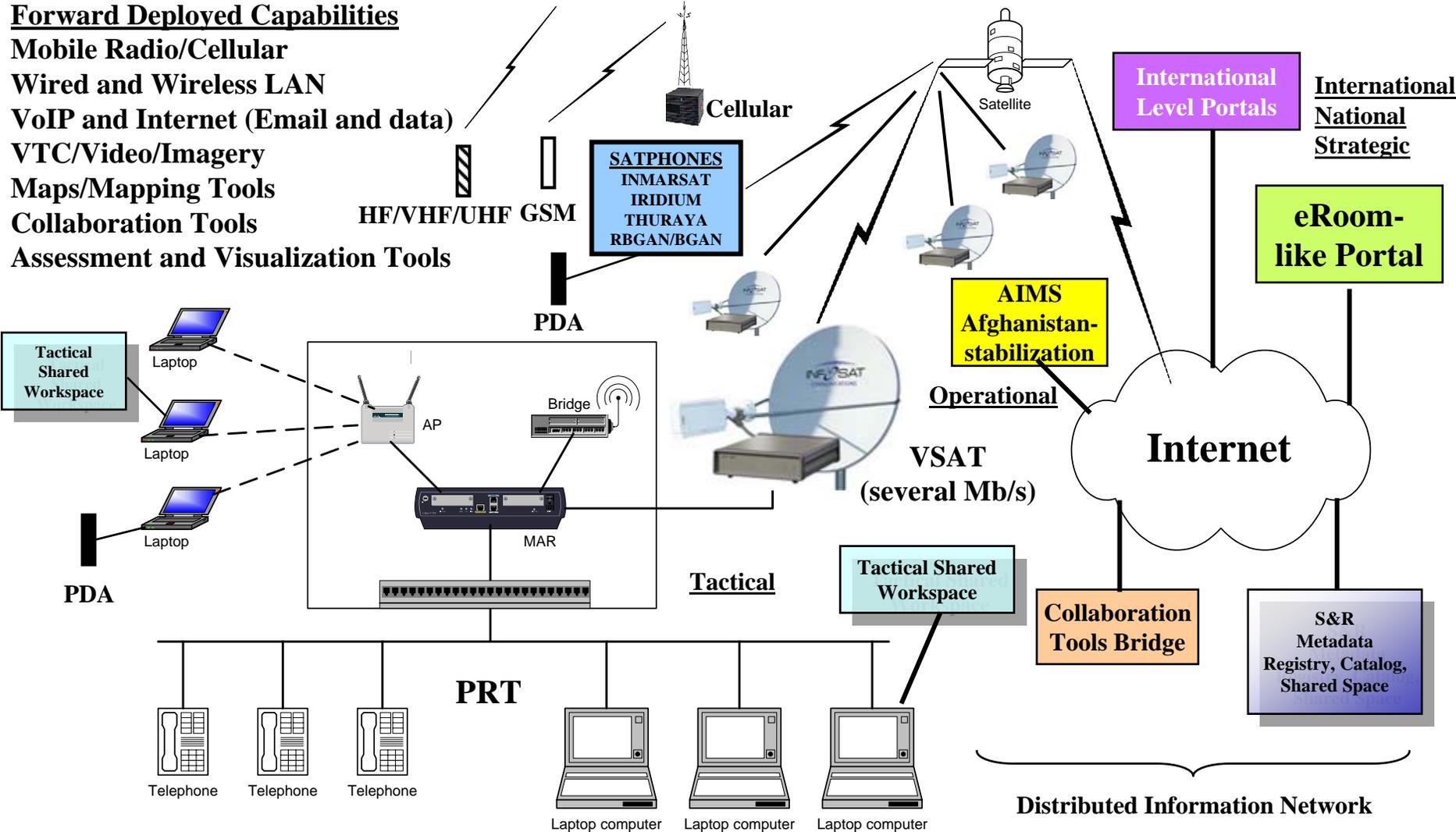
# "Moderate Ops Baseline" (Afghanistan-like Ops)



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## Forward Deployed Capabilities

- Mobile Radio/Cellular
- Wired and Wireless LAN
- VoIP and Internet (Email and data)
- VTC/Video/Imagery
- Maps/Mapping Tools
- Collaboration Tools
- Assessment and Visualization Tools





# S&R C-M ICT Gaps



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- Agreed System-of Systems Architecture
- Strategy, CONOPS and Framework for Planning, Implementing and Operating a Federated Network (Organize, Train and Equip)
- SYSCON, Network Management and Admin, O/M, and Spectrum Mgt
- Robustness (Coverage and Performance)
- Standards, Protocols and Procedures
- Information Classification and Release
- Information Management and Assurance
- Decision aids and collaboration tools
- Education and training
- Costs (Satellite use) and Funding for implementing and sustaining
- Responsible organization arrangement with authority and resources



# Way Ahead (1/2)



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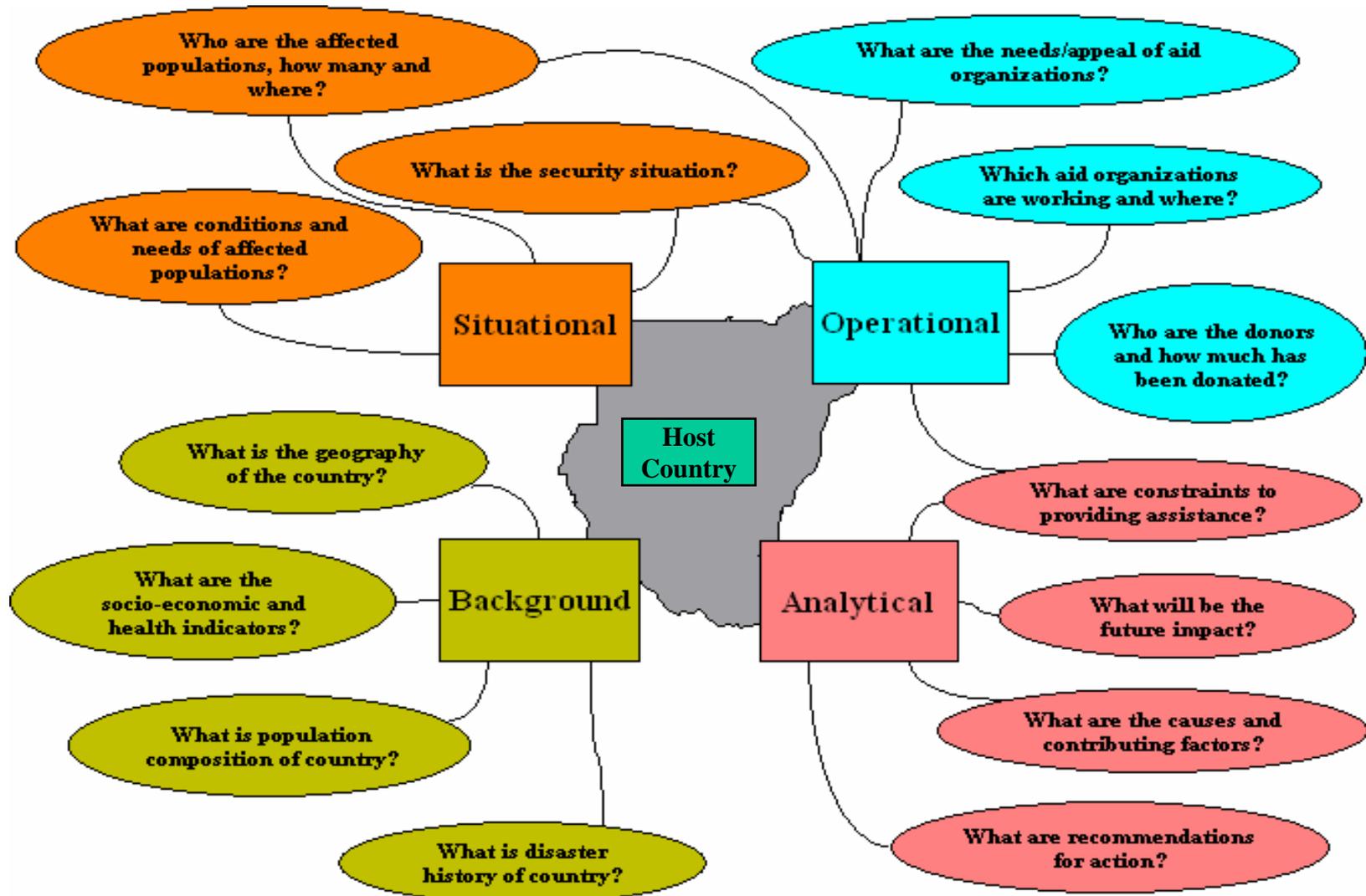
- Define Strategy for Planning, Budgeting, Acquiring, Implementing and Managing for Civil-Military ICT Support Arrangements for Deployment in Austere, Moderate and Extensive ICT Environments
- Identify Requirements (Information needs, IERs, functional capabilities)
- Develop CONOPS and DoDAF-Like: Operational, Systems and Technical Architectures
- Identify Responsible Agency(ies) and A/O/M Strategy and Management Plan
- Assess Existing Use of Commercial IT, Communications and Tools
  - Baseline Operational “as is” capabilities (Infrastructure, networks, applications, DBs)
  - What works and what does not
  - Identify Approaches to Resolving Challenges (security, IA, interoperability, culture,..)
  - Incorporate Lessons Learned (Tsunami, Afghanistan)
- Propose Command Arrangements and Civil-Military Organization Roles and Relationships including Host Nation



# Information Needs



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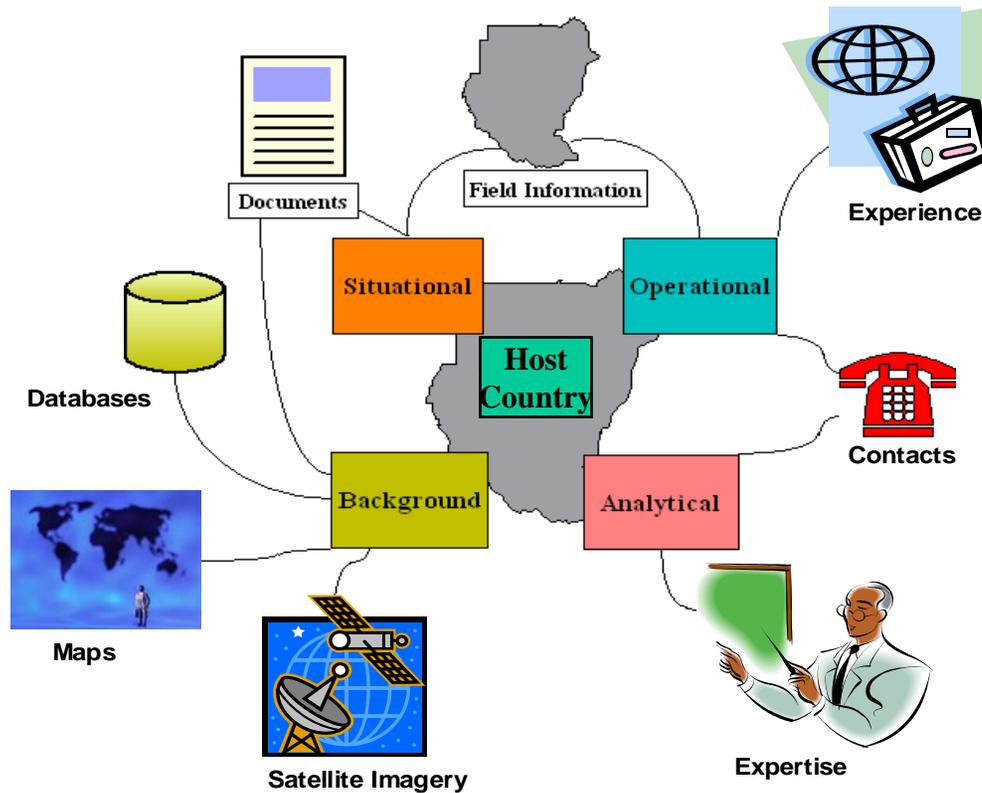




# Information Sources



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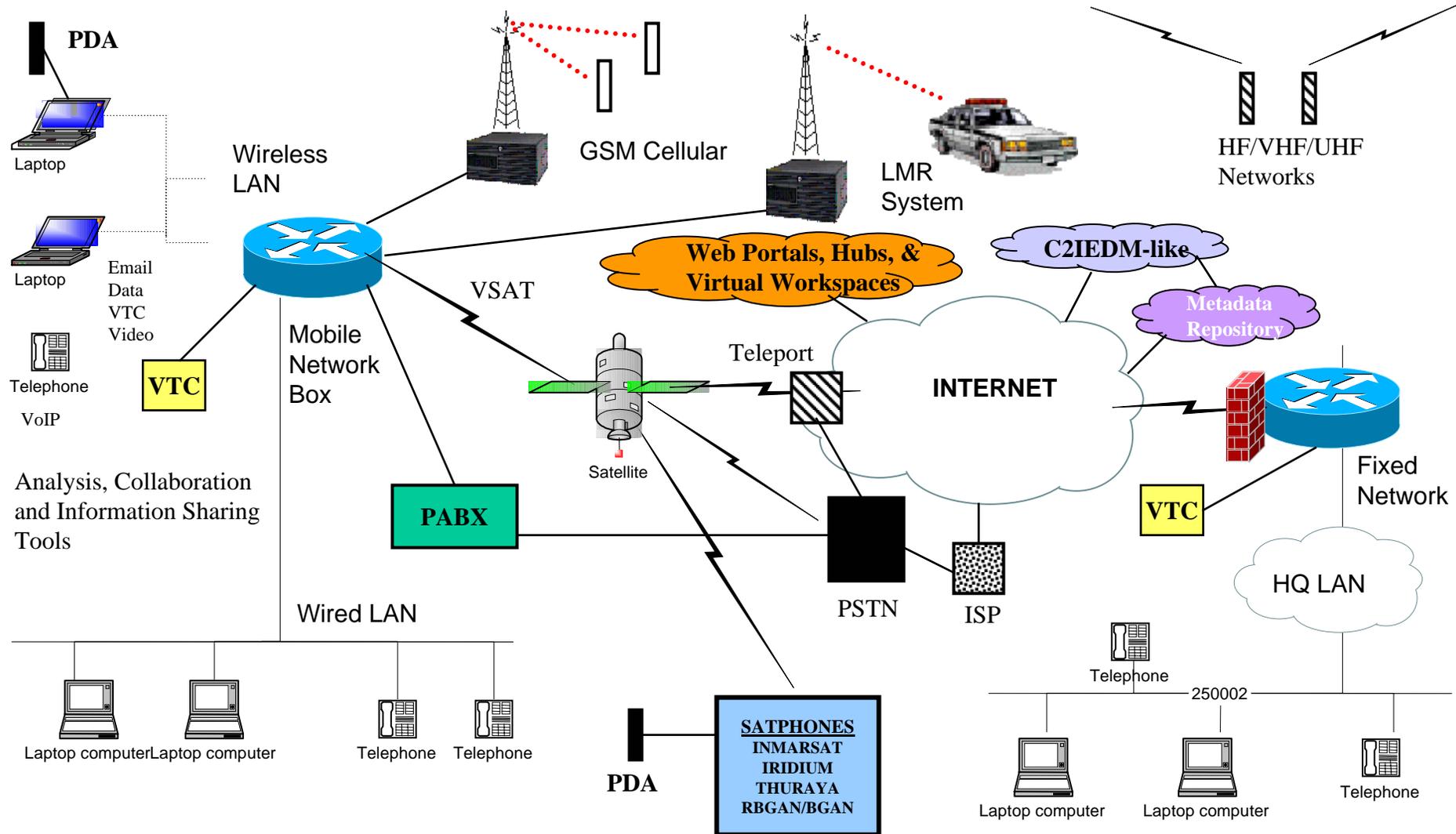




# "Notional S&R C-M ICT Deployment Concept"



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# Way Ahead (2/2)



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- Conduct a demonstration of a representative approach to what could be deployed in an austere environment for relatively low cost
  - That enables communications and information exchange amongst the various civil-military stakeholders in an S&R ops
  - Illustrates operational improvements and limitations of capabilities deployed in an austere environment



# Demonstration Approach



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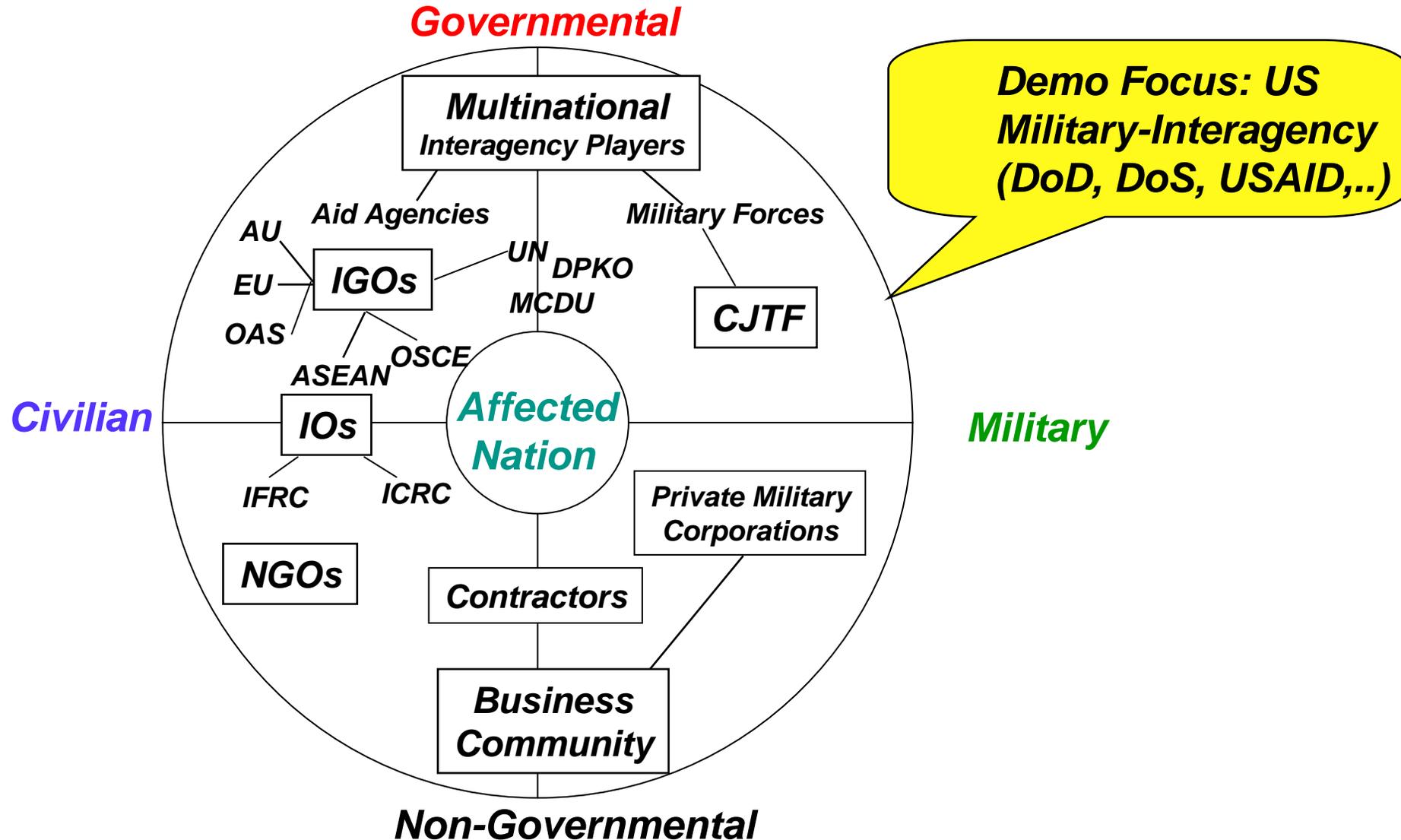
- Use the Internet and related information systems connected to it to create a distributed information network and employ commercial off the shelf information communications technologies to extend Internet connectivity to a simulate austere environment
- Community of Interest for demo: Military and Interagency (DoS, USAID)
- Establish a WiFi access point for notebook computers at NDU that will be connected via an RBGAN terminal via Inmarsat link to the Internet.
- The notebooks will have a variety of Web-based portals, shared workspaces, collaboration and assessment tools, and Web sites pre-loaded.
  - Use to inform and demonstrate types of information exchange and Collaborative Information Environments possible using the Internet as the common baseline.
  - Familiarize audience with the capabilities of the tools and concepts and limitations that have been discussed in the previous two sessions.
- Other computer systems connected to the Internet will be used to replicate systems at the operational, strategic and national levels. In this way the full spectrum of environments and levels of stakeholders will be replicated
  - Austere, moderate, extensive environments
  - Tactical, operational, and strategic levels of operation



# Potential Global Partners During S&R Ops



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# Demonstration Objectives



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- Demonstrate what is possible using readily available technology
- Illustrate to the group what information can be exchanged to enhance S&R
- Seize the momentum in interest in S&R as a result of the Tsunami
- Integrate lessons learned from Michelle Parker, Eric Rasmussen, others from operational/tactical experiences
- Broaden the understanding of the technologies, tools, portals, applications that are available and under consideration
- Capture the work of the Data breakout group and illustrate it



# “Proposed ICT Demonstration Arrangement for Austere Environment”



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## Forward Deployed Capabilities

Wired and Wireless LAN

VoIP and Internet (Email and Data Exchange)

Video/Imagery

Maps/Mapping Tools

Collaboration Tools

Assessment and Visualization Tools

