

## PART THREE

### Operational-Level Support

Operational-level support can be a dominant factor in determining the nature and tempo of operations. More than logistics, it furnishes the means to execute the operational and theater strategic concepts. It includes all those CS and CSS functions required to allow the tactical commanders to focus their attention on their tactical missions. Operational-level support encompasses all those actions that aid, protect, or sustain a force, including signal, intelligence and electronic warfare, and civil-military, and psychological operations. The ASCC's over-arching vision of his operational area melds support, combat operations, and MOOTW into an inseparable combination, tailoring support organizations and establishing support relationships in accordance with the CINC's priorities.

#### Chapter 8

### Signal Support

Signal support is critical to Army forces in war and MOOTW. It and the signal support information architecture provide the operational commander C<sup>2</sup> of his forces during force projection operations and MOOTW. The primary signal support mission is to provide collective, integrated, and synchronized information systems to support warfighting capabilities. The National Military Strategy is continuously changing to accommodate the new realities of the post-Cold-War world. Consequently, the US military and its associated C<sup>4</sup> structure are adjusting to new roles and missions across the full range of military operations.

### BATTLEFIELD INFORMATION ARCHITECTURE

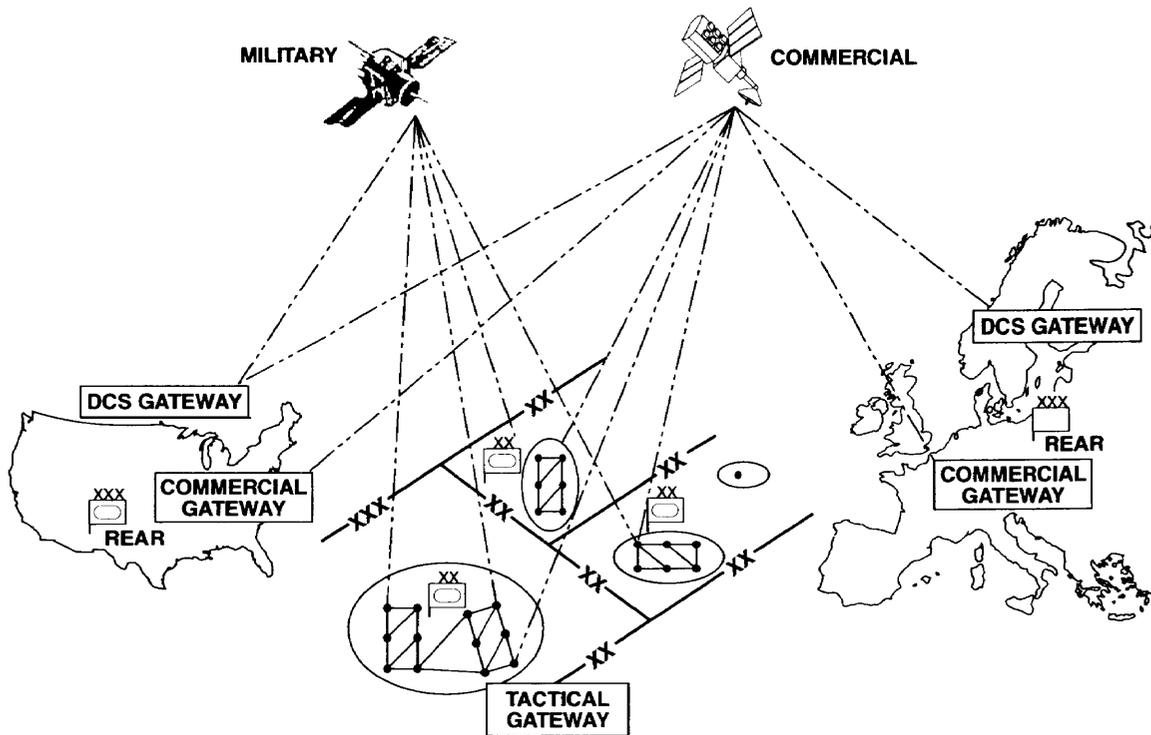
The battlefield information architecture consists of an integration of local area networks (LANs), wide area networks (WANs), and battlefield automated systems (BAS). A communications architecture ties the many distributed elements into an integrated, inter operable, and cohesive network. Infrastructure elements and command, control-communications, computers, and intelligence (C<sup>4</sup>I) capabilities combine to provide a global communications network (see Figure 8-1).

The seamless integration of these systems allows the commander C<sup>2</sup> on the battlefield and

supports transparent global C<sup>4</sup>I interfaces, nonlinear battlefields, and operational enclaves. These communications means afford the commander and his staff the ability to distribute critical information between higher, lower, adjacent, joint, and multinational forces. Voice traffic and data distribution are the primary methods of passing this information (see Figure 8-2).

### SIGNAL SYSTEMS

The quality of the ASCC's decisions will be directly proportional to the quality and timeliness of the information upon which those decisions are based. Responsive and effective



**Figure 8-1. Global Communications Network**

support operations rely on worldwide assured signal support systems. Seamless signal systems integrate the full spectrum of support functions and are tailored in a manner that provides commanders and other users with timely and relevant logistics and support information. Connectivity out of the theater via gateways can allow much of the distribution management function to be accomplished from CONUS, HNs, or other processing sites, reducing the number and size of facilities in the theater of operations (see Figure 8-3).

The operational-level signal organization elements function under the US Army Information Systems Command (USAISC) and are OPCON to the ASCC. This organization provides—

- Voice and data tactical information services to the theater of operations.
- Out-of-theater access and connectivity to other joint and multinational elements.
- Signal support needed for receiving forces and managing movement of supplies and

equipment at airfields, seaports, and warehouses.

To support split-based operations, connectivity—either military or commercial—is provided between CONUS POEs and other manifest activities and PODs in the theater. Communications for ITV and TAV are provided when needed for asset management at the POD to make the logistics system more responsive to the soldiers and the units it supports. FM 11-45 discusses operational-level signal organization support, which includes communications, automation, visual information, printing and publications, and records management.

## WARFIGHTER NETS

Corps and division warfighter nets, combining both single-channel satellite and combat net radio (CNR), provide the respective commanders with C<sup>2</sup> connectivity to meet the requirements of the modern battlefield. Each commander is provided the capability to immediately access command posts and

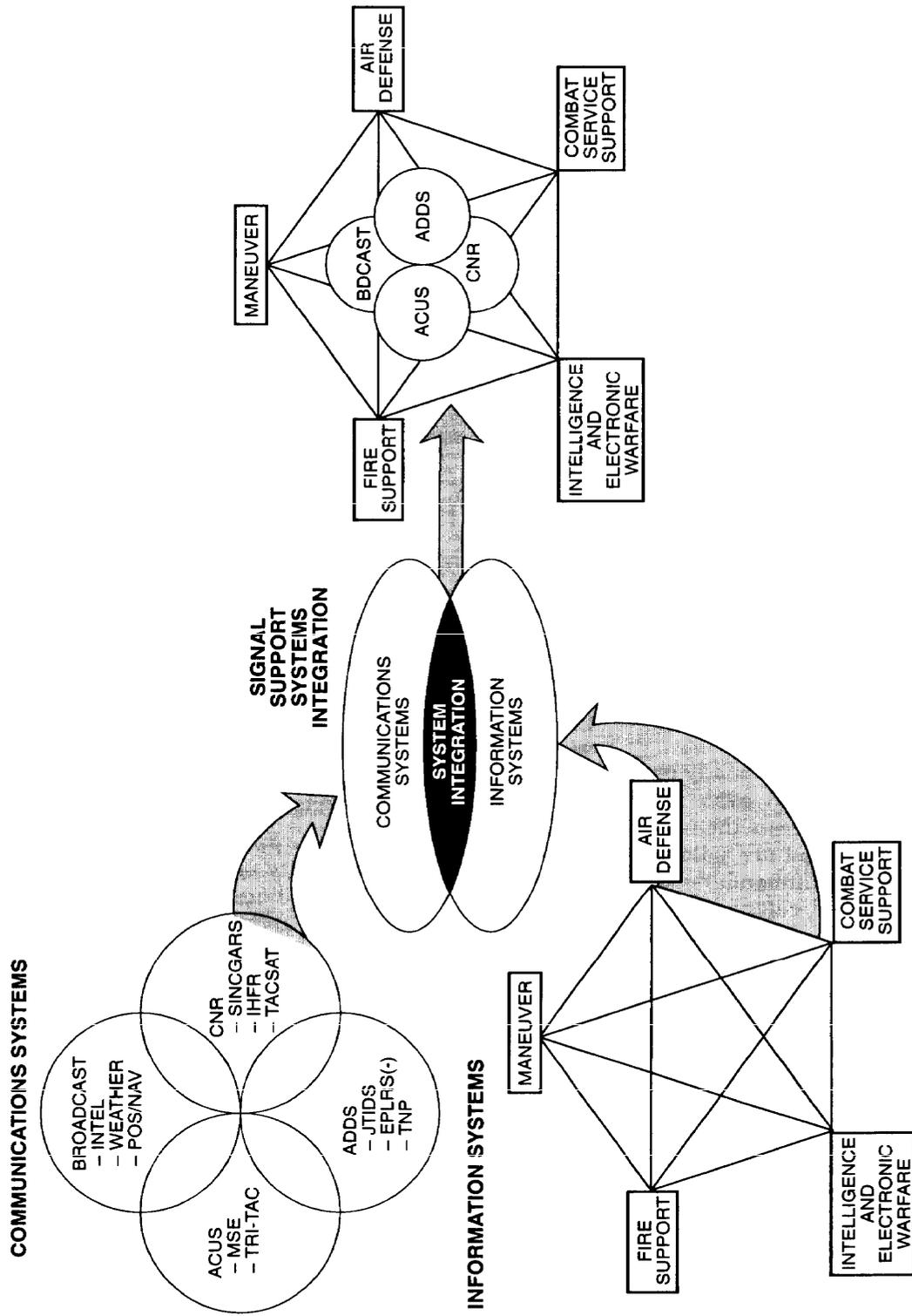
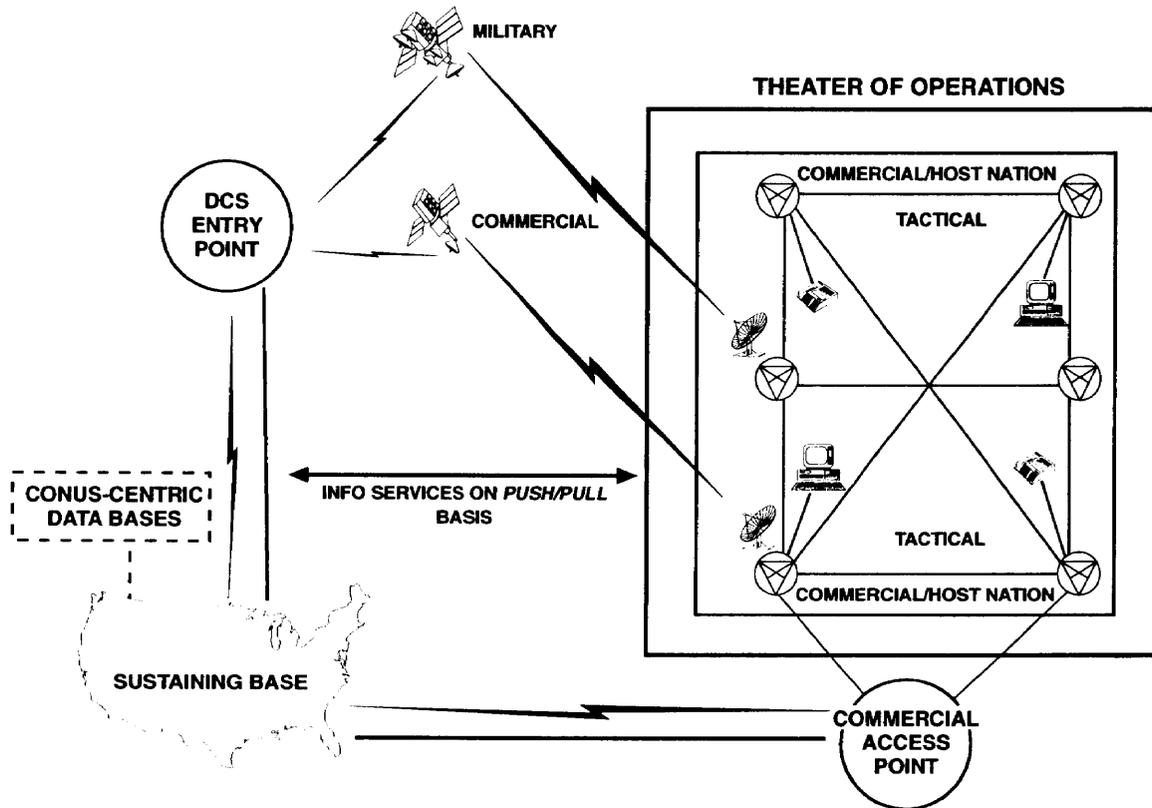


Figure 8-2. Battlefield Information Architecture Integration



**Figure 8-3. Tactical and Strategic Systems Interface**

monitor subordinate units' communications. The warfighter net allows the commander to direct operations during critical moments of the battle (see Figure 8-4).

### **VOICE SERVICES AND DATA DISTRIBUTION**

Signal support provides the battlefield commander voice services and data distribution for his user-owned, -installed, and -operated terminal devices. Voice traffic includes user-to-user, conference, and broadcast traffic. Data distribution includes formal (joint message text) and informal (facsimile and electronic mail) record traffic, system-to-system data, and position/navigation (POS/NAV) data. Voice communications use flood search call routing, which allows the caller multiple-path routing through the communications network providing global connectivity. The tactical packet network (CPN), which connects LAN users to the global information network, provides data distribution

services. Both services are provided via the area common-user system (ACUS) and are connected to the system by the local tactical switchboard (see Figure 8-5).

### **COMMUNICATIONS FOR CSS**

Responsive and effective CSS operations rely on communications. CSS activities will be provided access to the ACUS—a terrestrial multichannel radio network—through various switch configurations located with the forward deployed element. This access gives the CSS element connectivity to Automatic Digital Network (AUTODIN), DSN, and the Defense Data Network (DDN). The CSS element is also provided the capability to interface with joint and international systems. To permit STAMIS connectivity to the ACUS, the CSS automated information system interface (CAISI) interfaces the STAMIS and the local switch, providing a CSS data flow.

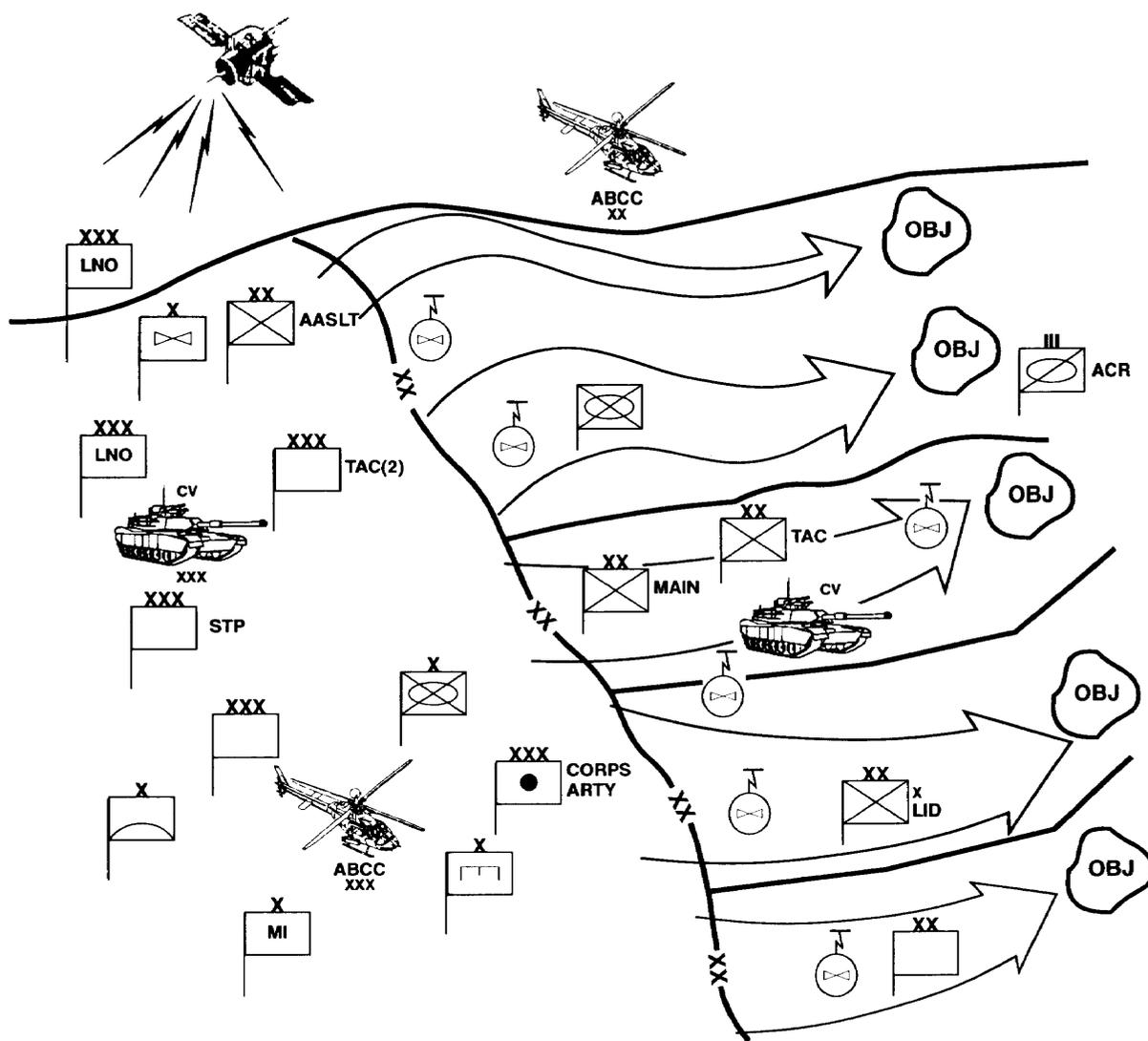


Figure 8-4. Corps Commander Warfighter's Net (TACSAT) Data and Voice Services

## SUPPORT TO FORCE PROJECTION

Throughout all phases of force projection operations—predeploy merit, deployment, entry, operations, postconflict, and redeployment—signal support enables effective battle command. By using satellite communications and other means, operational-level signal elements make split-based operations possible. The signal support architecture supports global deployability, connectivity, and tactical agility. Signal units are as strategically deployable and as tactically mobile as the forces they support.

### PREDEPLOYMENT

Prior to deployment, interface with the strategic- and sustaining-base communication systems is critical. In the early stages of crisis development, these systems are the primary means for predeployment communication. As potential crisis situations develop, the collection and analysis of intelligence information intensifies, and intelligence products are provided to operational commanders for planning purposes.

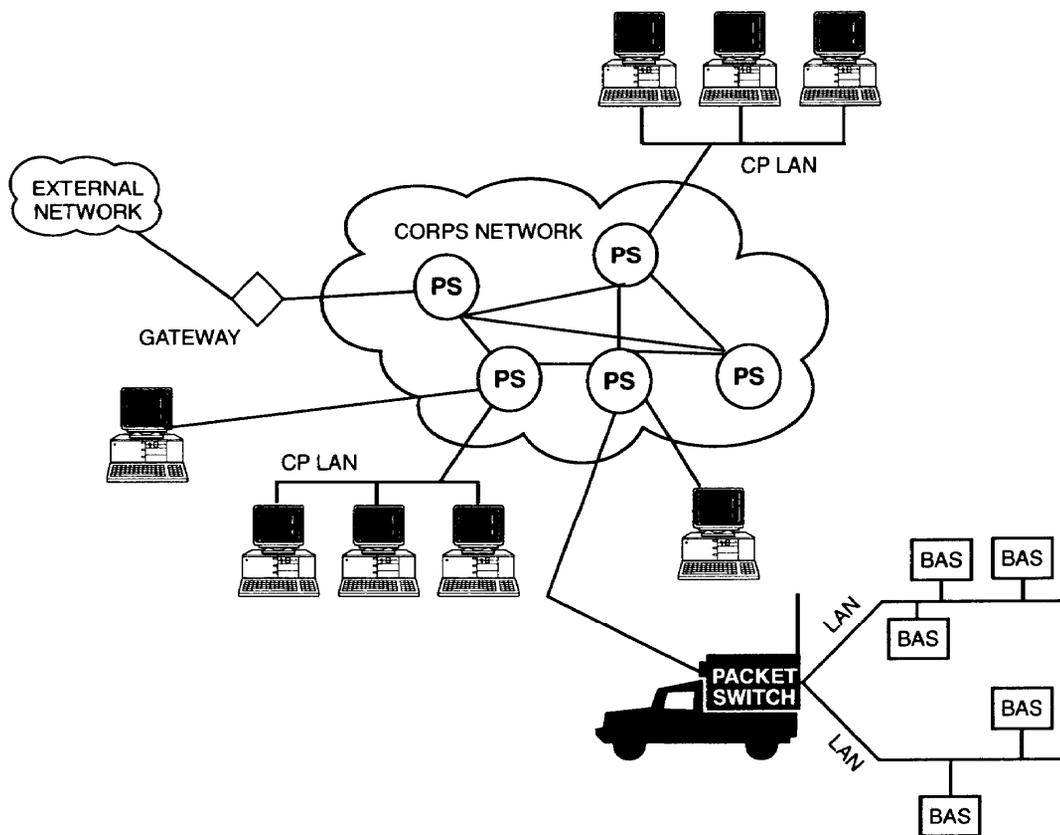


Figure 8-5. Tactical Packet Network

## DEPLOYMENT

C<sup>4</sup>I between the sustaining base, the deploying forces en route, and ground forces is critical. From the outset of deployment operations, single-channel TACSAT and commercial satellites are included in the signal support package to support C<sup>2</sup>.

## ENTRY

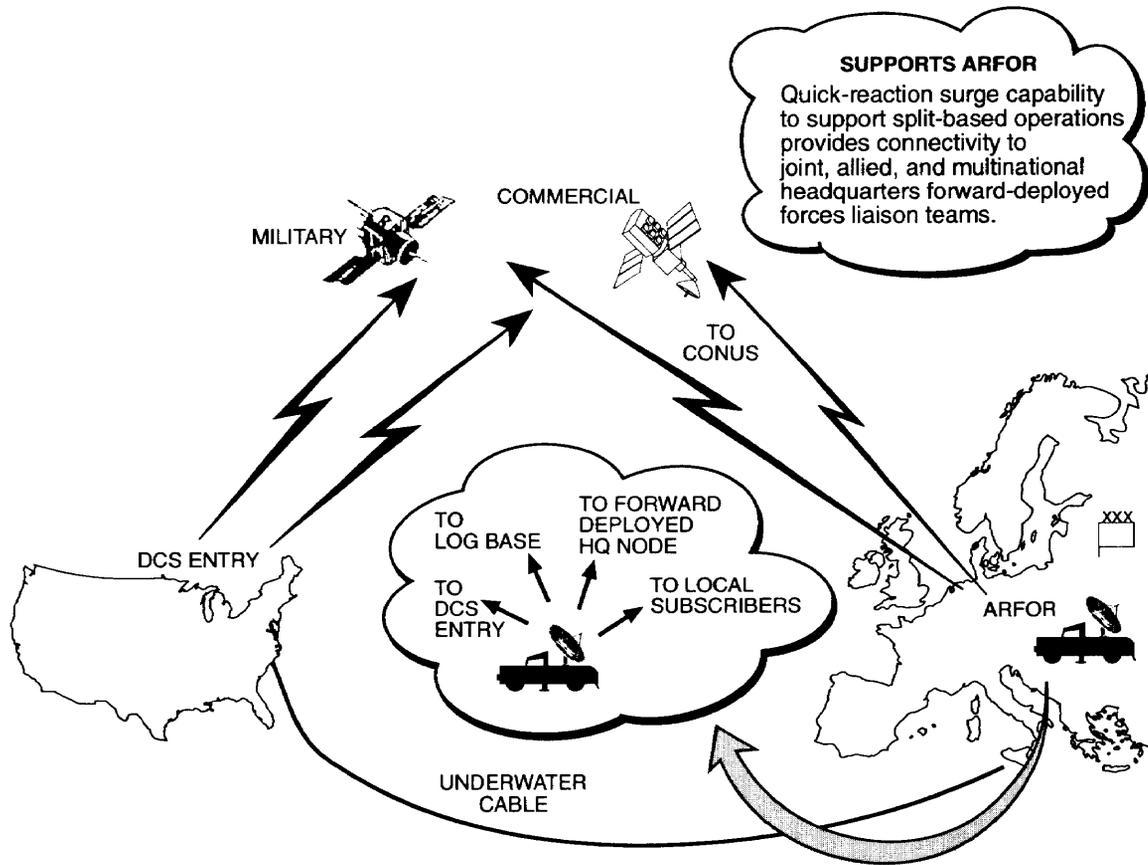
The requirements for entry operations will vary depending on METT-T. Accordingly, signal support assets are tailorable to meet mission requirements and expandable once deployed. The power projection for Army C<sup>3</sup> (Power PAC3) company and Contingency Communications Package/Light Contingency Communications Package provide entry-operations communications capabilities. Both support split-based operations. As the force buildup continues, signal support will expand services and coverage. This expansion will be

aided by the use of existing HN information systems and commercial information services to the extent possible to supplement military systems (see Figure 8-6).

## OPERATIONS

As the operations phase begins, maneuver units disperse in tactical assembly areas. Initially, limited communications are established for C<sup>2</sup>, intelligence, and CSS. During the development to the operational area, the ACUS is established to handle the large amount of voice and data communications traffic produced by force buildup. Also, multichannel satellite communications (range extension signal assets) provide communications throughout nonlinear battlefields (see Figure 8-7).

The initiation of offensive maneuver accelerates the tempo of operations and places



**Figure 8-6. Entry Operations Signal Support (Power PAC3)**

new demands on the ACUS to keep up with the rapidly moving forces. Corps and division warfighter nets provide C<sup>2</sup> capability over extended ranges for combat units. Communications payloads in unmanned aerial vehicles (UAVs) serve as relays to extend the range of ground communications and may function as surrogate satellites to supplement the capabilities of space platforms. Satellite systems will be used to broadcast intelligence and targeting information directly to the maneuver brigade commander’s level (see figure 8-8).

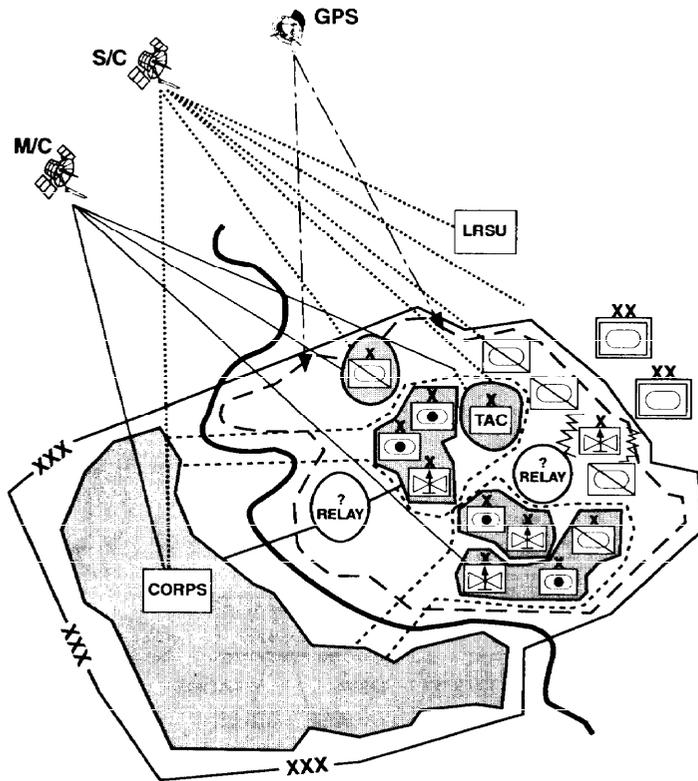
### POSTCONFLICT

Postconflict operations focus on restoring order and minimizing confusion following the cessation of open conflict while reestablishing

the HN infrastructure. Signal support will continue to provide access to the DDN and the Defense Communications System (DCS).

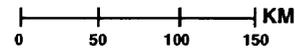
### REDEPLOYMENT

Communications assets will be available to support redeployment and will be phased out of the objective area as the situation permits. Signal support plays an important role in redeployment operations. Redeploying units, CSS activities, assembly areas, airports, seaports, and sustaining base activities will have access to communications to coordinate redeployment. CSS information flows to the rear from forward areas, with much of this information being passed to sustaining base activities via strategic and commercial communications systems (see Figure 8-9).



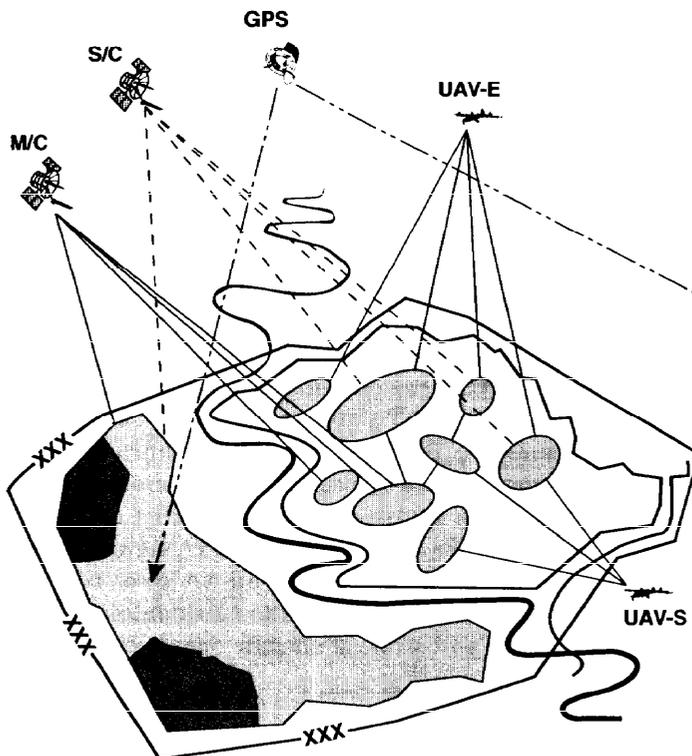
### SIGNAL SUPPORT EXPAND SIGNAL SUPPORT TO UNITS AND AREAS REQUIRED BY SELECTED ELEMENTS

- Push MSE out to critical units M/C covered by mobile RAUs.
- Use range extension (multichannel TACSAT and TROPO) to provide connectivity to units and enclaves.
- Provide extensive data transport for sensors-to-weapons systems.
- Combat net radio vital to brigade and below C<sup>2</sup>.



LEGEND	
	Area of operation
	Detected zone
	Battle zone
	MSE network
<b>M/C</b>	Multichannel
<b>S/C</b>	Single channel

Figure 8-7. Operations Signal Support



### SIGNAL SUPPORT PROVIDE TIMELY COMMUNICATIONS AND DECISION SUPPORT

- MSE network built in maneuver forces' areas of operations.
- CNR is primary means of C<sup>2</sup> for maneuver forces, brigade and below.
- EPLRS will support mobile forces with data and POS/NAV.
- GPS supports POS/NAV requirements.

LEGEND	
	Area of operation
	Detected zone
	Battle zone
	Enclave zone
	Vacated by corps

Figure 8-8. Offensive Maneuver Signal Support

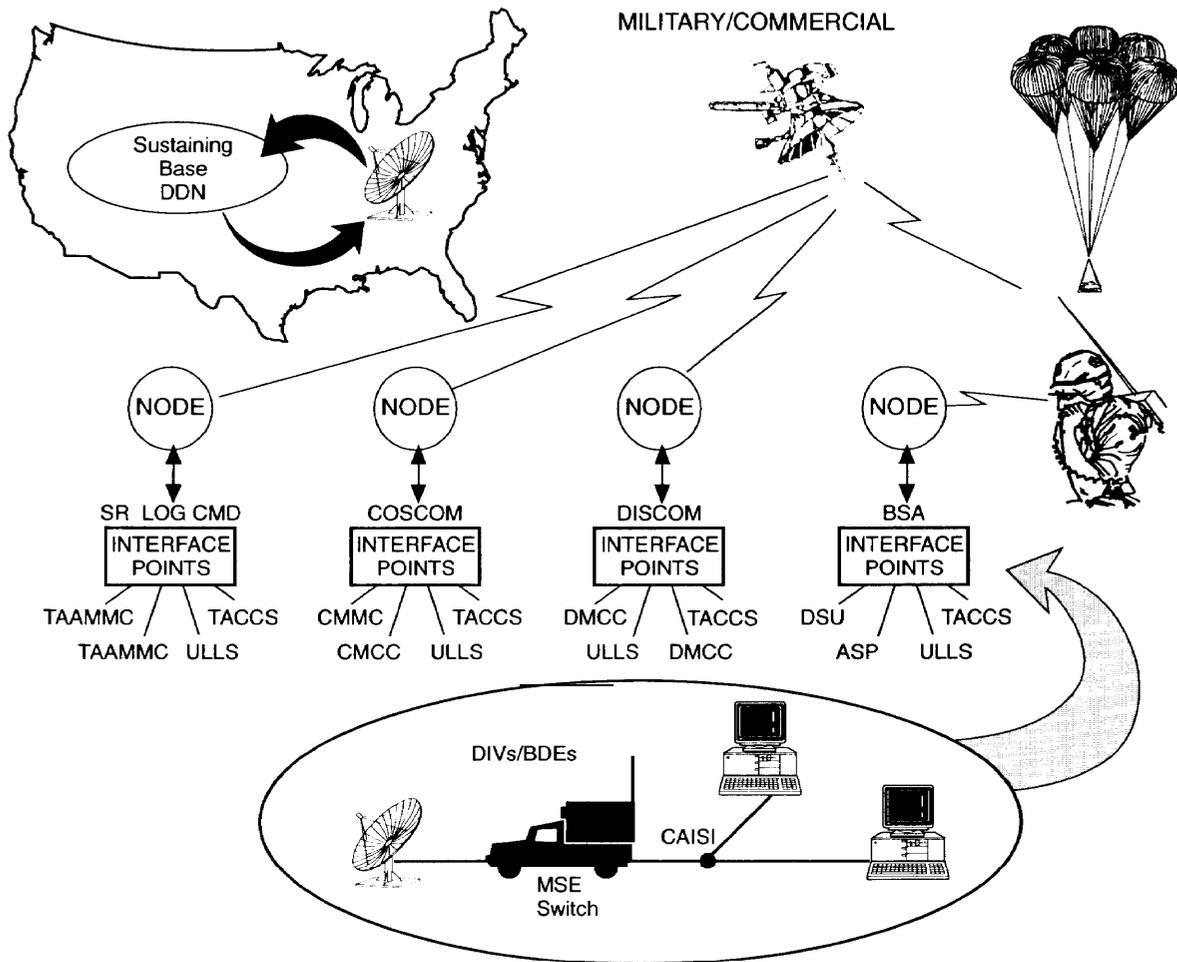


Figure 8-9. Communications

## SUPPORT TO MILITARY OPERATIONS OTHER THAN WAR

The Signal Corps has assumed new and important roles under the Army operations concept promulgated by FM 100-5. One of the new and significant roles is signal support in MOOTW. This role includes support for all measures that improve HN communications infrastructures. Since we may have to rely on these facilities during force projections operations, they should be compatible with US

Army tactical communications systems (see Figure 8-8). To accomplish this role, signal units provide direct assistance abroad and at home by restoring commercial communications networks destroyed during conflict or natural disaster. In support of MOOTW, signal support forces will be tailored to provide the information requirements to accommodate the nature and scope of specific operations.