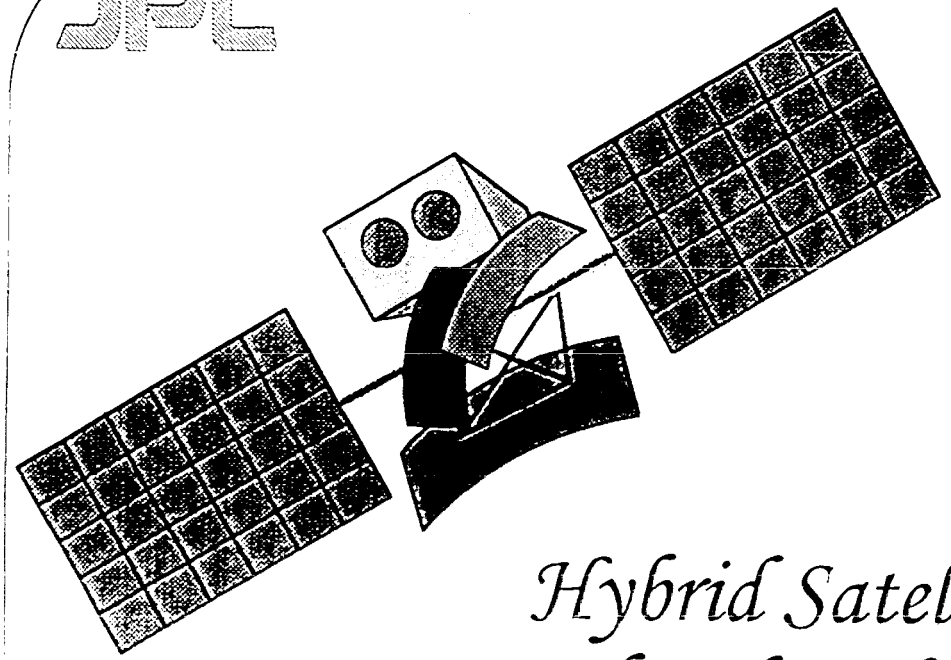


Hybrid Satellite/Terrestrial Personal and Mobile Communications Research at JPL

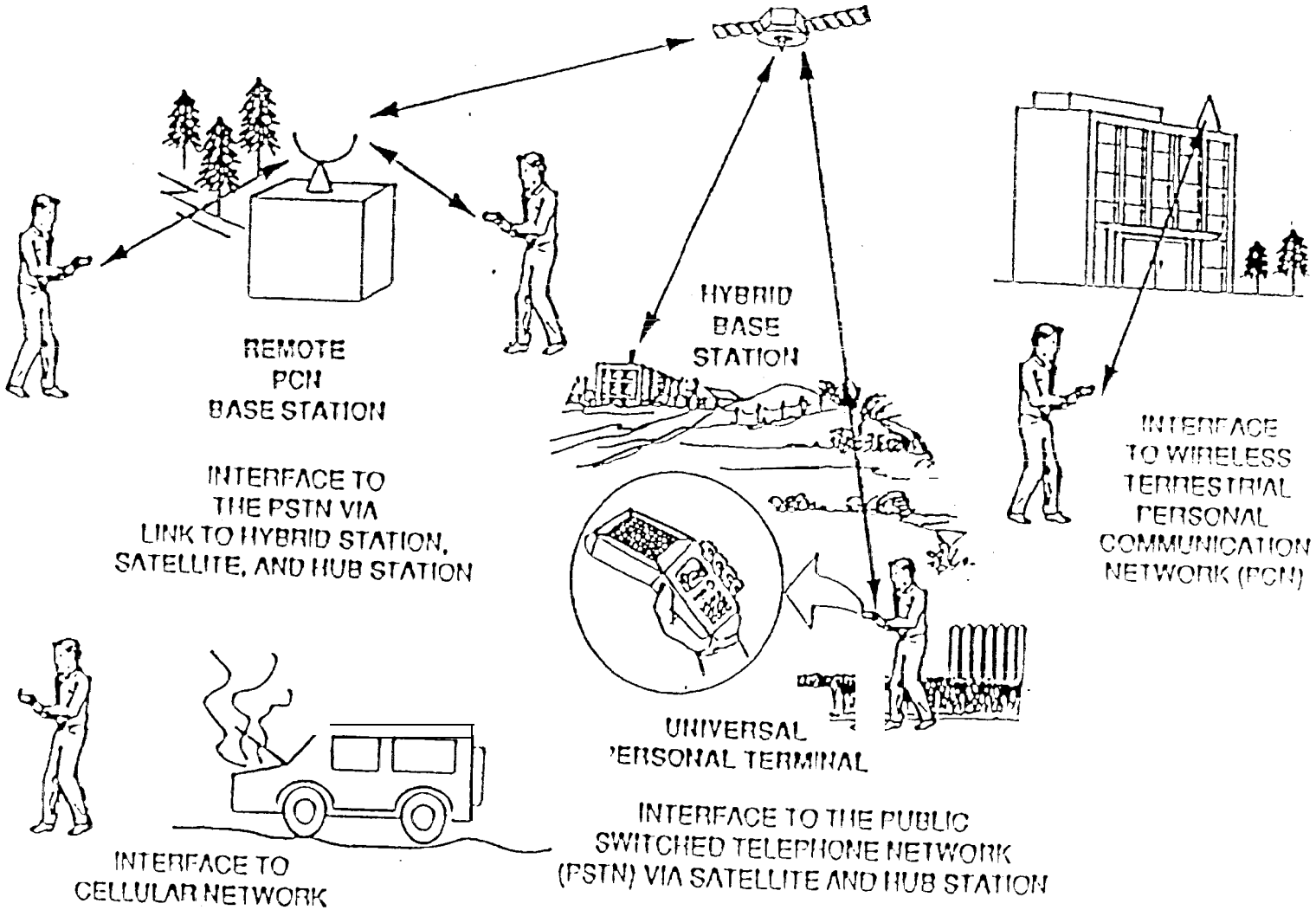
Deborah S. Pinck
Advanced Telecommunications Concepts Group
JPL- California Institute of Technology

Hybrid Personal and Mobile Communications at JPL

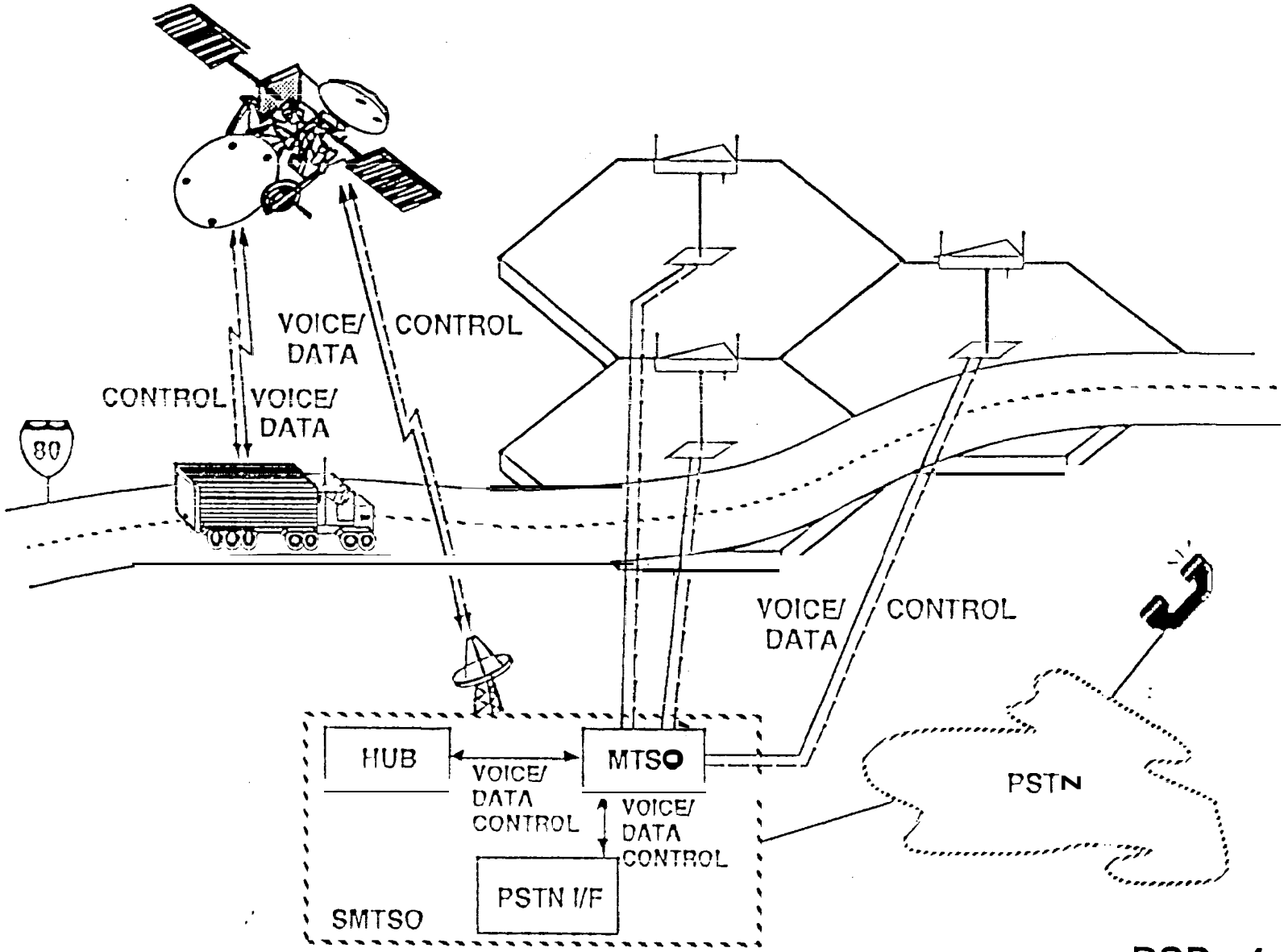
- **System Studies**
  - Study of Satellite-Cellular System IntegrationStudy: (Drucker Associates)
  - The Satellite Local Loop Space Connections for Universal Access (The Pacific Advanced Communications Consortium)
- **Experimentation**
  - ACTS Mobile Terminal
  - Satellite/PCS Experiment
  - Satellite/Cellular Experiment

JPL

Satellite-enhanced Personal Communications Network



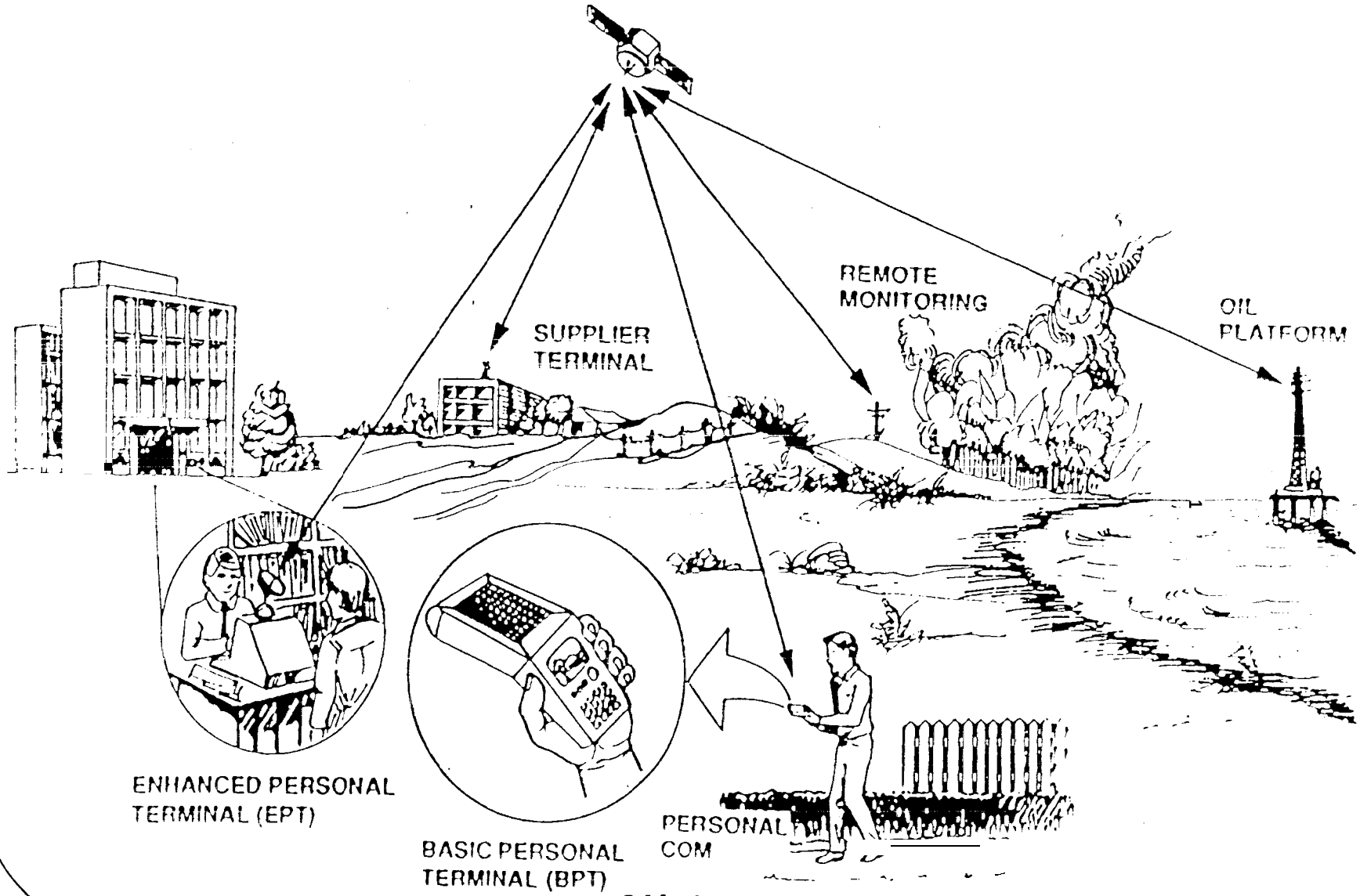
System Studies:
Satellite/Cellular System Integration



System Studies: Satellite/Cellular System Integration Issues

- **Mobile Terminal Architecture**
- **Infrastructure Integration**
  - Hub Station as MTSO
  - Hub Station as Cell Site
  - Hub Station Distribution
- **Intersystem Call Processing**
  - Registration and Call Delivery
  - Satellite/Cellular Handoff

System Studies:
The Satellite Local Loop



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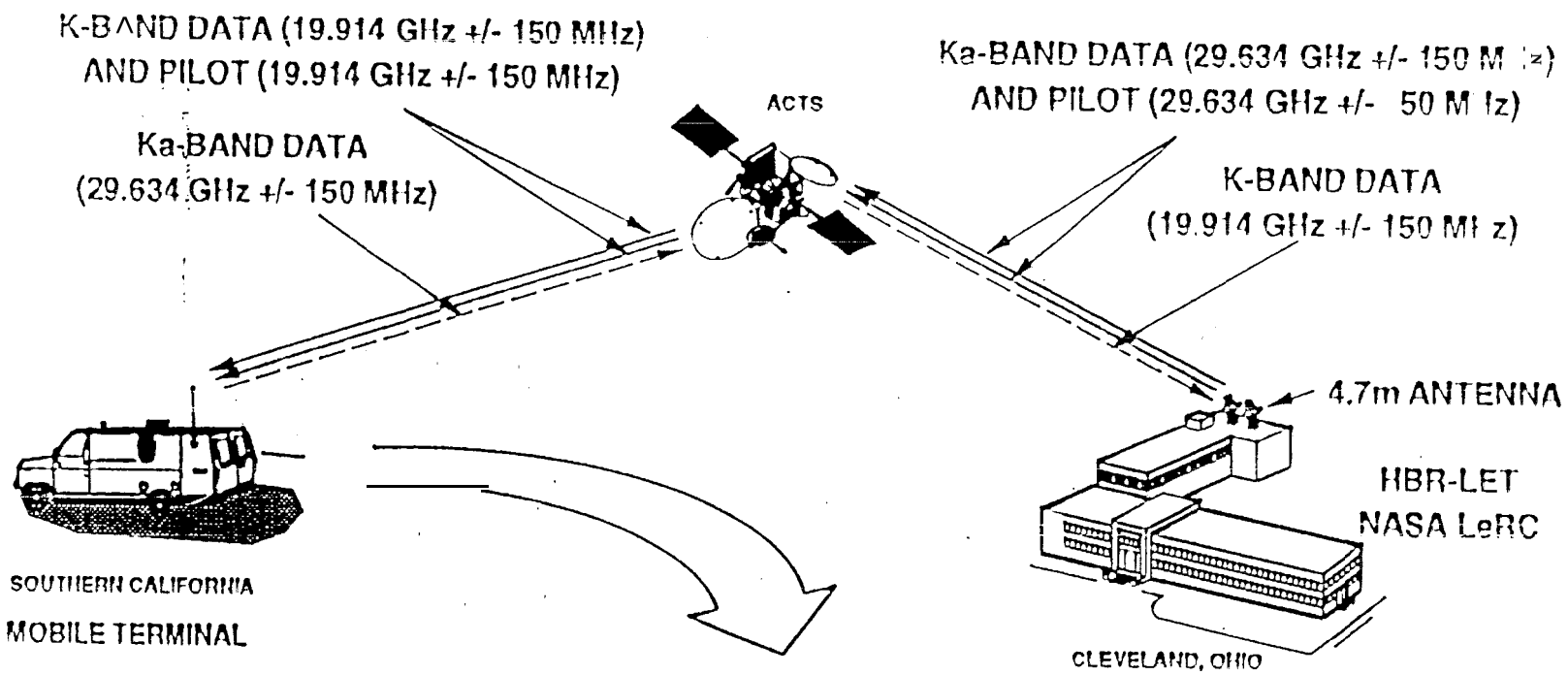
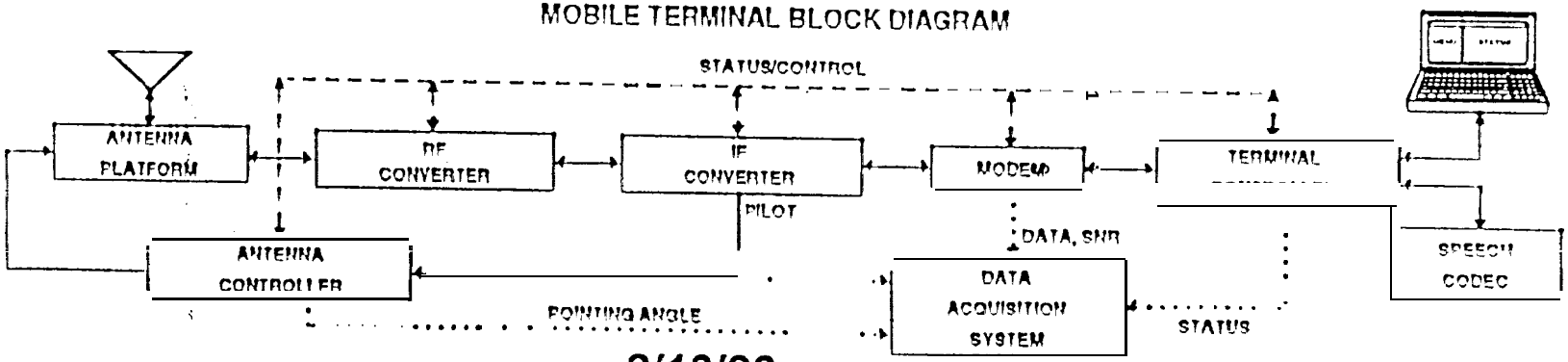
System Studies: The Satellite Local Loop

- Rural Communications Market Analysis
- Satellite Options for PCNs
- Regulatory and Policy Environment
- Universal Personal Communications Service
- Universal PCS Multiple Access Technologies

ACTS Mobile Terminal (AMT) Experimental Setup



MOBILE TERMINAL BLOCK DIAGRAM



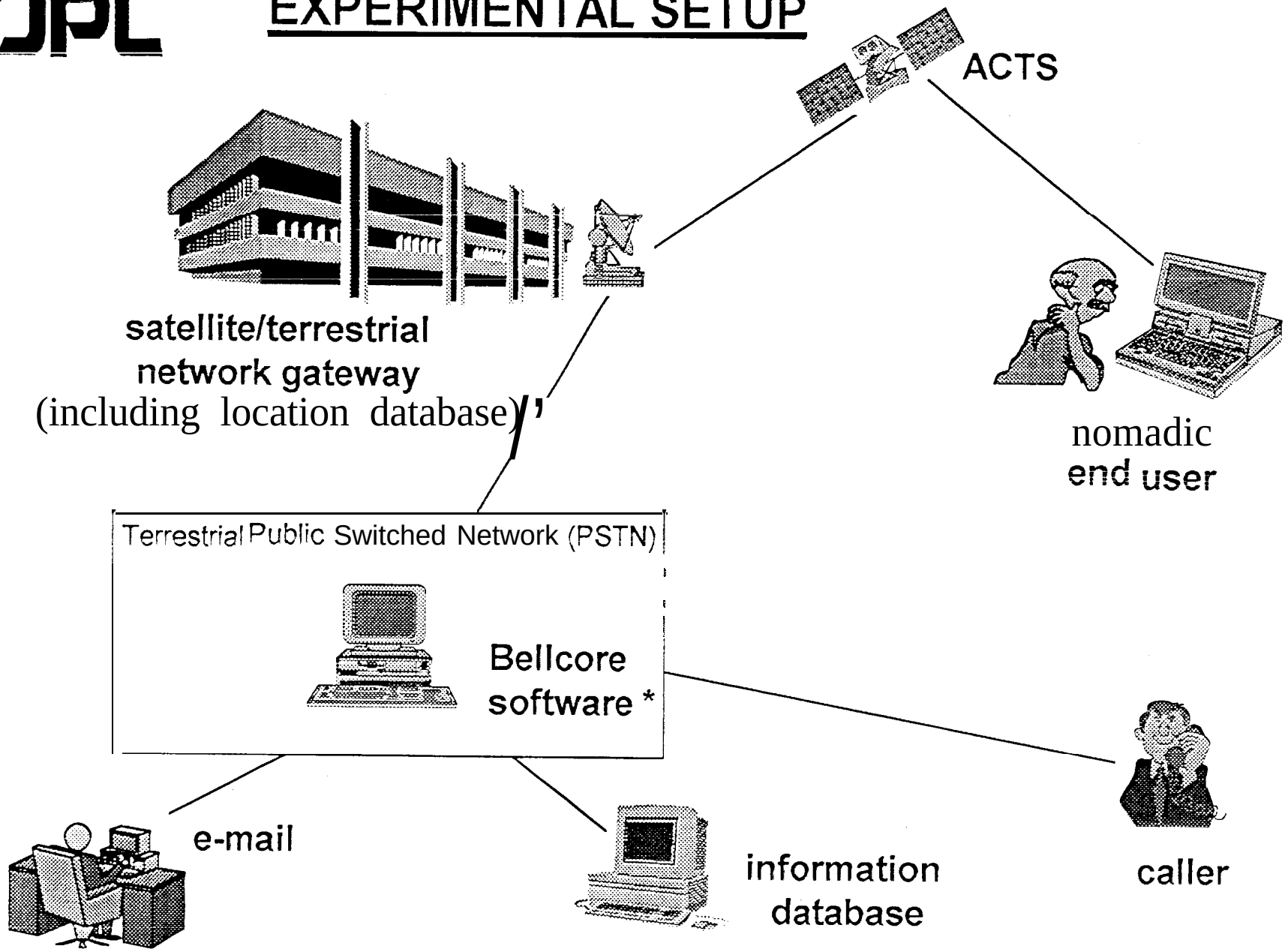
Current AMT Experiments

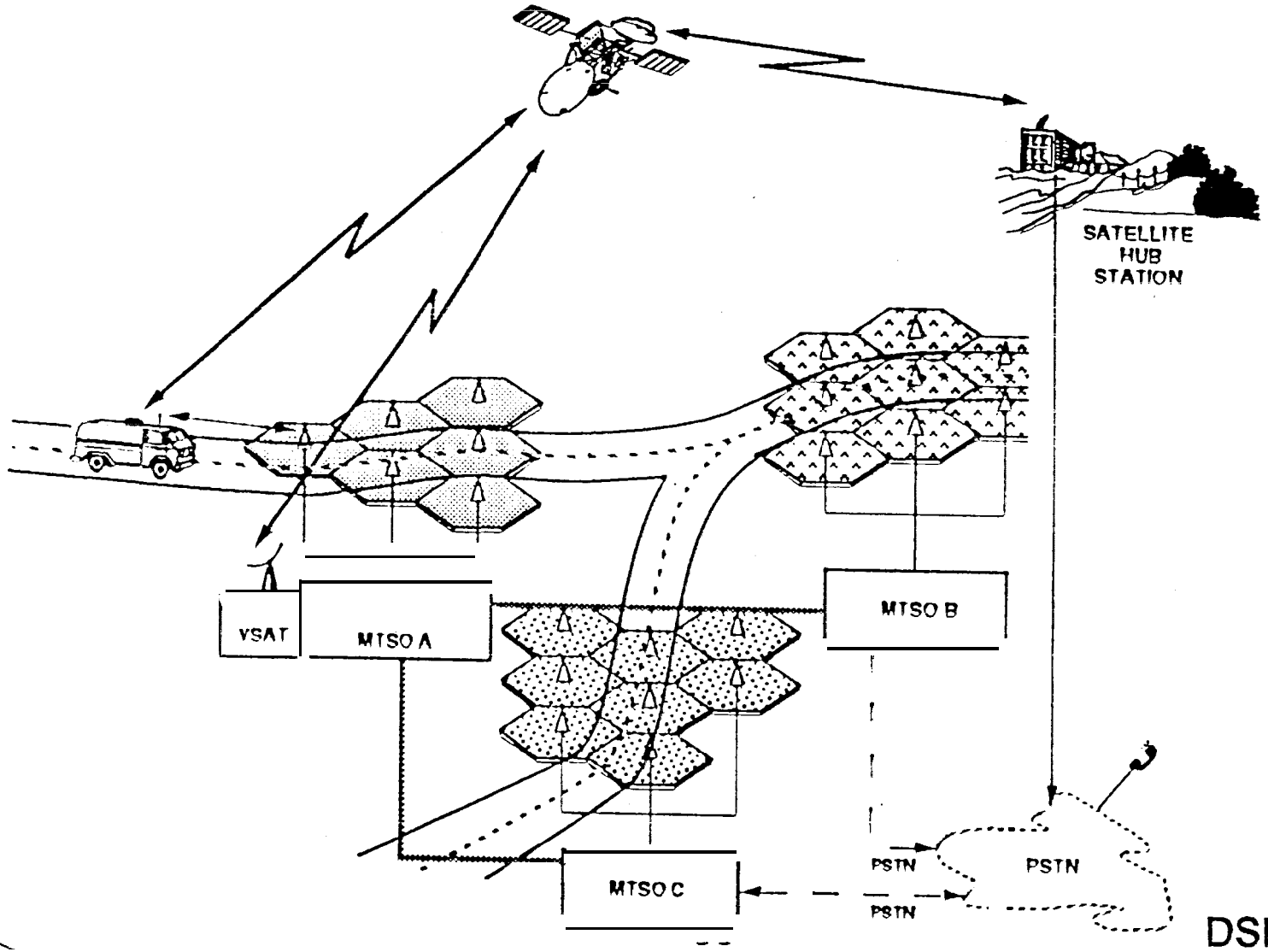
- Land-Mobile
- Satellite News Gathering
- Comm-on-the-Move
- High Quality Audio
- Satellite PCS
- Emergency Medical
- Telemedicine
- Secure Communications
- Aero-X
- Broadband Aeronautical

Experimentation:
Satellite-PCS Experiment

- **Objective**
  - demonstrate capabilities of satellites for enhancement of terrestrial based personal communications voice and data services
- **Experimental Scenarios**
  - satellite-based two way messaging
  - satellite-based delivery of personalized information services
  - satellite-based messaging for call delivery

EXPERIMENTAL SETUP



* Bellcore software includes 1) SIFT software, 2) personal message summarizing, sorting and prioritizing software, and 3) call management and screening software

Experimentation: Satellite/Cellular Experiment