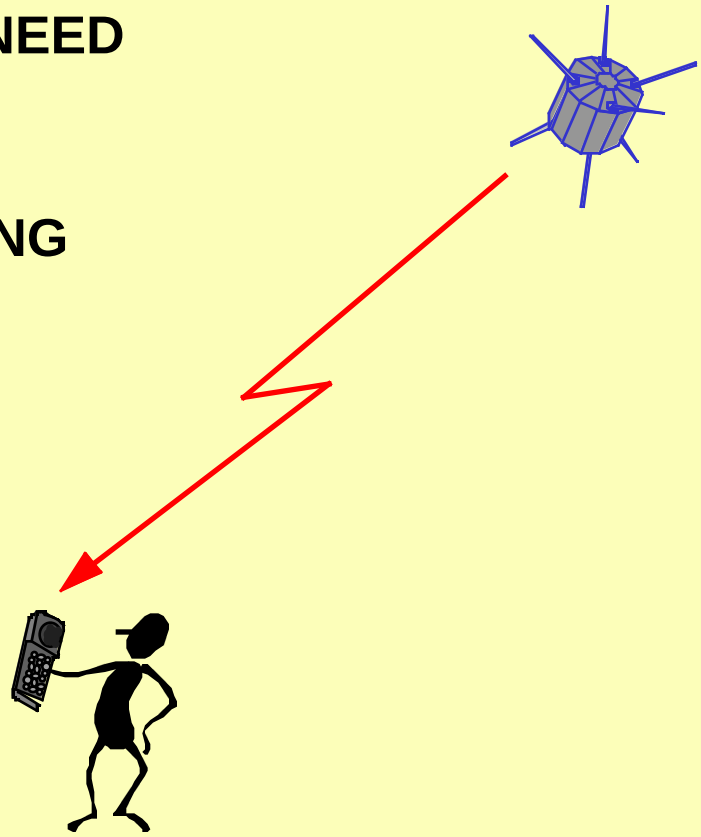
“IDEAL SYSTEM”

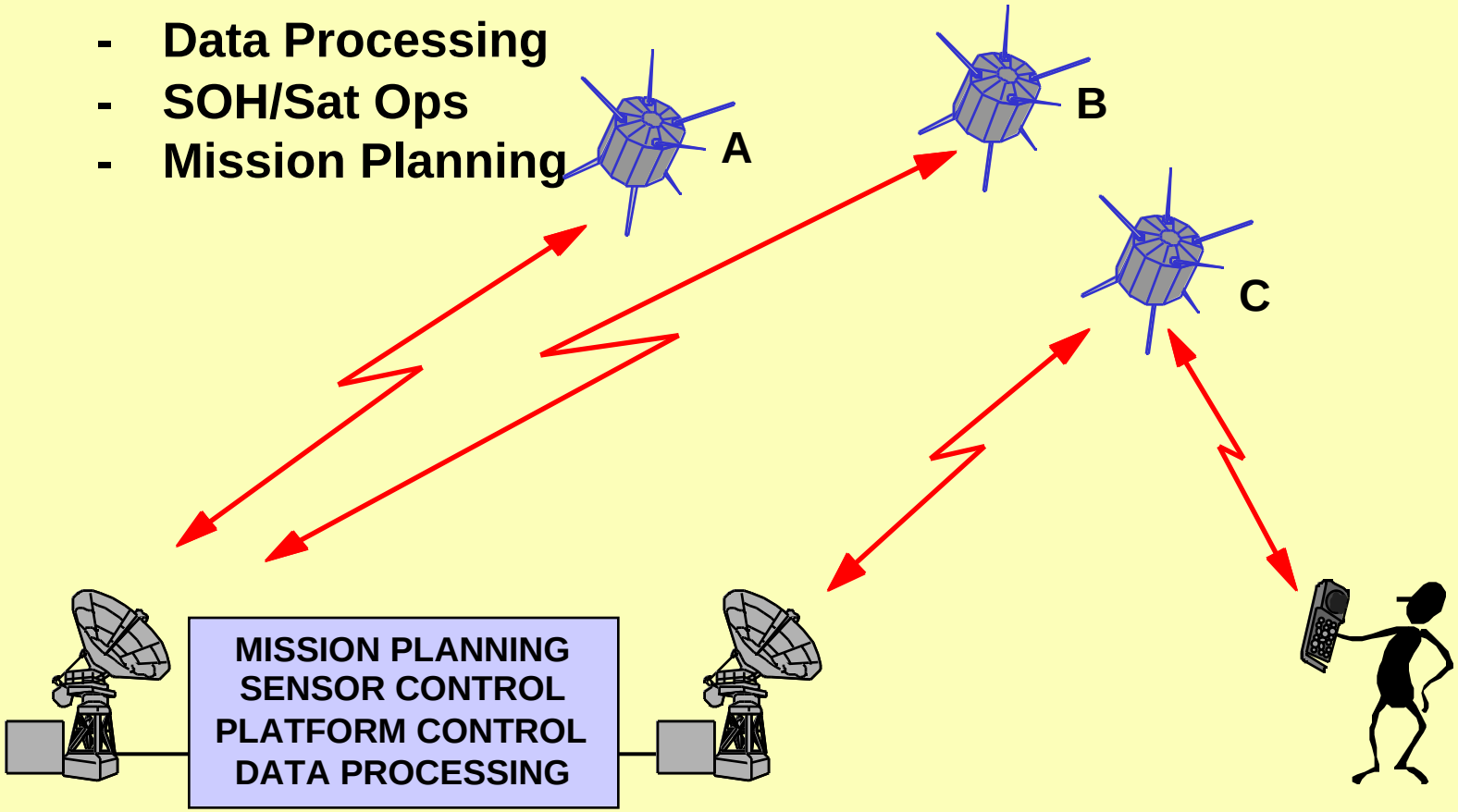
- **COMPLETELY AUTONOMOUS**
- **USERS GOT WHAT THEY NEED**
  - **When they need it**
  - **Integrated handset**
- **NO EXTERNAL PROCESSING REQUIRED**
- **SELF HEALING**



Satellites not “smart” enough

INTEGRATED MISSION CENTER

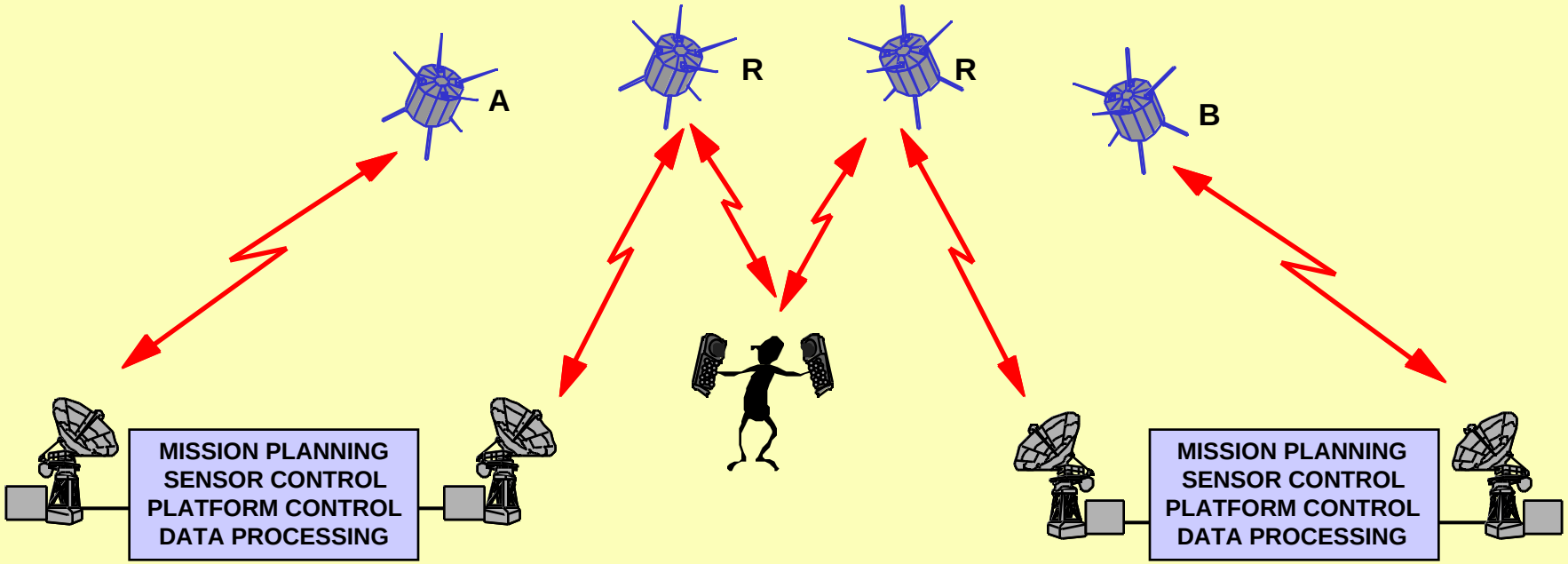
- **INTEGRATED MISSION CENTER**
  - **Data Processing**
  - **SOH/Sat Ops**
  - **Mission Planning**



Different organizations
- **Separate systems**

SEPARATE MISSION CENTERS

- **SEPARATE MISSION CENTERS**
  - **Data Processing**
  - **SOH/Sat Ops**
  - **Mission Planning**



Different Ops CONOPS

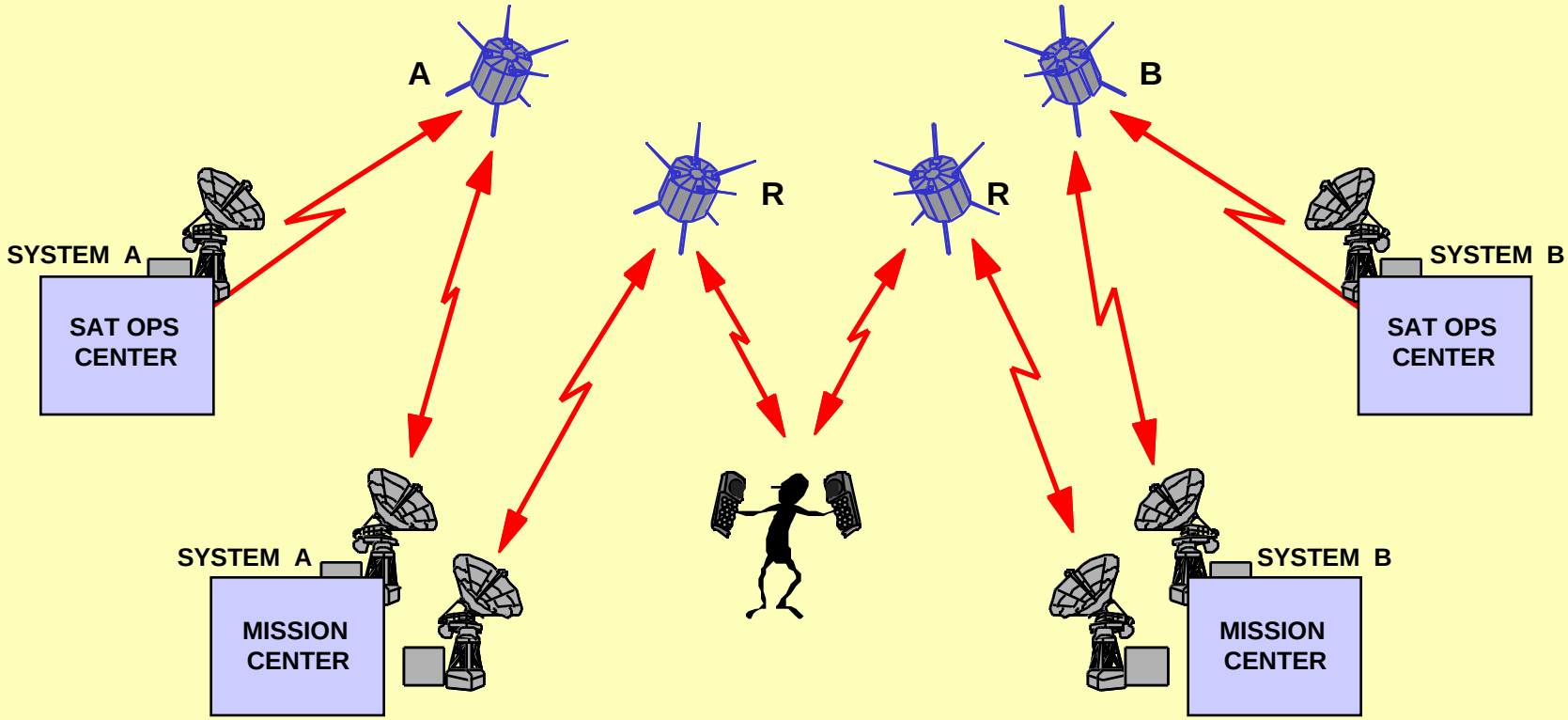
SEPARATE MISSION AND SATELLITE OPS CENTERS

MISSION CENTER

- **Data Processing**
- **Mission Planning**

SAT OPS CENTER

- **SOH**
- **Mission Planning**



ISSUES

- **What the Operational User Wants**
  - **Integrated Useful Information**
- **What the Operator Gets Today**
  - **Unintegrated, Often Untimely, Sometimes Useful Data**

CHALLENGES

- **Determine What the User Needs That Makes a Difference**

- **Find Ways to Cost Effectively Gather and Distribute This Information**
  - **Organizational Roles and Responsibilities**
  - **Standardized System Interfaces**
  - **Building Block Modularity**
  - **Integrated Collection and Distribution Elements, Where effective**

COMPUTER CHALLENGES

- **How Smart Can We Make The Satellite, At Reasonable Costs?**
  - **Artificial Intelligence**
  - **Expert Knowledge**
- **What Standards Need To Be Set?**
  - **System Interfaces, Signal Protocols**
  - **Open Architecture (H/W, F/W, M/W, S/W)**
- **How Can We Bring Down Costs?**
  - **Use of COTS Products? Satellite S/W Reuse?**
  - **Building Block Modularity (Object-Oriented)**
  - **Autocratic Code Generation**

SUMMARY

- **Effective Use of Computers will be Key to Progress in Application of Satellite Systems of the Future**
- **Ability of H/W and S/W Specialist to Provide Cost Effective Integrated Solutions Essential**