



ISR Technologies  
Global Data Services

Presentation to  
Environmental Sensors  
Workshop 2009

September 24, 2009

Facilitating  
Environmental  
Monitoring





# Agenda

- Intro to ISR Technologies
- Global Data Services Overview
- Typical Applications
- Questions & Discussions



# ISR Overview

- Technology Based Company
  - ISR Technologies is a University Spin-Off
    - École de technologie supérieure
  - Located in Montreal, Canada
    - Founded in 2002 by 6 Professors
      - But, in reality over 15 years Experience in Programmable Wireless Communications Systems
  - Satellite & Terrestrial Communications
  - Commercial and Military Products & Applications



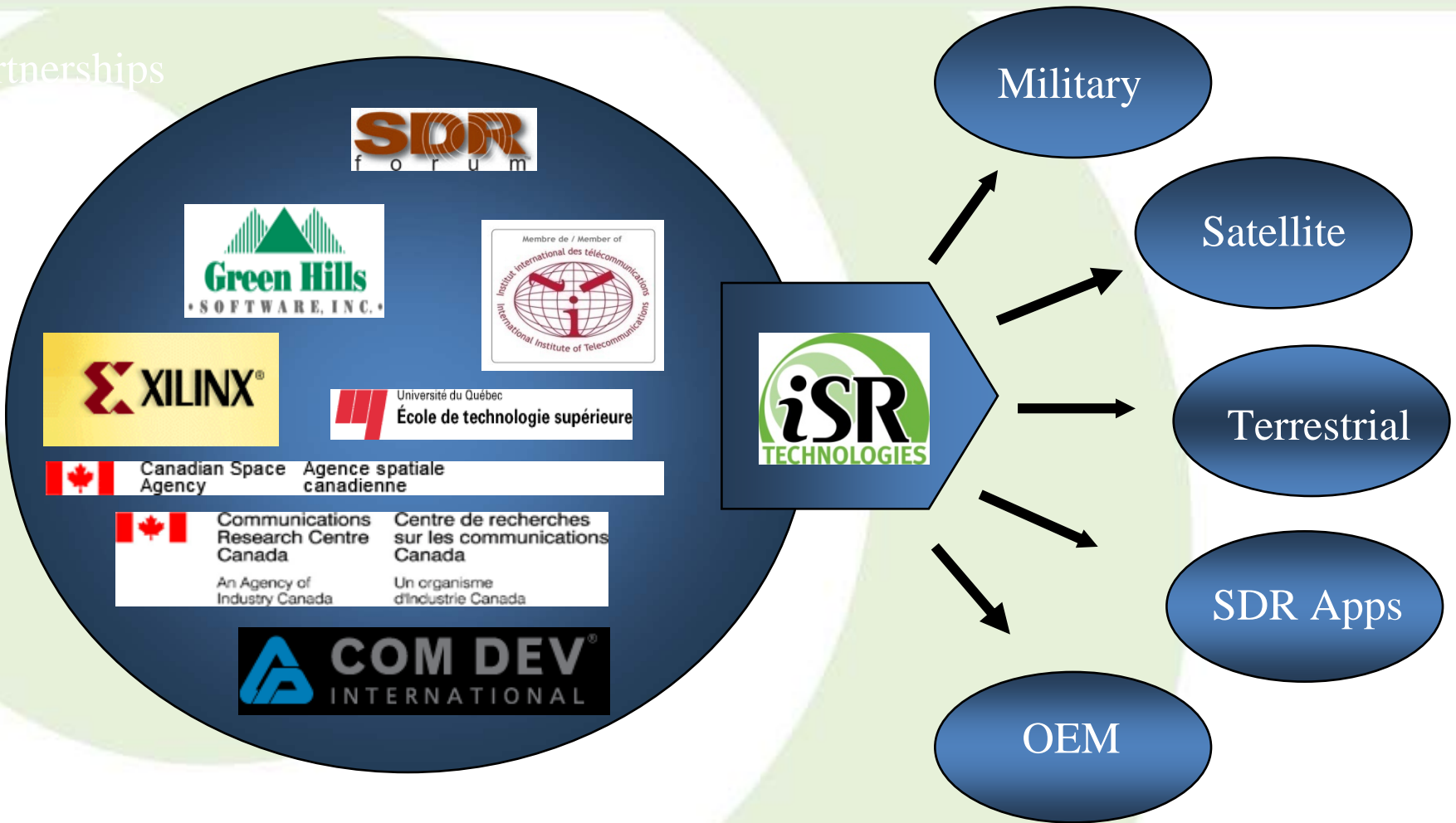
# ISR Expertise

- ISR is a Leader in Wireless Communications Technologies
  - ISR's Expertise Includes:
    - Software Defined Radio (SDR)
    - Signal Processing for Communications Waveforms
    - LEO Satellite Communications for Sensor Networks
    - Mesh Networks for GEO Satellite Communications
    - High Speed Modem Design
    - Partial Reconfiguration (PR)



# ISR Partners

Partnerships

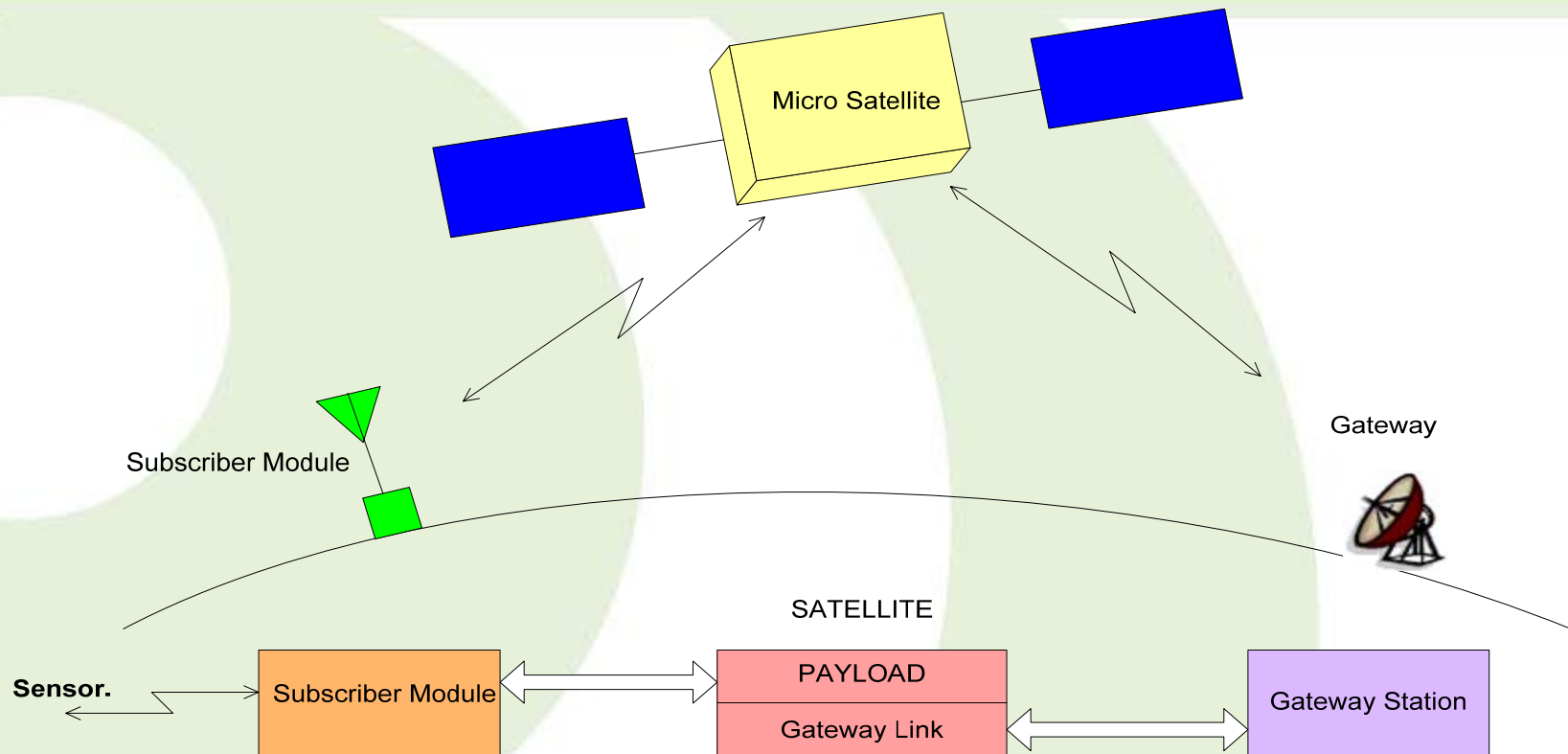


ISR Proprietary

THE  
**INTELLIGENT SOFTWARE RADIO**  
COMPANY



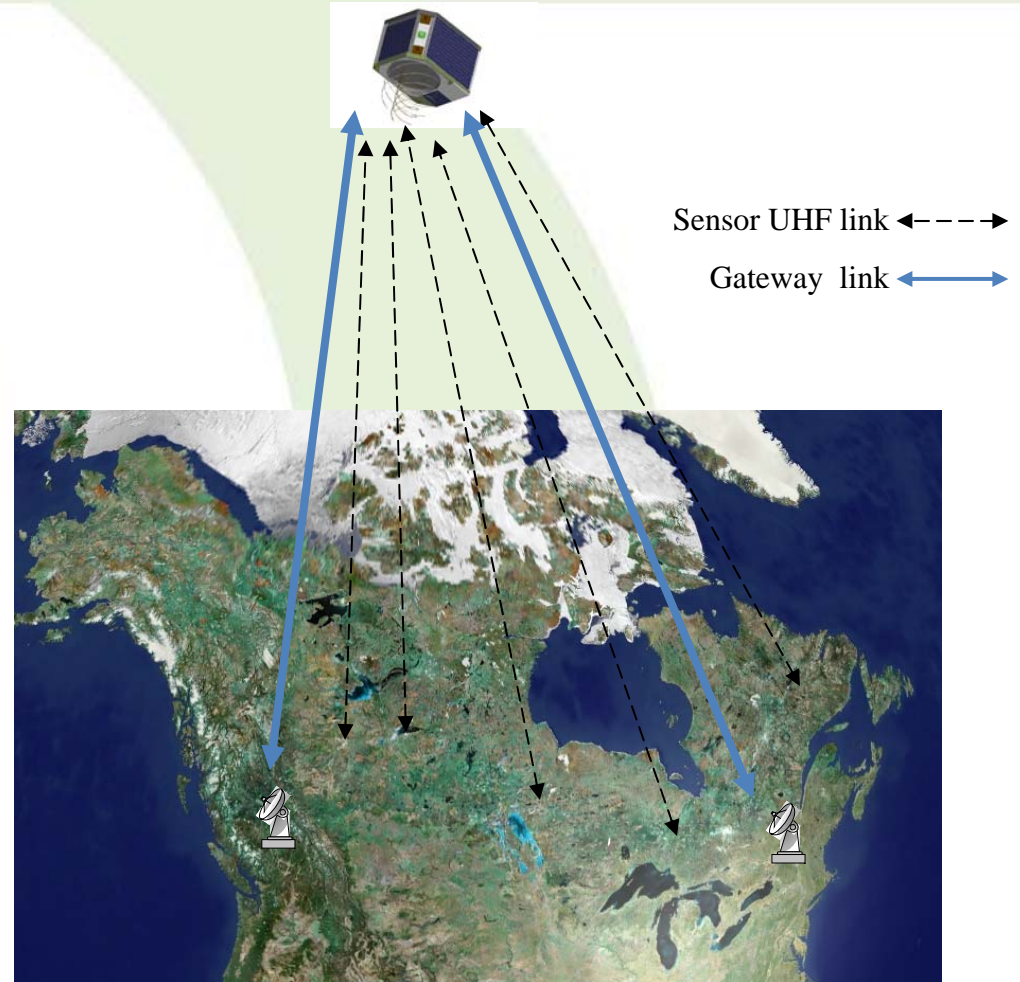
# Global Data Service Concept





# Innovations in Communications

- Present Systems use Traditional Random Access Schemes
  - Limits data throughput and number of concurrent users
  - Cost of Inefficiency is passed on to Sensor Users
- ISR's Innovations dramatically enhance Efficiency and Reliability
  - ISR's scheme doubles the efficiency
    - Through unique data packing techniques
    - Through a Novel Access Technique
    - Dramatic reduction in Handshaking Overhead
- SDR Based Approach enables Easy System Enhancement
  - Future-Proof System

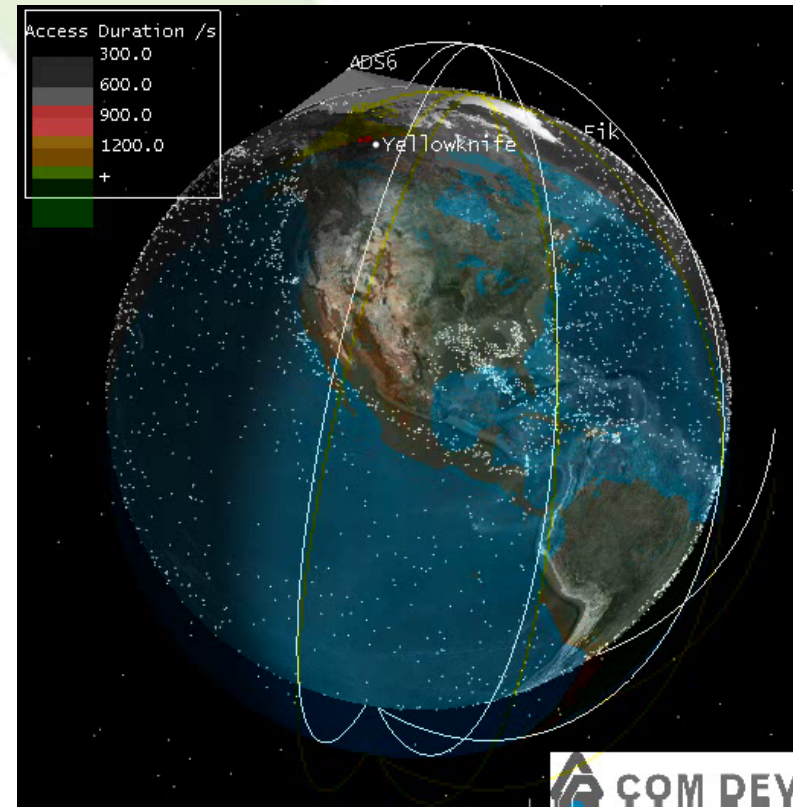




# Typical Applications

- **Typical Applications**

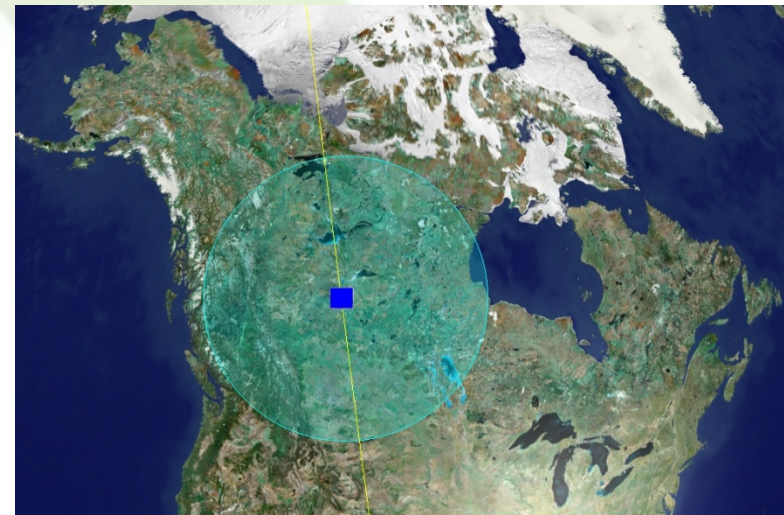
- Water Quantity/ Water Quality
- Flood Forecasting
- Air Quality
- Ice Cover
- Forestry
- Asset Tracking
- Remote Metering
- Science Instruments
- Climatology
- Mapping





# Satellite Service Planned Offerings

- Land & Ocean Sensors
- Data Surveillance and Monitoring
  - Global data messaging network
    - Multiple UHF packet –switched payloads
    - Supporting >100,000 terminals per region
  - Flexible interfaces to a wide range of sensor types
  - Programmable and updatable sampling intervals
  - 2-way capability allows control of external devices and sensors



*Provides full global coverage which many other LEO and GEO systems do not provide*

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*Excellent solution for remote locations  
Data service costs to be competitive with volume of data*



# System Characteristics

- UHF 2-way Communications Transponder with Store-and-Forward capability
- High number of parallel uplink channels at about 1 kb/s each
- Higher capacity by concatenation of channels
- Real-Time Data Delivery
  - When the SMs and Gateway Stations are within the same footprint of the satellite
  - Messages or data as low as 10 bytes to 100's of bytes (few kbytes possible)
- Two-way communications also used for high Quality of Service (message delivery acknowledgment)



# Questions & Open Discussions

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