



Satellite Operators Interference Initiative

SUIRG October 2009 Conference

Stewart Sanders
Patty Constantino

Satellite Operators Interference Initiative

Summary

- Current environment creates greater opportunity for RFI
 - More uplinks (industry growth, cheaper equipment)
 - Increased uplink power for small terminals
 - Two degree spacing of satellites
 - De-regulation: new operators with no easy access to training
 - Increased network complexity: installation/operation challenges
 - Less experienced end users
- Operator error, including poor maintenance, remains one of the most significant causes of RFI (per SUIRG and industry records)
- The Satellite Operator Interference Initiative:
 - Operators needed to take a greater role in tackling RFI
 - Prompted initial discussions between SES and Intelsat

Satellite Operators Interference Initiative

Summary, cont.'d

- Formal kick-off in March at Satellite 2009
 - Approx. 10 operators: Definition of key initiatives focus
 - Now regular monthly conference calls

- Currently 15 Operators
 - Intelsat, SES, JSAT, Inmarsat, Eutelsat, Telesat, Hispasat, SatMex, Arabsat, Asiasat, SAT-GE, Hispamar, AMOS, StarOne, Telenor

- Participating operators have spoken, sought support and distributed material for these initiatives at numerous events
 - Sat 2009, WBU-ISOG, Space Situational Awareness 2009, ITC 2009, NSTAC, US Broadcasters and many customer meetings

Achievements in Last Year

- Formation of operators working groups
- Implemented prototype RFI Alert system
- Agreed tailored training with GVF and funding
- Formed Carrier ID working forum and issued letters to industry
- Formed Space Data Association and issued RFP

Satellite Operators RFI Initiative

Relationship with Other Bodies

- Some of these initiatives are already being addressed through industry representative bodies (WBU-ISOG, GVF, SUIRG)
- Operators intent is not to follow separate path, rather we recognise that we must take a stronger lead on these issues and respond to our global customer base:
 - Active support & potential funding of training
 - Pressure on mfrs. to adopt technology (e.g. ATIS)
 - Development of databases and processes
 - Represent these activities to our customer base
 - Involve customer base where appropriate
 - Use new-found weight of Intelsat and SES to influence results
- Operators intend to continue working with all of industry on these issues
 - Regular meetings being held
 - Action items and milestones are being achieved

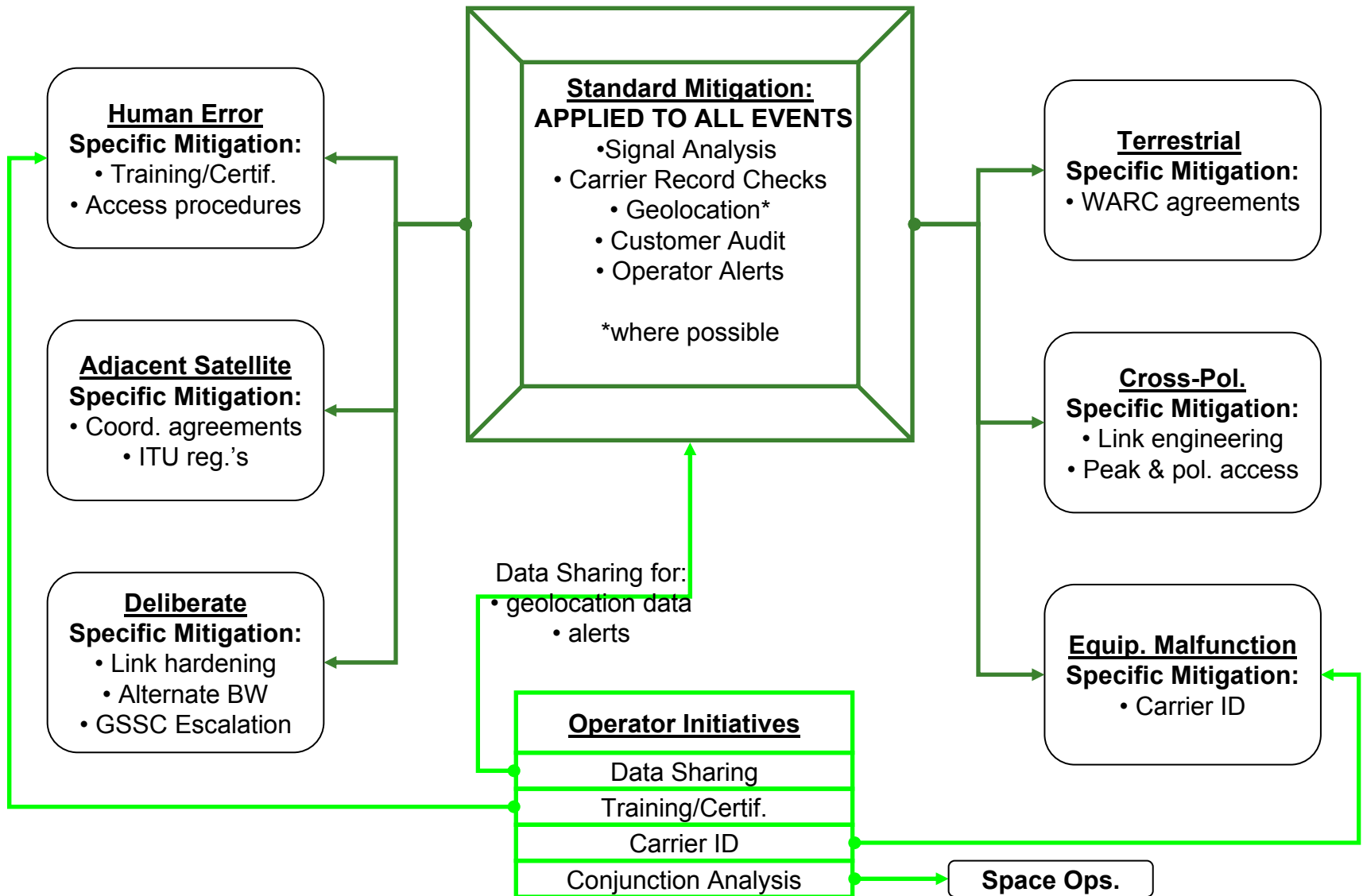
Satellite Operators Interference Initiative

Key Initiatives

- Training and Certification for up linkers and installers
- Endorsement and development of 'Carrier ID'
- Formalised Data sharing between the Satellite Operators

The goals are not limited, nor does the overall initiative have a limited lifetime; we need to keep this activity alive and evolving going forward

Operator Initiatives: RFI Mitigation



Satellite Operators Interference Initiative

Training and Certification

- Satellite Operator discussions are focused on:
 - Identifying and publicly backing approved training programs
 - Provision of funding for targeted training where appropriate
 - Determining and implementing appropriate incentives for encouraging customers to undergo training
- Funding of approved training programs: GVF, Sling Path
 - Worked with GVF on tailored training and agreement
- Standards are being discussed
- Individual Satellite Operators to work with their customers

Satellite Operators' RFI Initiative

Carrier ID Technology

- While WBU-ISOG/SUIRG continue to promote this technology, industry has been slow to adopt
- Satellite operator initiatives seek refocus:
 - Agreeing standard forms of technology usage
 - Developing adoption for VSAT applications
 - Agreeing focus of future activities (global/regional, equipment)
 - Agreeing timeline for seeking/incentivising vendors' adoption
 - Ensuring approach is financially supportable
- Recent discussions amongst operators has resulted in drafting of letters sent to major manufacturers indicating:
 - Our intent to seek adoption of this technology by 2011 on new equipment & where possible, upgrade of deployed equipment

Satellite Operators Interference Initiative

Endorsement of 'carrier ID' technology

- WBU-ISOG/Tauber carrier ID letter
 - Satellite Operators issued signed letters to industry
- SUIRG announcement to the industry
- Carrier ID meeting in DC
 - Time line/working groups
 - Video path
 - Fixed Carrier/Vsat path

Satellite Operators Interference Initiative

Data Sharing

- **Need more reliable, secure and efficient means of sharing key operational data for RFI and conjunction activities:**
 - Satellite Operator Operations contact list
 - Satellite Operator “RFI Alert Network”
 - RFI Incident Database for satellite operators
 - Geolocation data (configuration, ephemerides, reference emitters)
 - Ephemerides for conjunction analysis

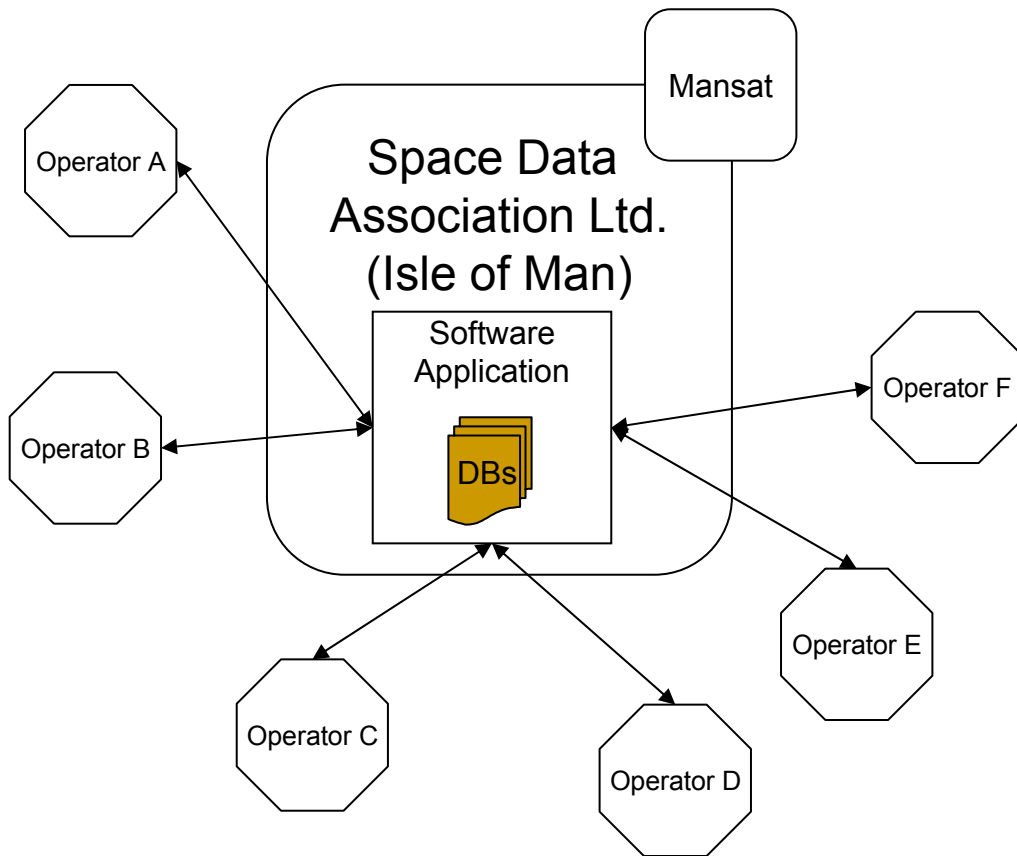
Satellite Operators Interference Initiative

Data Sharing

■ **Space Data Association**

- ❑ Non-profit entity formed in Isle of Man by SES, Intelsat and Inmarsat and administered by Mansat
- ❑ Currently developing Membership Agreement and Data Usage Agreement in order to invite other operators to join (expect to increase membership from Q1 10)
- ❑ Issued RFP for 'Data Center' which will be the database/application supporting all the identified services for operator-members; Bids due Dec. '09.
- ❑ Web site: www.space-data.org

Space Data Association



SDA Status:

- SDA Terms agreed in principle.
- Initial members: SES + 2
- Admin. Mgt. agreement complete
- Software prototype: AGI
- Developing RFP for operational system

Data Sharing for:

- Conjunction Analysis:
 - Ephemerides
 - Conjunction alerts
- RFI Geolocation
 - Ephemerides
 - Reference Emitters
 - Adjacent Sat. Config.
 - RFI Alert
 - RFI Incident Database
- General
 - Contact Info.

Key Operating Principles:

- Inclusive of all operators
- Confidentiality
- Operators control data usage
- Automation/reliability/responsive
- Low/shared cost
- Limitation of Liability

Satellite Operators Interference Initiative

Presented by

- Stewart Sanders
+352 710 725 417
stewart.sanders@ses.com
- Patricia Constantino
+1 (404) 381 2538
patricia.constantino@intelsat.com