UN/RSA TRAINING COURSE ON SATELLITE AIDED SEARCH AND RESCUE

20-24 NOVEMBER 2006

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International Maritime Organization's decisions of note to SAR Authorities

A Slide presentation by Dumisani Ntuli

Alternate Permanent Representative of the Republic of South Africa to the International Maritime Organization

Update on International SAR matters

Current issues of relevance to search and rescue emanating from the work of the IMO

Status of SAR Convention

- As of to-date, there were 88 Member States who were parties to the SAR Convention, representing about 52 per centre of the gross tonnage of the world's merchant fleet
- In the continent as of 2006, 37 and 18 states were parties to SOLAS and the SAR Conventions respectively Status of IMO Conventions as ratified by African States (Final).doc
- 2003 amendments to the SOLAS SOLAS The June 2003 amendments.doc and SAR SAR and 2004 Amendments.doc Conventions including particularly those referring to persons rescued at sea, came into force on 1 July 2006

Issues from the tenth session of COMSAR (1)

- Issuing of circular.38 on List of Land Earth Station (LES) operation co-coordinators in the Inmarsat system, superseding COMSAR/Circ.11
- Issuing of liaison statement concerning the lack of a common worldwide use of mobile telephones in maritime distress alerting. The matter was referred to the ITU Study Group 2 for consideration.
- List of IMO documents and publications considered essential for use by MRCCs (SAR.7/Circ.7.)Circular 7 COMSAR content.doc
- Current availability of SAR services world-wide
- Approval of guidance on exchange of medical information between telemedical assistance services (TMASs) involved in international SAR operations
- Regional SAR Co-operation: Resolution 8 of the SAR Conference had 'urged States to promote technical assistance through training and provision of equipment and facilities necessary for Search and Rescue.

Issues from the tenth session of COMSAR (2)

- Replenishment of medical supplies
  - Conveying the liaison statement on replenishing ships' compulsory medical supplies and status of medical supplies on board: problems encountered that , under some countries health regulations, it was difficult or impossible to issue certain medicines-even those which are mandatory under international and/ or national maritime regulations and proposals to WHO and ILO is expected at COMSAR 11.

Issues from the tenth session of COMSAR (3)

- Revision of resolution A.888 (21) on the criteria for provision of mobile-satellite communication systems in the GMDSS
  - COMSAR has been revising this resolution with the aim of creating a framework for the regulation of GMDSS future providers
  - Intergovernmental oversight of possible future mobile-satellite service providers to the GMDSS

Issues from the tenth session of COMSAR (4)

- The delegation of South Africa expressed concern on the potential conflict between the envisaged evaluation and assessment function vis-avis the approval function. In our view, the latter should remain with the IMO;
- The USA was of the view that the draft revision had failed to establish an orderly procedure for addition of new satellite service providers
- MSC 82 scheduled for early December 06 will make the decision on this matter

Issues from the tenth session of COMSAR(5)

- Joint IMO/ITU Experts group meeting TOR (1)
  - To assess studies concerning the introduction of new maritime technologies in the HF bands;
  - Consider future requirements for HF spectrum and the regulatory changes necessary thereof;
  - Assess the regulatory and operational effects of discontinuing the 121.5 MHZ alerting function through the COSPAS-SARSAT satellite system and discontinuing the Inmarsat-E service;

Issues from the tenth session of COMSAR(6)

- Joint IMO/ITU Experts group meeting TOR (2):
  - Consider possible future requirements for VHF communications, incl. improved detection and protection of AIS transmissions; and
  - Consider changes to the Radio Regulations to ensure the security of ships and ports

Issues from the tenth session of COMSAR (7)

- Guidance Leaflet on Rescue at Sea, a guide to principles and practice as applied to migrants and refugees
  - Following several incidents where persons rescued at sea subsequently turned out to be undocumented migrants, asylum-seekers or refugees, the 22nd Assembly adopted resolution A.920 (22)RESOLUTION 920.pdf on the review of safety measures and procedures for the treatment of persons rescued at sea.
  - MSC resolution 153(78) and 155(78) and entered into force on 1 July 2006. MSC 167(78). (See notes)
  - Distribution of leaflet to relevant SAR authorities crucial

Issues from the tenth session of COMSAR (8)

- On-going research:-
  - EVACUATION OF SHIPS: improve the possibility of saving lives by the use of safety boats.
  - DESIGN FOR SURVIVAL ON BOARD: Design a roll-on/ roll/off passenger ship that is superior in safety compared to current state-of-the-art ropax ships
  - SURESHIP: “Survivability”
  - Mass Evacuation and Rescue Device (150 at a time)
- Future topics
  - Countries having SAR research programs related to passenger ships must forward their list as per Circular Letter No. 2650 to the World Maritime University
  - SAR experts are further requested to provide possible research topics related to SAR to WMU for research purposes

Issues emanating from the ICAO/IMO JWG of interest to Africa (1)

- Medical assistance in SAR services
  - The Rescue Co-Ordination Centre (RCC) is the unit responsible for providing search and rescue services which could include the provision of medical advice and assistance
  - The RCC may establish contractual arrangements to provide this service from a suitably recognized medical authority
  - There is a formal proposal to amend the IAMSAR Manual in this regard

Issues emanating from the ICAO/IMO JWG of interest to Africa (2)

- Effects of measures to enhance maritime and aeronautical security on SAR services (1)
  - While the LRIT is mainly being implemented for maritime security purposes, LRIT data will also be available to support SAR operations.
  - LRIT data collected from ships will only be required to include the ship's identity (based on IMO number), position of the ship (latitude and longitude) and, the date and time of the position provided

Issues emanating from the ICAO/IMO JWG of interest to Africa (3)

- Effects of measures to enhance maritime and aeronautical security on SAR services (2)
  - The Group noted that LRIT information would be free of charge to registered SAR Authorities
  - LRIT should not replace, but complement the existing Ship Reporting Systems (SRS) up to the discretion of national SAR Authorities

Issues emanating from the ICAO/IMO JWG of interest to Africa (4)

- Aviation SAR Funding
- Proposed amendment to 'ICAO's policies on charges for airports and air navigation services'
  - 'In some States or groups of States, it may be cost efficient to use a variety of civil and military facilities, which may or may not be permanently assigned to search and rescue. The proportion of such facilities' operating costs directly related to the provision of SAR services to international civil aviation may be taken into account in determining the total cost to be paid for by charges on international air service'

Issues emanating from the ICAO/IMO JWG of interest to Africa (5)

- SAR Co-ordination between maritime and aeronautical authorities on a regional basis
  - The Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) is an annual meeting of senior government officials for aeronautical safety matters, and
  - The Asia-Pacific Heads of Maritime Safety Agencies (APHMSA) forum meets annually to consider maritime safety which includes search and rescue.
  - We need to take this as an excellent example worth trying here in our region.

Issues emanating from the ICAO/IMO JWG of interest to Africa (6)

- Establishment of the IBRD
- SAR Project website www.icao.int/anb/SARAfrica

Some considerations

- AU African Ministerial conferences should have a standing item on SAR services
- Better networking and communication and co-ordination of SAR services among SAR experts at all levels is essential
- Proposed resolutions for consideration by the Ministerial Conference of Ministers responsible for maritime affairs.PROPOSED RESOLUTION AFRICAN MARITIME MINISTERS.doc


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Fifth session: Thursday 23 November 2006

LONG RANGE IDENTIFICATION AND TRACKING SYSTEM: HOW WILL THE SYSTEM BENEFIT THE MARITIME AND SEARCH AND RESCUE COMMUNITY.

SLIDES BY DUMISANI NTULI,
ALTERNATE PERMANENT REPRESENTATIVE OF SOUTH AFRICA TO THE INTERNATIONAL MARITIME ORGANISATION

LRIT REPORT ON KEY ISSUES

- MSC 81 in May 06 adopted amendments to chapter V of SOLAS Convention in relation of LRIT entering into force on 1 January 2008
- LRIT provides for the global identification and tracking of ships
- In operating the LRIT system, recognition shall be given to international conventions, agreements, rules or standards that provide for the protection of navigational information

LRIT Update on Key Issues

- International LRIT Data Exchange within the international LRIT System will detail the routing of LRIT positional data and LRIT request messages between LRIT Data Centres.

LRIT System Description

- The shipborne LRIT information transmitting equipment
- The communication Service Provider(s)
- The Application Service Providers(s)
- The LRIT Data Centre(s), including any related Vessel Monitoring System(s)
- The LRIT Data Distribution Plan;
- The International LRIT Data Exchange, and
- LRIT Data Users

LRIT System Operation (1)

- Tracking of any applicable ship begins with LRIT positional data being transmitted from the shipborne equipment and this includes the ship's GNSS position, time and identification, as per MSC 210(81)
- The Communication service provider (CSP) provides the communication infrastructure and services that are necessary for establishing a communication path between the ship and the Application Service Provider (ASP). The LRIT information transmitted from the ship will travel across the communication path set up by the CSP to the ASP.

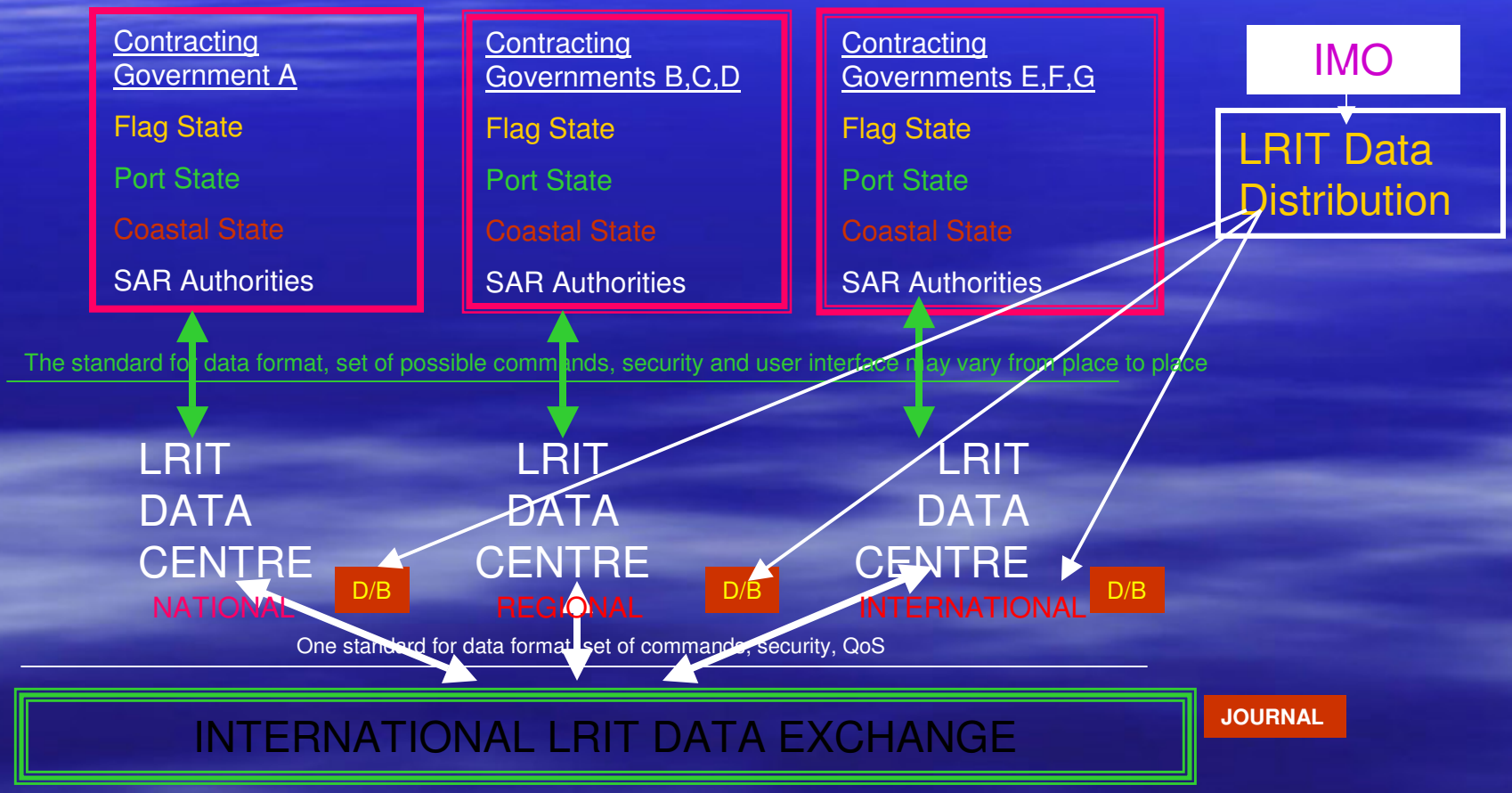
LRIT System Operation (2)

- The ASP, after receiving the LRIT information from the ship, will add additional information to the LRIT message and pass along the expanded message to its associated LRIT Data Centre
- LRIT data Centres will store all incoming LRIT information from ships instructed by their administrations to transmit LRIT information to that Data Centre. LRIT Data Centres will disseminate LRIT information to LRIT Data Users according to the Data Distribution Plan

LRIT System Operation (3)

- The Data Centres will process all LRIT messages to and from the International LRIT Data Exchange (IDE). The IDE will process all LRIT messages between LRIT Data Centres. The IDE will route the message to the appropriate Data Centre based upon the information contained within the DDP. The IDE will neither process nor store the positional data contained within LRIT messages.
- LRIT Data Users may be entitled to receive or request LRIT information in their capacity as a flag State, port State, coastal State or Search and Rescue (SAR) service

Typical LRIT System Architecture



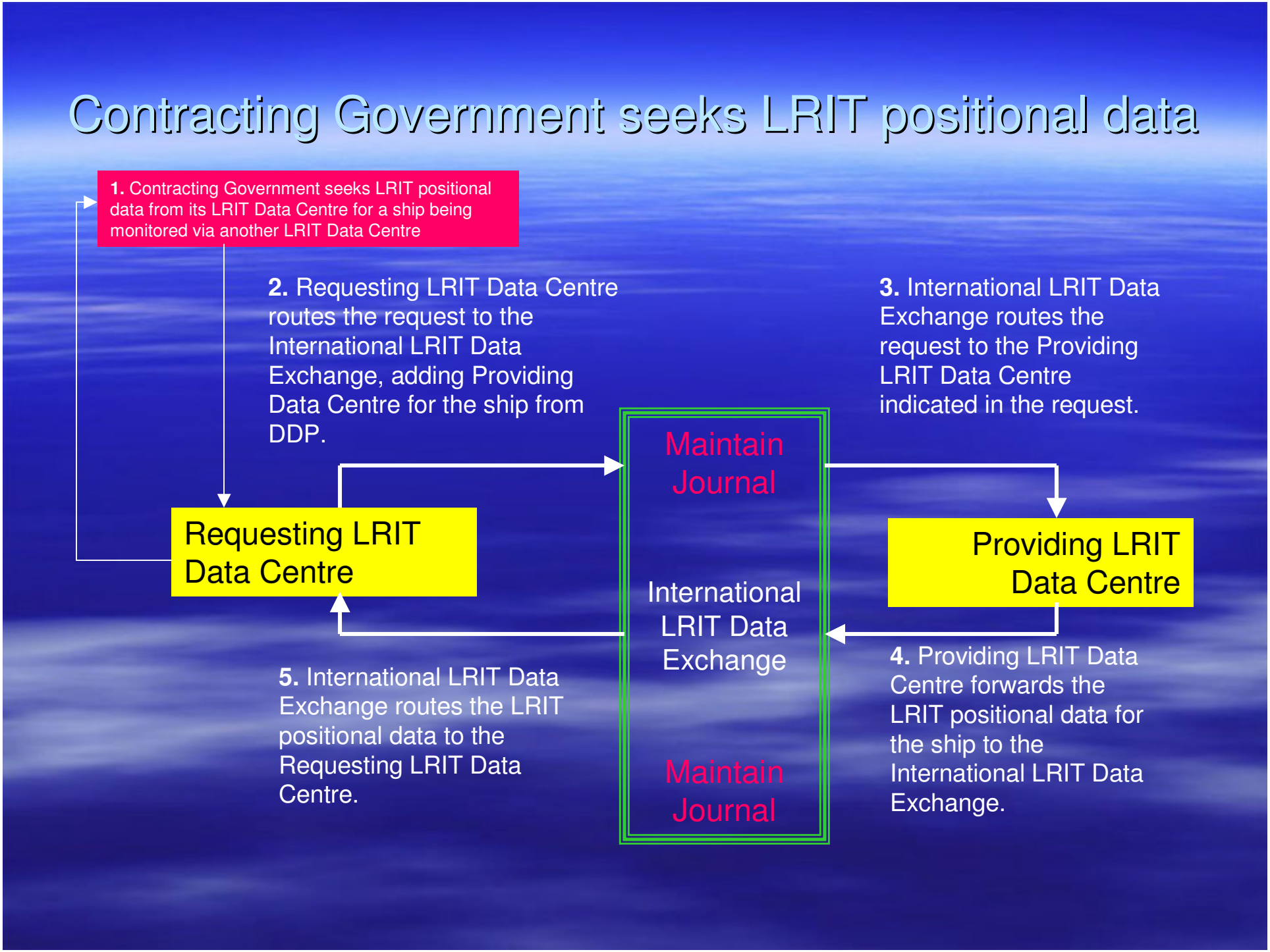
Important definitions

- **LRIT Data User**’ means a Contracting Government or a Search and rescue service that opts to receive the LRIT information it is entitled to;
- **LRIT information**’ means the information specified in SOLAS regulation V/19-1.5.
- **IDC operator**’ means the individual responsible for the daily operation and maintenance of the International Data Centre
- **Ship**’ includes mobile offshore drilling units and high-speed craft as specified in SOLAS regulation V/19-1.4.1 and means a ship that is required to transmit LRIT information

Role of the International LRIT Data Exchange

- It is a message handling service that routes information between LRIT Data Centres
- It stores and archives message information in a journal for audit, billing and statistical analysis
- It does not:
  - Provide information directly to a LRIT Data User;
  - Read the LRIT positional data contained in LRIT messages; and
  - Store or archive any LRIT positional data

Contracting Government seeks LRIT positional data



Journal contents

- The International LRIT Data Exchange will log all messages relating to the request for the LRIT positional data in manner that facilitates the ready identification of individual transactions and provides an audit trail to identify:
  - Each Request Message received from the individual LRIT Data Centres;
  - The communications with other LRIT Data Centres; and
  - The subsequent delivery of the Response Message to the Requesting LRIT data Centre
- In particular, the Journal should include:
  - Time stamp of receiving a message
  - Time stamp of transmitting a message; and
  - The complete message contents (there may be certain restrictions)

Confidentiality / Security of Data

- The International LRIT Data Exchange shall only provide access to the database or Journals information within the guidelines provided by the LRIT Coordinator. Any access or release of information shall include an audit trail of access to, modifications of or deletions made.
- It should be noted that the LRIT Coordinator needs to provide the guidelines for confidentiality and security of Data.

International LRIT Data Exchange System Performance

- The International Data Exchange shall process and handle any input within 30 seconds of the receipt of the input and shall give the appropriate output
- The International LRIT Data Exchange shall be capable of receiving and processing at least 100 reports per second
- The International LRIT Data Exchange shall provide data to the LRIT system 24 hours per day 7 days per week with better than 99.9% availability measured over a year and better than 95% availability per day

International LRIT Data Exchange System Performance (2)

- International LRIT Data Exchange equipment should be so designed that the main units can be replaced readily, without elaborate re-calibration or readjustment.
- International LRIT Data Exchange equipment should be so constructed and installed that it is readily accessible for inspection and maintenance purposes

LRIT Information Reporting

- Shipborne equipment shall
  - Transmit position, identification and time, and
  - Be capable of automatically and without human intervention on board the ship transmitting the ship's LRIT information at 6-hour intervals to an LRIT Data Centre.
- The International LRIT Data Centre shall be capable of processing data from 50,000 SOLAS Class ships and based on the requirement for ships to transmit LRIT information four times per day, this results in 50,000 x 4 report per day = 200,000 reports per day
- System capacity shall be sufficient to perform archival and retrieval of LRIT information as specified in resolution MSC.210(81).

Functional requirements

- Receive, store and disseminate LRIT information
- Shall:
  - Verify communications and provide for date security using methods such as authorization; authentication, confidentiality; and integrity;
  - Maintain a record of the ships that transmit LRIT information to the International LRIT Data Centre including name of ship, IMO Ship ID Number, Call sign and Maritime Mobile Service Identity (MMSI) and current reporting intervals and
  - Maintain a current list of ships no longer transmitting data to the International LRIT Data Centre (e.g. change of flag, taken out of service)

LRIT Information Storage and Handling Function

- The International LRIT Data Centre shall be audited by the LRIT Co-ordinator
- The International LRIT Data Centre shall archive LRIT information from ships that transmit the information to the IDC, for at least one year and until such time as the Committee reviews and accepts the annual report of the audit of its performance by the LRIT Co-ordinator.
- The International LRIT Data Centre shall:
  - For LRIT information archived within the last 4 days, sends the LRIT information within 30 minutes of receiving request
  - For LRIT information archived between 4 and 30 days previously, sends the LRIT information within 1 hours of receiving a request; and
  - For LRIT information archived more than 30 days previously, sends the LRIT information within 5 days of receiving a request.

ASP Interface Function

- The International LRIT Data Centre shall process the incoming LRIT information from the ASP, and route polling
- Further, the International LRIT Data Centre shall:
  - Receive LRIT information from ships instructed by their Administrations to transmit the LRIT information to the International LRIT Data Centre
  - Execute requests received from LRIT Data Users for Polling of LRIT information or for change (s) in the interval (s) of transmission of LRIT information by a ship or a group of ships transmitting the information to the International LRIT Data Centre

IDC LRIT Data User Function

- The International LRIT Data Centre shall process polling, requests, and standing orders directly from contracting Governments whose ships are reporting to the International LRIT Data Centre
- The International LRIT Data Centre shall:
  - Perform authentication based on the LRIT Data Distribution Plan
  - Establish and continuously maintain systems that ensure, at all times, that LRIT Data Users are only provided with the LRIT information they are entitled to receive as specified in SOLAS regulation V/19-1;
  - When requested, disseminate to Contracting Governments the LRIT information they are entitled to receive in accordance with the agreed arrangements and notify the LRIT Data User and the Administration when a particular ship stops transmitting LRIT information; and
  - Prohibit the dissemination of LRIT information to Contracting Governments in accordance with SOLAS regulation V/19-1.9.1 and as provided in the LRIT Data Distribution Plan

IDC LRIT Data User Function

- The International LRIT Data Centre shall provide to Search and Rescue (SAR) services, LRIT information transmitted by all ships located within the geographic area specified by the SAR service requesting the information so as to permit the rapid identification of ships that may be called upon to provide assistance in relation to the search and rescue of persons in distress at sea. This information shall be provided:
  - Irrespective of the location of the geographic area; and
  - Even if the geographic area is outside the SAR region associated with the SAR service requesting the information (SOLAS regulation V/19-1.12 refers).

Overview of Contracting Government User Cases (1)

- Flag request
  - Send request to the Data Centre to which it is connected
  - Standing order regarding criteria for receiving LRIT information (ship name, IMO ship ID and reporting rate
- Port State Access to LRIT (1)
  - A Port State request is always triggered by a Notice of Arrival
  - A contracting Government that wishes to receive LRIT information as a port State can send either
    - A request message including all applicable port state parameters
    - A request message referring the Receiving Data Centre to the standing orders applicable to that Port State contained within the Data Distribution Plan

Overview of Contracting Government User Cases (2)

- Port State Access to LRIT (2)
  - The standing order criteria may include a combination of: ship name, IMO ship ID No., flag, reporting rate, and the distance from the Contracting Government's port or the distance from the coastline, or a point in time (null values will provide flexibility)
  - If the Contracting Government wishes to stop receiving LRIT information, it must actively send a request message to the ship's Data Centre instructing the Data Centre to stop sending reports. This can also be done automatically if it is correctly entered into the Data Distribution Plan

Overview of Contracting Government User Cases (3)

- Coastal State Access to LRIT Information
  - A contracting Government that wishes to receive LRIT information as a coastal State must submit standing orders regarding the criteria for receiving LRIT information, which are included in the Data Distribution Plan
  - The standing order should include: the distance from its coast within which the Contracting Government wishes to track ships, reporting rate and, optionally, the flag of ships it does not (or does) wish to track. Thus, Data Centres will be capable of filtering LRIT data reports based upon a ship's distance from the Contracting government's coast as well as the flag of the ship

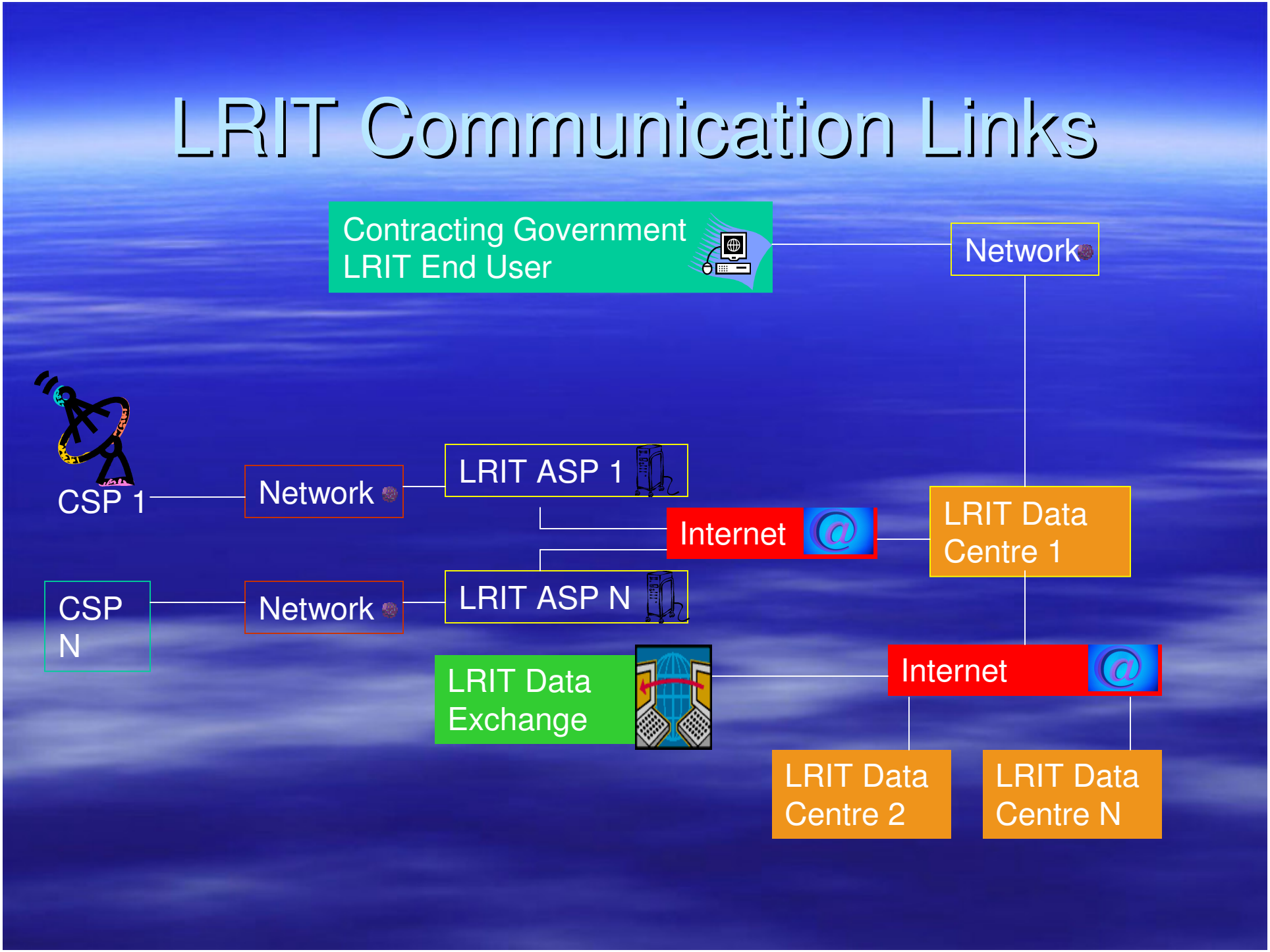
Overview of Contracting Government User Cases (4)

- All Data Centres will check the incoming LRIT position, reports of their registered ships against the standing orders and geographical boundaries contained in the Data Distribution Plan. Once the Data Centre has discovered a match, it will begin transmitting LRIT information to the entitled Government.
- If the Contracting Government wishes to stop receiving LRIT information, it must either:
  - Actively send a request message to the ship's Data Centre instructing the Data Centre to stop sending reports for this transit through the coastal state area; or
  - Within the Data Distribution Plan only request that the first regular position message inside the coastal State area be transmitted to the Contracting Government.

Overview of Contracting Government User Cases (5)

- SAR Request
  - A Contracting Government that wishes to receive LRIT information as a SAR entity can use either a SAR SURPIC Request Message or a Poll Request Message SUMMARY OF LRIT MESSAGES.doc to obtain information.
  - A SAR SURPIC is typically used in the first stage of responding to a SAR incident. The SAR SURPIC will provide the SAR authority with the ships within a requested vicinity
  - The SAR SURPIC message will be sent to the International LRIT Data Exchange by the Data Centre associated with the SAR Authority. The IDE will broadcast the message to all Data Centres. Only Data Centres with ship or ships with the specified SURPIC will respond to the SAR SURPIC message.
  - SAR Authorities may use a SAR poll request message to retrieve additional positional data on ships in the vicinity of a SAR incident

LRIT Communication Links



CONCLUSION

- DECISIONS ON THE ENGINEERING FRAMEWORK BY MSC 82
- NATIONAL DATA BASE
- REGIONAL DATA BASE
- INTERNATIONAL
- TESTING
- COMMISSIONING
- BENEFITTING


THANK YOU