

Experience in ATN implementation by Japan



SHI GEYOSHI KUZUYA
Japan Civil Aviation
Bureau

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- ATN Implementation in Japan
 - AMHS and ATN Router
- General Test Items for AMHS Connection
- Connection with the USA
- Connection with Australia
- Connection with Hong Kong, China
- Other Topics in JCAB
- Conclusions



ATN Implementation in Japan

- AMHS
 - AFTN/AMHS Gateway for operational use
- ATN Router
 - BBIS for operational use
- Development
 - 1996 Basic Design
 - 1997 System Design
 - 1998-99 Development
 - 2000 Installation

ATN Implementation in Japan

- Installed at 2 Centers
 - Main set at the **AFTN Center** in the New Tokyo International Airport (NARITA)
 - Back up set at **SDECC** (System Development Evaluation and Contingency Management Center)
- Initial operation
 - International : AMHS (ready for connection and shift from AFTN for the States ready)
 - Domestic : AFTN via current

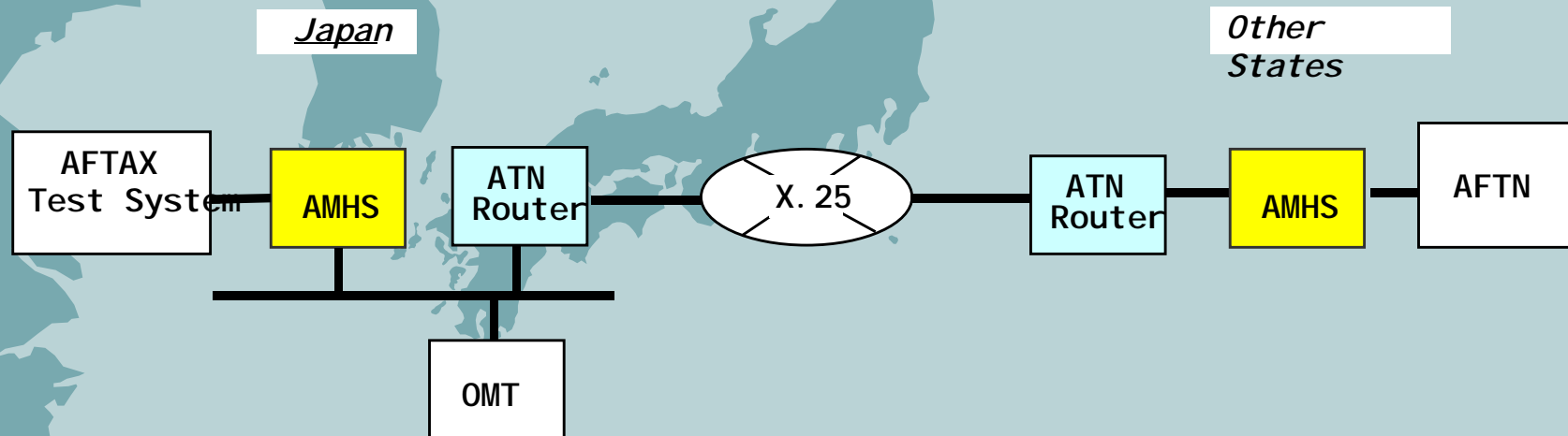
General Test Items for AMHS Connection

- CONTENTS

- General System Configuration
- ATN Router Connection
- AMHS Connection
 - Lower Layer
 - Upper Layer
 - AFTN Data Exchange
 - MHS Data Exchange

General Test Items for AMHS Connection

- General System Configuration

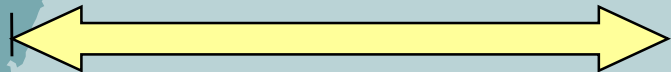
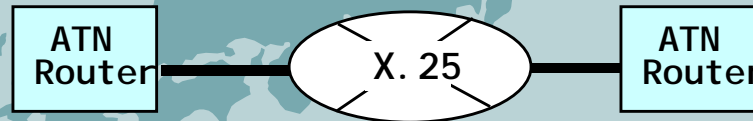


General Test Items for AMHS Connection

- **ATN Router Connection**

Japan

*Other
States*

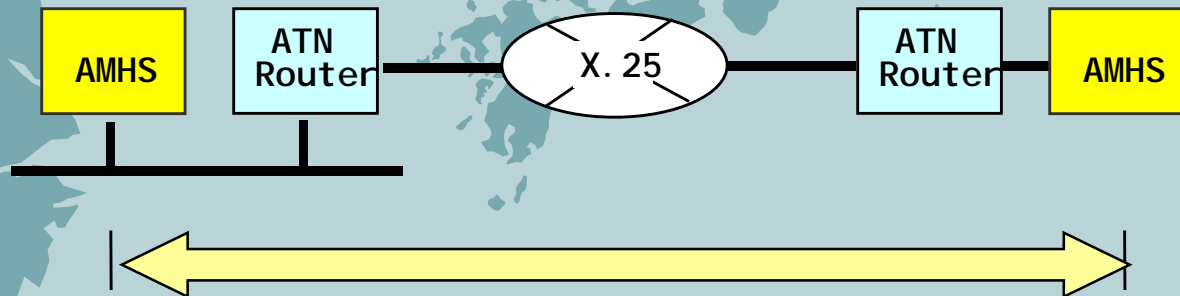


General Test Items for AMHS Connection

- AMHS Connection
 - Lower Layer

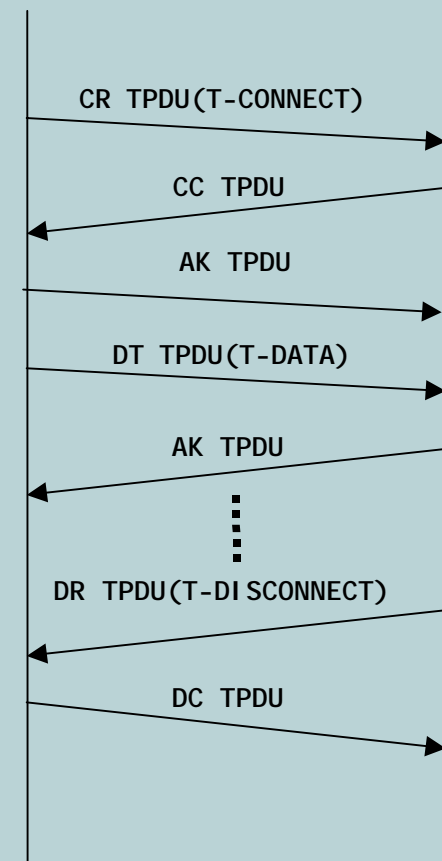
Japan

Other States



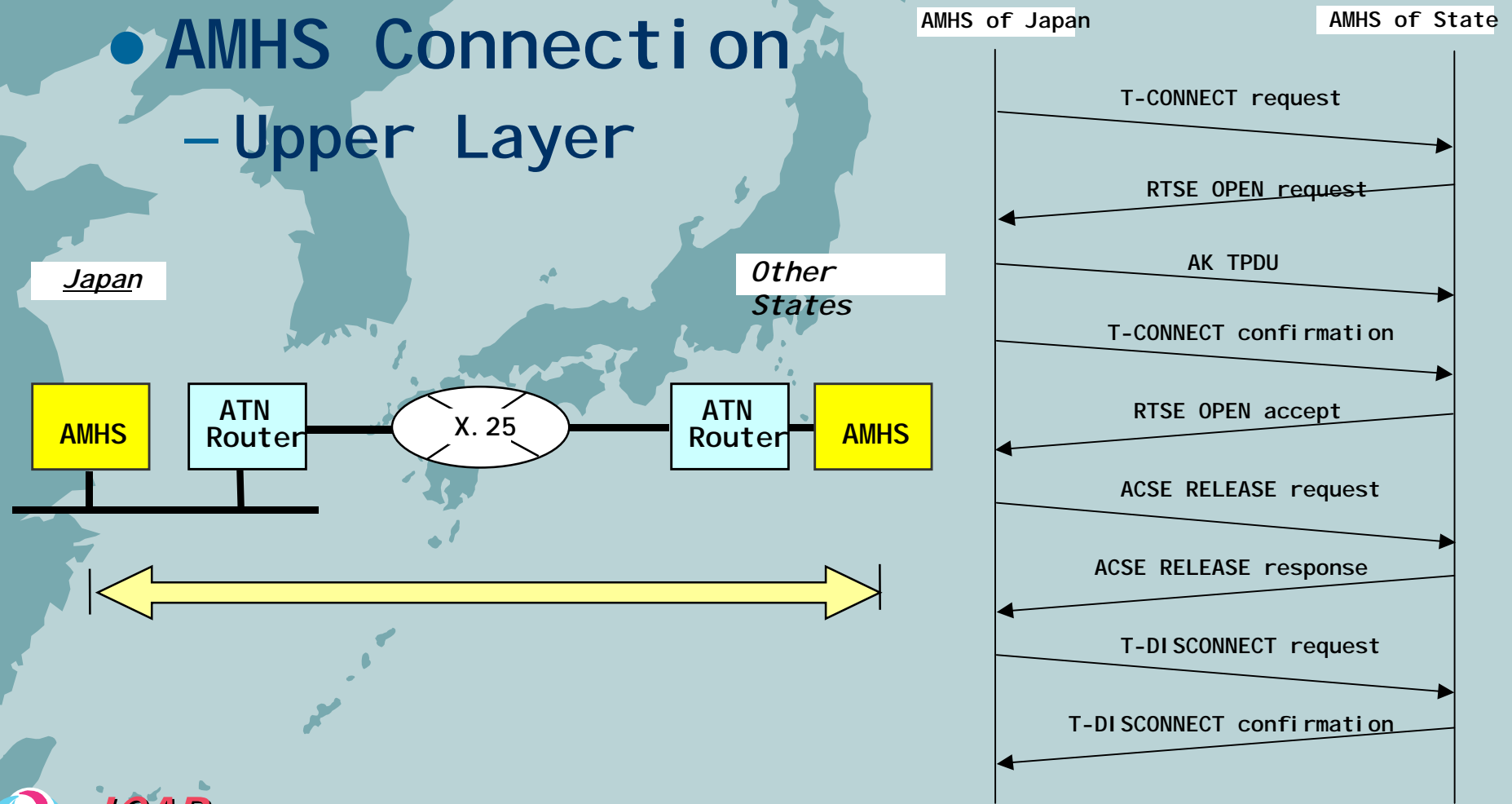
AMHS of Japan

AMHS of State



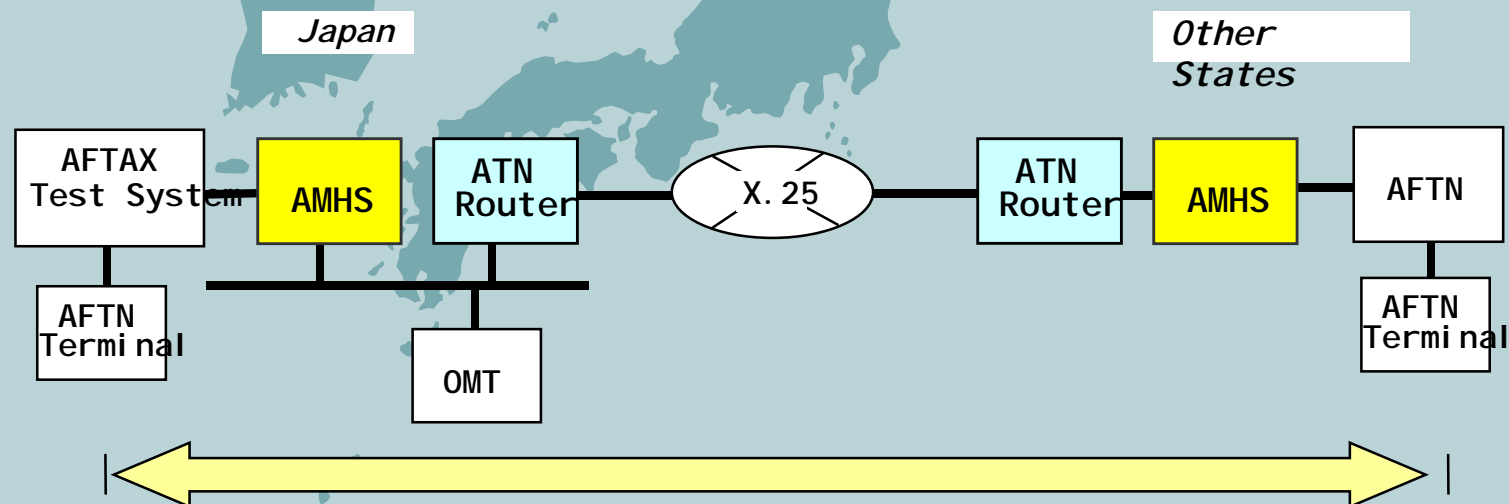
General Test Items for AMHS Connection

- AMHS Connection – Upper Layer



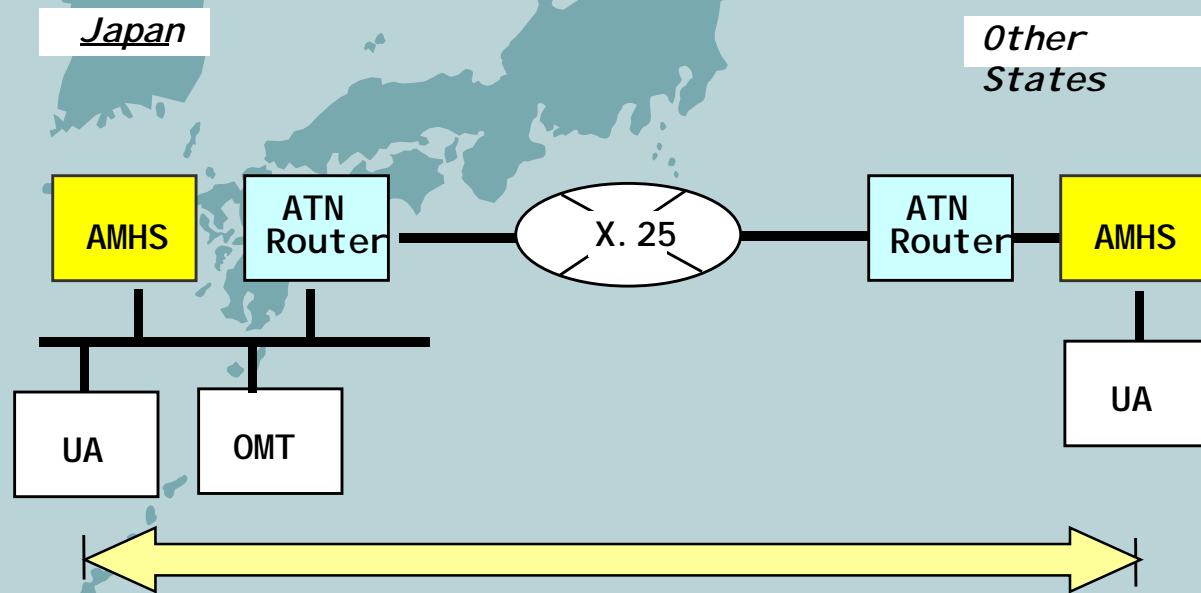
General Test Items for AMHS Connection

- AMHS Connection
 - AFTN Data Exchange



General Test Items for AMHS Connection

- AMHS Connection
 - AMHS Data Exchange



General Test Items for AMHS Connection

- Other Particular Test Items
 - Specific Cases (USA)
 - Combination of AFTN and AMHS Terminals (User Agents) (Australia)
 - Performance Measurement (Hong Kong, China)

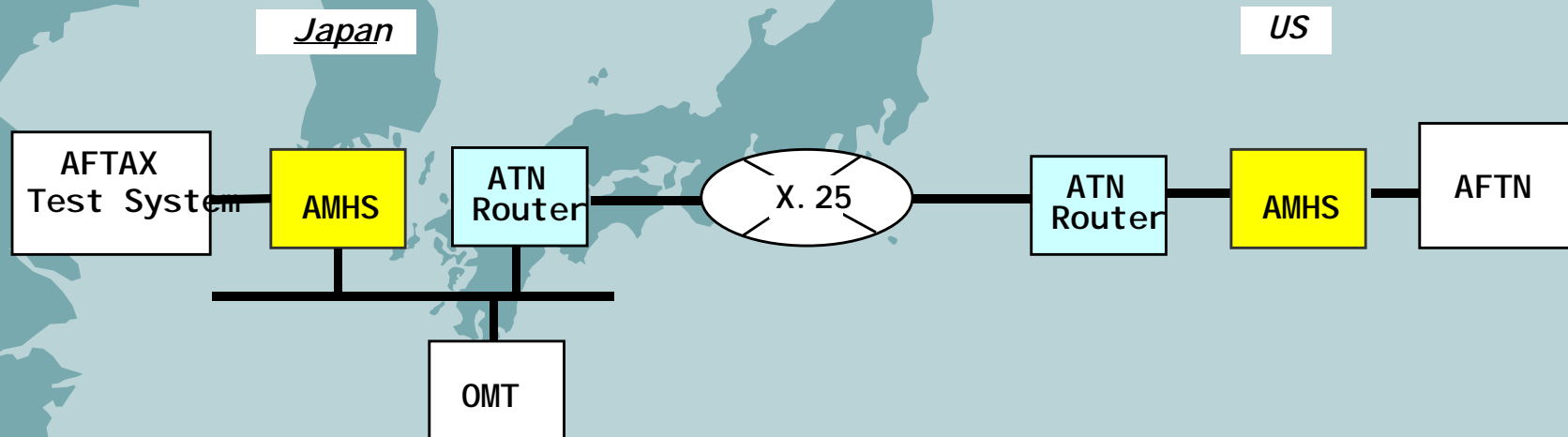
Connection with the USA

- Background

- 1998 Feb : Agreement on Trial and Operation
- 1998 Feb – Oct : Coordination of the detailed Specification
- 2000 Aug : ATN Router connection
- 2001 Jan – 2002 Jan : **AMHS Trial**
 - Sep 2000, Jan 2001: Pre-testing
 - Mar 2001: some issues
 - May 2001: 3 issues; rectified
 - Jul 2001: 3 issues; rectified
 - Nov 2001

Connection with the USA

- System Configuration



Connection with the USA

- Test Conducted
 - General Test Items ; resulted successfully
 - ATN Router Connection
 - AMHS Connection
 - Lower Layer
 - Upper Layer
 - AFTN Data Exchange
 - Particular Test Items ; resulted successfully
 - Specific Cases

Connection with the USA

- Test Results (**Specific Cases**)

- AFTN Acknowledgement message
- Unknown address AFTN service message
- 10 AFTN messages
- 100 AFTN messages
- AFTN message with maximum length
- NDR when AFTN message is deleted
- Some error case

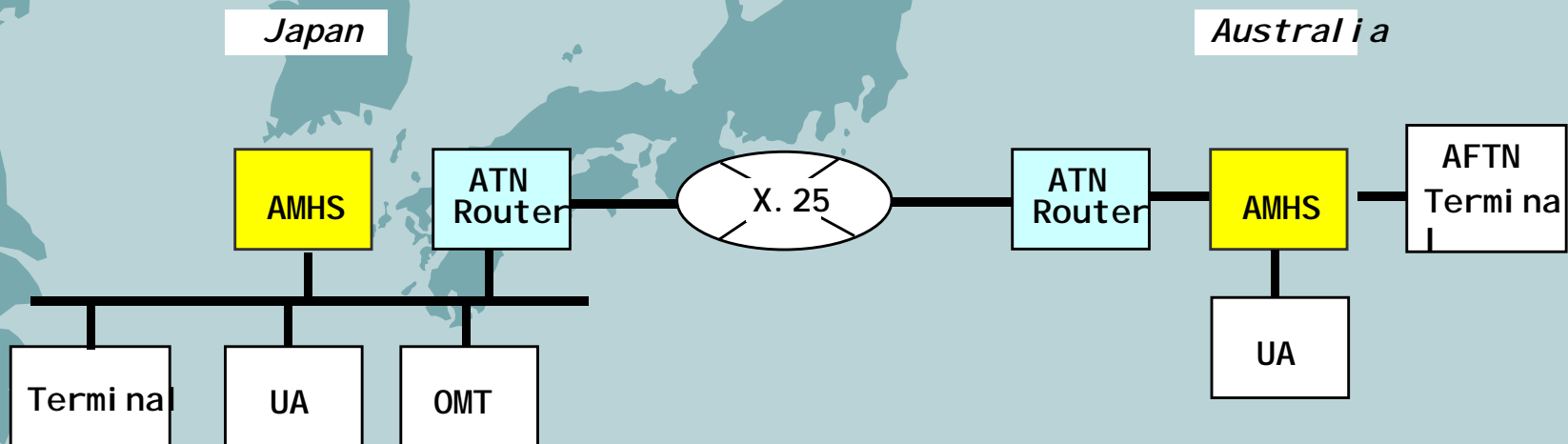
Connection with Australia

- Back round

- 1999 Aug : Agreement on Trial
- 1999 Oct – 2000 May : Coordination of the detailed Specification
- 1999 Nov : ATN Router connection
- 2000 May : **AMHS Trial**

Connection with Australia

- System Configuration



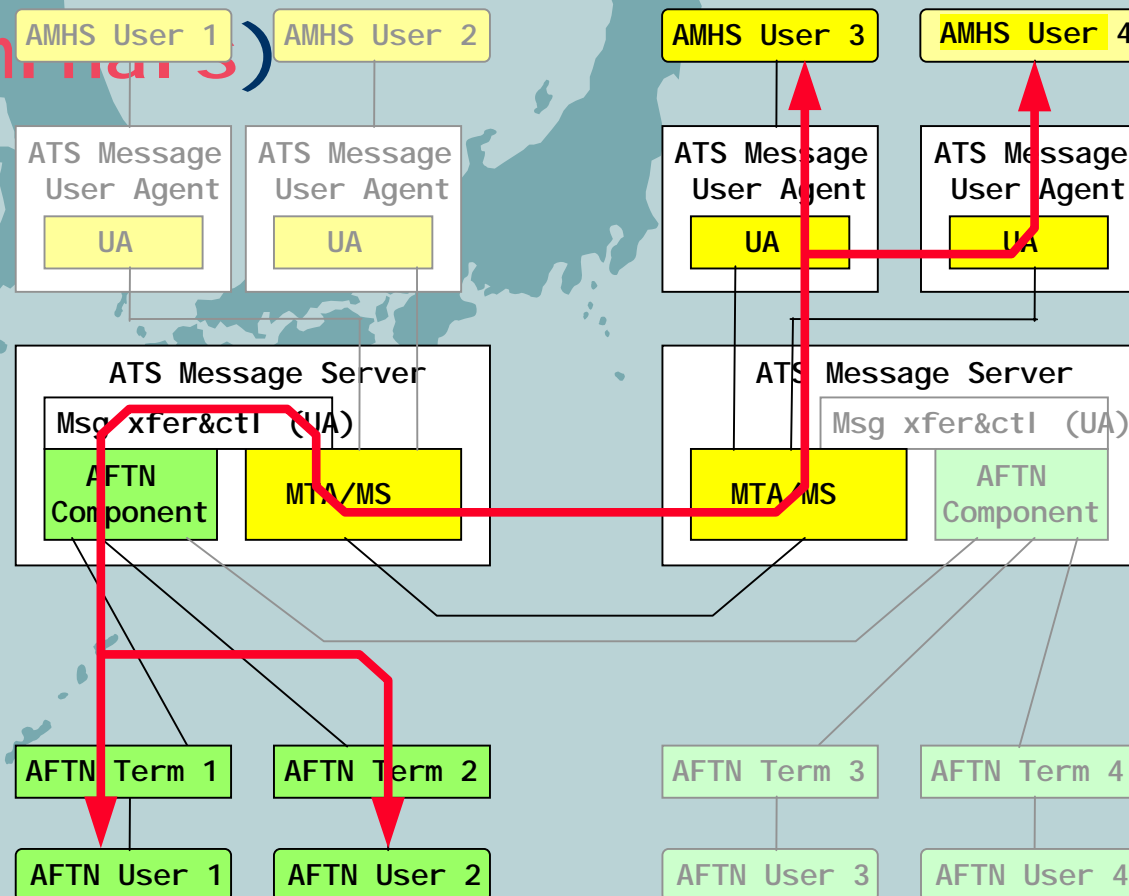
Connection with Australia

- Test Conducted
 - General Test Items ; resulted successfully
 - ATN Router Connection
 - AMHS Connection
 - Lower Layer (non-ATN)
 - Upper Layer
 - AFTN Data Exchange
 - Particular Test Items ; resulted successfully
 - Combination of AFTN and AMHS Terminals (User Agents)

Connection with Australia

• Test Results

(Combination of AFTN and AMHS Terminals)

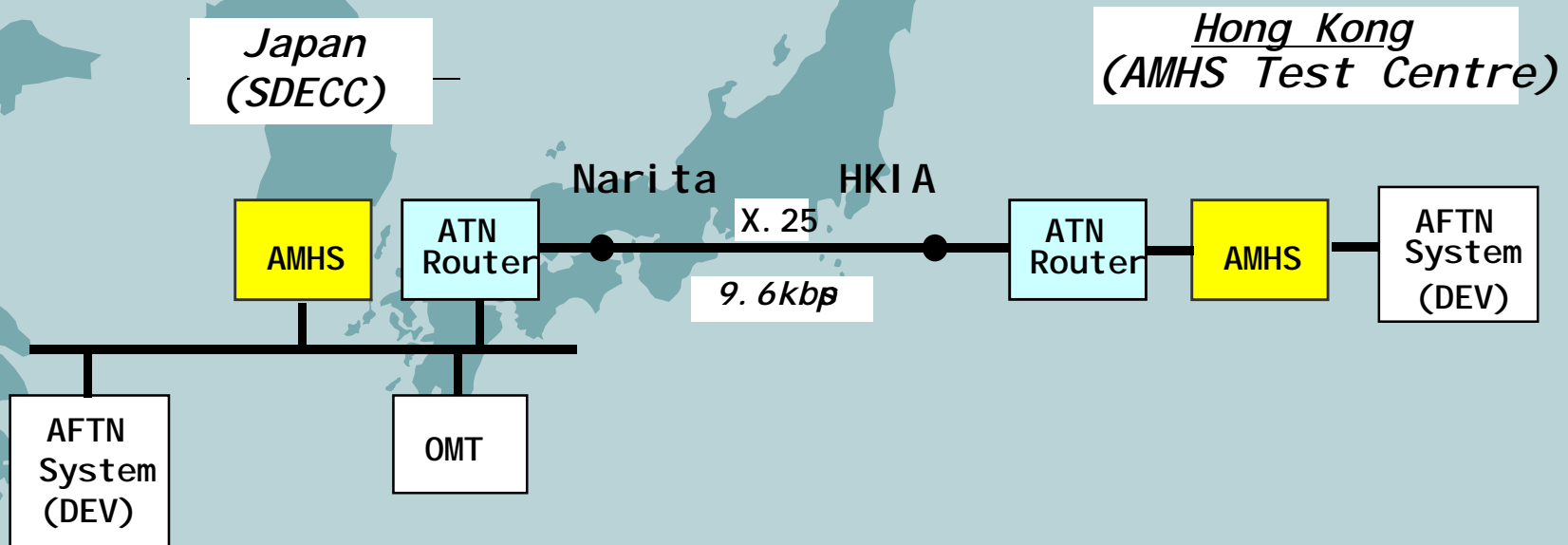


Connection with Hong Kong

- Back round
 - 2001 Jul : Agreement on Trial
 - 2001 Jul : Coordination of the detailed Specification
 - 17 Jul 2001 : ATN Router connection
 - 25-27 Jul 2001 (3 days) : **AMHS Trial**

Connection with Hong Kong

- System Configuration

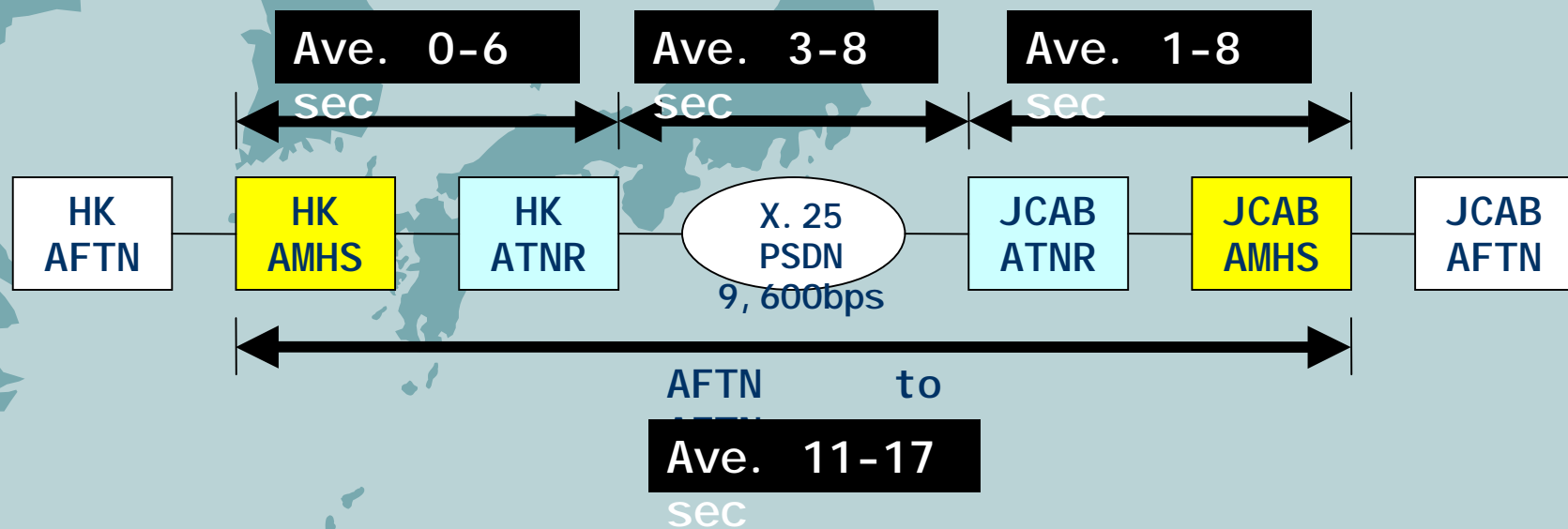


Connection with Hong Kong

- Test Conducted
 - General Test Items; resulted successfully
 - ATN Router Connection
 - AMHS Connection
 - Lower Layer
 - Upper Layer
 - AFTN Data Exchange
 - Particular Test Items ; resulted successfully
 - Performance Measurement

Connection with Hong Kong

- Test Results (Performance Measurement)



Other Topics in JCAB

- Experimental Connection
 - **ATN Router** Connection
 - 1998 Eurocontrol / 1999 Australia
 - **CPDLC** Connection (simulated airborne system)
 - Communication Application Level
 - 1999 Eurocontrol / 1999 Australia
 - **ADS** Connection (simulated airborne system)
 - Communication Application Level
 - 2000 Eurocontrol / 2000 Australia

Other Topics in JCAB

- Experimental ATN system (Laboratory Level)
 - CM (Context Management)
 - Man-machine for CPDLC and ADS
 - VDL and AMSS (simulation)
- Future plan (experimental for operation)
 - DFIS, AIDC
 - SARPs Edition 3
 - Security, Directory Service, System Management

CONCLUSION

- SARP and AMHS & ATN Router (JCAB) are well evaluated
 - ICAO ATNP Evaluation highest test level “a”
 - two or more independently developed interoperating implementations validated by two or more states/organizations
- Earlier implementation and earlier benefit
- JCAB is ready for AMHS connection