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中国民用航空局
空中交通管理局
Air Traffic Management Bureau, CAAC

The AIDC Deployment and Implementation in China

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- Introduction
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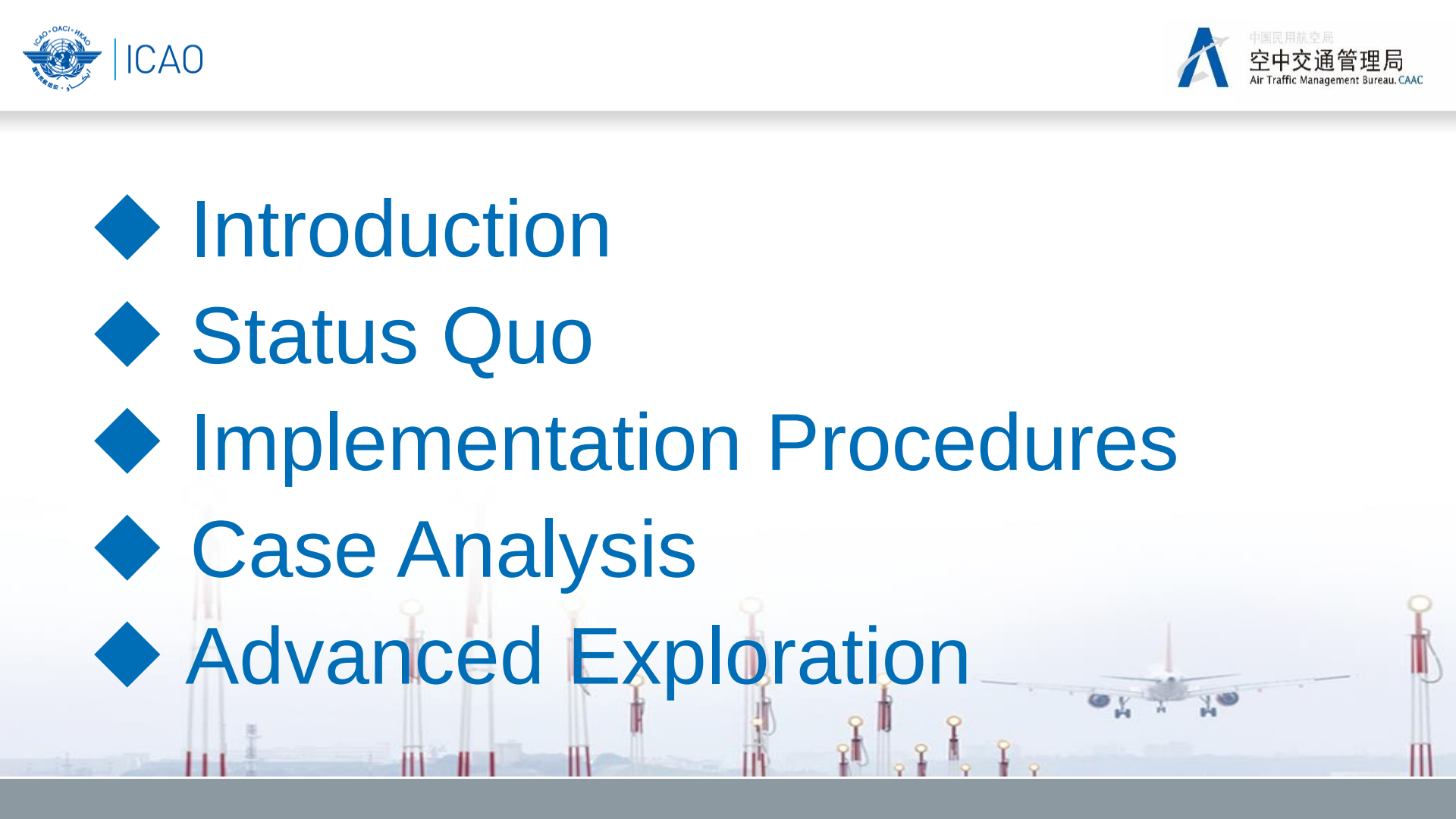
- Implementation Procedures
- Case Analysis
- Advanced Exploration



Introduction

- AIDC: ATS inter-facility data communications
- supports information exchanges between ATC application processes within automated ATS systems located at different ATSUs

Telephone Call

- Air Traffic Flow and Pressure
- Workload and Inefficiency
- Negligence and Mistake

AIDC

PROS

- Correctness Enhancement
- Workload Alleviation
- Efficiency Improvement
- Visualization Reinforcement

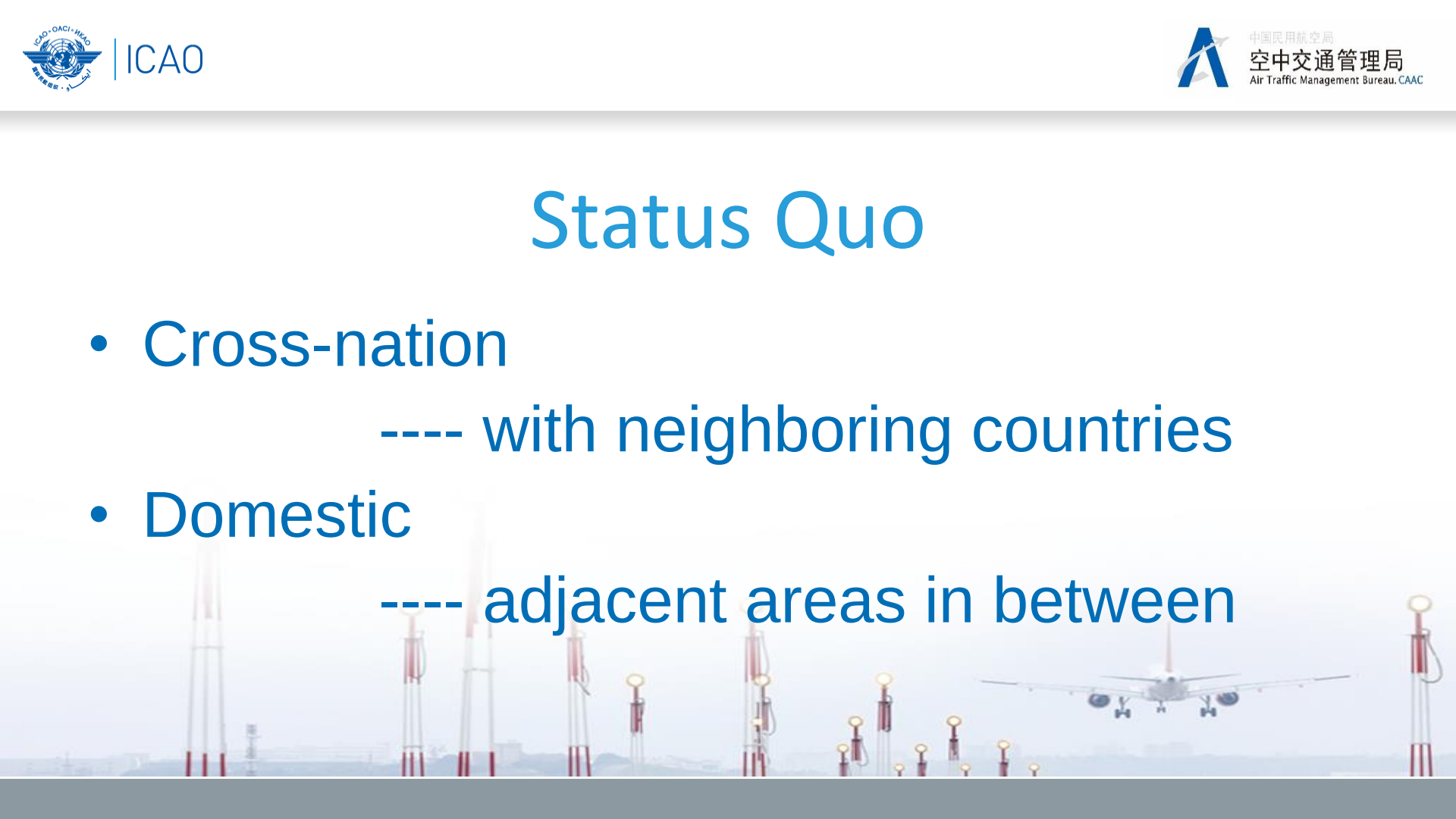
Status Quo

- Cross-nation

  ---- with neighboring countries

- Domestic

  ---- adjacent areas in between



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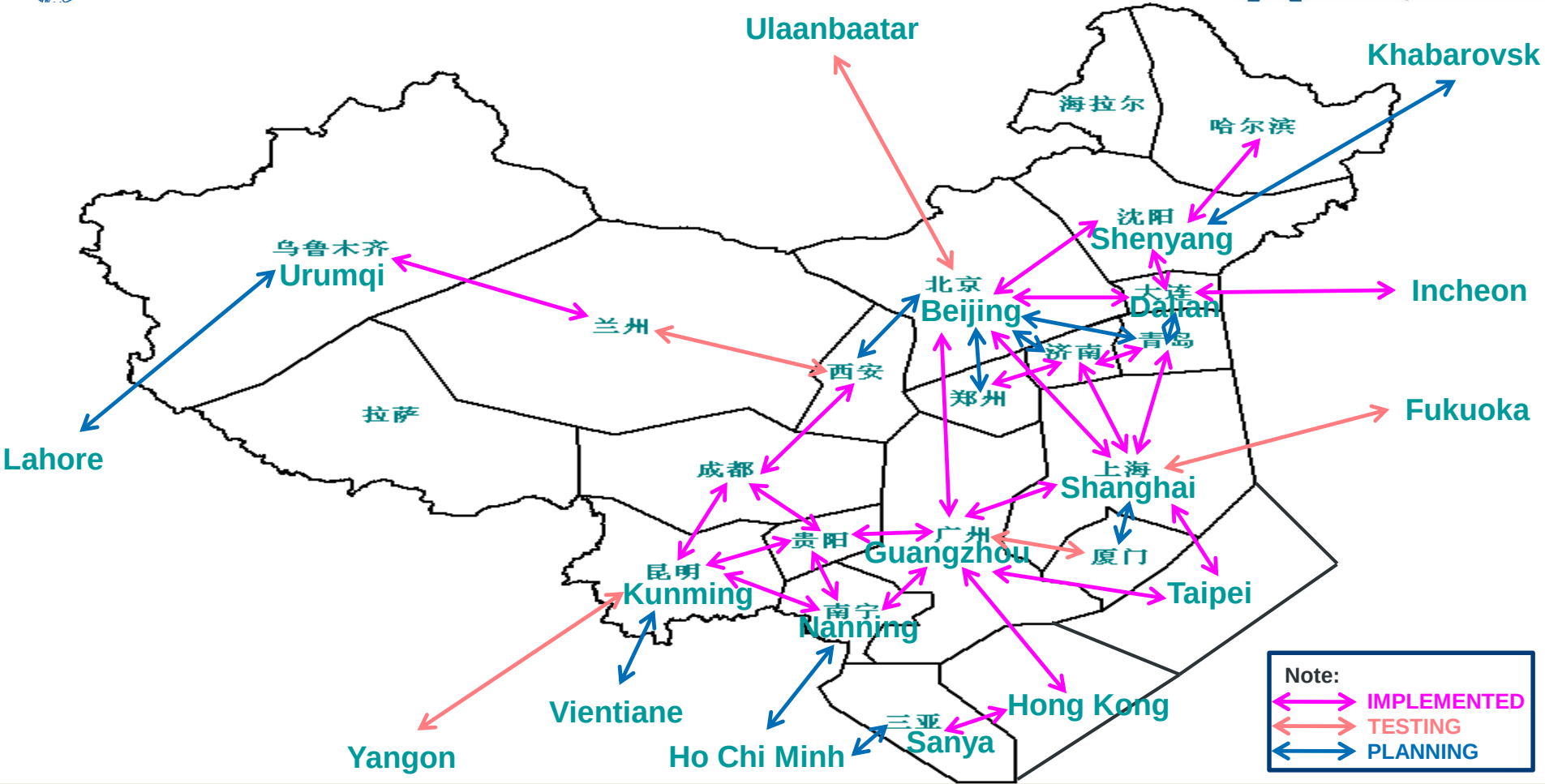
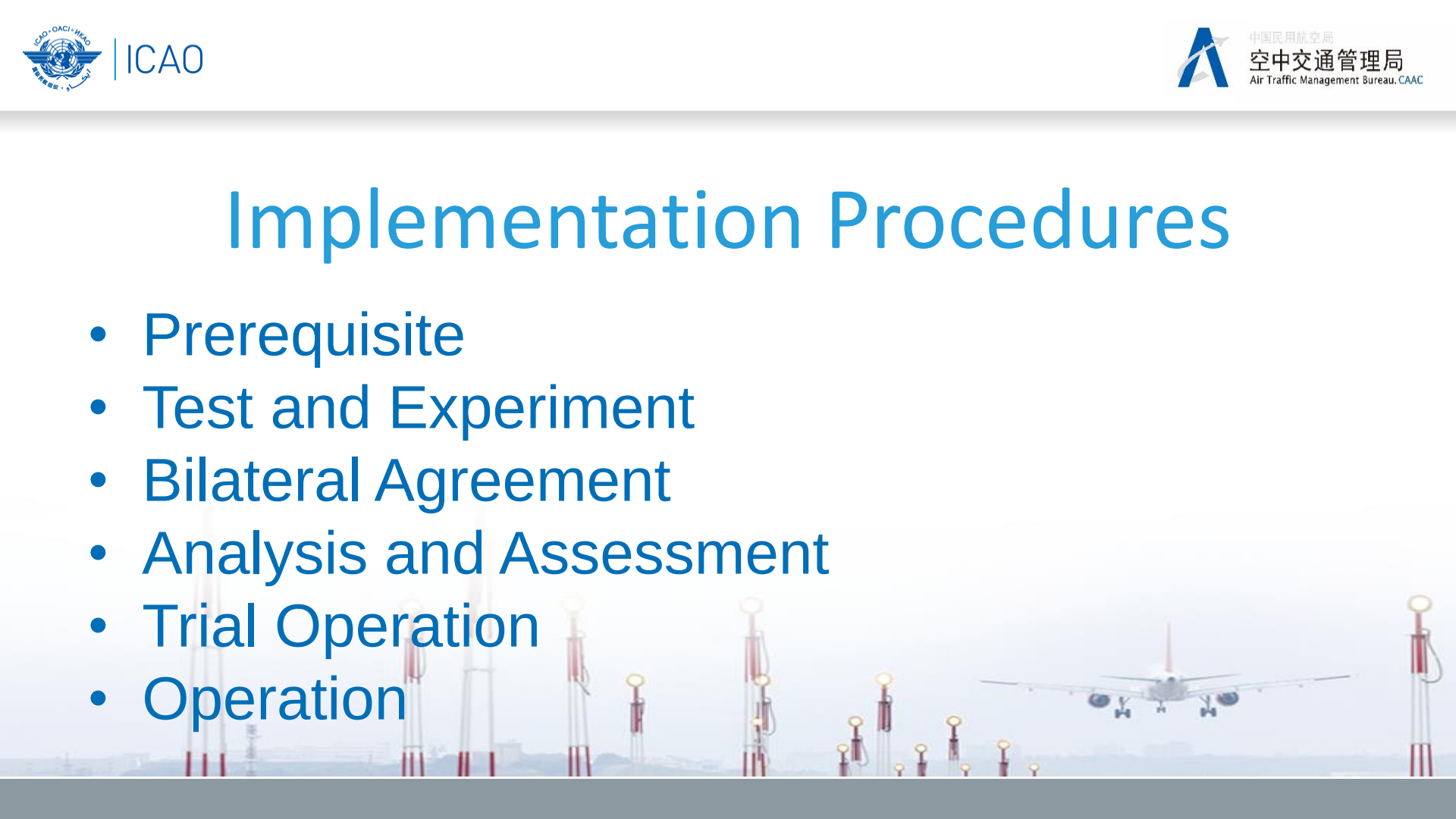


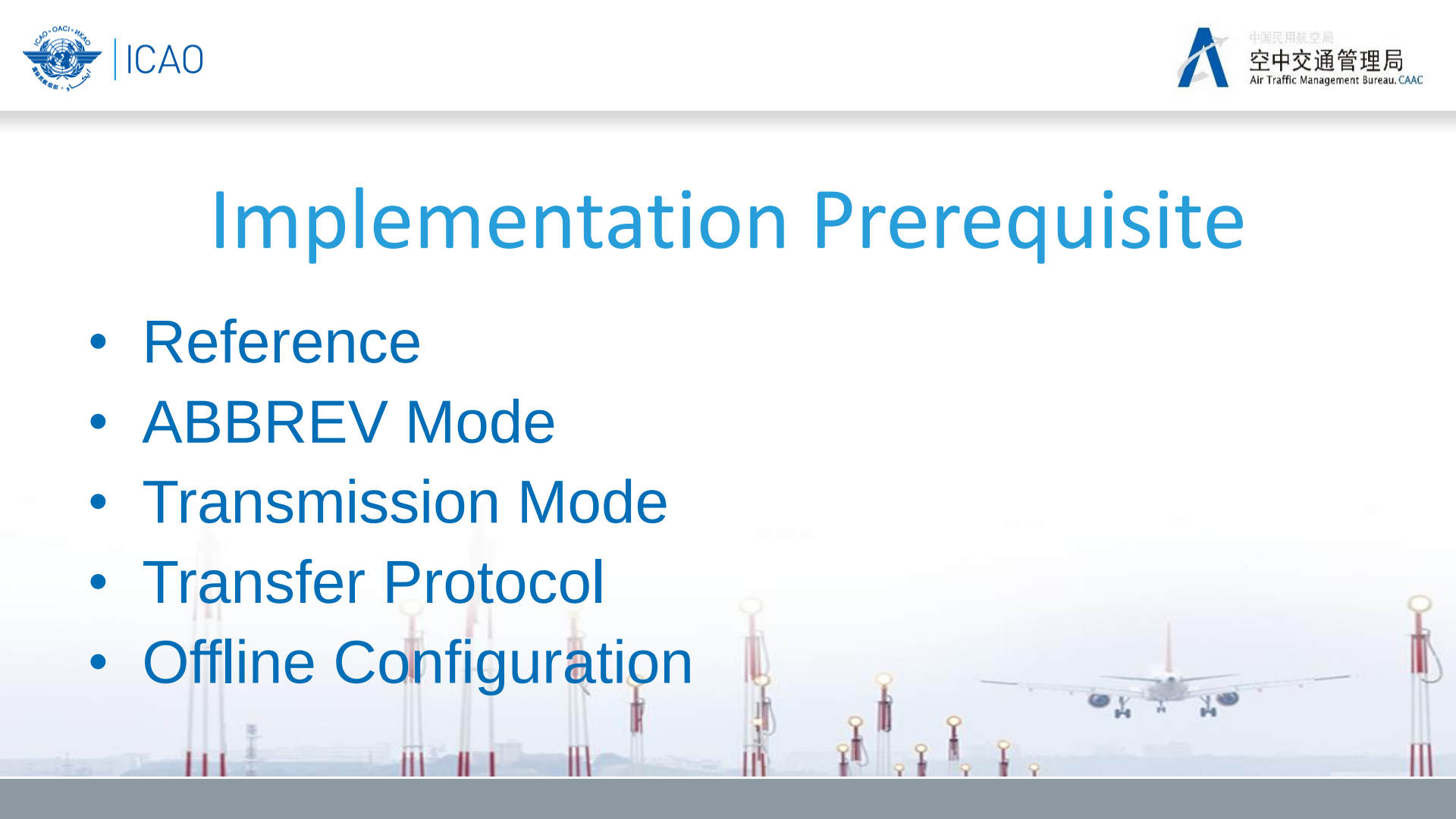
Implementation Procedures

- Prerequisite
- Test and Experiment
- Bilateral Agreement
- Analysis and Assessment
- Trial Operation
- Operation



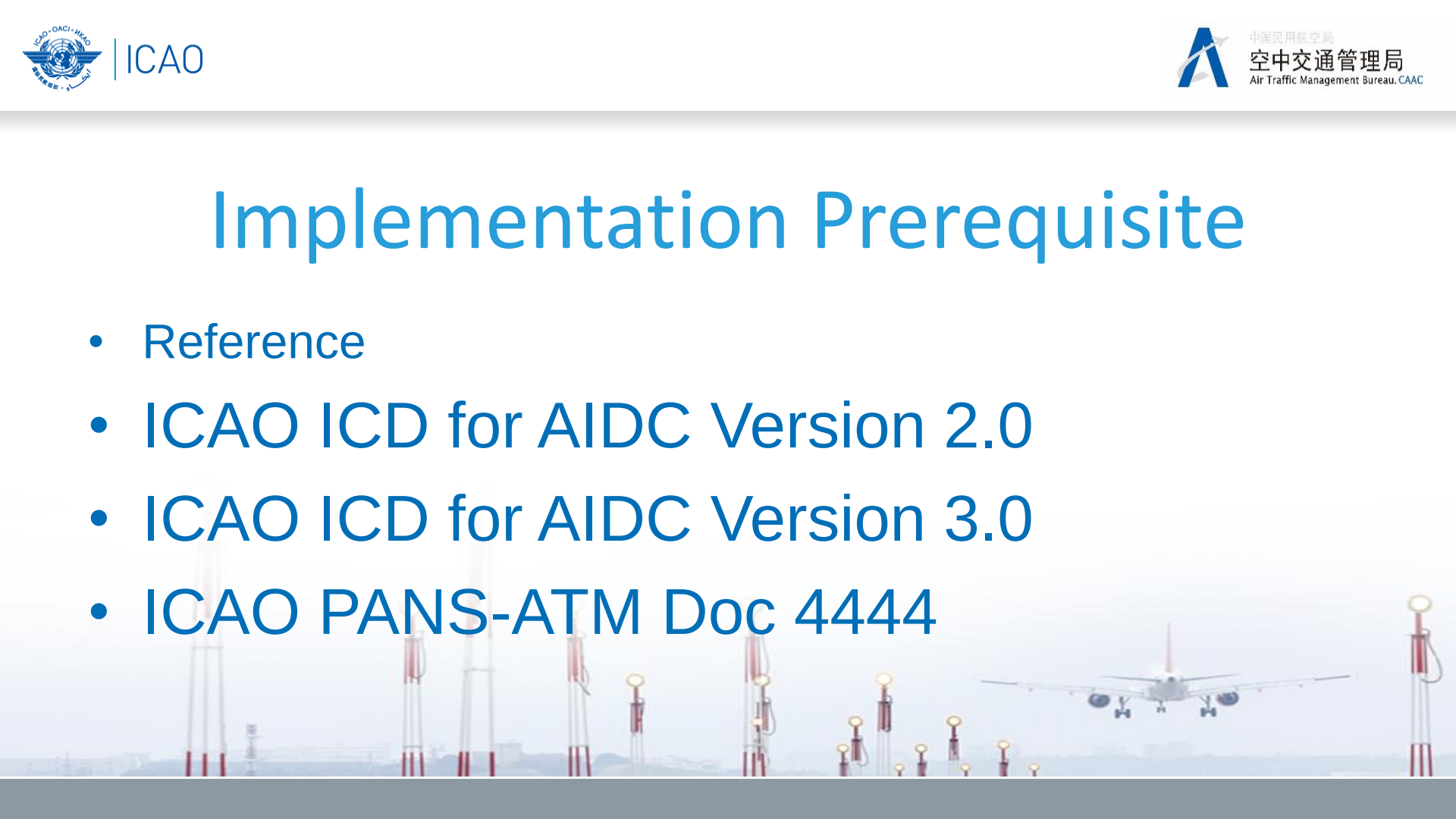
Implementation Prerequisite

- Reference
- ABBREV Mode
- Transmission Mode
- Transfer Protocol
- Offline Configuration



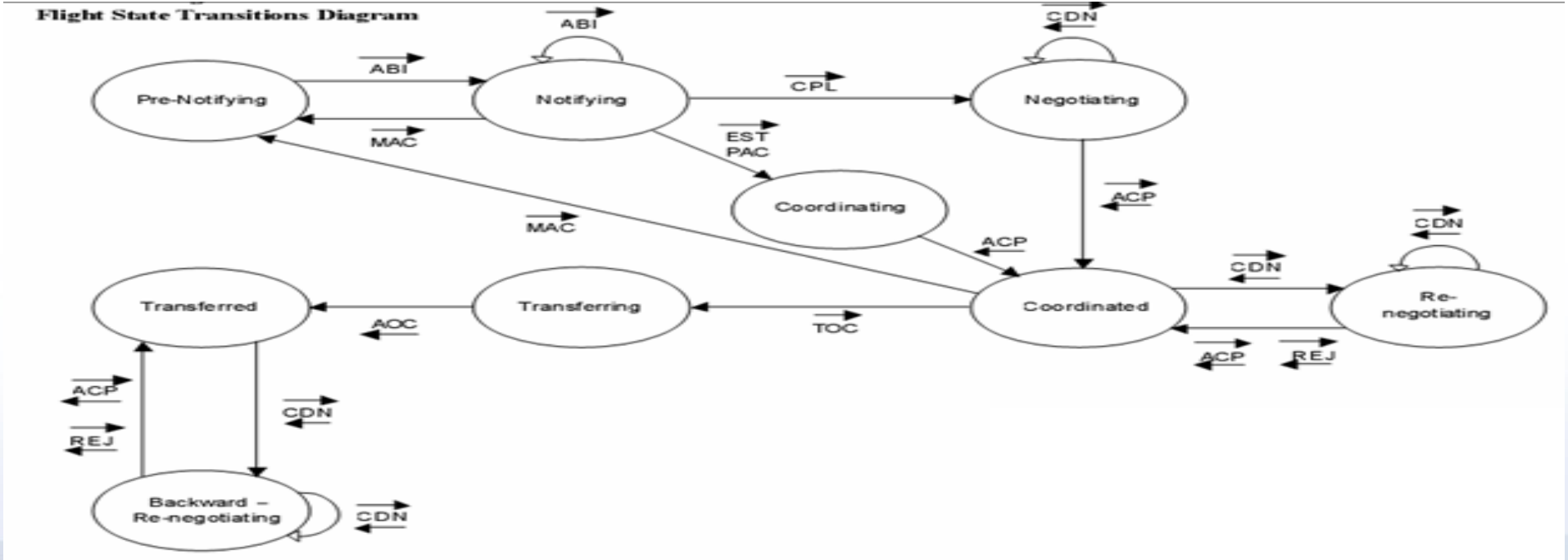
Implementation Prerequisite

- Reference
- ICAO ICD for AIDC Version 2.0
- ICAO ICD for AIDC Version 3.0
- ICAO PANS-ATM Doc 4444



Implementation Prerequisite

- Full Mode



Implementation Prerequisite

- ABBREV Mode

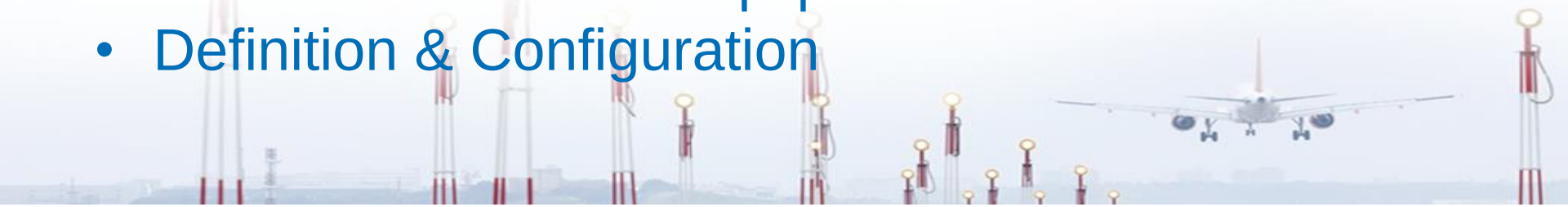
AIDC procedure	Handover side	Direction	Acceptance side
Coordination phase	EST	→	
		←	LAM/LRM
		←	ACP
	LAM/LRM	→	
Transfer of control phase	TOC（Auto/Man）	→	
		←	LAM/LRM
		←	AOC（Man）
	LAM/LRM	→	

Implementation Prerequisite

- Transmission Mode
- AFTN（Aeronautical Fixed Telecommunication Network）
- Convenient, stable, easy-maintaining and monitor available
- Latency roughly 15-20s
- Dedicated Line（DDN, ATM, optical fiber）
- Good quality, high speed, and less delay
- Lack of effective supervision

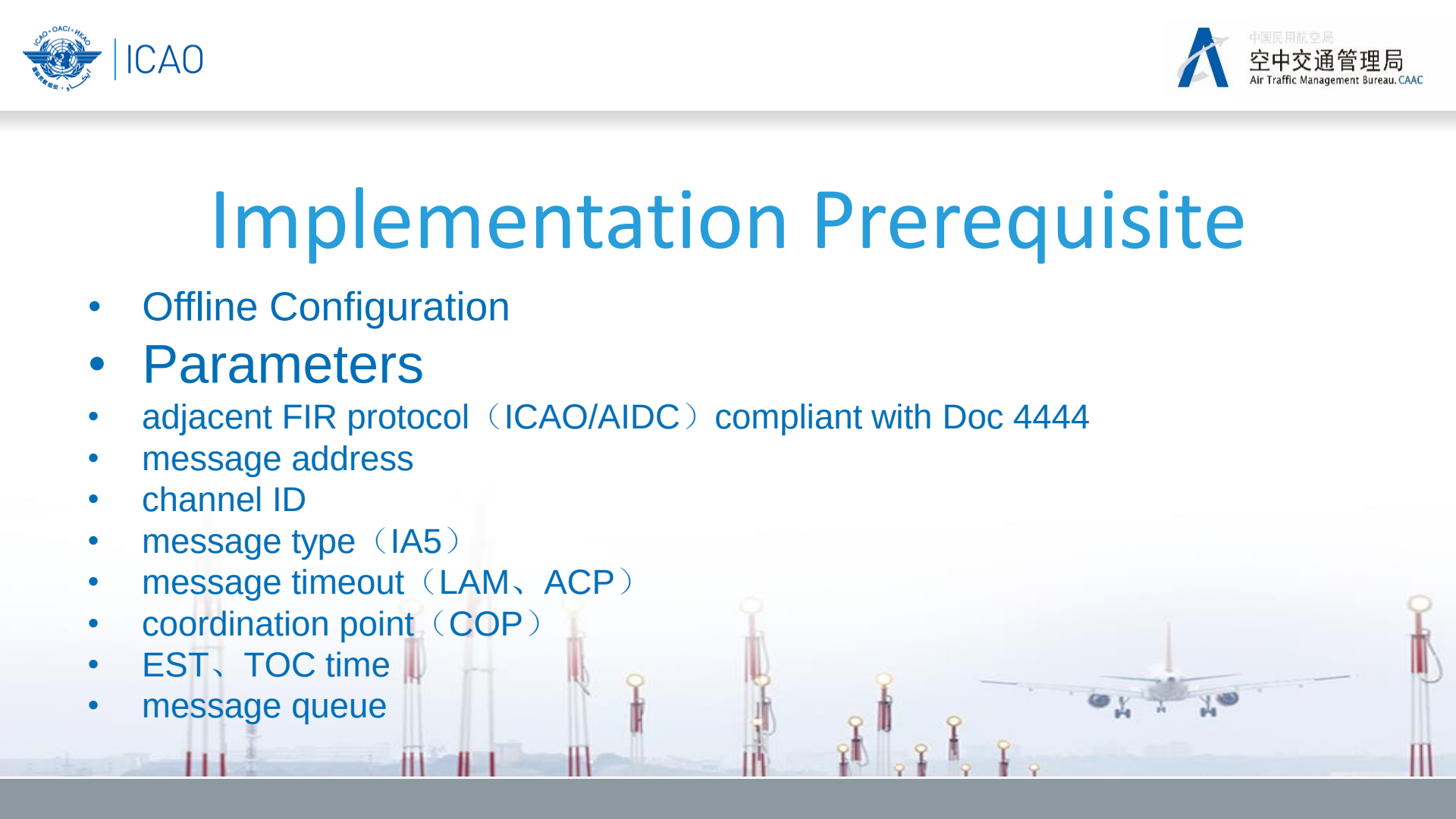
Implementation Prerequisite

- Transfer Protocol
- X.25（address, call direction, device type, clock source, electrical standard, etc.）
- Synchronous serial port（SSP）
- Protocol conversion equipment
- Definition & Configuration



Implementation Prerequisite

- Offline Configuration
- Parameters
- adjacent FIR protocol（ICAO/AIDC）compliant with Doc 4444
- message address
- channel ID
- message type（IA5）
- message timeout（LAM、ACP）
- coordination point（COP）
- EST、TOC time
- message queue



Case Analysis

- Beijing & Shanghai experience
- applying ABBREV mode, dedicated line, X.25 protocol with outgoing call
- Trouble-shooting
- 45min system parameter
- front processing discrepancy
- different way to update PCFL causing unexpected posting
- RAM leading to transfer flash missing
- limit the number of AIDC messages to 100, increase to 800 as same as the number of AFTN ones

Case Analysis

- Beijing & Ulaanbaatar experience
- applying ABBREV mode, AFTN line, X.25 protocol with outgoing call
- Trouble-shooting
- pressure on operation without test platform in Ulaanbaatar
- lack of knowledge in INDRA2100 system at the aspect of AIDC function
- format of message header and trailer inconsistent（0X01/0X03 & ZCZC/NNNN）
- restriction on the amount of message handling in the front processing system, close up to the limit
- ODF 3 item missing in AOC message

Advanced Exploration

- Vertical Handover（4029.3）
- SWIM（one to many）

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