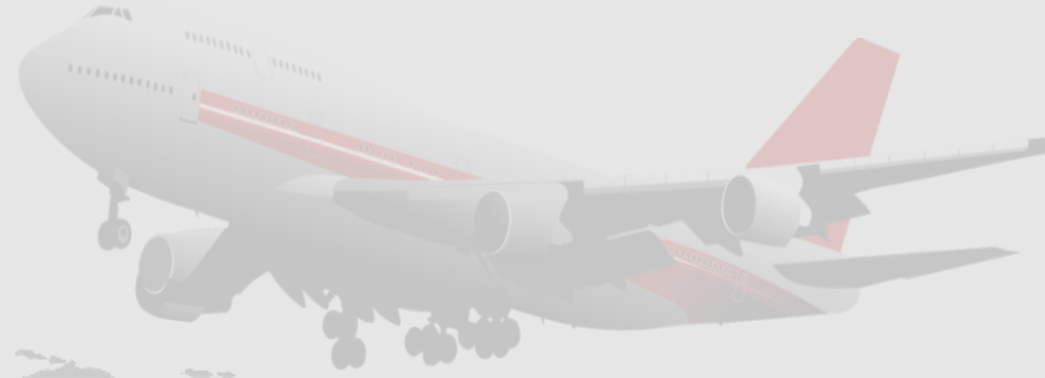




中國民航總局第二研究所

THE SECOND RESEARCH INSTITUTE OF CAAC



Air Traffic Integrated Tower System Solution



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Contents



Overall Solution



Application & Effect





Overall Solution



PART ONE



Current Situation of Tower



- 1 ATC
- 2 A-SMGCS
- 3 EFS
- 4 DCL
- 5 CDM
- 6 AWOS
- 7 ATIS
- 8 Light & ILS
- 9 stand/gate
- 10 Others



Limited Space

- More and more devices
- Not enough space in control hall
- Not enough space in equipment room

Messy CWP Environment

- A lot of display
- A lot of keyboard and mouse

Complex Operation

- Some functions are repeated between systems
- Lack of adequate data exchange between systems

Too many HMIs

- There are too many systems
- Each system has its own complex business processing logic



Operational Risks

The lack of sufficient interaction among the systems results inconsistent data

Safety Risk

The operation is cumbersome and repetitive, increasing controller pressure



How & What

Integration



Standard & Content

**Data
Exchange**



How & What

Fallback



- based on A-SMGCS and EFS system
- Integrate by data exchange

MANDATORY

RECOMMENDED

OPTIONAL

**Operation
Requirements
&
Human
Requirements**



Accurate flight plan

Maintain consistency of flight plan with TMA



Transfer on screen

Two - way handover and accept with TMA



- Based on TMA flight plan
- Keep sufficient interaction with TMA



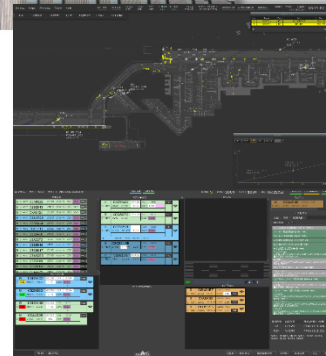
Flight Plan Consistency

Flight plan consistency is the foundation of iTWR and TMA.



Airspace Environment Consistency

Coordination Information between TMA and iTWR



Transfer Between Systems

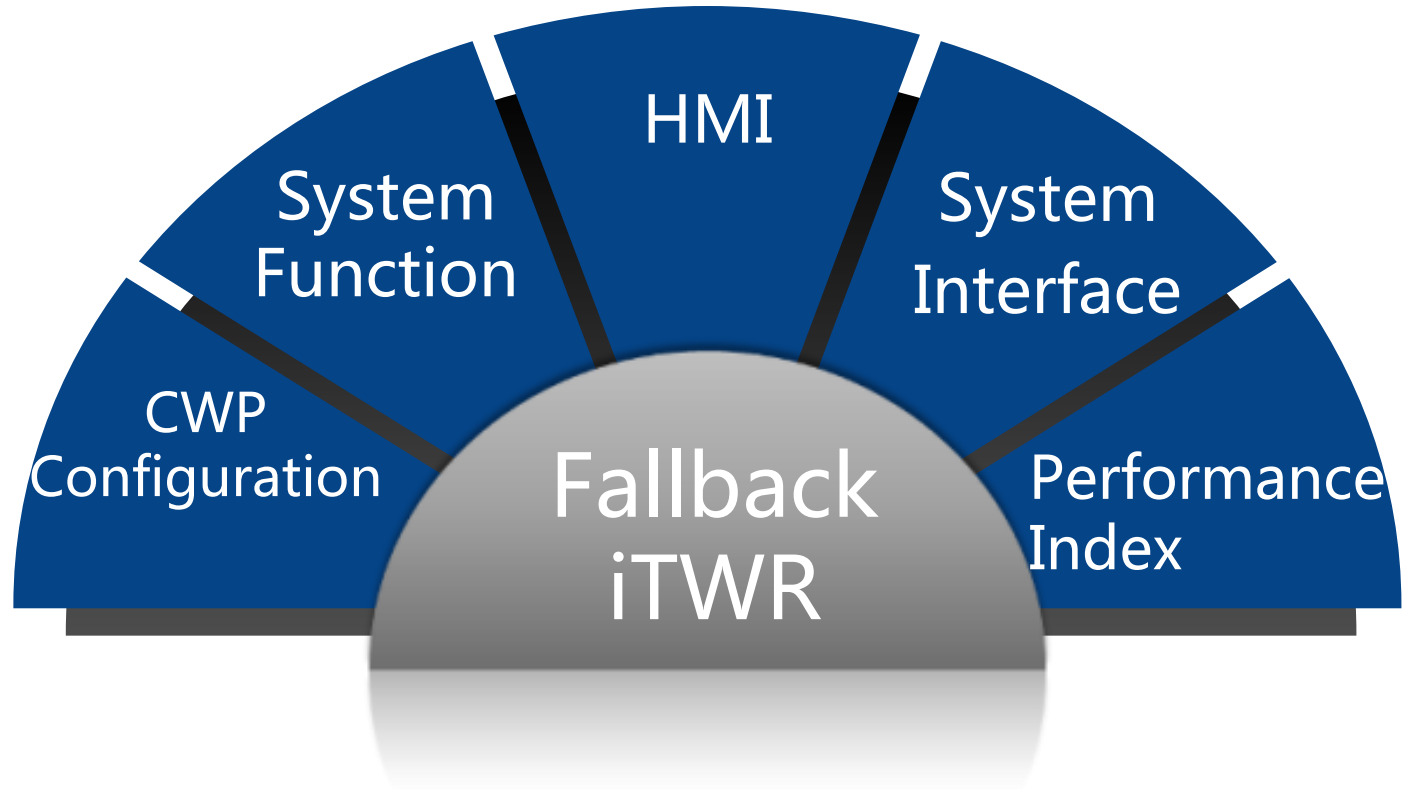
Improve the efficiency between TMA and iTWR

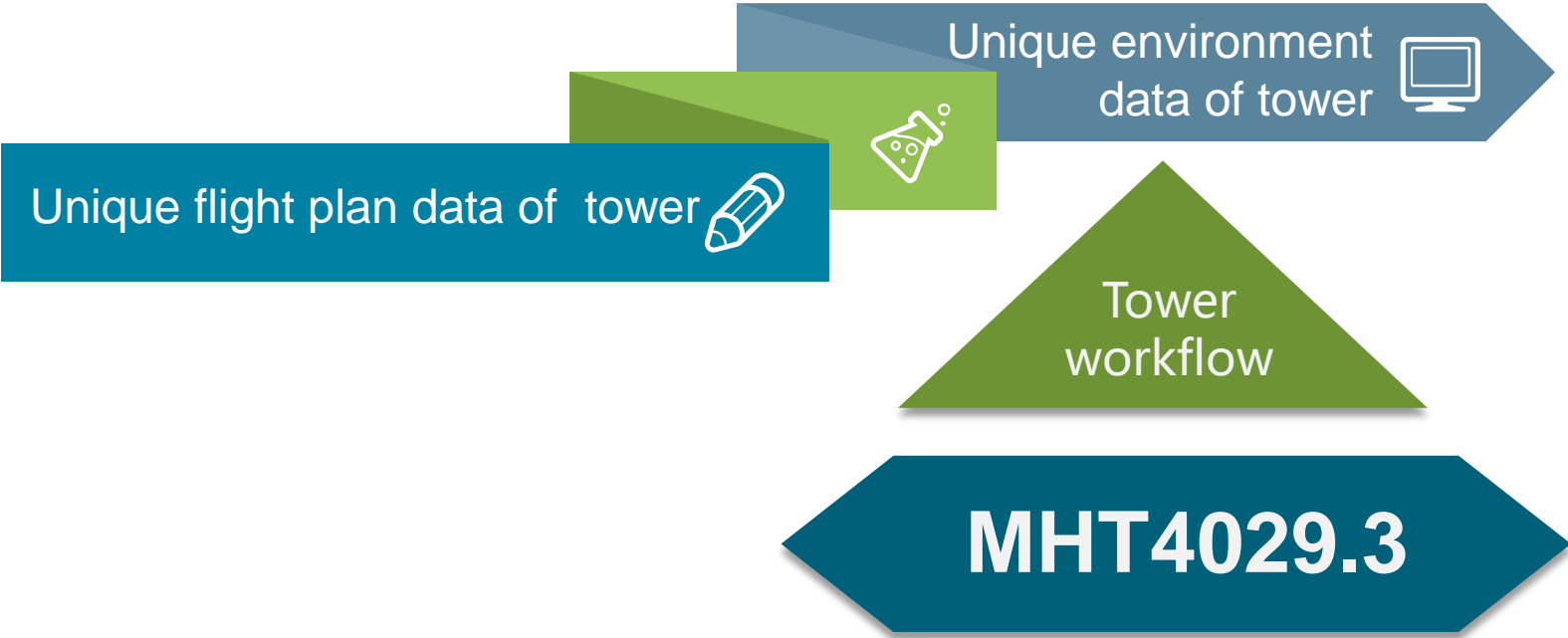
Correlation Consistency

Enhance the security of towers and other units



- Refer to ATM automation system
- Construct backup system





Civil Aviation ATM Automation System — Part 3 : Flight Data Exchange

System Track Data

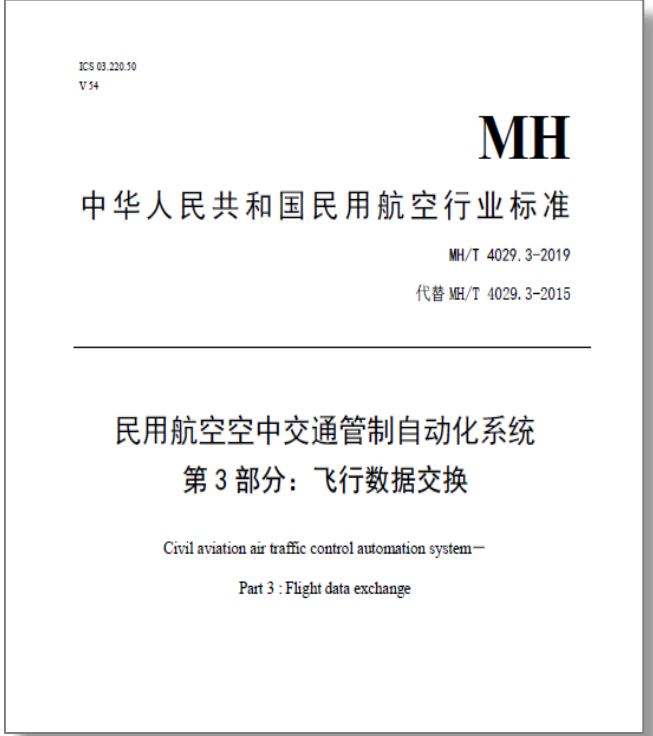
CAT062
MHT4008

Flight Plan Data

TFPL
ICNL
IDEL

Environment Data

BSSR	BSEC
BRWY	BRTA
BCWP	BQNH
BATS	BSID



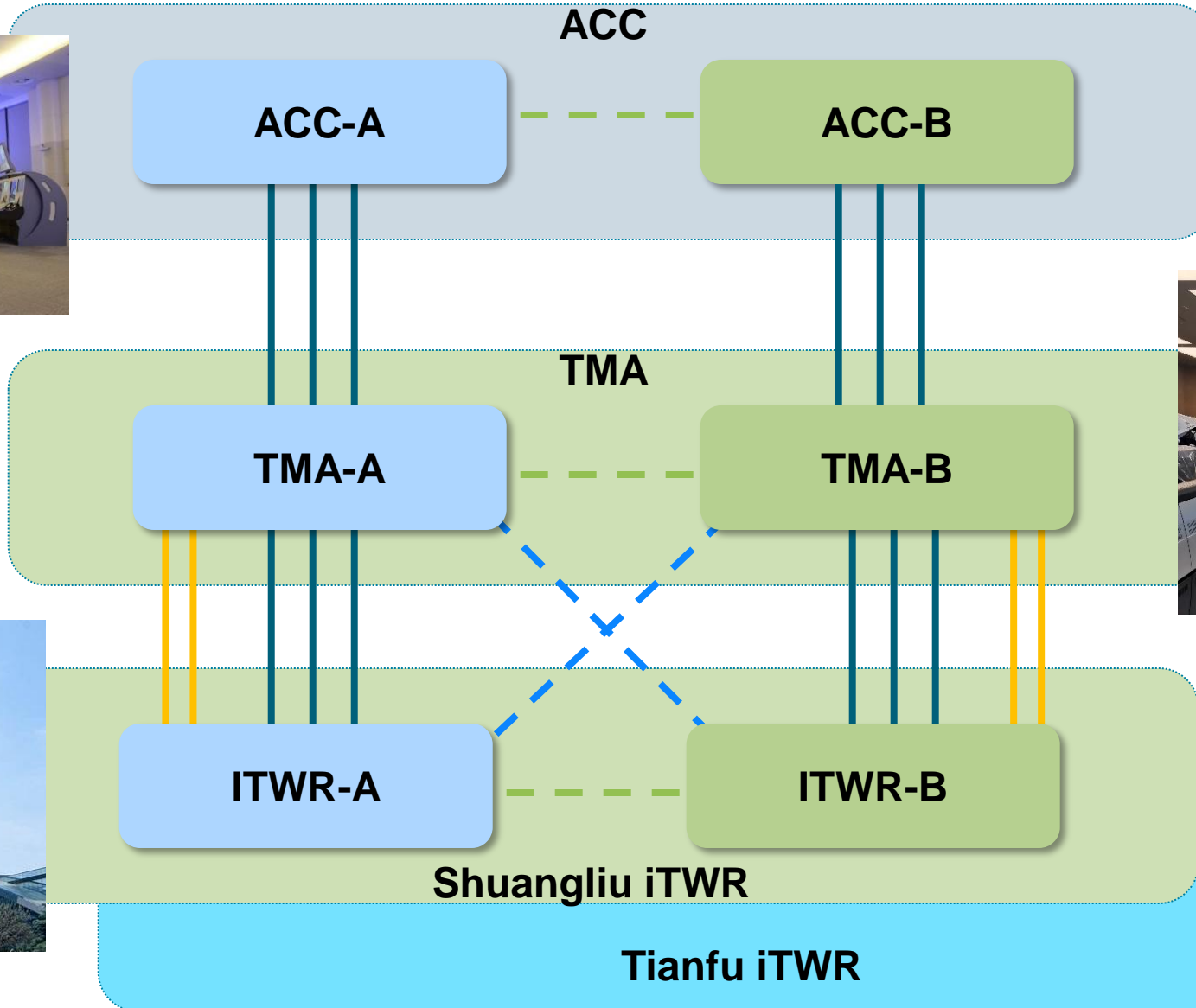


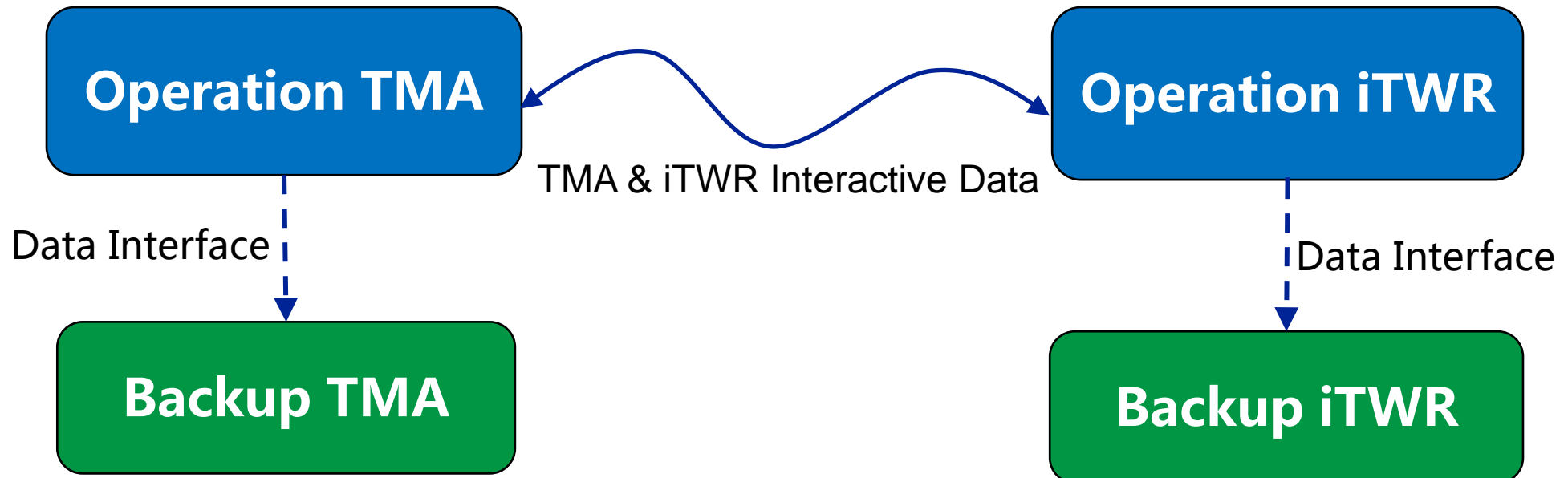
Application & Effect



PART TWO

Connection of Chengdu ACC/TMA/Tower systems







Integration Solution of Tianfu Towers



ATC
MET/AWOS
CDM
DCL
STAND/GATE
LIGHTING

.....



A-SMGCS

ATC-SDD

EFS

ATC-FDD





Data Exchange with TMA System



Tianfu TWR

Flight Plan Consistency
Environment Data Consistency
Correlation Consistency

- ✓ Transfer
- ✓ Miss Approach Alert
- ✓ Departure Flight Sequence

- ✓ Transfer
- ✓ Miss Approach Alert
- ✓ Departure Flight Sequence

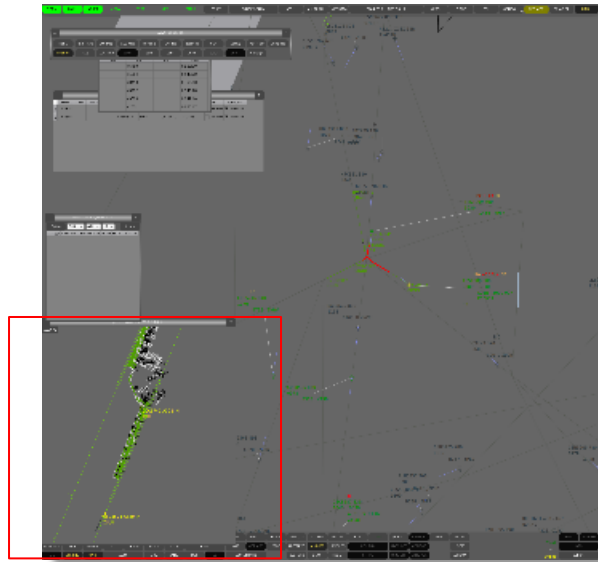
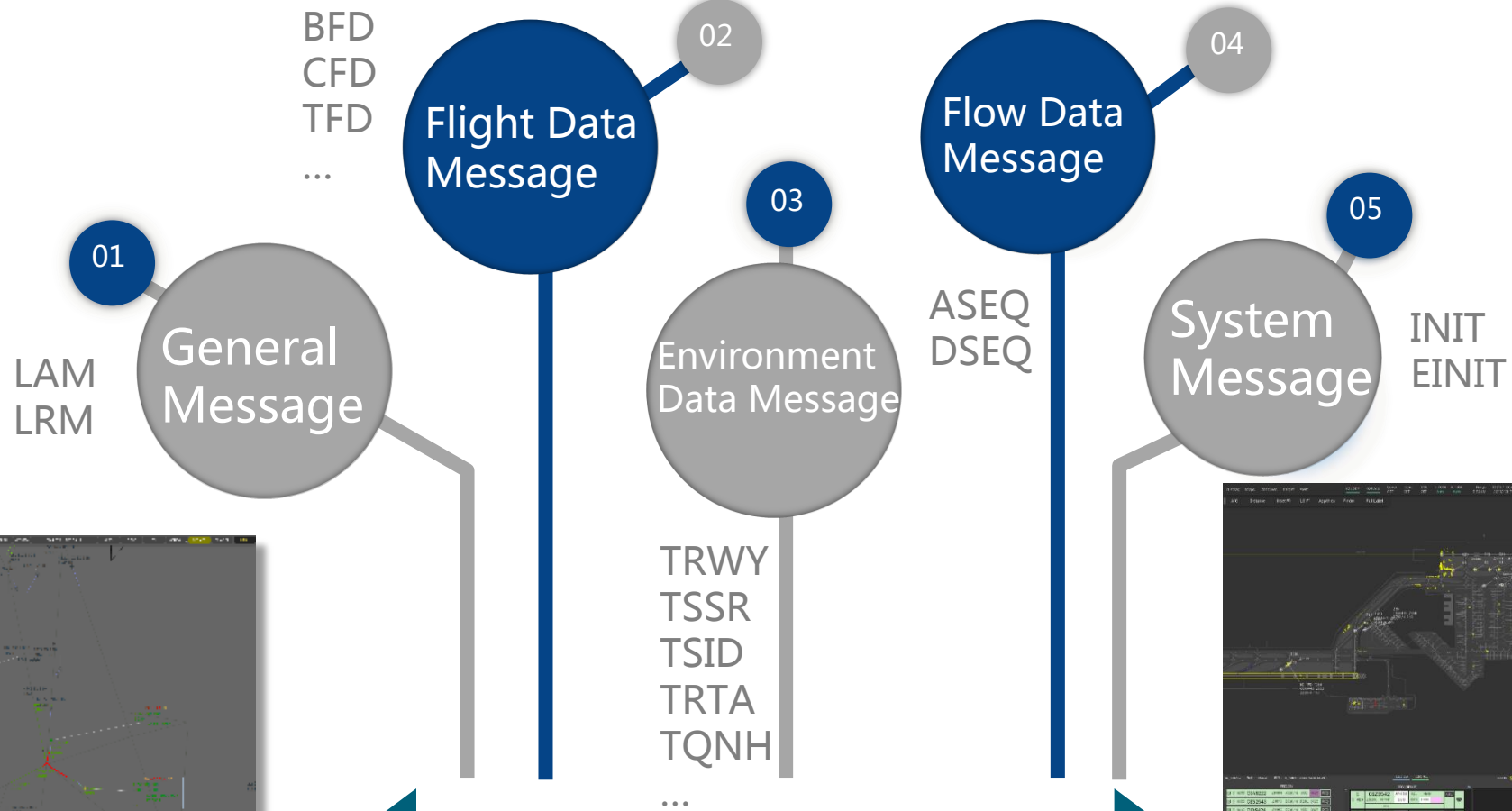
Flight Plan Consistency
Environment Data Consistency
Correlation Consistency



Jianyang TMA



Shuangliu TWR



TMA

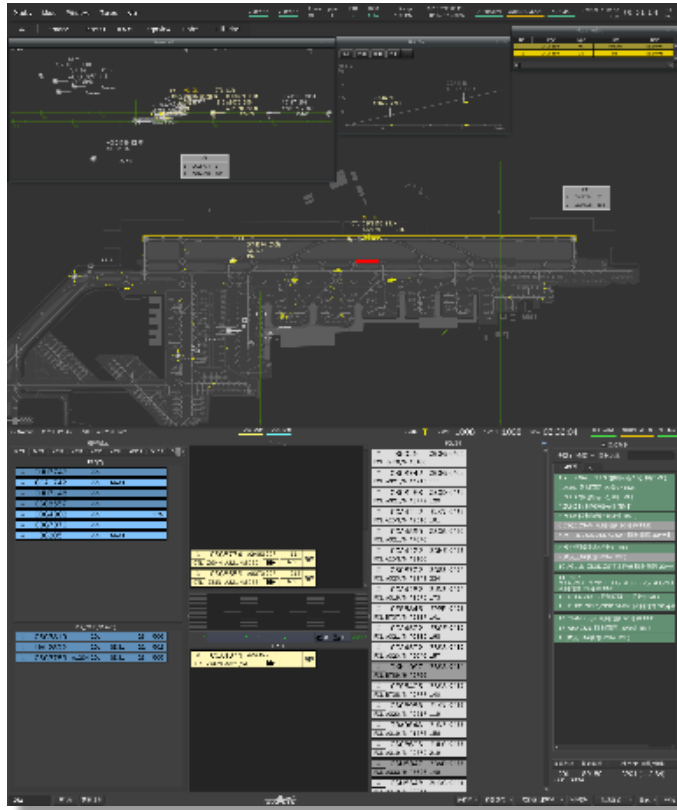


TWR



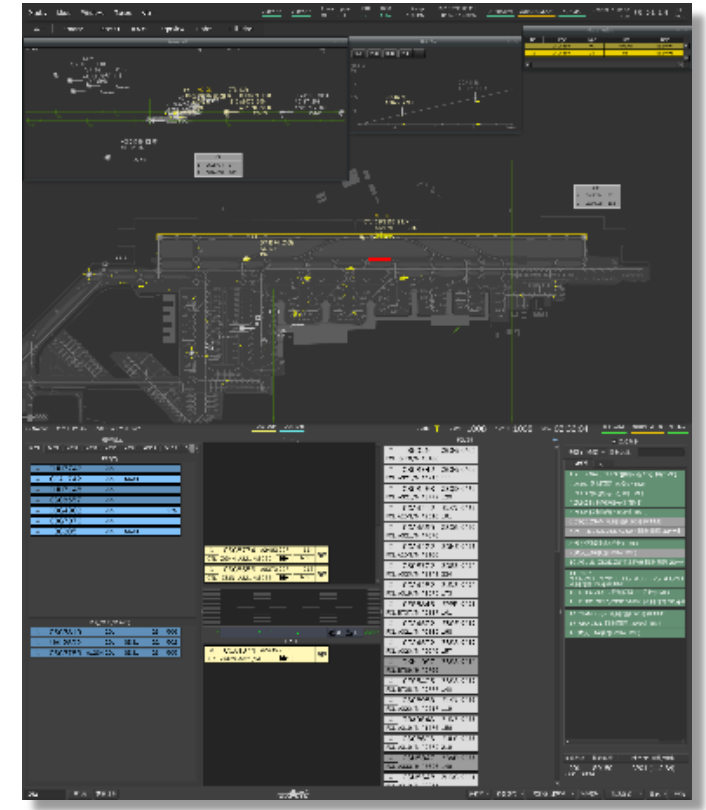


Backup of Integrated Tower System



Operation iWTR

- ✓ Display Consistency
- ✓ Operation Consistency
- ✓ Data Consistency



Backup iWTR



Thanks

