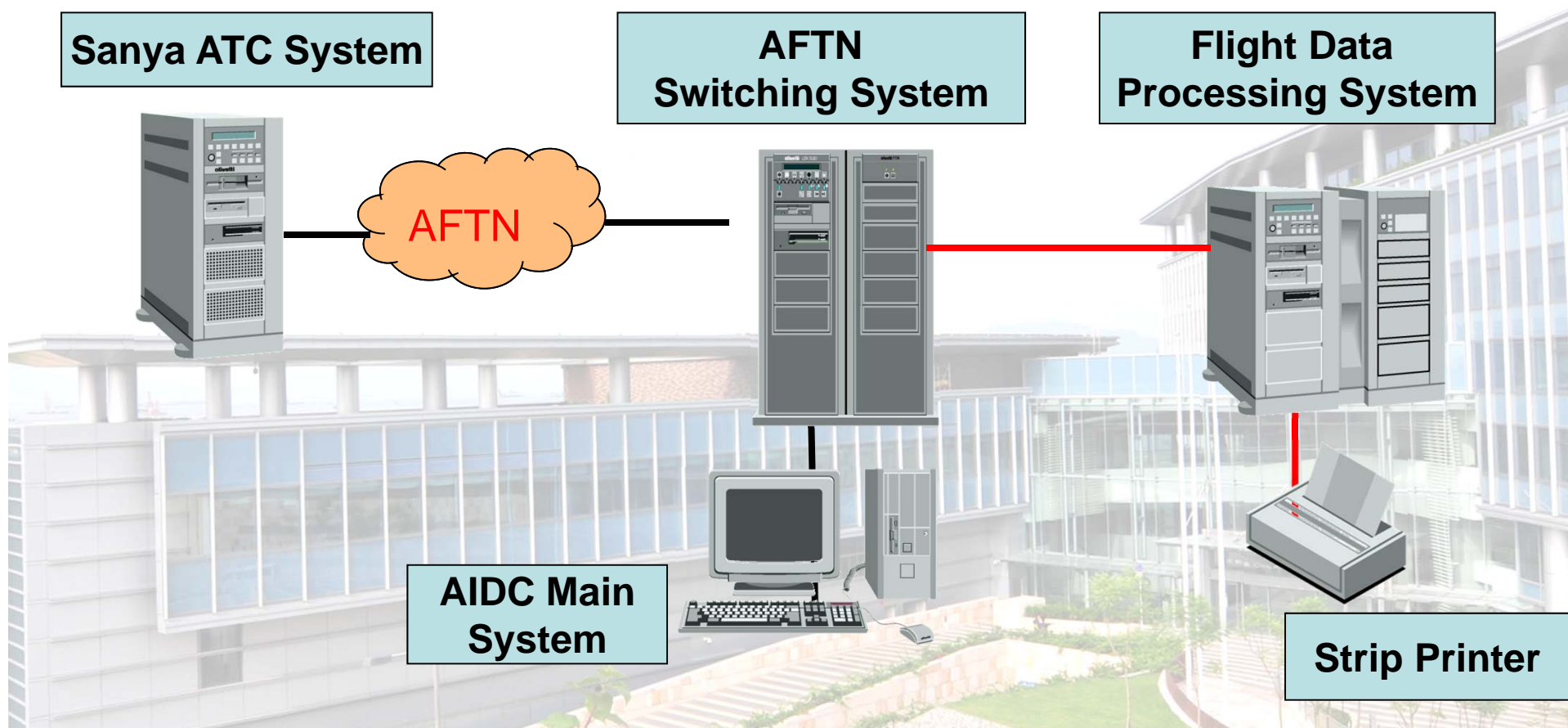# Realisation of Increased Operational Efficiency and Capacity via ATS Interfacility Data Communication (AIDC)

Hong Kong, China

ATM/AIS/SAR/SG/22 – WP32
25 – 29 June 2012

AIDC Operation
based on a Standalone System
(Since February 2007)

Sanya ATC System

AFTN Switching System

Flight Data Processing System

AFTN

AIDC Main System

Strip Printer
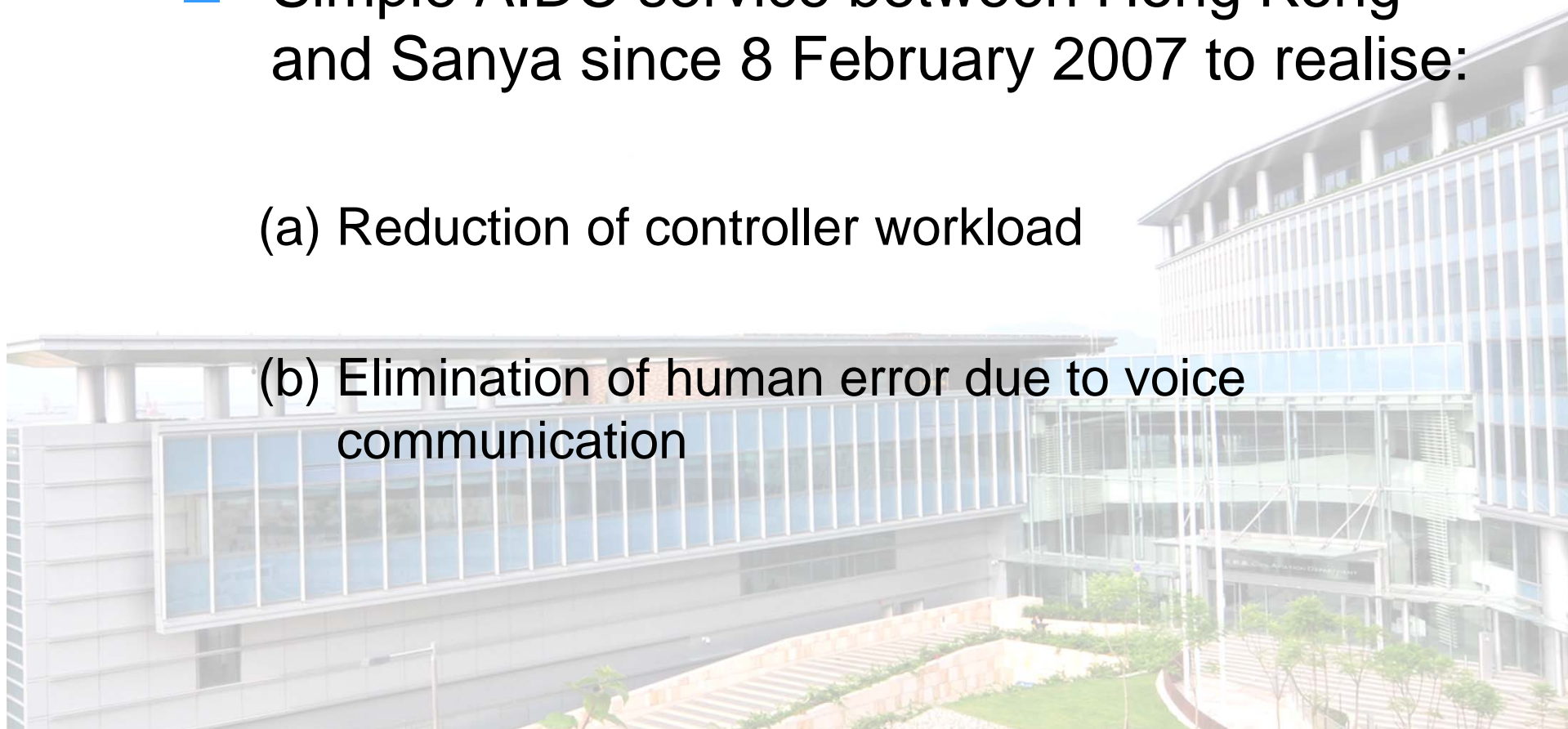
Existing Standalone AIDC Terminal

Achievement and On-going Plans

- Sanya ACC

  - Simple AIDC service between Hong Kong and Sanya since 8 February 2007 to realise:

    (a) Reduction of controller workload

    (b) Elimination of human error due to voice communication

Achievement and On-going Plans

- Guangzhou ACC
  - AIDC technical tests covering 13 core AIDC messages were conducted
  - Advanced features in APAC ICD Version 3.0, like Mach Number Technique, Block Levels and Offset were not supported
  - Because of short distance of flight transfer taking off from Guangzhou airport, higher degree of automation in the system is required

Achievement and On-going Plans

- ## Taibei ACC
  - Cyclic Redundancy Check (CRC) algorithm mismatch
  - Unsuccessful LAM and LRM message processing due to differences in format
  - Technical tests to be resumed in July 2012

- ## Zhangjiang ACC
  - Technical tests on 8 AIDC core messages had been completed in April 2012
  - Coordination for operational trial in progress

Modernization of ATM System of HKCAD

- Build a new ATCC

- Replace all the ATM Systems

- The new Air Traffic Management System (ATMS) will be equipped with

  - enhanced data transmission, processing and display capability
  - enhanced safety net
  - support multiple surveillance sensors inputs
  - integrated AIDC functions, etc.

New CAD Headquarters

ATCC Building
- Air Traffic Control Centre
- Aeronautical Network Centre
- Aeronautical Information Management Centre

Office and Training Building
- Control Tower Simulator
- ATM Simulator
- CAD Office and Training Facilities

Facilities Building
- Accident Investigation Centre
- Maintenance Service Provider Office

- **Location: Southeastern part of the Hong Kong Airport Island**
- **Coverage: about 29k m²**

New CAD Headquarters Building (Outlook)

Entrance to Atrium

New ATC Centre under Construction

New ATM Simulator being Built

ATMS with Integrated AIDC Function

- The standalone AIDC system could not achieve high degree of automation for handoff of aircraft on situation screen

- Higher operational efficiency could be realised in an integrated system with higher automation in transfer of control of aircraft with neighbouring ACCs

- The system could simultaneously support Version 3.0 and lower versions

- CRC type and use of optional data field in the message set remained to be resolved bilaterally

Conclusions & Recommendations

- Early technical/operational trials with neighboring ACC according to the ICAO APAC AIDC implementation plan

- When designing new ATMS, allow simultaneous AIDC operations at different versions and setting of CRC protocol and message sets to complying with the AIDC ICD version 3 and the latest PAN Regional ICD for AIDC

- Higher degree of realisation of operational efficiency is anticipated when using a wider set of AIDC messages

- Hong Kong, China will fully support the ICAO ASBU BO-25 initiative