HungaroControl
Irányítű a repülésben

A repülőtéri irányítás jövője

A digitális torony

Gergely Csaba

TWR ATCO – 1990 –

TWR Részlegvezető 2000 – 2011

Repülőtéri Irányító Központvezető 2011 – 2017

Senior ATM Tanácsadó – 2017 -


ORIGINS

ORIGINS OF OUR JOURNEY

- Two parallel runways, and two aprons with more than 6 km between the farthest thresholds
- A-SMGCS – ability to control traffic without any visual information, based only on radar view
- Medium size airport: 125 000 movements in a year
- The tower building belongs to the airport, rented by HungaroControl with common responsibilities
- More than 40 years old concrete tower building, facing enormous maintenance costs
- Airport closing due to irregularities of the infrastructure in 2012 and 2015
- Complete reconstruction of the tower building is not expected in the close future
- Major refurbishment is forecasted to last for 6-8 months



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CONVENTIONAL TOWER

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Multiple viewpoints, but panoramic is dominant
Limited integration between system
Visualization is new, all other elements are duplicated
4 separate controller working positions
Flat, matrix videowall
New features: PTZ, labelling, video tracking etc…
FIRST-GEN DIGITAL TOWER
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NEXT-GEN DIGITAL
TOWER
HungaroControl

NEXT-GEN DIGITAL TOWER – FROM VISION TO REALITY



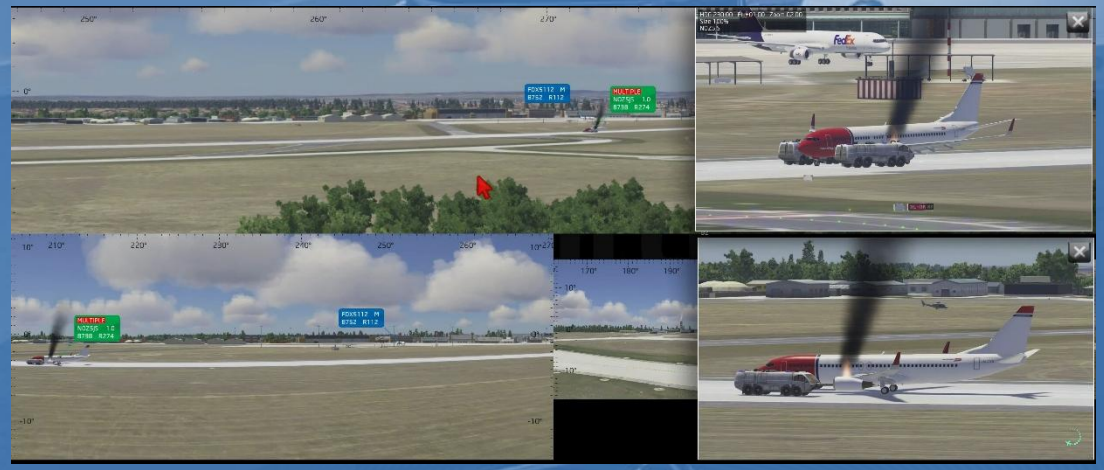
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Simulator and contingency centre

Independent facility for contingency situations

- Separated HW elements and network
- Same cameras





MicroNAV stimulator and simulator system

- For training purposes
- During trainings the ATCOs are using the same systems

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DIGITAL TWR 2.0 – MIR TWR

Modular

- Can support multiple airports
- Dynamic airport/role allocation
- Expandable

Integrated

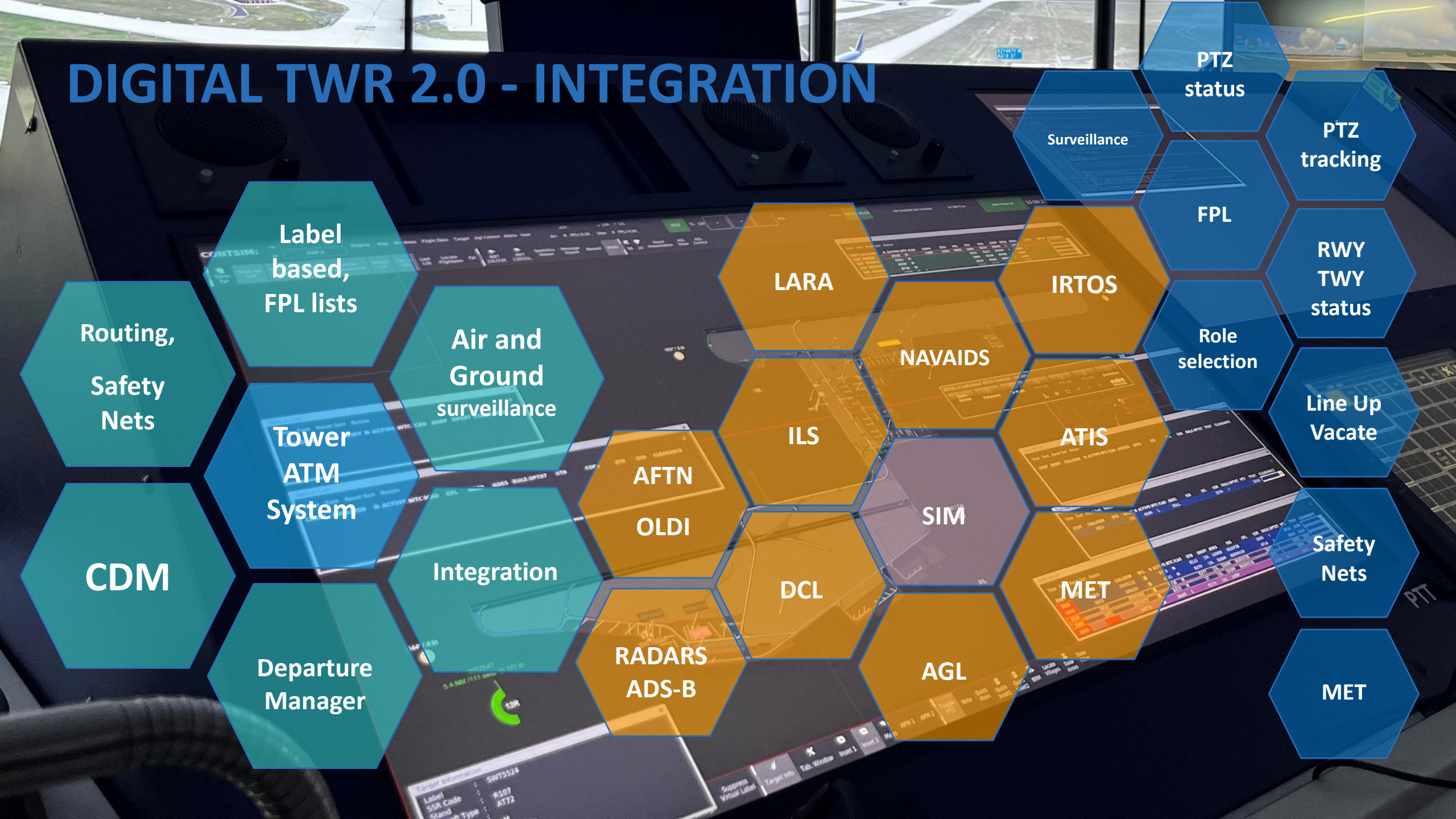
- Centralised data processing
- Common HMI
- Advanced supporting and safety functions

Remote

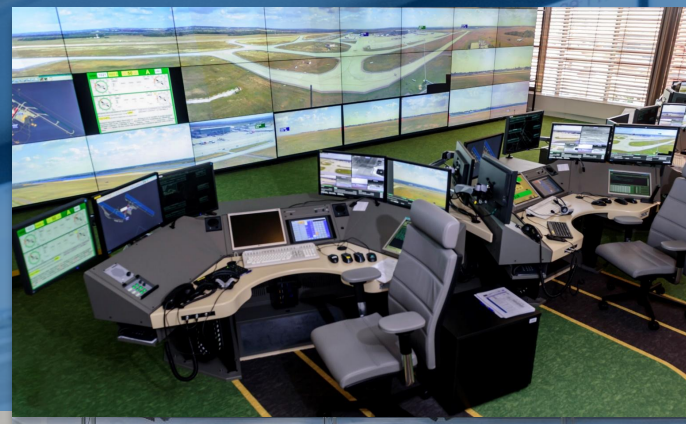
- Support of conventional and remote operation



DIGITAL TWR 2.0 - INTEGRATION



NEXT-GEN DIGITAL TOWER – INTEGRATION









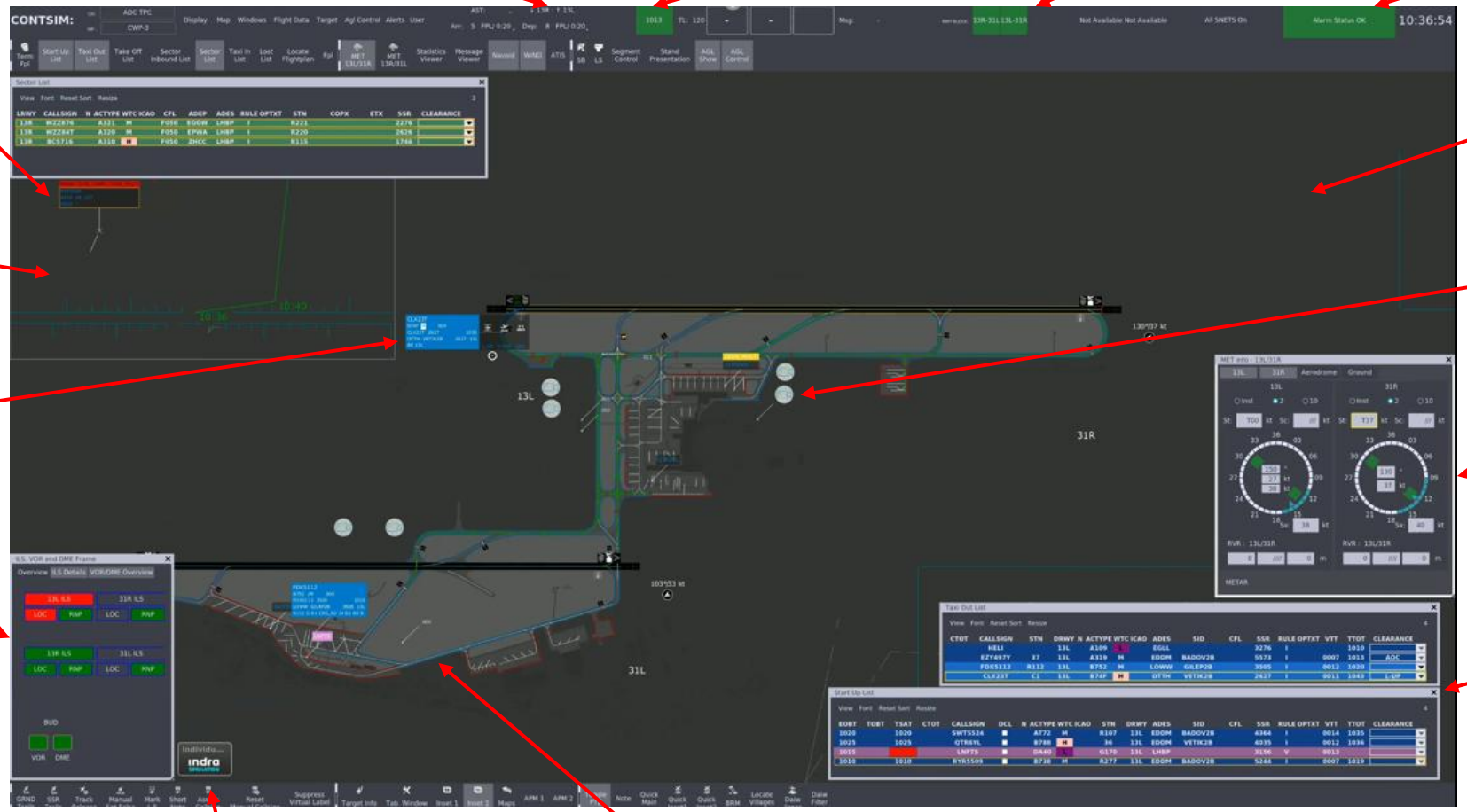
- **Highest level of system integration**
- **Simplified and compact CWPs**
- **Sophisticated built-in safety net**
- **Flexible use of visual surveillance**

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InNOVA A-SMGCS

InNOVA A-SMGCS



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Multimast camera system

NEXT-GEN DIGITAL TOWER –AIRPORT SITE







LOC-004

TWR

LOC-006

LOC-007

LOC-005

NEW LOC

LOC CARGO

Cameras

- 43 fixed 4K camera
- 2 SLG comounted PTZ
- 1 bispectral (thermal and visual PTZ)
- 7 full HD PTZ

7 camera locations

6 masts around the airport

Tower building as a central location

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DIGITAL TWR 2.0 – AIRPORT SITE



Camera locations

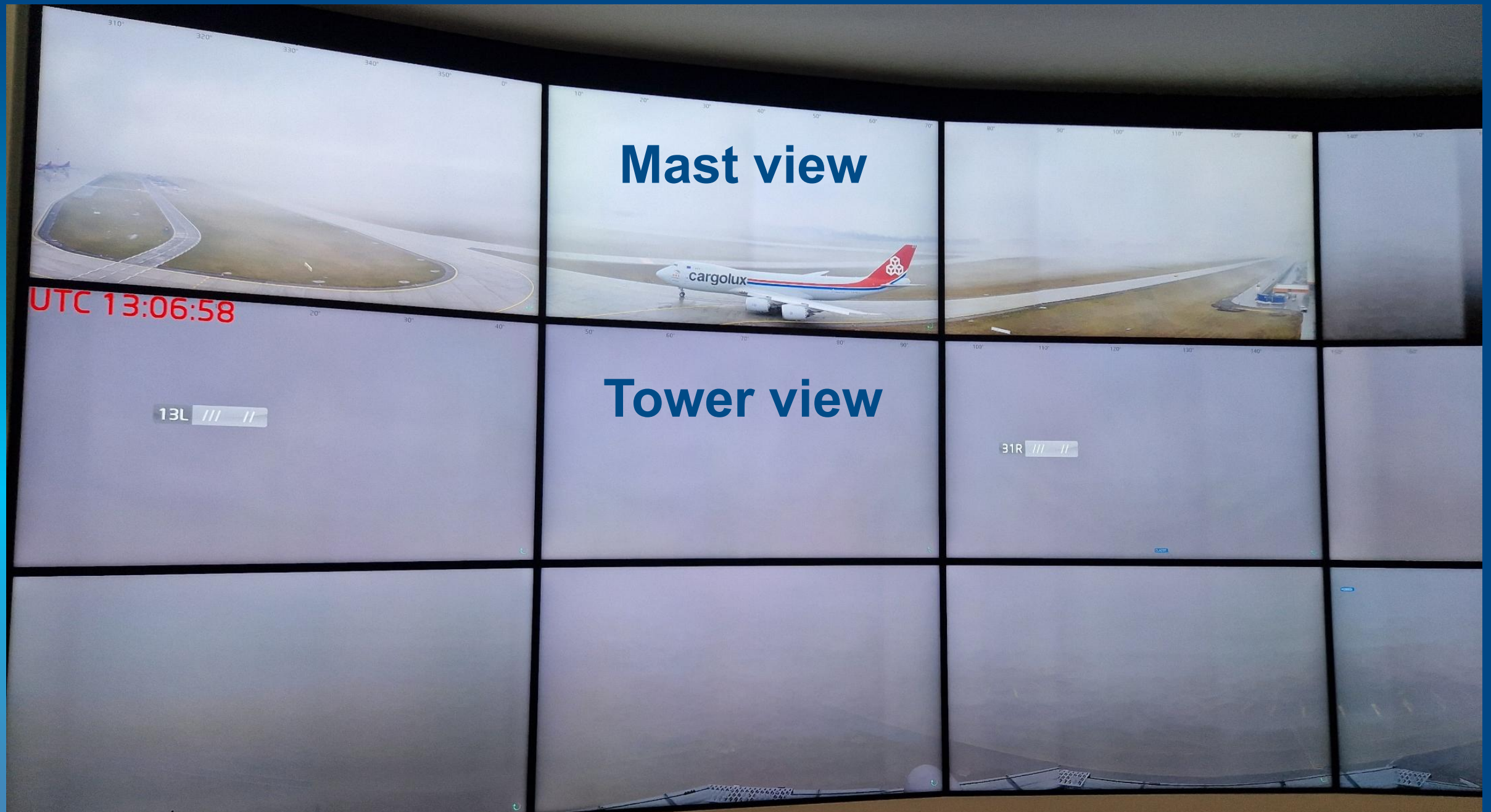
- LOC_001: 180°, Apron1
- LOC_002: 130°, 13R Final, TDZ
- LOC_004: 200°, RWY13R/31L
- LOC_005: 270°, Pier B, 31L TDZ
- **TWR: 360°, Central location**
- LOC_Cargo: 180°, RWY13L/31R
- LOC_012: 220°, 31R Final, TDZ



DIGITAL TWR 2.0 - SIMULATOR VS REALITY



DIGITAL TWR 2.0 – MULTIMAST VIEW



DIGITAL TWR 2.0 – MULTIMAST VIEW






ANY QUESTION?

THANK YOU FOR YOUR ATTENTION

