

# FREQUENTIS

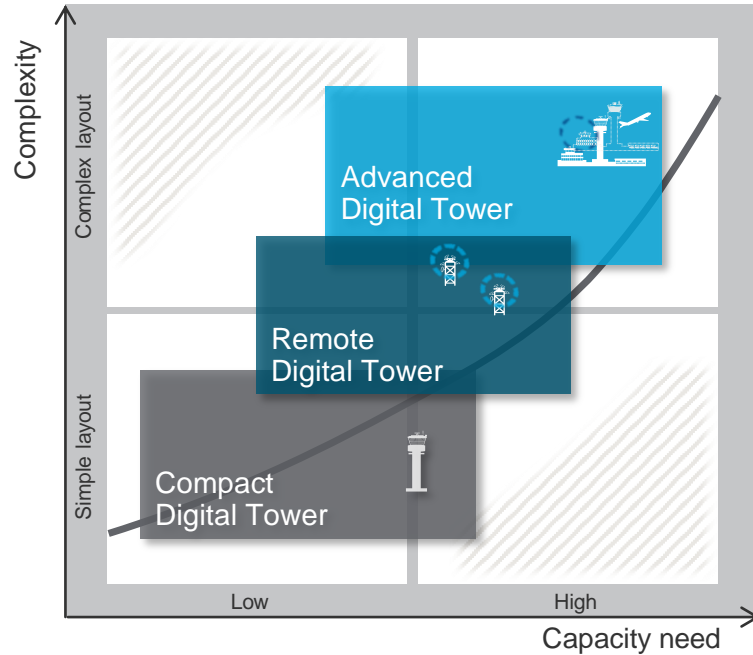
FOR A SAFER WORLD

## Compact Towers

3 DEC 2020

# Scalable digital towers solution concept for all capacity needs

Holistic approach addressing all digital tower use cases

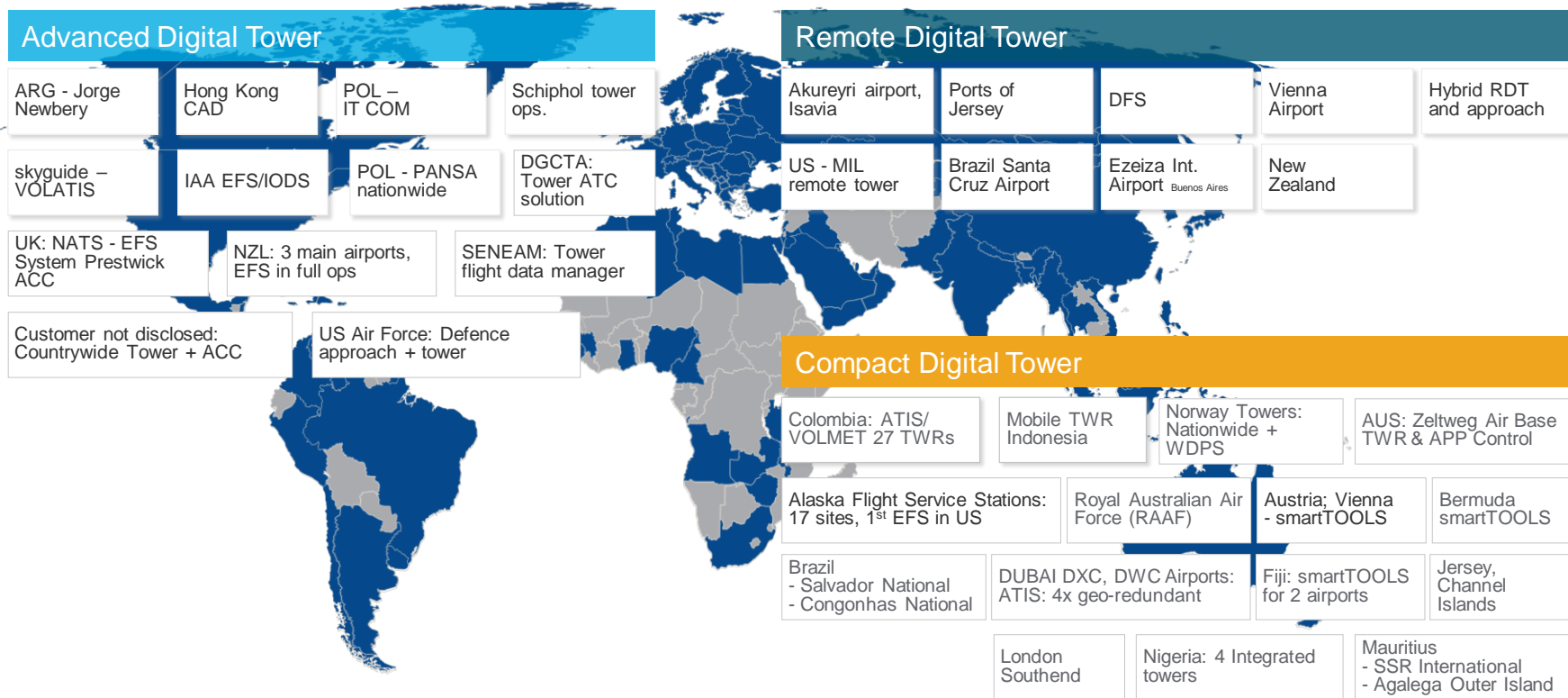


## Compact Digital Tower

All ATC essentials in a turn-key solution

- Reduced complexity - standardisation allowing cost-efficiency and faster delivery
- Common HW platform – lower maintenance efforts
- ICAO compliance for increase safety
- Small footprint
- Modular and expandable
- Off-the-shelf

# Selected references – based on the most flexible systems in the market



# PANSA – nationwide smartTOOLS implementation

Need for harmonised ATC Information System and nationwide VOLMET and local ATIS

Meteorological display and NavAids control

ATIS/VOLMET Information Broadcast

Multi runway configuration and multi channel ATIS including D-ATIS (Datalink)

Integration of different AWOS vendors



8 sites

Warsaw and rollout projects at regional airports

60 CWP

in Warsaw for Tower and Approach

3 channels

Departure  
Arrival  
VOLMET

» “We are very satisfied with the deployed solutions and look forward to our further collaboration. This celebration marks our steady relationship and our trust in Frequentis.” – PANSA President to the 20+ years partnership with Frequentis

# Mobile Tower AirNav Indonesia

Cost-effective mobile tower solution for civil ATM market



## Turnkey - Cost effective

High-end Frequentis ATC equipment.  
Asian manufacturer for trailer and cabin

## Easy Hercules C-130 transport

Single flight transport with cabin folding mechanism

## Disaster recovery

Provides fast and modern ATC service at any landing strip

## Fast deployment

Fully operational within 2 hours

» Fast recovery in case of natural disasters is critical to ensure the transport infrastructure of Indonesia is kept in operation. By installing this ATC tower, not only do we give controllers a place to operate, but we establish communications with other air traffic organizations so we can coordinate planes taking off from everywhere.

smartTOOLS

# smartTOOLS – Integrated information and control system

All essential information for clear data presentation - integrated into one toolkit

## Integrated support information display

Visualization of meteorological data, Navigational AIDs system status & control, airfield lightning and message handling

## High performance (D-) ATIS/VOLMET

Single- or Multi-Runway handling for complex solutions incl. multiple channels for Arrival & Departure. Fully Data-Link Enabled (D-ATIS, D-VOLMET)

## Runway management

Control of lighting and RWY direction and presentation of RWY related MET data and NAV systems

## Tower cabin control

Integration of cabin control functions, such as lights, shades, access control incl. CCTV and other 3<sup>rd</sup> party applications

## Fully flexible HMI

- Role-based access rights
- Highlighting of essential information
- Quick and intuitive data input

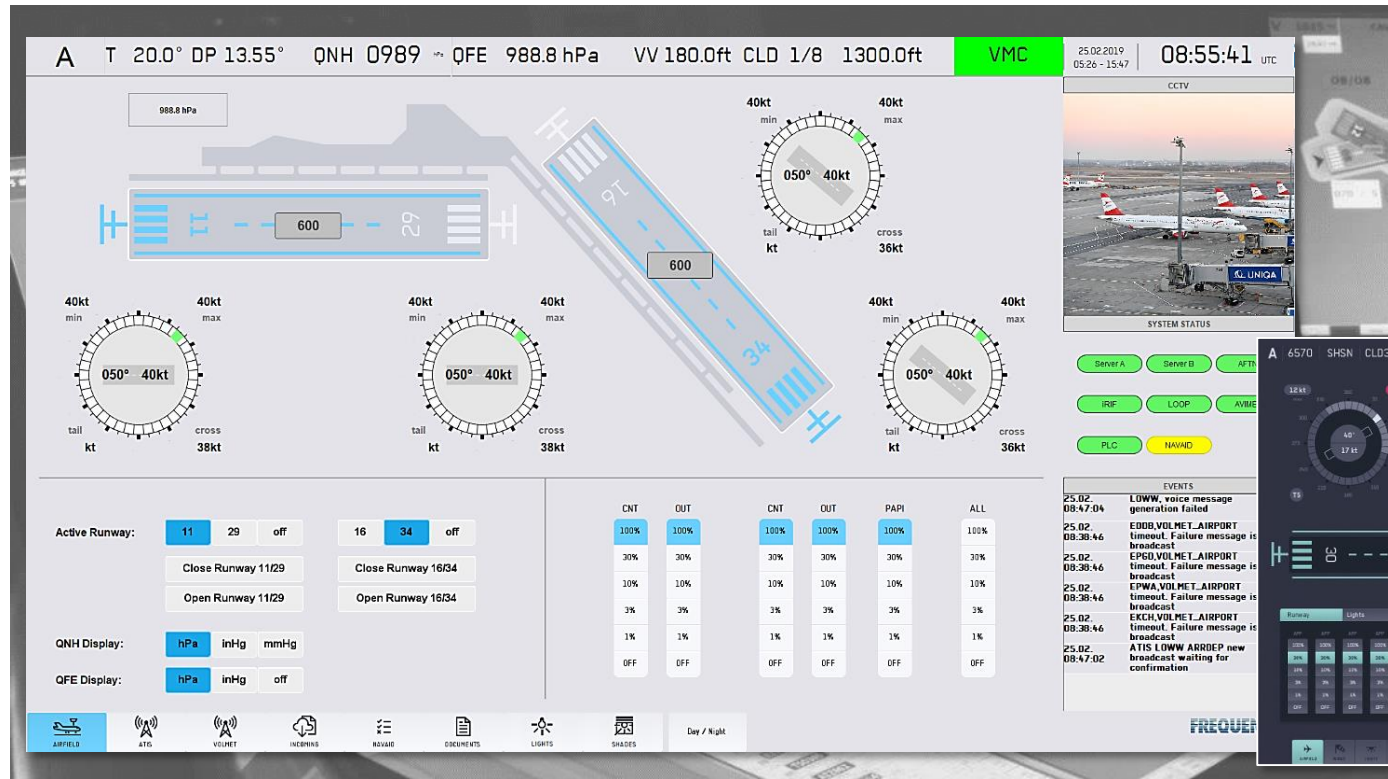
## One product – individual solutions

Highly adaptable – leading in agile customisation



# smartTOOLS – Integrated Information and control system

One product – customised solutions



- ▶ Completely customisable user-interface
- ▶ Multiple airfields data acquisition and display
- ▶ Integrated MET Display and runway lightning control



# High Performance (D-) ATIS/VOLMET

Single- or Multi-Runway handling for complex solutions incl. multiple channels for ARR/DEP

The main interface displays the following information:

- Station: **LOWW** (A) (Current) / (B) (Next)
- Weather: **IMC** (red box)
- Observation Time: **251205Z**
- Runway: **11** / Type of Approach: **ILS**
- Wind: **050** / **40 kt** / **Gusting To: 55 kt**
- Visibility: **600M**
- Present Weather: **MOD RA**
- Temperature: **20** / Dewpoint: **07** / QNH: **1010**
- Suppl MET Info: **FC IN APCH**
- English Freetext: (empty field)
- Broadcast Mode: **Manual** / Semi-Auto / Auto / Immediately / **Finish Previous** / Broadcast

The **ATIS Report** window shows:

- Buttons: **ATIS Report**, OPS Report, RWY Report, Alternate, Overview Voice, Overview Datalink
- Fields: CLEAR, CLEAR AND DRY, MET, etc.

The **VOLMET** window shows:

- Buttons: **METAR**, Alternate, Overview
- Table:

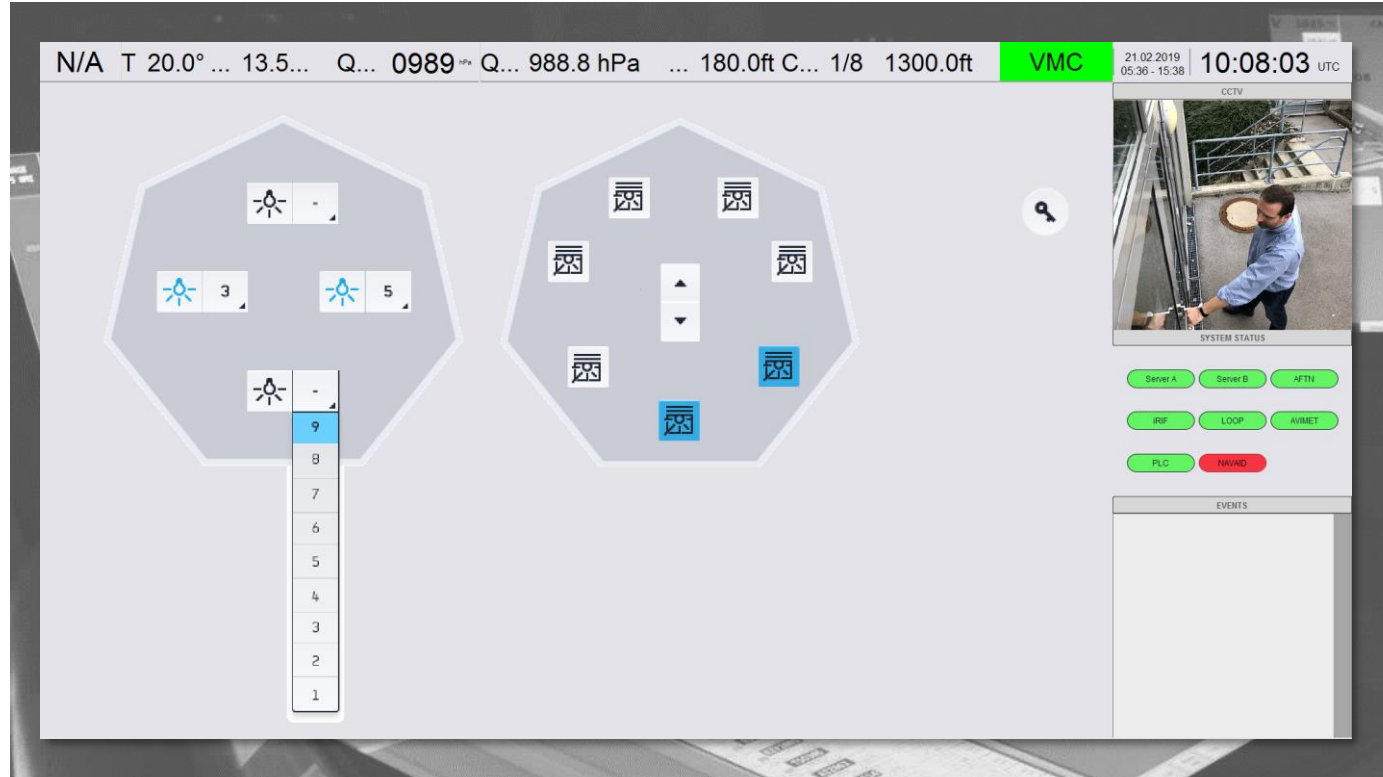
MSG	AP	TIME
1.	METAR	EPPO 1330
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Details: **METAR EPPO 211330Z 31012KT 9999 FEW008 BKN012 07/06 Q1014**

- ▶ Fully automatic generation of reports
- ▶ ATIS MET report for multiple runways
- ▶ Combined or separated arrival and departure broadcast
- ▶ Multiple language broadcast with one input page
- ▶ Advanced Text-To-Speech engine

# Tower Cabin Control

Integration of tower cabin control functions



Integration of cabin control functions like

- ▶ Interior Light
- ▶ Elect. Window shades
- ▶ Air condition control
- ▶ Access Control (Door opener, CCTV)
- ▶ Flood Lights
- ▶ Etc.

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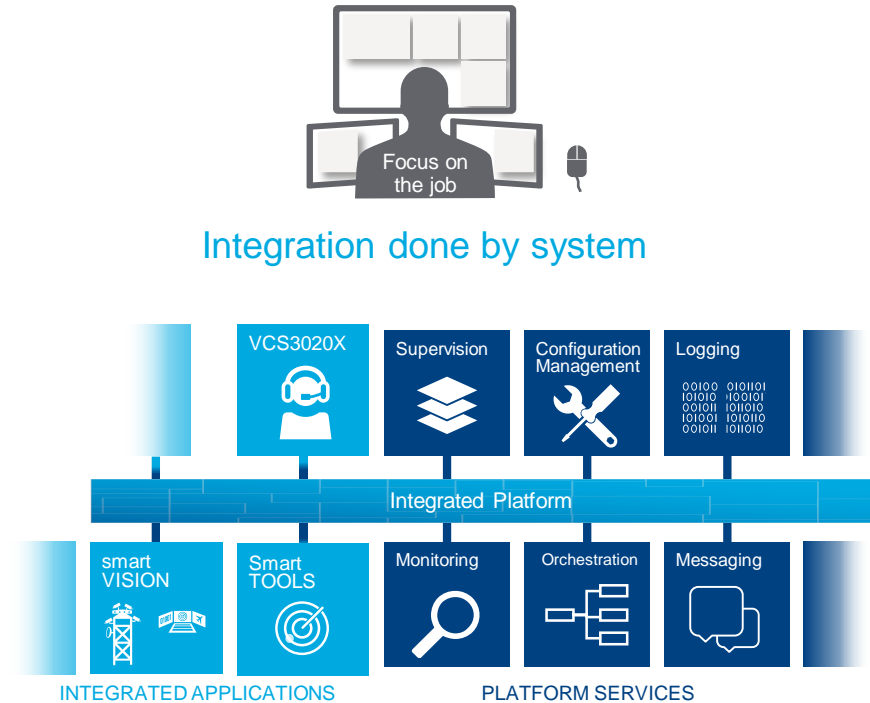
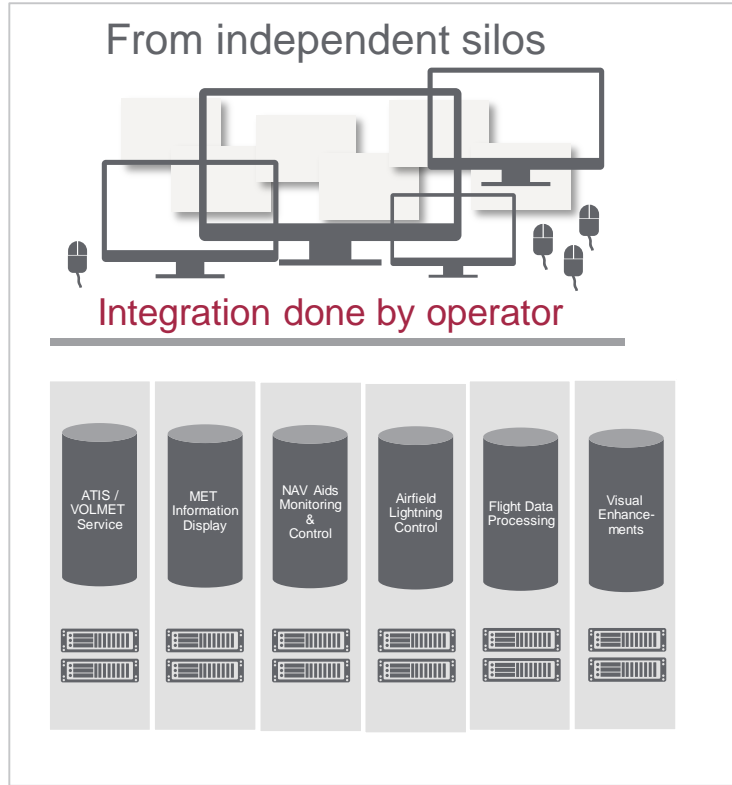
# MosaiX

“A Mosaic is a piece of art or image made from the assembling of small pieces ...”

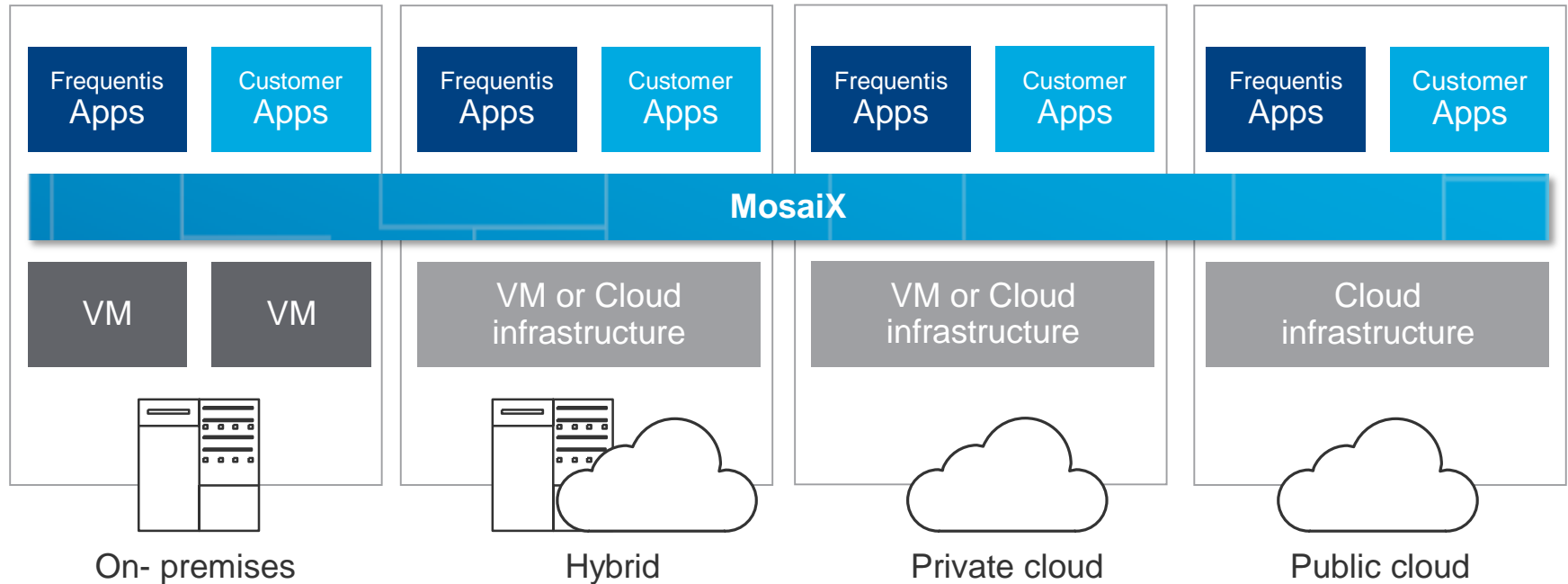
“Modern mosaics are made by professional artists, ...”  
and...

**FREQUENTIS**

# Dissolving data silos – cornerstone for the ATM evolution



# Offers Flexible deployment options



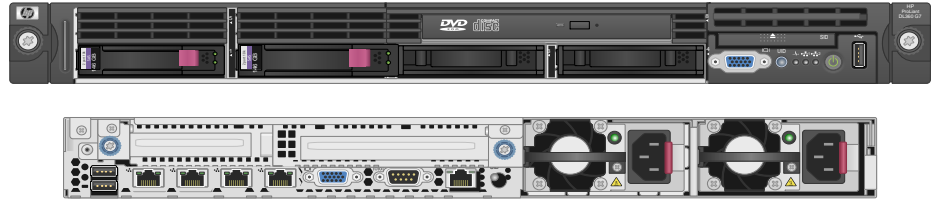
# System Hardware Components - CWP's

- Standard Clients  
(e.g. HP, Fujitsu, Dell, etc.)
- WACOM Touch with Stylus Pen
- KVM Extenders  
(optional –  
necessary if clients  
are installed in tech  
room racks)



# System Hardware Components - Servers

- Standard 19“ Rack-mount servers (e.g. HP Proliant, Fujitsu Primergy series)



- Redundant Core Servers:
  - Communication to the CWP's
  - Work in Hot-standby mode
- Storage Server:
  - Storage and management of rpm packages
  - Storage and management of screenshots
- Management Server:
  - Technical Monitoring of the system (e.g. HD and CPU status of each machine)
  - smartSupervisor (Traffic count reports)
- Interface Server:
  - Connectivity to external interfaces

# Integrated Compact Tower

All essentials for Air Traffic control

The screenshot displays the ATIS interface, organized into three main sections: Communication, Information & Control, and Flight processing.

**Communication:** Shows a list of frequencies and their status. Frequencies include APP 123.725, DEL 121.750, TWR 118.100, and EMG-TWR 121.500. Each frequency has a 'TX' (Transmit) or 'RX' (Receive) indicator.

**Information & Control:** Displays flight information and runway status. At the top, it shows 'A 6570 SHSN CLD300 T 0° DP 4° 1010.2'. Below this, there are two circular gauges showing '360' and '21' with 'Peak: /26'. A central runway diagram shows '15', '5', and '33' with a '1000' marker. A table below shows runway lighting status for APP, RWY, RCL, and PAPI.

APP	RWY	RCL	PAPI
3%	100%	3%	100%
1%	30%	1%	30%
OFF	10%	OFF	10%

**Flight processing:** Shows the current date and time '09/11/10 05:44 - 17:08' and '14:55:33'. It lists aircraft status under 'AIRPORT', 'ACTIVE AIR', and 'ACTIVE GROUND' sections. Aircraft listed include EWG64B, AUA85RH, TOM96E, TOM84M, EIN4326, EXS933, TRA33X, CFE72T, and SAS2916.

At the bottom, there is a navigation bar with icons for FORWARD, HOLD, MORE, AIRFIELD, WIND, WEATHER, ATIS, LIGHTS, DOORS, SHADES, NAVAIDS, and DOCUMENTS.

- ▶ Comprehensive package built as turnkey solution
- ▶ Available Off-The-Shelf
- ▶ Compact Platform, modular and expandable
- ▶ Integrated package, using our common platform (MosaiX)
- ▶ Comprehensive data presentation via the integrated controller working positions (iCWP)

# Orchestrating the skies

Compact Towers by Frequentis

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XTM growth



Alliances



Technology



AI



Sustainability



Close



World