

**AIRPORTS
OPTIMIZED BY**

CROWDVISION

Video-Based Pedestrian Analytics



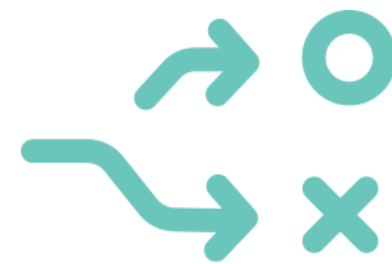
CROWD VISION

Utilizes computer vision technology & advanced data analytics to accurately show where, when and how people movement and waiting occurs



Understand

Queues, occupancy, flows, density, asset utilization, dwell times



Plan

Predict and prepare for demand appropriately



Manage

Increased throughput & maximize utilization in real time

So What? Who Cares?

- Complete population measurement (100% of passengers in view), not sampling and no population bias based on devices
- Combined head/shoulder recognition and learning algorithms for very high accuracy detection of people using COTS sensors
- Unique spatial occupancy detector for understanding asset utilization
- Rooted in crowd analysis then extended into flow and process measures / highly accurate with dense crowding
- No use of private device or personal information
- Advanced algorithm capabilities and space reconfiguration



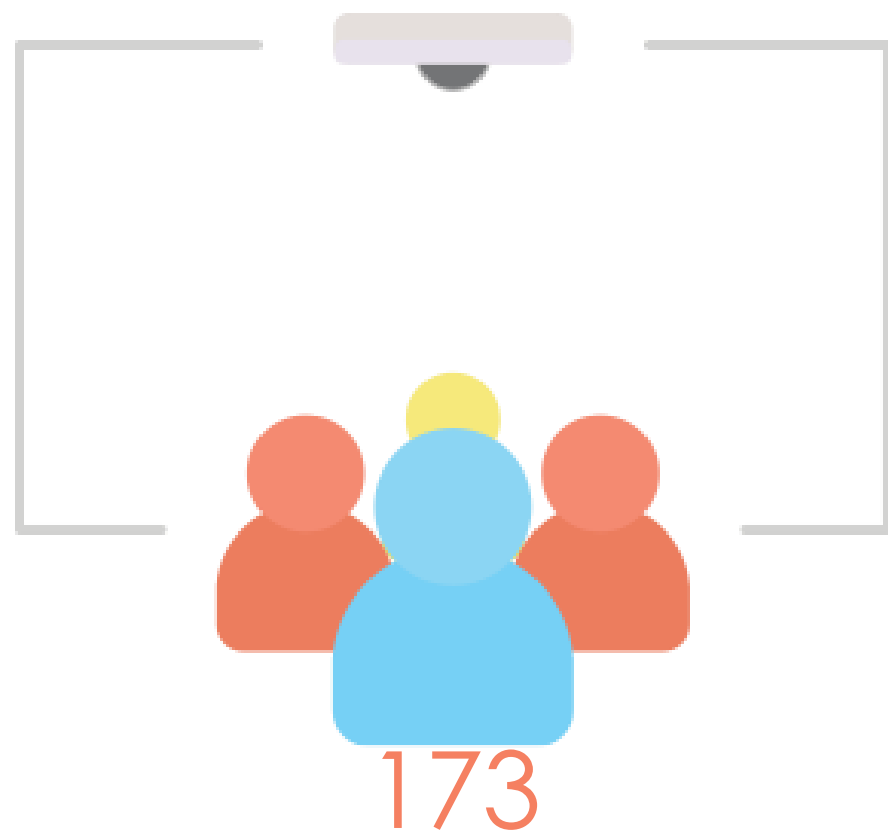
Departures

HOW IT WORKS

How It Works

Cameras

Take live video streams



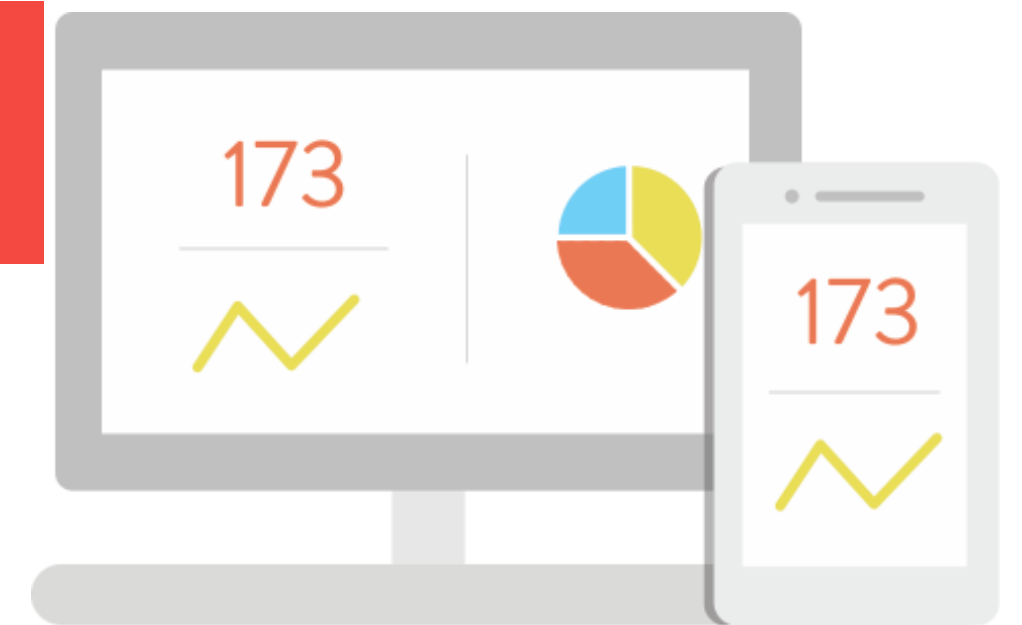
CrowdVision Proprietary Software

Processes raw data into usable management data and apply advanced algorithms



Data Analytic Outputs

1. Real-time Dashboards and alerts
2. Searchable Database
3. Historic Reports



Cameras are typically single use dedicated components for the CrowdVision System

Fisheye and wide angle cameras are used to maximize coverage and minimize hardware needs

Anonymous transactional data is used and retained for operations and reporting

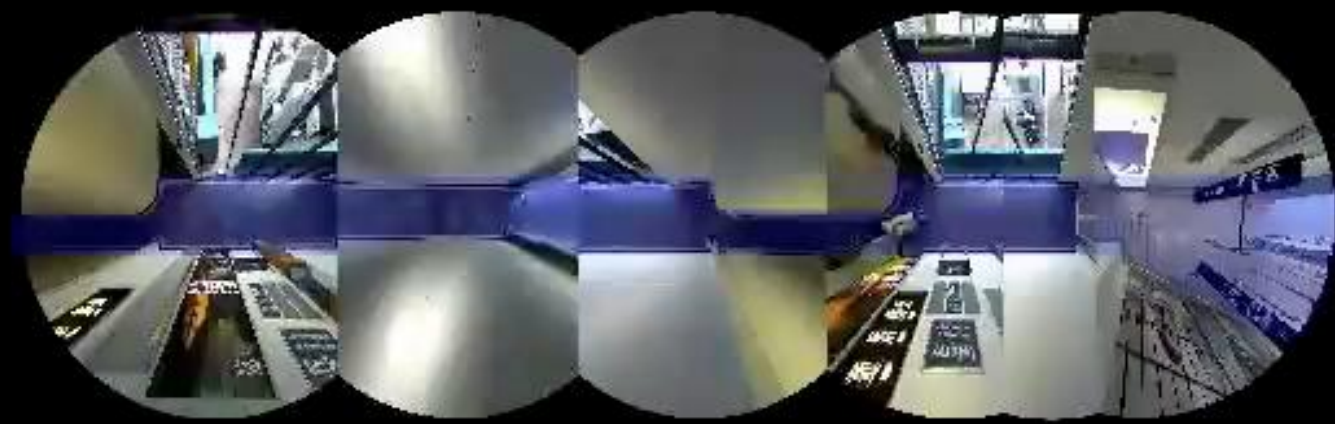
Data sharing managed through secure access or APIs per customer requirements

**HEAD DETECTIONS AND FLOW
VECTORS USED TO DERIVE
COUNTS, FLOWS, DENSITIES
AND JOURNEY TIMES**

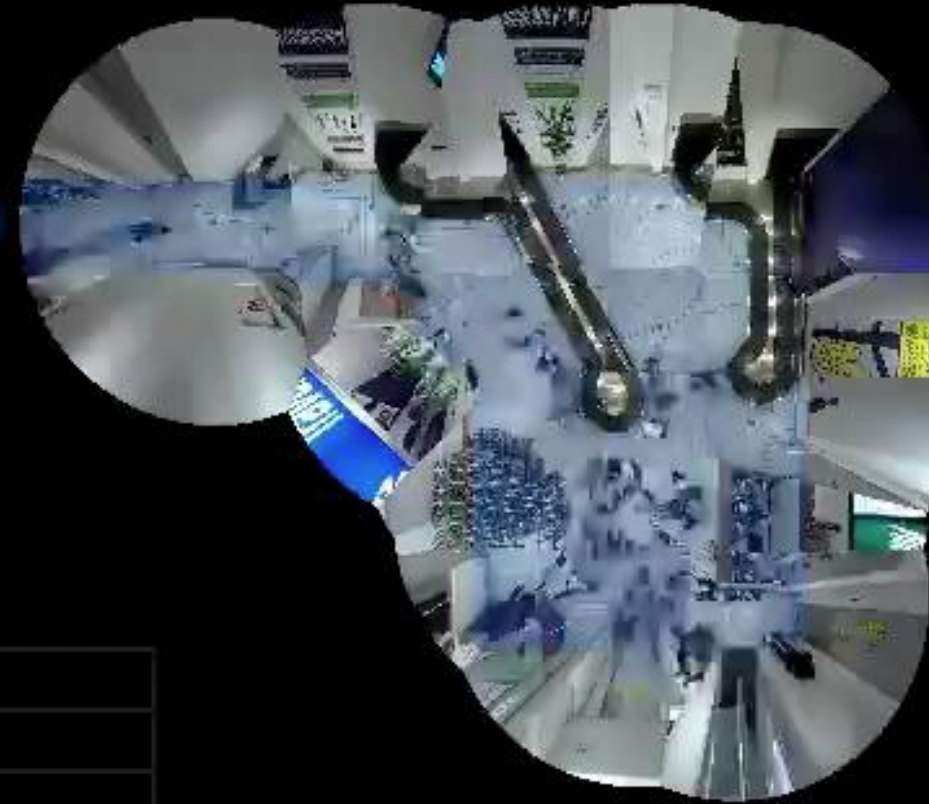
SJU-CV104
2015/11/18 09:45:12



MULTIPLE CAMERAS ARE STITCHED TO PROVIDE ONE INTEGRATED VIEW



UKBA
Queue 0



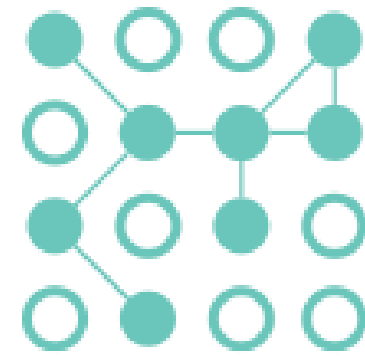
**SPATIAL OCCUPANCY
DETECTION USED TO DERIVE
UTILISATION RATES AND
PROCESS TIMES**



Why CrowdVision is Better?



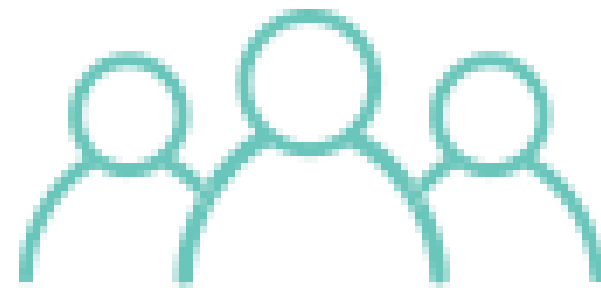
Hardware Agnostic
Solutions



Granular Data with
Flexible Applications



Up to 100% Coverage with
No Ability to “Opt Out”



Anonymous
& Privacy Compliant



Live, real-time
information flow



> 95% Accurate
validated using video images

Real Time Dashboards

HOME - AIRPORT VIEW

AIRPORT TURN-UP PROFILE
 NORMAL | TODAY
 PASSENGERS / 15 MIN vs TIME

AIRPORT DEPARTING PASSENGERS
 NORMAL | TODAY
 PASSENGERS / 15 MIN vs TIME

AIRPORT TDC QUEUE SUMMARY

Terminal	Process	Count	Time
Terminal A	Pre-Check	4	01:47
Terminal A	General Boarding	1	00:09
Terminal B	Pre-Check	2	00:23
Terminal B	General Boarding	108	12:30

Map Data: Terminal B (55, 185, 105, 150), Terminal A (80, 112, 353)

© 2016 Crowdvision - Friday August 5th 2016 11:54:42

TERMINAL B - CENTRAL SCREENING

CENTRAL SCREENING DEPARTING PASSENGERS
 NORMAL | TODAY
 PASSENGERS / 15 MIN vs TIME

TDC QUEUE TIME

Process	Time
Pre-Check	00:23
General	12:30

SCREENING TIME
 Average: ---

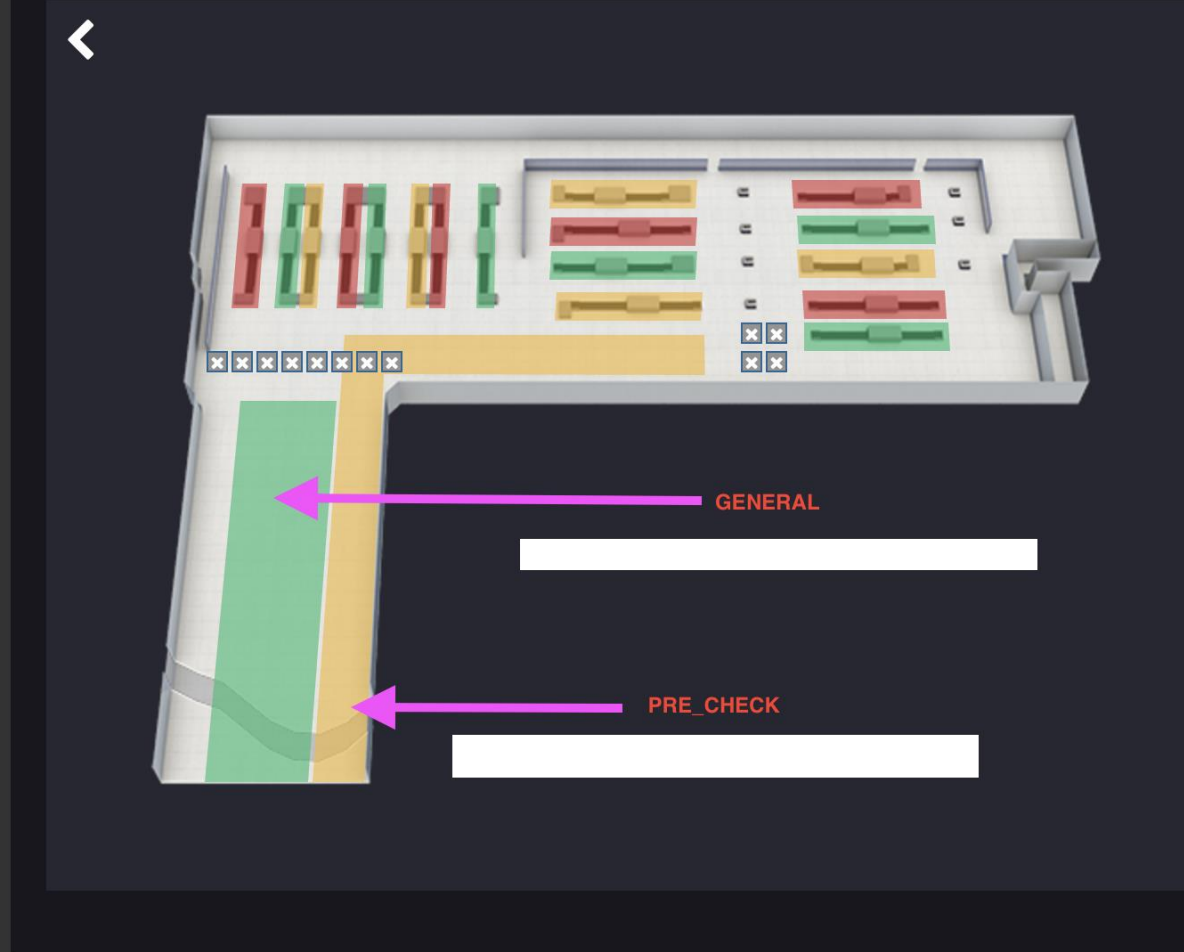
Map Data: Conv. Store 12 (5 min), USDA (10 min), USDA (24 min), Total Occupancy: 185

© 2016 Crowdvision - Friday August 5th 2016 11:54:56

Real Time Dashboards

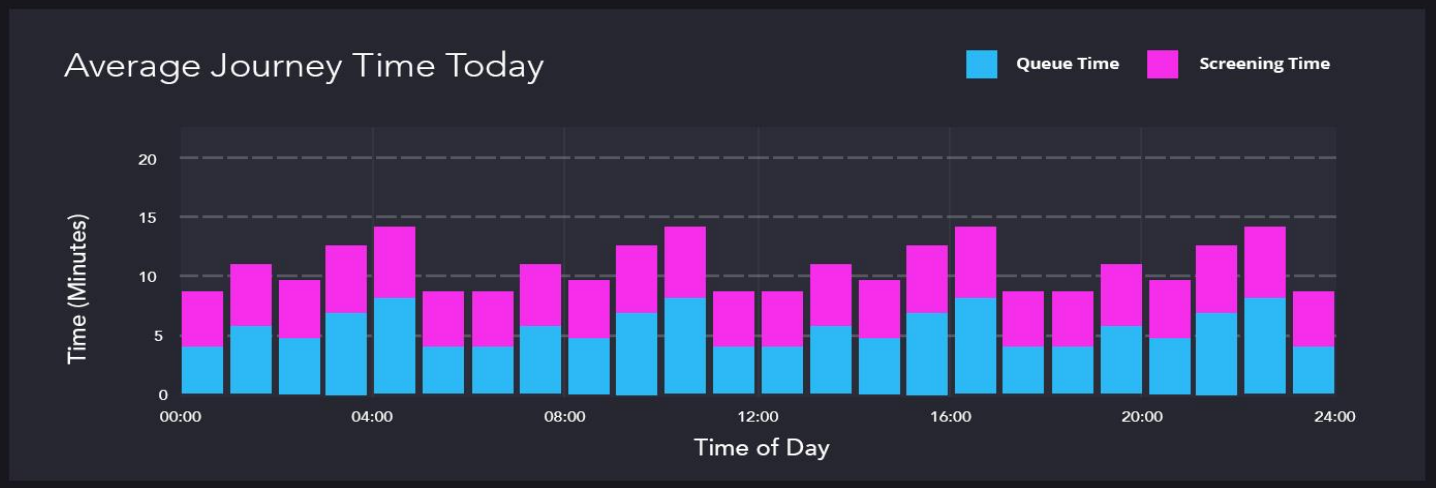
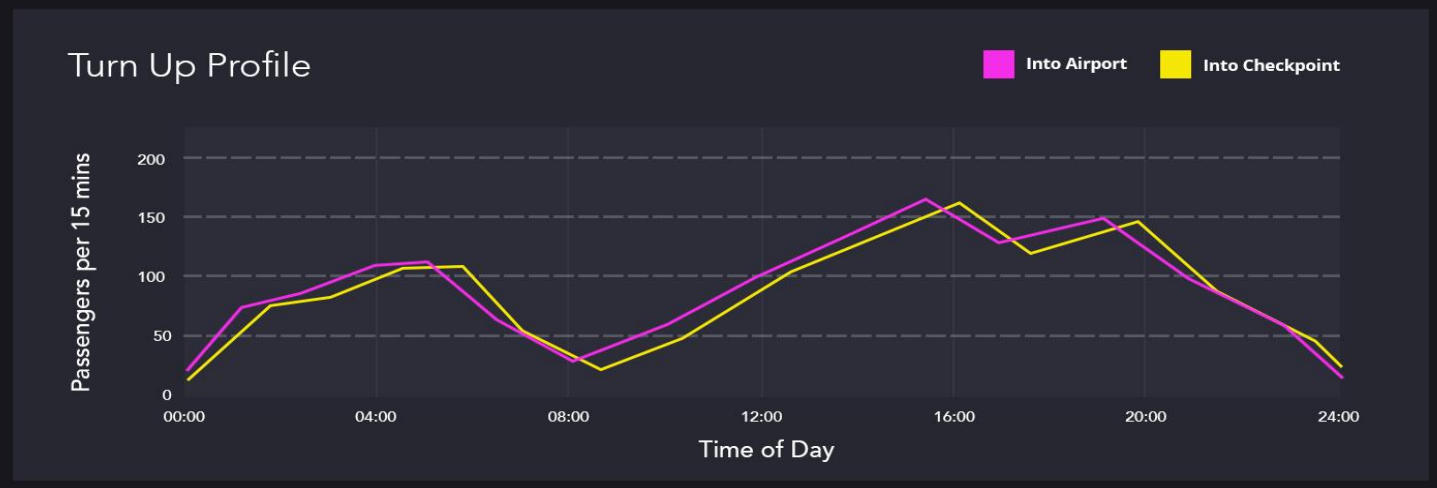
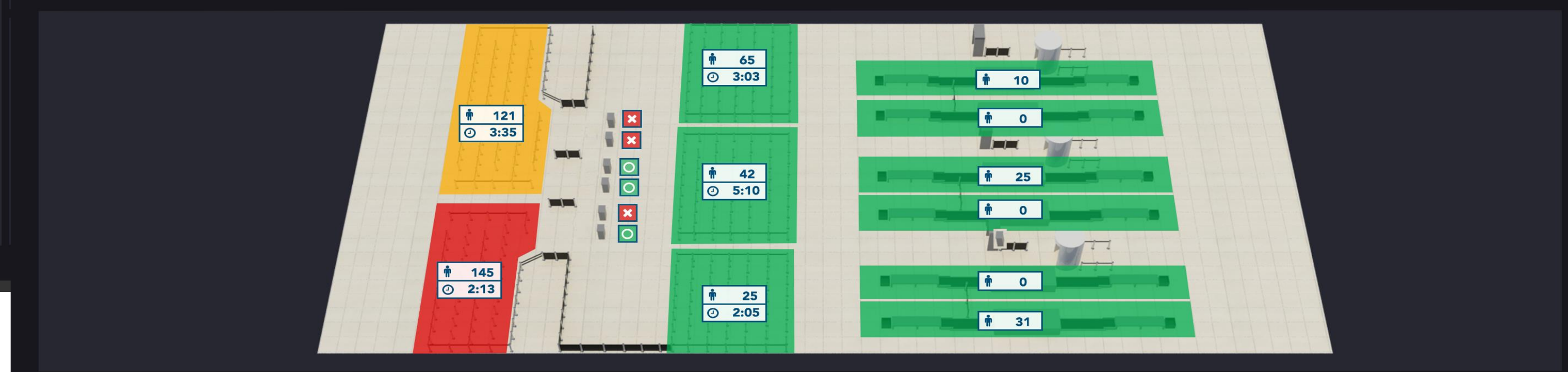
- TSA Security Checkpoint LAST UPDATE: Wednesday November 9th 2016 06:53:03

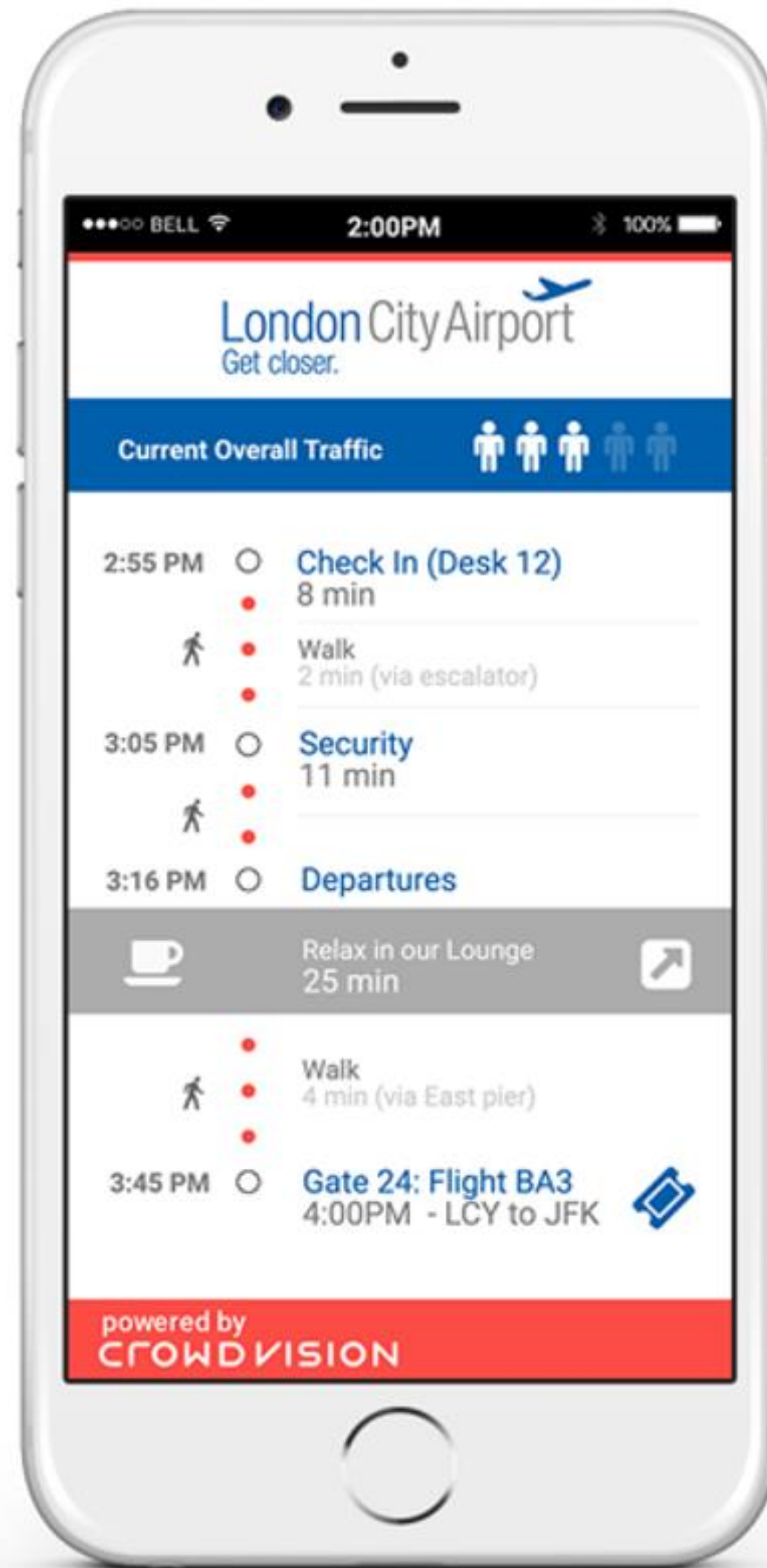
TDC WAIT TIME 03:21 <small>normal</small>	TDC PROCESSING TIME 03:22 <small>warning</small>	SCREENING TIME 00:00	SECURITY PROCESS TIME 00:00	PERCENTAGE FULL 0%	TOTAL OCCUPANCY 0
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Security Checkpoint LAST UPDATED: 17 JUNE 2016 - 11:32PM

TDC QUEUE TIME 05:48 <small>normal</small>	TDC PROCESSING TIME 11:32 <small>alert</small>	SCREENING QUEUE TIME 10:15 <small>warning</small>	SCREENING TIME 06:02 <small>warning</small>	TOTAL JOURNEY TIME 33:37 <small>normal</small>	PERCENTAGE FULL 43% <small>normal</small>	TOTAL OCCUPANCY 464 <small>warning</small>
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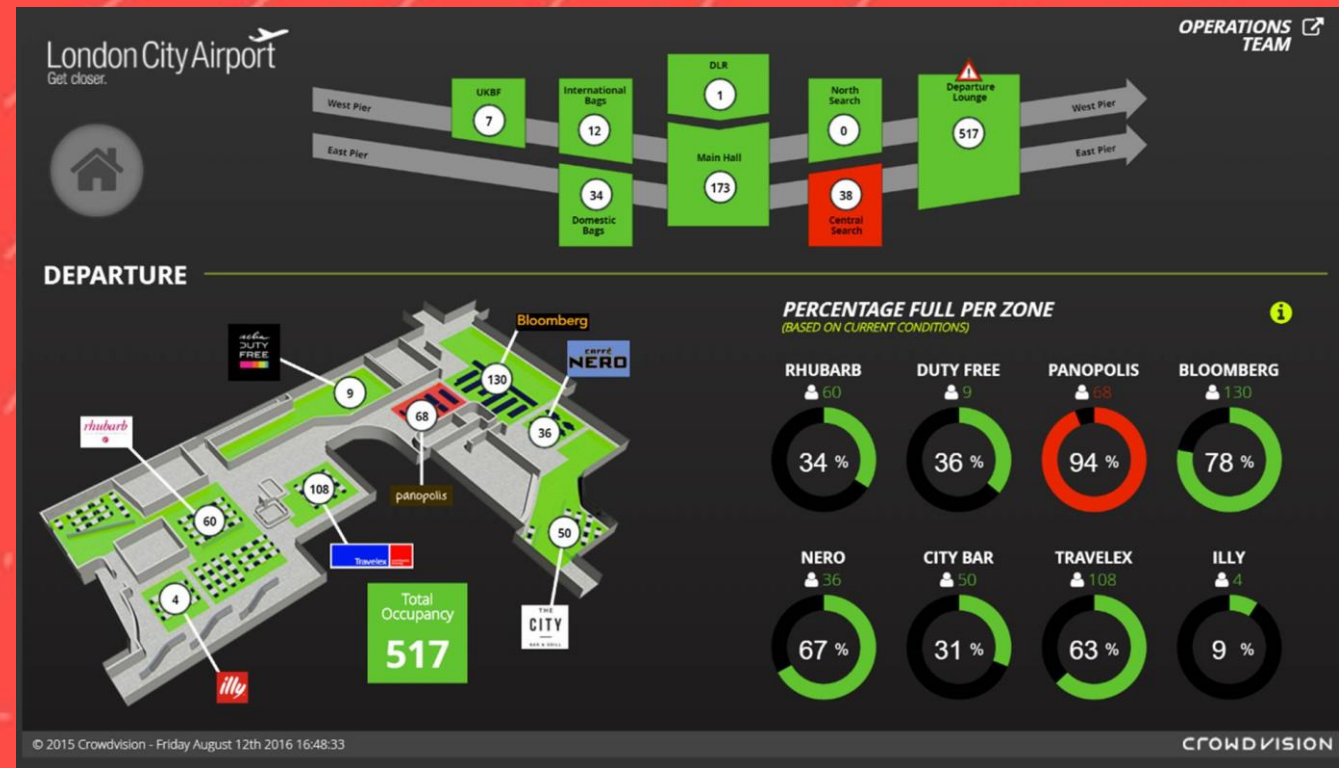
MOBILE APP INTEGRATION

Early visibility of airport
passenger experience

SOLUTIONS PLATFORM



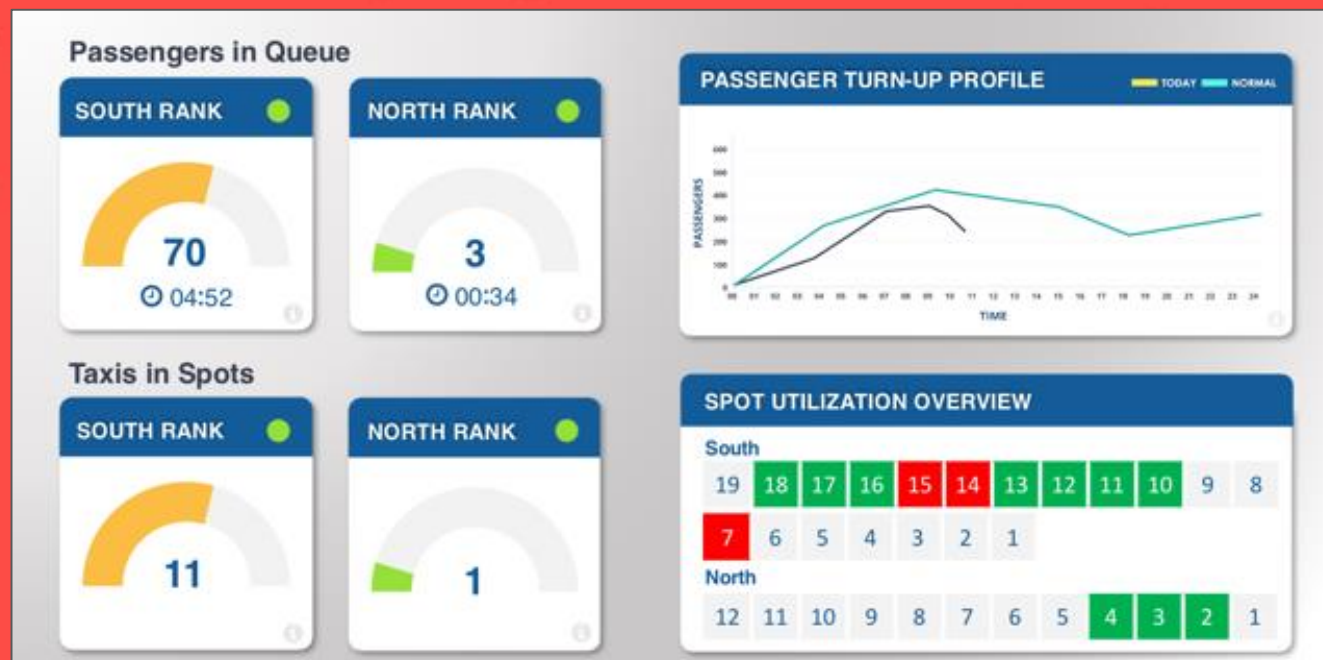
Checkpoints (Check-in, TSA, FIS)



Full Terminal



Planning & Design



Transportation



Crisis Management

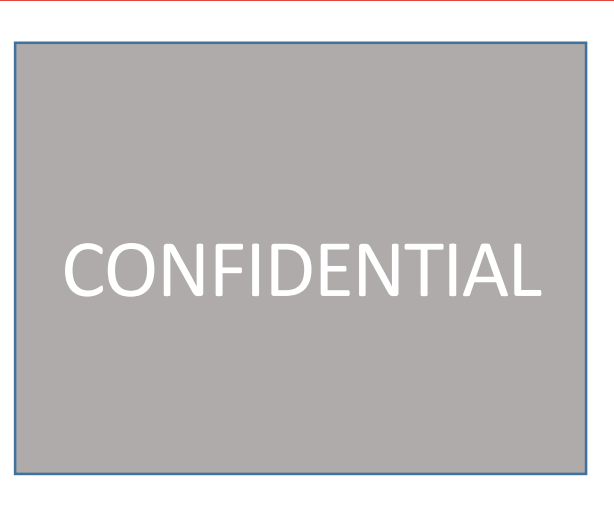


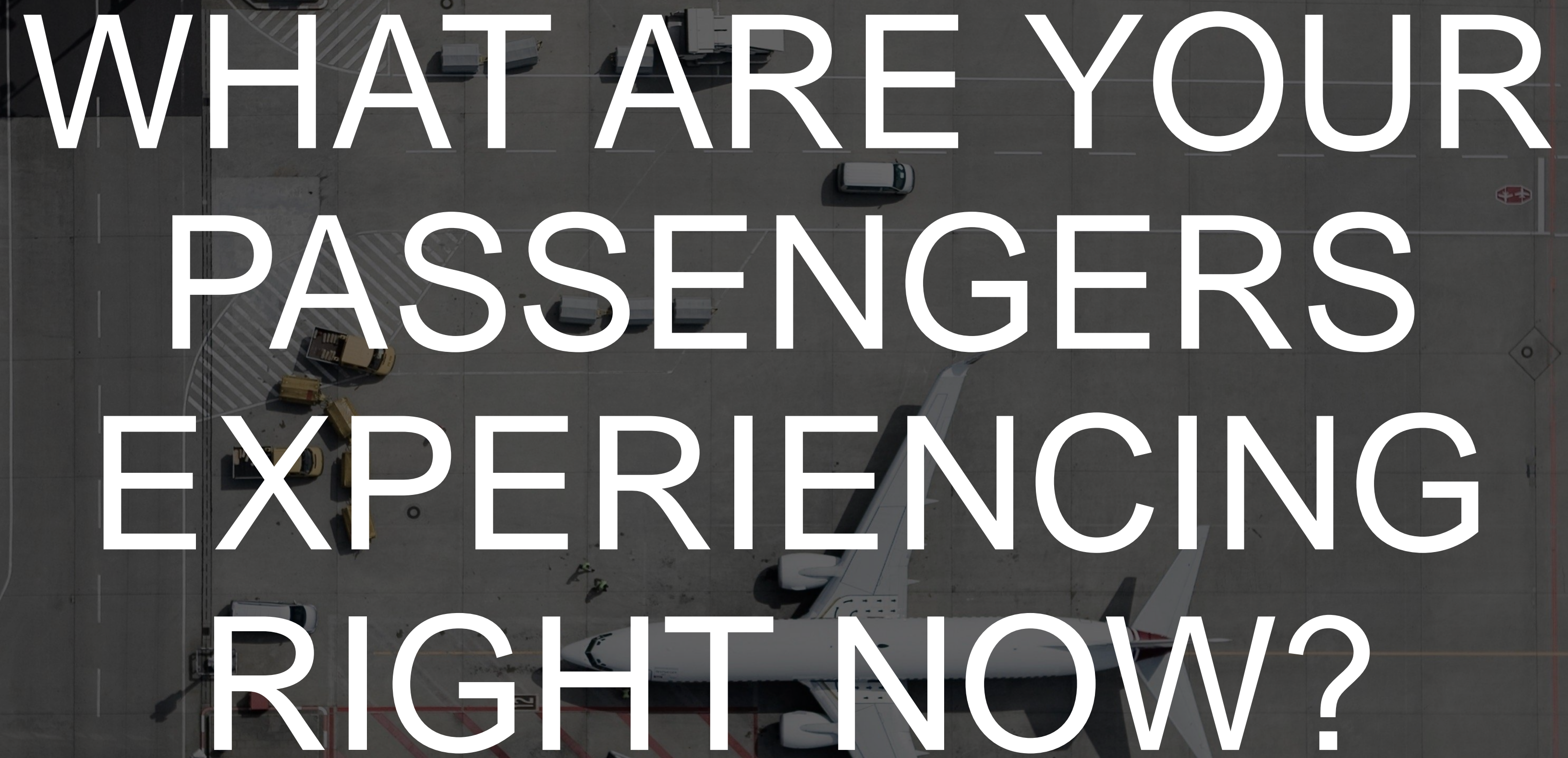
Retail & Advertising

OUR CURRENT AIRPORT DEPLOYMENTS



Coming Soon




An aerial, top-down view of an airport tarmac. A large white commercial airplane is parked at a gate, with its boarding stairs extended. Various ground support equipment, including yellow and white service vehicles, are positioned around the aircraft. The tarmac surface is marked with white and red lines. The overall scene is dimly lit, suggesting an overcast day or dusk.

WHAT ARE YOUR
PASSENGERS
EXPERIENCING
RIGHT NOW?



AIRPORT
DASHBOARD

STATUS: LIVE



DATA
EXPLORER

HELP
CENTER



Thank You!

www.crowdvision.com

CROWDVISION