NUCLEUS

3D Unified Management System for Airports

Every day, millions of people arrive and leave an airport. To ensure a smooth and enjoyable traveling experience for every passenger, apart from flawless airport operations, the safety and security of passengers is also of top priority. With NUCLEUS, information from various airport operations, building management and security (E.g. CCTV, access control, fire alarm) systems can be managed and interpreted via a single unified platform, giving relevant authorities a superior situational awareness for better response to notifications, alarms and emergencies.

www.nucleussense.com

NUCLEUS for Executive Management

Unifying systems for efficient management

As a Unified Management System, NUCLEUS overlays information from multiple systems into one 3D environment, providing real-time situational awareness of the entire premise. This paints an accurate picture of the situation on the ground and allows the supervisor to make an executive decision quickly and efficiently.

Executive summary of airport's overall efficiency

Operations supervisor can obtain the average luggage belt time and flight arrival times from multiple NUCLEUS callouts for comparison, so as to determine if passenger turnover rate is satisfactory. Using NUCLEUS 3D information, passenger routes from plane to belt can be optimized to improve turnover rate.

Flight Schedules
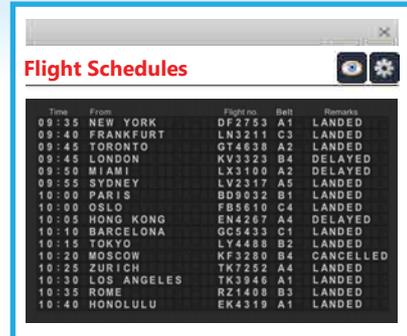
Time	From	Flight no.	Belt	Remarks
09:35	NEW YORK	DF2753	A1	LANDED
09:40	FRANKFURT	LN3211	C3	LANDED
09:45	TORONTO	GT4638	A2	LANDED
09:45	LONDON	KV3323	B4	DELAYED
09:50	MIAMI	LX3100	A2	DELAYED
09:55	SYDNEY	LV2317	A5	LANDED
10:00	PARIS	BD9032	B1	LANDED
10:00	OSLO	FB5610	C4	LANDED
10:05	HONG KONG	EN4267	A4	DELAYED
10:10	BARCELONA	GC5433	C1	LANDED
10:15	TOKYO	LY4488	B2	LANDED
10:20	MOSCOW	KF3280	B4	CANCELLED
10:25	ZURICH	TK7252	A4	LANDED
10:30	LOS ANGELES	TK3946	A1	LANDED
10:35	ROME	RZ1408	B3	LANDED
10:40	HONOLULU	EK4319	A1	LANDED

Flight Schedules

Baggage System Summary

Average Belt Time: 10mins 23sec

Baggage System Summary
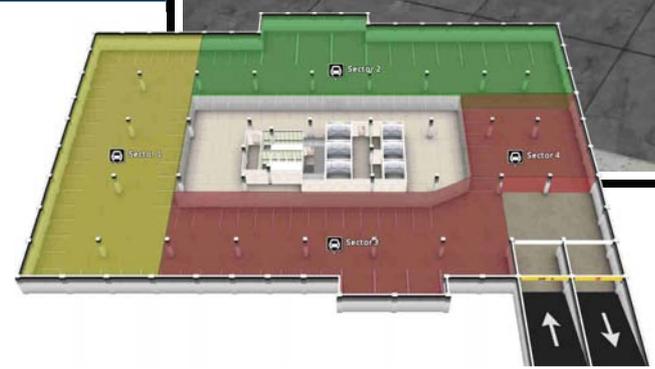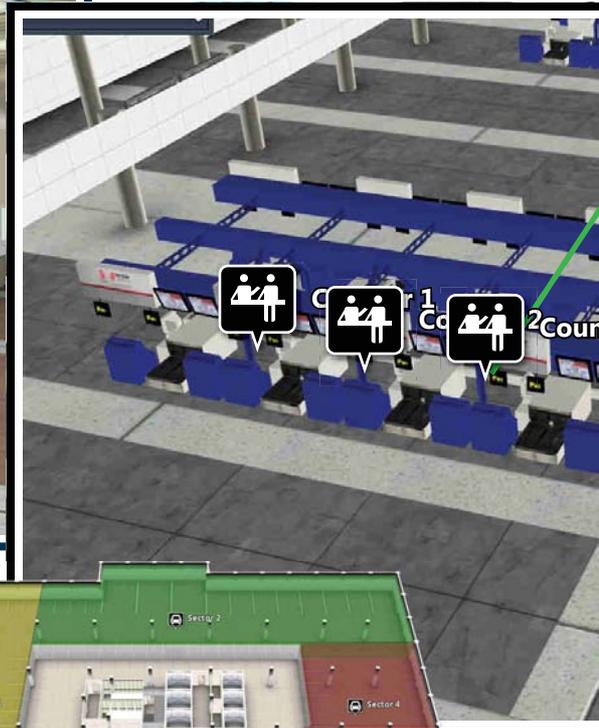
Executive summary of service satisfaction level

Through a single NUCLEUS interface, the supervisor can retrieve the airport's tenant occupancy rate, summarized passenger feedback of airport service and digital signage audience attention spans, all at once. This allows him to easily determine the airport service quality level.

Efficient analysis of airport's systems

NUCLEUS volume indicator changes color as a car park reaches max capacity, aiding the operations supervisor in determining areas which still has free lots. Gathering directional information from NUCLEUS, he can plot clear directions to guide visitors to available car park lots.

NUCLEUS for Airport Operations

Unifying systems for efficient management

NUCLEUS's ability to unify information from various systems onto one platform, provides operators with a holistic real-time view of their premises. With NUCLEUS, operators can retrieve information from sub-systems through one unified interface, thus reducing the number of systems to be trained in, increasing flexibility in manpower deployment during operations.

Counter 3

Long Queue Detected!!!
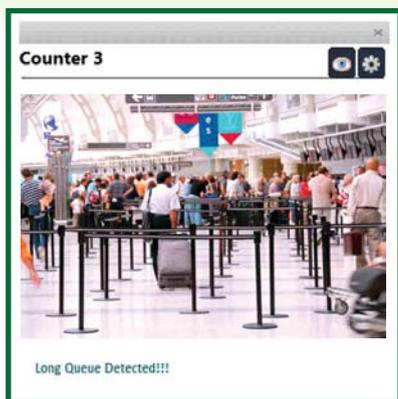
Efficient queue management

Queue management system detects long queues and triggers an alert. NUCLEUS glides to the alert area and calls up video and other device information. With the big picture in mind, NUCLEUS operator then coordinates with ground personnel on reducing the crowd while ensuring minimal inconvenience.

Customs C

nter 3

Customs Camera 3

Gate D34

Gate D35

Gate D34

Flight CX 436
Singapore to Guangzhou.
1930 hours.
Flight delayed.

Gate D35

Flight XX 123
Singapore to Maldives
1730 hours
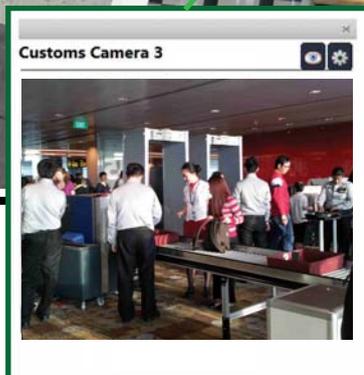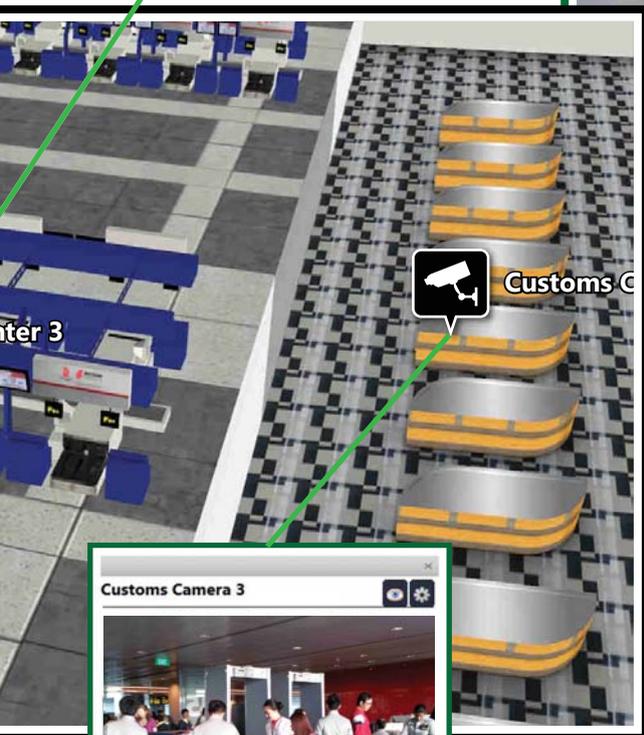
Seamless immigration checkpoint operations

When a wanted suspect tries to cross the customs, NUCLEUS alerts the operator to the affected site and displays live video feed. The nearest officers can then be located via RFID on NUCLEUS and dispatched to assist in apprehending the suspect.
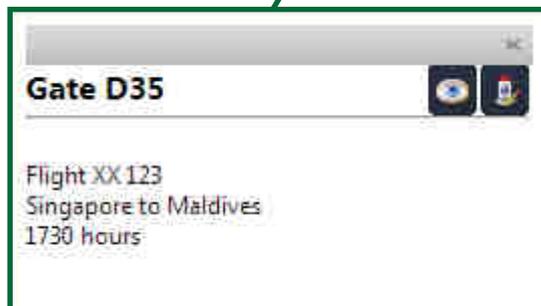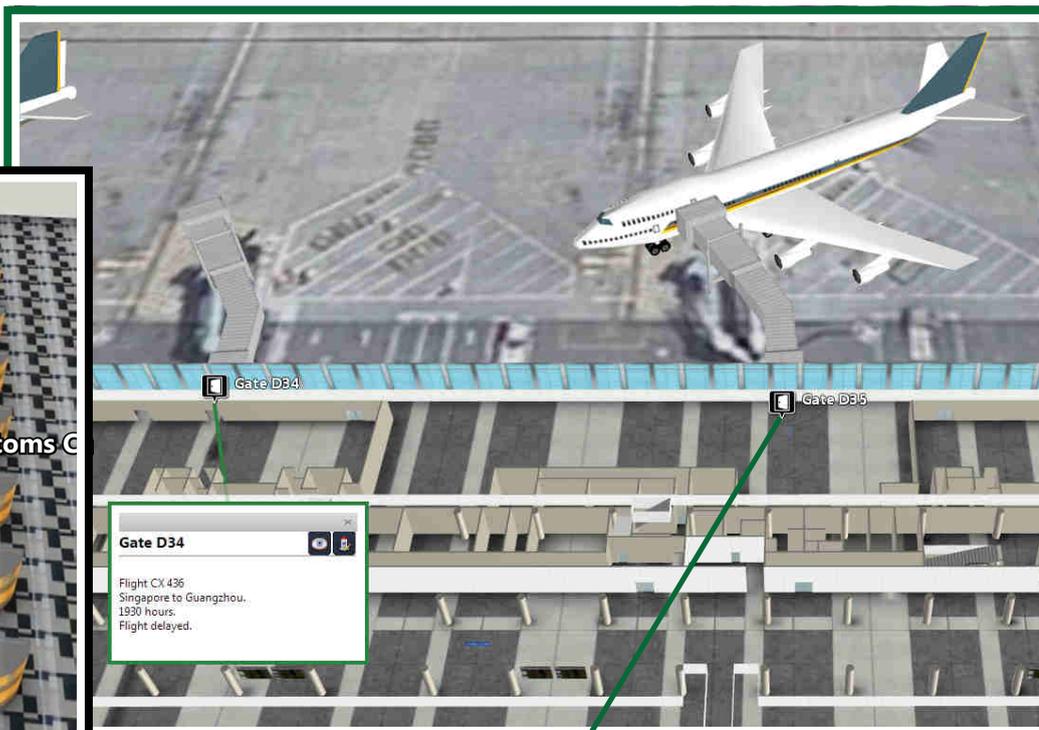
Overview of gate management & planning

Information from gate management system is overlaid onto NUCLEUS to provide a holistic overview of all gates and their respective flights. Should there be a need to change boarding gates, operators can select the nearest available gate to reduce inconvenience caused.

NUCLEUS for Security Management

Ensure secure premises, keeping track of personnel

Perimeter fence surrounding the airport are fitted with CCTVs that have video analytics. Upon detecting intrusion, NUCLEUS alerts operator to site and allows him to call up nearby cameras for a holistic view. Based on RFID location information in NUCLEUS, he can then dispatch the nearest security officers to the scene.

Fence VCA Camera 45

Guard GT - 1963

Door Access 03

Fence VCA Came

D03

--Last Person Accessed--

Wayne

ID: A4890469
Time: 12:30:29 2013-08-05
Using: PalmVein
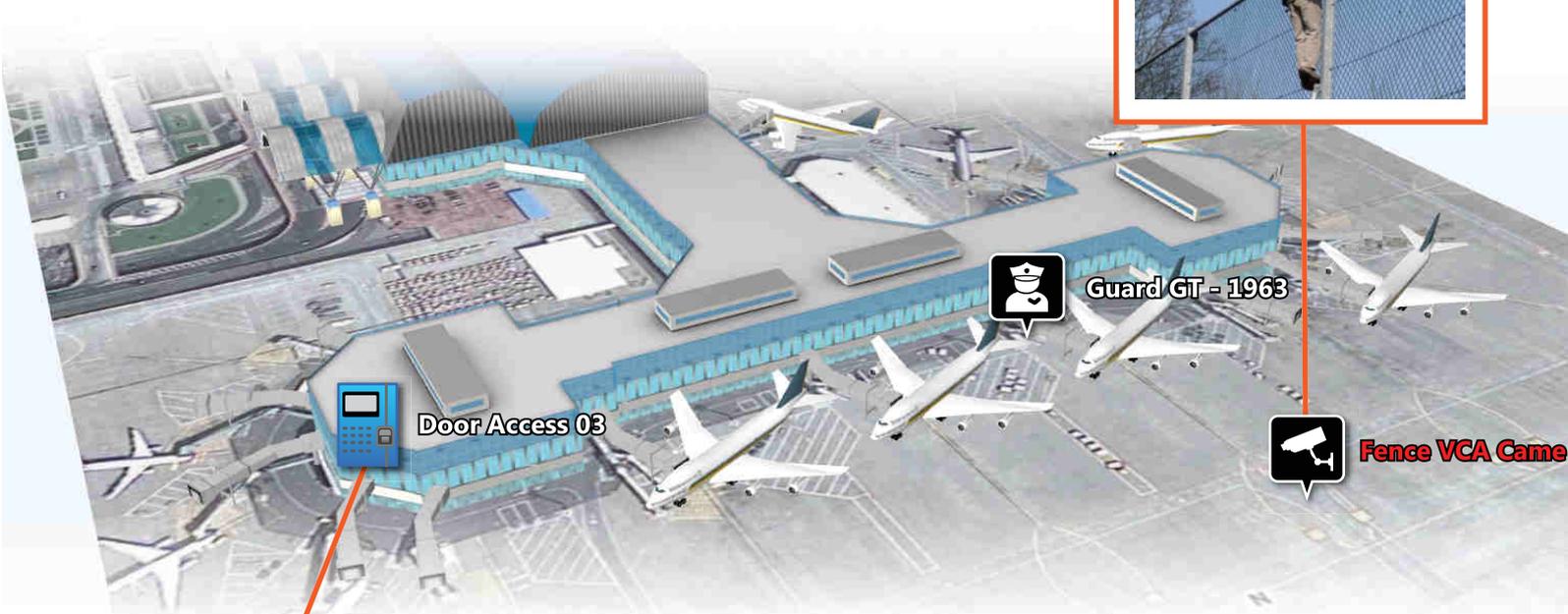
Keeping restricted access premises secure

Access to sensitive airport premises are limited by access control system. When a person tries to access a secure area with a staff pass, NUCLEUS operator can call up a nearby CCTV to confirm the person's identity. Upon detection of an imposter, using detailed 3D model information, the operator can swiftly coordinate and dispatch security officers to apprehend the imposter.

NUCLEUS for Facilities

Reduce response time and energy usage

NUCLEUS assists the operator in visualizing data from the building management system. This helps the operator to identify problems and rectify them immediately, reducing resource wasting incidents.

For example, temperature sensors might have reported a temperature spike in the airport cinema. Using NUCLEUS, the operator calls up the CCTV in the cinema to ascertain that there is indeed a fire. He then locates the nearest security officers via RFID and guides them to the scene via NUCLEUS to put out the fire quickly.

45.32°C
Auditorium Camera

17.00°

Auditorium Camera