



Departures

12:48	Seoul	KA 842	Gate E
12:54	Amsterdam	KL 1024	Gate A
13:07	Berlin	LH 248	Gate C
13:18	Abu Dhabi	KM 1042	Gate A
13:27	Casablanca	AT 911	Gate B
13:48	Kuala Lumpur	MH 128	Gate A
14:28	Malta	KM 408	Gate F
14:33	Rio de Janeiro	BA 1294	Gate D
14:45	Buenos Aires	BA 422	

CASE STUDY

DFW INTERNATIONAL AIRPORT



CLEARCUBE
www.clearcube.com



CLEARCUBE BLADES SUPPORT EXPANSIVE FLIGHT INFORMATION DISPLAY SYSTEM

With over sixty millions passengers traveling through its terminals each year, the Dallas/ Fort Worth International Airport (DFW) is one of the world's busiest airports, " ranking third in terms of operations and ninth in terms of passengers" (Fort Worth Business Press, 2016)

Like most airports, DFW uses a network of elevated display screens to provide passengers and personnel with the latest flight information. In an airport that spans approximately 18,000 acres, the flight information display system requires over 1,000 screens. "The screens are grouped in banks of 10,

12 or 14 throughout the airport," says John Parrish, associate vice president in charge of terminal technology at DFW International Airport. "Before ClearCube, each screen was powered by a Dell OptiPlex that was mounted directly behind it."

7:30 Montreal	Flight closing	A15	19:15 Basel
7:30 Geneva	Flight closing	A10	19:20 Dar es Salaam
7:35 Glasgow	Boarding	A22	19:25 Cape Town
7:35 Delhi	Go to gate	A19	19:30 Newark
7:50 Chicago	Boarding	B47	19:30 Edinburgh
7:50 Milan-Linate	Boarding	A10	19:30 Boston
7:55 Cairo	Go to gate	A12	19:35 Milan-Malpensa
8:00 Amsterdam	Go to gate	B36	19:40 Dubai
8:00 Stockholm	Go to gate	A11	19:50 New York
8:05 Bucharest			19:55 Munich
8:05 Newcastle	Gate opens 17:20		20:05 Stuttgart
8:05 New York			20:10 Budapest
8:05 Seattle			20:15 Glasgow
8:05 Rome	Go to gate	B43	20:20 Manchester
8:05 Prague			20:20 Aberdeen



THE CHALLENGE

Deliver full PC functionality to a distributed flight information display system without mounting bulky computing hardware behind the elevated screens



THE BENEFIT

A high-density, centralized computing solution that enhances uptime levels and eliminates on-site maintenance in hard-to-reach display banks



THE SOLUTION

Deploy ClearCube blades in remote telecom closets and connect to display screens via small access devices

With 10-14 PCs mounted in each elevated display bank, the airport's IT staff experienced significant maintenance issues. "Getting to the PCs was difficult because they were located in very high, inaccessible places. We had to take special precautions to comply with OSHA [Occupational Safety and Health Administration] regulations since the technicians were working with things so high off the ground," says Parrish.

The elevated PCs posed not only a risk to the technician on the ladder, but also to the people walking below. "With the computers located in such public areas, we had to either work on them after hours or cordon off the area," says Parrish.

THE SOLUTION

Dallas/Fort Worth International Airport was attracted to the ClearCube solution because it would remove the

PCs from behind the display screens. ClearCube condenses the PC into an Intel®-based “blade” form-factor and rack-mounts it in a secure location. A small access device (user port) connects the screens to the centralized blades over standard cabling. About the size of a paperback book, the user ports take up considerably less space behind the display screens than traditional PCs.

DFW deployed its ClearCube blades in multiple telecom closets distributed throughout the airport. “Since the blades are out of the public eye, we can now perform maintenance any time, night or day, within relative privacy,” says Parrish. The airport also uses user port accessories called Multi-Video expanders (MVX) to drive up to four displays on a single blade.

THE BENEFIT

Adopting a centralized computing solution enabled DFW to simplify the maintenance and management of its flight information display system. Rather than climbing up to a display bank to perform repairs and maintenance, the airport’s IT staff can now execute all tasks either remotely through the ClearCube management software or directly within the telecom closet.

“When we had a PC behind each screen, we didn’t have a very good set of tools to manage them all,” says Parrish. “For example, a couple of years ago when the Love Bug Virus was running rampant, I had to go to each and every display across the entire campus to do virus updates. With ClearCube, all the blades are conveniently located in a few areas, and I can remotely access them without leaving my office.”

The solution’s centralized hardware and remote management software also enable high uptime levels. “The ClearCube solution definitely enhances uptime. When it comes time to replace a faulty unit, we don’t have to climb up to the screen, take down a heavy PC and put up a new one. A technician can just go into a telecom closet, take out the broken blade from the rack and slip in a hot spare blade,” says Parrish.

**“ClearCube comes
with an entire
management solution
built right in it.”**

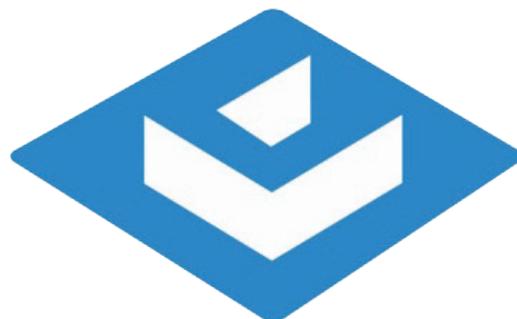
**John Parrish
Associate Vice President in charge of
terminal technology Dallas/Fort Worth
International Airport**

Utilizing a centralized ClearCube solution, the Dallas/Fort Worth International Airport is able to simply and efficiently manage its expansive flight information display system. “We’re always adding more screens to the display system, so I anticipate we will be adding more blades as well,” says Parrish.

“It’s easy: Blades are easier to maintain with fewer people and we saved half of what we would have spent.” ClearCube Blade PCs powering the flight information displays are connected to redundant data centers in International Terminal D. There, other blades run DFW’s airline operations software, including a baggage information application, gate information, reservation terminals and e-ticket kiosks. “Blades have worked so well that we took the whole concept of a blade environment and built it into the whole terminal,” said William Flowers, DFW Vice President of IT.

“When we had a PC behind each screen, we didn’t have a very good set of tools to manage them all,” says Parrish. “For example, a couple of years ago when the Love Bug Virus was running rampant, I had to go to each and every display across the entire campus to do virus updates. With ClearCube, all the blades are conveniently located in a few areas, and I can remotely access them without leaving my office.”

John Parrish
Associate Vice President in charge of terminal technology
Dallas/Fort Worth International Airport



CLEARCUBE