BLACK BOX

CASE STUDY
TRANSPORTATION



Enabling Safe and Future-Proof Air Traffic Management with Digital Towers

- **Industry:** Transportation / Air Traffic Control (ATC)
- **Solution:** Control Rooms & Command Centers
- **Product:** Emerald® IP KVM

CHALLENGE

Airports worldwide are adopting Digital Tower technology to modernize air traffic control. A digital tower replaces or supplements a traditional control tower, allowing operators to manage flights remotely from centralized facilities. This model increases safety, flexibility, and efficiency while providing built-in redundancy in case of local tower failures.

In this case, the client required a future-proof solution based on cutting-edge technology. The digital towers were to act both as primary control facilities and as secure backups for local towers, ensuring continuity of operations in the event of an incident.

Key challenges included providing remote access to multiple local airport systems and sources, allowing operators to control both local and remote feeds simultaneously, supporting multi-view desktops and large LED-powered video walls, meeting stringent 24/7 security and reliability requirements, and ensuring flexibility and scalability for future expansion.

SOLUTION

The client approached Black Box after successfully deploying the Emerald® IP-based connectivity and visualization solution at several local airports. The new digital tower project, however, required a higher level of capability and scalability. To meet these demands, Black Box implemented Emerald DESKVUE multi-monitor, multi-view operator workstations, enabling operators to access and control multiple sources — both local and remote — on a single desktop.

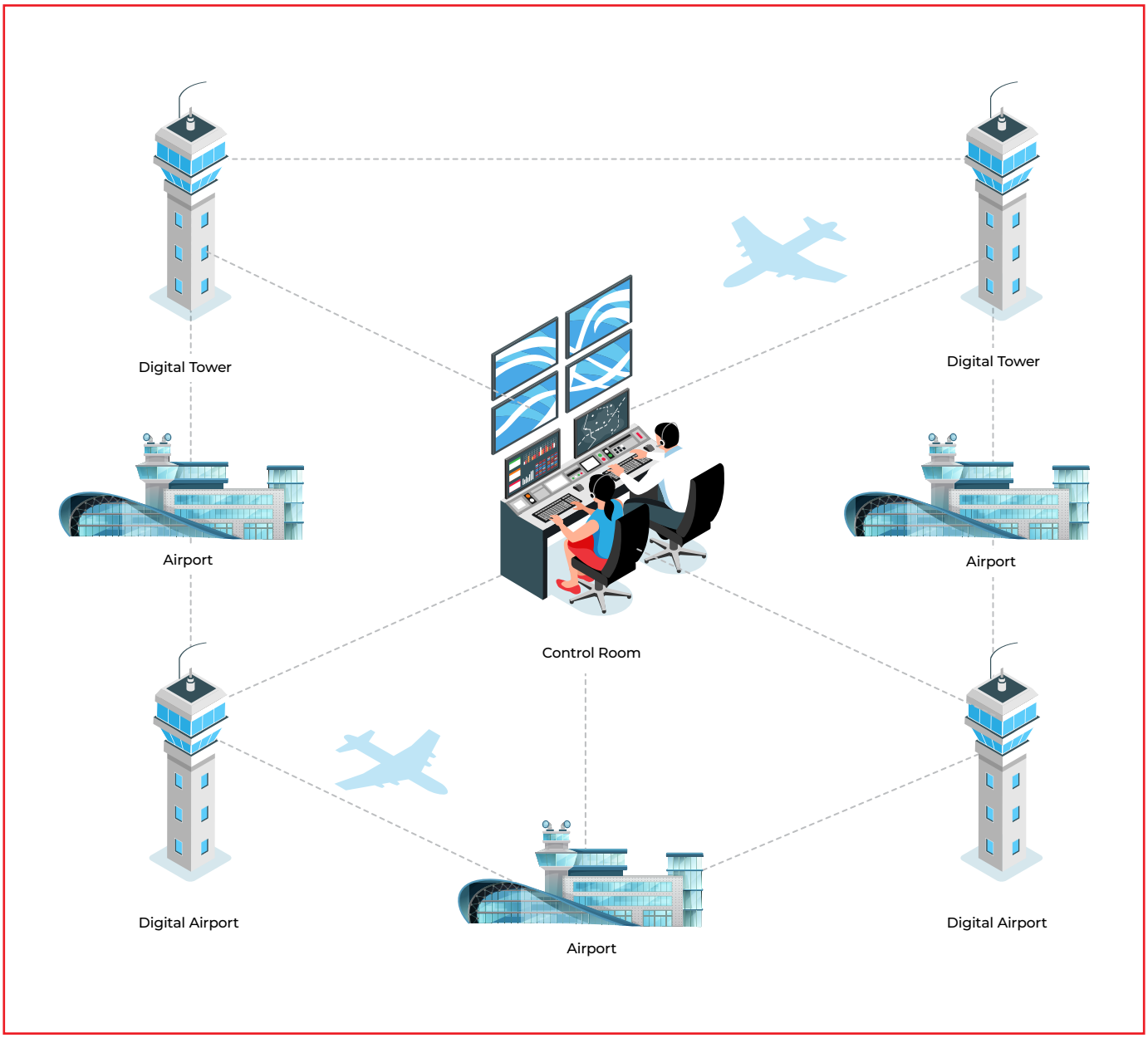
This supports integrated video wall management, giving operators full control of large LED walls directly from their setup. Users experience secure, 24/7 IP KVM access across multiple sites, supporting critical redundancy requirements. A flexible and scalable architecture ensures the system can evolve with future needs.

A rigorous testing and proof-of-concept phase was conducted in close collaboration with the client. Black Box application engineers and developers worked hand-in-hand to design and validate an end-to-end solution that fulfilled current requirements while being adaptable to future demands.

RESULTS

The implementation of the Emerald® IP KVM solution delivered continuous operational safety through redundant digital tower capability, operator efficiency, and responsiveness with multi-view access to local and remote systems; seamless integration of control room desktops with video walls; and a future-proof platform ready to support next-generation ATC applications.

By transforming their infrastructure with Emerald and DESKVUE, the client ensured safer, more flexible, and more resilient air traffic control operations.



FUTURE-PROOF AIR TRAFFIC CONTROL WITH BLACK BOX

Digital towers represent the next step in safe, flexible, and scalable air traffic management. With Emerald IP KVM and DESKVUE, Black Box provides the solutions needed to unify control rooms, streamline operator workflows, and ensure mission-critical operations remain uninterrupted.

Learn more about Black Box solutions for airports here.

