



Dubai Airports Elevates its Private Cloud with VMware Cloud Foundation and vDefend

[Dubai Airports](#) manages the operation of Dubai International (DXB), the world's busiest international airport, as well as Dubai World Central – Al Maktoum International (DWC), Dubai's airport of the future. The company delivers a world-class experience for guests by providing safe, secure and environmentally responsible airports.

Industry

Transportation

VMware footprint

- VMware® Cloud Foundation®
- VMware vDefend™ Firewall with Advanced Threat Prevention
- VMware Pro Cloud Services™

As Dubai Airports marked its busiest year on record at Dubai International (DXB) and continues to advance its ambitious expansion plans for Dubai World Central—Al Maktoum International (DWC), the need for scalable, secure technology infrastructure has never been greater.

To meet this demand, Dubai Airports has strengthened its private cloud environment with Broadcom solutions, including VMware Cloud Foundation (VCF) and VMware vDefend. This advanced cyber-resilient infrastructure is designed to enhance security, support rapid growth, and align with the company's strategic pillars. By leveraging these state-of-the-art solutions, Dubai Airports is not just keeping pace with industry demands—it is setting new benchmarks for efficiency, security, and innovations in global aviation.

Delivering world-class travel experiences safely and sustainably

Dubai Airports is committed to delivering exceptional travel experiences while strengthening Dubai's position as a preferred global travel hub. This means ensuring that Dubai International (DXB)—the world's busiest international airport—and Dubai World Central—Al Maktoum International (DWC) operate safely, securely and sustainably.

In 2024, DXB set new records, welcoming 92.3 million guests, handling more than 440,000 flights, and processing 2.2 million tons of cargo—an impressive annual growth of over 20%.

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Biju Hameed Kayal, Head of Technology Infrastructure Operations, Dubai Airports



Looking ahead, Dubai Airports has announced a USD \$35 billion investment aimed at reshaping the aviation landscape. This ambitious plan will see DWC expand to accommodate 150 million passengers annually within a decade, with long-term vision of supporting 260 million passengers and 12 million tons of cargo.

Sustainability is at the core of this growth strategy. Dubai Airports remains fully aligned with the UAE's net-zero carbon emissions target by 2050, implementing advanced technologies and eco-friendly practices to minimize its environmental impact.

Enhancing IT infrastructure to support business operations

Robust IT infrastructure is essential to achieving Dubai Airports' strategic goals, ensuring that millions of guests, flights, baggage, and cargo are managed seamlessly across the airports' 24x7 operations.

"Given our high volumes of guests, aircraft, baggage and cargo with 24x7 operations, we have a low tolerance for IT disruptions," says Biju Hameed Kayal, head of technology infrastructure operations, Dubai Airports. To meet its requirements, the company wanted to ensure that infrastructure operations addressed five strategic pillars.

The framework primarily emphasizes operational efficiency and reliability for business-critical systems and services. It underscores security and assurance strategies for the

company's data centers, cloud infrastructure, network and communications, databases and operational technology environments. The plan highlights advanced data and technology tools for actionable intelligence and insights while promoting eco-friendly initiatives for current and future operations. Finally, it commits to talent retention and enablement for the team.

A private cloud journey befitting aviation enterprise leadership

Broadcom solutions support all five strategic pillars for infrastructure operations at Dubai Airports. Over the past 15 years, the company has transformed its IT infrastructure into a scalable modern, private cloud environment. "VMware Cloud Foundation and VMware vDefend form the bedrock of our virtualization strategy. They unify and streamline operations across our compute, storage, networking and security infrastructure," Biju says.

Central to this strategy is Zero Trust security, implemented through VMware vDefend, which provides comprehensive protection for east-west network traffic—an area previously less visible. This solution enables granular security policy enforcement, advanced threat detection, and prevention against risks like ransomware.

"We quickly recognized we needed to enhance our segmentation strategy, which relied on perimeter-based technologies. There was an opportunity to strengthen visibility into east-west traffic. VMware vDefend proved to be the ideal solution," says Biju.

He adds, "Micro-segmentation with a distributed firewall enabled us to enforce granular policies for interactions between our applications at scale. The addition of IDS/IPS further strengthened the security posture offered by micro-segmentation, helping protect against advanced threats such as ransomware."

In a multi-year collaboration, Biju's team has partnered with a VCF Technical Adoption Manager (TAM), who provides solution guidance and best practices for optimizing Day 2 operations. The TAM worked with Biju's team to develop a long-term roadmap, starting with infrastructure virtualization. Together,



they also built out plans for IT initiatives to support the organization's business goals, such as sustainability dashboards and tools for operational efficiency and reliability. The TAM helped Biju's team gain full visibility into the environment using VMware Cloud Foundation Operations and encouraged further enablement through the team's VCF Enterprise Learning Subscription (ELS), building the team's skills to resolve issues efficiently when they arise.

VCF Professional Services worked with the team at Dubai Airports to design and deploy the virtual infrastructure for the company's software-defined data center. The consultants built custom dashboards to track and report infrastructure and application costs against individual business units at Dubai Airports. The consulting team also helped them create micro-segmentation firewall rules and deployed advanced threat prevention for the environment.

Achieving operational and environmental efficiencies

The Dubai Airports team uses VMware Cloud Foundation capabilities to monitor both IT and Operational Technology (OT) applications, supporting a strategic IT-OT convergence initiative for unified management of everything from 52,000 light sources to over 175 kilometers of baggage handling belts across the two airports.

Dashboards help the team easily track and report the costs of VMs and applications to individual business units. Infrastructure capacity planning features allow the team to

identify resource wastage, optimize utilization and monitor capacity metrics for individual Dubai Airports business units.

Sustainability dashboards enable Biju's team to track and measure carbon footprint metrics to keep senior management at Dubai Airports apprised of progress. According to Biju since 2016, Dubai Airports' data center virtualization initiatives with VMware have resulted in the reduction of more than 7,800 tons of carbon emissions. "It's rewarding to be part of an organization that's driving business efficiency for the world's largest airport while also being more friendly to the planet," he says.

Looking ahead

Infrastructure virtualization represents just one factor in sustainability success for Dubai Airports. In September 2024, the Airports Council International (ACI) Airport Carbon Accreditation (ACA) program recognized DXB's success at cutting carbon emissions across its operations. [The ACI awarded DXB a Level 4 Transformation accreditation](#), placing it among the top 5% of participating airports worldwide.

"Technology infrastructure innovations allow Dubai Airports to support our collective vision for net-zero carbon emissions by 2050 and advance the aviation industry's progress toward a greener tomorrow," says Biju.

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