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Case Study

Airport Authority of India -
Hyderabad (Aviation)

More Efficient Operations, a Better Guest Experience

Flight to Seamless Connectivity:
AAI Hyderabad's Networking Journey

Background

The Airport Authority of India (AAI) plays a crucial role in India's civil aviation infrastructure, operating under the Ministry of Civil Aviation, Government of India. Responsible for managing and maintaining 137 airports across the nation, including international and domestic hubs, AAI's role goes beyond aviation management. Located in the heart of India's tech-savvy city, the Airport Authority of India Hyderabad oversees a pivotal air travel hub that symbolizes modernity and dynamism.

In this bustling ecosystem, connectivity is not just a convenience but a necessity. The airport functions as a nerve center, where seamless communication among various stakeholders is paramount. However, the exponential growth in travelers and technological evolution posed a significant challenge. The multitude of flights to and from the airport, often accompanied by occasional delays, prompts travelers to seek accommodations in hostels and guest houses. In such scenarios, the importance of a robust network infrastructure across these lodgings cannot be overstated. Travelers, particularly those with connecting flights, heavily depend on reliable and secure connectivity within these accommodations to effectively manage their stay.

The existing network infrastructure struggled to meet the escalating demands for bandwidth, mobility, and security. Ensuring a harmonious blend of public access and private communications amidst high-density usage became increasingly daunting.Adding to this complexity, the integration of industrial Internet of Things (IoT) services—essentially for optimizing day-to-day-operations and enhancing guest experience—presented a unique challenge.

Managing this amalgamation of data-intensive services alongside the high mobility of guests demanded a transformative solution. Faced with these challenges, the Airport Authority of India in Hyderabad initiated a mission to upgrade the network infrastructure across the hostels and guest houses. The goal was clear: to establish a cutting-edge, secure, and scalable wireless network that would not only meet the current needs but also future-proof the airport's connectivity demands.

During FY 2023, airports across India collectively recorded a passenger traffic volume surpassing 327 million, with nearly 57 million of those passengers being international travelers.[1]

By 2030, as per projections from the International Air Transport Association (IATA), India is anticipated to surpass both China and the United States, becoming the world's third-largest air passenger market.[2]

Implementing the Wi-Fi 6 network solution at Hyderabad Airport showcased our dedication to pioneering technology. Our comprehensive approach prioritized resilience and efficiency, ensuring seamless connectivity across the airport's expansive landscape. The Cloud Controller streamlined network administration, providing a unified experience with robust security measures. This transformative solution reshaped connectivity standards, demonstrating our adaptability, resilience, and advanced technology integration for efficient communication within the airport ecosystem.

Ashish Jain
(Associate VP, Network Product Sales)

Overview

It's no surprise that airports, serving as pivotal hubs for billions of global connections, are in the midst of a profound digital transformation. Managing WiFi networks across guest houses and hostels across airports presents a myriad of challenges, with some standing out as particularly critical. Foremost among these is the daunting task of handling high user density while preserving the quality of service. Additionally, streamlining day-to-day operations within the hostels and guest houses for online reservations, check-ins, and facility management, for a more efficient and modernized operational landscape is equally important. The sheer volume of users connecting simultaneously poses a substantial challenge that demands adept management to prevent service degradation. Equally crucial is the provision of sufficient and reliable bandwidth to meet the diverse needs of users without compromising performance, a challenge exacerbated by the increasing demand for data-intensive activities.

Ensuring uninterrupted connectivity as guests move through the hostels and guest houses requires meticulous attention to detail and a seamless handover process. Security is paramount, and implementing robust measures to protect user data and the network from cyber threats is indispensable. Integrating and managing diverse IoT devices adds complexity to the network landscape. Effectively incorporating these devices while maintaining efficiency and security is a challenge that requires strategic planning.

The primary aim is to enhance the overall guest experience, achieve financial benefits through heightened efficiency, and strategically distinguish hostels and guest houses by exploring novel revenue streams.

In October 2023, domestic traffic witnessed a 15% growth with over 20 lakh passengers compared to 14,86,543 passengers in October 2022.[3]

International passenger numbers in October 2023 surpassed 3 lakhs, marking a 23% increase from October 2022 which recorded over 2 lakhs passengers.[4]

Challenge

Pervasive connectivity issues disrupted day-to-day operations, creating an imperative for a reliable network infrastructure. With the increasing reliance on digital communication, there was a pressing need to ensure the security of the network to safeguard sensitive information and maintain the integrity of communication channels. Scalability emerged as a critical consideration, demanding a solution capable of accommodating a growing user base without compromising performance. The focus on optimizing the user experience underscored the need to overcome bandwidth limitations. Amidst these challenges, there was a need for streamlined and efficient network administration.

Solution

Covering an extensive area, the implemented solution prioritized resilience for uninterrupted connectivity, strictly adhering to a zero-tolerance policy for downtime. This comprehensive approach involved establishing a network infrastructure with 85 strategically positioned Wi-Fi 6 Access Points across the premises. The integration of a Cloud Controller streamlined management functions, providing a centralized platform for efficient and simplified network administration.

The deployed solution exhibited remarkable flexibility, catering to diverse requirements within the hostels and guest houses across the Airport Authority of India, Hyderabad. Its adaptability allowed deployment as a singular or converged network infrastructure, supporting both end-user and operational needs. The comprehensive suite of Wi-Fi 6 Access Points served as the backbone, efficiently disseminating bandwidth to up to 1024 concurrent clients per Access Point.

This resilient solution provided a unified experience with a single SSID for both guests and employees, simplifying access while ensuring security through WPA2 authentication. The deployment's robustness was reinforced by self-healing and self-optimizing Easy Mesh technology, ensuring optimal network uptime. The highly intuitive cloud management interface empowered IT administrators to optimize configurations for peak network performance without any disruptions. Fast and secure roaming capabilities facilitated uninterrupted connectivity, allowing client devices to seamlessly transition between Access Points without compromising user experience.

To ensure reliable power delivery to the Access Points, nine 24-Port PoE switches were deployed as part of the solution. These switches provided a stable and efficient power supply to the Access Points, eliminating the need for separate power outlets and simplifying the installation process.

Indoor Wi-Fi

Wi-Fi 6 Access Point

Managed Switches

24-Port PoE Switches

Result

01 Strategically positioned Wi-Fi 6 Access Points eradicated dead zones, providing continuous coverage across the varied landscape.

02 A unified SSID for guests and employees simplified access while upholding security through WPA3 authentication.

03 The Cloud Controller streamlined network administration, empowering IT administrators with an intuitive interface for optimized configurations.

04 The solution demonstrated scalability, successfully accommodating the increasing number of users without compromising on network performance. This ensured that the infrastructure could adapt to the evolving needs.

05 Guests enjoyed faster internet speeds and a seamless online experience, resulting in increased satisfaction and productivity.

06 The deployment facilitates streamlined day-to-day operations within the hostels and guest houses. This includes tasks such as online reservations, check-ins, and facility management, contributing to a more efficient and modernized operational landscape.

Conclusion

The deployed solution at AAI Hyderabad's hostels and guest houses exemplifies advanced connectivity in the aviation landscape. The solution ensured seamless connectivity through 85 strategically positioned Wi-Fi 6 Access Points. A Cloud Controller streamlined management, offering a unified experience with a single SSID, robust security measures, and advanced features like fast roaming and prioritized applications. This transformative solution redefined connectivity standards, showcasing adaptability, resilience, and advanced technology integration for efficient communication within the airport ecosystem. The positive outcomes underscore the success of this initiative in creating a connected, secure, and scalable environment for all stakeholders involved.

References

1. India: air passenger traffic by type 2023 | Statista
2. Indian Airports Analysis Presentation | IBEF
3. https://www.hyderabad.aero/gmr-hyderabad-international-airport-records-over-12-million-passengers-in-h1fy2024.aspx#:~:text=In%20October%202023%2C%20domestic%20traffic%20witnessed%20a%2015%25%20growth%20with,recorded%20over%202%20lakhs%20passengers.

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