TP-Link Omada SDN Optimizes Wireless Infrastructure in a High-Density Healthcare Environment

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Qassim National Hospital

BACKGROUND

Qassim National Hospital is a leading private healthcare institution in central Saudi Arabia, known for delivering advanced medical services across a wide range of specialties. The facility spans four floors, including a basement, and serves hundreds of staff, patients, and daily visitors.

END-CUSTOMER GENERAL PROFILE

Name: Qassim National Hospital
Industry: Healthcare
Location: Qassim, Saudi Arabia
Capacity: A major private hospital serving the Qassim region, with four floors (including a basement) and hundreds of staff, patients, and daily visitors. The site required comprehensive Wi-Fi coverage and multi-network segmentation.

USED PRODUCTS

Omada Access Points: 106 × EAP653 (Wi-Fi 6 Ceiling Mount)

Omada Controller: 1 × OC300 Hardware Controller

CHALLENGES

1. Coverage & Performance

The hospital's previous wireless network lacked adequate coverage and stability, especially in the basement and high-traffic areas.

2. Guest Wi-Fi Management

A professional guest Wi-Fi experience was essential, with bandwidth restrictions and branded captive portal features.

3. Network Segmentation

Required secure segmentation between guest users and internal hospital operations, ensuring critical systems receive network priority.

4. Vendor Comparison

After evaluating multiple vendors, TP-Link was chosen for delivering enterprise-grade performance, scalability, and centralized control—all at a competitive price.

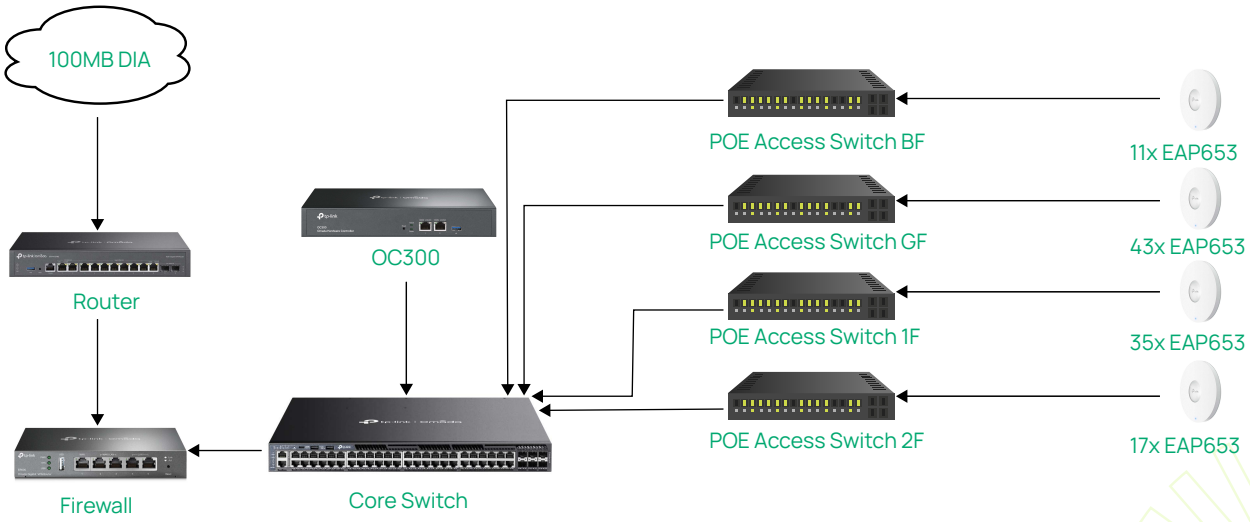
SOLUTION

To meet the demanding connectivity requirements of Qassim National Hospital, TP-Link delivered a comprehensive Wi-Fi 6 solution designed for high performance, centralized control, and seamless integration with existing infrastructure.

A total of 106 TP-Link EAP653 Wi-Fi 6 ceiling-mount access points were deployed across the hospital's four levels to ensure complete wireless coverage, including challenging areas like the basement. The distribution of access points was carefully planned based on user density, departmental needs, and physical layout. All APs are centrally managed using a TP-Link OC300 Omada Hardware Controller, offering an intuitive SDN (Software Defined Networking) platform for real-time monitoring, configuration, and maintenance.

Key Features Implemented

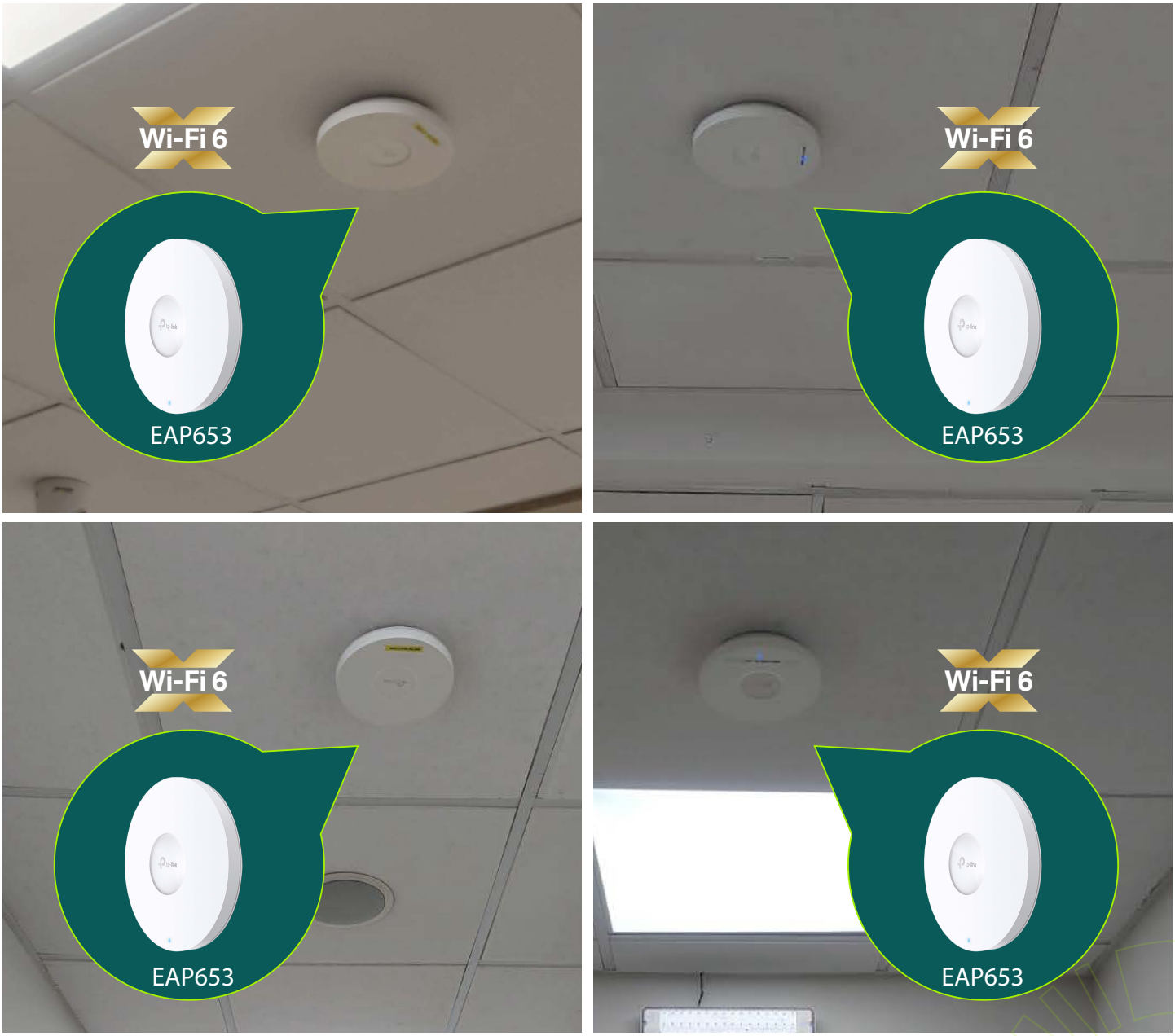
- **High-Performance Wi-Fi 6 Access:** Leveraging TP-Link EAP653 access points, the hospital gained faster, more reliable wireless connectivity across all clinical, administrative, and public areas.
- **Centralized Management with Omada SDN:** The OC300 controller enables IT staff to manage the entire wireless network from a single dashboard, with real-time visibility, remote troubleshooting, and firmware updates.
- **Professional Guest Wi-Fi with Captive Portal:** A branded captive portal was deployed for patients and visitors, including bandwidth controls, session limits, and secure authentication.
- **VLAN-Based Network Segmentation:** The network is segmented to isolate guest traffic from internal hospital operations, ensuring higher security and guaranteed bandwidth for mission-critical services such as medical systems and staff communications.
- **Bandwidth Management and Access Policies:** Bandwidth limitations and access rules are applied to guest users to ensure optimal performance for hospital operations.
- **Seamless Compatibility with Existing Infrastructure:** The TP-Link solution was fully compatible with the hospital's Cisco-based network, minimizing integration challenges and reducing overall deployment time.



BUSINESS RESULTS

The deployment delivered full Wi-Fi 6 coverage across all areas of the hospital, significantly enhancing network stability and performance for staff. A professional guest Wi-Fi experience was implemented with a secure, branded captive portal. Centralized management via the Omada SDN platform streamlined network operations, while the solution offered a cost-effective alternative to more expensive vendors—without compromising.

- 100% Wi-Fi 6 coverage across the entire hospital facility.
- Improved network stability and bandwidth prioritization for hospital staff.
- Secure, branded guest Wi-Fi through a professional captive portal.
- Centralized network control enabled by the Omada SDN platform.
- Cost-effective solution selected over higher-priced alternatives, delivering excellent performance and value on quality or performance.



CUSTOMER TESTIMONIAL

“TP-Link’s solution exceeded our expectations in coverage and management flexibility. It was the best balance between cost and performance.”

— [IT Department Head], Qassim National Hospital.