



CASE STUDY CARRIER

OVERVIEW

Chunghwa Telecom (CHT), once part of the public Taiwan Telecommunication Bureau, was officially privatized in 1996. Today it is the leading operator in Taiwan's telecommunications industry.



REQUIREMENTS

- Carrier-grade security standards for wireless data transmission
- EAP-SIM and browser-based authentication to support different types of user profiles
- User policy enforcement and posting accounting data to external RADIUS
- Capability to authenticate and process the traffic of thousands of users during peak hours

SOLUTION

The following were deployed across CHT's nation-wide network:

- **WHG711** Wireless LAN Controller
- **WHG801** Wireless LAN Controller

BENEFITS

- 802.1X and EAP-SIM enables automatic offload from 3G to Wi-Fi
- Improved customer experience with enhanced quality of voice calls and Wi-Fi performance
- Alleviation of 3G network congestion from heavy data traffic results in fewer dropped calls
- Increased cost-savings when compared to 3G coverage expansion

SURFING THE INTERNET WITH CHT WI-FI OFFLOADING

Chunghwa Telecom (CHT) is the largest service provider of fixed line, mobile communication and broadband Internet access in Taiwan. In addition, CHT provides various additional services such as information security and Internet data center (IDC) to enterprises.

For the past few years, 3G networks in Taiwan have become increasingly congested due to the prevalence of smartphones and tablets, causing endless customer complaints and demands for improvement. As the leading operator in Taiwan's telecommunication industry, CHT was determined to provide a better communication environment for its customers. The available options for achieving this goal included expanding the current 3G infrastructure, upgrading to a 4G/LTE network, or offloading data traffic with Wi-Fi. However, the cost of expanding cellular coverage with additional base transceiver stations (BTS) was very prohibitive. When compared with the cost of deploying new BTS, Wi-Fi not only had a higher throughput but also lower radio access network (RAN) costs per gigabit. Therefore, from CHT's perspective it was a much more desirable solution.

CHT wished to find a carrier-grade Wi-Fi solution addressing the issues of security, capacity, and performance. After a thorough evaluation, CHT chose 4ipnet as its solution partner because of the functionality of its products, attentive customer support, and competitive pricing. To present, more than 150 WHG711 and WHG801 wireless LAN controllers have been deployed in CHT's data centers to service the 3G offloading for the Taiwanese public. 4ipnet's WHG-series controllers simultaneously support a wide array of carrier-grade authentication methods, including UAM, WISPr (Wireless Internet Service Provider roaming) Smart Client, and 802.1X transparent login. Due to CHT's alliance with iPass, a global leader in Wi-Fi roaming market, WISPr Smart Client was an essential feature. In addition, the controllers played an important role in CHT's "Wi-Fi offloading with automatic login" service introduced in 2013. After the service launched, users subscribed to CHT's 3G service could automatically switch to Wi-Fi and login via EAP-SIM authentication whenever in range of CHT's Wi-Fi hotspots. The hands-free switching between 3G and Wi-Fi eliminated complex login procedures that originally deterred users from transitioning to Wi-Fi, allowing CHT to successfully offload its data traffic and free up its network for enhanced voice call quality.

Once hundreds of thousands of users began offloading traffic through CHT's hotspots, maintaining the Wi-Fi network's performance was a top priority. Without proper network management, Wi-Fi would end up just as congested as 3G, defeating the initial purpose of offloading. This is where 4ipnet's solution played another key role in CHT's network. In addition to helping users seamlessly switch between 3G and Wi-Fi, the WHG controllers performed traffic analysis, traffic shaping, and bandwidth control. User policy enforcement allowed CHT to prevent abusive network usage by individual users and restricted unwanted traffic from clogging up network resources, ensuring the quality of Wi-Fi connectivity. The fine-grained control of user traffic provided CHT with a method to not only react more promptly to network issues, but also to better understand the behavior of its users.

With a 24/7 uptime requirement and each WHG processing the traffic load for thousands of VLANs, 4ipnet's solution has been field-proven for handling high capacity and large-scale nation-wide deployments. Additional features such as WAN port load balancing, failover and system redundancy further guarantees telco-grade reliability. CHT's customers can now enjoy enhanced quality of voice calls and high performance data transmission, and for CHT itself, this feat was accomplished under a maximal cost savings.