Tendring District Council

intergence

case study

Delivering High-End SD-WAN Connectivity on a Low-End Budget for Tendring District Council

Executive Summary

Facing severe budget constraints and the impending PSTN switch-off, Tendring District Council urgently needed resilient connectivity across ten housing schemes to support life-saving IP emergency alarms and remote staff access. By designing a cost-effective SD-WAN solution utilising Fortinet "all-in-one" firewalls and 4G failover, we created a robust network that the council's IT staff could easily deploy via plug-and-play. Consequently, the council achieved highly resilient, optimised access to critical life-safety systems and seamless corporate Wi-Fi across all ten locations without exceeding their tight budget.

The Client

Tendring District Council is a local authority administering the north-east Essex area, headquartered at the Town Hall in Clacton-on-Sea. Alongside their main offices, the Council operates multiple housing schemes dedicated to residents aged 55 and over. This project focused on modernising the connectivity across ten of these self-contained residential facilities.

The Challenge

The council faced a perfect storm of technical requirements and severe financial constraints at their ten housing scheme locations:

- **Impending PSTN Switch-Off:** Each scheme utilises a Chubb personal alarm system for medical emergencies and daily "status checks" by residents. With legacy PSTN lines being phased out, these alarms needed to transition to IP-based calling.
- **Life-Safety Connectivity Risks:** Upgrading the Chubb systems to IP required highly resilient internet connections to guarantee emergency calls would not fail. However, the existing infrastructure relied on poorly performing DSL broadband (1:20 connection ratio) that could not be replaced due to budget limits.
- **Operational Inefficiencies:** The daily resident "status check" portal was only accessible locally at each site. Council staff had to physically travel to each location just to verify resident safety.
- **Limited Staff Connectivity:** Council staff visiting the sites relied on a limited number of wired router ports and cumbersome client VPNs to access remote council resources.
- **Strict Budgetary Constraints:** The ultimate challenge was finding the cheapest possible way to deliver enterprise-grade resilience and performance without upgrading the underlying primary broadband circuits.

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The Solution

To meet the council's complex needs on a tight budget, we deployed an advanced SD-WAN strategy proving that high-end network technology can be successfully utilised on cost-effective hardware.

- **Cost-Effective 4G Failover:** Unable to replace the primary DSL, we sourced a low-cost, unlimited 4G mobile data service to act as a resilient secondary connection.
- **"All-in-One" Edge Devices:** We selected **Fortinet FortiWiFi-40F firewalls**. Because Fortinet OS functionality is consistent across their entire range, these entry-level devices delivered sophisticated enterprise features while saving the council the cost of buying and installing separate wireless access points.
- **Optimised Signal Placement:** We paired the firewalls with **Fortinet FortiExtenders** to manage the 4G connections. Because they can be physically separated from the main firewall, they were placed in optimal locations to guarantee strong cellular reception.

Network Engineering

- **Hub and Spoke Topology:** We established IPSec site-to-site VPNs connecting each housing scheme to central council resources at Clacton Town Hall and Azure UK West.
- **SD-WAN Implementation:** The firewalls were configured with SD-WAN to dynamically manage traffic flow across both the poor-performing DSL and the 4G links. SLA configurations constantly monitor latency and jitter to internal council hubs and external services (Google/Microsoft), ensuring critical traffic always takes the optimal path.
- **Seamless Integration:** We allocated a clear subnetting strategy (/16 for the project, /21 per site) to separate wired, wireless, CCTV, and Chubb networks. OSPF was implemented to cleanly integrate the new sites into the council's existing routing architecture.

Deployment & Management

We engineered the rollout to be entirely "plug-and-play," ensuring zero disruption to staff and eliminating the need for expensive third-party installation teams.

- **Automated Provisioning:** Configurations were standardised using a template and a Python script to auto-populate site-specific IP details.
- **Customer-Led Deployment:** With WAN interfaces set to DHCP and VPNs connecting dynamically, local council IT staff simply plugged the new firewalls into their existing broadband routers and positioned the 4G extenders.
- **Proactive Monitoring:** The entire infrastructure is actively monitored via Intergence's Logic Monitor. Beyond standard uptime tracking, the system ingests SD-WAN SLA data (latency/jitter), allowing engineers to continuously fine-tune configurations to squeeze maximum performance out of the low-grade internet links.

The Results

The project successfully modernised the council's network infrastructure without breaking the bank, yielding several massive improvements:

- **Guaranteed Life-Safety Communications:** The Chubb emergency systems are now backed by enterprise-grade resilient connectivity, protecting vulnerable residents during the PSTN switch-off.
- **Optimised Network Performance:** SD-WAN intelligent routing successfully bypasses the limitations of the sites' poor broadband, utilizing the cheap 4G links to maintain high performance.
- **Transformed Staff Mobility:** With secure, inbound access to the resident portal natively established over the network, staff no longer have to drive site-to-site to check on residents.
- **Seamless Corporate Wi-Fi:** Visiting staff can now connect to corporate Wi-Fi instantly and securely access Active Directory, file shares, and government systems just as if they were sitting at the central Town Hall.

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