Solution Brief

WiTCOM Deploys Open Multi-Vendor Solution to Power Smart City Initiative

Secure open platform powers edge cloud for IoT, video and next-gen services

WiTCOM provides business customers, government institutions, and ITC service providers in Wiesbaden with professional telecommunication services and secure data center services. Now WiTCOM is deploying an open uCPE platform as an edge cloud to host smart city services, including IoT, traffic control, surveillance, and wholesale services.

With network functions virtualization (NFV) and universal CPE (uCPE), smart city operators like WiTCOM can rapidly and efficiently deploy next-generation services. And once the uCPE servers and software are deployed, the operator can use it as a platform for innovation. New services can be added dynamically, without changing the deployed hardware, drastically increasing the rate of innovation.

dacoso, an IT service provider in continental Europe, assembled a solution using best-of-breed suppliers to power this innovative deployment. Working together, the suppliers teamed up to meet WiTCOM's stringent requirements for performance, cost, ease of deployment and security.

The solution is deployed on a central hub site as well as remote spoke sites (as shown below).

Security is an essential element of the solution, and is provided by the 6WIND Turbo IPsec vRouter. The vRouter is deployed in virtual machines (VMs) at each of the spokes, and at the hub as an aggregator.

The spoke sites are located in outdoor cabinets featuring the widely adopted FWA-1012VC white box uCPE from Advantech. This optimized and versatile appliance integrates the Intel Atom® C3758 processor (8 cores), and 2x 1GbE SFP and 6x 1GbE RJ45 interfaces, providing sufficient compute headroom and flexible connectivity to meet edge site requirements.
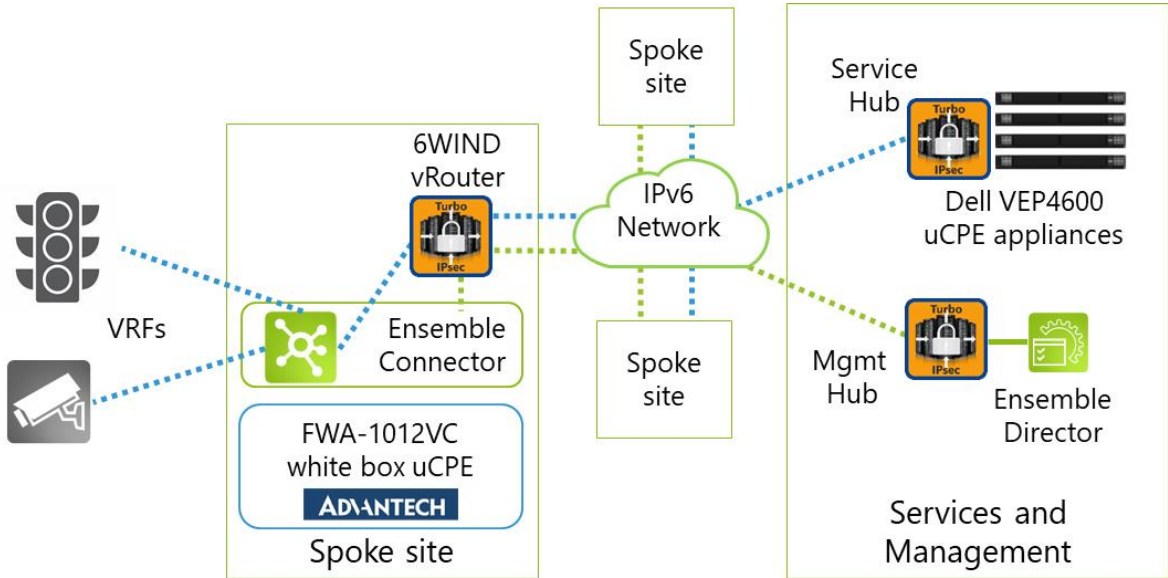
Each spoke site is connected to the hub through a secure tunnel by 6WIND's Turbo IPsec vRouter and hosted by ADVA's Ensemble Connector software, which also powers operational features like zero-touch provisioning and dynamic addition of new virtual network functions.

The hub site aggregates and terminates the secure connections through 6WIND's Turbo IPsec vRouter deployed as a VPN concentrator with 10Gbit/s throughput. It also connects to the NFV management and orchestration (MANO) of the Ensemble software suite. The hub site network services are hosted on high performance Dell EMC VEP 4600 uCPE appliances with Intel® Xeon-D® 2100 processors (16 cores), 64GB RAM, 960GB SSD and dual 10GbE NICs.

The initial deployment includes IoT infrastructure for the transportation and mobility industry. dacoso intends to use this a template for deployments across the Germany, Austria, and Switzerland region.

The team implemented the first project successfully for an initial customer. Lessons learned include the need for end- to-end IPv6 for IoT applications and MANO, and the need for full automation. WiTCOM can now apply these lessons and move to a standard service offering.

Solution partners
6WIND:
Turbo IPsec vRouter for secure IPsec VPN connectivity and aggregation
ADVA:
Ensemble software suite for NFV hosting and management
Advantech:
Versatile FWA-1012VC white box uCPE optimized for edge sites
dacoso:
Integration, fulfillment, installation, and managed services
Dell Technologies:
High-performance VEP 4600 uCPE appliances for central processing

"We took an innovative approach for an open multi-vendor solution to power our smart city initiative working with 6WIND, ADVA, Advantech, Dell and dacoso," said Volker Bodenbach, Head of Technology and Operations for WiTCOM. "Together we designed a secure open platform that powers edge cloud for IoT, video and next-generation services across our IPv6 network that can be further deployed worldwide across many verticals."

"WiTCOM's smart city blueprint extends the cloud infrastructure to the IoT edge building a solid and open foundation to run innovative mobility and security services," said James Yang, VP of Cloud-IoT Group for Advantech. "Our white box uCPE solutions help service providers like WiTCOM enable this intelligent edge with optimized platforms that provide ample computing power and rich connectivity while meeting edge environmental and mechanical constraints."

ADVANTECH

"6WIND's vRouters provide the high-performance virtual routing foundation required for secure, scalable uCPE solutions," said Eric Carmès, founder and CEO, 6WIND. "We are proud to work with WiTCOM alongside our partners ADVA, Advantech, dacoso and Dell Technologies to create an industry-leading smart city initiative for IoT, video and additional services."

"Our Ensemble Connector is the ideal solution for hosting and managing demanding uCPE applications. It's now giving WiTCOM the power of the cloud along with several other benefits, such as zero-touch provisioning and platform security. It also provides access to the Ensemble Harmony ecosystem, which includes a wide variety of onboarded commercial VNFs," commented James Buchanan, general manager, Edge Cloud, ADVA. "With its new uCPE network, WiTCOM can respond in an instant to customer demands and empower municipal networks to test out offerings and ideas. It will help accelerate the fourth industrial revolution and be a key tool in transforming cities into safer, less wasteful and more pleasant places to live."

"Our task was to combine the components for this managed edge cloud solution into a finely tuned overall solution," explained Karsten Geise, head of business and development, dacoso. "IoT via IPv6 public networks will be of great interest to many companies in the future if it meets such high security and automation requirements."

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