

/ CASE STUDY: NEWPORT CITY COUNCIL

Pinacl team up with Amazon Web Services and Davra Networks to deliver Internet of Things solutions in the City of Newport



/ ABOUT THE CITY OF NEWPORT

Standing at the gateway between England and Wales, Newport is a vibrant, forward-thinking city steeped in a rich industrial heritage. The city is successfully proving that it can adapt itself as a centre of modern industry and commerce. As part of its vision, Newport is exploring smart city technology to improve quality of life, reduce operational costs, and enhance safety and security.

/ THE CHALLENGE:

When smart cities is the topic of discussion, the focus tends to be on traffic. However, moving people from place to place is only one element of how people experience and use urban infrastructure.

Newport wanted to explore innovative uses of Internet of Things (IoT) technology to improve many aspects of city life — perhaps less visible than traffic, but just as important to both citizens and the city's finances.

In collaboration with system integrator Pinacl and IoT solution provider Davra Networks, Newport is deploying three proof-of-concept projects focusing on air quality, flood control, and waste management — all running on Amazon Web Services (AWS).

Before rolling out its IoT initiative, the city had commissioned Pinacl to deploy a public WiFi solution throughout its public buildings and city centre. Pinacl was chosen for its deep expertise in networking, but the city quickly realised it could take advantage of a broader range of the company's capabilities — including IoT and advanced professional services—to begin achieving its vision of a digital ecosystem and a smart city of the future.

Pinacl and Newport collaborated to identify three key use cases the city wanted to test. The first was air quality. The typical process for gathering air quality data involved collecting air samples in glass vials at 85 different locations.

With only a monthly average available, Newport had limited insight into how pollution levels change over time and in response to various conditions.

Using IoT sensors, the city hopes to gain an in-depth, real-time understanding of pollution levels so it can address them more effectively.

Second, Newport hoped to improve its flood defences. Because it is situated on an estuary, drainage is critical to keeping the city safe and liveable. Previously, the city would have to manually check drainage at each point and often only became aware of blockages after flooding occurred. By deploying IoT sensors in drains, the city could monitor water levels to identify and clear blockages before flooding happens.

Finally, the city wanted to provide better, more cost-effective waste management services. IoT-connected receptacles can report how full they are, enabling the city to avoid servicing them too often or, worse, not often enough.

All three projects have the potential to lead to major cost savings, reduced risk, and enhanced quality of life. Newport needed to use its budget and time responsibly to explore them, and the city wanted a solution that would enable it to expand its use of IoT easily and cost-effectively over time.

/ WHY AMAZON WEB SERVICES AND AWS MARKETPLACE:

Pinacl made a bold proposal: it would build and operate a low-power wide area network (LoRaWAN) to gather data from IoT sensors if Newport would use that network for its proofs of concept. Pinacl saw strategic value in owning its own LoRaWAN network: it could offer it to other customers and gather value-added insights from the data.

To complete the solution, Pinacl and Newport needed to find a scalable, adaptable, cost-effective IoT solution to connect devices, ingest and analyse data, and provide this intelligence to users.



Building the solution the traditional way — by purchasing server hardware bundled with IoT solution licenses—was far too expensive and complex for the proof-of-concept stage, and it wouldn't scale well to future needs.

Newport did not see value in managing IoT infrastructure. Although Pinacl had the capabilities to deploy and manage an on-premises solution, it sought something more agile that would allow it to focus on innovation rather than commodity services.

Help was at hand. Market leader Davra Networks had recently made its *ConnecThing.io* solution available through AWS Marketplace. *ConnecThing.io* is a cloud-based, Industrial Internet of Things application offering that connects objects to the Internet and turns data into usable business intelligence. Previously, Davra Networks' primary sales channel consisted of hardware vendors that would bundle licenses with servers.

The company decided to provide a cloud-enabled version that would empower system integrators and end customers to get value from data immediately rather than deploying costly hardware. *ConnecThing.io* in the cloud is built on a wide range of AWS services, including Amazon Elastic Compute Cloud (Amazon EC2), Amazon Simple Storage Service (Amazon S3), the Amazon Route 53 cloud domain name system, and AWS CloudFormation templates. It enables customers to easily integrate innovative AWS services such as AWS IoT, AWS Lambda serverless compute, and AWS Greengrass software for local processing on embedded devices.

"Customers don't want to buy hardware," says Paul Glynn, chief executive officer of Davra Networks. "They want to solve challenges with simple solutions. Using AWS Marketplace, we can offer a complete solution for system integrators, vendors, and end customers to connect and create innovative solutions. It's easy to access and fits with our business model, which is based on licensing revenue, not hardware sales."

Because Davra Networks uses a pay-as-you-go model based on the number of connected sensors, it was ideal for the proof-of-concept approach Newport and Pinacl had decided on. There was no need to deploy traditional infrastructure and run the risk that accompanies large capital investments.

Pinacl had the opportunity to rapidly demonstrate value, which would help Newport to build the business case for further investment. As the city's needs grow, the *ConnecThing.io* offering can scale elastically on AWS to accommodate them. And Pinacl will be able to use the same solution for other cities as its customer base continues to expand.

/ TESTIMONIALS

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**Shaun Powell, Interim Digital Lead,
Newport City Council**

"Thanks to Davra's solution on AWS Marketplace, we can mobilise a deployment in a matter of weeks. In the UK Public Sector, that's lightening-fast. Clients can start small and scale up as needed without big upfront costs".

**Mark Lowe, Strategic Relations Director,
Pinacl**

The figure below illustrates the City of Newport's environment in AWS:



/ THE BENEFITS

"ConnectThing.io on AWS Marketplace made it possible for Pinacl to very quickly launch a smart city proof of concept for Newport that is powered by AWS," says Mark Lowe, strategic relations director at Pinacl. "If you're setting up infrastructure the traditional way, in phase one you have to set it up to handle thousands of sensors when you might only want to start with 10. Using ConnectThing.io on AWS meant Newport could start small with very little investment or risk and figure out which projects delivered the most value."

Using AWS meant the solution could be deployed much faster than a traditional network. "Thanks to Davra's solution on AWS Marketplace, we can mobilize a deployment in a matter of weeks," says Lowe. "In the UK public sector, that's lightning-fast. Clients can start small and scale up as needed without big upfront costs."

The Davra Networks solution from AWS Marketplace provides the city with one cloud-based location to access and analyse data. "Many IoT conversations focus on how much data gets ingested, but we see that as irrelevant," says Glynn. "What matters is what users do with it—how they consume, visualize, and react to information."

Working with Pinacl, Davra Networks, and AWS, Newport is creating a dashboard that will enable it to understand, manage, and improve how the city works so it can offer ever-better experiences to its citizens. "Pinacl presented a smart city solution with the Davra ConnectThing.io solution from AWS Marketplace in record time," says Shaun Powell, interim digital lead, Newport City Council. "We were able to complete a full evaluation ahead of schedule and quickly see our smart city initiative, the Newport Intelligence Hub, coming to light. We will now be able to securely link data sets from across the Council, other technology organizations, partners, and the business sector to drive intelligent information on the Council—a major step forward in our smart city and data journey."