

Getting the data to tell the story via IoT

- **Business needs** - A way to measure noise pollution levels near cryptocurrency operations
- **Networking solution** - Sensors equipped with AT&T Global SIMs help support rapid, secure transmission of environmental data to an AT&T portal to report current and historical conditions to reporters
- **Business value** - Precise historical data and documentation of noise levels
- **Industry focus** - Journalism
- **Size** - More than 50 million digital readers monthly

About the Washington Post

The Washington Post is a daily newspaper founded in 1877. It is the most widely circulated newspaper within the Washington metropolitan area, but also has attracted a strong national and global following thanks to incisive coverage of national and international stories. Owned by the Graham family for 70 years, The Post today is owned by Nash Holdings, Jeff Bezos's private investment company.

The situation

As part of an investigation into communities disrupted by deafening cryptocurrency mining operation datacenters, a team of Washington Post reporters sought a way to measure community sound levels. The newspaper turned to AT&T Business for help in devising a way to precisely calculate the noise neighbors were experiencing.

Solution

AT&T Business suggested installing IoT sensors equipped with AT&T Global SIM cards that remotely deliver noise level data to Washington Post reporters. In addition to measuring noise levels, the sensors can record a wealth of other environmental data, and can be used again for future climate change investigations The Post plans to undertake.

Building connections

The Washington Post has been an important national voice for decades but introducing new ways of delivering content has significantly enlarged the paper's sphere of influence. Today The Post's digital audience comprises more than 50 million unique readers each month.

Erika Allen is the newspaper's Head of Audience Strategy and Growth, responsible for ensuring that the paper's excellent journalism reaches and serves as many people as possible. "We always want to be seeking, engaging, and growing a new audience," she said. Her teams work to create what Allen calls "habit-building" products that encourage people to have a relationship with The Post and its journalism.

For instance, a talent and community development team considers ways to make sure that the paper's audiences can connect with its journalists in a way that makes them feel connected to their reporting. Building connections with readers helps build trust at a time when many are suspicious of the news media.

The formula has helped The Post continue to grow while other daily newspapers have lost readers or

ceased operations. "We're really trying to make sure that people can continue to get the important information and be empowered by that information in our reporting every day," she said.

Holding the powerful accountable

Allen sees the mission of The Washington Post as holding powerful people and institutions accountable and empowering readers with information. "We're doing strong accountability journalism that informs people about the powerful institutions and actors shaping the world, but also recognize that we need information about the smaller, but important, forces shaping our day to day lives."

The paper's service journalism provides advice on personal finance, health, home ownership, and more. "We think that's equally important as the accountability journalism that The Post is known for," she said.

The Post has won 70 Pulitzer Prizes for achievements in journalism, most notably for its investigation into the Watergate scandal. The paper's staff today strives to continue the newspaper's journalistic excellence and commitment to its readers.

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Head of Audience Strategy and Growth
The Washington Post

A precise way to measure noise levels

The Washington Post is dedicated to creative and cutting-edge storytelling formats to support its journalistic mission of holding the powerful accountable and empowering people daily. Last year, The Post's storytelling lab team worked across the newsroom to tell stories in ways they haven't been told before. To do this, the team used new technologies to innovate around the presentation of the journalism.

For instance, a team of journalists covering climate change became interested in noise pollution, which affects many people who live in big cities or near manufacturing plants. They found that some of the worst noise pollution comes from the cryptocurrency industry.

Creating or "mining" digital currency requires a tremendous amount of computing power. Creating a single bitcoin requires more than one million kilowatt

hours of electricity, which is about the same amount used to power an average house for 53 days.¹ The crypto mining centers also run huge, noisy fans to cool the processors.

Many bitcoin miners located their operations in small towns in the southeast, where electricity is less expensive than in population centers. Pleased by the possibility of new jobs and a boost to their economies, many communities were happy to welcome crypto mining companies. But the people who live near the cryptocurrency data centers have had their lives disrupted by constant noise.

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¹ https://digiconomist.net/bitcoin-energy-consumption?itid=lk_inline_enhanced-template

Washington Post reporters looking into the noise complaints wanted to do more than just describe the sound that disrupted the communities in which the centers were located; they wanted to document it.

“To monitor noise pollution, we would’ve had to send a reporter to the same location at the same time repeatedly to be consistent and able to gather the quality of data that we needed,” Allen said. The Post needed a better and more precise way to measure and document the noise levels experienced by people living near the cryptocurrency operations.

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Making stories more accessible

Residents describe the sound of the cryptocurrency mines as a constant roar like that from a jet airplane or Niagara Falls. “The anecdotes are very useful and help us to illustrate what people are experiencing, but we needed data to give concreteness to the story,” Allen said.

“The human element is important, but we are always looking for ways to make a story accessible for different audiences and to drive some of this

information home in ways that are surprising and illuminating,” she added.

At the start of the COVID pandemic, AT&T Business hotspots helped enable Post journalists working remotely to submit their work, including immense video and audio files, at speeds capable of supporting large-scale collaboration. AT&T Business also supported an important story about prescribed fires in a remote area in a Montana national park.

“We knew that AT&T Business had interesting solutions that could help push some of this storytelling forward,” Allen said. “We had worked with AT&T Business before to resolve some challenges and thought the AT&T Internet of Things division could help us again.”

Sharing news in unique ways

AT&T Internet of Things (IoT) engineers recommended sensors that would precisely measure the cryptocurrency mining operations’ noise levels and deliver the readings to reporters by way of the powerful AT&T networks and IoT platform. AT&T Global SIM cards deliver dependable end-to-end connectivity, and the cloud-based AT&T Control Center can help the company to manage its sensor connectivity remotely.

In addition to being easy to install and use, the sensors are unobtrusive. This helped protect the identity of some newspaper sources who did not wish to be identified in the story.

As a bonus, the sensors enabled The Post to share news in unique ways. “We are big on experimentation and finding new ways not just to report stories, but also to tell the stories,” Allen said. “By using these sensors, we were able to create visuals of the

noise in a way that made the story accessible in a different capacity.”

The Post used the signals from the sensors to create spectrograms, which are visual representations of noise strength over time. “We were able to visualize the sound. That’s why we took it a step beyond just having people tell us about their experience.”

An AT&T Business hardware specialist trained Post reporters on the best way to set up the sensors. “He showed us how to get the most efficient and cleanest data possible,” Allen said. AT&T Business taped the training so others could take advantage of the skills as needed. “I think the reporters found that the sensors were relatively easy to install,” Allen noted. “After they’d had the training, the reporters were well equipped and confident when they went out with the hardware.”

Powerful tools to report on climate change

Post reporters quickly got the data they needed to document the cryptocurrency mining operations’ noise levels. A sensor placed with the permission of one North Carolina property owner who lives near a crypto mine captured noise levels roughly every five minutes over about three weeks. In nearly every reading—98% of the time, day or night—decibel levels were above 55, about the noise of a normal conversation.

The sensors also revealed that more than 30% of the readings exceeded 60 decibels—high enough that they would violate many cities’ daytime residential noise ordinances. Estimates from the National Park Service show that expected environmental sound

levels in the area should be around 41 decibels. One scientist who studied noise impacts on rural environments compared the noise to living close to a very busy road without normal pulses in traffic.

Allen said the sensors can be relocated for use in other story investigations. In addition to measuring noise levels, they also record temperature, humidity, and the concentrations of dozens of air pollutants, including potent greenhouse gasses like methane and sulfur dioxide.

“We were inspired by the fact that this would be a powerful way for us to do reporting on climate change, which is a core focus for The Post,” Allen said.

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A different experience for the audience

Allen believes AT&T Business helped The Post go beyond what it has been able to do in the past. “The information we were able to get from the AT&T IoT dashboards empowered us to tell our story in a different way than we’ve been able to tell it,” Allen said. “It’s important for us to innovate in the ways we report the stories to create a different experience for our audience as well.”

The Washington Post will continue to call on AT&T experts and technology. “We feel confident that we will be able to bring ideas or reporting challenges to the team to see if there are AT&T Business solutions that can support us,” Allen said. “AT&T Business has been great. They’re open and curious about the challenges that we have and excited to help us to solve them.”

The solution that enabled reporters to illustrate the noise pollution story is a prime example, Allen said. “We knew that this technology was out there. We had previous experience working with the AT&T Business team, and so we trusted that AT&T Business could educate us on the technology that would support this reporting.”

Pushing the boundaries

The Washington Post has never been content to rest on past success, and Allen is certain the paper will continue to innovate. “We’ve had lots of conversations about artificial intelligence and augmented reality, and the metaverse is something that we’ve been covering from lots of different angles,” she said. “We’ve also been talking about wellbeing in the workplace and other areas where we think that connectivity can help drive the storytelling,” she said.

Connectivity is certain to play a role in upcoming projects. “We’re keeping an eye on the connectivity aspect,” Allen said.

“We’ve had a lot of success in the projects that we’ve worked on with AT&T Business,” Allen. “We’re going to keep that in mind as we continue to try to tell innovative and experimental stories that will serve our audience and help us to push the boundaries of reporting.”



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