



Business challenge

RadGreen needed a flexible, reliable way to help clients integrate data from its Internet of Things environmental monitoring devices into their facility management systems.

Transformation

RadGreen deployed IBM API Connect to create, manage and update a stable set of API endpoints for clients to integrate with, and utilized Node-RED to create customized services, such as push notifications.



Sigalit Mutzafi
CEO and Co-Founder
RadGreen

Business benefits:

Two hours
to onboard new customers,
helping to deliver value fast

One day
to build custom data flows,
giving clients the flexibility
they need

Seamless
delivery of data via
stable APIs that abstract
away complexity

RadGreen

Bringing a breath of fresh air to pollution management with IoT and cloud technologies

Founded and headquartered in Israel, [RadGreen](#) is a startup that helps large organizations, academic institutions, and municipal bodies control their urban environments using a single, consolidated environmental monitoring system.

“Using IBM’s solutions has allowed us to grow and develop rapidly and easily.”

Sigalit Mutzafi
CEO and Co-Founder
RadGreen

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Highlighting an invisible issue

As cities expand and technology continues to permeate our lives, people are facing a range of new health problems related to pollution. Outdoor air quality is a hot topic for campaigners and politicians around the world, but this is only one of the threats to human wellbeing that modern society poses.

The World Health Organization considers air pollution among the top threats to human health—ambient pollution causes 4.2 million deaths per year, while indoor pollution contributes to another 3.8 million.

Sigalit Mutzafi, CEO and Co-Founder of RadGreen, says: “The air inside offices and public buildings is often just as polluted as the air outside, especially since it is continually recirculated.”

Moreover, air pollution is far from the only risk factor. Multiple forms of radiation can damage our internal health, while light and noise pollution can trigger headaches, disrupt sleep and increase stress levels. These health issues don't just affect individuals, they have an impact on society as a whole—reducing productivity by ruining workers' concentration and causing people to miss work through sickness.



How can the owners of businesses and public spaces deal with this problem? Pollution levels can only be tackled once they can be accurately measured, but most pollutants are difficult to detect. Air pollution is generally measured in large, expensive stations – but these can only give a broad assessment of outdoor air quality, not detailed insight into individual indoor spaces.

To provide a simple, efficient way of measuring pollutants, RadGreen has developed an integrated environmental monitoring system. Its sensors track all the major airborne pollution-related health threats, including air quality, noise, light pollution and radiation from electrical devices, Wi-Fi and cellular networks. Combining these sensors into one unit makes the monitoring system simple and easy to maintain.

Radgreen's monitoring devices transmit information to the company's cloud servers via the Internet of Things. Customers then request and access information captured by their devices through application programming interface (API) endpoints. But managing and billing for these API requests at scale was becoming difficult for the company.

Erez Mutzafi, CTO and Co-Founder of RadGreen, explains: “Initially, we exposed the API of our back-end systems directly, but this was inflexible and difficult to manage. System maintenance and upgrades were difficult, because if we made any changes to our underlying infrastructure it could potentially break the API and disrupt the flow of data to our clients.”

To maintain reliable, uninterrupted service to its clients, RadGreen was looking for a way to manage these interactions across multiple API endpoints simply and efficiently.

“The IBM services make development and deployment extremely quick.”

Erez Mutzafi, CEO and Co-Founder, RadGreen



Cleaning up client integration

While it was considering how to redesign its API architecture, RadGreen entered the [IBM® Alpha Zone Accelerator](#) program, a 20-week program that provides advice and support for startups who are developing cloud, IoT, mobile, analytics and cognitive solutions.

As part of the program, the company was introduced to a number of [IBM Cloud™](#) solutions, including [IBM API Connect®](#). The comprehensive API management solution helps businesses create new APIs quickly and manage them through their entire lifecycle. By adding a layer of abstraction between the company's back-end systems and the external API

that integrates with its clients' facilities management systems, RadGreen gains the flexibility it needs to iterate its product development cycle rapidly and get new features to market ahead of the competition.

Erez Mutzafi says: "IBM API Connect is our gateway to the world. When customers request data from our systems, API Connect handles the whole process from authentication and monitoring through to billing. Our engineers can keep working on our internal systems, without having to worry about affecting the customer experience or the reliability of the service.

"It is an extremely flexible solution. We can manage everything about our customer relationships through API Connect—for instance, adjusting the level of security and access for each client—without having to touch our back-end. The API management tools open up a world of possibilities for the future."

Most of RadGreen's customers have the solution configured to stream information straight into their own facilities management systems, making periodic requests for the latest data and managing the responses in their own systems. API Connect allows for easy management of this request/response cycle via a set of stable and well-specified endpoints.

However, some clients request more customized interaction with their RadGreen solution—for example, receiving separate push notifications when different pollutants reach a certain threshold. To configure custom data flows for these clients, RadGreen uses [Node-RED](#), an open source tool that was originally developed by IBM for visual management of dataflows.

"Node-RED makes it incredibly easy to define data flow processes," Erez Mutzafi continues. "We can configure and re-arrange the way we transfer data between the sensors, servers and customers quickly and intuitively, just by dragging around different boxes in a visual user interface. This allows us to create custom data flows to suit each client very quickly."

A breath of fresh air

IBM API Connect and Node-RED have enabled RadGreen to manage its growing customer base and provide a high-performance, uninterrupted service. The company is now working on a variety of complex, integrated projects, including smart city initiatives with larger clients, and scaling to support a higher volume of API requests has been comparatively seamless.

The control and visibility provided by API Connect also mean that RadGreen can see which API endpoints each customer is using, and how many API calls they are making per month. This has allowed the

company to develop a more sophisticated pricing model, which charges based on usage rather than a fixed fee. This has the potential to deliver greater value for larger clients, while making the solution more accessible for companies with smaller budgets.

Erez Mutzafi adds: “It used to be slow, difficult and expensive to build and maintain our APIs. IBM API Connect eliminates most of the effort, and gives us complete control and visibility of how our customers interact with our solutions. This makes it easier to integrate our solution with their facilities management systems, giving them the exact insight they need, whenever they need it.”

“The IBM services make development and deployment extremely quick,” he continues. “Onboarding a client usually only takes a matter of hours with API Connect. And developing a more complex, custom workflow on Node-RED

is similarly fast — when one client requested a customized solution for push notifications, we were able to configure it in half a day.”

The successful adoption of API Connect and Node-RED has also brought a closer and mutually beneficial relationship between IBM and RadGreen. The company’s devices are being featured in the IoT room at the IBM Client Center in Paris, integrated with an [IBM TRIRIGA](#) facilities management solution to demonstrate the value of an end-to-end solution for workplace pollution monitoring.

Meanwhile, RadGreen is considering expanding its use of IBM solutions — for example, by migrating some of its back-end applications to the [IBM Cloud™](#), and using [IBM Internet of Things](#) solutions to create an even more scalable network for its devices.

Sigalit Mutzafi explains: “With the predictive power of the Internet of Things, RadGreen’s solutions could be fully integrated into buildings management systems, and help to automate decision-making around how to best optimize air and environment quality and building resources. For example, if a device detects repeated low air quality at a certain time of day, it could turn on air filtering systems at a more appropriate time, or arrange cleaning operations for the moment when they would be most efficient.

“Our IBM solutions have enabled us to grow and develop rapidly and easily. As we continue to evolve with yet more integrated and intelligent solutions we hope to develop our relationship with IBM even further, to help both companies provide a safe, clean environment for everyone.”

Solution components

- IBM Alpha Zone Accelerator
- IBM® API Connect®
- Node-RED

Take the next step

To learn more about IBM Cloud solutions and API Connect, please contact your IBM representative or IBM Business Partner, or visit www.ibm.com/cloud/api-connect

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