

Edenor streamlines network, system integration with Red Hat



Software

Red Hat® OpenShift®
Container Platform

Red Hat Fuse

Red Hat AMQ

Services

Red Hat Consulting

Red Hat Training

Empresa Distribuidora y Comercializadora Norte S.A. (Edenor) is the largest electricity distribution company in Argentina. To reduce the duration and frequency of outages and resolve issues faster, Edenor sought to adopt a faster, more reliable integration solution. By standardizing on Red Hat OpenShift and Red Hat Integration technology, the company can now provide real-time data across its teams and regions and scale to support hundreds of thousands of daily events without affecting system performance. As part of its shift to container-based technology, Edenor's teams have also adapted their culture to support collaborative, innovative work with DevOps and agile approaches.



Energy

3 million customers
5,000 employees

Benefits

- Achieved scalable, reliable integration to support more than 800,000 daily events
- Reduced development time from months to weeks
- Improved customer service with 70% faster issue resolution
- Gained insight from technology experts on containers, agile, and DevOps

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Luis Lenkiewicz
Chief Information Officer, Edenor



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María Alejandra Trozzi
Deputy Manager of Solutions
Architecture, Edenor

Simplifying integration and data access to provide reliable electrical service

Empresa Distribuidora y Comercializadora Norte S.A. (Edenor) is the largest electricity distribution company in Argentina, providing energy for a population of approximately 9 million people. Its service area includes 20 districts in and around the city of Buenos Aires, with 78 transformer substations, three supply points, and thousands of transformers and voltage lines. Edenor controls its own management system for distribution through aerial and underground electrical networks.

Around three years ago, Edenor began an initiative to drastically improve the quality of its service by reducing the duration and frequency of outages, improving its operational efficiency, and providing more timely, accurate information to customers. To succeed, the company needed to simplify and update its massive, complex network of connections between systems and applications. Four core systems support all of Edenor’s operations: billing and customer care, outage management, asset management and enterprise resource planning (ERP), and field service management. These systems required many integrations, with data synced both in batches and in real time.

To provide effective service, Edenor’s systems needed to reliably and instantly send tasks to its core systems. “For example, our change documentation service receives 35,000 updates to improve prioritization from 800 routine, ongoing technical tasks,” said Leonardo Corino, Head of Technical Process Department, at Edenor. “That service needs up-to-date information to help prevent accidents or electrical problems that might affect public safety.”

Edenor’s existing integration solution lacked the stability and data portability to support these complex services and systems. The company sought to not only use more responsive, adaptable integration technology to simplify connections between its applications, services, application programming interfaces (APIs), and systems, but also automate processes for faster issue resolution, and optimize resource use for better scalability—both on-premise and in the cloud. This new technology would be supported by new organizational models focused on more collaborative, agile approaches.

“The daily performance problems we faced became increasingly difficult to solve in a timely manner. That struggle led us to think about adopting a different architecture that would use different technologies to better support innovation,” said María Alejandra Trozzi, Deputy Manager of Solutions Architecture at Edenor.

Building a container-based, responsive integration platform with enterprise open source technology

Edenor focused on finding an open source solution to its integration challenges to benefit from emerging technology and approaches while avoiding reliance on any particular vendor. “Open source is synonymous with the power of collaborative innovation to generate new ideas,” said Trozzi. “A large community creating and developing together has spectacular power to solve problems in new ways.”

The company decided to use Red Hat technology to gain the benefits of open source innovation—and meet its cloud computing and other technology objectives—while maintaining the reliability and support access needed for its critical public utility service.

“Red Hat offered us the technology to create a reliable platform that could solve our integration challenges in a way that was unmatched by other providers, and the experience to help us learn new ways of working, like DevOps, to simultaneously transform our culture,” said Luis Lenkiewicz, Chief Information Officer at Edenor.

As the foundation of its new integration approach, Edenor adopted several solutions from Red Hat Integration, a set of integration and messaging technologies that connect applications and data across hybrid infrastructures. Red Hat Fuse, a distributed universal platform, connects everything from legacy systems to APIs across environments and teams. Red Hat AMQ provides reliable, scalable, real-time messaging. Additionally, the company adopted Red Hat OpenShift Container Platform to enhance its integration strategy with container technology.

“During our initial deployment, we were introduced to the concept of containers, which was unfamiliar,” said Marcelo Moras, Integration Architect at Edenor. “We quickly realized the scalability benefits, and Red Hat OpenShift is now used to support some of our critical integrations.”

Edenor’s initial implementation focused on migrating five key production services, including those for mobile monitoring, online transactions, and vehicle monitoring. After successfully migrating these services, Edenor moved one of its main integrations—between its low- and medium-voltage outage management system and its field service management system—to OpenShift and Red Hat Integration. For its successful adoption of enterprise open source technology and collaborative development approaches, Edenor was recognized with a 2020 Red Hat Innovation Award.

Achieving faster, more reliable data access with adaptable IT and agile approaches

Improved integration

With a unified, container-based management platform, Edenor has simplified and streamlined its integration approach.

“We have a much more reliable infrastructure and much more agile flow of information. We know that what we are sending is arriving on the other side on time and intact,” said Alfredo Lanatta, Deputy Manager of Technical Processes, at Edenor.

Support for the representational state transfer (REST) API standard and load balancing changes have simplified and improved reliability for connections and data transfers between Edenor’s systems, resulting in fewer errors even at massive scale.

“Before having a Red Hat platform, our integration team had to spend hours analyzing for failures and reapplying processes when information was lost,” said Moras. “From the moment we implemented Red Hat’s technology, we had no more errors or missing information and greatly improved availability, especially for a service that receives close to 800,000 events daily.”

With each service hosted in its own container, Edenor can automatically scale to meet massive peaks in demand without delays or other performance issues. “We’ve achieved the scalability we needed to solve problems and evolve in the face of changes,” said Trozzi. “Thanks to OpenShift, we have better data access, insight, and control.”

More efficient development

As part of its shift to a more agile, container-based integration approach, Edenor sought to adapt its culture and work approach to become equally responsive and efficient. To achieve this change, the company’s teams began working collaboratively following DevOps, agile, and continuous integration and delivery (CI/CD) approaches. Automation with Red Hat OpenShift was key to this change.

“We had to examine the way we were working and integrate our individual teams and specialties, to take full advantage of our new platform’s capabilities,” said Trozzi. “OpenShift’s support for working across roles and environments makes it the indisputable way to do DevOps.”

In particular, development work was made easier by standardizing on a single platform that supports common programming languages and protocols. By using OpenShift to automate routine, repeatable tasks based on best practices, Edenor’s developers can instead focus on innovative service improvements for the service provider’s end customers.

“OpenShift lets us quickly create new development environments or complete tests without depending on other teams or areas of technology,” said Moras. “It made working with containers surprisingly simple. Tasks that would have taken an hour before were now completed automatically by the platform. Now, instead of redoing updates or worrying about configurations, we can use that time for new integrations.”

As a result of adopting these new approaches, supported by Red Hat technology, Edenor has reduced its development time from months to weeks. “The time between when we receive a request to when it’s put into production is going to be much less,” said Lenkiewicz.

Faster issue resolution for better customer service

In addition to accelerating development, integration and other process improvements from the adoption of DevOps and Red Hat OpenShift have helped Edenor respond faster to customer issues. Alerts about outages or repairs needed to electrical networks are sent more quickly—in less than 10 seconds, rather than 3 minutes—to field maintenance teams who can access more reliable, real-time information to resolve issues. Incident response times have been reduced by 70%.

“With Red Hat technology, DevOps, and CI/CD, issues can be solved sometimes in a day, where the same problem took us a week or two before,” said Moras. “We have higher customer satisfaction, not only for our internal teams, but also for the end users of our electricity services, because better system integration means information is more accurate for all.”

Access to expert enterprise support and training

As part of its Red Hat implementation, Edenor worked closely with Red Hat Consulting to ensure the new container platform and integration technology were deployed correctly. Red Hat Training also provided hands-on instruction on the new technology, as well as agile and DevOps best practices. With this guidance, Edenor’s teams are well-positioned to continue achieving innovation goals independently.

“This transformation was challenging in terms of both technical and cultural changes. We were introducing new concepts like containers and microservices. Red Hat provided us with the right tools to overcome these challenges,” said Trozzi. “Their attitude and willingness to work with us to adjust the technical design of our new architecture created a human partnership that was key to our success and the results we’ve achieved.”

Expanding integration improvements to continue innovating

Edenor is now working on new integrations to its Red Hat-based platform, including integrations with third-party payment companies. It plans to use OpenShift to host the set of APIs that connect all of its technical and commercial systems to its digital channels. The company continues enhancing communication between systems, such as its Outage Management System (OMS) and Field Service Management (FSM) system, to further improve its response to customer issue reports.

Another new project that will be supported by Edenor's OpenShift and Red Hat Integration environment is its smart meter initiative. "The Smart Meter project is intended to address the 50% of our energy sales that are concentrated in large and medium-sized customers," said Lenkiewicz. "It's an intelligent solution that's going to generate lots of data that it will help us with new business development."

Edenor plans to continue working with Red Hat technology to support these ongoing infrastructure and service improvements. "Red Hat was the right provider not only for its technical excellence but also the professionalism and expertise of its staff," said Trozzi. "They made it possible for us to achieve the business and technical objectives of our integration project."

About Empresa Distribuidora y Comercializadora Norte S.A.

Empresa Distribuidora y Comercializadora Norte S.A. (Edenor) is the largest electricity distributor in Argentina in terms of customer quantity and electricity sold (both in GWh and in pesos). It has a concession to distribute electricity exclusively in the northwest of Greater Buenos Aires and in the northern part of the Autonomous City of Buenos Aires representing an area of 4,637 square kilometers and a population of approximately 9 million people. Its energy purchases, used to meet customer demand in its service area, accounted for approximately 20% of total electricity demand in the country during 2018.

About Red Hat



Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.



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