

# Schneider Electric

## Promoting Agility and Innovation in Energy with Kubernetes

Reduced deployment and management time

Better security posture

Innovation hastening

### Introducing Schneider Electric

Schneider Electric is one of the most innovative and long-established global companies in its market. Founded in the 1800s, the company is a world-leading provider of digital energy and automation solutions for efficiency and sustainability.

Believing access to energy and digital services is a basic human right, Schneider Electric creates integrated solutions for homes, commercial and municipal buildings, data centers and industrial infrastructure. By putting efficiency and sustainability at the heart of the portfolio, the company helps consumers and businesses to make the most of their energy resources.



Schneider Electric turns asset data into action. Real-time data on infrastructure performance helps reduce maintenance costs and maximize system uptime. Head of Global Infrastructure Strategy Anthony Andrades is guiding the business unit through a period of significant transformation. Andrades' remit is to build the strategic vision and analyze everything the business does from an innovation point of view. This encompasses how the estate of data centers operates, the diverse ways applications are built and run, asset obsolescence, configuration and cost. He is also responsible for managing the cultural shift intrinsically associated with large-scale digital transformation.

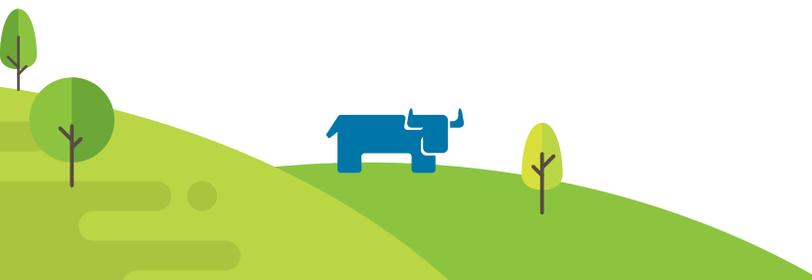
## The Journey to Containers

Schneider Electric had already entered the cloud ecosystem in 2013, with a couple of business-driven projects running quietly in AWS (Amazon Web Services) and Microsoft Azure. Once the success of these projects became known, Andrades was drafted to build on this and create an enterprise-grade cloud strategy. By 2016, the company had expanded its global AWS footprint and its mission to migrate its infrastructure to the cloud had begun.

**“After a quarter of a century of technical evolution, we’re embarking on one of the most important transformations in our history. By modernizing all our legacy systems to create a cluster of cloud-native microservices, we are becoming more agile and innovative.”**

Anthony Andrades, Head of Global Infrastructure Strategy, Schneider Digital, Schneider Electric

The team became aware of Kubernetes a year earlier in 2015 and quickly identified it as a cost-effective way to create the microservices-based, service-oriented architecture that large digital enterprises, like Google and Facebook, had pioneered. There were some pockets of excellence where Kubernetes was already running, but the picture wasn't consistent. Access control was a major issue. Several customer development teams needed access to clusters, but this was uncontrolled which, in some cases, resulted in the suspension of Docker usage, until a rules-based PaaS (Platform as a Service) was put in place.



The team was already familiar with Rancher and, in early 2018, Andrades carried out an initial successful PoC with Rancher Labs and Rancher's security partner Aqua. Soon after, the team started using Rancher on top of Kubernetes, to provide the access control, identity management and globalized performance metrics that don't ship with Kubernetes.

**“When I look at the most advanced digital organizations such as Google, Netflix, Amazon and Facebook, they’re running service-orientated architectures, with estates of microservices, completely decoupled from one another but managed centrally. We aspire to reach this point and Rancher is an important part of the journey.”**

Anthony Andrades, Head of Global Infrastructure Strategy, Schneider Electric

Rancher performed so well it was chosen to underpin Schneider's container-management platform. In June 2019, the platform was deployed to run 20 nodes and the painstaking process of application modernization began.

What were  
the problems  
Schneider  
Electric  
wanted to  
solve?

## Legacy Transformation

Like many established businesses, Schneider has been through 25 years of technical evolution. Over time, the company has built and deployed thousands of separate services and applications, running on Windows Server or Red Hat, that must be re-engineered or rebuilt before migration to the cloud.

Andrades' primary objective is to complete the transformation and migration of all applications within five years. This is no mean feat when you consider the volume of applications involved, and the fact that different applications require different modernization approaches. In late 2019, the team started the painstaking process of analyzing the entire estate of applications, categorizing each one according to the most appropriate and efficient way to modernize and migrate.

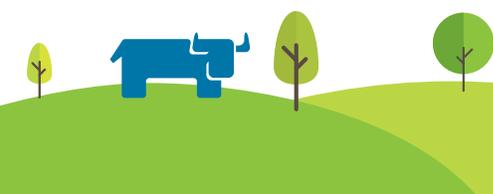




For some key applications, this will be done in stages; the application will be 'lifted and shifted' to the cloud, optimized and made available as a service. Teams will then redesign the application later. Others may be completely decommissioned and rebuilt as microservices. Static web servers, for example, can easily be converted into Amazon S3 buckets. Where two-tier applications are concerned (web front end running a UI with a relational database in the backend) the UI would run on a container and the database ported to Amazon RDS.

**"This is a wholesale transformation in the way we support the business. Our ultimate aims are to make our technology investments work harder for us and modernize the systems that have been supporting manufacturing processes for 20 years. Kubernetes and Rancher are helping us get there."** Anthony Andrades, Head of Global Infrastructure Strategy, Schneider Digital, Schneider Electric

In Kubernetes, development teams can deploy multiple clusters, each configured to specific application requirements. In Rancher, the infrastructure team can run each of these bespoke environments side by side, via one intuitive platform. Crucially, when used with other solutions, such as Aqua, Rancher becomes a secure and compliant environment for teams – both internal and external – to collaborate. With access control easily configurable in Rancher, the infrastructure team can allow unbridled access to the platform. This approach significantly boosts team innovation.



The project is in its infancy but Andrade is already seeing benefits daily. He has a mammoth task ahead: if he is to reach his five-year migration goal, he must automate a host of basic processes such as role-based access control (RBAC), namespace-as-a-service, authentication, application catalog, etc. Rancher takes care of these functions, dramatically reducing the deployment workload. According to Andrade, developers don't need to worry about security or operational processes. They can bring their own pipelines and repositories with them and run their workloads seamlessly while Rancher and Aqua guardrail the security controls.

Andrade and the team appreciate the fact they don't need to worry about the underlying infrastructure. If there's a problem, they receive a notification. If they want to quickly check the status of the clusters, they can check the dashboard to check everything is 'green.' They no longer have to keep checking performance, workload status, resource usage – Rancher removes the manual burden. This, Andrade believes, has freed teams to think more creatively.

**“It's not just a technical transformation, it's a cultural one, too. Our teams have long-established methodologies and so it's quite a thing to say 'Hey, you don't need a server anymore for just one app.' A big part of this effort is to bring the company with us on this journey.”** Anthony Andrade, Head of Global Infrastructure Strategy, Schneider Digital, Schneider Electric

Over the last year, the team has successfully migrated four key applications and is now managing these applications in clusters via the Rancher platform. This success has prompted the team to extend its use of the Rancher platform and double the number of nodes running in the cloud.



## A Cultural Transformation

As well as leading the technical transformation, Andrades is responsible for managing the cultural shift that a move to containers and the cloud naturally requires.

For some, who have been working in technology for the last couple of decades, a shift to a cloud-native existence is a big one. Long-ingrained development methodologies baked into the fabric of the infrastructure are as hard to modernize as the technology itself -- particularly when it might appear that the technology itself is replacing major parts of the job.

Andrades' focus, therefore, is to excite and galvanize the company around the opportunity every developer has to build new, disruptive skills. The range of experience spans experts through to complete novices and so his mission is to globalize the existing pockets of excellence by bringing the company together to hear their stories and take a closer look at how they're succeeding with Kubernetes. By sharing detailed technical expertise and best practice, along with a sense of long-term value, Andrades and his team believe they will carry the business along the journey with them.

## What's next?

Schneider Electric's relationship with Rancher Labs looks set to continue to grow in the coming months and years. The team recently renewed its support contract with Rancher Labs and has doubled its usage of the Rancher platform -- expanding to 40 nodes. This deepening of the relationship illustrates the confidence Andrades and his team have in the platform, the support they receive from Rancher and the long-term value the alliance will bring to Schneider Electric, its customers and the wider European energy sector.



# Timeline

- 2016: Kubernetes adopted as container orchestration strategy
- 2017: Identified a need for a unifying management platform
- 2018: Rancher POC takes place
- June 2019: After successful POC, Rancher selected to underpin architecture
- June 2020: Doubled Rancher usage; 2 RMS (Rancher management server) and 40 nodes
- July 2020: 4 applications now running in production; vision to migrate hundreds in 5 years

# Benefits

- Deployment and management time reduced due to automation
- Better security posture due to Aqua integration, RBAC and NaaS
- Innovation hastening
- Growing business case for Kubernetes

[www.rancher.com](http://www.rancher.com)

