

TIM enhances container capabilities with Red Hat OpenShift 4



Software and services

Red Hat® OpenShift®
Platform Plus

Red Hat
Enterprise Linux® CoreOS

Migration toolkit for containers

Red Hat Technical Account
Management (TAM)

TIM is the leading ICT group in Italy and Brazil and operates more than 100 million mobile and fixed lines. To take advantage of new management and data capabilities, TIM decided to migrate its existing Red Hat environment to Red Hat OpenShift 4. With help from its Red Hat Technical Account Manager (TAM), a dedicated expert and point of contact, TIM successfully migrated its critical business support system (BSS) applications with no downtime. The group can now provision new container clusters in days, rather than months. Cluster management and security is also easier and faster, with automated updates that free staff to focus on more valuable projects.



Telecommunications

Approximately 52,000
employees in Italy and Brazil

Benefits

- ▶ Completed migration of critical business support system (BSS) applications without outages or downtime
- ▶ Reduced server provisioning times from months to days
- ▶ Simplified container cluster and platform management to free resources for more valuable projects

“We no longer need to install lots of software on the virtual server each time we provision a new cluster. We can go straight from creating the final, approved container image to being ready to deploy to our production VM in a single step.”

Alessandro Bertini
Business Support System (BSS)
Platform Group Technical Lead, TIM

“Updating our OpenShift clusters with the OpenShift Update Service accelerates our ability to stay current with the latest features, bug fixes, and enhancements. It’s a much simpler process that helps us scale as needed to meet demand.”

Alessandro Bertini
Business Support System (BSS)
Platform Group Technical Lead, TIM

Updating back-end systems to latest container platform to enhance services

The TIM Group is the leading information and communications technology (ICT) group in Italy and Brazil. The group offers fixed, mobile, cloud and datacenter infrastructure, as well as communications and entertainment services for individuals, small and medium enterprises, large companies, private and public sector, and wholesale. TIM operates more than 100 million mobile and fixed lines across both countries.

More than four years ago, TIM implemented Red Hat OpenShift. Running in a virtualized datacenter environment, this architecture, with more than 1000 vCores, supports the transformation from monolithic application architectures to microservices applications for both front-end digital channels and back-end services, including the most critical for business.

To continue improving its service delivery, TIM sought to take advantage of new capabilities in Red Hat OpenShift 4—such as self-management and cluster automation—for many critical applications, but a complex environment risked business disruption during the upgrade. Each live application needed to be migrated across five environments: development, three testing environments, and production.

“We could see that these new technology capabilities would provide many benefits to our developer and customer experience,” said Alessandro Bertini, BSS Platform Group Technical Lead, TIM. “But we also needed to avoid any extended maintenance windows or unplanned downtime that could lead to downtime for our business support system.”

Working with a trusted technical expert to gain new container platform and management capabilities

TIM developers, architects, and application managers worked with the group’s [Red Hat Technical Account Manager \(TAM\)](#) to assist with the complex migration and optimize the group’s container platform investment. Red Hat TAMs work with customers to provide ongoing, security-focused guidance, functioning as a single point of contact for insight from an extended team of Red Hat product and support experts.

Together, TIM and its Red Hat TAM used Red Hat’s migration toolkit for containers to complete all migrations in just six months. This solution provides open source tools, including a web console and application programming interface (API) for migrating applications from the source cluster on Red Hat OpenShift 3 to a specified cluster on the latest Red Hat OpenShift release.

The group runs its updated Red Hat OpenShift environment on Red Hat Enterprise Linux CoreOS, a lightweight operating system that provides the stability of Red Hat Enterprise Linux within the [container platform](#).

“Our Red Hat TAM helped us plan the migration, with a breakdown of tasks and any prerequisites,” said Bertini. “He ensured any compatibility issues with legacy applications were resolved quickly. He’s involved in everything we do with our Red Hat OpenShift platform, and his support was critical to extending our team to complete the migration successfully.”

In addition to ongoing support from its Red Hat TAM, TIM also works closely with a Red Hat Customer Success Manager to orchestrate and monitor performance across its container environment.

Speeding and simplifying container processes

Completed container platform migration without customer-facing outages

Using the migration toolkit for containers web console, TIM established an automated approach that standardized and simplified the migration process compared to a manual approach. After creating a replication repository, adding the source cluster, and establishing the migration plan, no further manual work is required, eliminating the risk of human error or inconsistent configuration that could create service downtime or outages.

“With the toolkit, every application was migrated in the exact same way and remained the same as much as possible,” said Bertini. “Our critical BSS applications continue to operate without any issues, so we can continue to offer reliable infrastructure and telecommunications services to our customers as we deliver new, valuable features.”

Reduced provisioning times from months to days

Instead of five environments, the group’s new Red Hat OpenShift 4 infrastructure comprises a single production cluster and a single testing cluster, each running in different virtual machines (VMs) for resilience.

A simpler environment architecture, combined with a new operating system, has helped TIM reduce cluster provisioning time from months to days. TIM’s IT teams can now access a new cluster in 7-10 days, instead of 2.5 months.

“With Red Hat Enterprise Linux CoreOS, we no longer need to install lots of software on the virtual server each time we provision a new cluster,” said Bertini. “We can go straight from creating the final, approved container image to being ready to deploy to our production VM in a single step.”

Simplified container cluster and platform management

Management of TIM’s new container environment is also much more efficient, with automated, over-the-air updates. The OpenShift Update Service built-in feature automatically builds and notifies the operations team of updates based on recommended, tested paths. As a result, TIM can update an entire Red Hat OpenShift [cluster](#), as well as its Red Hat Enterprise Linux CoreOS deployment, in a single process.

Resilient, persistent software-defined storage based on Ceph® technology also helps TIM upgrade its Red Hat OpenShift clusters without affecting application performance: “We were happy to switch the storage technology from Gluster® to Ceph because the last one is a more robust and supported product. We are now using Red Hat OpenShift Data Foundation.”

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With only about half as many staff needed to manage its OpenShift and Linux platforms, TIM has freed resources to focus on more valuable projects, such as analyzing the adoption of hybrid cloud environments or working to make new OpenShift features that are not currently used available for developers.

Continuing to explore container technology possibilities

TIM's software architect team is now exploring other features of its updated container platform, including Red Hat OpenShift Service Mesh, a component that provides a distributed microservice architecture, and Red Hat Quay, a container registry that helps customers build, analyze, distribute, and deploy container images. "In particular, we'd like to use Red Hat Quay to set up a process that uses a certified base to increase application security," said Bertini.

The team is also running developer workshops to introduce the new Red Hat OpenShift 4 features and encourage their adoption.

"As more of our telco services move to an as-a-Service model, we are transforming our legacy application architecture to a microservices architecture," said Bertini. "Red Hat provides the robust yet easy to manage technology that we need to support this new approach."

About TIM

TIM is the leading ICT group in Italy and Brasil, placing itself at the forefront of digital technologies. Learn more on gruppotim.it.





About Red Hat Innovators in the Open

Innovation is the core of open source. Red Hat customers use open source technologies to change not only their own organizations, but also entire industries and markets. Red Hat Innovators in the Open proudly showcases how our customers use enterprise open source solutions to solve their toughest business challenges. Want to share your story? [Learn more](#).



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 develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. [A trusted adviser to the Fortune 500](#), Red Hat provides [award-winning](#) support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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