

Israel Defense Forces' IT unit delivers as-a-Service capabilities faster with Red Hat



The Center of Computing and Information Systems (Mamram), cloud service provider to the Israel Defense Forces (IDF), maintains as-a-Service capabilities as cloudlets—small, rapidly provisioned datacenters. To keep pace with user needs at the network edge, Mamram shifted from its virtual machine (VM)-based development approach to a continuous delivery (CD) approach using container and automation solutions from Red Hat. The unit's cloudlet group can now deliver applications and services to the edge in hours, rather than weeks, and support offline work to maintain organization-wide productivity with edge-based computing and robust security protections.

Software

Red Hat® OpenShift®

Red Hat Ansible®
Automation Platform

Red Hat Advanced Cluster
Management for Kubernetes

Services

Red Hat Consulting

Red Hat Training

Existing Red Hat solutions

Red Hat Enterprise Linux®



Government

Around **100** personnel

Benefits

- ▶ Reduced edge deployment time from weeks to hours
- ▶ Improved productivity with support for offline work and data access
- ▶ Enhanced infrastructure security and compliance

“Stability is the most important thing when you deal with mission-critical projects, and our collaboration with Red Hat Services teams gives us peace of mind that we can stay operational while adopting the latest modern technologies and approaches.”

Israel Defense Forces (IDF) lieutenant colonel

Head of Edge Cloud Platform R&D, Center of Computing and Information Systems (Mamram), C4i and Cyber Defense Directorate

“Automating processes with Ansible Automation Platform helps us scale processes to support and maintain a growing number of production clusters with the same resources we have today.”

Israel Defense Forces (IDF) major
Director of Cloudlet R&D,
Center of Computing and Information
Systems (Mamram) C4i
and Cyber Defense Directorate

Delivering military IT services faster at the network edge

The Center of Computing and Information Systems (Mamram) provides IT services to all branches of the Israel Defense Forces (IDF). Its developers, DevOps and system engineers, and research and development (R&D) specialists maintain core technologies, such as networking and datacenters, while exploring new opportunities to innovate with Internet of Things (IoT) and edge technologies. A key part of the unit’s work is maintaining a catalog of as-a-Service tools for databases, load balancing, storage, and more. These resources are available through cloudlets—small datacenters that can be quickly provisioned to provide support for resource-intensive tasks.

However, as demand for emerging technology like edge and IoT increased, a virtual machine (VM)-based approach could not keep pace, risking latency and incompatibility for applications deployed in the field. Provisioning and managing dozens of infrastructure clusters in production became increasingly time-consuming.

“We were transferring a large amount of data over slow connections,” said an IDF lieutenant colonel, Head of Edge Cloud Platform R&D, Mamram, C4i and Cyber Defense Directorate. “Deploying cloudlet technology in every project requires real-time processing to be a success. We realized that if we could compute data at the network edge instead, we could save time and money, ultimately shortening mission times.”

As a result, Mamram sought to build a central, cloud- and container-based cloudlet application that could easily expand to IoT devices and edge environments while maintaining maximum security.

Building a scalable yet supported container foundation for cloudlet services

The unit focused its search on open source technology and decided to deploy Red Hat solutions as a stable, supported enterprise open source foundation for its cloudlet operations.

“Open source means innovation, and we need to be as innovative as possible to face the challenges of edge computing. Open source communities form around solving a problem or developing new solutions, with an approach that’s more flexible in terms of capabilities and cost than proprietary technology vendors,” said an IDF major, Director of Cloudlet R&D for Mamram’s C4i and Cyber Defense Directorate.

Encouraged by the IDF’s previous success with Red Hat Enterprise Linux, Mamram adopted Red Hat OpenShift, an enterprise Kubernetes container platform that supports innovative, agile development. The unit deployed the platform in several configurations, including single-node and three-node architectures, across its cloud and bare-metal environments. Red Hat Advanced Cluster Management for Kubernetes enhances Red Hat OpenShift with multicluster life cycle management at scale, including comprehensive governance and compliance. Integrated with both solutions, Red Hat Ansible Automation Platform helps the unit’s cloudlet group automate key life cycle actions and development tasks, such as provisioning and upgrades.

To support adoption of these new solutions, Mamram engaged Red Hat Consulting for ongoing roadmap guidance, with close collaboration between the unit’s engineers and Red Hat’s solution architects. The unit also engaged Red Hat Training to provide hands-on, virtual instruction to its rapidly expanding cloudlet development team, which grew from 8 to 30 developers in a single year.

“Red Hat offers the right combination of people and products to address our business and technical challenges, including a roadmap to edge computing,” said the lieutenant colonel. “Stability is the most important thing when you deal with mission-critical projects, and our collaboration with Red Hat Services gives us peace of mind that we can stay operational while adopting the latest modern technologies and approaches.”

Due to its success with enterprise open source technology, Mamram was named a winner of the 2022 [Red Hat Innovation Awards](#).

Developing, deploying, and maintaining edge and IoT services at near real-time

Reduced edge deployment time

The cloudlet group’s users—operational units across the country—require near real-time responsiveness for their IoT devices and functions at the network edge. Previously, deployment of infrastructure services to these users took weeks. Now, with automated provisioning processes, a modular, container-based architecture, and iterative workflows, Mamram’s cloudlet group can provision a new cloudlet cluster in less than 2 hours and complete deployment in less than 2 minutes—reducing service delivery times to 3–6 hours.

“We have significantly accelerated edge deployment with Red Hat Advanced Cluster Management and ArgoCD supporting a continuous delivery approach,” said the major. “Additionally, automating processes with Ansible Automation Platform helps us scale processes to support and maintain a growing number of production clusters with the same resources we have today.”

Improved productivity with support for offline work and data access

When users cannot connect to Mamram’s central cloud, such as during network failures or outages, a cloudlet can serve as a local cache to ensure applications continue to work as usual. Data is processed at the network edge not only to improve performance but also to maintain system availability.

“By running managed services at the edge, we can continue to provide functionality to IDF units, even without a network connection,” said the lieutenant colonel.

Enhanced infrastructure security and compliance

As a military organization, Mamram must maintain its IT environments and resources in compliance with the highest security standards. With the governance controls provided by Red Hat Advanced Cluster Management, the unit’s cloudlet group can ensure its hybrid and multicloud production clusters are consistent and compliant, including automating updates to the latest software versions from Red Hat for proactive vulnerability prevention and performance optimization.

Applying modern technology and approaches to new challenges

After its successful creation of a stable yet responsive edge infrastructure, Mamram is exploring how its Red Hat technology could solve new, complex use cases.

“The collaborative innovation between our cloudlet group and Red Hat is bringing positive change to our organizational culture, helping Mamram and the IDF as a whole apply state-of-the-art technology and techniques to our missions,” said the lieutenant colonel. “All this ensures that we can better serve our country and citizens of Israel. The possibilities of cloudlet technology are endless.”

About the Israel Defense Forces (IDF)

The Israel Defense Forces is the military of the State of Israel. Its activities are subject to the authority of the democratic civil government of Israel. The purpose of the IDF is to preserve the State of Israel, to protect its independence, and to foil attempts by its enemies to disrupt the normal life within it. The C4i and Cyber Defense Directorate is the IDF's elite technological unit. Its main objectives are to initiate, develop, exploit, and strengthen the IDF's technological integration system.

<https://www.idf.il/en>






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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