

# Deployment Methods

## Overview

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Granulate employs real-time continuous performance optimization to allow organizations to handle compute workloads with 35% reduction in CPU utilization, while improving performance by 41%, with no code changes required.

## Granulate Architecture Building Blocks

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### sAgent

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Granulate sAgents are optimizing performance by performing continuous runtime level optimizations. The performance improvement is automatically translated into cost reduction through the autoscaling definitions.

### Runtime Optimization

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The Runtime Optimization dashboard is Granulate's tool for visually tracking, analyzing, and displaying key performance and cost metrics, which enable customers to monitor the benefits provided by Granulate's real-time continuous optimization.

### Continuous Profiling

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Continuous Profiling enables any team to leverage cluster-wide profiling to investigate performance with minimal overhead, by continuously analyzing the entire environment and identifying the most resource-consuming parts of the code.

### Capacity Optimization

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Capacity Optimization continuously orchestrates Kubernetes resources to fit the actual usage, reducing costs and manual R&D efforts by enabling autonomous dynamic scaling, complementing HPA and rightsizing workloads and nodes.

# Granulate SaaS - Start Optimizing Within Minutes

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Simply install Granulate sAgent on your physical or virtual hosts and start enjoying the value of real-time continuous optimization.

- Fast time to value
- No infrastructure investments
- Up and running in less than 5 minutes
- Granulate Runtime Optimization takes care of all operations and updates
- automatically Metrics are stored securely in Granulate's cloud
- We ensure that Granulate scales to your needs

## Deploying the Continuous Profiling

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The Continuous Profiling is Granulate's open source continuous profiler which allows customers to get an upfront assessment of potential optimization and cost reduction values for specific workloads.

Installing and using Continuous Profiling is simple and takes no time at all. To begin profiling your code, start by following the shortlist of steps below.

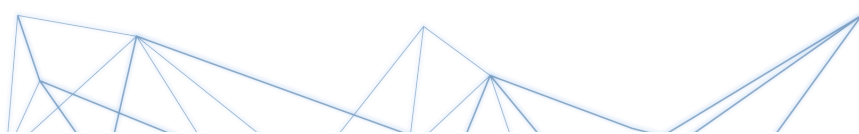
1. Visit <https://profiler.granulate.io/>
2. Sign up for a free account using your email address, Google login or GitHub login.
3. Select your preferred installation method. Continuous Profiling is easily installed with command line tools, Docker, or a Kubernetes Daemonset.
4. Once installed, you'll run Continuous Profiling on your production environment (details below).
5. Start digging into the profiling data displayed on Continuous Profiling.

## Deploying Granulate sAgent

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To start using Granulate's real-time continuous optimization you will need a Runtime Optimization dashboard account. The account can be created by the Granulate team.

1. Visit <https://app.granulate.io/>
2. Register to the Runtime Optimization using the provided registration link.
3. Select your preferred installation method. Continuous Profiling is easily installed with command line tools, Docker, or a Kubernetes Daemonset.
4. Deploy Granulate sAgent on the target workloads.



# Granulate SaaS - Always Available and Resilient

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Running on Amazon Web Services, Granulate uses the most robust enterprise-proven cloud technologies to provide an optimization solution as resilient and available as the systems it optimizes.

Granulate runs several AWS regions, operating in more than one availability zone in each region. AWS Auto Scaling and Elastic Load Balancing capabilities ensure that new Amazon EC2 instances spin up automatically to:

- Real-time failover redundancy built into all system components.
- Detect faulty components and replaces them immediately.

## Granulate SaaS - Security Processes

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### Software Development

Granulate follows well defined Security Development Lifecycle which includes architecture/design reviews, secure development, code reviews, validation and continuous review/mitigations of discovered vulnerabilities.

### Security Testing

- Granulate periodically conducts penetration testing using expert 3rd parties.
- Vulnerability scans are performed on routine basis using CrowdStrike Falcon Sandbox, Snyk, Flawfinder and Clang Scan-View.

### Training & Awareness

All Granulate employees undergo annual security-awareness training.

### Monitoring

- All systems we run are subject to permanent health and security monitoring.
- Monitoring tools and processes include DataDog and Sentry in addition to proprietary monitoring processes.

### Incident Response

We continuously monitor the security of our hosting environment. In case of security incidents, we thoroughly evaluate detected problems and the underlying root causes. We then define and implement countermeasures and required improvements.

### Failover & Backups

For high availability purposes we operate clusters in multiple AWS availability zones (SaaS deployment).

### Audit Logging

All systems operated by Granulate are subject to health and security monitoring, logging audit, and automated analysis of system logs.

## Data Retention

- Granulate stores and retains different types of monitored data from your environments (see section 'Data Collected' for relevant monitored data).
- The monitoring data is stored on the Granulate Server for a retention period of 2 weeks, billing data and anonymized aggregations of data are stored for a longer period of time.

## Granulate On-Premises - Self-Contained Deployment In Your Infrastructure

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Ideal for organizations with security or privacy policies requiring data to be maintained on-premises. Enjoy the conveniences of a SaaS solution while storing your data on your own infrastructure.

- Maintain full compliance with your company's policies.
- Optional automated operations and updates by connecting to the Runtime
- Optimization. Store data on your local infrastructure.

## Granulate On-Premises Cluster

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Your Granulate On-Premises cluster is responsible for monitoring and optimizing of one or more services. It includes at least one node with Granulate sAgent installed and on Runtime Optimization management console.

Each Granulate On-Premises component includes:

- Services optimized By Granulate, thereby requiring one or more instances of Granulate's sAgent
- Granulate Runtime Optimization Management Console

Depending on your preferences, Granulate On-Premise cluster can communicate with Granulate's Runtime Optimization for maintenance and licensing issues.

For more information contact [info@granulate.io](mailto:info@granulate.io)

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