

.NET Platform

BRIEF OVERVIEW

Agenda

- Introducing .NET
- .NET architecture
- CLR architecture



Introducing .NET

***“.NET** (pronounced as "dot net"; previously named **.NET Core**) is a free and open-source, managed computer software framework for Windows, Linux, and macOS operating systems. It is a cross-platform successor to .NET Framework”*

Wikipedia



Introducing .NET



Web

Build web apps and services for macOS, Windows, Linux, and Docker.



Mobile

Use a single codebase to build native mobile apps for iOS, Android, and more.



Desktop

Create native apps for Windows and macOS or build apps that run anywhere with web technologies.



Microservices

Create independently deployable microservices that run on Docker containers.



Cloud

Consume existing cloud services, or create and deploy your own.



Machine learning

Add vision algorithms, speech processing, predictive models, and more to your apps.



Game development

Develop 2D and 3D games for the most popular desktops, phones, and consoles.



Internet of Things

Make IoT apps, with native support for the Raspberry Pi and other single-board computers.

Introducing .NET



Mono (from 2004) – open source, cross-platform implementation

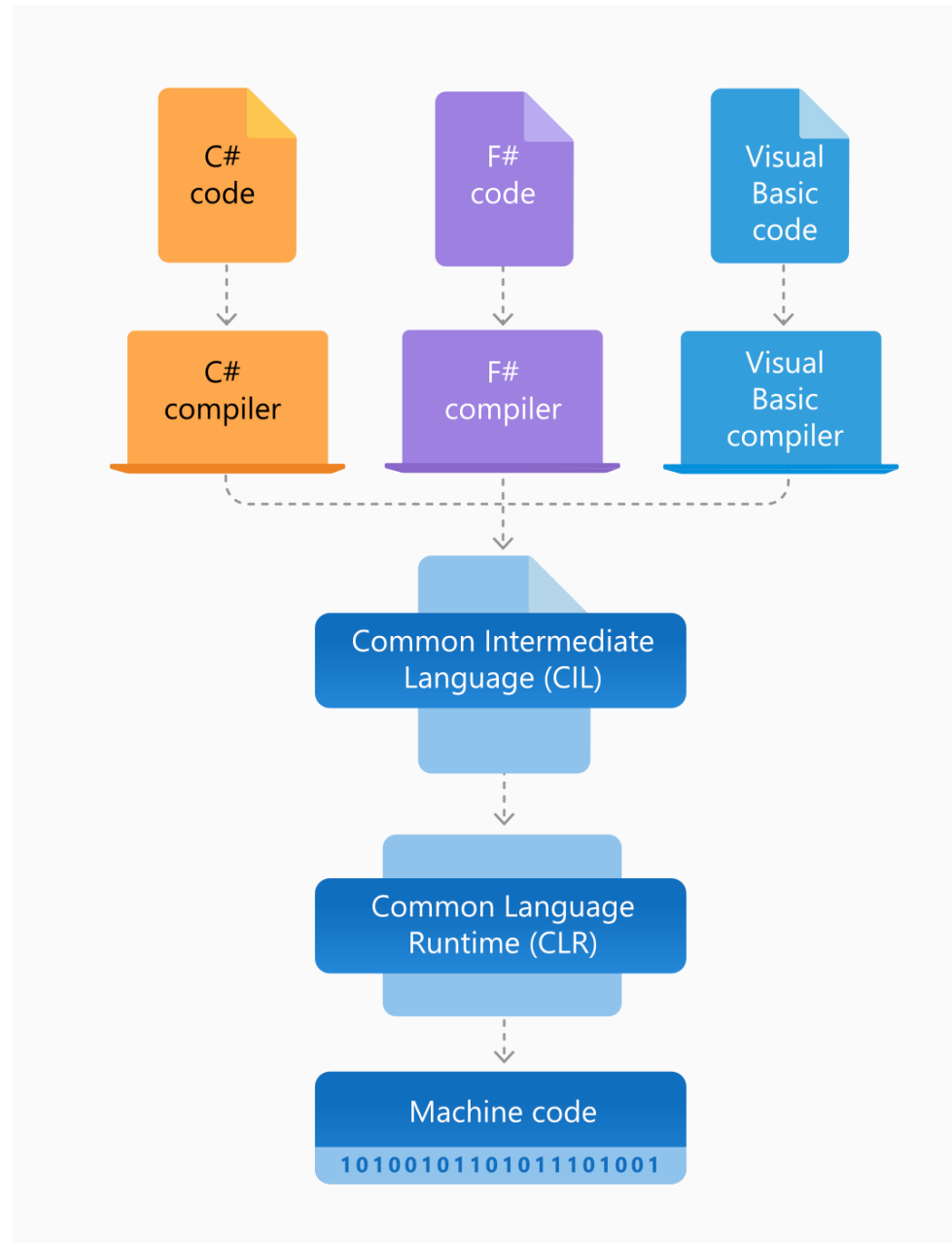


Silverlight (from 2007-2021) – platform for rich interface applications (RIA)

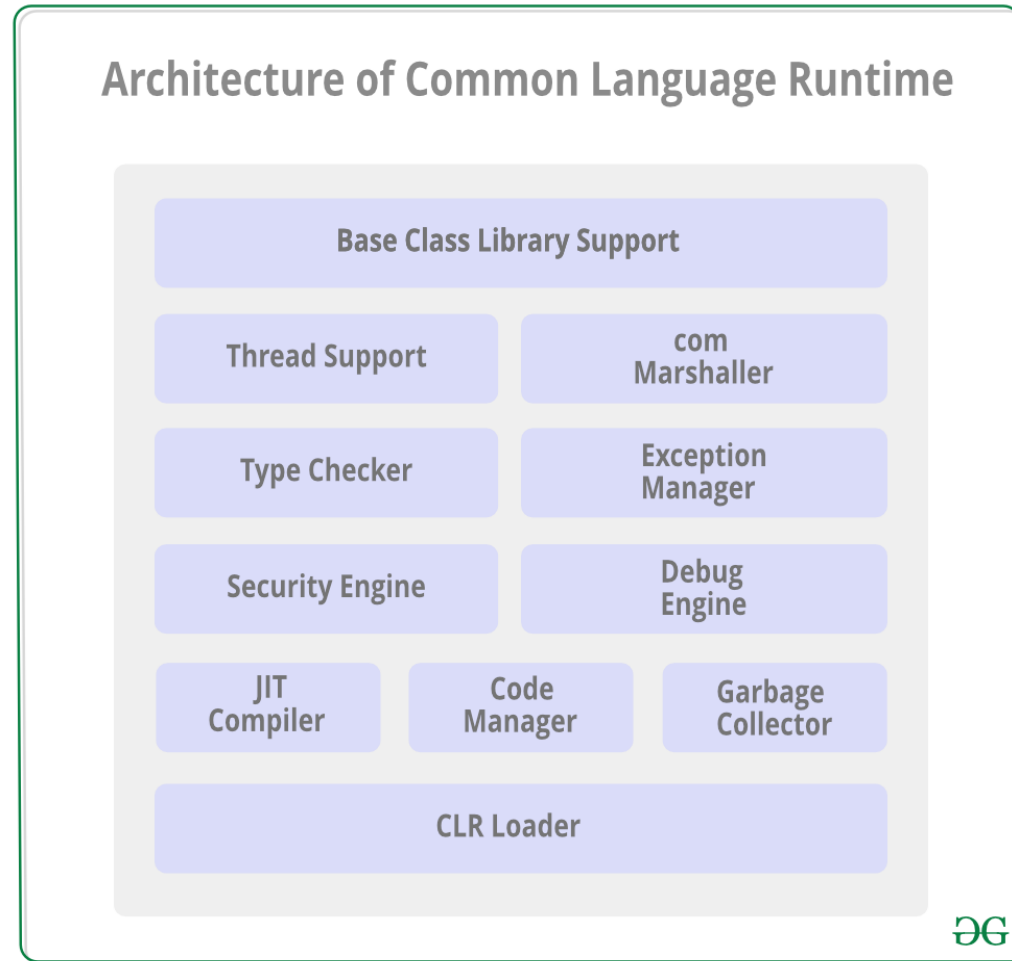


.NET Micro (from 2007) – platform for resource-constrained devices

.NET architecture



CLR architecture



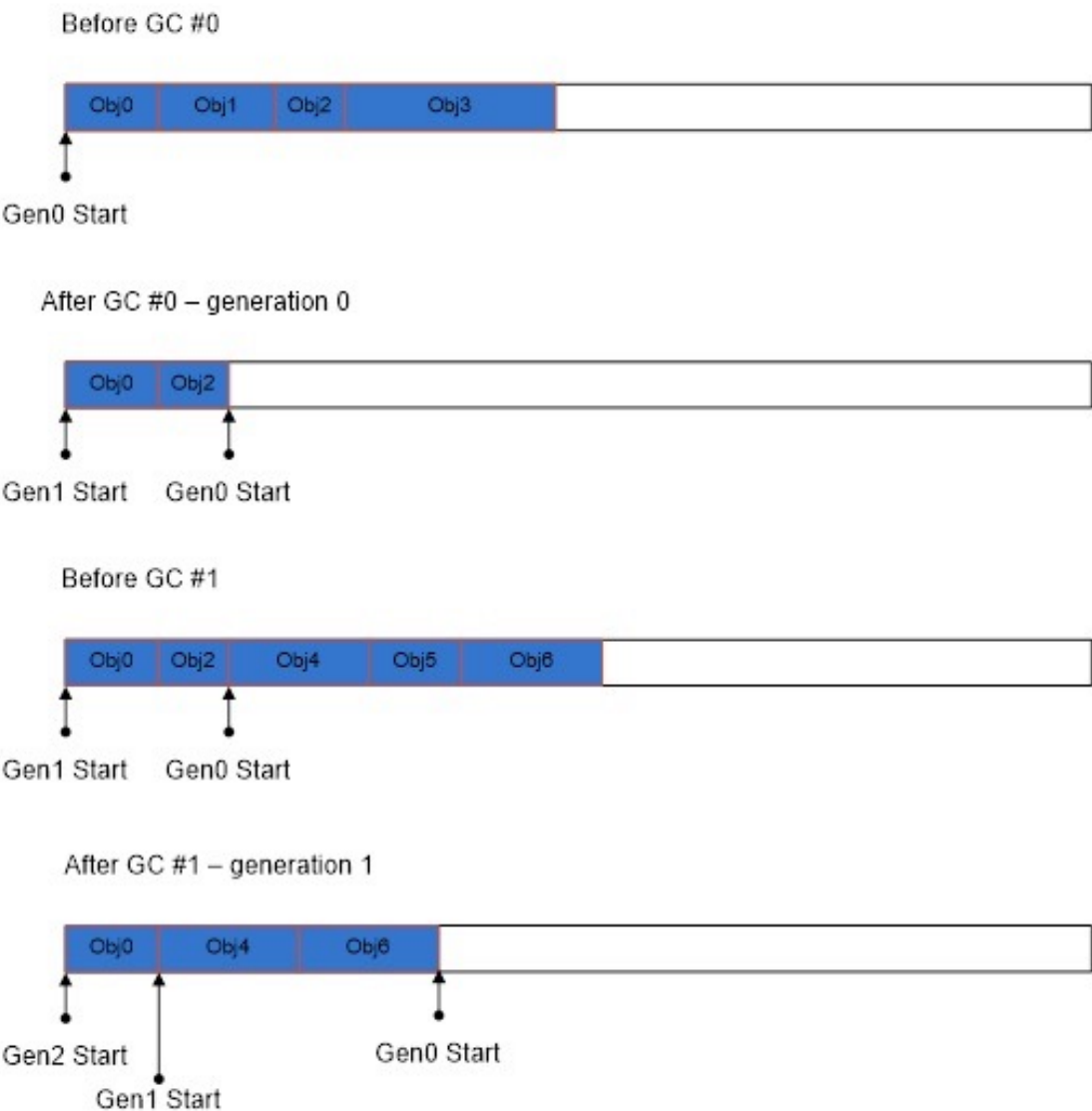
<https://www.geeksforgeeks.org/architecture-of-common-language-runtime-clr/>

Garbage collection

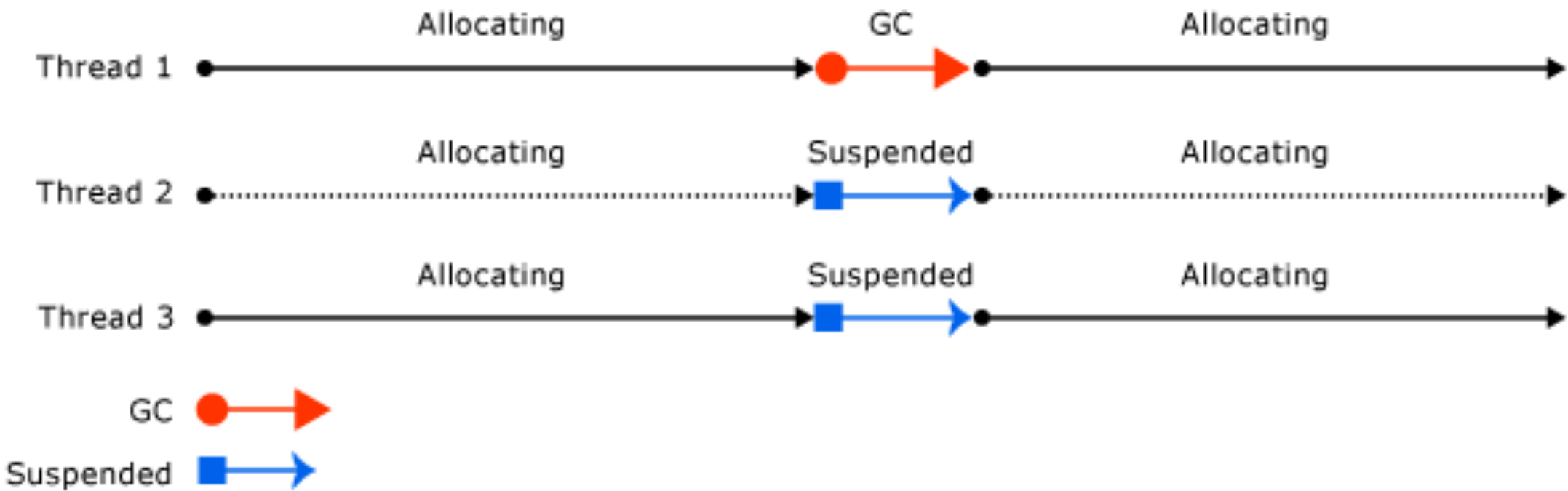
- Small Object Heap (objects less than 85K bytes)
- Large Object Heap (objects more than 85K bytes)

Garbage collection – generations

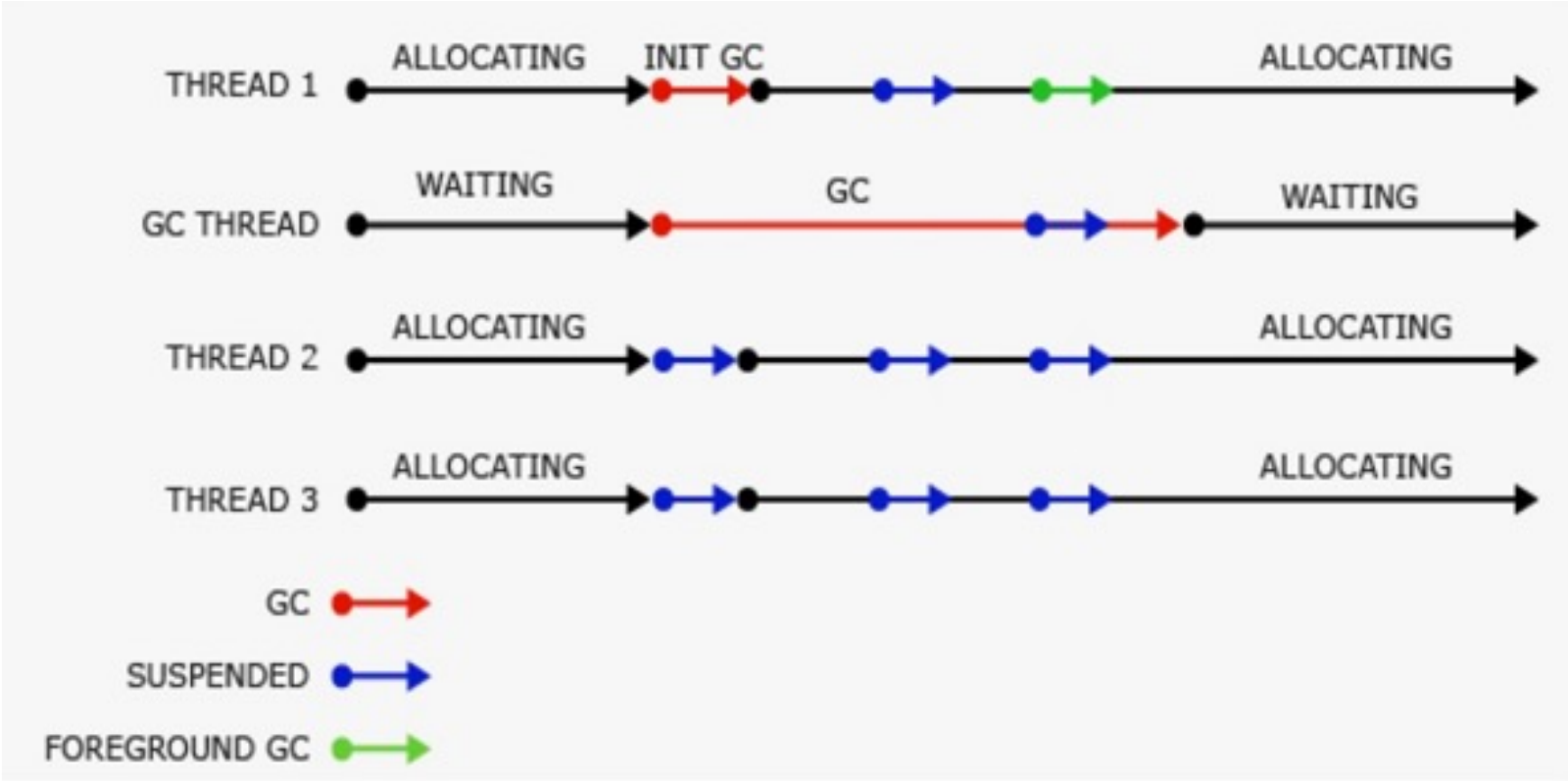
Fig. 1 – SOH Allocations And GCs



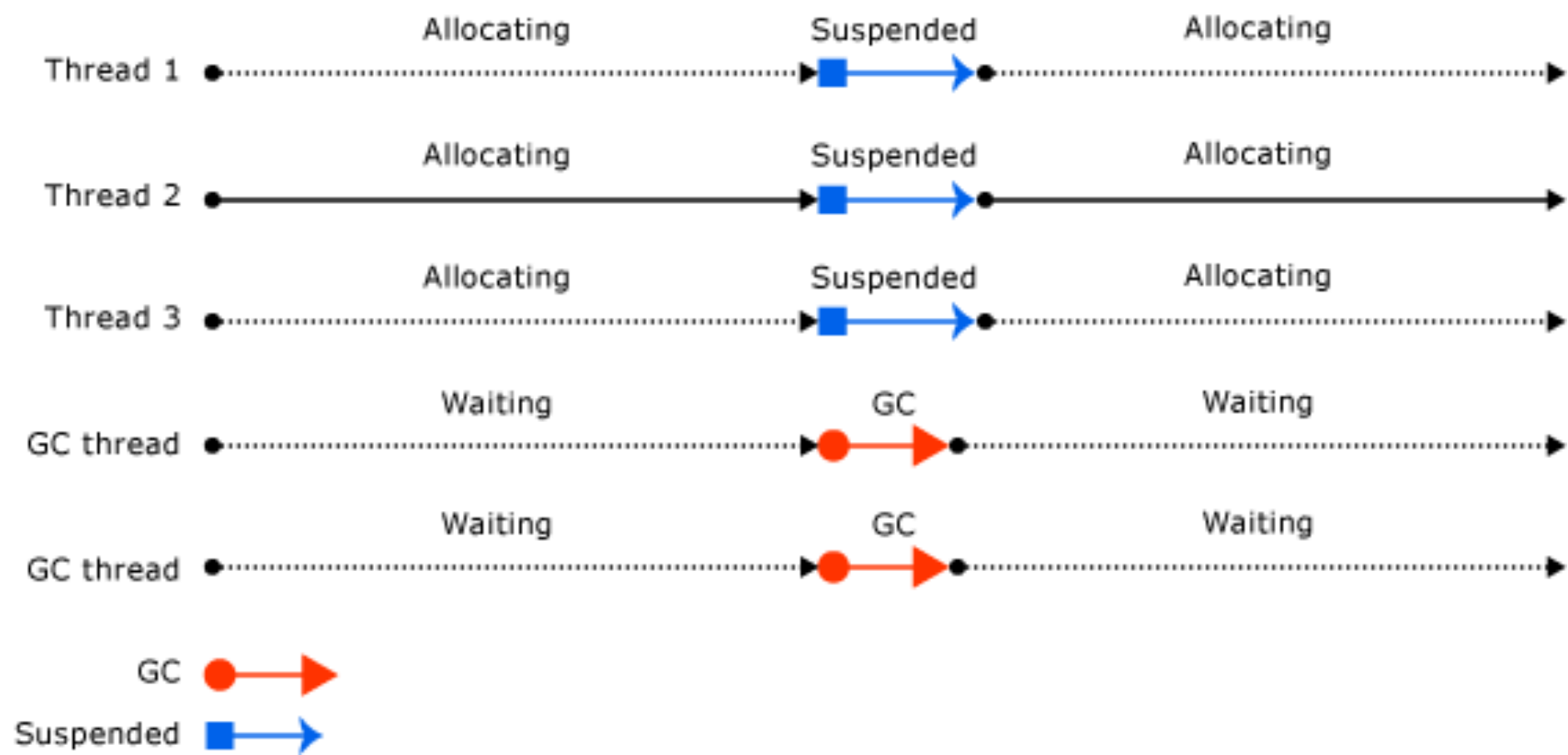
Garbage collection – workstation foreground GC



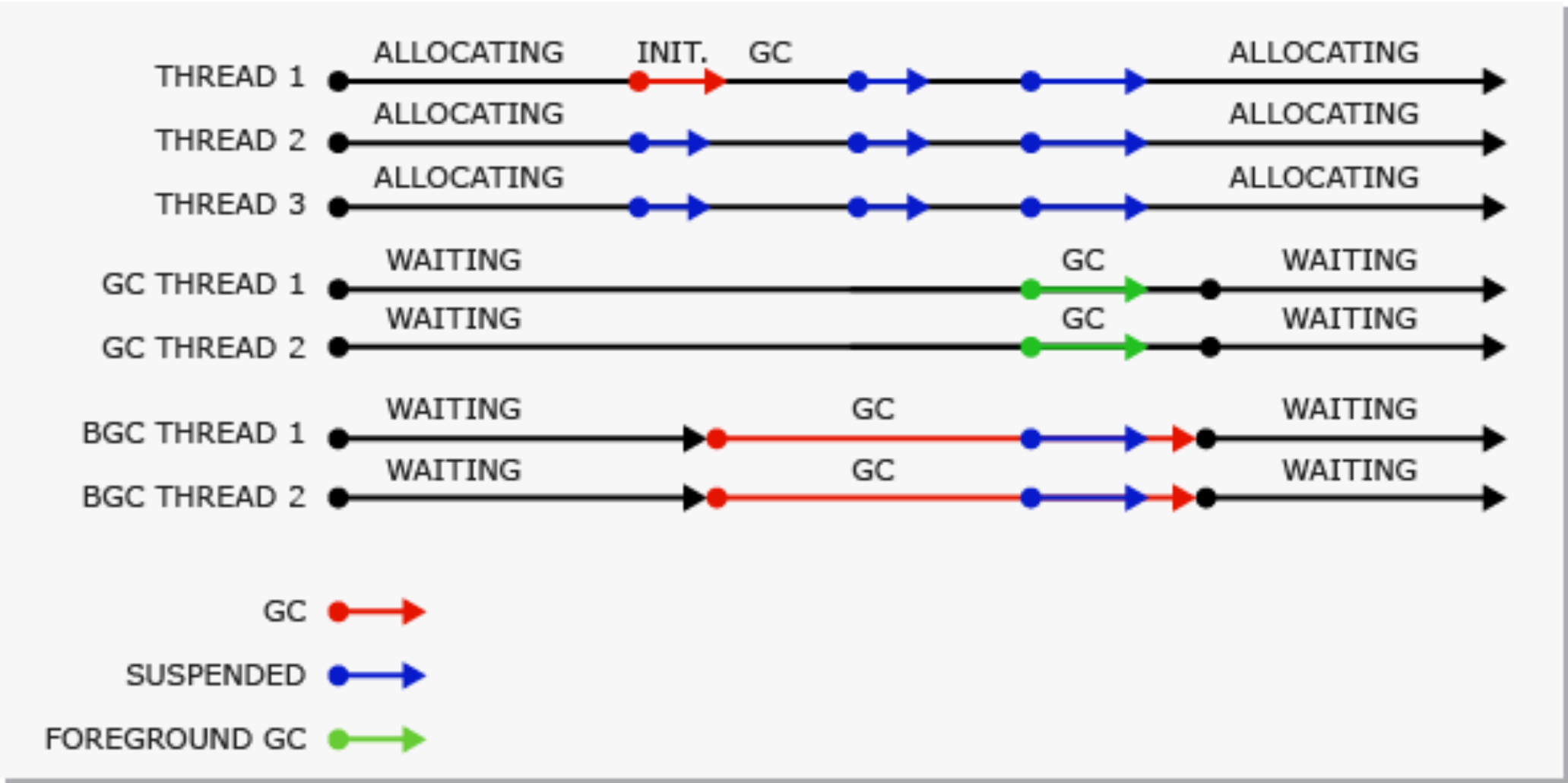
Garbage collection – workstation background GC



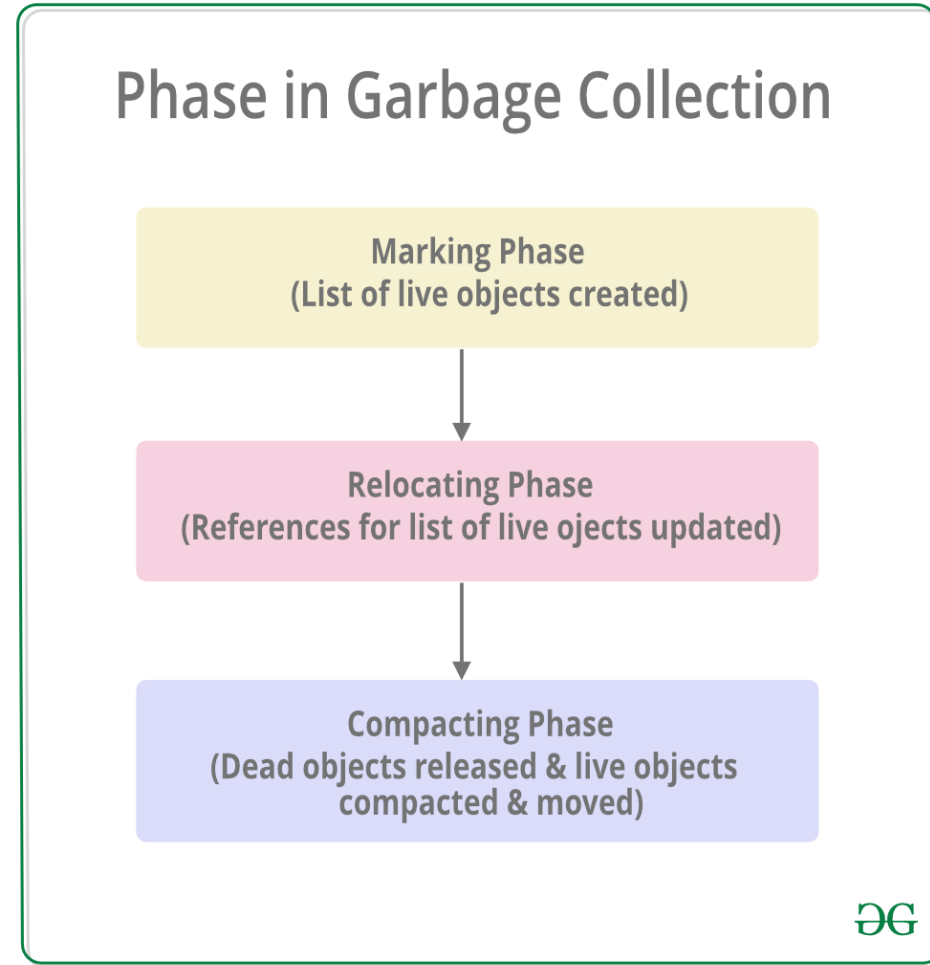
Garbage collection – server foreground GC



Garbage collection – server background GC



Garbage collection - phases



Garbage collection - roots

- local variables
- static fields
- GC handles
- finalize queue



Thank you for
attention!