



Systematization of Knowledge on Hardening Kubernetes through Native Configurations

LABCIB

Master in Informatics Engineering - 2024/2025

Porto, November 15, 2024

1190830 - Luís Correia

1190974 - Pedro Lemos

1191526 - Pedro Moreira

Version 2, 2024-10-17

Revision History

Revision	Date	Author(s)	Description
1	2024-11-15	Pedro Moreira	Initial version and structure
2	2024-10-17		Extended description

Contents

Li	ist of Figures	V
1	Introduction	1
2	Objectives and Scope	3
3	Methodology	5
4	Kubernetes Native Configurations for Hardening	7
	4.1 Data Encryption	7
	4.2 API Server Configurations	7
	4.3 Network Policies	7
	4.4 RBAC and Authentication	7
5	Complementary Tooling	9
6	Analysis and Best Practices	11
7	Conclusions	13
Re	eferences	15

List of Figures

1 Introduction

[Description, considering the project, of what under individual responsibility]

2 Objectives and Scope

[Description, for what under individual responsibility, that inform the goal, the questions related to functional correctness, metrics used and their values, with partial response to questions, and goal achievement analysis. Explicitly mention the tool report(s).]

3 Methodology

[Description, for what under individual responsibility, that inform the goal, the questions related to maintainability, metrics used and their values, with partial response to questions, and goal achievement analysis. Explicitly mention the tool report(s).]

4 Kubernetes Native Configurations for Hardening

[Description, for what under individual responsibility, that inform the goal, the questions related to performance, metrics used and their values, with partial response to questions, and goal achievement analysis. Explicitly mention the tool report(s).]

- 4.1 Data Encryption
- 4.2 API Server Configurations
- 4.3 Network Policies
- 4.4 RBAC and Authentication

5 Complementary Tooling

[Description, for what under individual responsibility, that inform the goal, the questions related to security, metrics used and their values, with partial response to questions, and goal achievement analysis. Explicitly mention the tool report(s).]

6 Analysis and Best Practices

[Description, for what under individual responsibility, that inform the goal, the questions related to architectural compliance, metrics used and their values, with partial response to questions, and goal achievement analysis. Explicitly mention the tool report(s).]

7 Conclusions

...

References