

Automotive Security in a Cloud Environment



Elektrobit

Thomas Fleischmann
12.07.2016



Automotive Security in a Cloud Environment



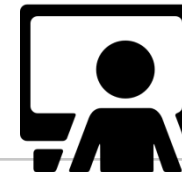
Engineering



Cloud



Security



Engineering best practices

First, not last: Quality is embedded in - not inspected in

dashboards Projects Measures Issues Rules Quality Profiles Quality Gates Log in Search

Gladshheim

Version 1.15.0-SNAPSHOT - 12. Nov 2015 08:59 Time changes...

Lines Of Code	Files	Functions
5.840	108	346

Java

Directories	Lines	Classes	Statements	Accessors
61	7.184	122	1.593	58

Duplications

2,5%

Lines	Blocks	Files
183	10	4

Complexity

684

/Function	/Class	/File
2,0	5,6	6,3

Complexity chart: Functions (selected), Files

Events: All

12. Nov 2015	Version	1.15.0-SNAPSHOT
09. Sep 2015	Version	1.14.0-SNAPSHOT
03. Sep 2015	Quality Gate	Green (was Red)
03. Sep 2015	Quality Gate	Red (was Green)
24. Aug 2015	Version	1.13.2-SNAPSHOT
12. Jun 2015	Version	1.13.1-SNAPSHOT
12. Jun 2015	Version	1.13.0-SNAPSHOT
10. Jun 2015	Quality Gate	Green (was Red)

Show more

Gladshheim com.elektrobit.odin.Gladshheim

Profiles: EB_CON (Java)

Quality Gate: EB CON

SQALE Rating: **A**

Technical Debt Ratio: 0,0%

Technical Debt: 0

Issues: 0

- Blocker: 0
- Critical: 0
- Major: 0
- Minor: 0
- Info: 0

The project has passed the quality gate.

Directory Tangle Index: 5,1%

Cycles: >3

Dependencies To Cut: 2 (Between Directories), 4 (Between Files)

Unit Tests Coverage: 81,7%

Line Coverage: 82,1% Condition Coverage: 79,8%

Unit Test Success: 100,0%

Failures: 0 Errors: 0 Tests: 235 Execution Time: 1.08 min

Integration Tests Coverage: 0,0%

Line Coverage: 0,0% Condition Coverage: 0,0%

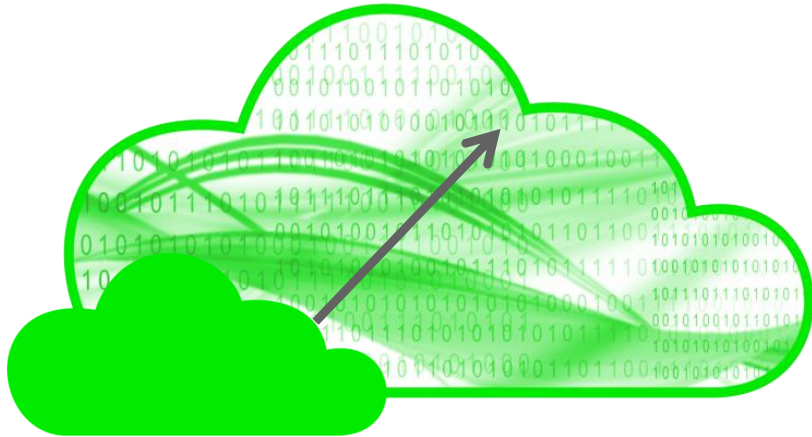
Overall Coverage: 81,7%

Line Coverage: 82,1% Condition Coverage: 79,8%

False Positives Issues:

- 2 more branches need to be covered by unit tests to reach the minimum threshold of 65.0% branch c... about a year
- 7 more branches need to be covered by unit tests to reach the minimum threshold of 65.0% branch c... 9 months
- Add a private constructor to hide the implicit public one. about a year
- 4 more branches need to be covered by unit tests to reach the minimum threshold of 65.0% branch c... 9 months

Cloud best practices applied at EB



- **Horizontal scalability and robustness with stateless services**
- **Continuous deployment and tests on all levels**

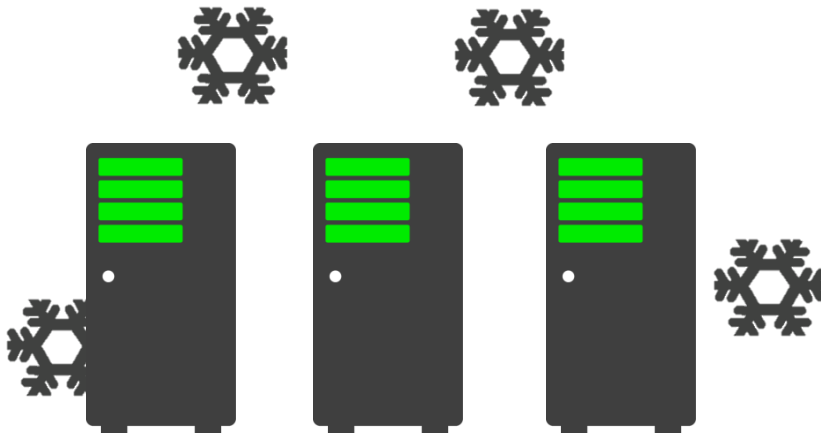
- **Monitoring and alarming for compliance, forensics, etc.**
- **DevOps team – you build it you run it**



Cloud best practices applied at EB



Avoid snowflake servers!



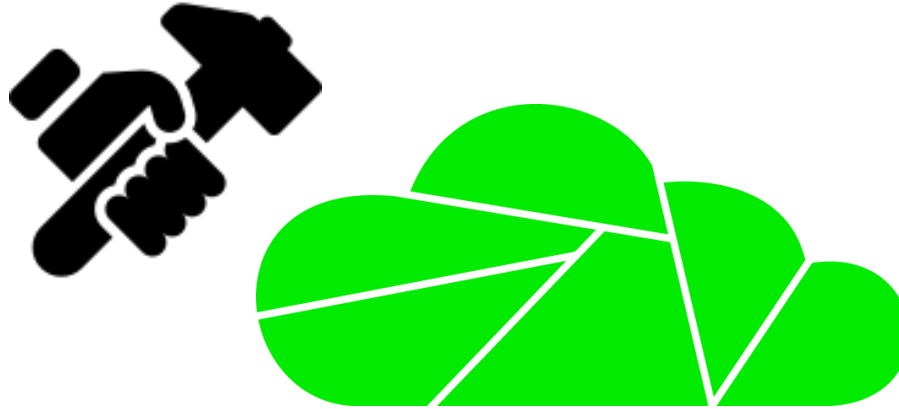
What are snowflake servers?

- Configured over time
- Each server is unique
- Difficult to scale and restore

At EB, when we apply cloud computing:

- The whole backend is deployed from the build system
- “Infrastructure as Code” → No configuration is manually changed
- As an example, any login via SSH – which is common for traditional servers - is considered a critical incident

Cloud best practices applied at EB



Think big or go home – downscaling is always possible

- Only with load tests you will find the bottlenecks
- A design without automatic scaling in it's core, cannot be scaled to high load in seconds.



Security best practices

You cannot have 100% security. Sorry. Fact.

BUT you should

- Follow a defined process
- Identify the system and it's protection need
- Do your Threat and Risk analysis to get proper security requirements





Security best practices

- Ensure logs allow traceability for compliance and forensics
- Know your dependencies
- Monitor what you run and - be ready



Thank you!
Questions?

 Elektrobit

automotive.elektrobit.com

Tom.Fleischmann@elektrobit.com

