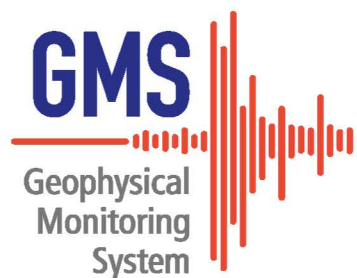


# IDC Re-engineering - GMS Development Environment



*PRESENTED BY*

J. Mark Harris

Technical Meeting on SHI Software Engineering at the IDC  
1-2 July 2019

The views expressed here do not necessarily reflect the views of the United States Government, the United States Department of Energy, the National Nuclear Security Administration, the United States Department of State, the Air Force Technical Applications Center, or Sandia National Laboratories.

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# GMS Development Infrastructure

**Project Documentation:** Confluence

**Developer Environment:** Developer VM

**Build System:** Gitlab-CI

**Repository Structure:** mono-repo

**Software Version Control:** Git

**Artifacts Management:** Artifactory

**Software Analytics:** SonarQube, Fortify, BlackDuck

**Deployment System:** Docker Compose → Docker Swarm

# Project Documentation

Confluence Wiki:

The screenshot shows the Confluence Wiki interface for the Geophysical Monitoring System. The top navigation bar is blue with the Confluence logo and links for Spaces, Forums, People, Tags, and Calendars. A 'Create' button and a menu icon are also present. The left sidebar contains the 'Geophysical Monitoring System Wiki' header with a star icon, a 'Tags' section, and a 'PAGE TREE' with the following items: Development, File lists, GMS Calendars, GMS Team Info, How-to articles, Lessons Learned, Onboarding, and Product Owner CoP. The main content area displays the title 'Geophysical Monitoring System Wiki' with a subtitle 'Created by Dorthe B Carr, last modified on Jan 15, 2019'. Below the title is a large graphic featuring the letters 'GMS' in a bold, dark blue font, followed by a series of vertical red lines of varying heights that resemble a seismic waveform. To the right of this graphic, the text 'Geophysical Monitoring System' is written in a smaller, grey font.

Confluence Spaces Forums People Tags Calendars Create ...

Geophysical Monitoring System Wiki

Tags

PAGE TREE

- > Development
- > File lists
  - GMS Calendars
  - GMS Team Info
  - How-to articles
  - Lessons Learned
- > Onboarding
- > Product Owner CoP

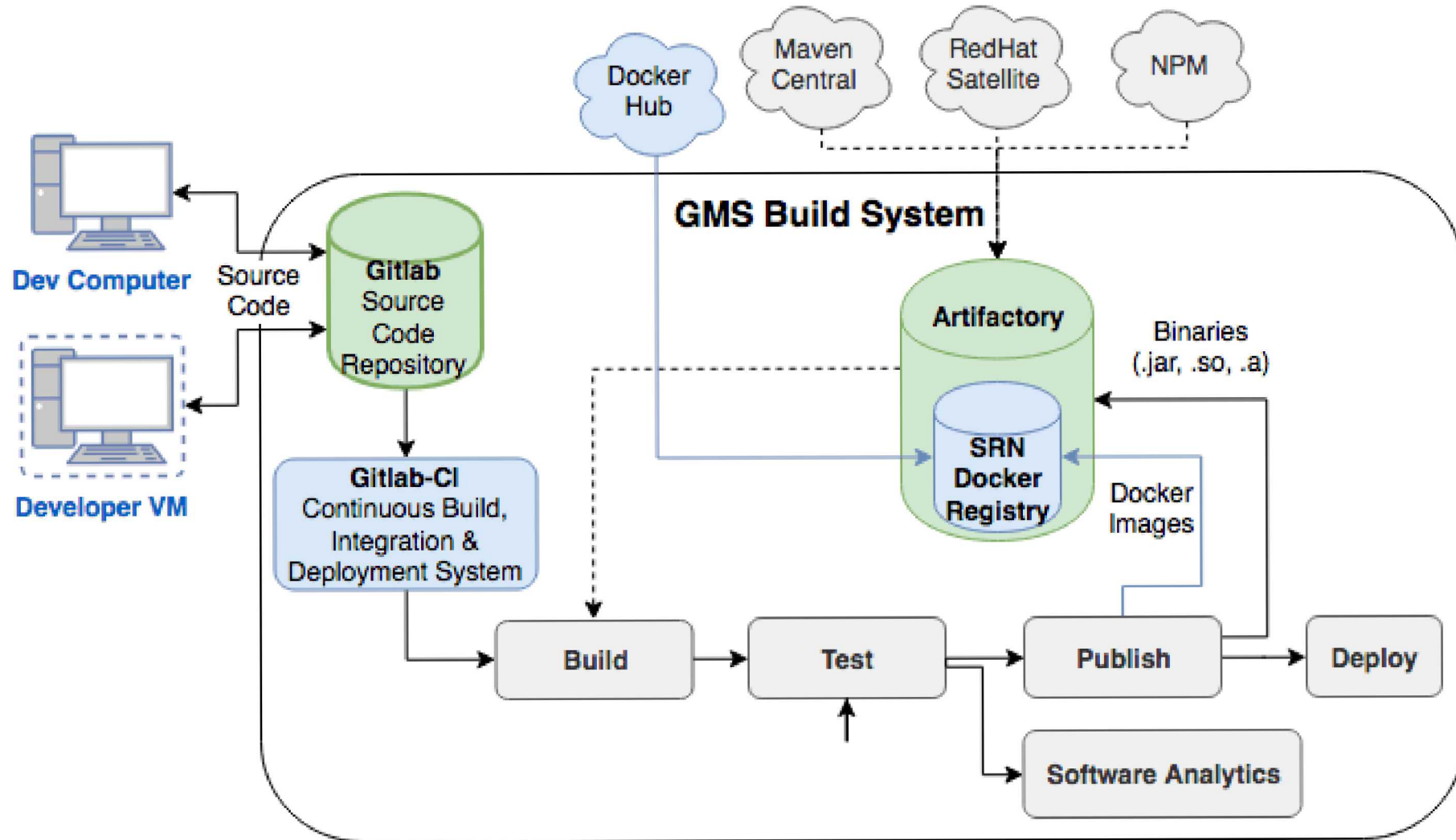
Dashboard

## Geophysical Monitoring System Wiki

Created by Dorthe B Carr, last modified on Jan 15, 2019

**GMS** Geophysical Monitoring System

# Build System Overview



# Software Technologies Used

**Container Software:** Docker, Docker Compose, Docker Swarm

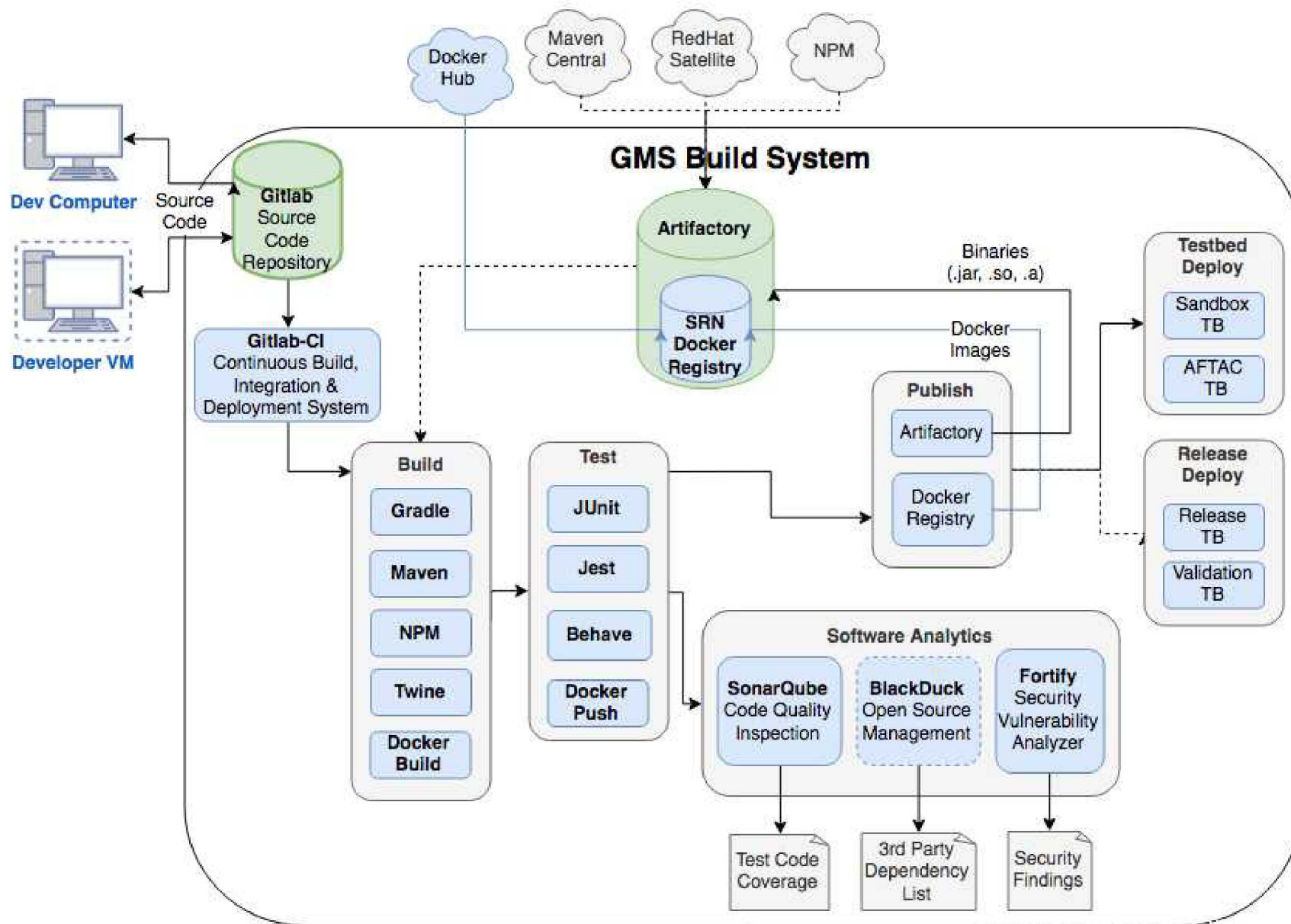
**Backend Software:** Java 9, Python 3.6, Postgres, Cassandra, Nifi, Nifi Registry

**Frontend Software:** Node/Typescript, Nginx, Electron/Browser

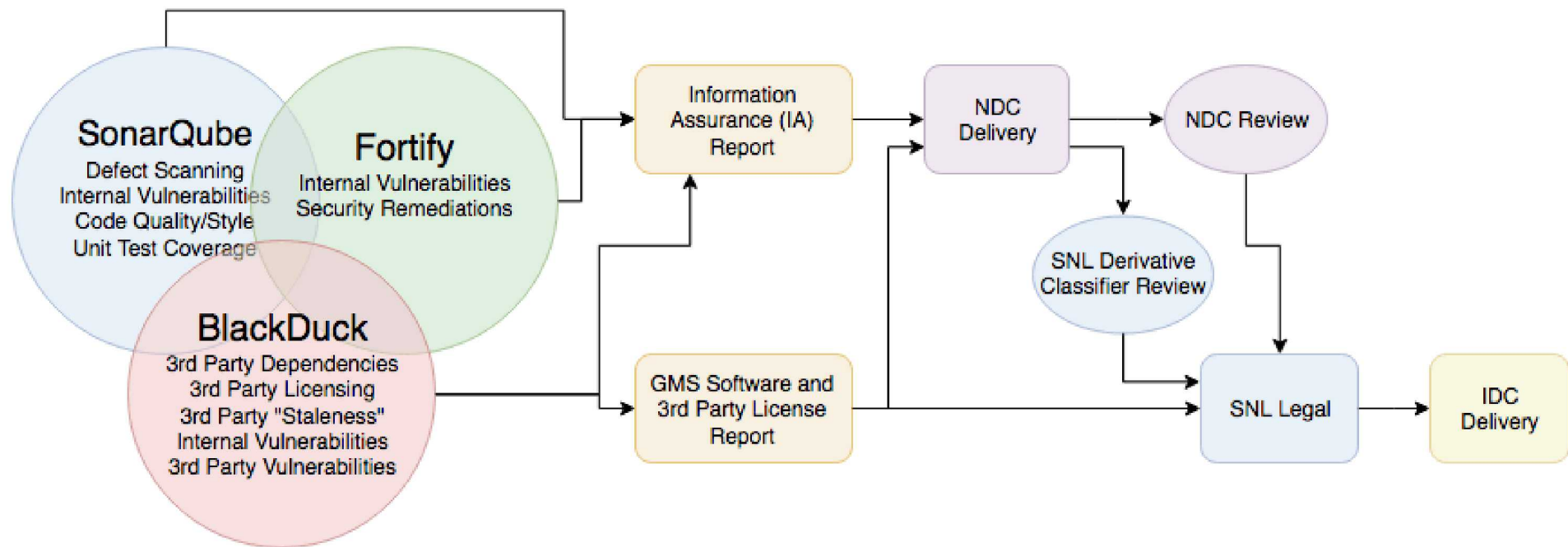
**Build Tools:** Gradle, Maven, NPM, Pip/Twine

**Test Tools:** JUnit, Jest, Behave, Cucumber, Gherkin, Wiremock

# Build System







# PI7 Docker Swarm Requirements

## Physical Hardware:

- Multiple Servers for High Availability/Load Balancing

Type	Server Count
Basic	3
Advanced	5
Optimal	8



END