ORT Server

Martin Nonnenmacher

Bosch.IO GmbH

ORT Server
ORT Community day 2023

Agenda

1. Why ORT Server?
2. Vision
3. MVP
4. Outlook

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01

Why ORT Server?

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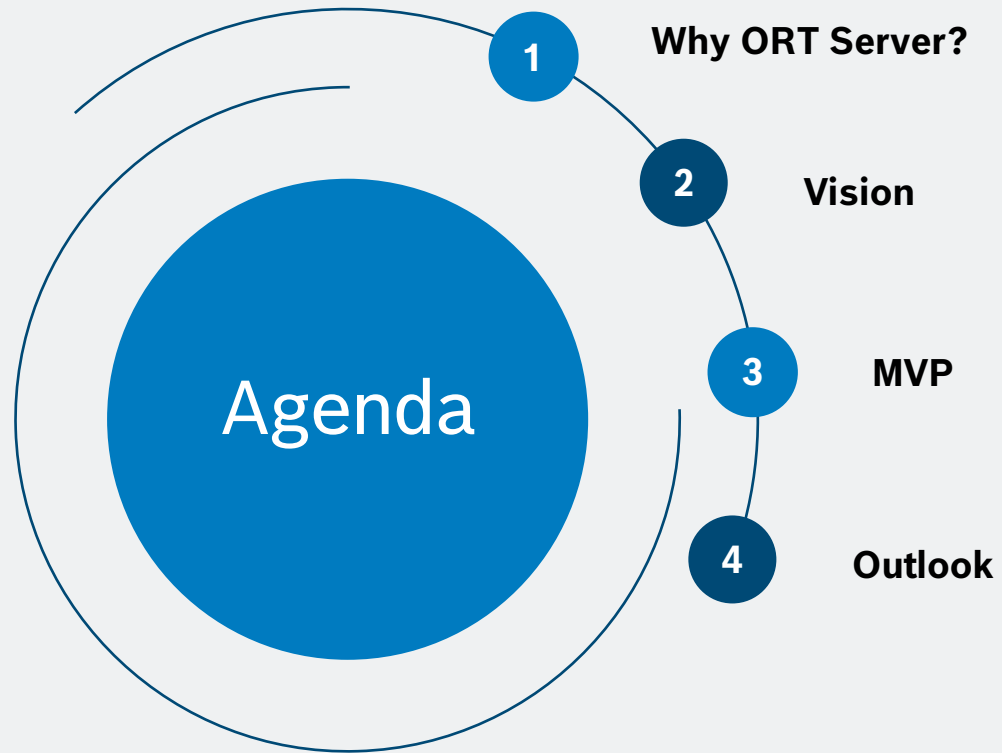
Why ORT Server?
Shortcomings of ORT CLI

- Requires building complex CI pipeline

- Serialization overhead when transferring results from one tool to another

- No orchestration of parallel runs
    - Can result in duplicate work, for example scanning the same package twice.
    - Unnecessary delay caused by serial execution of tools.

- Large memory consumption because whole ORT result needs to be in memory

- No central database for results
    - Not possible to query multiple results, for example to find out which projects depend on a certain package.
    - No migration for old results.

- No graphical user interface

- Complex credential management

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Why ORT Server?
Existing Integrations

- Jenkinsfile

  - https://github.com/oss-review-toolkit/ort/blob/main/integrations/jenkins/Jenkinsfile

- GitHub action

  - https://github.com/oss-review-toolkit/ort-ci-github-action

- GitLab pipeline

  - https://github.com/oss-review-toolkit/ort-gitlab-ci

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Why ORT Server?
Shortcomings of Existing Integrations

- Limited scaling options
  - Job runtime often limited
  - Difficult to improve parallelization
  - Overhead when copying results from one job to another
- No functional monitoring
- Hard to debug
  - Need to simulate CI environment
- Prone to race conditions
  - Configuration changes between jobs
  - Duplicate work
- Difficult to make customizable for user
  - For example custom features like skipping the scanner

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Why ORT Server?
Workarounds

- WebApp and static HTML reports
  - Missing contributors
  - No realtime view
- ORT Workbench
  - https://github.com/oss-review-toolkit/ort-workbench
  - Missing contributors
  - Cannot run ORT
- ORT Helper
  - https://github.com/oss-review-toolkit/orthw
  - Only for technically experienced users

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02

Vision

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Vision
ORT Server Goals

- API (REST, GraphQL)
- Scalable (cloud agnostic)
- Easy setup and integration
- Keep flexibility
- Web frontend
- Access management
- Inventory management

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03

MVP

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MVP
Project Hierarchy

- Organizations
  - Products
    - Repositories
- Access management
- User managent
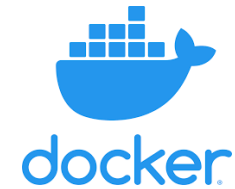- User configuration
  - Credential management

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MVP
REST API

- Manage project hierarchy
- Trigger runs
  - Flexible configuration
- Status updates
- Generate reports
- Query data

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MVP
Components

- API

- Orchestrator
  - Manage jobs
  - Prevent duplicate work

- Workers (analyzer, scanner, …)
  - Run individual tools
  - Separate Docker images

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MVP
Architecture

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MVP
Integrations

Kubernetes

GitHub Action

OpenAPI

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04

Outlook

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Outlook
What happens after the MVP?

- Open Source

- ORT refactorings required to improve server

  - Result API

  - Better separation of user and admin configuration

- Web frontend

  - Manage project hierarchy

  - View results

  - Curation workflow

- Organization and product reports

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Questions

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