

Consolidating build infrastructure and deployment methodologies

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Outline

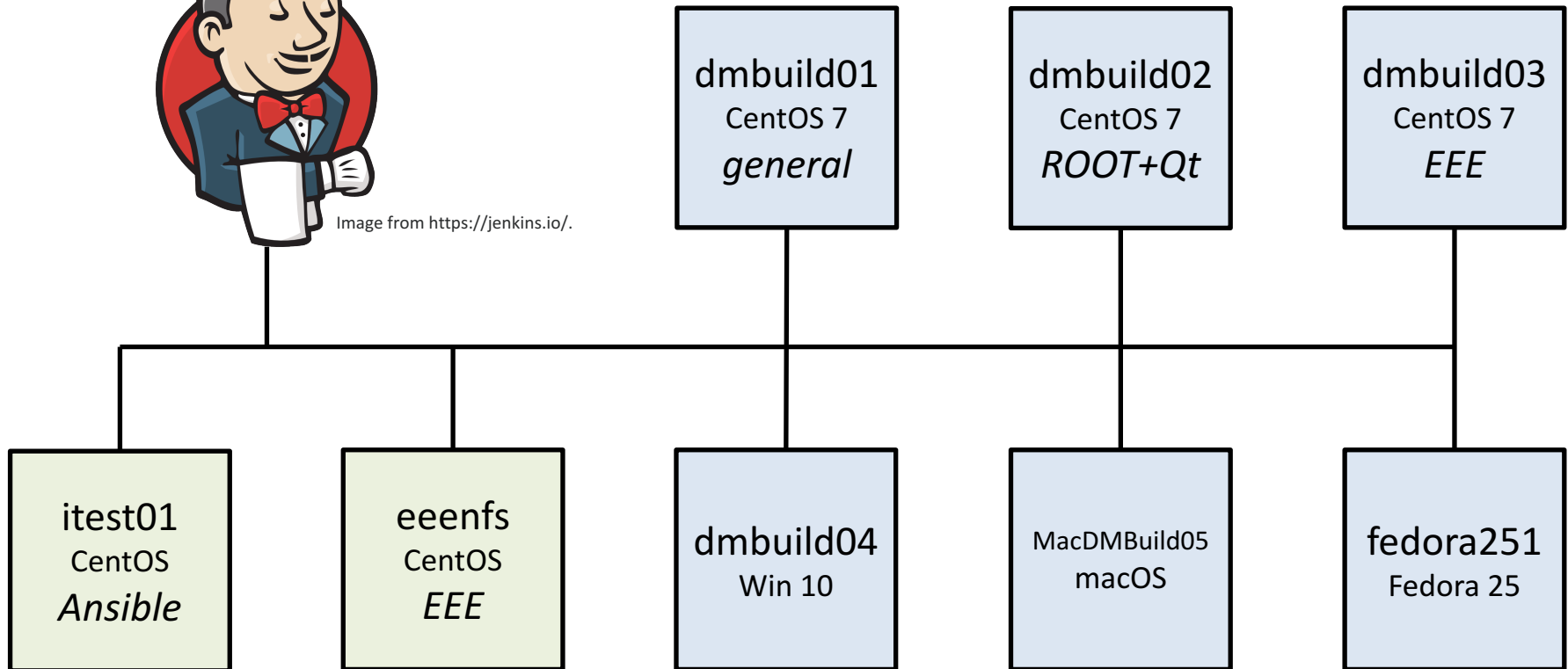
- Current status
- Consolidation
 - Docker container build nodes
 - Conan packages
 - Standardising build steps
- How to adapt projects
- Hands-on session

Current status

<https://jenkins.esss.dk/dm/>



Image from <https://jenkins.io/>.



Current status

- Four specialised Linux build nodes with different dependencies installed
- Most projects under *ess-dmssc* building inside Docker containers
- Some building on old versions of containers
- Some using Conan
- Some run static analysis and calculate code coverage
- Some archive artefacts

Current status



Image from <https://jenkins.io/>.

- We need to maintain the different build nodes
- Builds can be hard to reproduce locally; often requires logging into build nodes to debug
- Without standardised artefacts, deploying can be complex

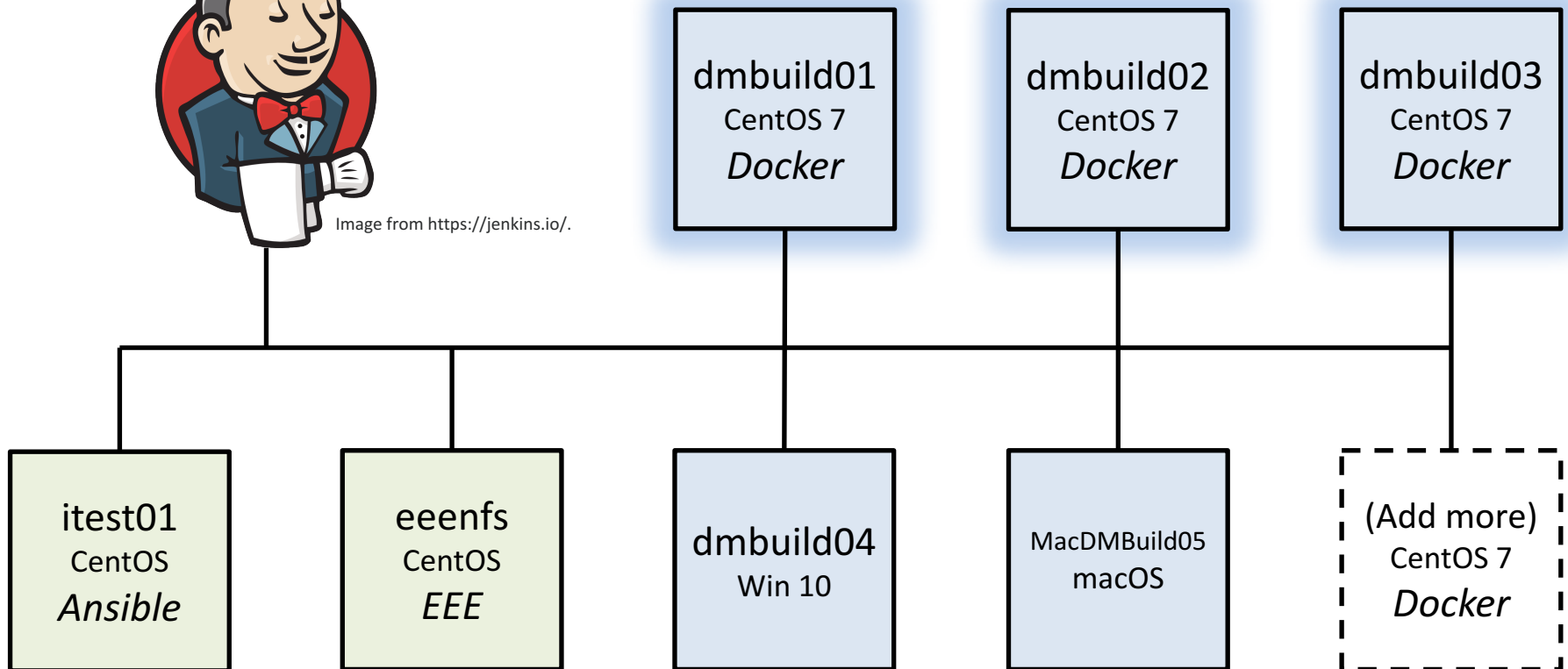
Consolidation: Docker

<https://jenkins.ess.dk/dm/>

Just add new identical build nodes



Image from <https://jenkins.io/>.



Consolidation: Docker

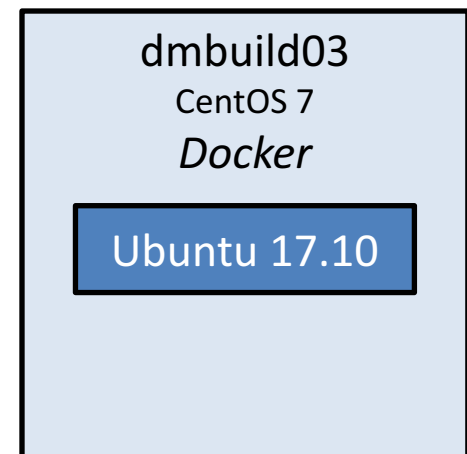
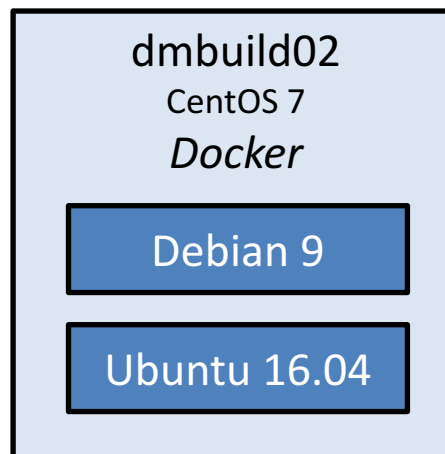
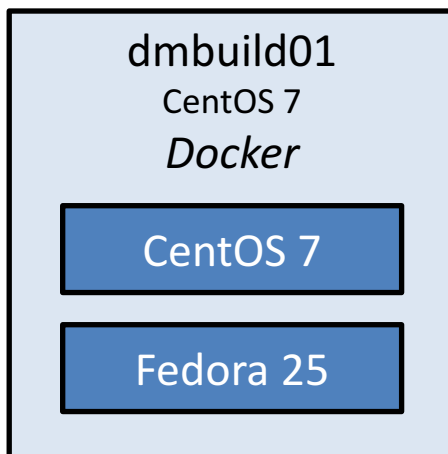
<https://jenkins.esss.dk/dm/>



Image from <https://jenkins.io/>.



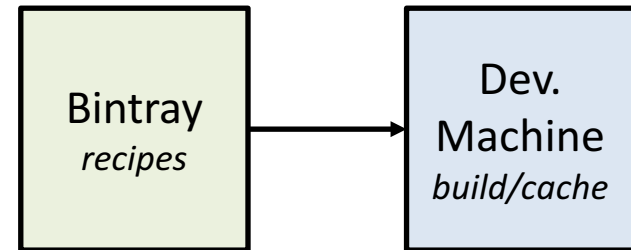
start containers
in parallel



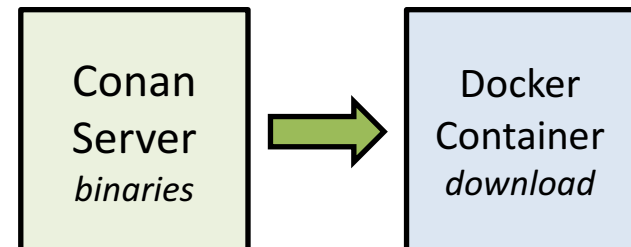
Consolidation: Conan

- Conan recipes are available from <https://bintray.com/>
- Recipes can be built and cached on development machines
- A local Conan server caches binaries for the containers in the build node network

Local development:



Jenkins builds:



Consolidation: build steps

- The build node containers include our standard build and test tools, so static analysis and code coverage calculation can be added:
 - clang-format
 - cobertura
 - cppcheck
 - flake8
 - valgrind
- An artefact archiving step makes deployment simple

How to adapt projects

- References and instructions are available on Confluence at <https://confluence.ess.lu.se/display/DMSC/Development+Environment>
- Copy and adapt code from other projects (e.g. <https://github.com/ess-dmsc/kafka-to-nexus/blob/essiip-deployment/Jenkinsfile>)
- The build node containers can be run locally with Docker for testing and debugging

Hands-on session

- Pick a project
- Put these ideas into practice
- Ask questions
- Look at other repositories for ideas and solutions
- Read and improve the documentation on the Development Environment page