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Using LabVIEW in a continuous integration environment

Fredrik Edling, Ph.D

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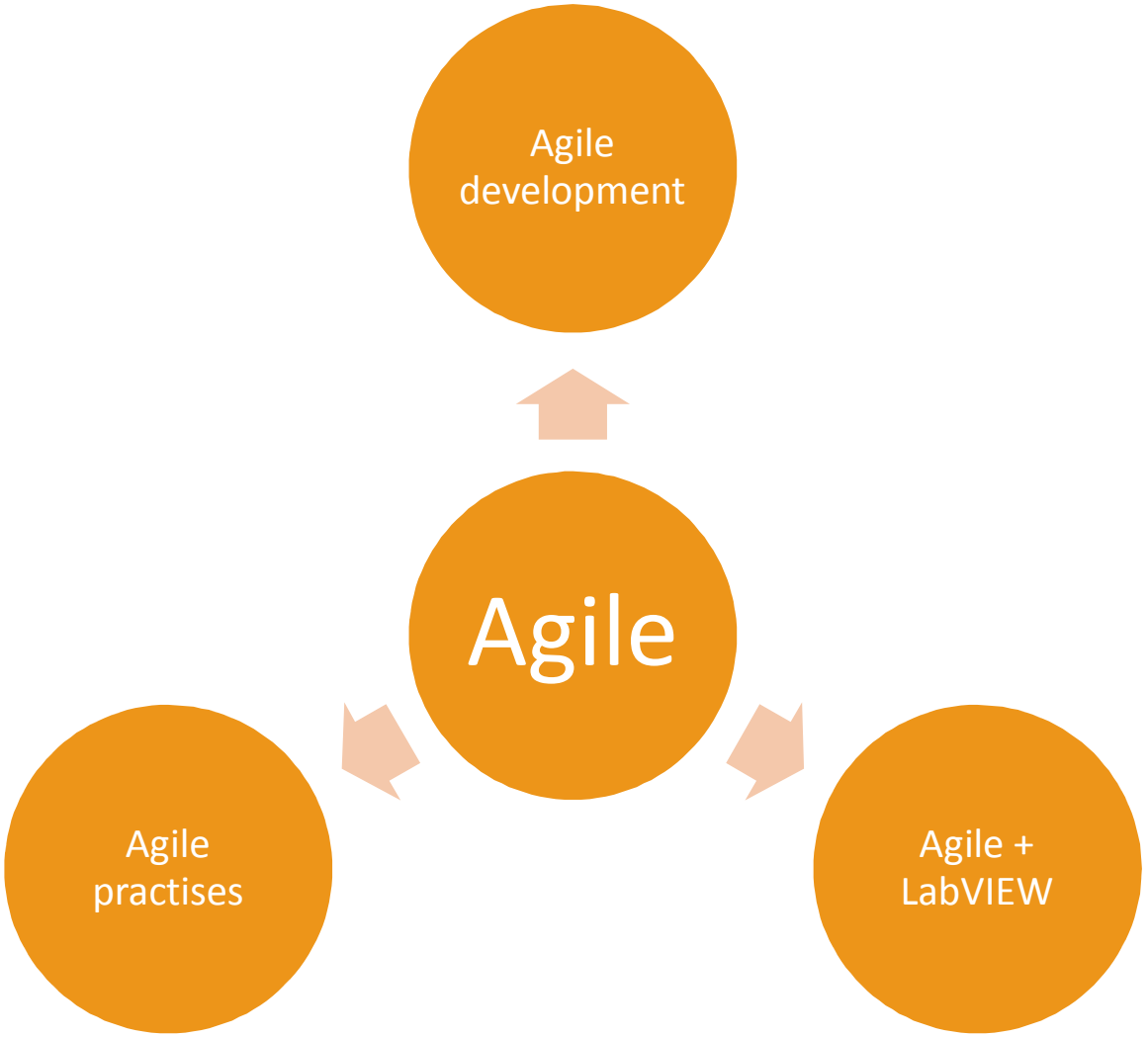

Agile development
Agile
Agile practises
Agile + LabVIEW

Individuals and interactions over processes and tools

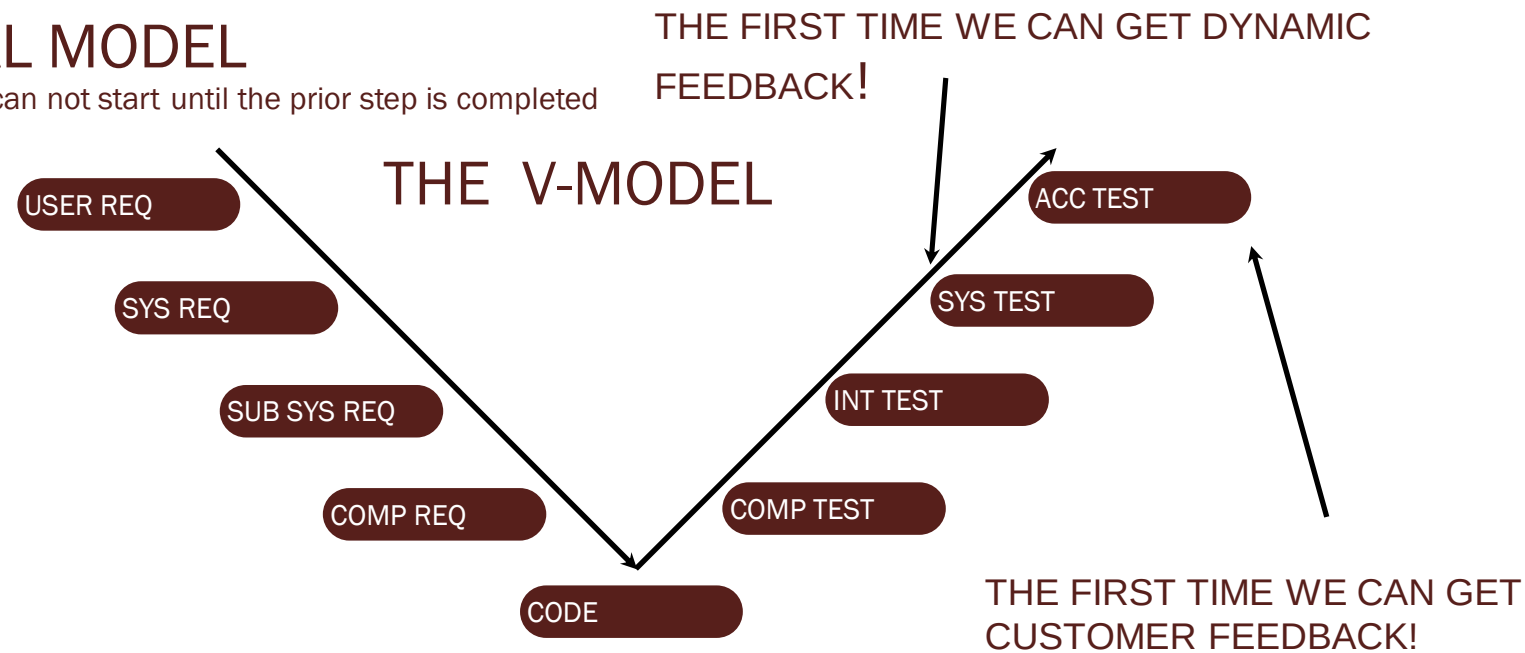
Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

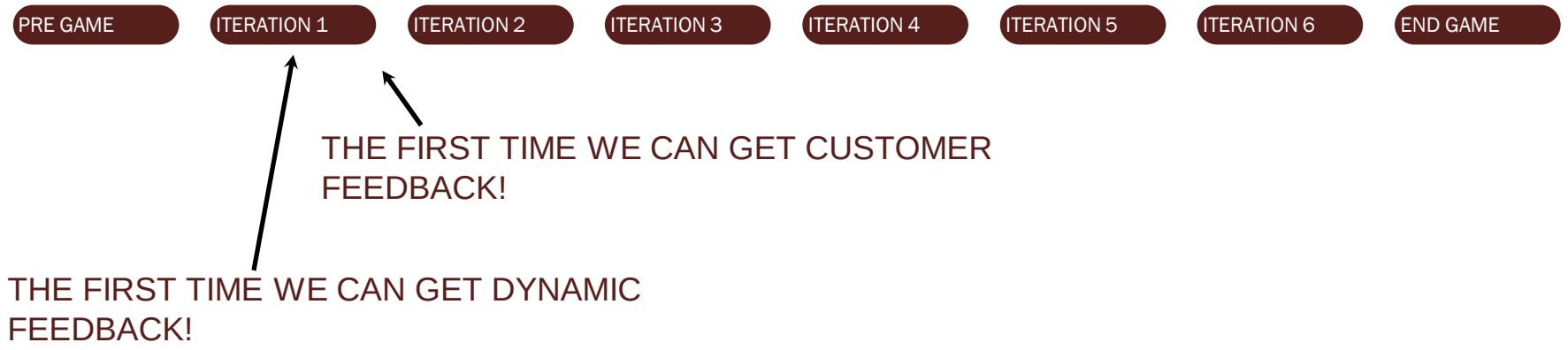
SEQUENTIAL MODEL

Execution of one step can not start until the prior step is completed



AGILE MODEL

Concurrent design, implementation and test of small increments



Provide continuous feedback

Deliver value to the customer

Enable face-to-face communication

Have courage

Keep it simple

Practice continuous improvement

Respond to change

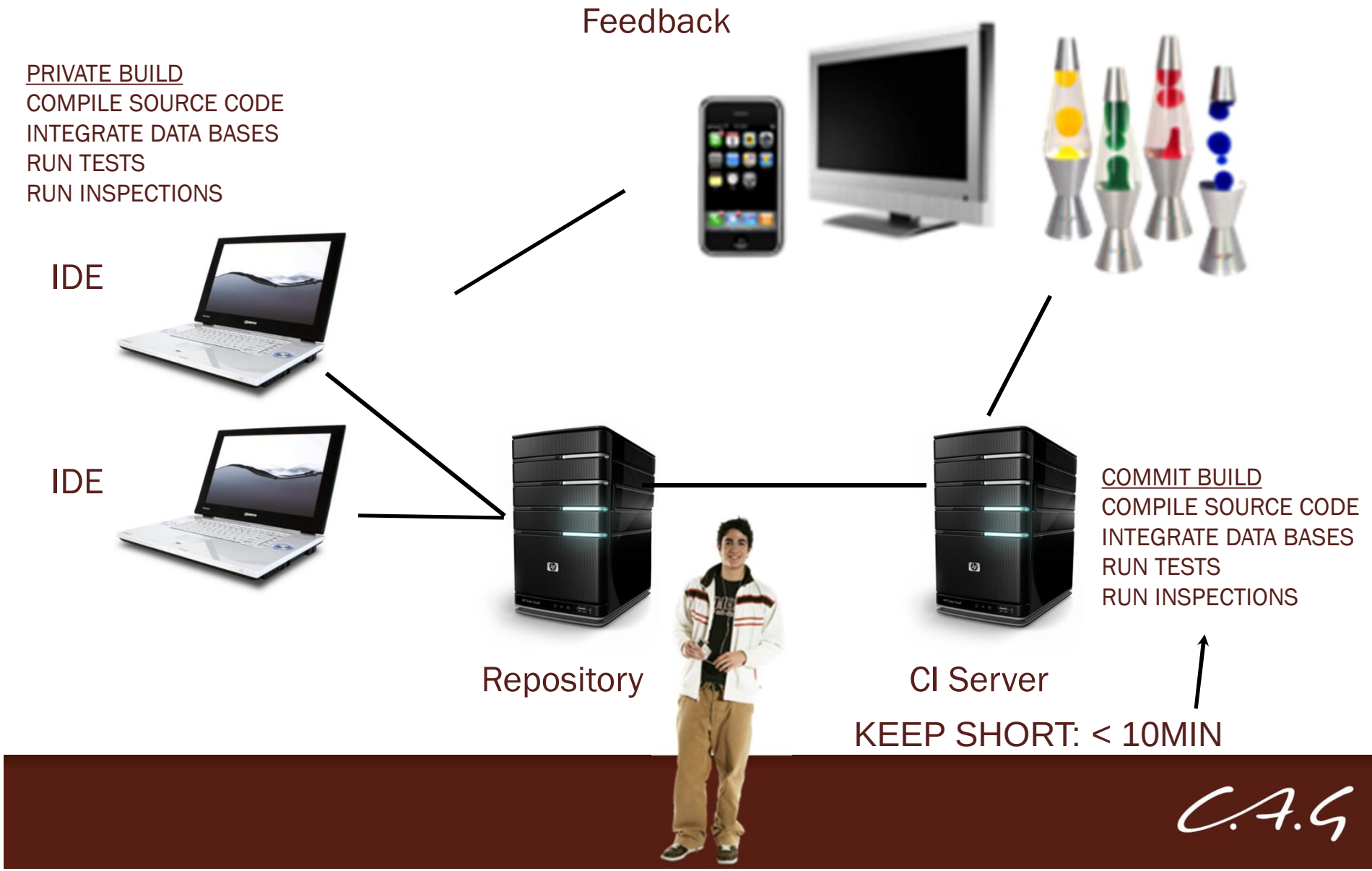
Self-organize

Focus on people

ARE THERE ANY AGILE PRACTICIES?

AGILE DEVELOPMENT CORE PRACTICES

Continuous Integration Commit Build



AGILE DEVELOPMENT CORE PRACTICES

Continuous Integration Acceptance Build

Feedback

PRIVATE BUILD
COMPILE SOURCE CODE
INTEGRATE DATA BASES
RUN TESTS
RUN INSPECTIONS

IDE

IDE

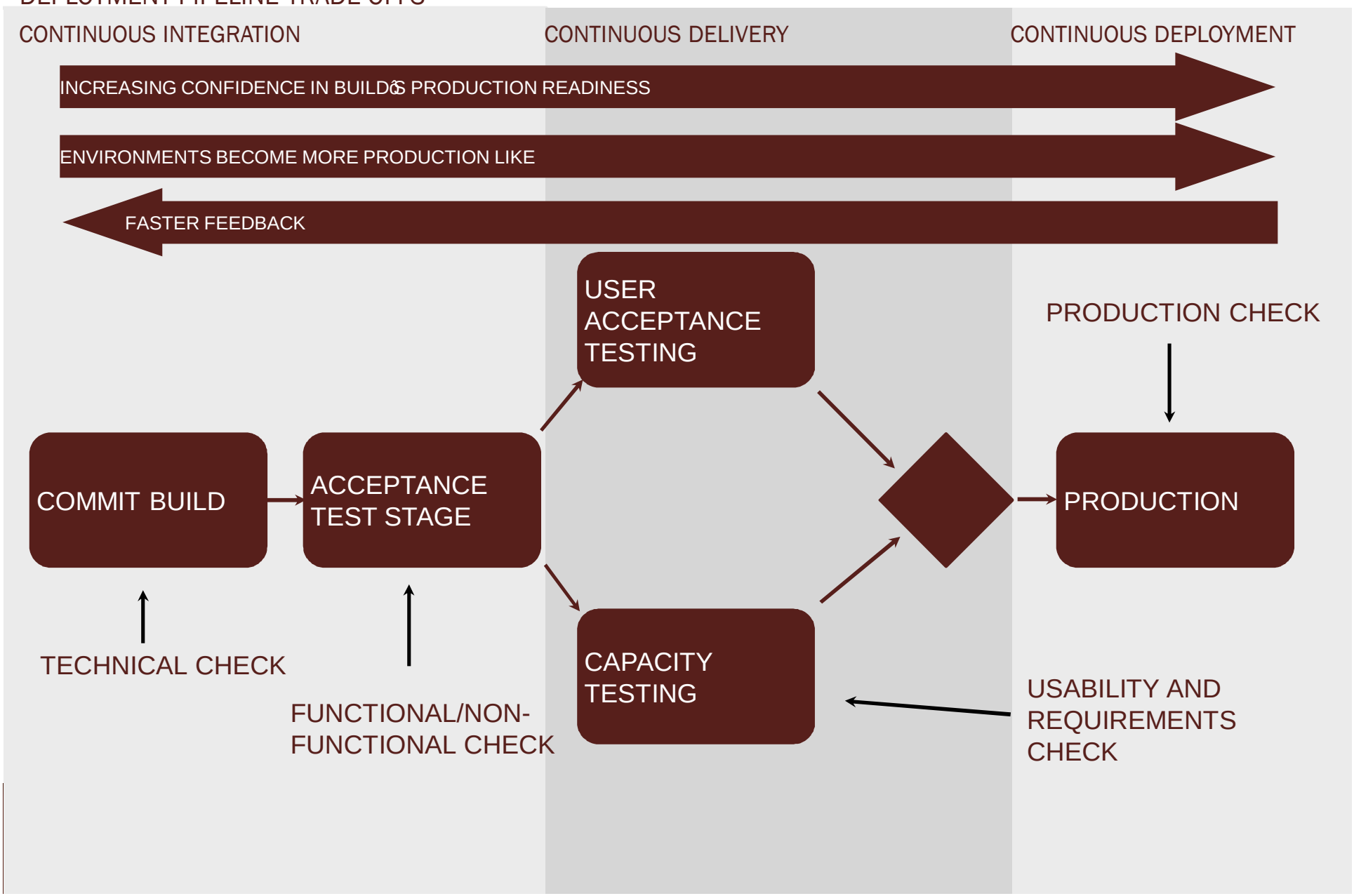
Repository

CI Server

COMMIT BUILD
COMPILE SOURCE CODE
INTEGRATE DATA BASES
RUN TESTS
RUN INSPECTIONS

ACCEPTANCE BUILD
COMPONENT TESTS
SYSTEM TEST
FUNCTIONAL TEST
PERFORMANCE
CODE COVERAGE
STORY TESTS

AGILE DEVELOPMENT DEPLOYMENT PIPELINE



JENKINS

jenkins-ci.org

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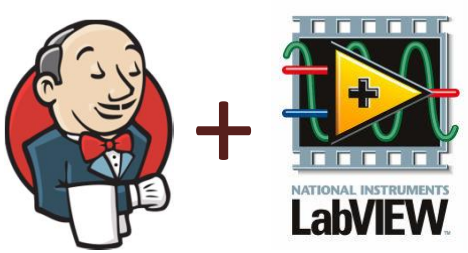
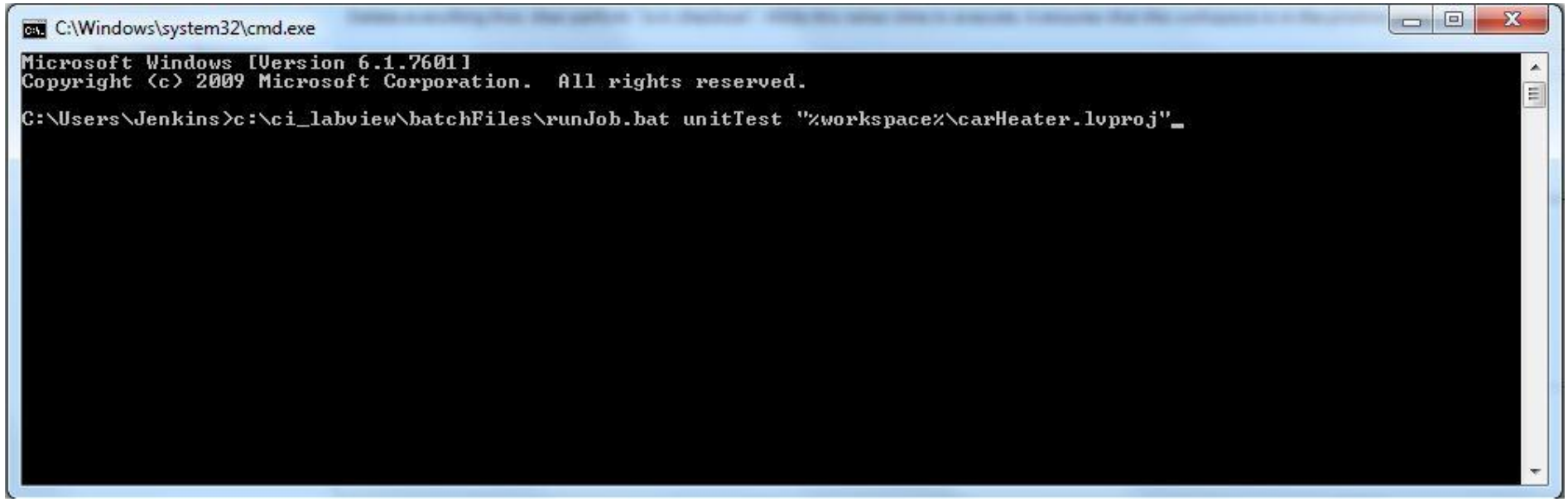


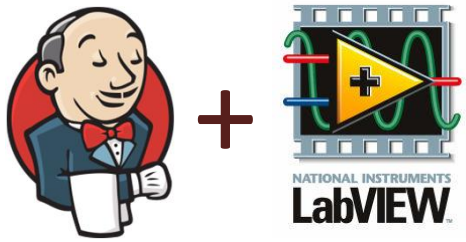
- Use agile practices in your LabVIEW development
- Develop a test system for testing a test object in continuous integration/delivery

Use CI for LabVIEW development

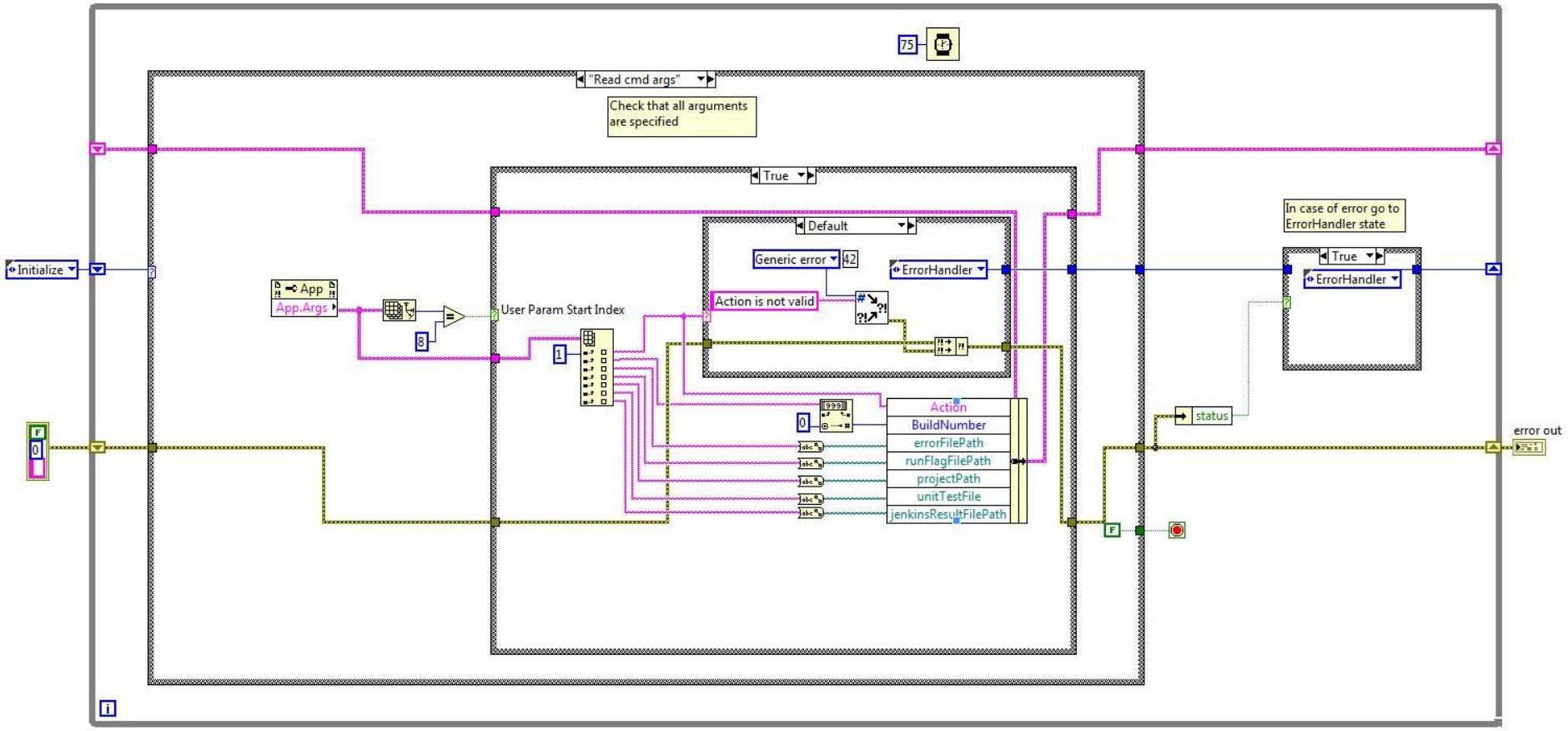
- Call windows batch file from Jenkins

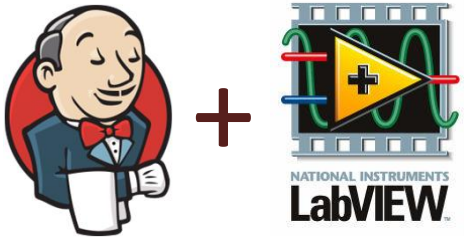


- In batch file start LabVIEW and run wrapper vi
- Return status and report file

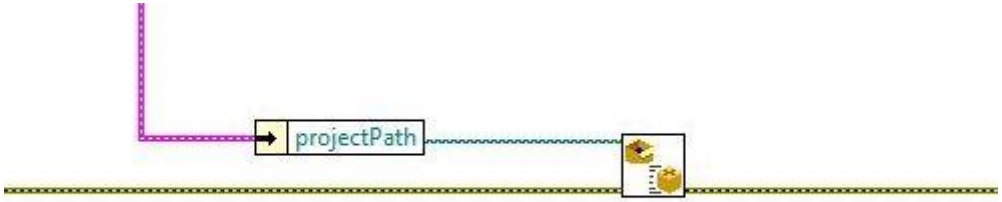


Wrapper vi – read arguments

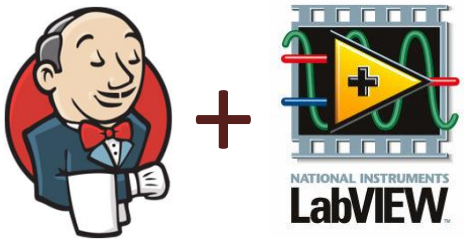




Wrapper vi – build project

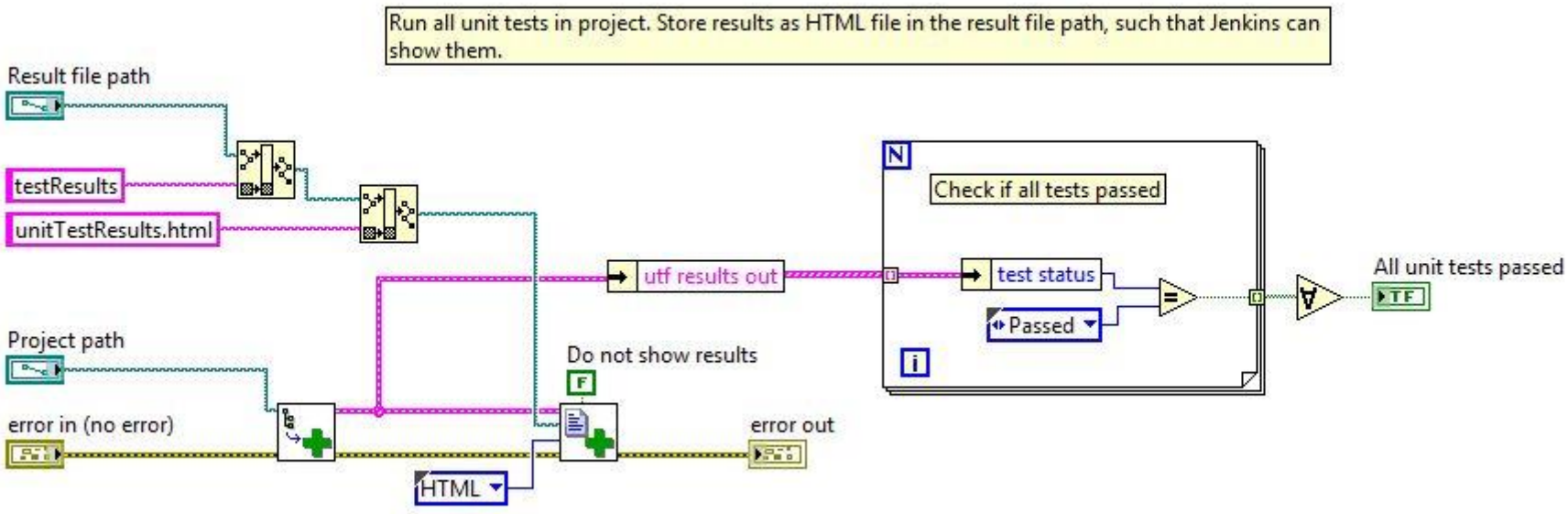


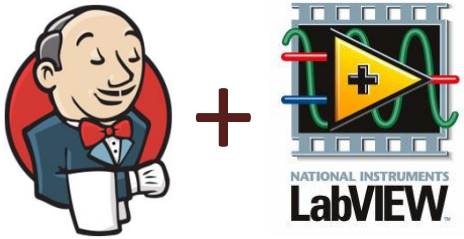
Complement with modification of build specification before build if needed



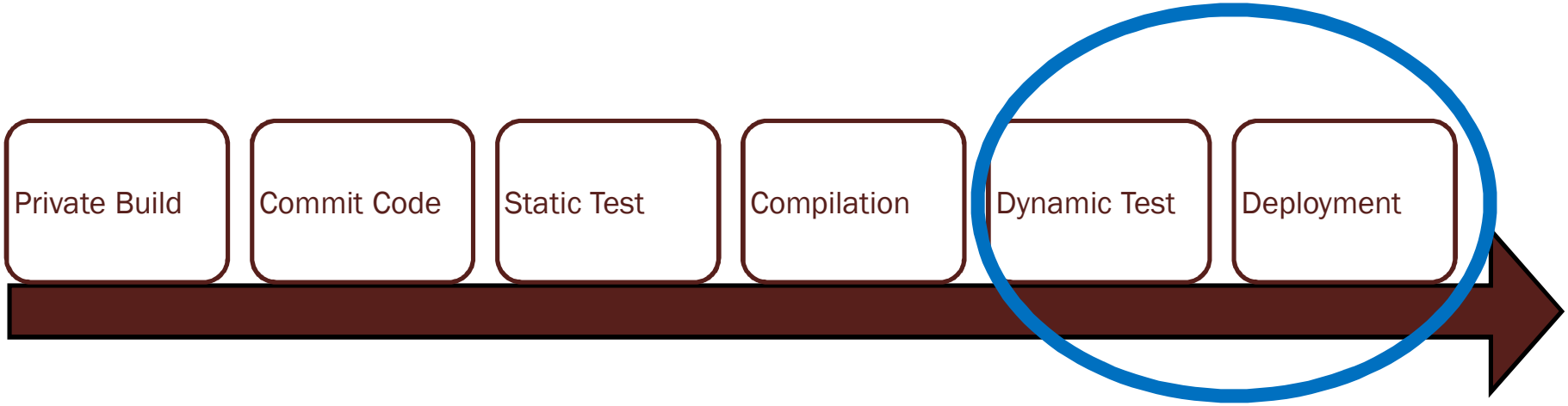
Wrapper vi – run unit tests

- Dynamically called from wrapper vi





Test system used by Jenkins



Run Test cases → Report results

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Call test system from Jenkins

Call from command line

- SSH to remote computer or directly from Jenkins
- Call LabVIEW or TestStand

Web service

- RESTful web service
- Test system can be up and running all the time

Fetch test reports as HTML or XML files to make it easy to publish in Jenkins

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- Agile seminar
- Workshop in continuous delivery
- Mentors
- Consultants

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