



Succeeding with webtesting

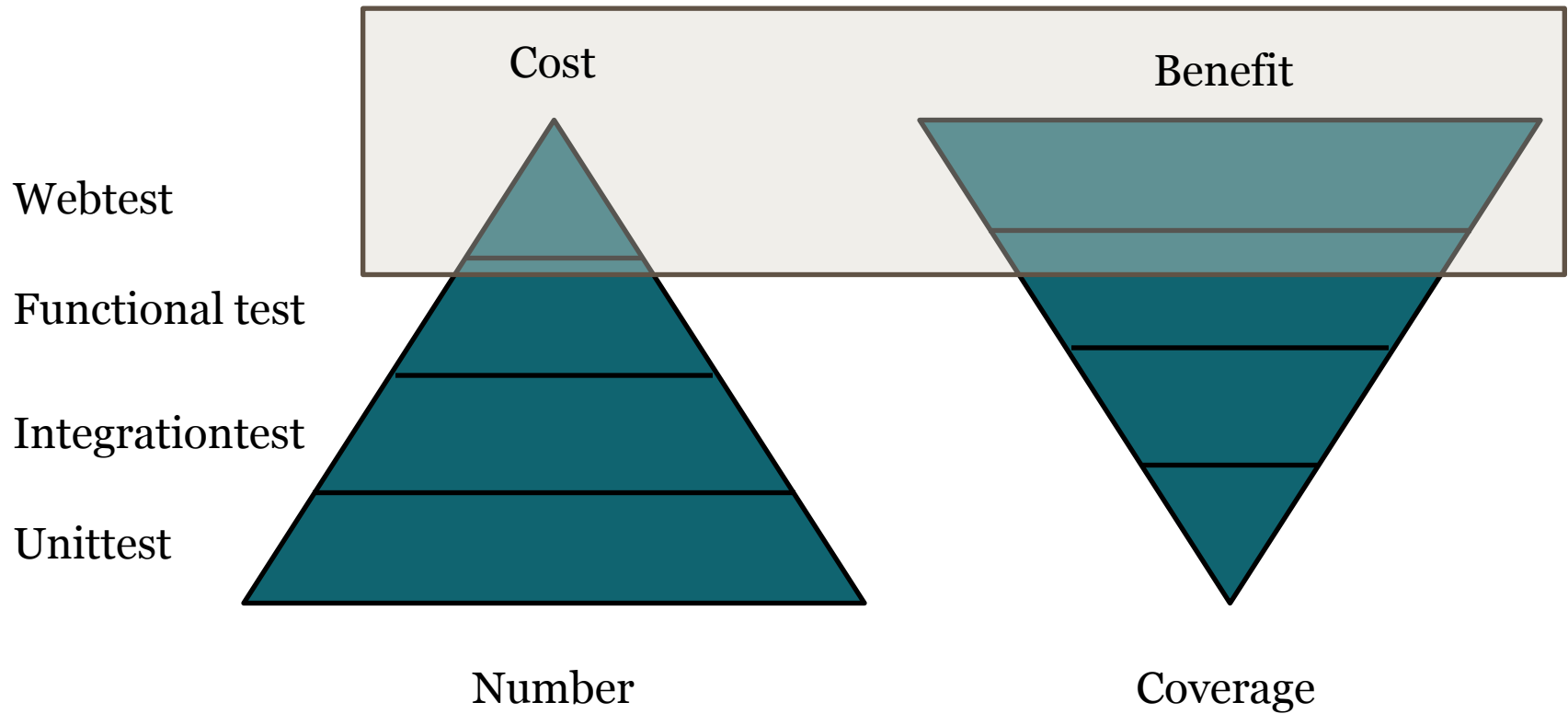
- Using WebDriver

FreeTest 2010

Vegard Hartmann

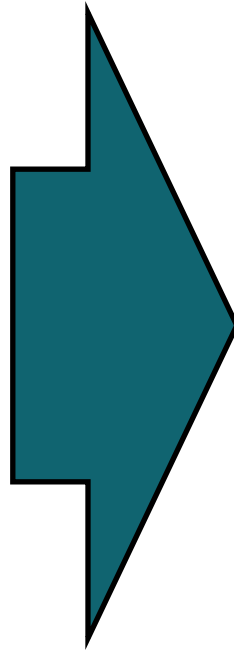
Webtesting

Different types of tests



Scenarios and strategies

- New application
- Maintenance
- Rapid feedback
- Allow testers to concentrate on their job



- Regression
- Smoketest
- Verification

Challenges

- Stability
- Speed
- Fragility
- State
- Reporting

How to avoid fragile tests?

Test value chains – not requirements in isolation

1 Underholdskostnad

Barnets alder

Underholdskostnaden varierer med barnets alder. Skriv inn når barnet er født. Les mer om [beregning av underholdskostnaden](#)

Barnets fødselsdato (dd.mm.åååå) ?

Barnetilsyn

Har bidragsmottakeren utgifter til barnetilsyn? ?

Ja

Nei

[// Avslutt](#)

2 Inntekt

3 Samvær

4 Resultat

© NAV

Test value chains – not requirements in isolation

Barnetilsyn

Har bidragsmottakeren utgifter til barnetilsyn? [?](#)

Ja
 Nei

Mottar bidragsmottakeren stønad til barnetilsyn? [?](#)

Ja
 Nei

Hva utgjør faktiske tilsynsutgifter for barnet? [?](#)

NOK/måned

For hvor mange barn har bidragsmottakeren tilsynsutgifter? [?](#)

1
2
3
4
5
6
7
8
9+

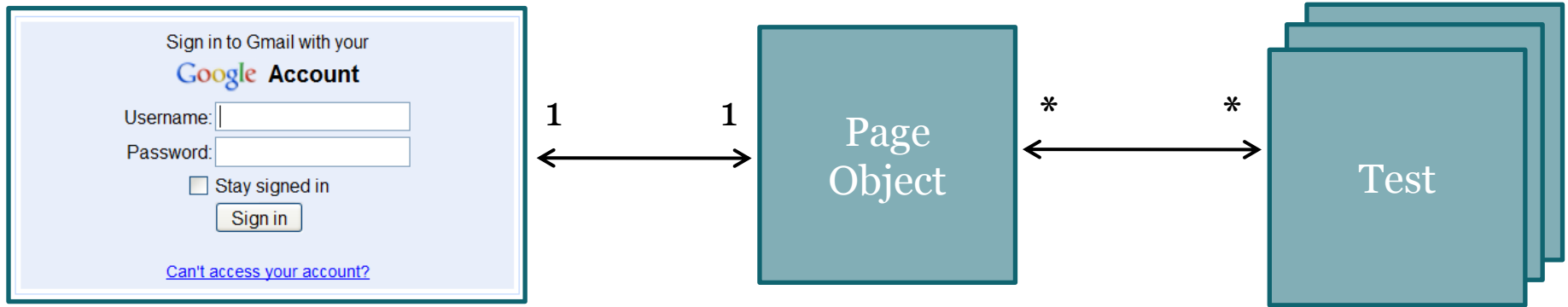
Gå videre

4 Resultat

© NAV

Page objects

- A page offers services
- Hides implementation details



© 2010 Google

Page Objects– The Pattern

- Methods represent services
- Hide implementation details
- Do not make assumptions
- Methods return other page objects
- Different outcomes are modelled as separate methods
- Need not represent an entire page

Google Search



Google Search

I'm Feeling Lucky

[Advanced Search](#)

[Preferences](#)

[Language Tools](#)

[Advertising Programs](#) - [Business Solutions](#) - [About Google](#) - [Go to Google Norway](#)

©2009 - [Privacy](#)

© 2009 Google

Google Search

[Advanced Search](#)
[Preferences](#)

Web  [Show options...](#)

[webdriver - Project Hosting on Google Code](#)

WebDriver has a simple API designed to be easy to work with and can drive both real browsers, for testing javascript heavy applications, and a pure 'in ...

code.google.com/p/webdriver/ - [Cached](#) - [Similar](#) -   

[GettingStarted](#)

[Wiki](#)

[Downloads](#)

[DesignPatterns](#)

[Updates](#)

[More results from google.com »](#)

[GettingStarted - webdriver - Getting started with WebDriver ...](#)

Whichever way you chose, you can see that **WebDriver** acts just as a normal Java library does: it's entirely self-contained, and you don't need to remember to ...

code.google.com/p/webdriver/wiki/GettingStarted - [Cached](#) - [Similar](#) -   

[Google Open Source Blog: Introducing WebDriver](#)

WebDriver is a clean, fast framework for automated testing of webapps. Why is it needed? And what problems does it solve that existing frameworks don't ...

google-opensource.blogspot.com/.../introducing-webdriver.html - [Cached](#) - [Similar](#) -   

Google Search – page objects

```
@Test
public void whenSearchingForWebDriverUrlShouldBePresentInSearchResults () {
    SearchPage searchPage = createSearchPage(driver);
    SearchResultPage resultPage = searchPage.searchFor("webdriver");
    assertTrue(resultPage.isLinkPresentInResults(
        "http://code.google.com/p/webdriver/"));
}
```

Google Search – implementation details

```
@Test
public void whenSearchingForWebDriverUrlShouldBePresentInSearchResults () {
    WebDriver webDriver = new FirefoxDriver ();
    webDriver.get ("http://www.google.com/");
    WebElement searchField = webDriver.findElement (By.name ("q"));
    searchField.sendKeys ("webdriver");
    searchField.submit ();
    assertNotNull (webDriver.findElement (By.xpath (
        "//a[@href='http://code.google.com/p/webdriver/']")));
    webDriver.quit ();
}
```

Login

Sign in to Gmail with your
Google Account

Username:

Password:

The username or password you entered is incorrect. [?](#)

Stay signed in

[Can't access your account?](#)

© 2010 Google

Login – 2 methods

```
@Test
public void shouldDoSomethingWithMailAfterLoggingIn() {
    LoginPage loginPage = PAGE_MOTHER.createLoginPage();
    InboxPage inboxPage = loginPage.loginAs("validuser", "validpassword");
    inboxPage.doSomethingWithMail();
    ...
}
```

```
@Test
public void shouldNotLoginWhenEnteringWrongUserPasswordCombination() {
    LoginPage loginPage = PAGE_MOTHER.createLoginPage();
    loginPage = loginPage.loginAsExpectingError("invaliduser", "invalidpassword");
    assertTrue(loginPage.isLoginErrorDisplayed());
}
```

Automation

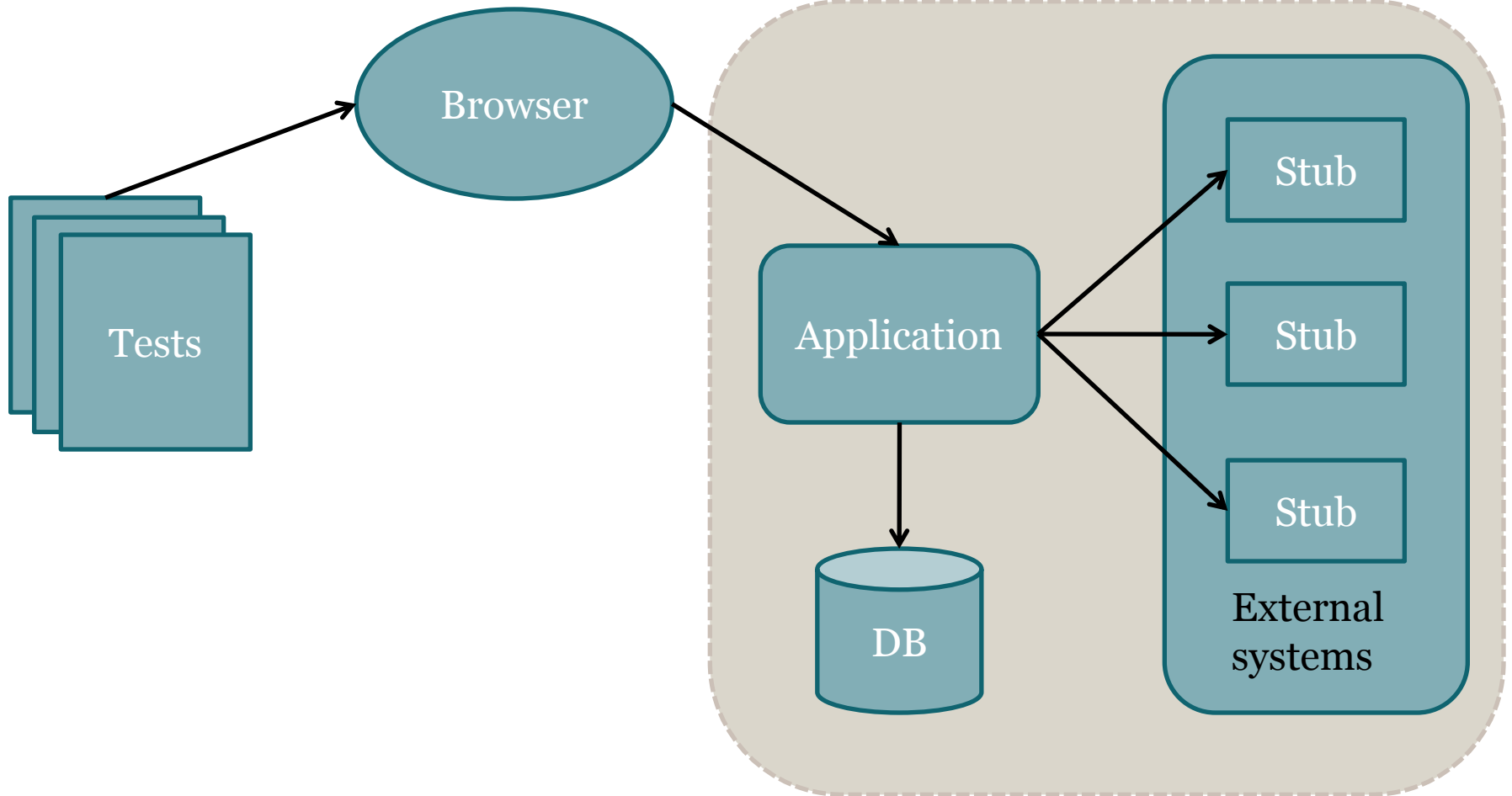
Automation

- Tests that do not run are usually broken
- Difficult to get broken tests running
- Tests that do not run have no value!

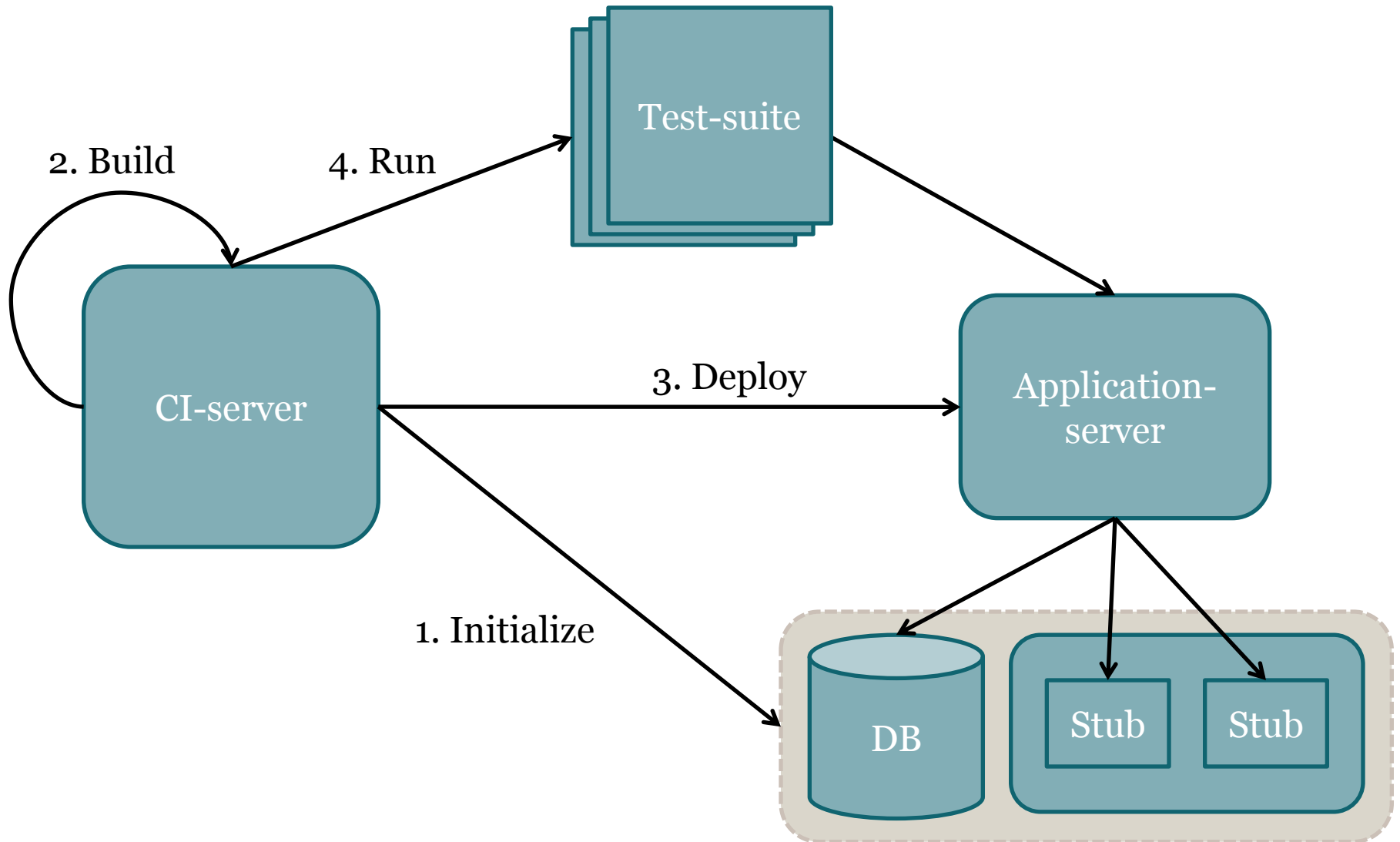
Inclusion in continuous build – how often?

- Separate profile
- Turnaround

Test setup

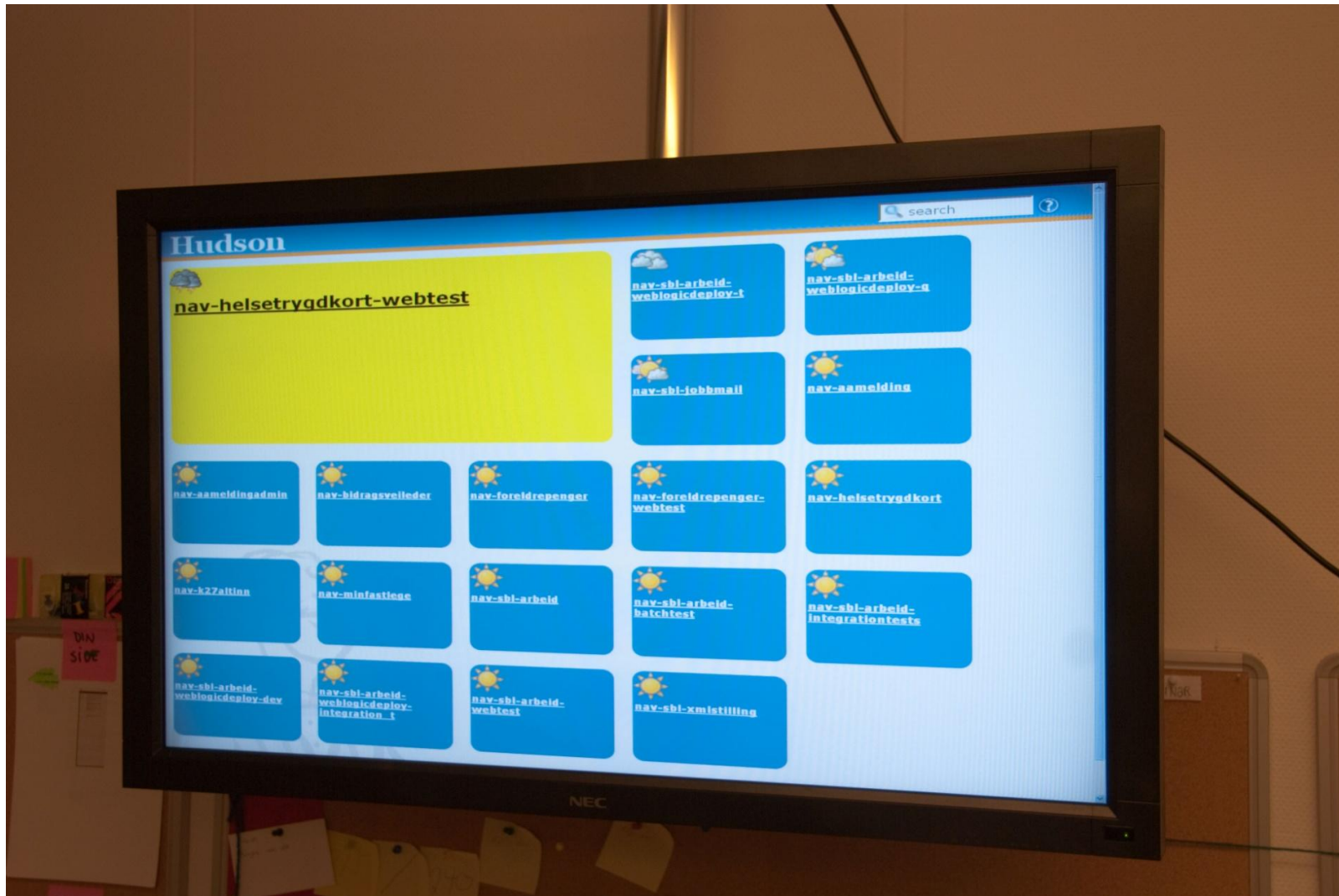


Continuous integration



Reporting

Visibility



Error reporting

```
org.openqa.selenium.NoSuchElementException: Cannot find element with ID: login:user
System info: os.name: 'Windows XP', os.arch: 'x86', os.version: '5.1', java.version: '1.6.0_05'
Driver info: driver.version: htmlunit
    at org.openqa.selenium.htmlunit.HtmlUnitDriver.findElementById(HtmlUnitDriver.java:435)
    at org.openqa.selenium.By$1.findElement(By.java:65)
    at org.openqa.selenium.htmlunit.HtmlUnitDriver.findElement(HtmlUnitDriver.java:265)
    at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
    at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
    at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
    at java.lang.reflect.Method.invoke(Method.java:597)
    at org.openqa.selenium.support.events.EventFiringWebDriver$2.invoke(EventFiringWebDriver.java:73)
    at $Proxy7.findElement(Unknown Source)
    at org.openqa.selenium.support.events.EventFiringWebDriver.findElement(EventFiringWebDriver.java:143)
    at org.openqa.selenium.support.pagefactory.DefaultElementLocator.findElement(DefaultElementLocator.java:
    at org.openqa.selenium.support.pagefactory.AjaxElementLocator.access$001(AjaxElementLocator.java:39)
    at org.openqa.selenium.support.pagefactory.AjaxElementLocator$SlowLoadingElement.isLoaded(AjaxElementLo
    at org.openqa.selenium.support.ui.SlowLoadableComponent.get(SlowLoadableComponent.java:49)
    at org.openqa.selenium.support.pagefactory.AjaxElementLocator.findElement(AjaxElementLocator.java:69)
    at org.openqa.selenium.support.pagefactory.internal.LocatingElementHandler.invoke(LocatingElementHandle
    at $Proxy10.sendKeys(Unknown Source)
    .....
    at org.junit.internal.runners.ClassRoadie.runProtected(ClassRoadie.java:37)
    at org.junit.internal.runners.JUnit4ClassRunner.run(JUnit4ClassRunner.java:42)
    at com.intellij.rt.junit4.Junit4TestMethodAdapter.run(Junit4TestMethodAdapter.java:62)
    at junit.textui.TestRunner.doRun(TestRunner.java:116)
    at com.intellij.rt.execution.junit.IdeaTestRunner.doRun(IdeaTestRunner.java:94)
    at junit.textui.TestRunner.doRun(TestRunner.java:109)
    at com.intellij.rt.execution.junit.IdeaTestRunner.startRunnerWithArgs(IdeaTestRunner.java:22)
    at com.intellij.rt.execution.junit.JUnitStarter.prepareStreamsAndStart(JUnitStarter.java:118)
    at com.intellij.rt.execution.junit.JUnitStarter.main(JUnitStarter.java:40)
    at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
    at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
    at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
    at java.lang.reflect.Method.invoke(Method.java:597)
    at com.intellij.rt.execution.application.AppMain.main(AppMain.java:90)
```

Show context

▼ 1. [blurred]

Angi fødselsnummer

Fødselsnummer (11 siffer)

Avbryt OK

▶ 2. [blurred]

▶ 3. [blurred]

▶ 4. [blurred]

▶ 5. [blurred]

A red box containing the text "Social security number" has a red arrow pointing to the text input field.

Accessibility



[Workspace](#)



Last Successful Artifacts

- [nav-sbl-arbeid-web.war](#) 
- [pom.xml](#) 



[Recent Changes](#)



[Latest Test Result](#) (no failures)

Document links

- [WebTest Errors](#)

Permalinks

- [Last build \(#68\), 7 hr 32 min ago](#)
- [Last stable build \(#68\), 7 hr 32 min ago](#)
- [Last successful build \(#68\), 7 hr 32 min ago](#)

How to succeed with webtesting?

- Know why you do it
- Be faithful to your strategy
- Fragility
 - Test value chains
 - Use page objects
- State
 - Control external dependencies
- Reporting
 - Show context



BEKK

Vegard Hartmann
Senior Consultant
+47 98219319
vegard.hartmann@bekk.no

BEKK CONSULTING AS
SKUR 39, VIPPETANGEN. P.O. BOX 134 SENTRUM, 0102 OSLO, NORWAY. WWW.BEKK.NO