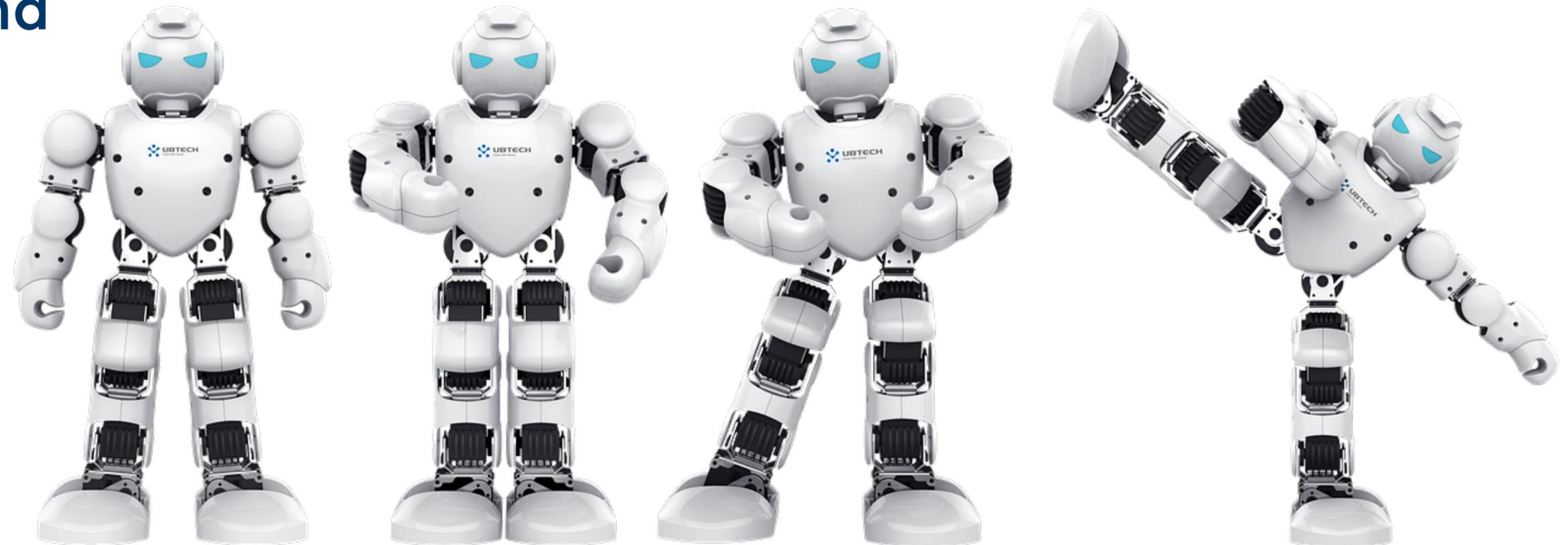


Make the Robots Do It!

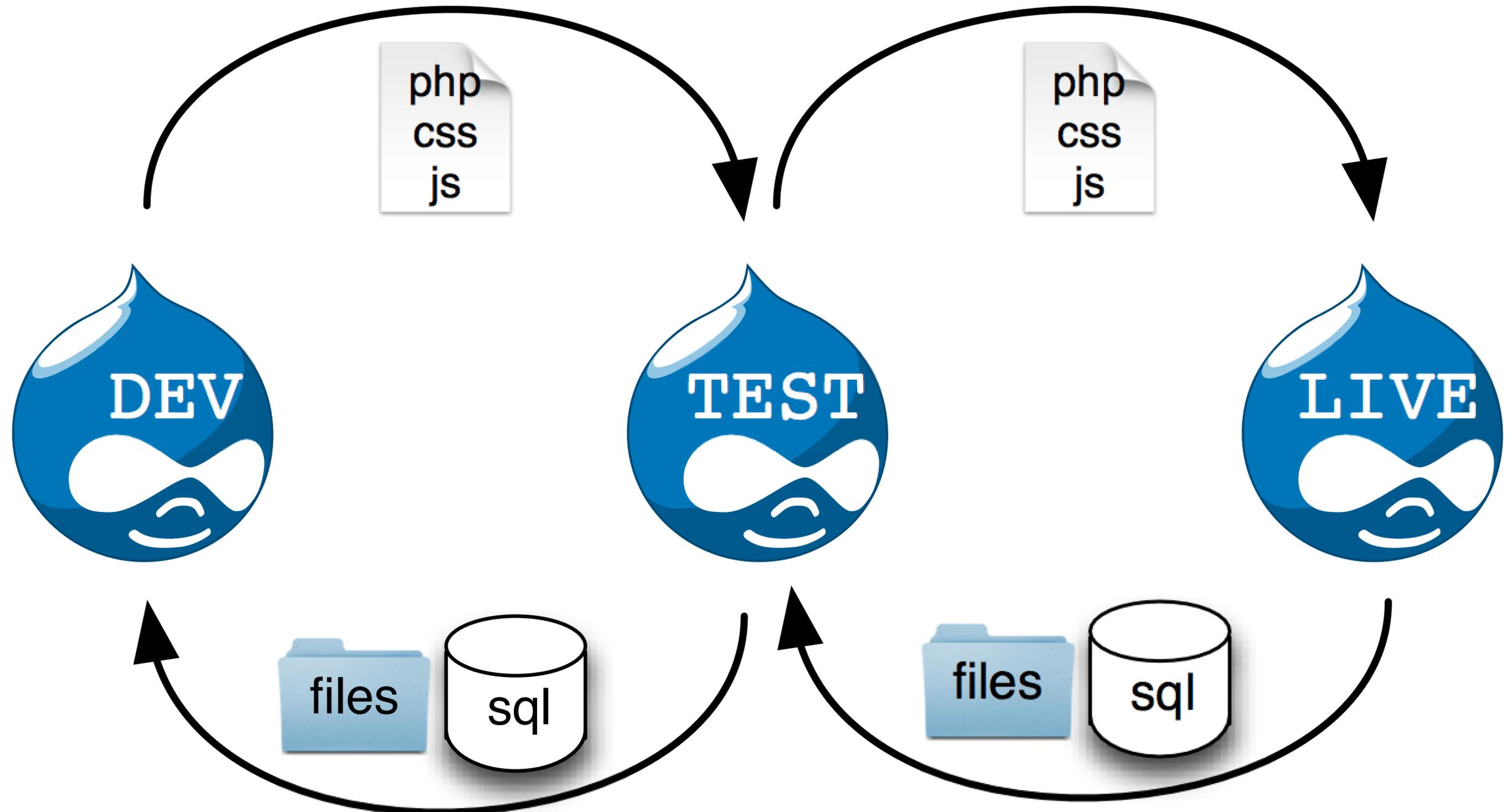
Practical Continuous Integration and Automated Testing

Shawn DeArmond
Mark Miller

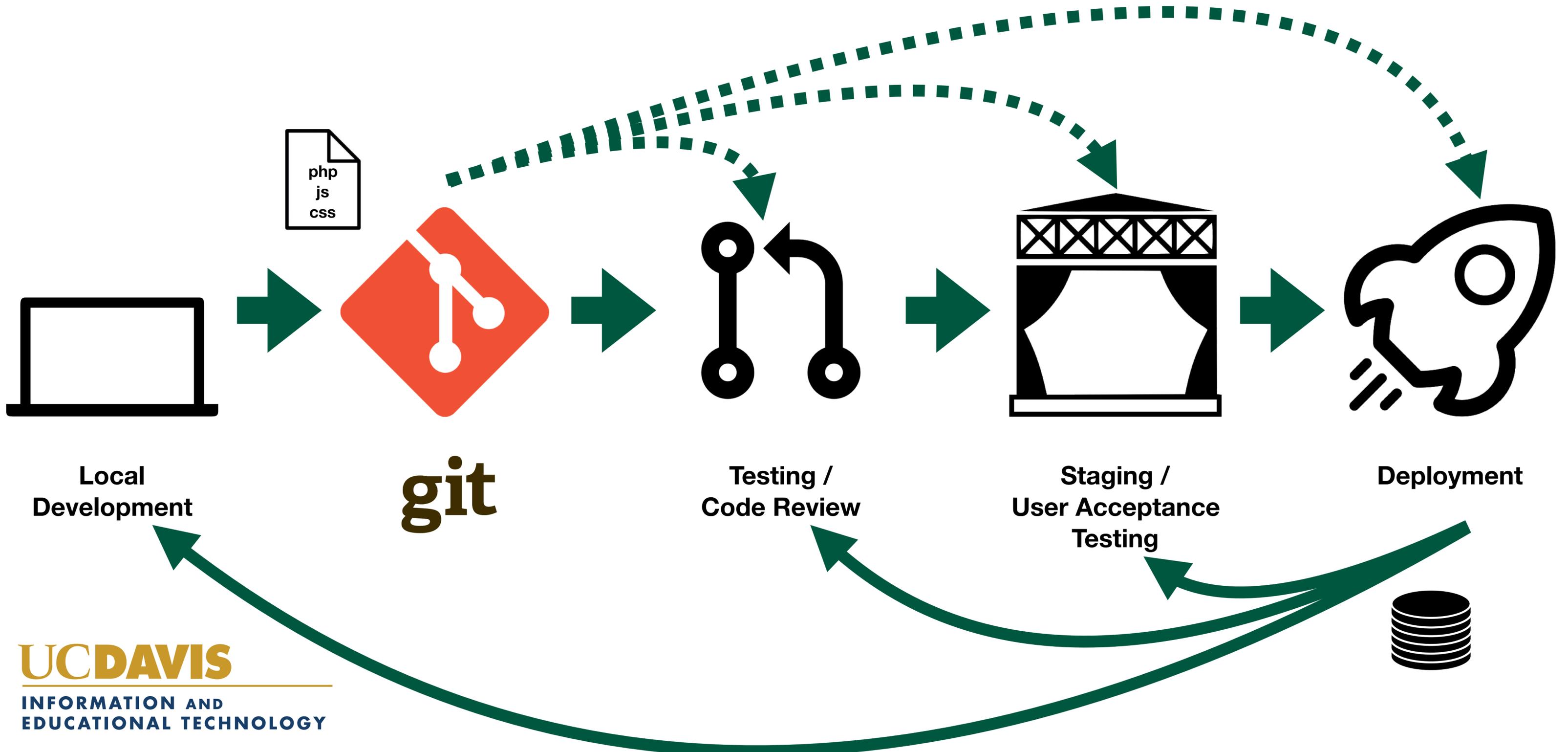


Development and Release Workflow

(old)



Development and Release Workflow

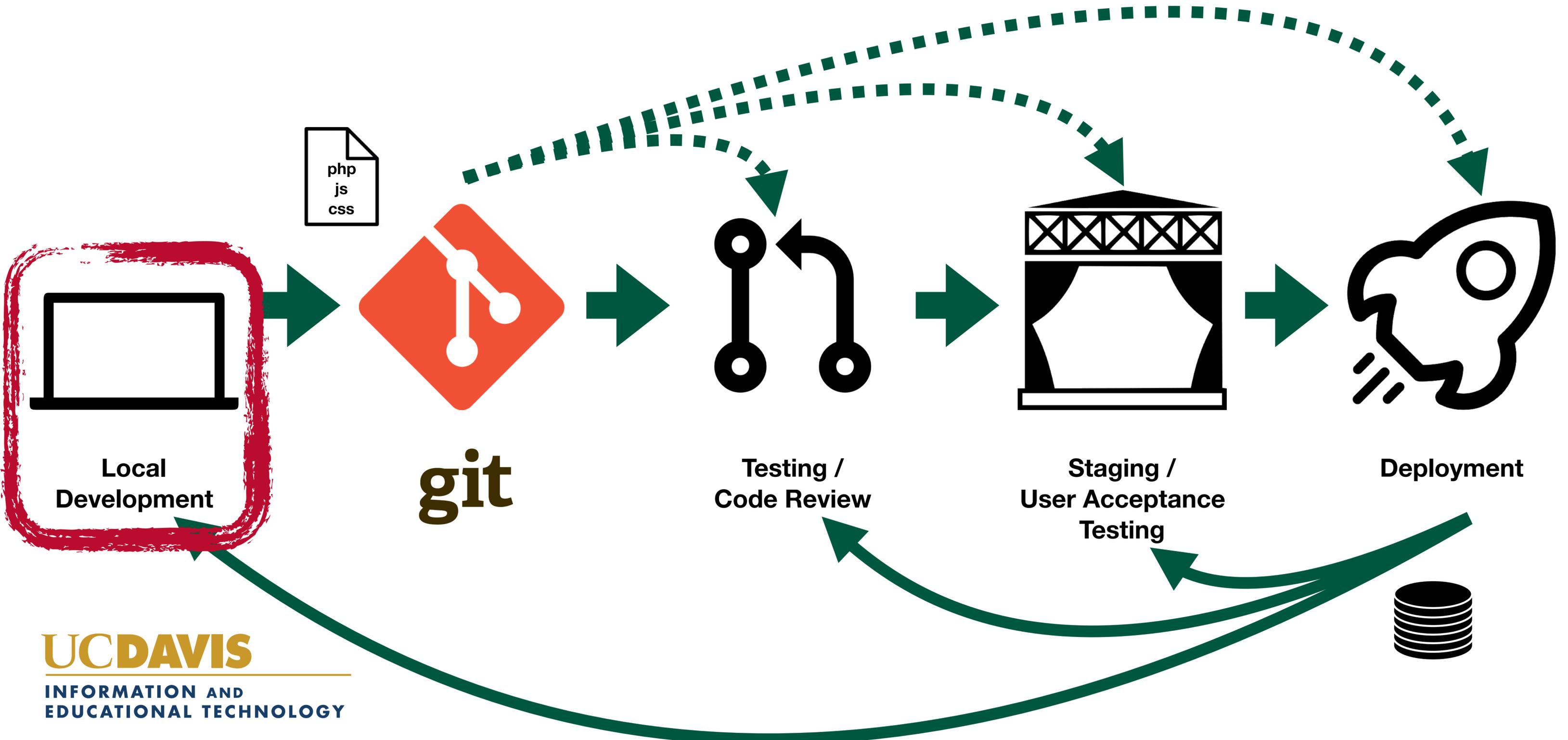


SCRIPT



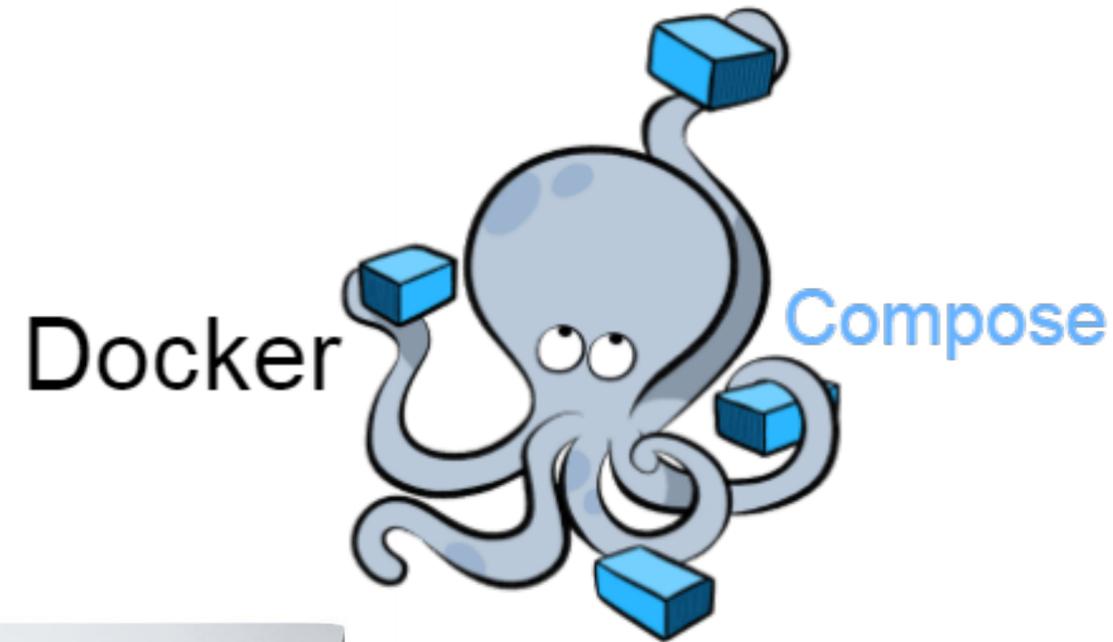
ALL THE THINGS

Development and Release Workflow



Local Development

LANDO



DOCKSAL

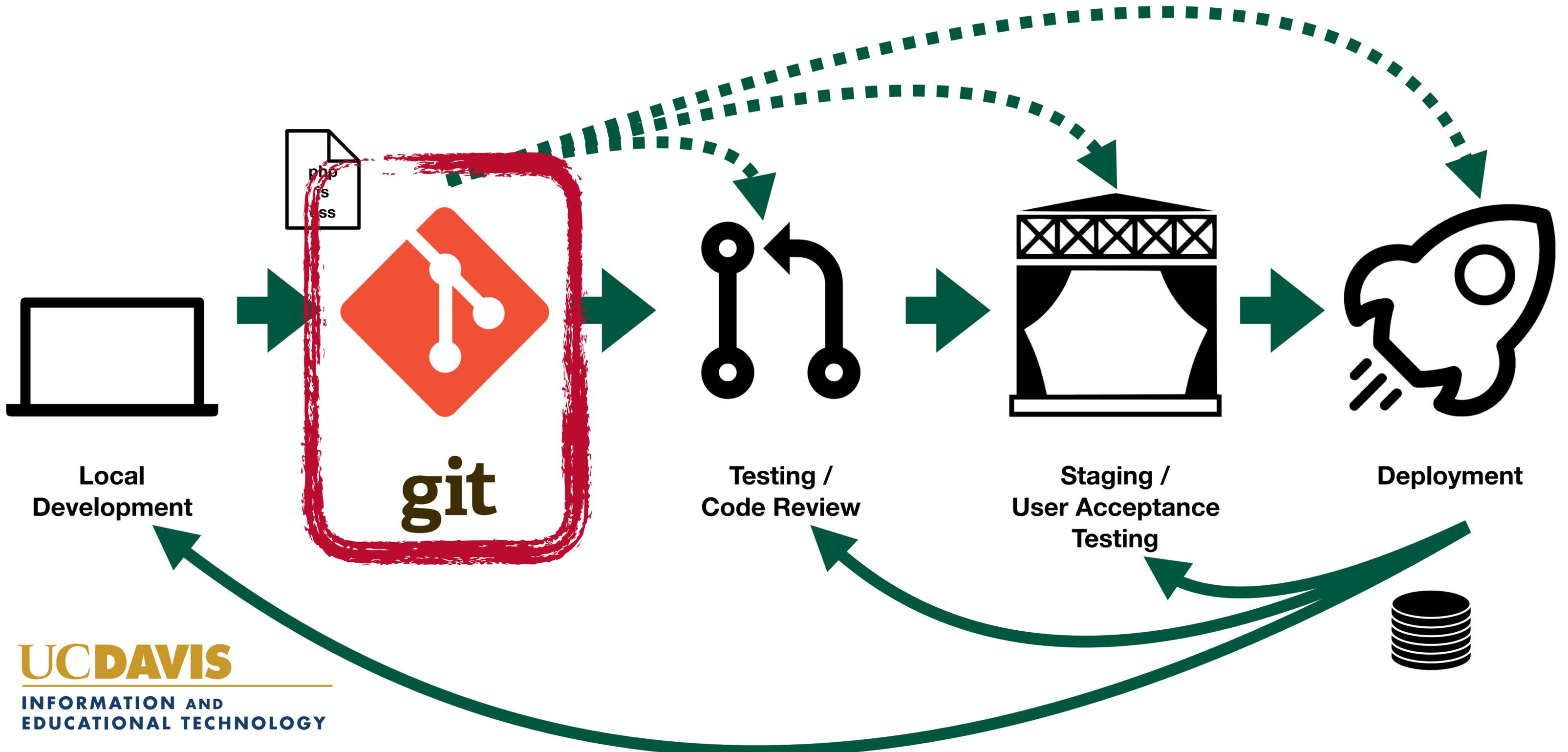


Local Development

- Initialize environment
- Refresh data from Live
- Run Automated Tests locally
- Use a good IDE with Git visualization
- Step-through debugging



Development and Release Workflow





git



GitLab

UCDAVIS

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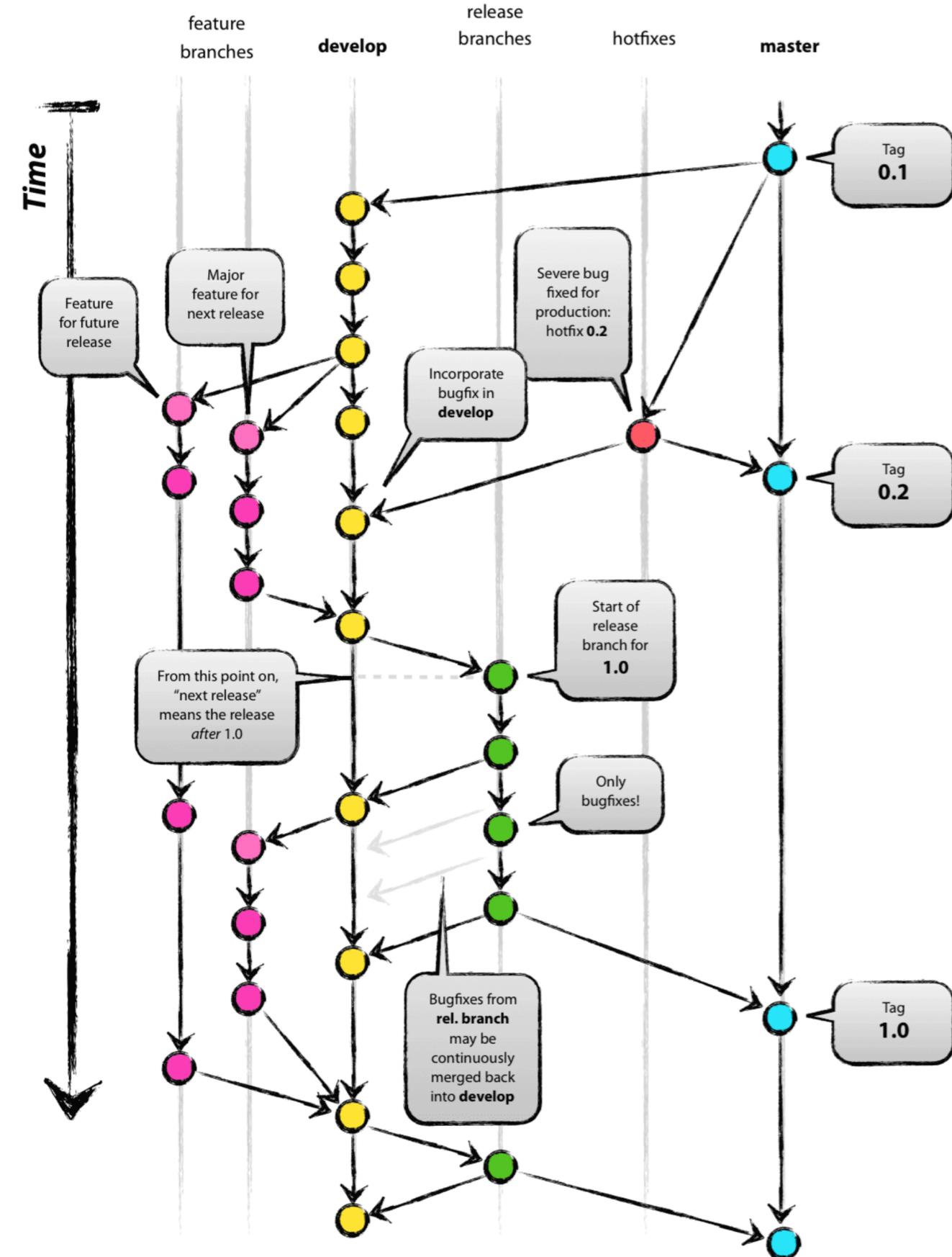


GitHub



Branching Strategy

- Protect master and dev
- Use SSH Keys
- Use Multi-factor Authentication



Pull Requests are a great time for Code Review

And Automated Testing

IET WebDev / SiteFarm / SiteFarm / Pull requests

SITEFARM-1843 fix to disable the ckeditor autosave plugin on quickedit

#742 **OPEN** SITEFARM-1843 → release-6.3.0 **Merge** Edit Decline Approve 1

Overview Commits Activity

Author: **Mark Miller**

Reviewers: [Avatar 1] [Avatar 2] [Avatar 3] [Avatar 4] [Avatar 5]

8 of 8 passed
Stop watching
Deploy to AWS

Comments (17)

Anthony Horn
Can you remind me of the exact situation that this is solving so I can properly test it?
Reply • Like • Delete • Create task • 2019-05-01

Mark Miller **AUTHOR**
<https://ucdavis.jira.com/browse/SITEFARM-1843>
Reply • Like • Delete • Create task • 2019-05-01

Anthony Horn
Is this for all roles? or just editor?
Reply • Like • Delete • Create task • 2019-05-01

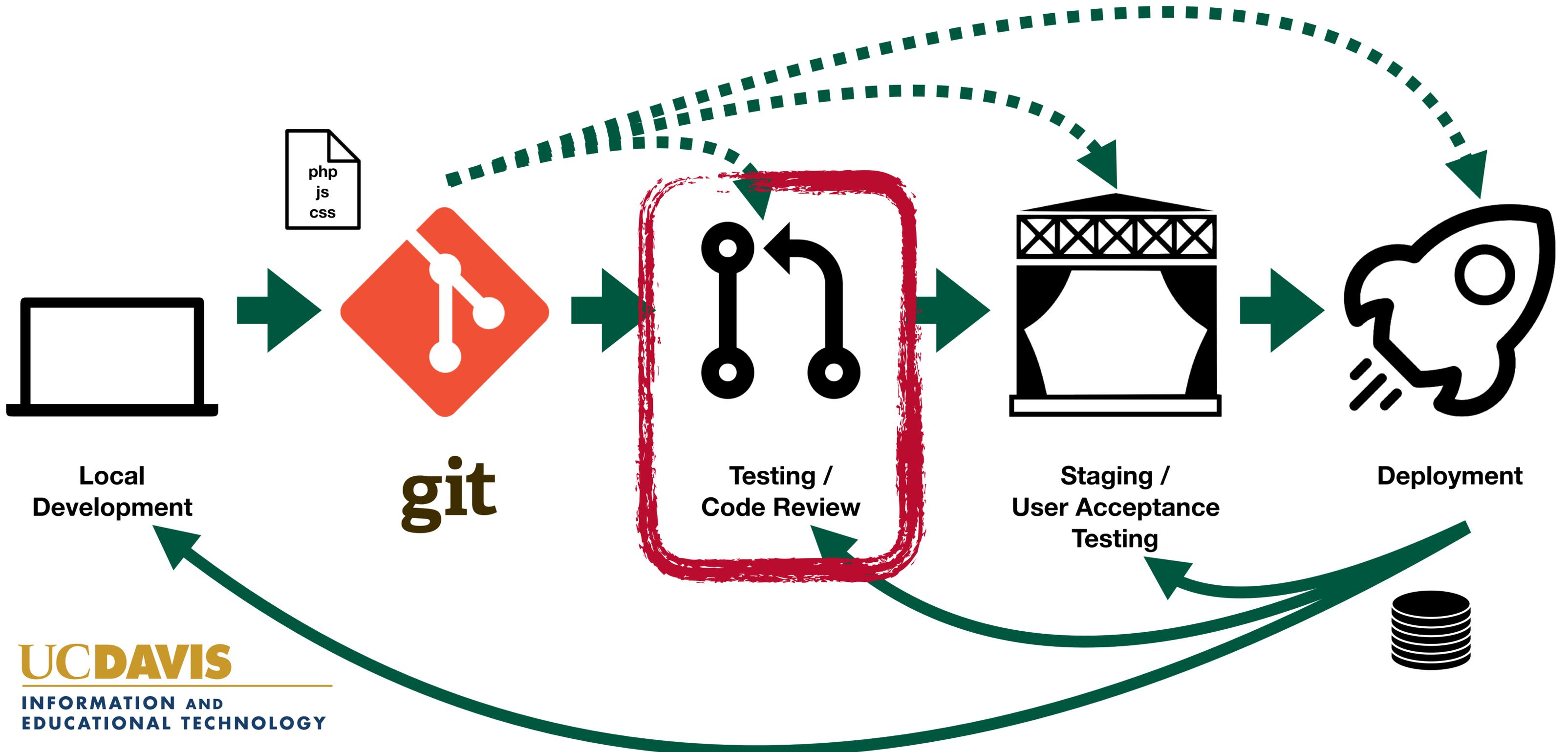
Mark Miller **AUTHOR**
Any role that can use quickedit. Not sure what roles those are off hand. I assume at least editor.
Reply • Like • Delete • Create task • 2019-05-01

Anthony Horn
Also, this is failing on some layout classes not being found in the behat tests.
Reply • Like • Delete • Create task • 2019-05-01

Mark Miller **AUTHOR**
These test failures are that some old issue where probo is not pulling repos that will allow tests to pass.
Reply • Like • Delete • Create task • 2019-05-01

Anthony Horn
I still don't see any wysiwyg buttons.

Development and Release Workflow



Continuous Integration (CI)

The screenshot displays the CircleCI interface for the 'ucdavis' organization, specifically for the 'article26-backpack' project. The interface includes a top navigation bar with the organization name, a logo, and links for 'Updates' and 'Support'. A left sidebar contains navigation options: 'JOBS', 'WORKFLOWS', 'INSIGHTS', 'ADD PROJECTS', and 'TEAM'. The main content area shows a list of CI jobs, filtered by 'My branches' and 'All branches'. The jobs are listed in a table with columns for status, commit message, build steps, and execution details.

Project	Branch	Status	Commit Message	Build Steps	Time	SHA
article26-backpack	master #2183	SUCCESS	Merge pull request #218 from ucdavis/d8...	build_and_test, build_deploy_and_test_ma...	28 days ago, 06:49	ecf8d5a
article26-backpack	d8615 #2182	SUCCESS	Removed .es core.entity_view_mode.node...	build_and_test, build_deploy_and_test_fea...	28 days ago, 05:01	#218, 62589aa
article26-backpack	d8615 #2181	SUCCESS	Updated Drupal to 8.6.15. Also updated ...	build_and_test, build_deploy_and_test_fea...	28 days ago, 06:12	#218, 960c85e
article26-backpack	master #2180	SUCCESS	Merge pull request #217 from ucdavis/d8...	build_and_test, build_deploy_and_test_ma...	1 month ago, 08:21	ac64d16
article26-backpack	master #2179	FAILED	Merge pull request #217 from ucdavis/d8...	build_and_test, build_deploy_and_test_ma...	1 month ago, 01:30	ac64d16
article26-backpack	d8613 #2178	SUCCESS	d8613 Added more waits.	build_and_test, build_deploy_and_test_fea...	2 months ago, 04:46	#217, 829e322
article26-backpack	d8613 #2177	SUCCESS	d8613 updated chromedriver to 2.46	build_and_test, build_deploy_and_test_fea...	2 months ago, 04:32	#217, 462371e
article26-backpack	d8613 #2176	SUCCESS	d8613 Adding description field to file ...	build_and_test, build_deploy_and_test_fea...	2 months ago, 05:23	#217, ad8fbd5
article26-backpack	d8613 #2175	SUCCESS	Updated Drupal to 8.6.13.	build_and_test, build_deploy_and_test_fea...	2 months ago, 05:07	#217, 6572bda
article26-backpack	d8613 #2174	FAILED	Updated Drupal to 8.6.13.	build_and_test, build_deploy_and_test_fea...	2 months ago, 00:11	#217, 3be9986

Continuous Integration (CI)

Build Steps

SITEFARM-1843 fix to disable the ckeditor autosave plugin on quickedit

[Commit 1441c5](#) |
 [View pull request](#) |
 [View branch](#) |
 [View build permalink](#) |
 [Rebuild](#) |
 [Pin](#) |
 [Delete](#)

DISK SPACE: 887.5 MB · BUILT: May 15, 2019 5:24 PM



BitbucketDownloader task	▼
DURATION: 1 seconds 190 milliseconds	
AssetDownloader task	▼
DURATION: 277 milliseconds	
Import SSH Keys	▼
DURATION: 227 milliseconds	
Build Drupal	▼
DURATION: 2 minutes 38 seconds 412 milliseconds	
Run PHPUnit	▼
DURATION: 1 seconds 829 milliseconds	
Drupal site setup	▼
DURATION: 59 seconds 53 milliseconds	
Fix files directory permissions	▼
DURATION: 61 milliseconds	
Run Behat NoJS	▼
DURATION: 16 minutes 16 seconds 737 milliseconds	
Run Behat JS	▼
DURATION: 11 minutes 33 seconds 490 milliseconds	



Continuous Integration (CI)

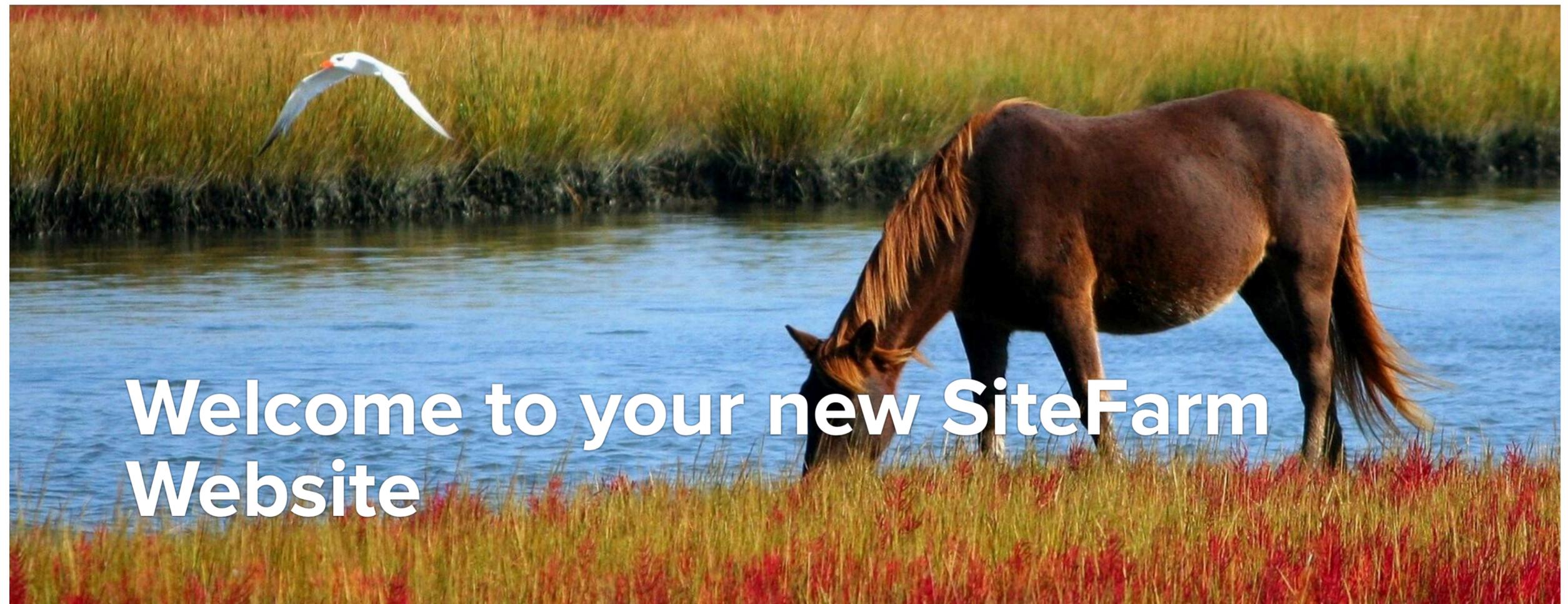
UCDAVIS



Testing SiteFarm on Probo

Quick Links >

- HOME
- NEWS
- BLOG
- EVENTS
- PEOPLE
- GALLERIES



Welcome to your new SiteFarm Website

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Upcoming Events



Continuous Integration (CI)

```
image: proboci/ubuntu-14.04-lamp:php-7.1
assets:
  - probossh.tar.gz
phpIniOptions:
  upload_max_filesize: 64M
  post_max_size: 64M
  memory_limit: 512M
steps:
  - name: Import SSH Keys
    plugin: Script
    script:
      - mkdir $HOME/.ssh
      - tar -C $HOME/.ssh -zxvf $ASSET_DIR/probossh.tar.gz
      - chmod 600 $HOME/.ssh/id_rsa*
      - ssh-keyscan -H bitbucket.org >> $HOME/.ssh/known_hosts
      - ls -al $HOME/.ssh
  - name: Build Drupal
    plugin: Script
    script:
      - composer self-update ; composer global update
      - composer global require hirak/prestissimo
      - composer global require "drush/drush:^8.1.13"
      - drush version
      - which drush
      - echo $PATH
      - cd /src
      - composer install --ansi
      - if [ $(git ls-remote --heads git@bitbucket.org:ietwebdev/sitefarm.git $BRANCH_NAME | wc -l) = 1 ]; then BRANCH="$BRANCH_NAME"; else BRANCH=8dev; fi
      - composer require "ucdavis/sitefarm:dev-$BRANCH" --ansi
      - if [ $(git ls-remote --heads git@bitbucket.org:ietwebdev/sitefarm-theme-one.git $BRANCH_NAME | wc -l) = 1 ]; then BRANCH="$BRANCH_NAME"; else BRANCH=8dev; fi
      - composer require "ucdavis/sitefarm_one:dev-$BRANCH" --ansi
  - name: Run PHPUnit
    plugin: Script
    script:
      - cd $SRC_DIR/docroot/profiles/sitefarm
      - $SRC_DIR/vendor/bin/phpunit --colors="always"
  - name: Drupal site setup
    plugin: Drupal
    drupalVersion: 8
    subDirectory: docroot
    runInstall: true
    profileName: sitefarm
    installArgs: '--site-name="Testing Acquia SiteFarm on Probo" --account-pass=probo --account-mail=wdtest@ucdavis.edu'
    settingsAppend: '$settings["file_private_path"] = "/var/www/html/sites/default/private-files";'
```

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Automated Testing

Robots are **SUPER** good at this!

- Unit
- Integration
- End to End (E2E)
- Accessibility (A11y)
- Visual Regression



Unit Tests

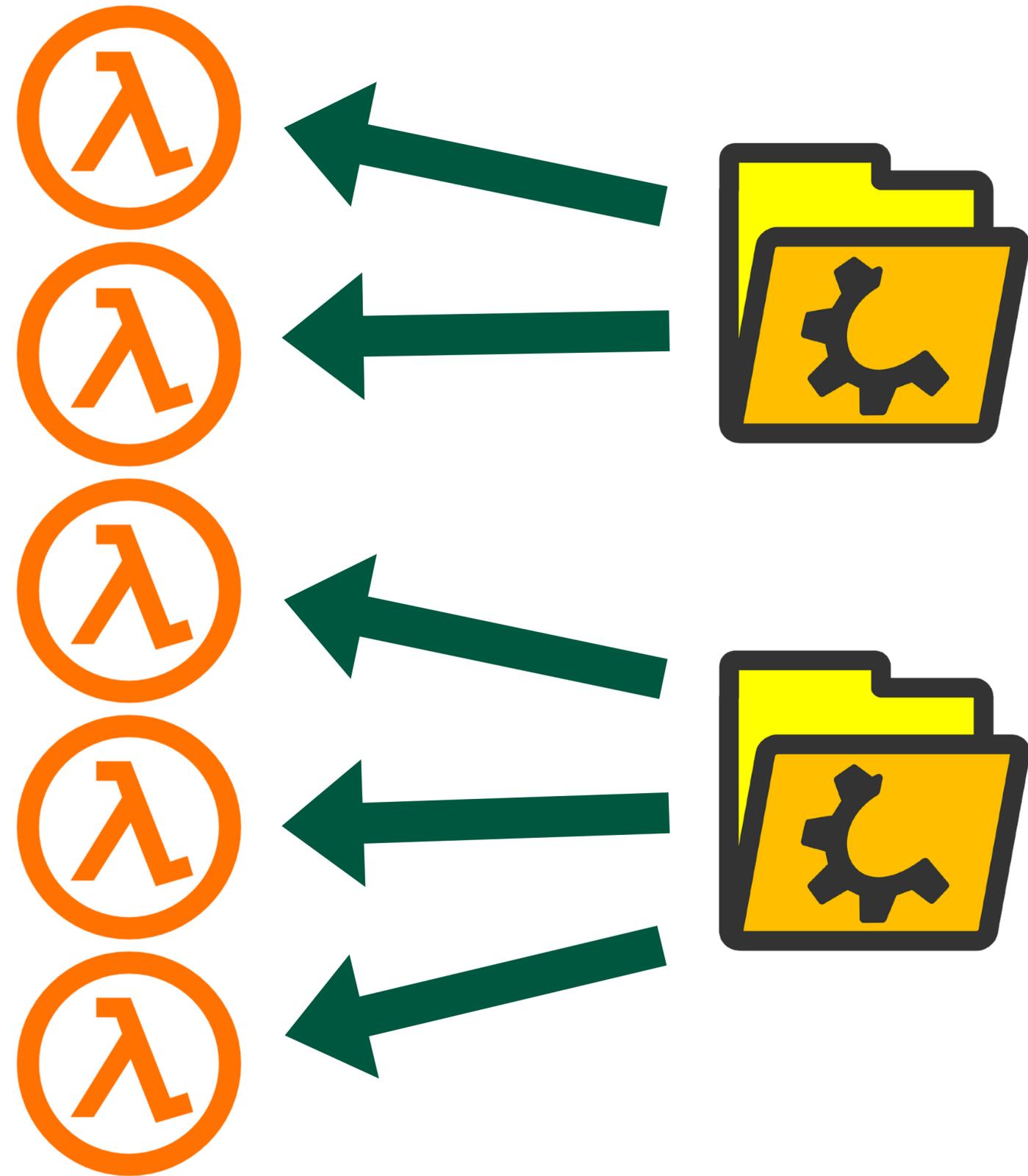
- Tests a specific function in isolation
- Crazy fast to run
- Specific to a Code Language

PHP: PHPUnit

JavaScript: Jest (and a million others: Mocha, Ava, etc...)

Case Study

AWS Lambda serverless

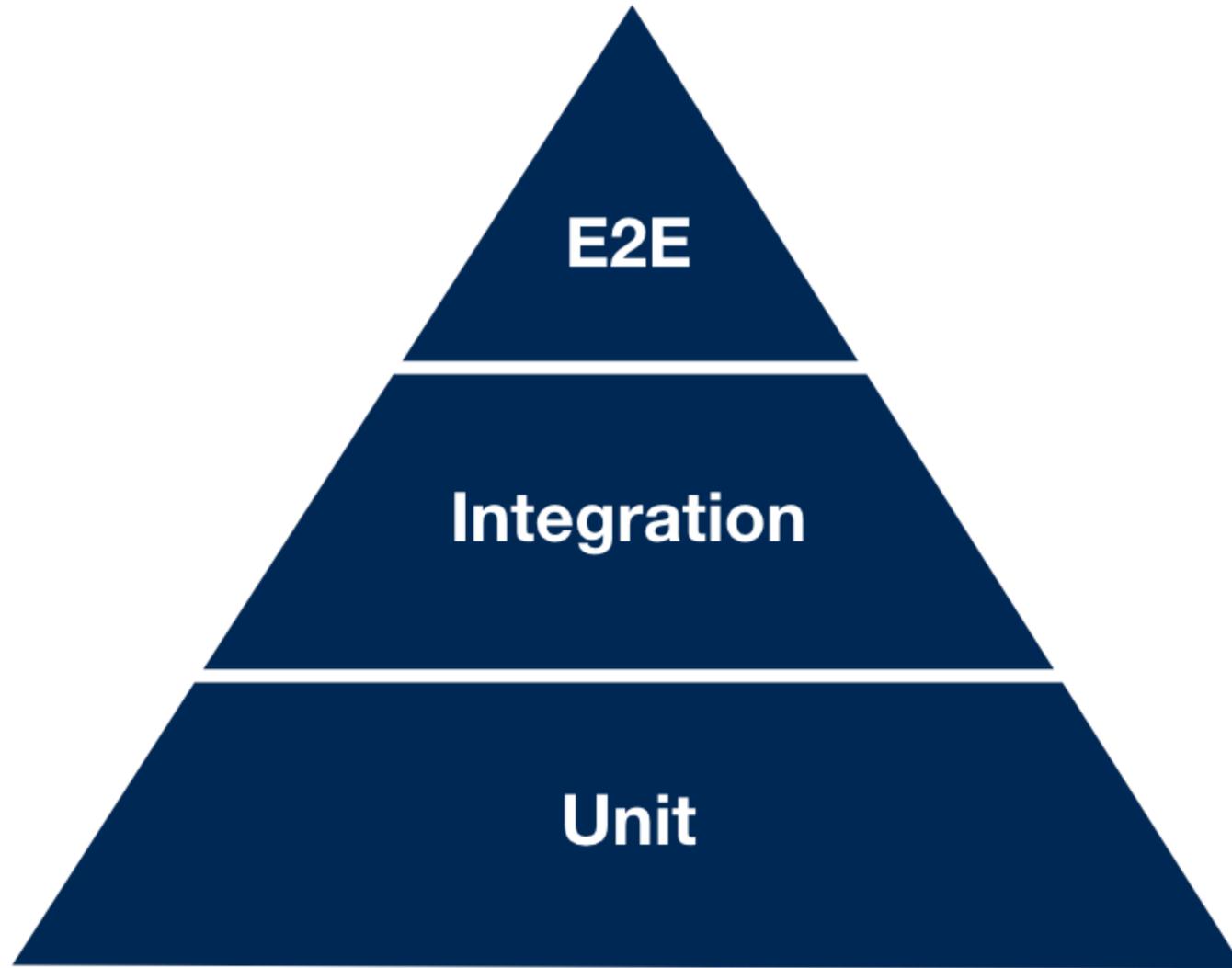


Integration Tests

- Checks that different parts work together
- Slower than Unit but quicker than an E2E



Test Pyramid



Real Life Drupal



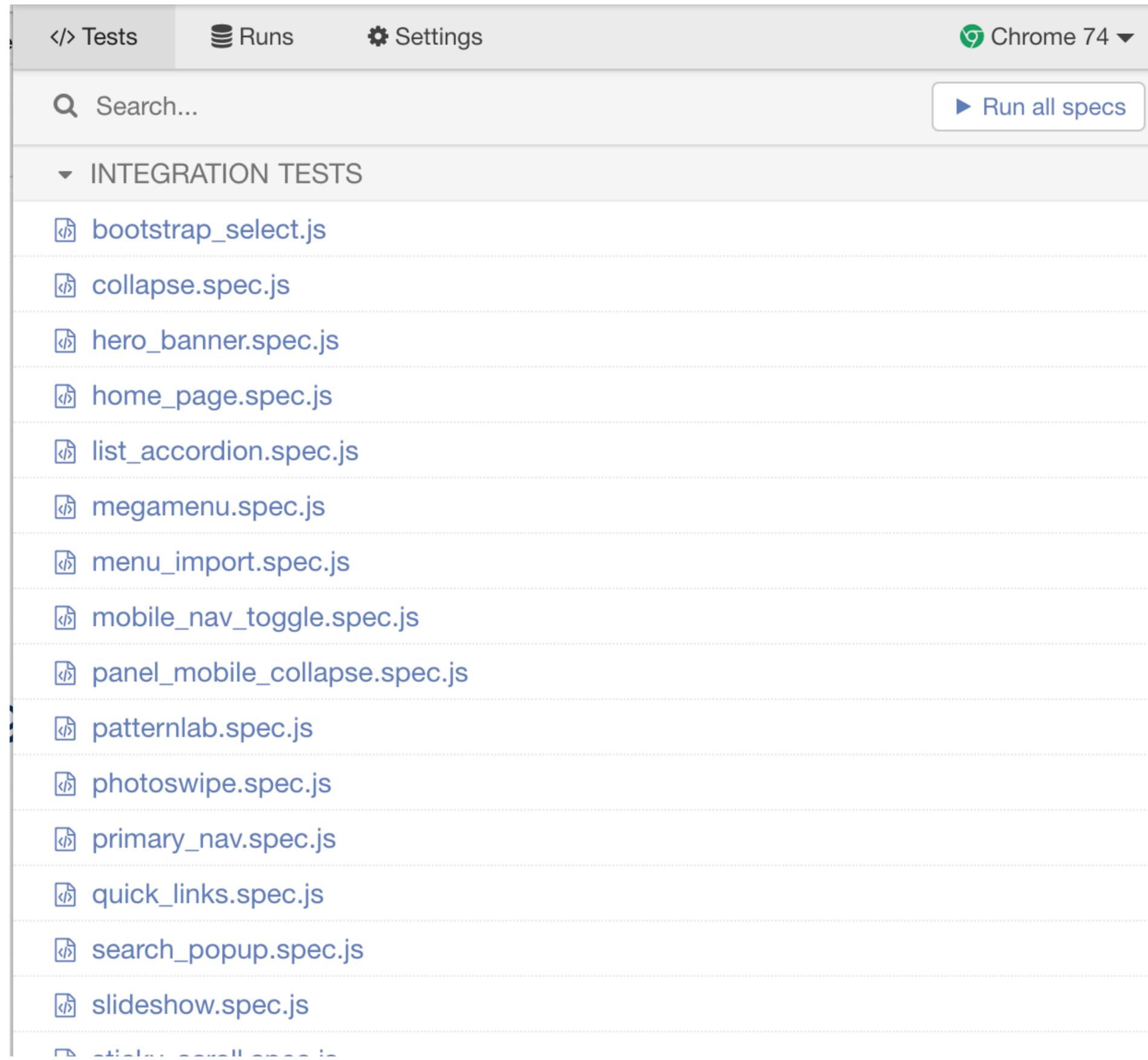
E2E Tests (end-to-end)

- Runs the entire project like a real person
- Behat, Nightwatch, TestCafe, Cypress, etc...





- Time travel
- Debug natively in Chrome
- Mock API call
- Automatic waits and reloads



Tests 46 24.92

- ▶ Bootstrap Select multi select dropdown ...
- ▶ Collapse Accordion ...
- ▶ Hero Banner ...
- ▼ Home Page
 - ✓ Site Name
 - ▼ BEFORE EACH
 - 📌 VISIT /patterns/04-pages-00-homepage/04-page...
 - ▼ TEST
 - 1 GET .header__site-name
 - 2 - ASSERT expected <h1.header__site-name> to have text SiteFarm
- ▶ Collapse Accordion ...
- ▶ MegaMenu ...
- ▶ Menu Import ...
- ▶ Mobile Nav Toggle ...
- ▶ Panel Mobile Collapse ...
- ▶ Pattern Lab ...
- ▶ Photoswipe ...
- ▶ Primary Navigation ...
- ▶ Quick Links ...
- ▶ Search Popup ...

http://localhost:8080/patterns/04-pages-00-homepage/04-pages-00-homepage.rendered.html 1000 x 660 (83%)

UC DAVIS

SiteFarm
Websites Grown Here

Quick Links >

ABOUT US > ADMISSIONS ACADEMICS RESEARCH CAMPUS LIFE NEWS

IT'S RIGHT HERE AND NOW
This site is a Pattern Library of all the components and styles for a UC Davis website with approved branding.

Play Video Get the Code

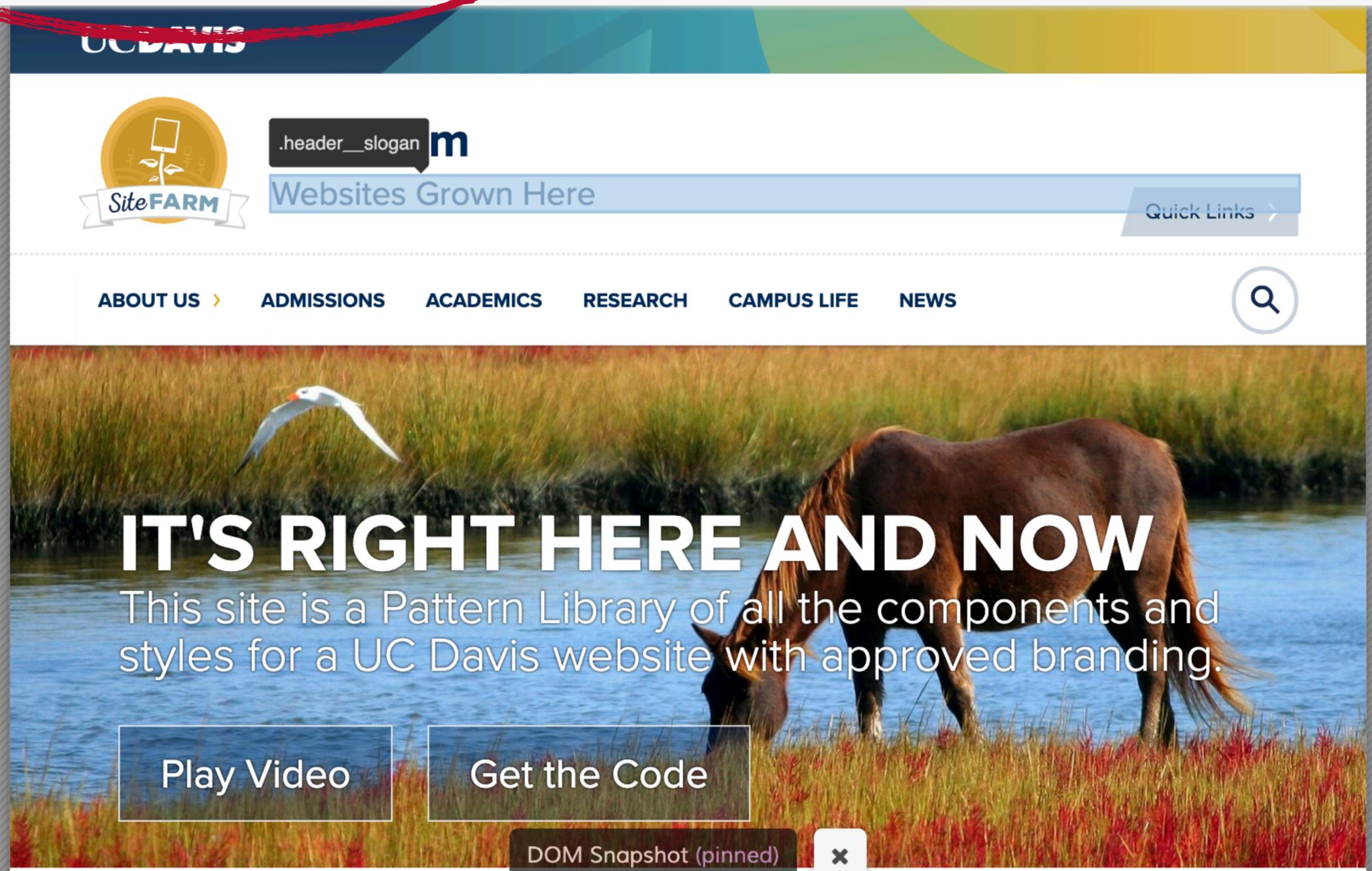
DOM Snapshot (pinned) x

Tests 46 24.92

http://localhost:8080/patterns/04-pages-00-homepage/04-pages-00-homepage.rendered.html

cy.get('body') 1

- Bootstrap Select multi select dropdown
- Collapse Accordion
- Hero Banner
- Home Page
 - Site Name
 - BEFORE EACH
 - VISIT /patterns/04-pages-00-homepage/04-page...
 - TEST
 - 1 GET .header__site-name
 - 2 - ASSERT expected <h1.header__site-name> to have text SiteFarm
- Collapse Accordion
- MegaMenu
- Menu Import
- Mobile Nav Toggle
- Panel Mobile Collapse
- Pattern Lab
- Photoswipe
- Primary Navigation
- Quick Links
- Search Popup



DOM Snapshot (pinned)

Tests 46 24.92

http://localhost:8080/patterns/04-pages-00-homepage/04-pages-00-homepage.rendered.html 1000 x 660 (34%)

Bootstrap Select multi select dropdown ...

Collapse Accordion ...

Hero Banner ...

Home Page

- Site Name
 - BEFORE EACH
 - VISIT /patterns/04-pages-00-homepage/04-page...
 - TEST
 - 1 GET .header__site-name
 - 2 - ASSERT expected <h1.header__site-name> to have text SiteFarm

cy.get('body') 1

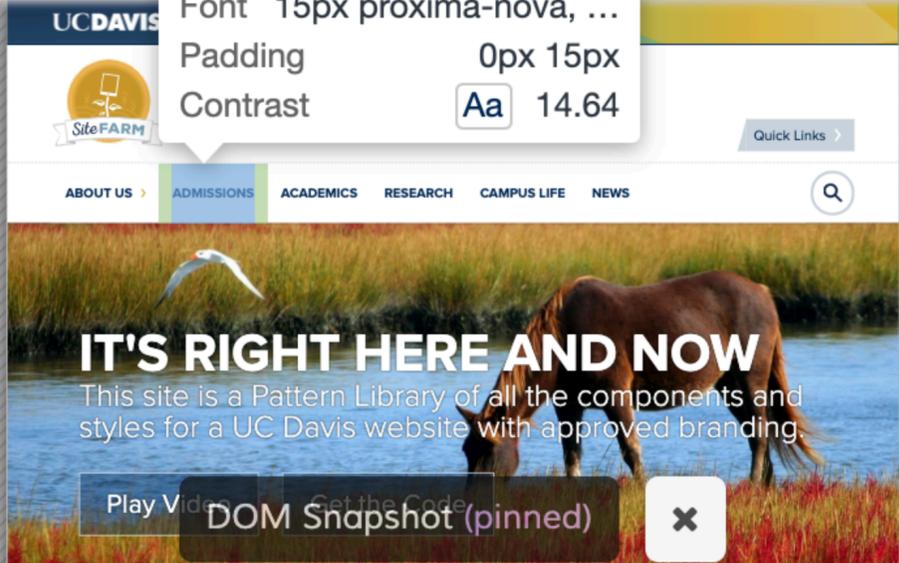
121.5 x 66

Color #002855

Font 15px proxima-nova, ...

Padding 0px 15px

Contrast Aa 14.64



DOM Snapshot (pinned)

Elements Console Sources Network Performance Memory Application Security Audits

```

<body class="front">
  <div class="page l-header--fixed">
    <header class="l-header header" role="banner">
      <div class="header__bar">...</div>
      <div class="header__branding">...</div>
      <div class="l-navbar navbar menu--closed">
        <div class="l-container--navigation off-canvas off-canvas--left">
          <div class="off-canvas__container">
            <div class="l-search-popup">...</div>
            <nav id="primary-nav" class="primary-nav primary-nav--superfish" aria-label="Main Menu">
              <ul class="menu sf-js-enabled sf-arrows" style="touch-action: pan-y;">
                <li>...</li>
                <li>
                  <a href="#">Admissions</a>
                </li>
              </ul>
            </nav>
          </div>
        </div>
      </div>
    </header>
  </div>
</body>

```

Styles Computed Event Listeners

Filter :hov .cls +

```

element.style {
}

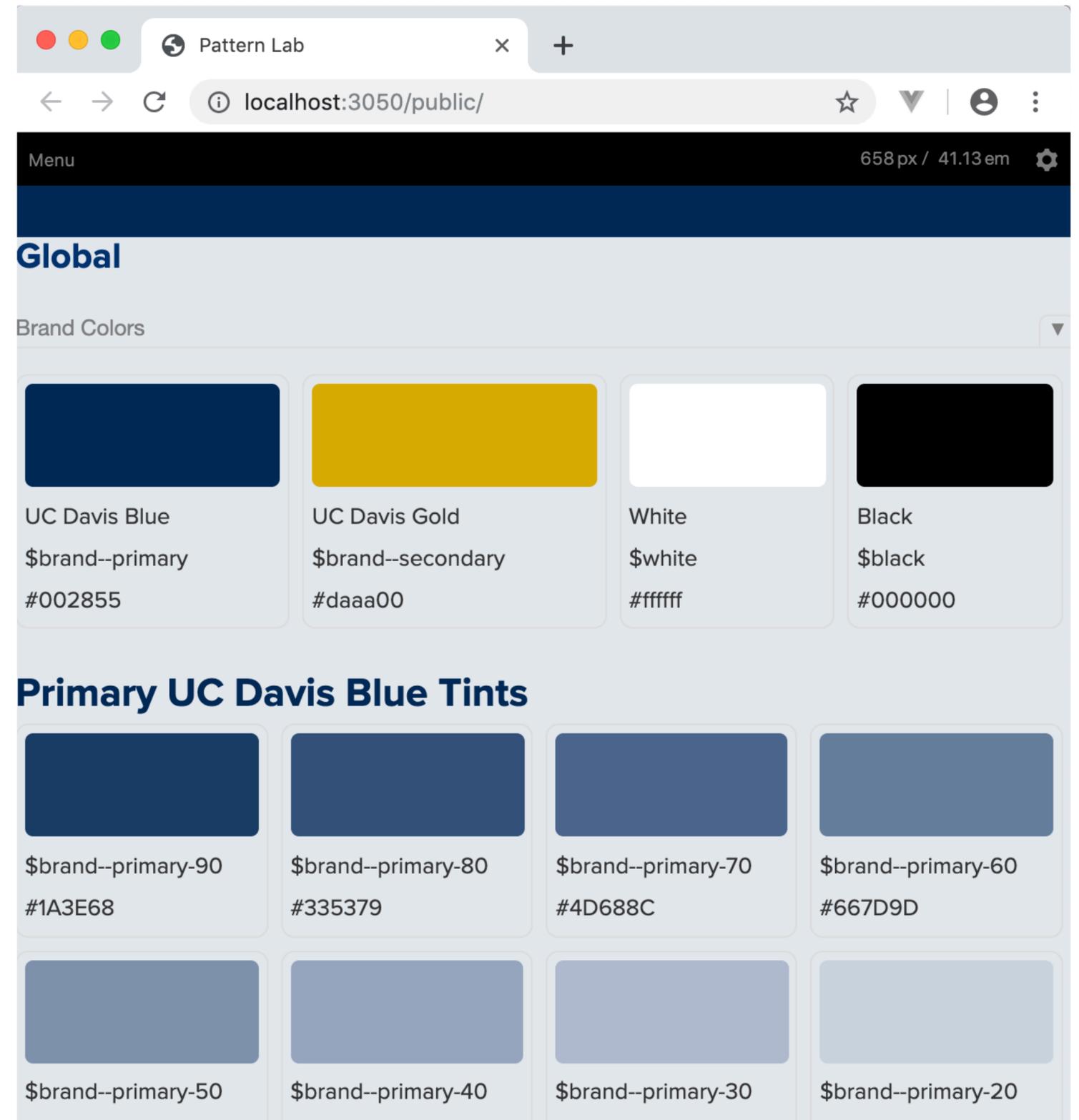
.runner.selector-
playground .selector,
.runner.selector-playground .selector-input,
.runner.selector-playground .info .spacer {
  font-family: Consolas, Monaco, "Andale Mono",
    monospace;
}

.runner.selector-
playground .selector {
  font-size: 1em;
  -webkit-box-align: center;
  -ms-flex-align: center;
  align-items: center;
}

```

Case Study

Pattern Lab



one > 1. ~/repos/sitefarm/patternlab/one (bash)

~/repos/sitefarm/patternlab/one on dev*

\$

1: Project

2: Favorites

Z: Structure

Gulp

Remote Host

Database

Terminal tabs: ...drupal-pdb (bash) #1, ~/test-app (bash) #2, ...ernlab/one (bash) #3, ...atternlab/one (bash) #4

scripts > serve:ci

Accessibility Testing

- Use Cypress and Axe
- cypress-axe plugin
- Prevent introducing new accessibility problems

The screenshot displays the Cypress test runner interface. At the top, it shows a summary of test results: 1 failed test (red 'x'), 0 pending tests (grey circle), and a total execution time of 8.48 seconds. The test suite is categorized under 'Accessibility' and 'Home page'. The test results are as follows:

Step	Command	Result
1	VISIT /patterns/04-pages-00-homepage/04-pages-...	Success
2	- A11Y ERROR! color-contrast on 14 Nodes	Warning
3	- A11Y ERROR! frame-title on 1 Node	Warning
4	- ASSERT 2 accessibility violations were detected: expected 2 to equal 0	Failure

The failure message in the console is: `AssertionError: 2 accessibility violations were detected: expected 2 to equal 0`. The Cypress runner also shows a 'Console was cleared' message at the bottom.

```
1 VISIT /patterns/04-pages-00-homepage/04-pages-...
2 - A11Y ERROR! color-contrast on 14 Nodes
3 - A11Y ERROR! frame-title on 1 Node
4 - ASSERT 2 accessibility violations were detected:
   expected 2 to equal 0
```

AssertionError: 2 accessibility violations were detected:
expected 2 to equal 0

Native Plants: Home Landscape Champions
July 11, 2015
Lorem ipsum dolor sit (37 characters)

Neighbors for Nepal Benefit Dinner and Concert
July 10, 2015
Lorem ipsum dolor sit (37 characters)

"Public Universities and Regional Development"
July 16, 2015
Lorem ipsum dolor sit (37 characters)
View All >

Breakthroughs that Changed the World



The climbing wall DOM Snapshot (pinned)
At this popular hangout, practice rock climbing in preparation for

We've got more than 500 student clubs

Elements Console Sources Network Performance Memory Application Security Audits
Your App: 'one' (04... Filter Default levels

Console was cleared cypress_runner.js:157778
Command: ally error! cypress_runner.js:157770
Id: frame-title cypress_runner.js:157770
Impact: serious cypress_runner.js:157770
Tags: (6) ["cat.text-alternatives", "wcag2a", "wcag241", "wcag412", "section508", "section508.22.i"] cypress_runner.js:157770
Description: Ensures <iframe> and <frame> elements contain a non-empty title attribute cypress_runner.js:157770
Help: Frames must have title attribute cypress_runner.js:157770
HelpUrl: https://dequeuniversity.com/rules/axe/3.3/frame-title?application=axeAPI cypress_runner.js:157770

Nodes: cypress_runner.js:157770
[-] i
0:
all: []
any: (5) [CheckResult, CheckResult, CheckResult, CheckResult, CheckResult]
failureSummary: "Fix any of the following: aria-label attribute does not exist or is empty, aria-labelledby attribute does not exist, references eleme...
html: "<iframe src="https://www.youtube.com/embed/nZZDAzErkIU" width="853" height="480" frameborder="0" allowfullscreen=""></iframe>"
impact: "serious"
none: []
target: ["iframe[width="\38 53"]"]
__proto__: Object

Visual Regression Tests

- Tests the visual differences



Oops!!!
Looks like this
image is missing

BackstopJS

Compares reference
screenshots with new



REFERENCE

TEST

DIFF

SCRUBBER

Case Study

Client customized sub-themes

Latest Sites Launched



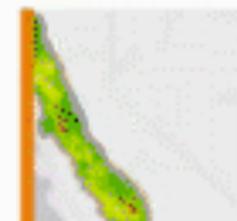
Continuing and Professional Education

May 06, 2019



Foundation & Corporate Engagement

April 30, 2019



UC Davis Groundwater Tools

April 29, 2019

[Full List](#)

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EDUCATIONAL TECHNOLOGY

all

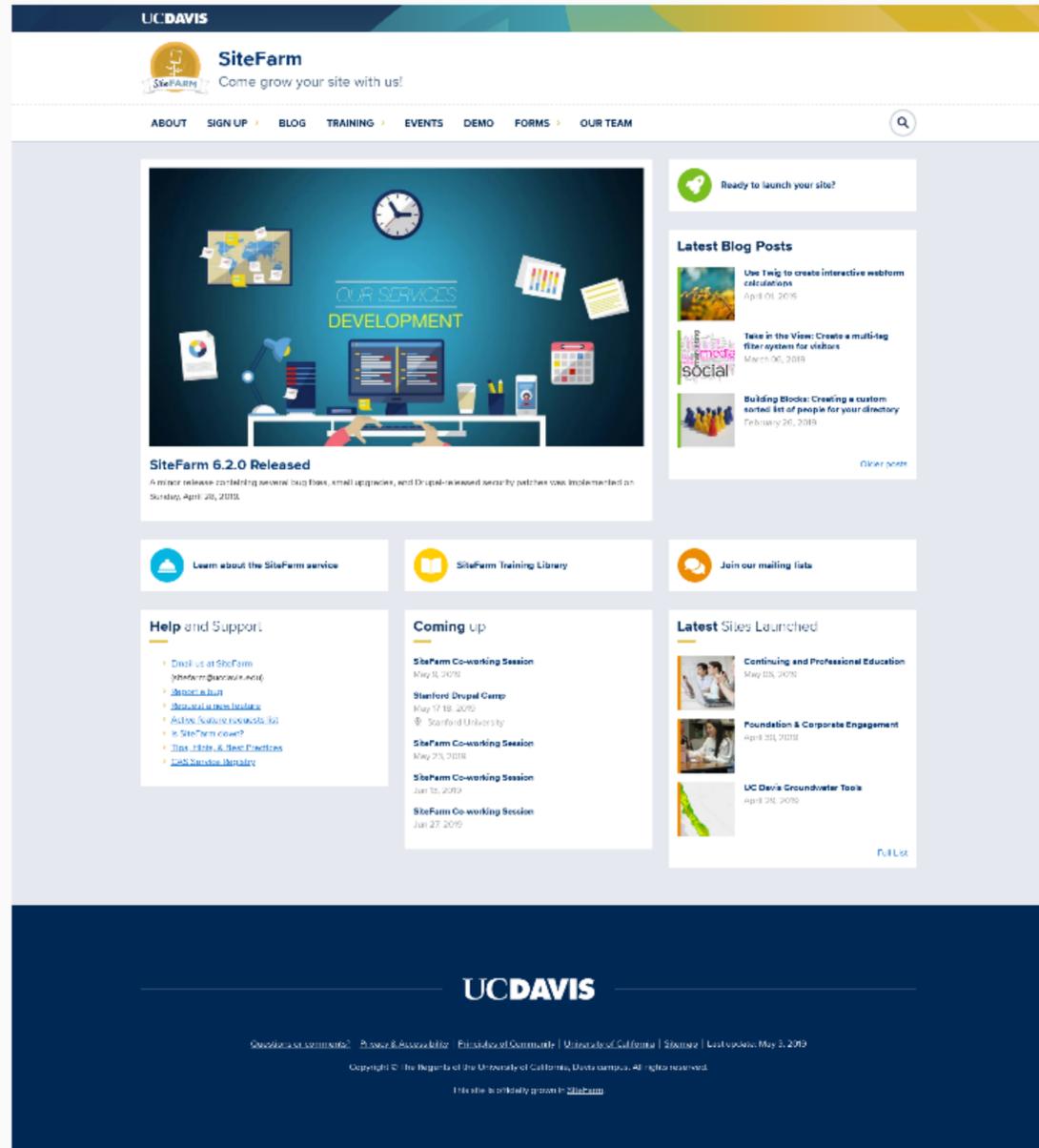
58 passed

2 failed

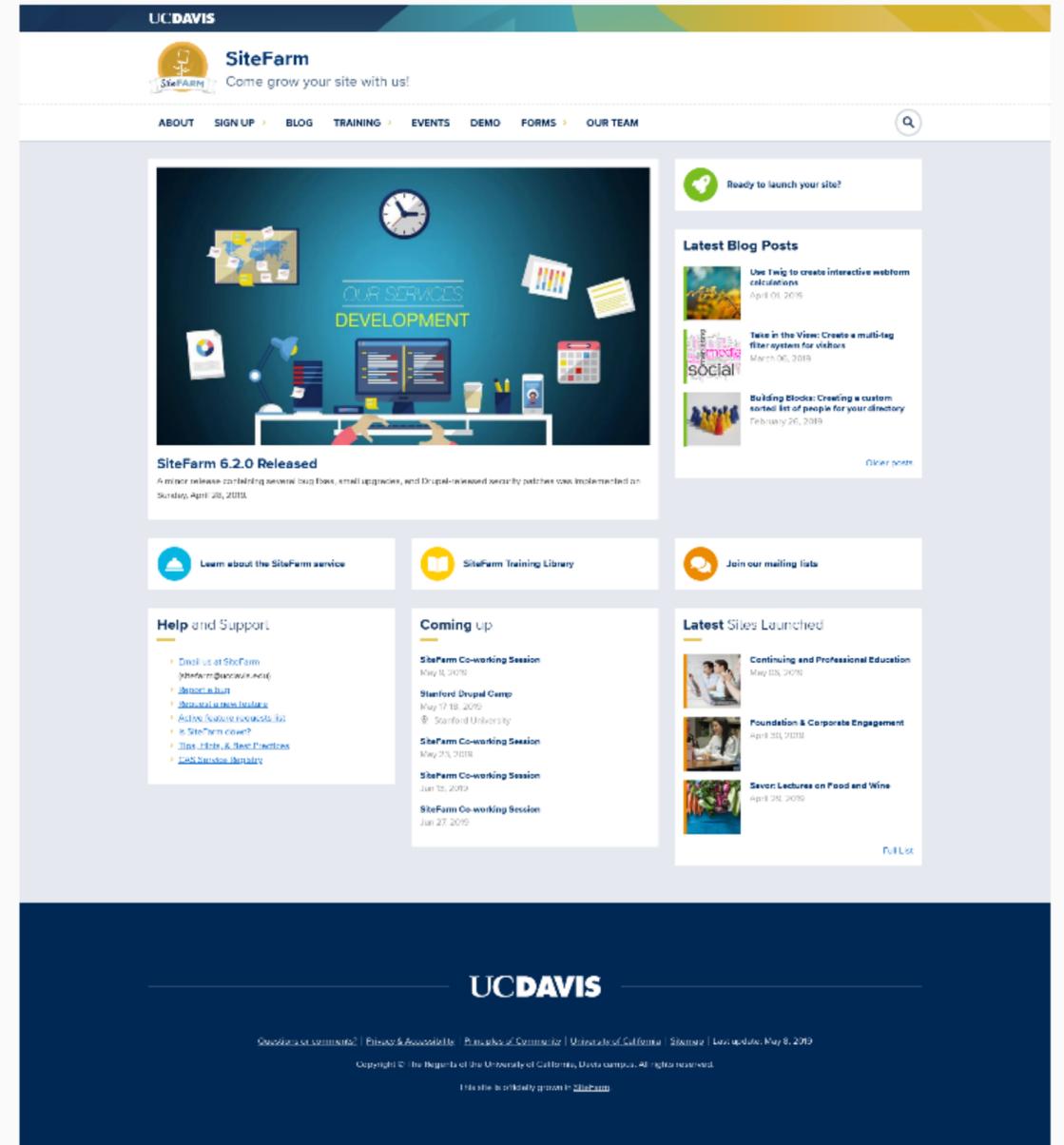
Filter tests with search...

filename: testgroup_SiteFarm_Front_0_document_2_desktop.png

REFERENCE

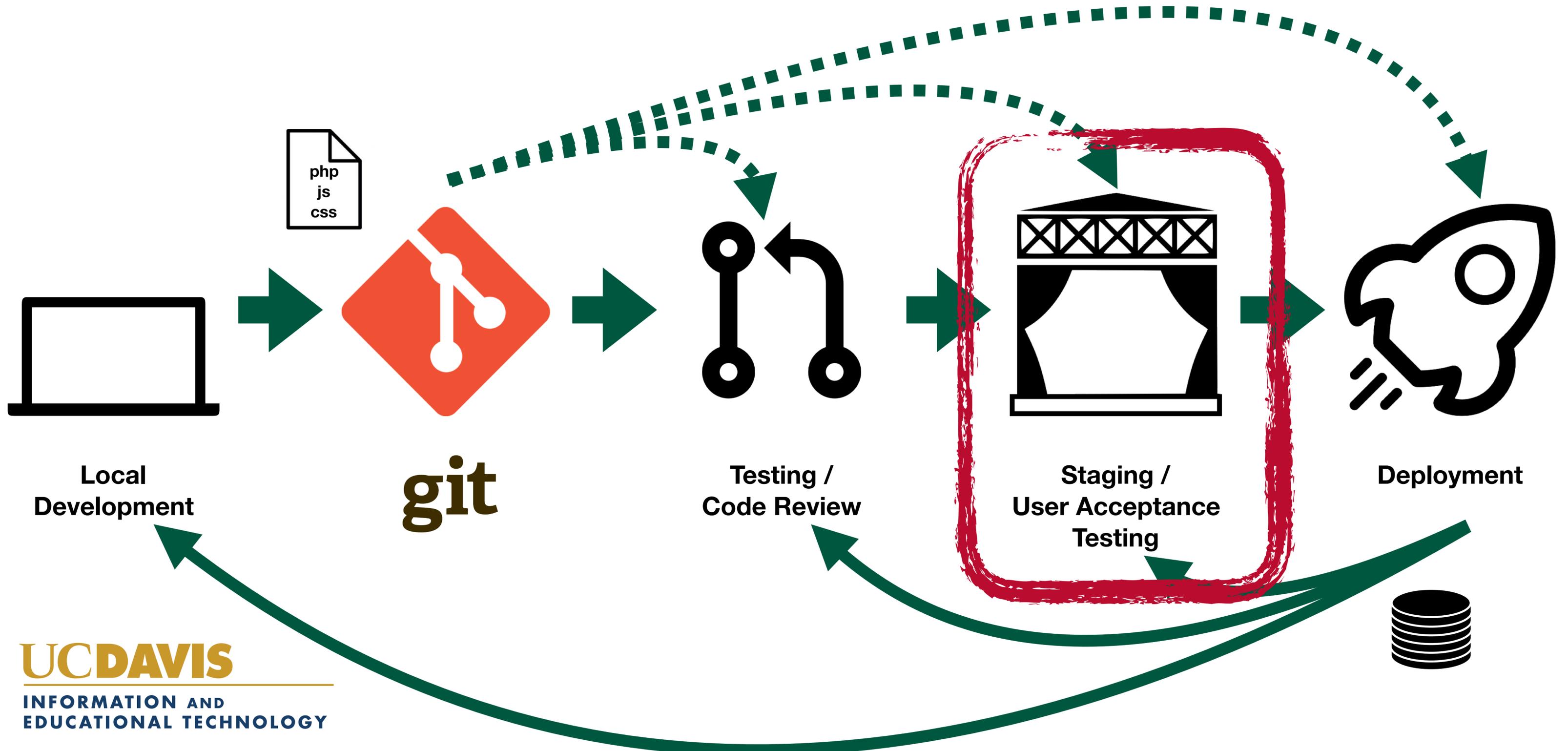


TEST



filename: testgroup SiteFarm Blog 0 document 0 phone.png

Development and Release Workflow



Staging Server

Enter the sites you wish to deploy to your staging environment:

Clean copies of the selected websites will be deployed to the non-production environment. If these websites exist in the non-production environment, only these websites will be overwritten. [Learn more.](#)

Choose environment to deploy:

Environment:

Choose sites to deploy:



Stage all users

Allow all users, including those that do not have access to these sites in the current environment to access the staging environment. Any existing user accounts in the staging environment will be updated.

Wipe target environment

Overwrite the code, database and files in the staging environment. All the existing websites in the non-production environment will be deleted and replaced by the above selected websites.

Send a status email for each site

Enable this option to receive a status email with the success or failure of each site as it is staged.

The time to complete the site copies will vary based on the number of sites being copied and their size.

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Staging Server

Anita Drupal Sandbox Workflows Team Settings

Multidev Dev **Test** Live Support

Visit Test Site Site Admin Public Connection Info Clear Caches

- Deploys**
- Code
- Status
- Database / Files
- Errors
- Domains
- HTTPS
- Backups
- Security
- New Relic New!

4 commits are ready to deploy from the *Development* environment

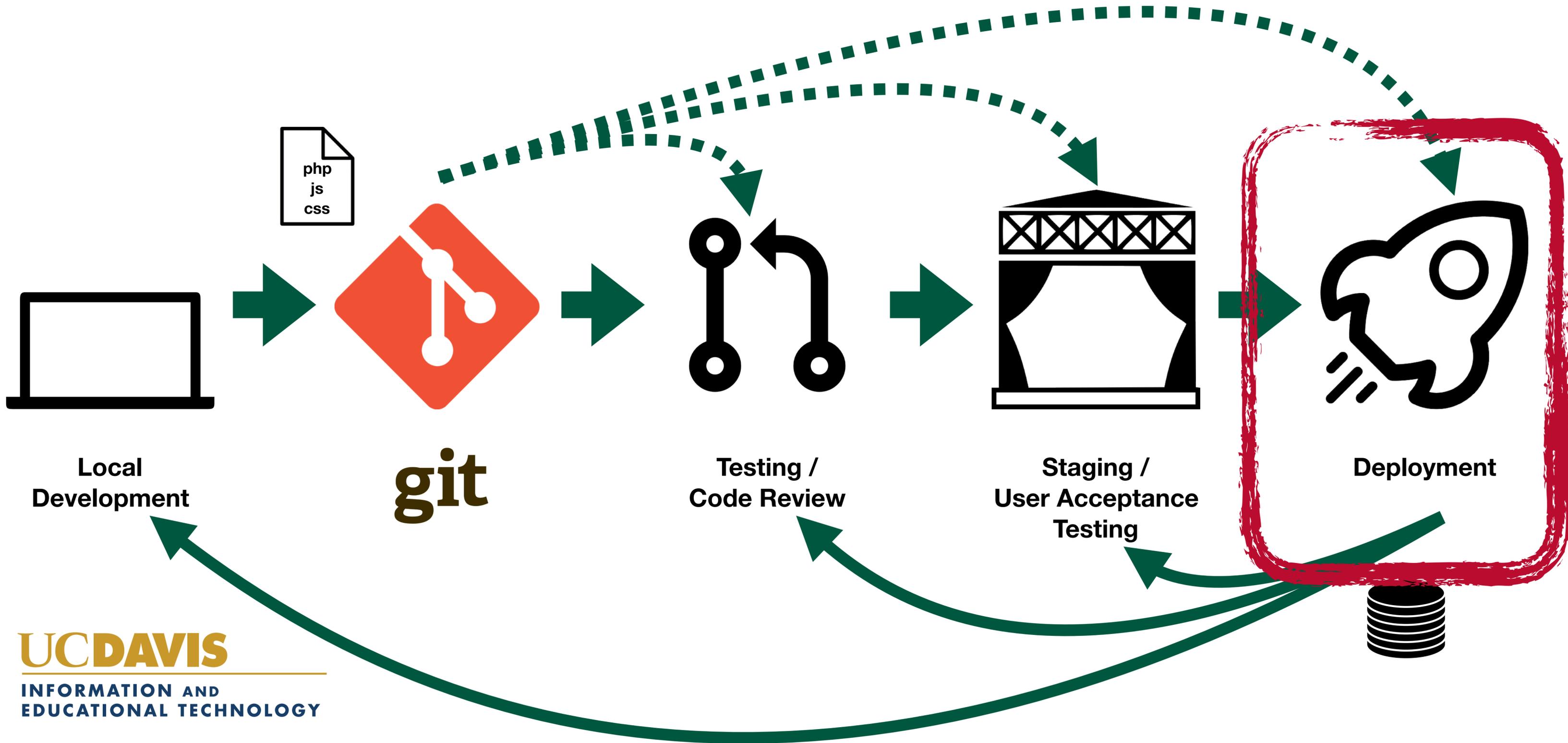
- Run update.php after pulling code
- Clear caches after pulling code
- Pull files and the database from the Live environment?

Deploy Log Message:

Deploy Code from Development to Test Environment

Update to Drupal 8.2.7. For more information, see 5b81157500

Development and Release Workflow



Deploy to Production

Site update

Start update

Status

Start time

- Immediately
- At a specific time

Time:

Enter a date in [strptime](#) format. For example: Thu May 16 23:28:54 2019

Site update action

Select from the options below to update the sites in this Site Factory.

Choose a path to deploy... ▾

Currently deployed: tags/build-6.2.1

- Code only
Sets the version control system (VCS) code path for all websites at the same time. Use this option if your code to be deployed has no update hooks, and doesn't require a cache clear or registry rebuild.
- Code and databases
For each website in sequence, sets the VCS path, runs database updates, and then clears all of the website's caches. Use this option for most updates.

db-update hook arguments:

If required, enter one or more arguments to pass through to a configured db-update hook. [Learn more](#).

[Visit the Acquia Help Center to learn more about site update actions.](#)

- Select this check box to confirm that you want to update your public-facing **production** environment.

Update

Deploy to Production

PANTHEON DOCUMENTATION SUPPORT CONTACT SALES Anita

Anita Drupal **Sandbox** Team Settings

Multidev Dev Test **Live** Support

Visit Live Site Site Admin Public Connection Info Clear Caches

Deploys

- Code
- Status
- Database / Files
- Errors
- Domains / HTTPS
- Backups
- Security
- New Relic **New!**

2 commits are ready to deploy from the Test environment

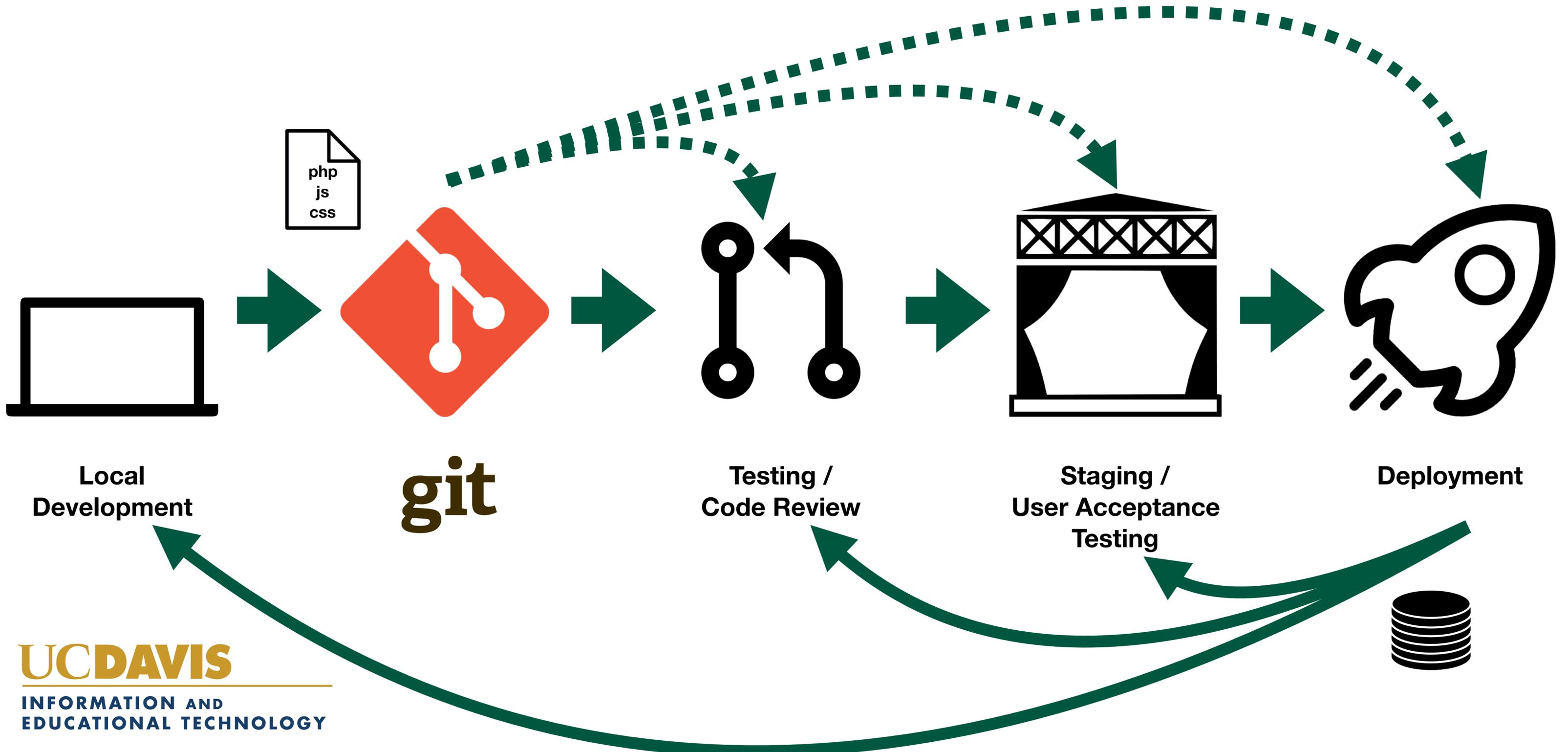
- Run update.php after pulling code
- Clear caches after pulling code

Deploy Log Message:

Deploy Code from Test to Live Environment

	Configure environment indicators for Pantheon Anita Pantheon authored 3 minutes ago	f5da83f531
	Install environment_indicator 8.x-3.0-beta1 Anita Pantheon authored 4 minutes ago	7ef97fe429

Development and Release Workflow



Questions?

Shawn DeArmond
sgdearmond@ucdavis.edu

Mark Miller
mrkmiller@ucdavis.edu

