

JenkinsOps @ NPR



An Initiative to Streamline &
Automate Jenkins



Jenkins World
2016

Presented by Paul Miles & Grant Dickie

NPR's Applications



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ON AIR NOW
WAMU 88.5

OUR PICKS LIVE RADIO SHOWS

YOUR MONEY AND YOUR LIFE

For Couples Skipping The Ring, It Pays To Plot Out Finances

As couples live together in greater numbers, old rules about how to divide finances and plan for the future don't quite fit the modern family. Experts offer financial tips for unmarried couples.

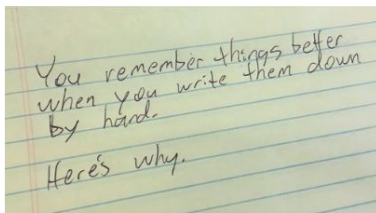


Courtesy of Robin Bunovich and Alex Rivas

EDUCATION

Attention Students: Put Your Laptops Away

Researchers Pam Mueller and Daniel M. Oppenheimer found that students remember more via writing notes longhand rather than on a laptop. It has to do with what happens when you're forced to slow down.



James Doubek/NPR



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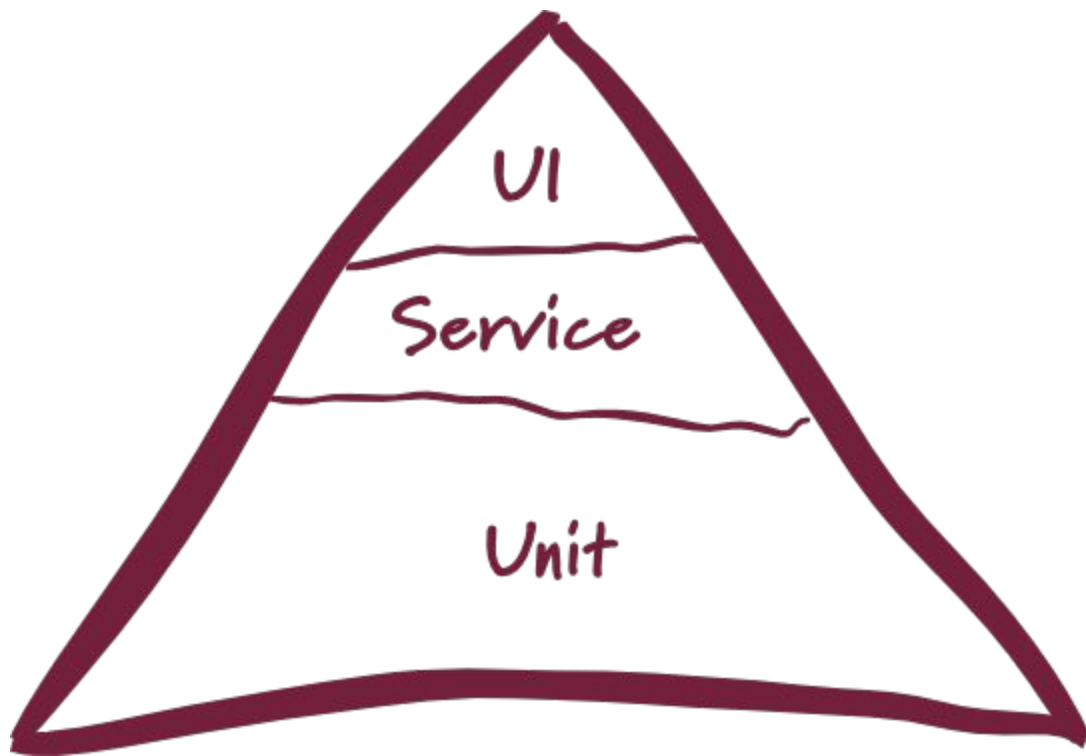
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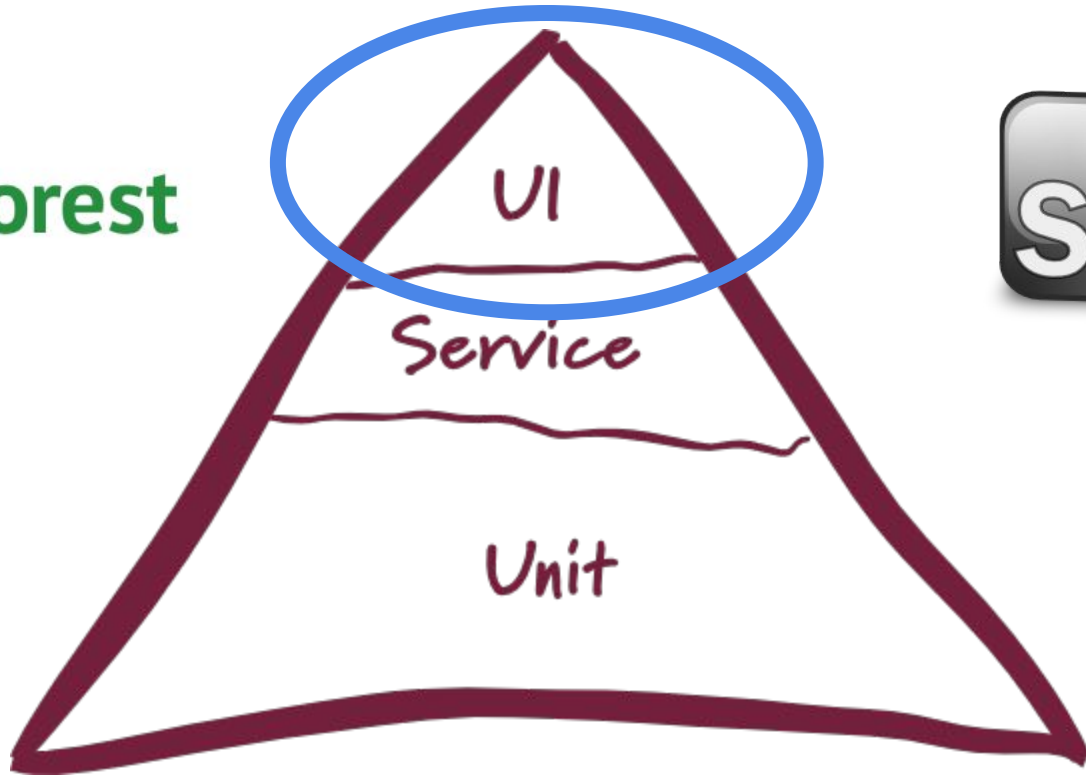


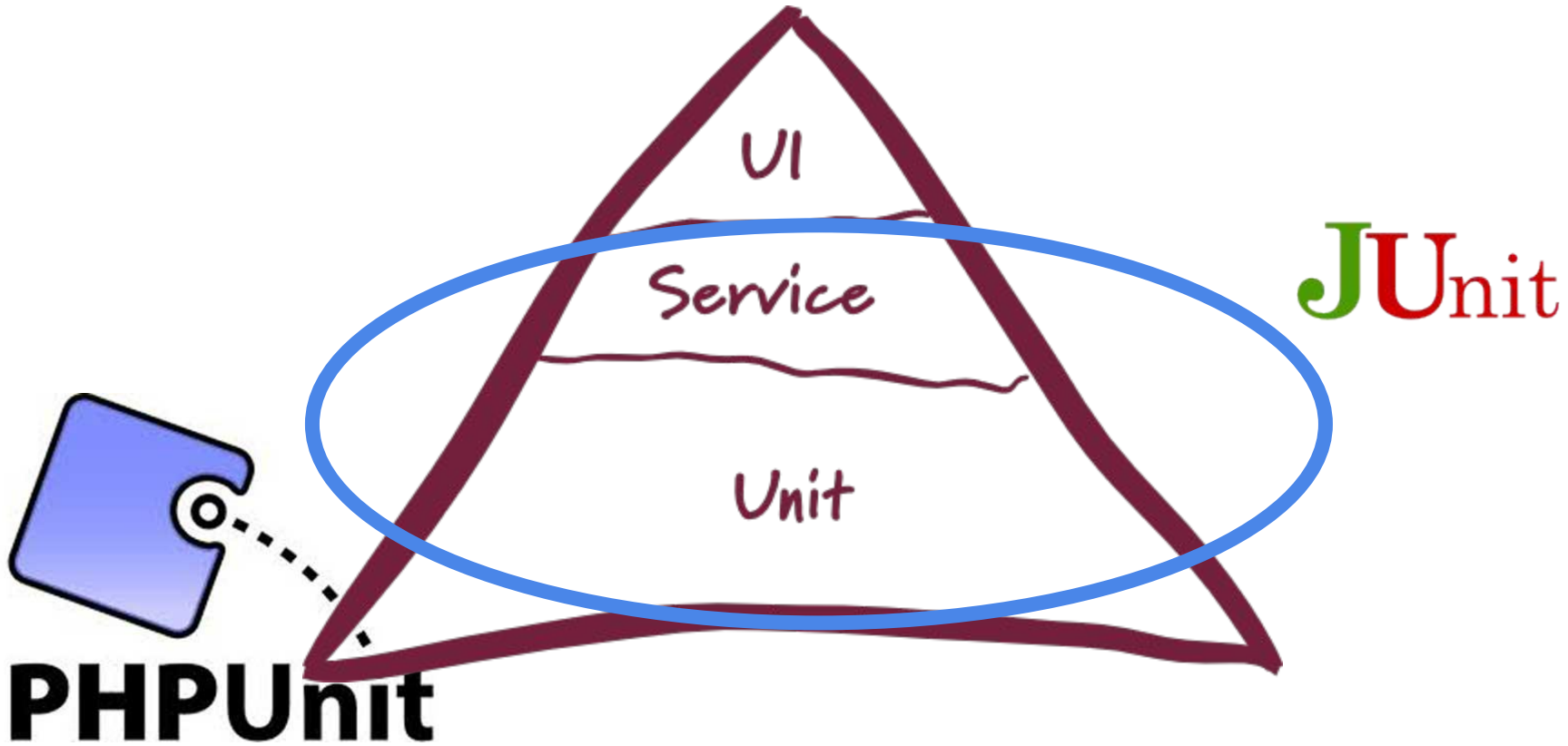
More About Us

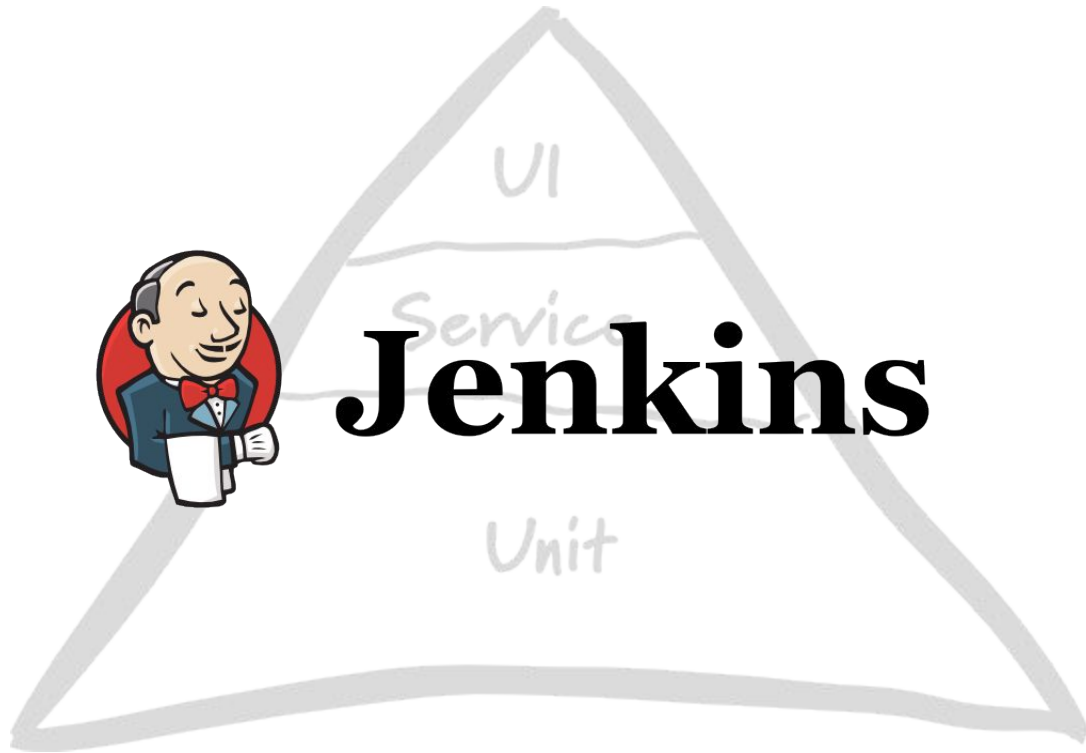
- 10+ Year Codebases
- Multiple Scrum teams
- Record setting growth and usage of our services
- Growing team
 - Hiring of a test automation engineer
 - More rigor in development practices
- Various initiatives
 - Scale
 - Separation of services & site code
 - More frequent deployment

**Enabler: Major
Investments in Testing**



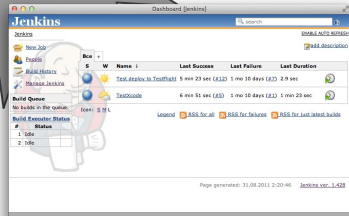






One Tool at the Center of it All

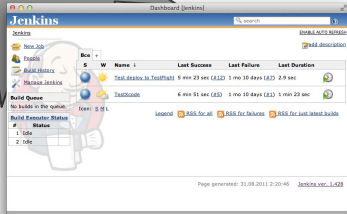
CI



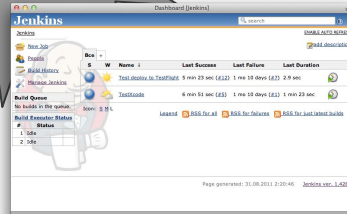
UAT



CI



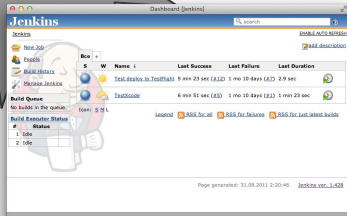
UAT



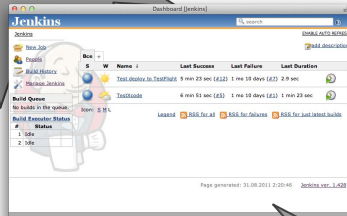
Branch



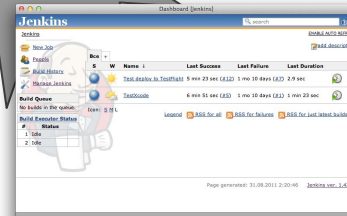
CI



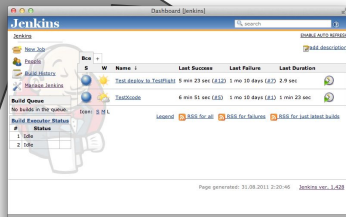
UAT



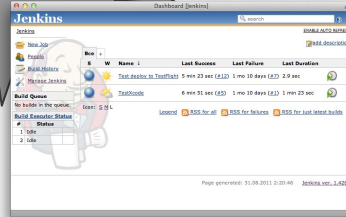
Branch



Branch

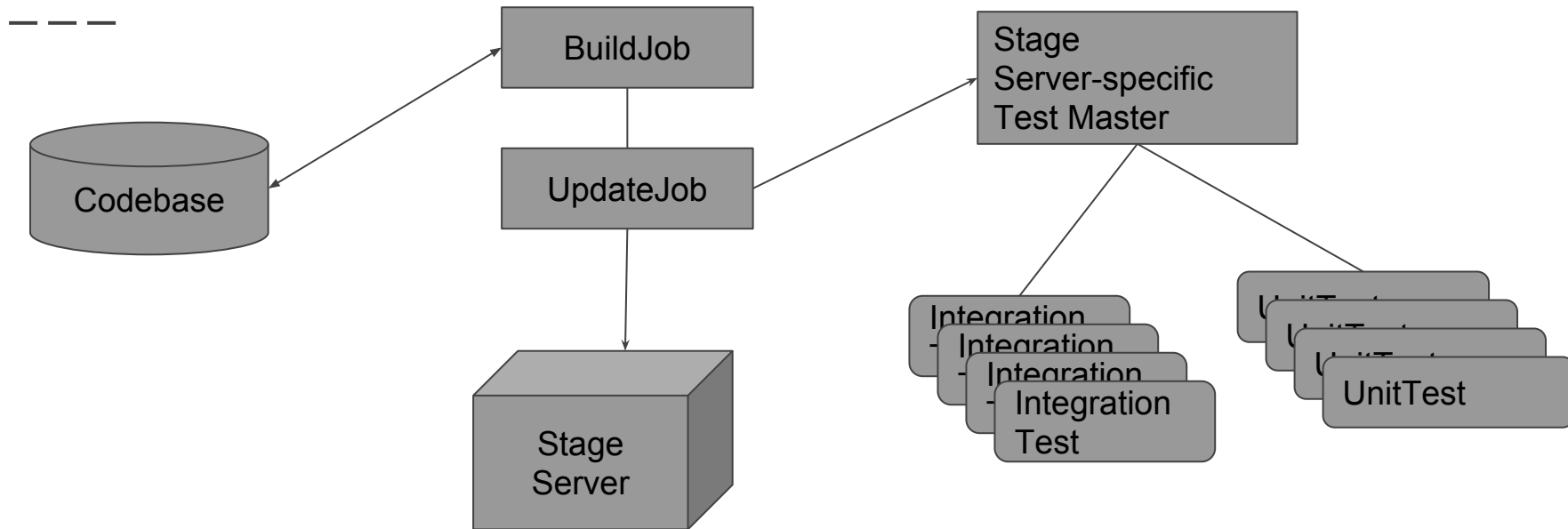


Branch



JenkinsOps to the Rescue

Overview of Building and Testing



Required Elements

- Comprehensive reporting via One-test-One-job
- Dynamically create jobs on the fly based on codebase + server hostname
- Notifications

Welcome to Higgins!

Stage4_WWW_Carbon_Active

Stage4_WWW_Carbon_Failed

S	W	Name ↓	Last Success	Last Failure	Last Duration	
		Stage4_Carbon_authorization_Unit	36 min - #989	11 days - #942	3.5 sec	
		Stage4_Carbon_documentation_Unit	36 min - #986	N/A	0.36 sec	
		W Description	%			
		Build stability: No recent builds failed.	100	4 days 7 hr - #976	1.5 sec	
		Stage4_Carbon_listening_Unit	36 min - #993	4 days 7 hr - #984	30 sec	
		Stage4_Carbon_local_activation_Unit	36 min - #985	N/A	0.34 sec	
		Stage4_Carbon_publisher_Unit	36 min - #532	11 days - #485	2.3 sec	
		Stage4_Carbon_sponsorship_Unit	36 min - #985	N/A	0.76 sec	
		Stage4_Carbon_station_Unit	35 min - #985	N/A	0.33 sec	
		Stage4_Carbon_stationfinder_Unit	36 min - #439	11 days - #392	0.53 sec	

Icon: [S](#) [M](#) [L](#)

Legend RSS for all RSS for failures RSS for just latest builds

Plugins for Job Organization

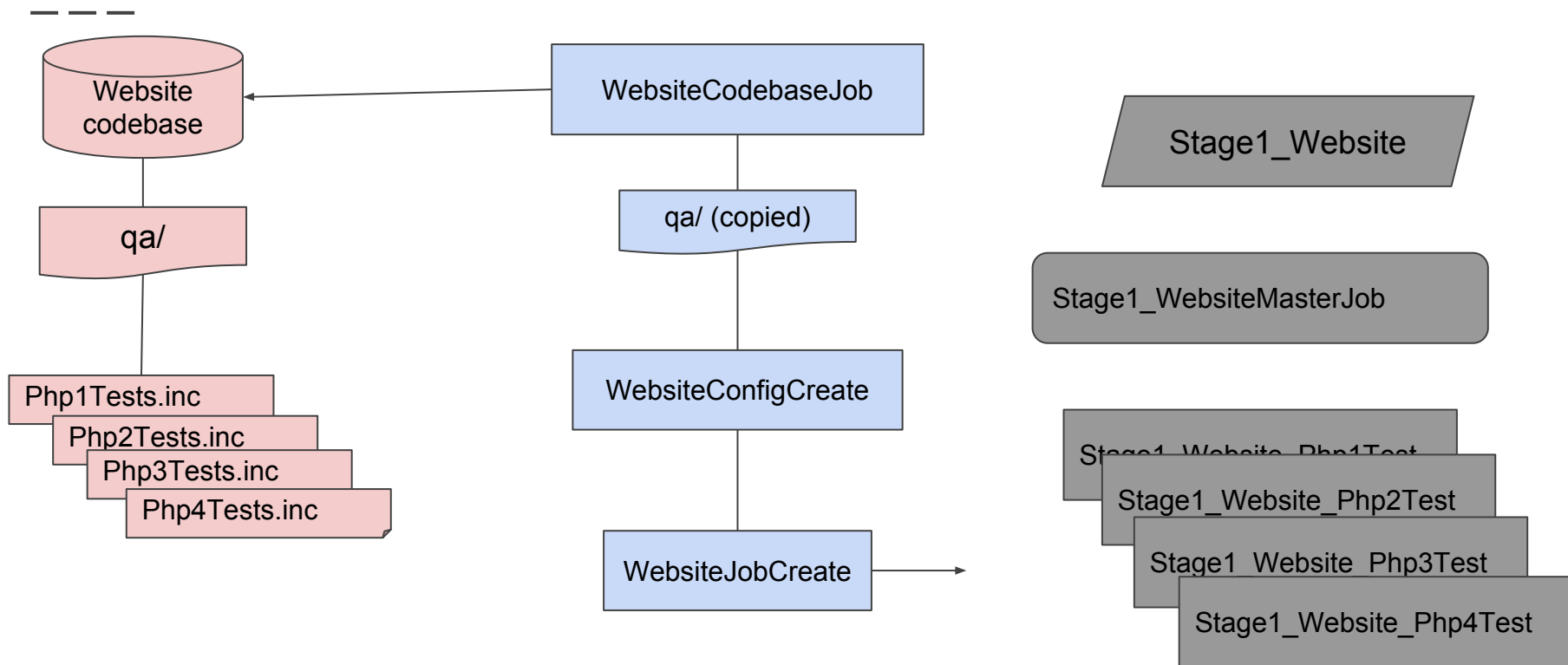
- Multijob
- Folders
- Custom View Tabs
- Nested View

In comes Job DSL

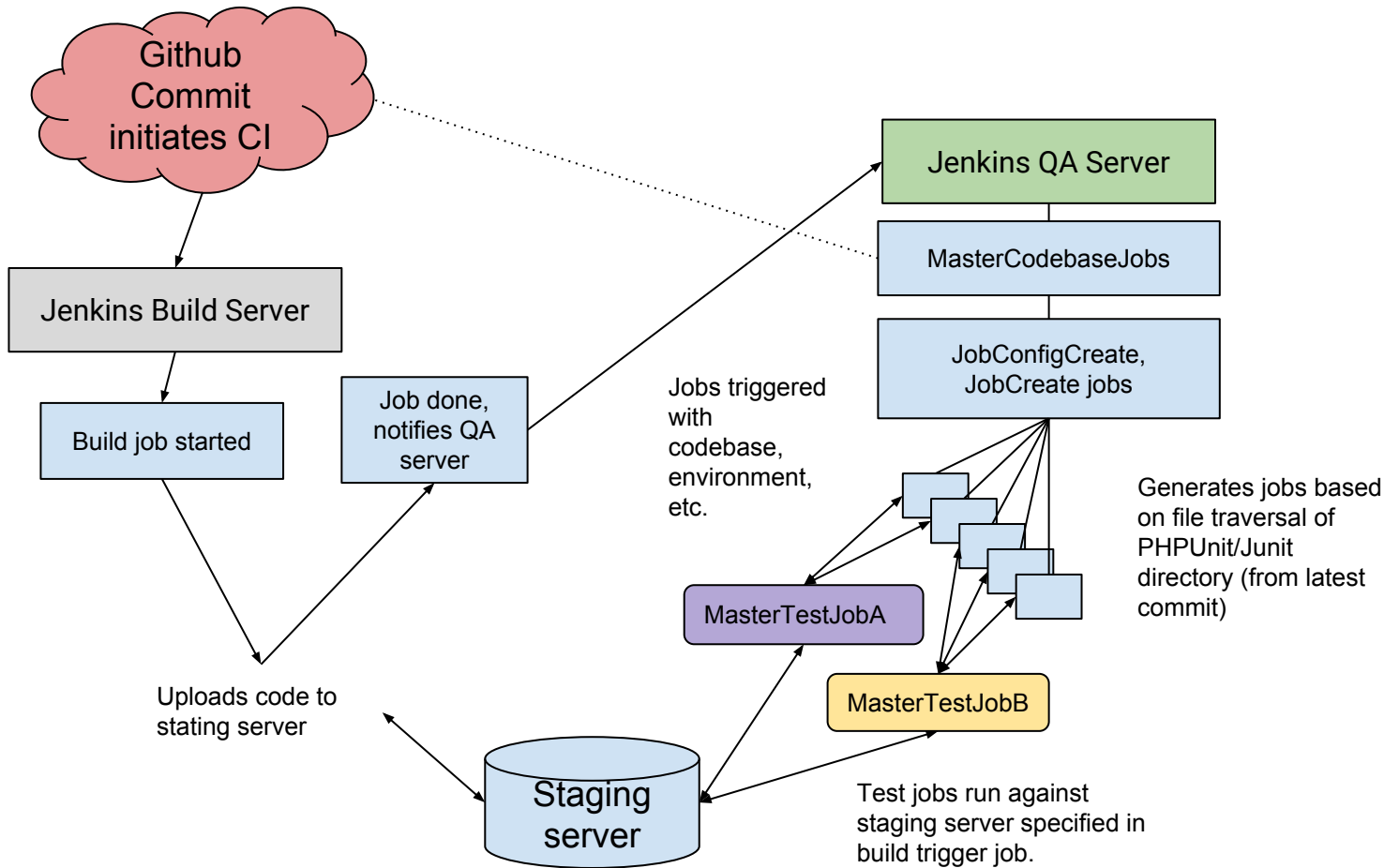
```
Config.jobs.each { _job ->
  switch (_job.type) {
    case 'job':
      job(namePrefix + _job.name) {
        logRotator(CarbonApiProps.num_days_to_keep, CarbonApiProps.num_builds_to_keep,
          CarbonApiProps.num_artifacts_days, CarbonApiProps.num_artifacts)
        throttleConcurrentBuilds {
          categories([carbonThrottleCategory])
        }
        if (serverName && _job.remoteCommand) {
          steps {
            /**
             * Replacing remoteShell with publishOverSsh
             */
            publishOverSsh {
              failOnError(failOnError = true)
              server(serverName) {
                retry(retries = 1, delay = 10000)
                verbose(verbose = true)
                transferSet {
                  execTimeout(600000)
                  execCommand(_job.remoteCommand)
                }
              }
            }
          }
        }
      }
    }
  }
}
```

<https://gist.github.com/jdickie/2aa65b19de519078a5f11b553e4c908d>

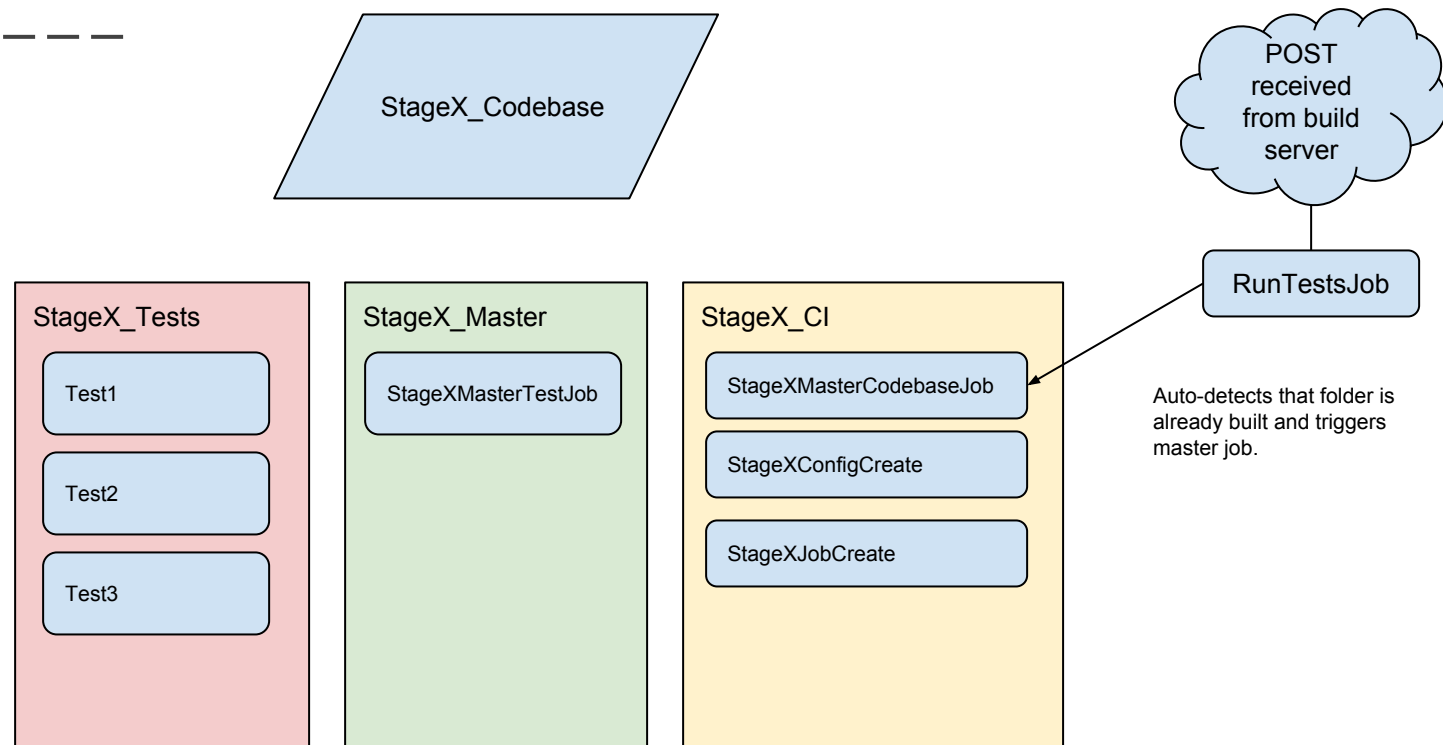
Automated Creation of Tests via File Traversal



From another viewpoint...



Each Environment Folder is Self-Contained



Stage4_WWW




Welcome to Higgins!

Test environment for Stage4_WWW. Uses server cms@stage4.npr.org:22. Branch: dev

All Stage4_WWW_API Stage4_WWW_CI Stage4_WWW_Carbon **Stage4_WWW_Master**















S	W	Name ↓	Last Success	Last Failure	Last Duration	
		Carbon API Tests for Stage4 :: Higgins	58 min - #985	4 days 8 hr - #976	48 sec	
		WWW Api Tests for Stage4 :: Higgins	4 days 1 hr - #1002	58 min - #1009	5 min 0 sec	

Icon: [S](#) [M](#) [L](#)

[Legend](#)  [RSS for all](#)  [RSS for failures](#)  [RSS for just latest builds](#)

Stage4_WWW_API_Active

Stage4_WWW_API_Failed








S	W	Name ↓	Last Success	Last Failure	Last Duration	
✓	☀	Stage4_Api_ApiFIChannelElementTest	1 hr 28 min - #1023	N/A	0.78 sec	
✓	☀	Stage4_Api_ApiFIADfpAndAnalyticsTest	1 hr 28 min - #1008	N/A	0.78 sec	
✓	☀	Stage4_Api_ApiFIFilterOutPrimaryAudioStoriesRuleTest	1 hr 27 min - #1010	N/A	1 sec	
✓	☀	Stage4_Api_ApiFIAHtmlElementTest	1 hr 28 min - #1008	N/A	0.76 sec	
✓	☀	Stage4_Api_ApiFIAHtmlStrategyTest	1 hr 28 min - #1008	N/A	0.97 sec	
✓	☀	Stage4_Api_ApiFIAltemElementTest	1 hr 28 min - #1009	N/A	0.79 sec	
✓	☀	Stage4_Api_ApiFIARssDocumentTest	1 hr 28 min - #1009	N/A	0.95 sec	
✓	☀	Stage4_Api_ApiFIWhitelistRuleTest	1 hr 28 min - #1009	N/A	0.52 sec	
✓	☀	Stage4_Api_ApiNprmlPodtracRuleTest	1 hr 27 min - #1009	N/A	0.76 sec	
✓	☀	Stage4_Api_ApiPodcastPodtracRuleTest	1 hr 28 min - #1009	N/A	1 sec	
✓	☀	Stage4_Api_ApiPodcastTritonRuleTest	1 hr 27 min - #1009	N/A	0.92 sec	
✓	☀	Stage4_Api_ApiRyopPodtracRuleTest	1 hr 28 min - #1009	N/A	0.96 sec	
✓	☀	Stage4_Api_ApiRyopTritonRuleTest	1 hr 27 min - #1009	N/A	0.95 sec	
✓	☀	Stage4_Api_GuidTest	1 hr 28 min - #1008	N/A	9.4 sec	

Stage4_WWW

Welcome to Higgins!

Test environment for Stage4_WWW. Uses server cms@stage4.npr.org:22. Branch: dev

All Stage4_WWW_API **Stage4_WWW_CI** Stage4_WWW_Carbon Stage4_WWW_Master

S	W	Name ↓	Last Success	Last Failure	Last Duration	
✓	☀️	ApiConfigCreate	1 hr 28 min - #977	N/A	10 sec	
✓	☀️	ApiJobCreate	1 hr 28 min - #962	N/A	31 sec	
✓	☀️	CarbonConfigCreate	1 hr 28 min - #978	N/A	10 sec	
✓	☀️	CarbonJobCreate	1 hr 28 min - #961	N/A	4.9 sec	
✓	☀️	MasterWWWSeedJob	1 hr 29 min - #979	N/A	0.56 sec	
✓	☀️	UpdateCIJobs	4 hr 48 min - #9	4 mo 20 days - #3	1.9 sec	
✓	☀️	WWW_Codebase	1 hr 29 min - #981	N/A	6.2 sec	

**How Did it Go? And Now
What?**

Challenges

- Resurrection of the tests
 - Reliance on the test automation engineer to share results
 - Forever disabled tests
- Environment issues
 - Production vs. UAT vs. stage environment servers
- Culture issues
 - Education of development team

Challenges, continued

- **Oopsies**
 - Automated deletion of tests
 - Disk space / Memory / “Jenkins Scale” issues
- **Implicit Oopsies:**
 - All the parameters
 - Too much ‘noise’

Future Work

- One button click to create testing environment & tests
- ChatOps
- Claims

Your Presenters



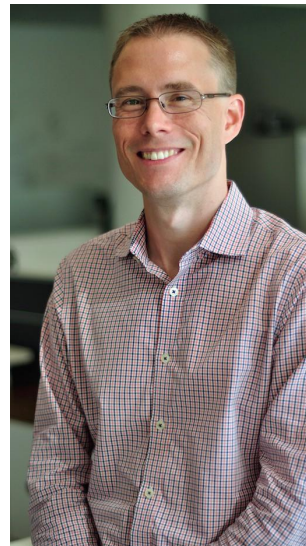
— — —
Grant Dickie

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Paul Miles

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Questions
