



CrowSoft

lyit

Institiúid Teicneolaíochta
Léiritir Ceannainn
Letterkenny Institute
of Technology



Introduction

Liam Whorriskey

01



Project

On-line system to take in building details for analysis. CrowSoft is a engineering and tech company. The product that they wish to market is BusIntelligence.

The system must take details for buildings and to provide easy to use analysis features. For example, they may wish to have a review all buildings which cost more than €1 million to build and have special features as this may indicate future maintenance projects that may be exploited. Keep the analysis simple.

The analysis system should be clean and simple. The system needs to take into account the usual details and present simplified graphics. It must be possible to upload files or images.

The administrator should be able to access detailed information and edit as appropriate. Once the client enters details it should not be able to be changed by the client.



Team Members

Liam Whorriskey

02



Charles Aylward



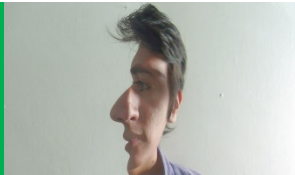
Mary Walsh McGinty



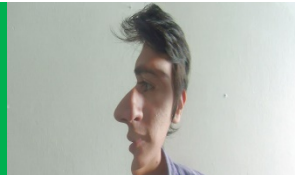
Joji Thokla



Matthew Mc Colgan



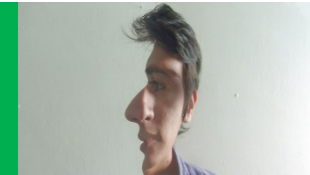
Bharathi Gadhiraju



Michael McFadden



Colin Kenny



Liam Whorriskey

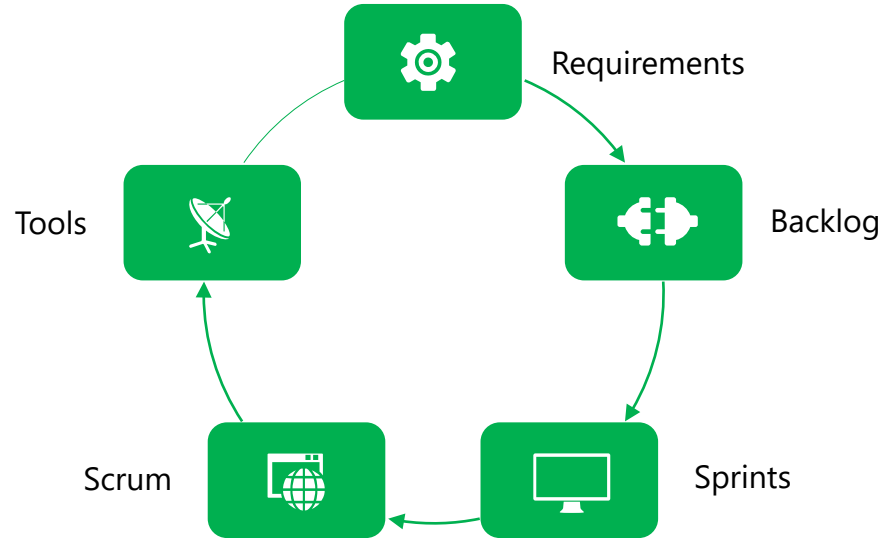
Matthew Mc Colgan



Agile Development / Team Collaboration

Matthew

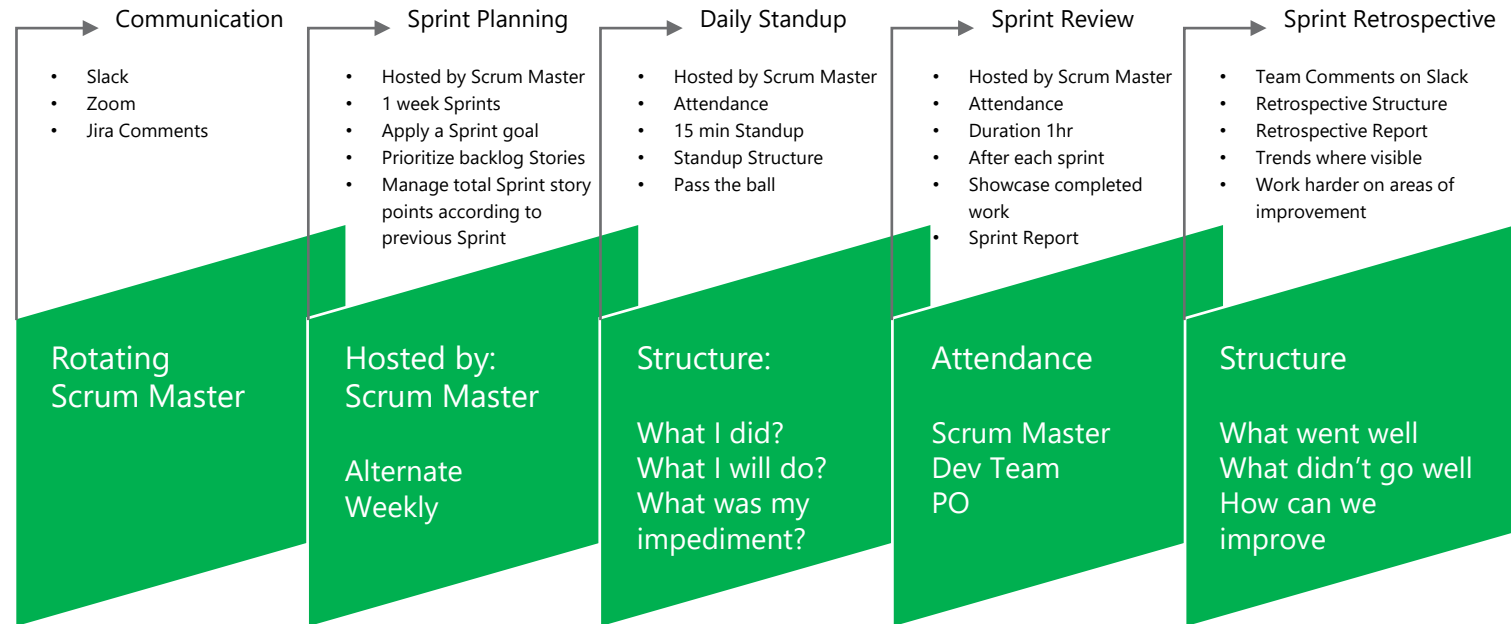
03



Scrum

Michael McFadden

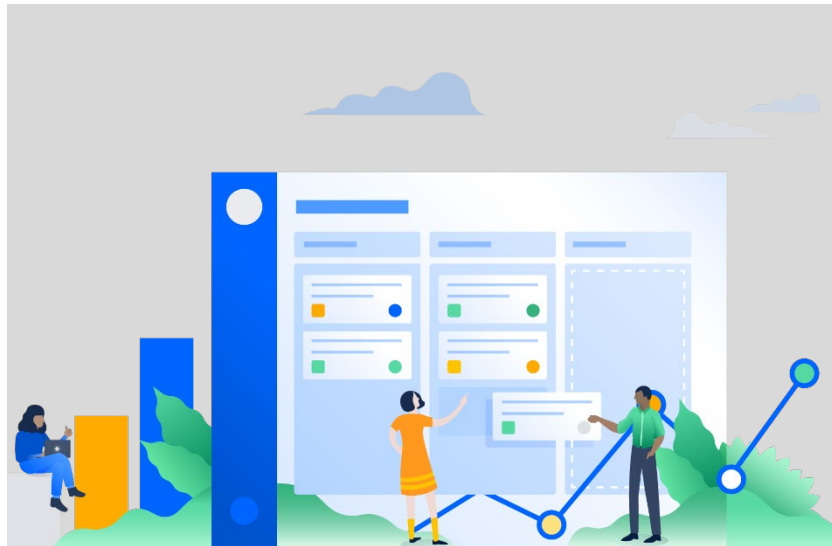
04



Jira

Liam Whorriskey

05



Plan

Create user stories and issues, plan sprints, and distribute tasks across your software team.

Track

Prioritize and discuss your team's work in full context with complete visibility.

Release

Ship with confidence and sanity knowing the information you have is always up-to-date.

Report

Improve team performance based on real-time, visual data that your team can put to use.




Mary Walsh



Security Tools

Mary Walsh

06



Puma Scan

Checks C# and .NET vulnerabilities



SonarQube

Static analysis of code




OWASP

Dependency check
Project dependencies




Ansible Vault

Encrypt sensitive data to store in source code



Open SCAP

Multiple tools, help with enforcement of security baselines



Audit Trail

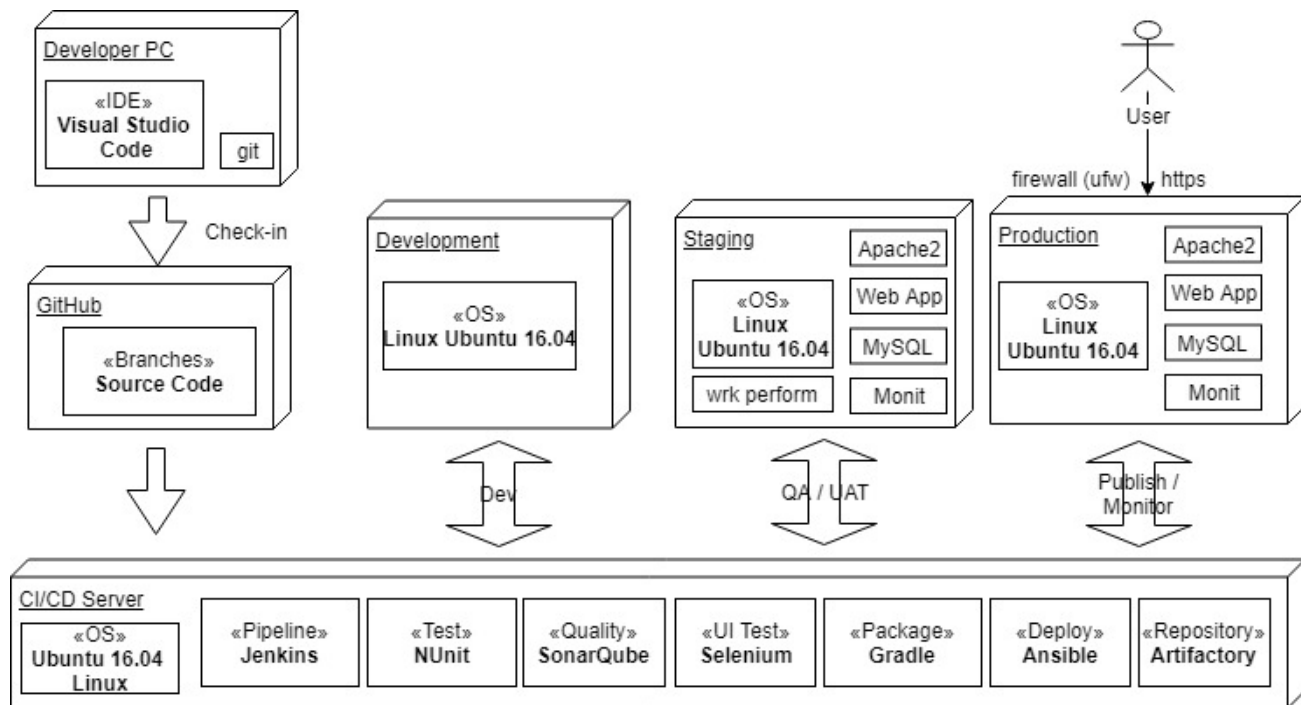
Logs. Display to console or can be saved to log file on a server



Dev Staging & Production

Charles Aylward

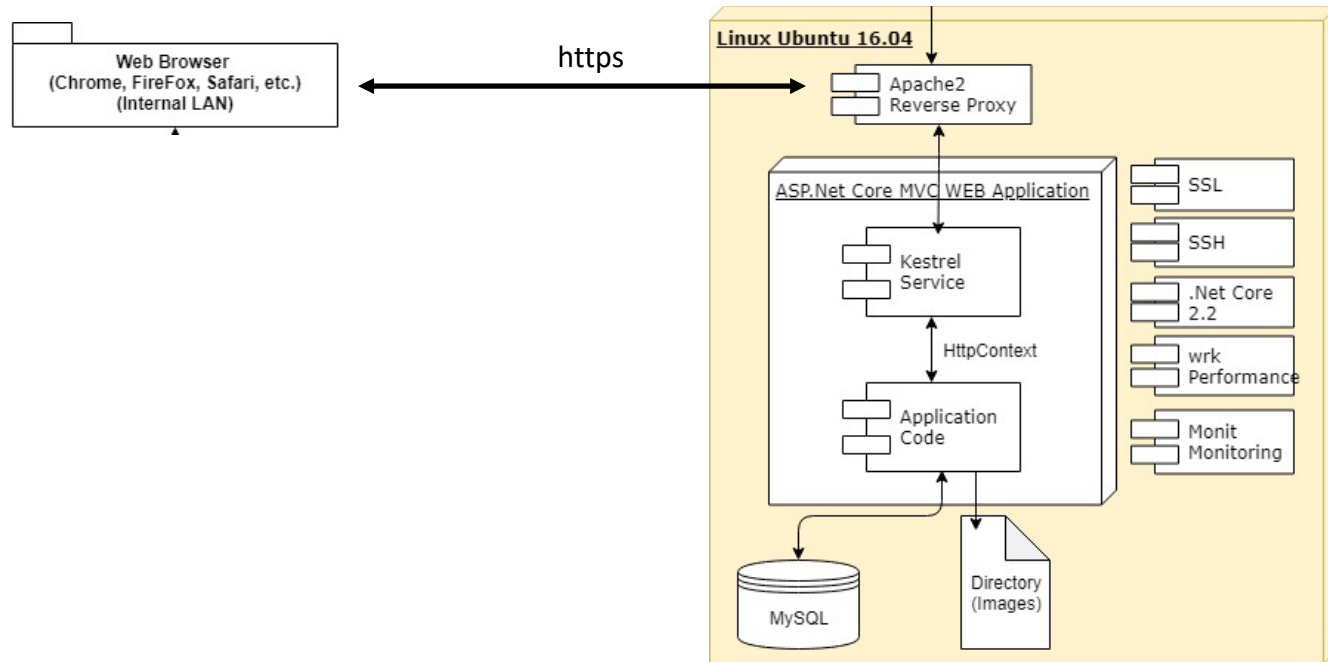
07



Environments – Technology Stack

Charles Aylward

08



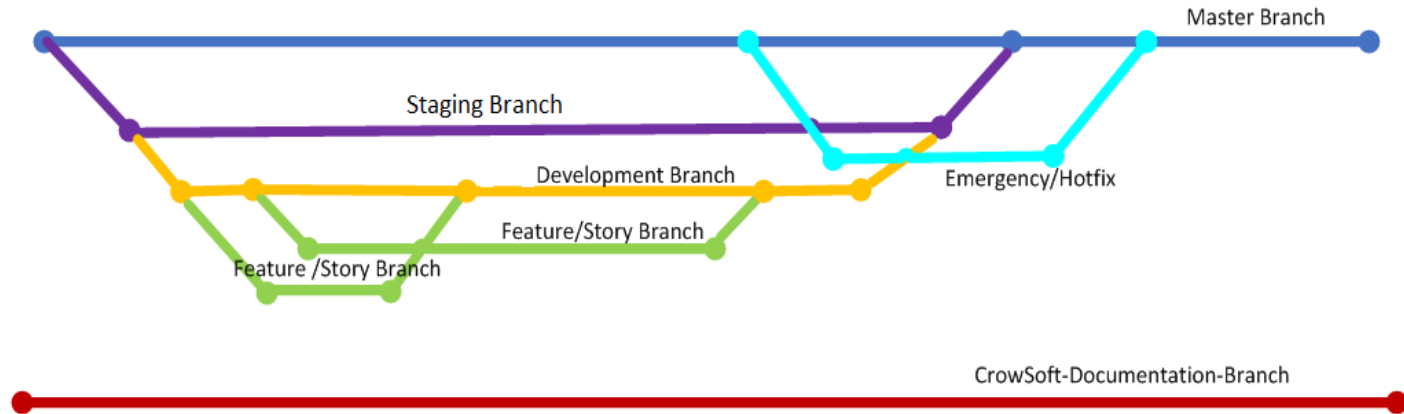
Git & GitHub

Colin

09

- GitHub: <https://github.com/rlennon/CrowSoft>

CrowSoft Branching Strategy

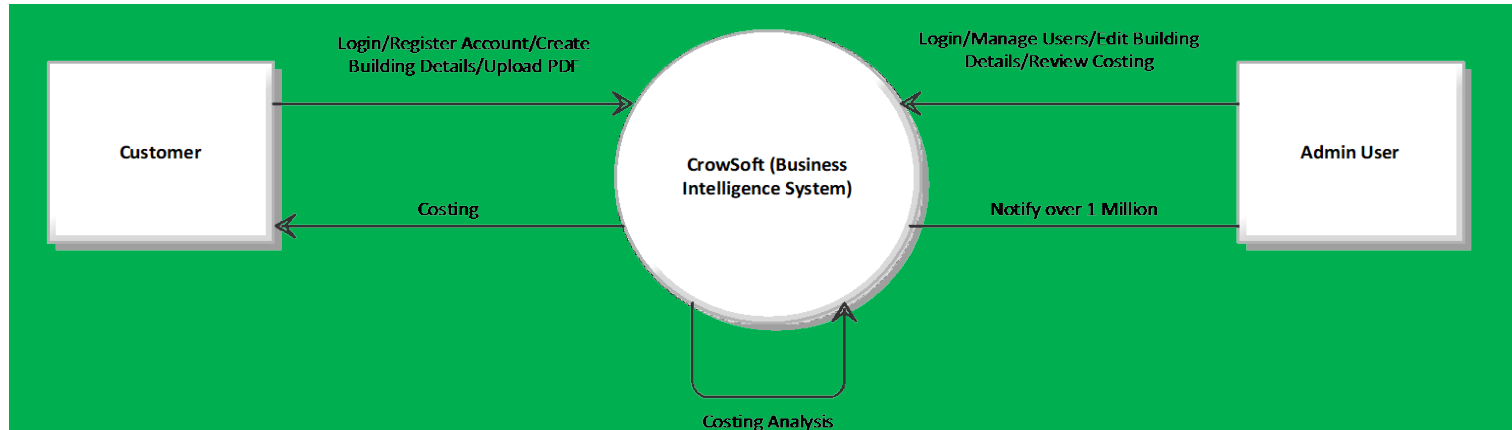


Code Created - Solution

10

Charles Aylward

- Web application access via a web browser
- Customer Register and Login
- Admin users to manage all users and allocate roles
- Admin access/edit detailed Information
- System calculates building cost analysis and display costing to the customer
- Admin to manage costs exceed €1 million.



Code Created - Technical

Charles Aylward

11

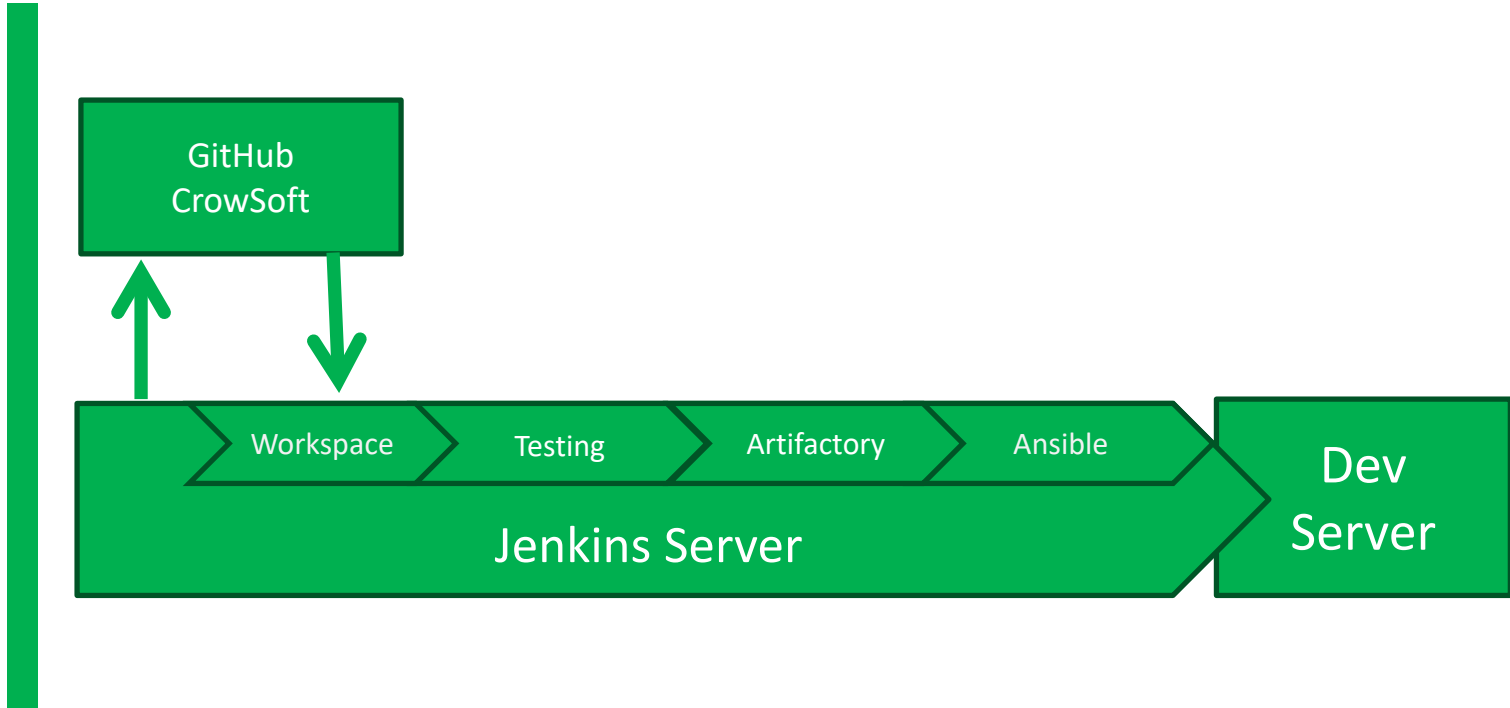
- Programming Language: C#, JavaScript and HTML
- IDE: Visual Studio Code
- Framework: .Net Core 2.2
- Supporting Platforms: Windows, Linux, MacOS
- Pattern: MVC (Model View Controller)
- Type App: ASP.NET MVC Web Application includes bootstrapping
- Database: MySQL
- Security
 - Authentication: Token Based, Password hash (PBKDF2 algorithm with HMAC-SHA256, 128-bit salt, 256-bit subkey, and 10,000 iterations)
 - Authorization: Role-based Authorization
- Hosting Server: Linux Ubuntu 16.04 (using Apache as reverse proxy)
- Performance Tests: wrk Performance Tool (Open-source)
- Coding Standards Documentation Completed
- Exception Handling: Log4net



Jenkins Pipeline

Colin Kenny

12



Unit Testing

Charles Aylward

13

- Nunit for .Net Framework
- Testing Controllers Actions (CRUD)
- Automated on Jenkins Pipeline
- Example:

```
Test run for /var/lib/jenkins/workspace/build-mvc/Projects/crowsoft_unittests/bin/Debug/netcoreapp2.2/crowsoft_unittests.dll(.NETCoreApp,Version=v2.2)
Microsoft (R) Test Execution Command Line Tool Version 15.9.0
Copyright (c) Microsoft Corporation. All rights reserved.
```

```
Starting test execution, please wait...
```

```
Total tests: 2. Passed: 2. Failed: 0. Skipped: 0.
Test Run Successful.
Test execution time: 5.1692 Seconds
Finished: SUCCESS
```



CodeQuality - SonarQube

Bharathi Gadhiraaju

14

Jenkins Server

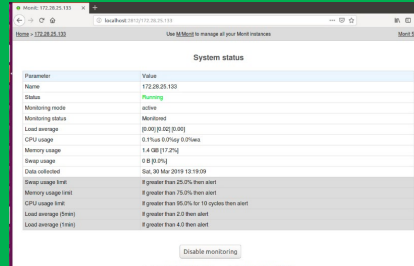
http://172.28.25.136:8080/

Job has reference
to git for
source code

SonarQube Server

http://172.28.25.123:8088/

Monitoring Tool Monit Setup for CrowSoft



Parameter	Value
Name	172.28.25.133
Status	Running
Monitoring mode	Active
Monitoring status	Monitored
Load average	[0.00] [0.00] [0.00]
CPU usage	0.76% (0.00% / 0.76%)
Memory usage	1.4 GB (17.2%)
Temp usage	0.8 (0.0%)
Code updated	Sat, 28 Mar 2016 10:19:03
Swap usage limit	If greater than 25.0% then alert
Memory usage limit	If greater than 75.0% then alert
CPU usage limit	If greater than 80.0% for 10 updates then alert
Load average (5min)	If greater than 2.0 then alert
Load average (1min)	If greater than 4.0 then alert

```
jevadnlncsoft-dev-ubuntu-golden:~$ wrk -c 256 -t 32 -d 10 http://172.28.25.133
Running 10s test @ http://172.28.25.133
32 threads and 256 connections
Thread Stats   Avg      Stdev     Max   +/-  Stdev
Latency    138.32ms  277.34ms  1.85s    +/-  Stdev
Req/Sec   73.71    72.29   340.00    81.06%
10147 requests in 10.09s, 34.40MB read
requests/sec: 1005.51
transfer/sec: 3.41MB
jevadnlncsoft-dev-ubuntu-golden:~$
```

Performance Analyser

Wrk Setup for CrowSoft

To run wrk on the application,
issue the below command

```
$ wrk -c 256 -t 32 -d 10  
http://172.28.25.133
```



Selenium Service

Joji Pradhan Thokala

16

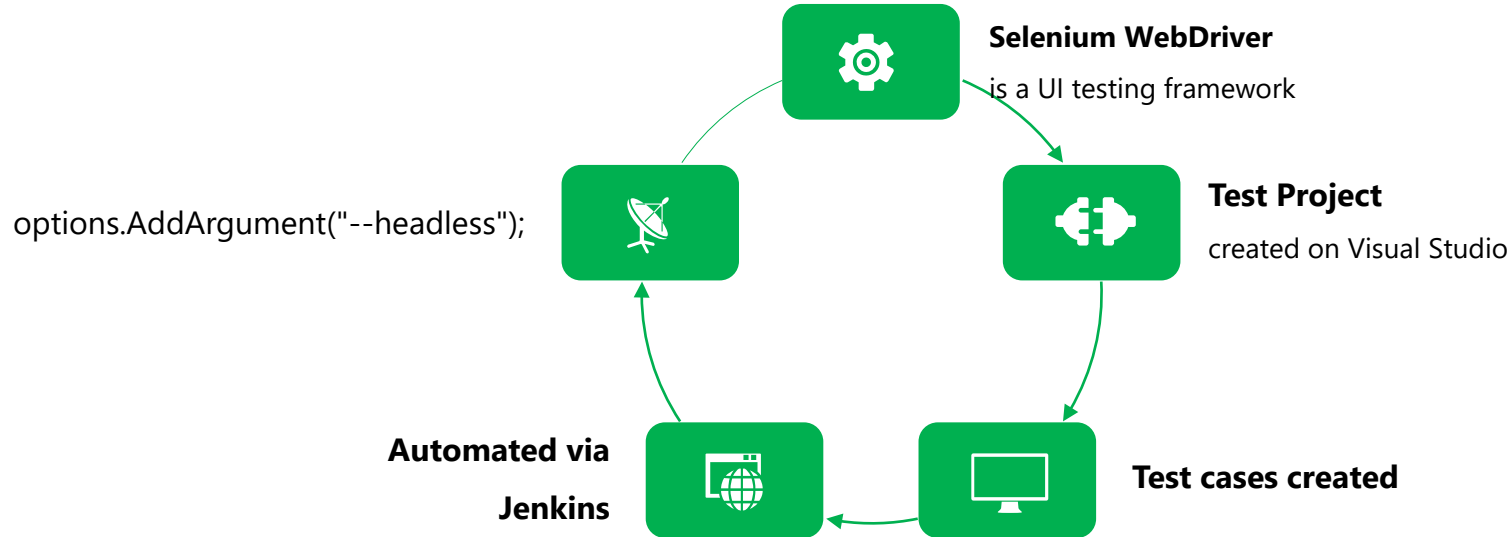
- It is an open source project driver by Apache Foundation.
- Free to use for both individual and Companies.
- Conduct test on any browsers like Firefox, Chrome, Internet Explorer, Opera and Safari.
- Selenium runs on all popular operation systems like Windows, Linux, Mac Ubuntu.
- Can write Selenium testing script in any programming language like Python, Java, C#, .Net, Perl and Php.
- Selenium forms an integral part of Continuous testing phase in DevOps life Cycle.
- Selenium can easily integrated with lots of open source tools like Jenkins, TestNG, Maven, JUnit



Selenium

Matthew Mc Colgan

15



Artifactory

Mary Walsh

17



Central
Location



Build Once
Deploy Often



Groups
Permissions



JFrog
ARTIFACTORY



Limit
Access



Deploy
One Location



17

Flipping Book



YouTube



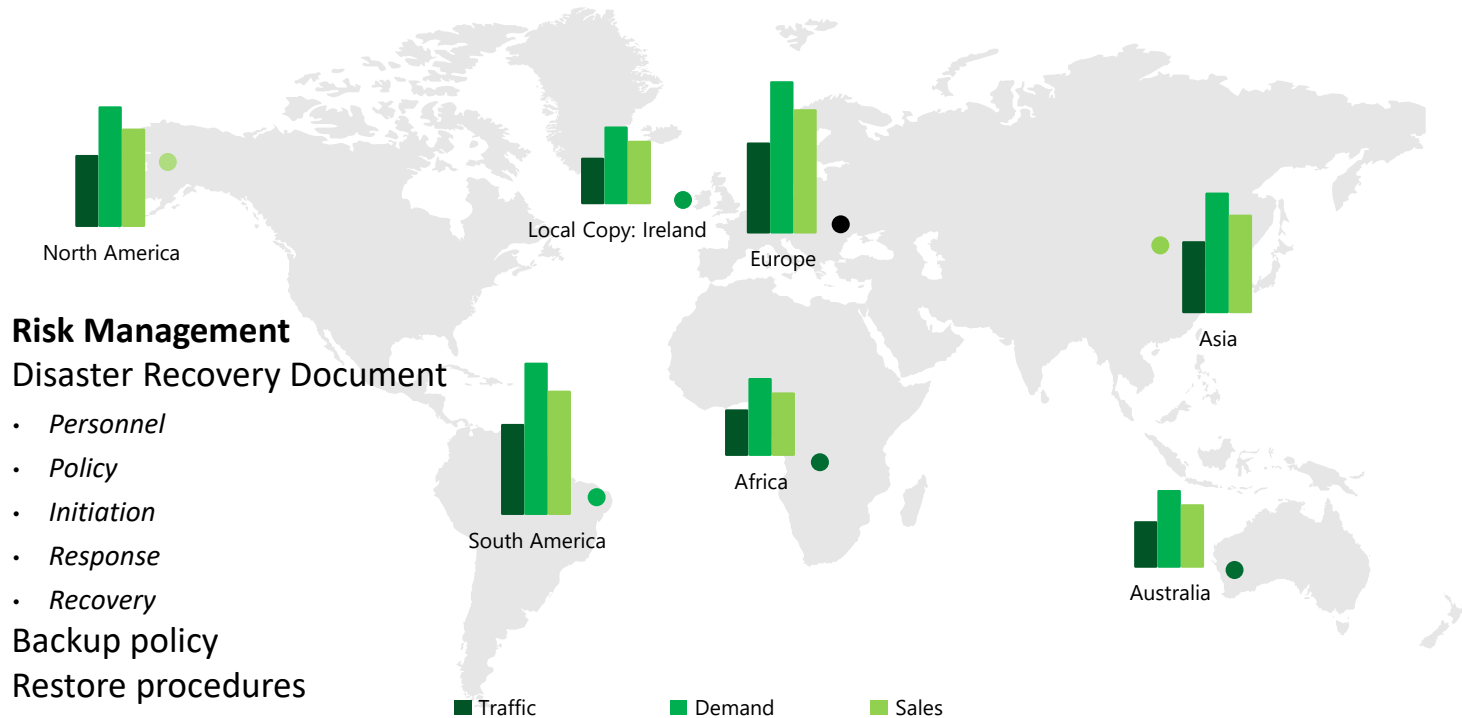
OneDrive



Disaster Recovery

Michael McFadden

18



Risk Management

Disaster Recovery Document

- *Personnel*
- *Policy*
- *Initiation*
- *Response*
- *Recovery*

Backup policy

Restore procedures

Liam Whorriskey



Questions

Open Mic...