## A Bit About Myself

- Bob Crews
- President/Co-founder of Checkpoint Technologies
- President of TBQAA (Tampa Bay Quality Assurance Association)
- CSTE/CAST Instructor
- 29 years IT experience
- 19 with focus on QA and QC
  - Risk Analysis
  - Test Automation
  - Test Planning
  - Effective Test Case Design
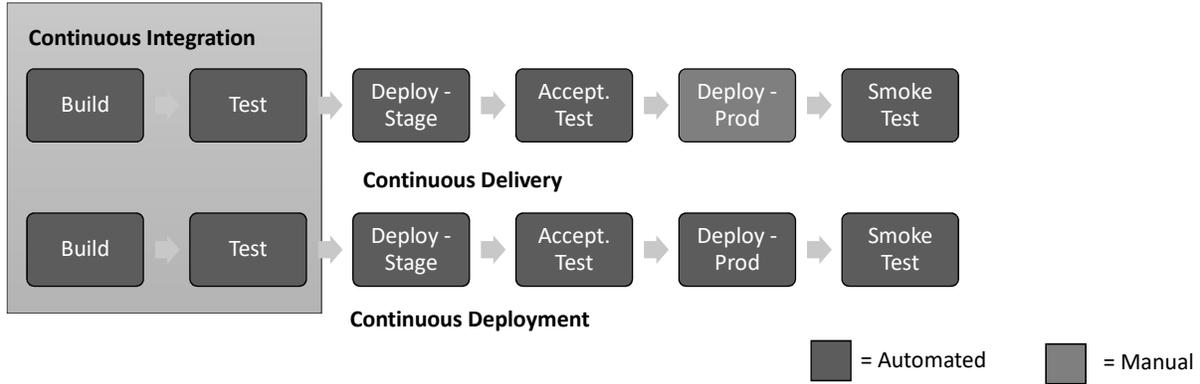 - Internet of Things
  - Agile & DevOps

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Test CONTINUOUSLY
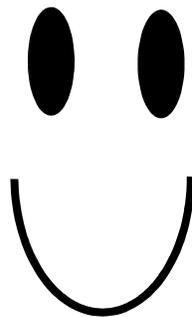
➢The benefits of Continuous Integration (CI)

➢How an Automation Framework fits into a CI strategy

➢ALM Integrations with common CI components

➢Testing Tools that are CI configurable

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Market demand for applications drives the evolution of testing leading to CI and Dev/Ops

Every business is a software business today!

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Continuous Integration, Continuous Delivery, Continuous Deployment

Continuous Integration

| Build | → | Test |

| Deploy - Stage | → | Accept. Test | → | Deploy - Prod | → | Smoke Test |

Continuous Delivery

| Build | → | Test |

| Deploy - Stage | → | Accept. Test | → | Deploy - Prod | → | Smoke Test |

Continuous Deployment

■ = Automated   ■ = Manual

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High velocity innovation, multiple constraints

One way flow →

Rapidly increasing WIP

Isolated build and integration processes

Manual Testing increases latency or drives limited test coverage

High # defects

Poor confidence in test data fosters "release aversion" driving more WIP

InfoSec & compliance engaged late driving vulnerabilities & re-work

"patch in production" leads to snowflake systems

| **Business demands** | Planning | App Development | App Testing | Release decision | App release | Deployed App | **Poor user experience** |

Lack of effective customer insight and high latency drives "kitchen sink" requirements

Waiting time for build and test environments drives "desk-side" builds

Manual and error prone app deployments

Error prone manual hand-offs and processes

Locally optimized teams, measures and tools drives escalating WIP, lack of end-to-end visibility and trust

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Rapid development reveals constraints on implementing CI and ultimately Dev/Ops

Removing those constraints is the key to successfully implementing a CI process

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High velocity innovation
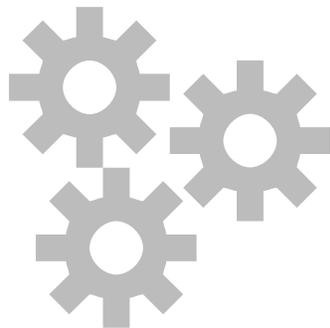
Increase
automation

Automate everything you can
- Accelerate routine tasks
- Ensure repeatability
- Reduce errors

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High velocity innovation

Reduce
latency

Continuous integration and testing
- Continuous builds
- API driven testing
- Testing virtualization

Continuous delivery and deployment
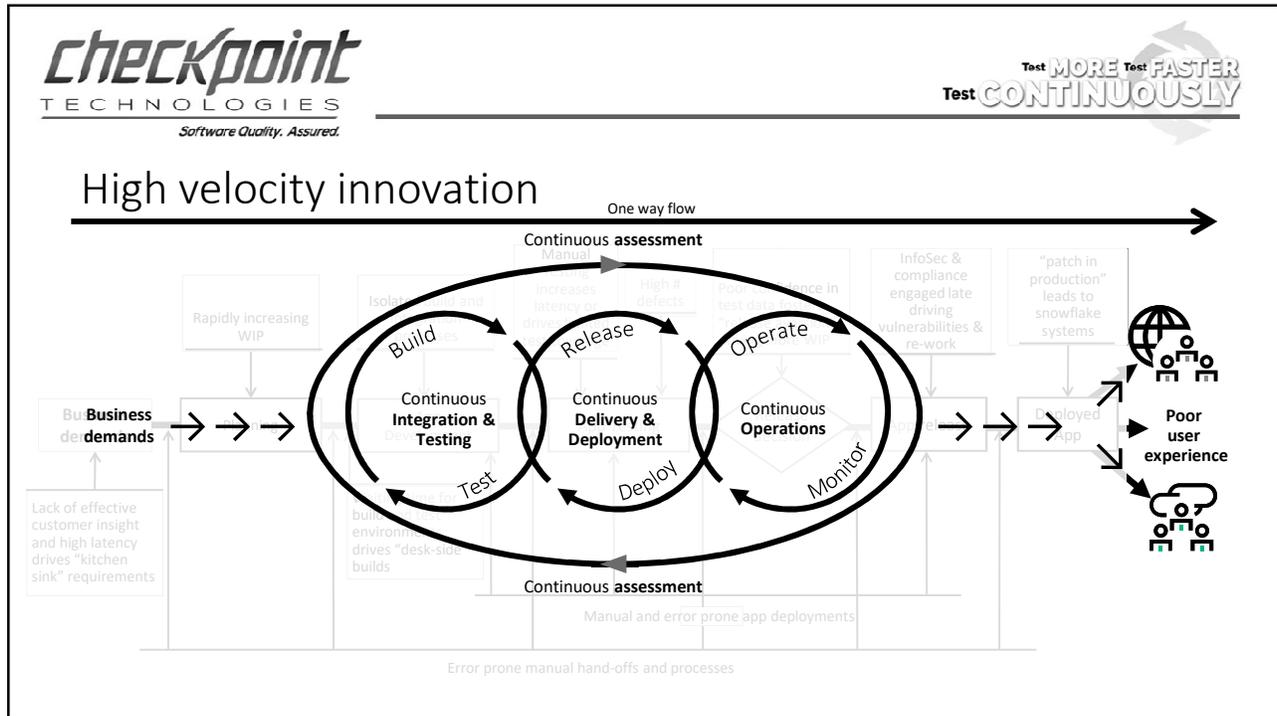
Continuous security from dev thru prod

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High velocity innovation

Increase
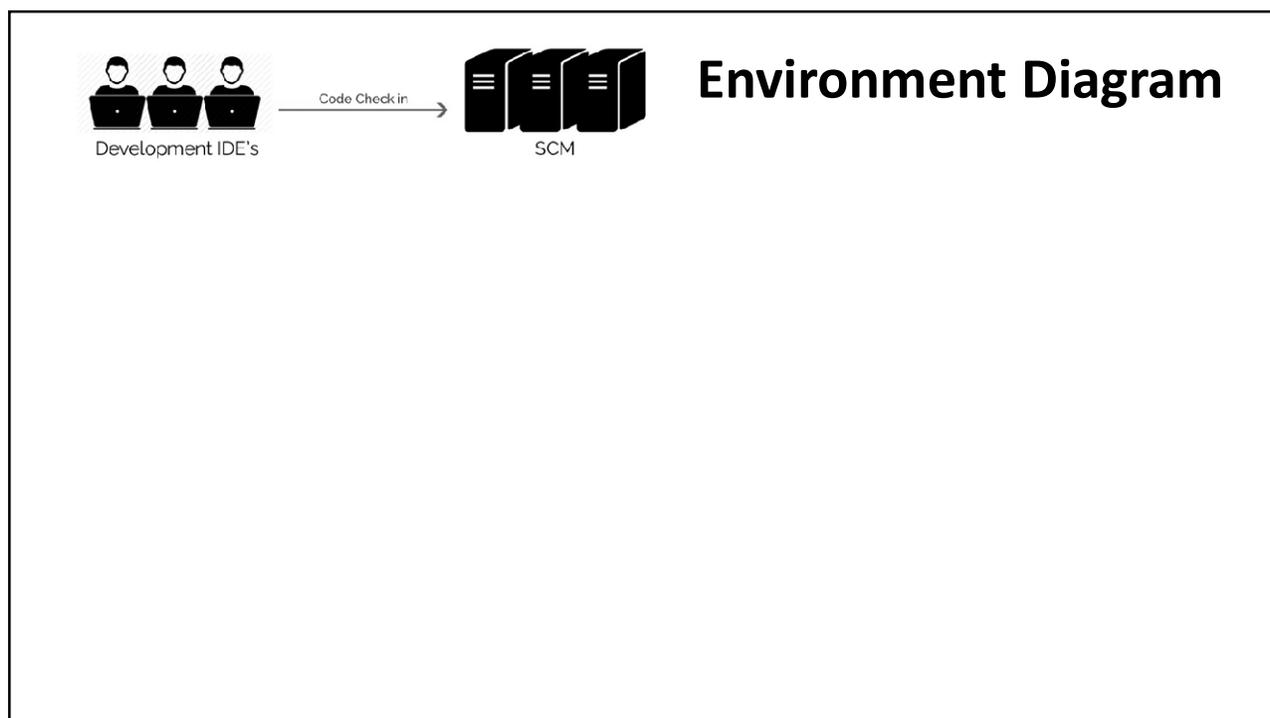# **visibility**

Continuous assessment:
- Monitor and measure everything
- Constant feedback loops
- Prioritize business, security and dev planning
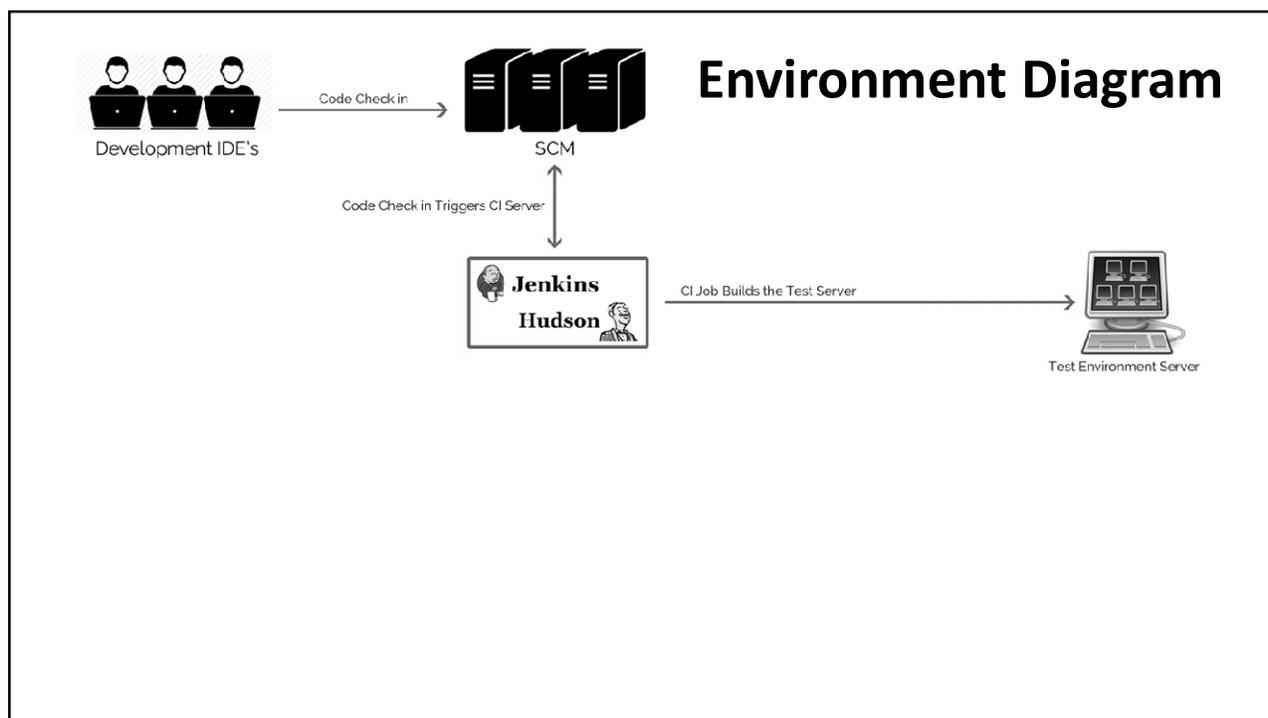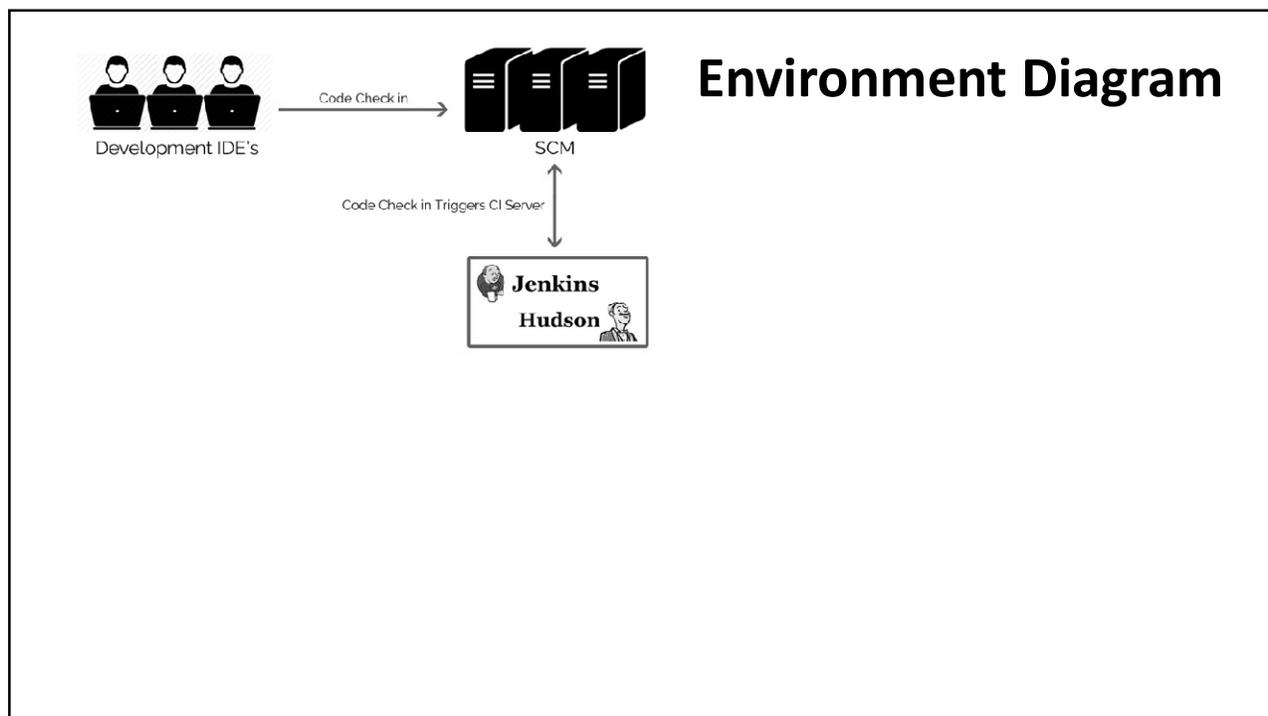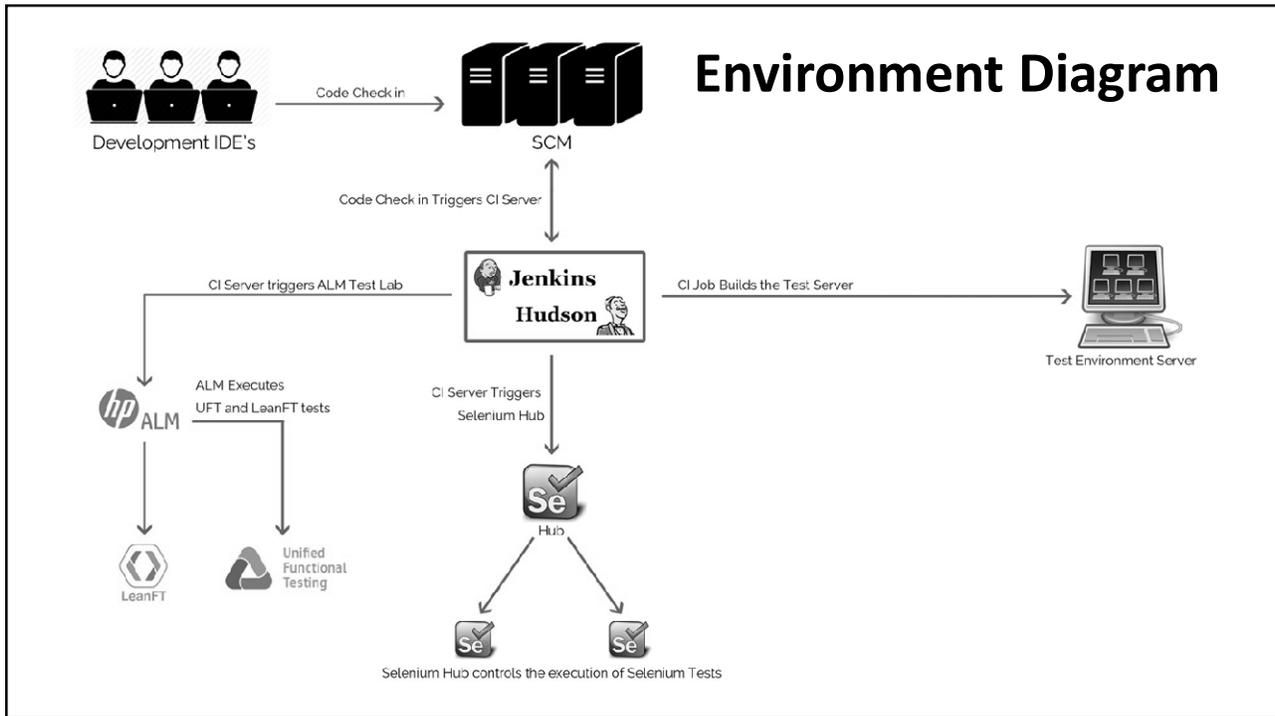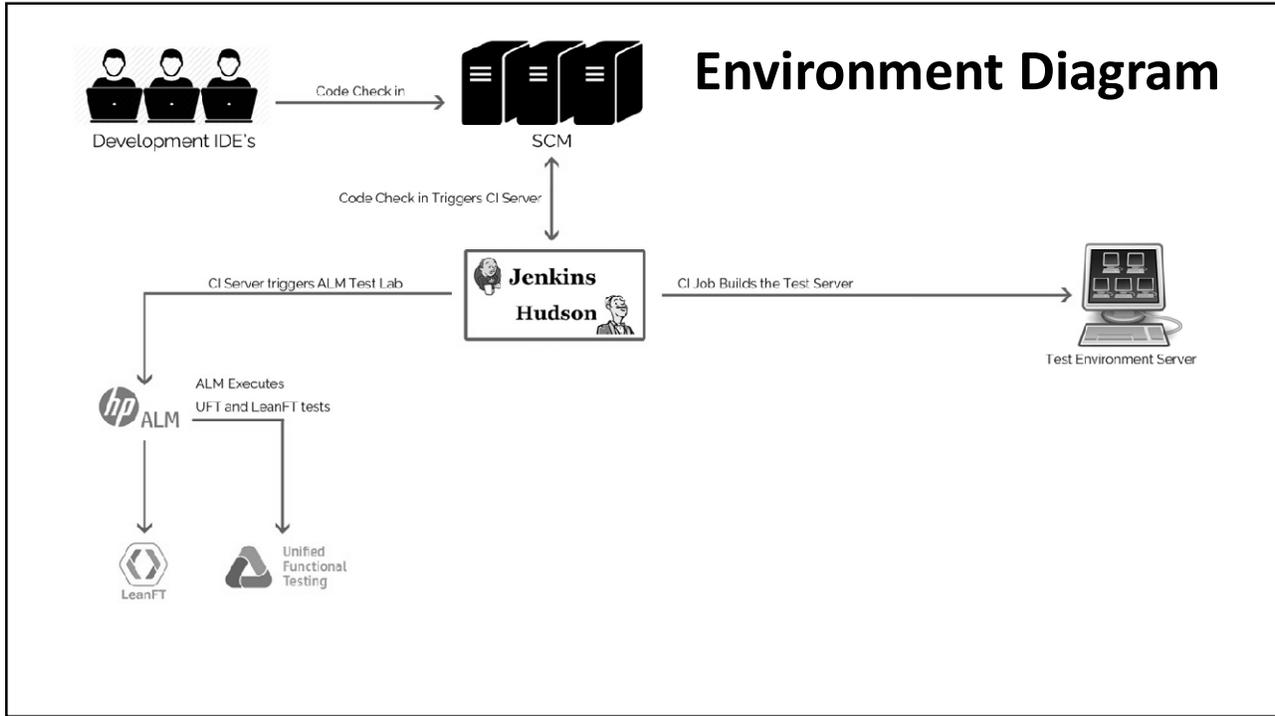- Improve and iterate

Visibility across teams

High velocity innovation

One way flow

Continuous **assessment**

Rapidly increasing WIP

Build
Release
Operate

Business demands

Continuous **Integration & Testing**
Continuous **Delivery & Deployment**
Continuous **Operations**

Test
Deploy
Monitor

Lack of effective customer insight and high latency drives "kitchen sink" requirements

InfoSec & compliance engaged late driving vulnerabilities & re-work

"patch in production" leads to snowflake systems

Deployed App

Poor user experience

Continuous **assessment**

Manual and error prone app deployments

Error prone manual hand-offs and processes

Continuous integration and testing

Continuous **assessment**

Build
Release
Operate

Business demands

Continuous **Integration & Testing**
Continuous **Delivery & Deployment**
Continuous **Operations**

Test
Deploy
Monitor

Continuous **assessment**

| Automate test execution from CI systems | Intelligent testing | Automate test infrastructure deployment | Network and service virtualization | Automated vulnerability and static analysis |

Building your CI process or assembling the parts to add horsepower

Environment Diagram

Development IDE's

Environment Diagram

Development IDE's — Code Check in → SCM

Environment Diagram

Environment Diagram

Environment Diagram


Environment Diagram

Environment Diagram
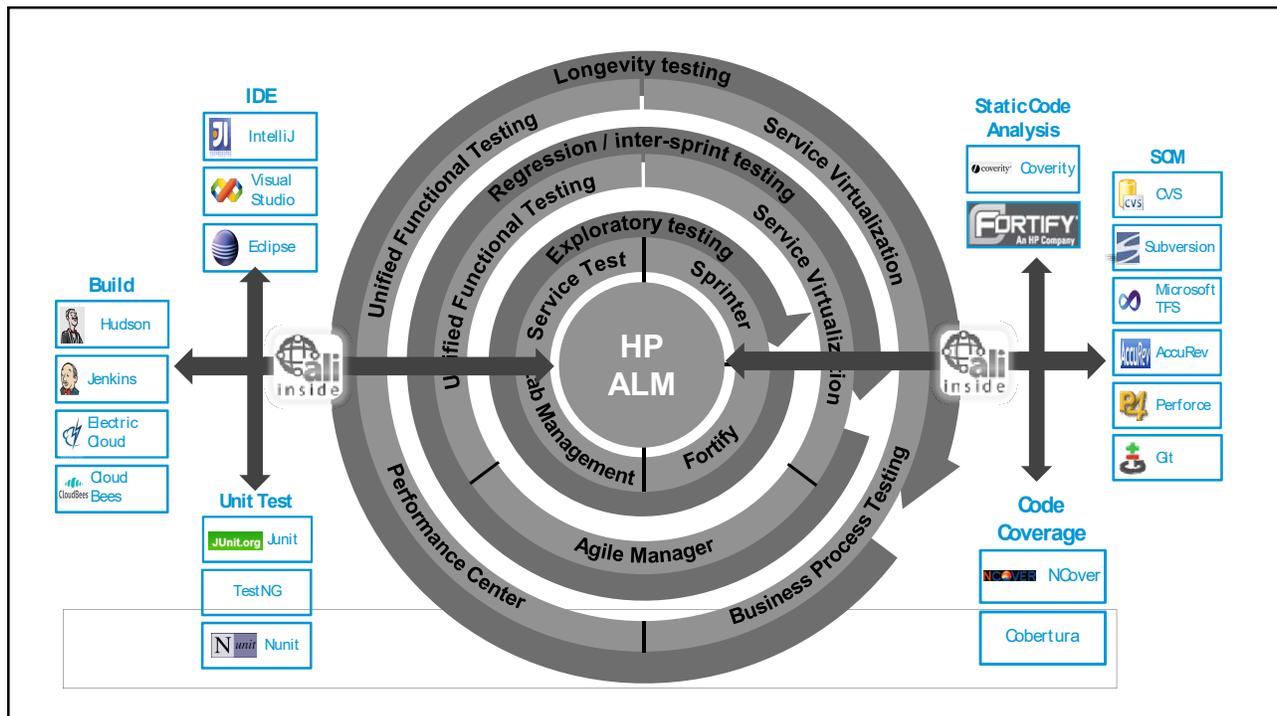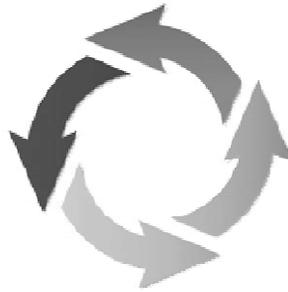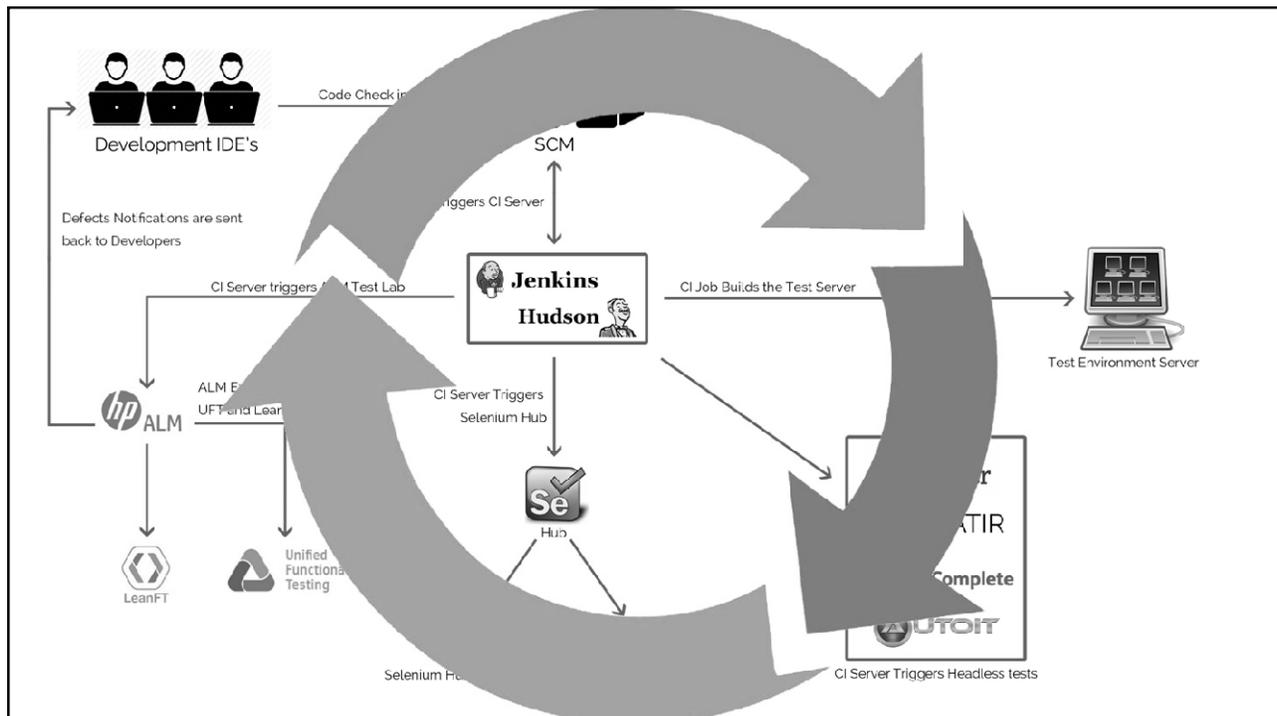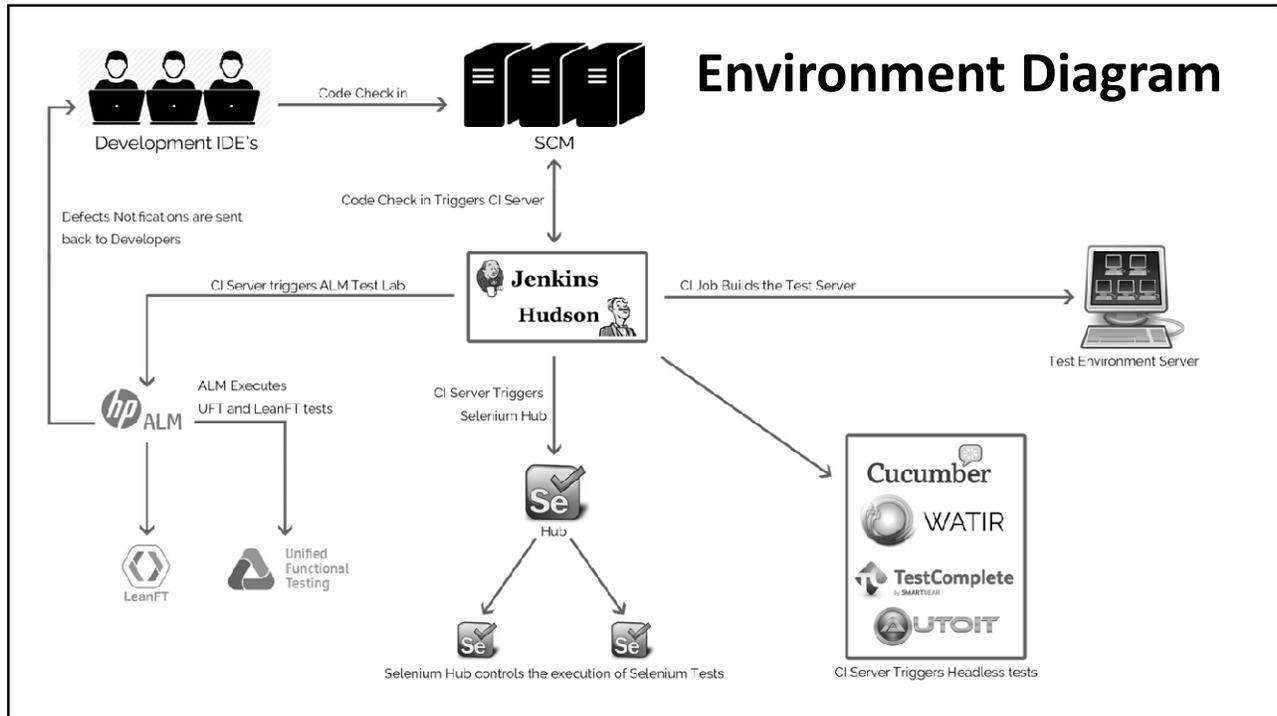
A Well-Designed Test Automation Framework

- *Decreases* automated test development time
- Enables tests to be created *sooner*
- *Decreases* maintenance
- *Increases* test automation coverage
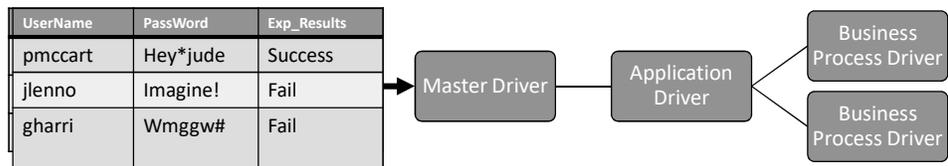- Puts the power of automation in *more hands*

Automation Framework Characteristics

- Modular code
- Scalable
- Error handling
- Reliable
- Data separated from code
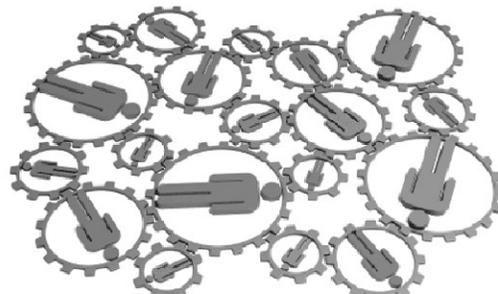
Common Elements of Successful Frameworks

1. Simple front-end
2. Maintainable back-end
   A. Master Driver
   B. Application Driver
   C. Business Process Driver
3. Data

UserName	PassWord	Exp_Results
pmccart	Hey*jude	Success
jlenno	Imagine!	Fail
gharri	Wmggw#	Fail

Master Driver → Application Driver → Business Process Driver / Business Process Driver

Benefits of Continuous Strategy

◇ Early exposure of Application risks

◇ Reduction of time and effort finding and fixing defects

◇ Increase the speed and quality of delivered software

◇ Quality efforts are aligned with business expectations

◇ Ability to focus effort on quality tasks that have the most impact

◇ Metrics include not only the state of the software but also the quality of the process

Closure: all of these contribute to integrating Continuous testing into the overall desire for CI and Delivery

Summary

- Market demand dictates a faster more automated approach to the SDLC

- Moving to a DevOps approach can start with implementing Continuous Integration and Testing

- Expect changes in roles, skill sets, and tools

- A test automation Framework is key

- Education will likely be required

About Us

➢ Incorporated in January, 2003

➢ QA and QC in expertise focused on functional, performance and application security validation

➢ Micro Focus Gold Partner, Authorized Software Support Partner & Certified Training Partner

➢ Atlassian Solution Experts

➢ Also partners with QASymphony, Mobile Labs and Kobiton

➢ QAI Training Partner

Expert Services

IT Performance

Software Solutions

Hardware Solutions

Services

STAFF AUGMENTATION	• Long-term contract services, on-site and remote • QA leads, manual testers, automation experts etc.
CONSULTING	• Forensic audit, assessment, configuration, analysis etc. • Long-term and short-term, on-site and remote
OUTSOURCING	• U.S. based functional & performance testing • Software testing performed at our test lab by experts resources
TRAINING	• HPE Authorized Training Partner • On-site, virtual or public • Structured classroom format using HP materials
MENTORING	• Customized training essential to your team – in your environment • Cost-effective $$$

Questions?

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THANK YOU!

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