

Test Planning, Estimations and Challenges in Agile Testing

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Background

- About Avi
 - Consultant at Revolution IT and outsourced to QSuper
 - 20 years in IT
 - NZ Based
 - Academic
 - Systems Analyst/Programmer
 - Project Manager
 - Test Manager
 - Change and Release Manager
 - IT Service Support Manager
 - In Brisbane since March 2010
 - Implementation Lead, Quality Manager (Contract)
 - Test Manager

Test Planning, Estimations and Challenges in Agile Testing

- In this session
 - Session Context
 - Project Context
 - Test Planning
 - Estimations
 - Challenges and Tips

 - Questions

Test Planning, Estimations and Challenges in Agile Testing

- Context
 - Presentation background
 - Challenges in Test Planning (last years SIGIST)
 - Estimations in Agile Testing (this years SIGIST)
 - Assumptions
 - Agile is somewhat understood
 - Understanding of Testing including Test Types/Levels etc.
 - Key Points
 - Your experience could be different
 - Take ideas/pointers from this session but adapt it to suit
 - Share your experiences
 - May not answer your questions

Test Planning, Estimations and Challenges in Agile Testing

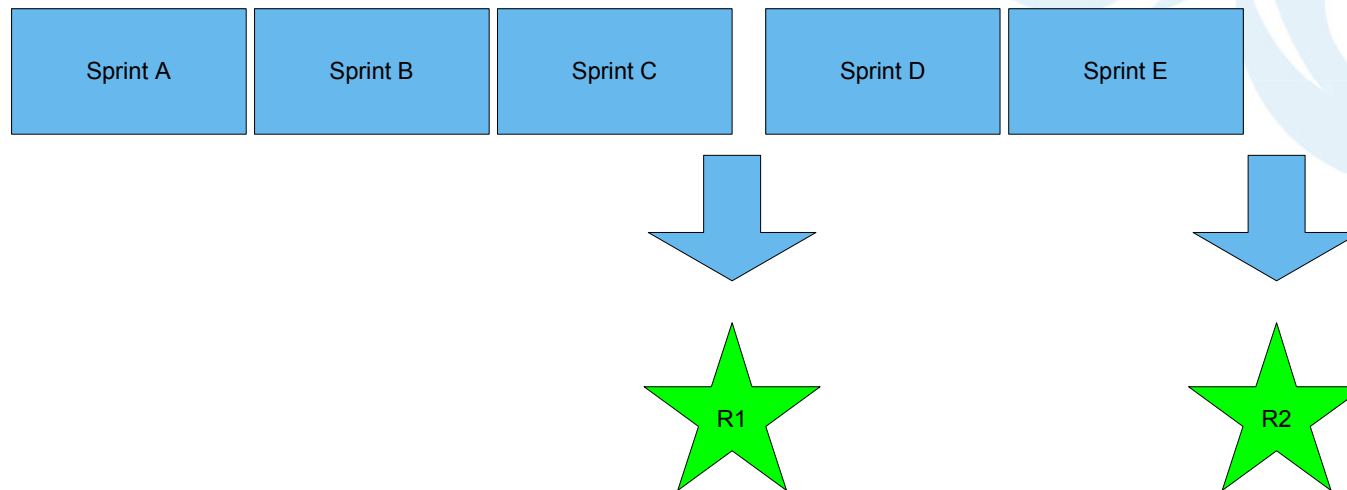
Agile Testing ?

Test Planning, Estimations and Challenges in Agile Testing

- Project Context
 - Typical Agile (Scrum Based)
 - Everyone (not quite) located together at one site
 - Team relatively new at Agile at the start
 - Organisation was not familiar with Agile at the start
 - Key new vendor for the organisation
 - Web based internal workflow application
 - Integration with Core Administration System
 - All Technical components on in-house infrastructure
 - Off the shelf base product with configurations/customisations
 - Project Manager, Product Owner, Scrum Master, Business Analysts, Developers, Test Manager, Test Analysts, Subject Matter Experts

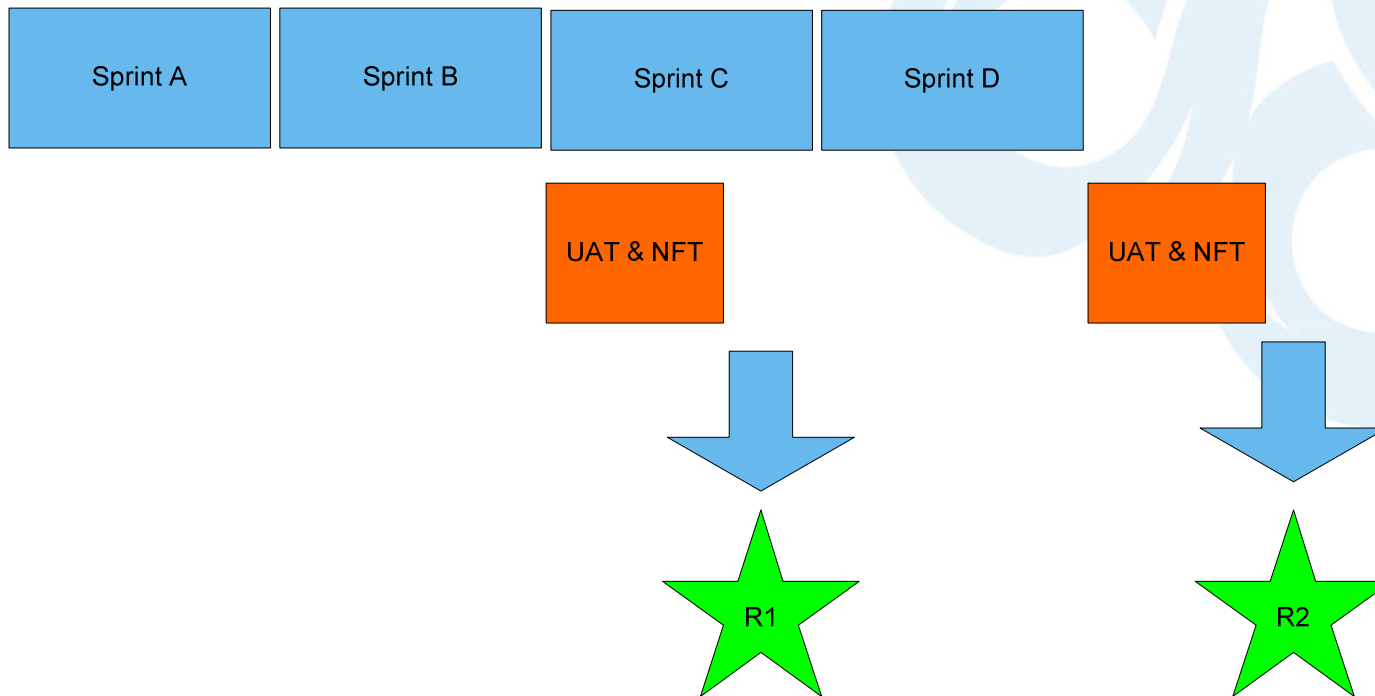
Test Planning, Estimations and Challenges in Agile Testing

- Typical Agile Project
 - Sprint Planning
 - Retrospectives
 - Minimal Marketable Feature Set
 - Daily Scrums



Test Planning, Estimations and Challenges in Agile Testing

- What we planned



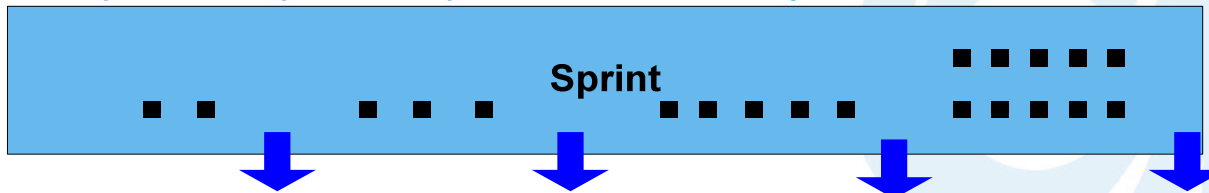
Test Planning, Estimations and Challenges in Agile Testing

- Each Sprint was 4-6 weeks
- Weekly builds expected into Test Environment
- Release Notes provided with each Build
- Test Cases were in Spreadsheet initially and later moved to SpiraTeam Test Tool
- Features were developed first
- Story's were developed from features
- Sprint planning meeting for each Sprint determined Sprint scope
- Test Case development commenced as Story's were written
- Story's had Acceptance Criteria as well as Test Cases
- Acceptance criteria developed first then Test Cases from this

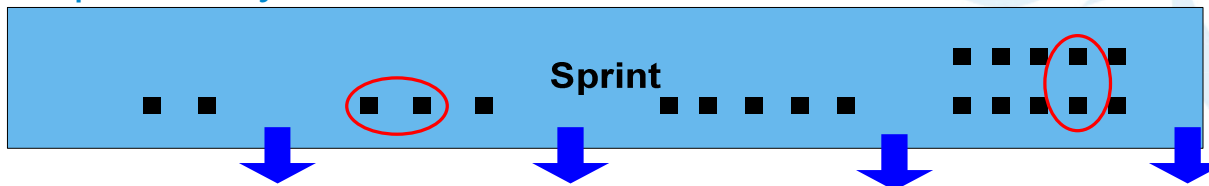
Test Planning, Estimations and Challenges in Agile Testing

- Early Findings

- Story delivery density to tail end of Sprint



- Dependency on other undelivered stories



- Build deployment / environment issues
- Support for defects and impact on next sprint delivery
- Configuration Management Issues
- Development and Test Estimations needed to be separated
- Traceability with Spreadsheet based Test Cases was troublesome

Test Planning, Estimations and Challenges in Agile Testing

- Sample Sprint Burndown

Test Planning, Estimations and Challenges in Agile Testing

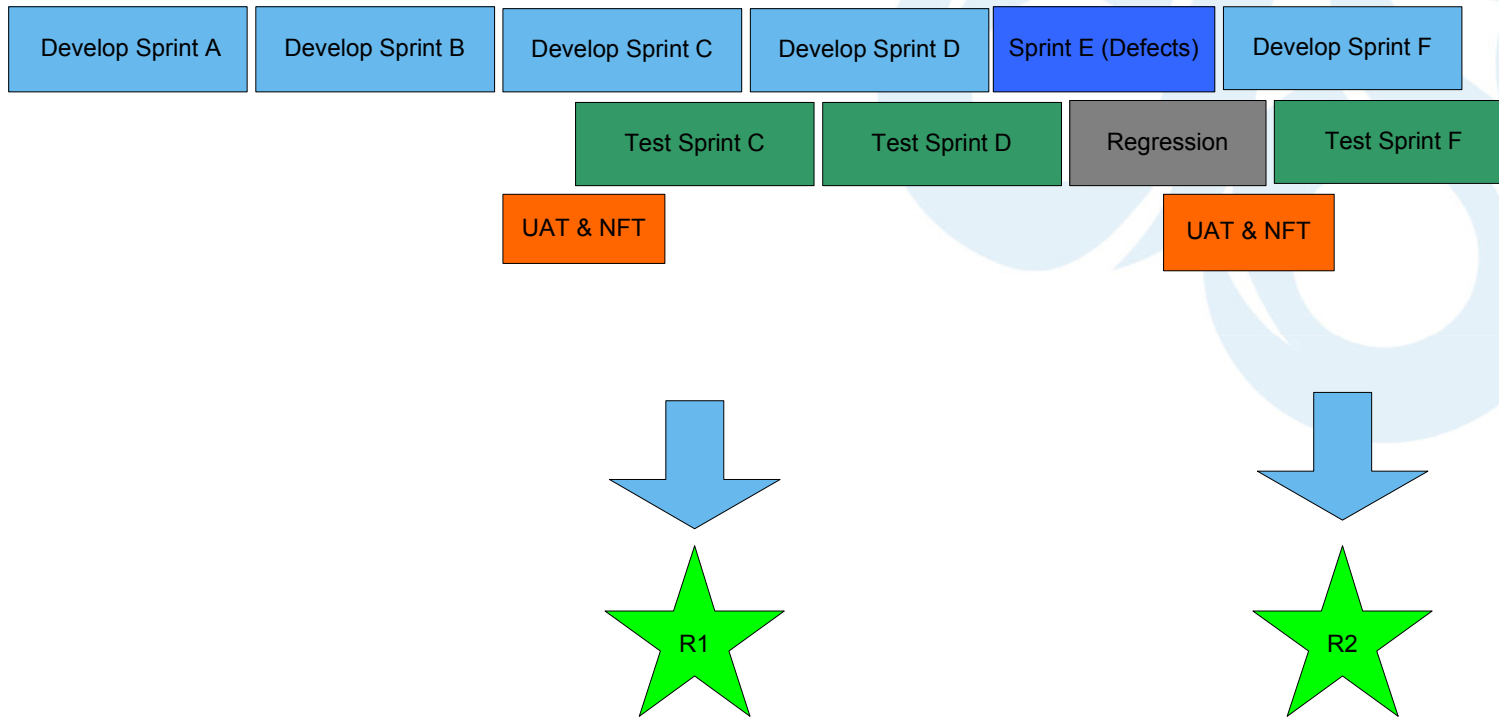
Your Findings?

Test Planning, Estimations and Challenges in Agile Testing

- Re-planning
 - Used Sprint A and B as learning's and replanned C onwards
 - Test estimations separated from Development estimations
 - Back to back sprints with no time to consolidate did not work
 - Defect Sprint Added to consolidate before next functional Sprint
 - Testing planned to overlap the next development sprint
 - Regression Testing added before formal UAT
 - Development velocity adjusted based on other support activities
 - Defects
 - Build activities
 - Deployment activities
 - Shakeout Testing
 - Later on Deployment and Shakeout Testing reallocation to non-dev

Test Planning, Estimations and Challenges in Agile Testing

- Re-planning



Test Planning, **Estimations** and Challenges in Agile Testing

- Testing for Initial Sprint was difficult to estimate
 - Defect rate unknown
 - Team Test velocity unknown
 - Product unknown
- The more unknowns the higher your contingency
- For Features (pre-story) allow up to 50% contingency
- Splitting features into Story highlighted further testing
- Early Sprint defect rate will be higher
- Defect rate will be vendor specific and product specific
- Expect higher defect rate for bespoke development
 - E.g. 50% is not too far away

Test Planning, **Estimations** and Challenges in Agile Testing

Defect Rate?

Test Planning, **Estimations** and Challenges in Agile Testing

- Estimations
 - Functional Testing of Stories
 - Defect rate of 25%
 - Defect rate of 10% on retests
 - Hours for effort estimation
 - Used on 5.5 testing hours per day for Test Analysts
 - Used 3.5 testing hours per day for Test Leads
 - Add Regression Test effort and add UAT effort
 - Consider testing hours per day for each resource versus working hours
 - Consider leave for staff (up to 5/52 weeks can be lost = 10%)
 - Consider system downtime (25%-40%)

Test Planning, **Estimations** and Challenges in Agile Testing

- Estimations
 - Example for Functional Testing for a Sprint
 - 4 Week Sprint and 20 Stories in a Sprint
 - Average story point = 3 Development and 2 Testing - Totalling 5
 - 1 Story point = 2.5 hours testing effort
 - Sprint total testing effort = $2 \times 2.5 \times 20 = 100$ hours
 - 25% failure = 25 hours effort to retest
 - 10% of retest failure = 2.5 hours to retest
 - Total 127.5 Functional test effort for Sprint
 - Based on 1 TA and 1 TL = 9 hours total per day
 - Duration = $127.5 / 9 = 14$ working days
 - Adjustment with leave = 15.5 working days
 - System downtime = approx 5 days (25%)
 - Total duration = 20.5 days

Test Planning, **Estimations** and Challenges in Agile Testing

Your Estimations?

Test Planning, Estimations and Challenges in Agile Testing

- Sample Test Burndown

Test Planning, Estimations and Challenges in Agile Testing

- Challenges and Tips
 - Test Plan Document
 - How detailed do you go for Agile Testing?
 - Do you need a Plan for every Sprint?
 - Do you need a Test Plan at all?
 - Test Strategy and Test Plan prepared for Project
 - Can a combined document work?
 - More detailed plan if Agile team is new?
 - Automation
 - On a continuously changing system
 - Depth versus broad coverage
 - The ever growing Regression Set
 - Mandatory and Optional Set
 - Test Cases based on Stories – Gradual complexity of end to end

Test Planning, Estimations and Challenges in Agile Testing

- Challenges and Tips
 - Separating out Development and Testing effort gave clearer view of when a Story would be ready for release into Test
 - Separate estimates gave a baseline to measure improvements against
 - Exploratory versus Documented Test Cases
 - Agile does not mean undocumented Test Cases
 - Documented Test cases may prove valuable in Agile
 - Allowance for defect fixes within Sprints determines true velocity for development teams

Test Planning, Estimations and Challenges in Agile Testing



	SMALL	MEDIUM	LARGE	X-LARGE	XX-LARGE
	Simple change using existing functionality Configuration	Moderate change using existing functionality	New functionality	New moderate development Initiative required or existing Project	New major development Project required More analysis
Feature	< 2 days 1-2 stories F8	About 1 week 3-4 stories F21	About 2 weeks > 4 stories F55	About 1 sprint > 8 stories F144	> 1 sprint Split into more features
Story	< 1 day 1-2 components F5	< 2 days 2-4 components F8	< 1 week > 4 components F21	< 2 weeks > 8 components F55	> 2 weeks Split into more stories/features
Task	< 2 hours F2	< 1 day F5	< 3 days F13	< 1 week F21	> 1 week Split into more tasks/stories

Fx is the Fibonacci effort estimation number

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- Key Points
 - Your experience could be different
 - Take ideas/pointers from this session but adapt it to suit
 - May not answer your questions
 - Test Planning
 - Consider high level and rely on Agile to do the rest
 - Estimations will be context dependant
 - COTS or Bespoke
 - Integration Complexity
 - Risk - system dependant e.g. Internal workflow system
 - Challenges
 - More than just environments downtime, defect rates, regression sets, Test Planning, development and test velocity

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Questions?