



KEVIN CONROY

ENGINEERING DEVELOPMENT TOOLS
MANAGER

Raymarine

Continuous Integration

APRIL 2018





• What's to come

- Raymarine designs high performance marine electronics
- Bought by FLIR Systems in 2010
- Over 300 members of staff world-wide
- Global sales, support and distribution
- Over 200 products available today
- All R&D done at our UK HQ in Fareham

Raymarine – Product Video



Raymarine – How much software?

- Primarily Embedded Software
- MFD – Multi Function Display / Chartplotter
 - Two Million Lines And Counting
 - Legacy? It's been re-written three times
- 6 Button keypad runs a bespoke linux kernel
- Network convertors run on 8051 clones
- Mobile Apps
- 25 Software developers

Raymarine – Why CI?

- Developers would state that they had completed a feature
- Build Manager was tasked to integrate it all
- Pushed out weekly builds
- Would often stay till gone 22:00 on a Friday night
- I joined the company in 2007
- Vowed that no one would work like this anymore

Raymarine – Why CI?

- How to build software for each product was golden knowledge
- Build failures only surfaced at integration time
- Integration nightmare
- Progress completely misreported
- Delayed build delayed Testing
- Increased pressure on Test Team
- Jeopardising product launches, sales, bottom line

Raymarine – Why CI?

- Management wanted insight into the software team progress
- The Software team wanted to know who broke the build
- Only solution was to create a standalone build for every commit
- Do a clean build on standalone PC for each build
- Run host based test plan on each build
- Run target test plan on each build
- Publicly (internal) display results

Raymarine - Challenges

- At the time CI was immature and/or expensive
- Raymarine CI system entirely bespoke in house
- We needed a product-centric build system, not software project centred
- People left – lost status as the build manager role removed
- Requires investment and commitment to software testing
- Artefact management is one of the next challenges

Continuous Integration – Our Experience

- Static Code Analysis – niche tools that didn't pay off (Parasoft)
- SQUISH – key QT test library. Indispensable
- Fresh grads – employ them! Our SW Test team is full of eager, intelligent engineers who are a joy to work with
- Adaptavist Test plug-in for Jira. For human tracking of test results and automated test reporting. Superb.
- Invest in test, design for test
- Don't be afraid to outsource, but internal expertise is vital



The World's **Sixth Sense**[®]