Digital Transformation

Software Design, Management and Practical Implementation

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INTRODUCTION

MY BACKGROUND

Meng Computer Science '15

Internship, employee #4

Growing team.....

Management Role

INTRODUCTION

COMPANY BACKGROUND I

- Software & consultancy services
- Timetabling, space management etc..
- Research pedigree
- Belfast engineering office
- London consultancy office

INTRODUCTION

COMPANY BACKGROUND II

Rapid growth to 40 staff

18 Engineering staff

Mixture of skills and experience

City centre offices

Continued growth and maturity

SOFTWARE

PRODUCTS

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PRODUCTS

Timetabler   Planner

Exam   Sim

Booker   Audit

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CUSTOMERS

UA 92

UNIVERSITY ACADEMY 92

4

BAE SYSTEMS

UNIVERSITY OF OXFORD

UNIVERSITY OF CAMBRIDGE

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ENGINEERING

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What we started with…….

- Team
  - Small team;
  - Few customers
  - Low turnover

- Lack of Processes & Procedures
  - Defining work
  - Monitoring progress
  - Releasing software
  - Supporting software

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What we did next…….

- We had lots of decisions to make

  - Software and tooling
  - Procedures and methodology
  - Management - & Team Structures

- Learning from mistakes

  - Start with what we know
  - Cautiously explore

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OUR TECHNOLOGY

Tech Stack

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BACKEND TECHNOLOGY STACK

- CTO & Founding Team members had experience in .NET

- This became our "go-to" framework

- Minimal Learning required
- Quick prototyping & implementation
- Mature, active, well supported language

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FRONTEND TECHNOLOGY STACK

- Most of our products are web apps

- Countless frameworks, libraries, etc…

- Today's coolest and latest technology will be old tech tomorrow

- How did we decide which to use?

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FRONTEND TECHNOLOGY STACK

- Team members bring experience and knowledge!

  - *"I've used Backbone before"*

  - *"We used Bootstrap in our group project"*

  - *"My friend who works at 'company' recommended this"*

  - ***Engineers at EventMAP have a track record of proposing the use of, and implementing new technologies***

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CLOUD INFRASTRUCTURE

- EventMAP's legacy products were client based applications (WinForms), so no hosting required

- Development on our first web app commenced Summer 2011

- *"How do we release and deploy software?"*

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CLOUD INFRASTRUCTURE

- Between 2011 – 2013

  - Rackspace

  - Dreamhost

  - Digital Ocean

- All of these were *ok,* but none were good

CLOUD INFRASTRUCTURE

- Late 2013, Microsoft announced Azure

  - We're a '.NET' house

  - Designed specific for .NET developers

  - We should try Azure!

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CLOUD INFRASTRUCTURE

- Why Azure?

  - IDE Integration

  - Ease of use

    - Deploy

    - Monitor

    - Scale

    - Cost Management

Microsoft
Azure

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CLOUD INFRASTRUCTURE

- Why Azure?

  - Data Centre Regions

  - Instant Scaling

  - Abundance of services

  - Analytics

  - Community

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OUR TECHNOLOGY

DevOps

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DEVOPS – VERSION CONTROL

- In 2011 our source control consisted of:

    - Zipping up source code

    - Emailing to yourself

- This had to change……

DEVOPS – VERSION CONTROL

- In 2011 we started to use SVN

  - Grew to ~6 developers

  - Trunks, tags, branches etc…

  - Although we no longer use SVN

    - It was the driver for change

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DEVOPS – VERSION CONTROL

- In 2012 we transitioned to GitHub

- Motivation for change from SVN was the additional project management tools bundled with GitHub
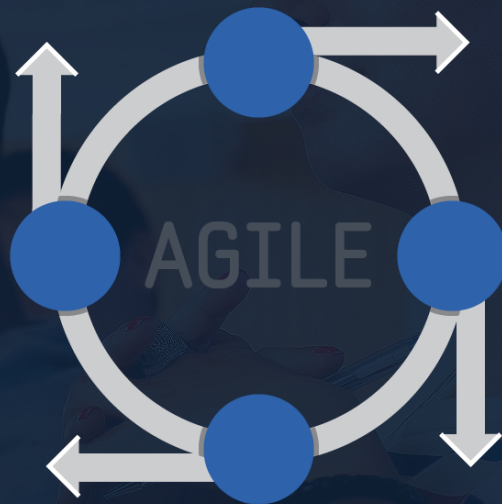
- Not just a version control service….

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DEVOPS – VERSION CONTROL

- How we use GitHub today:

  - Version Control

  - Issue tracking

  - Milestone planning and monitoring

  - Wikis

  - GitFlow

DEVOPS – DEVELOPMENT METHODOLOGY

AGILE

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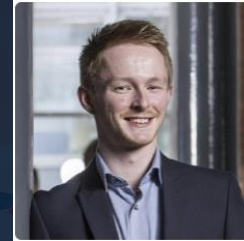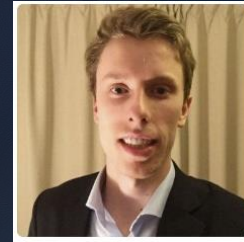# DEVOPS – DEVELOPMENT METHODOLOGY

- EventMAP adopt an Agile approach to development:

  - Product Backlog(s)

  - Sprint Planning

  - Sprints (2 weeks followed by 1 week break)

  - Sprint Retrospectives (internal)

  - Sprint Retrospectives (external with customers)

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DEVOPS – DEVELOPMENT METHODOLOGY

- Example – **Booker**

  - Active product at EventMAP

  - Been in development for ~18 months

  - Current version is 1.3

  - In use by customers – stability is our top priority!

  - Team Structure

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DEVOPS – DEVELOPMENT METHODOLOGY

- Example – **Booker**

  - Active product at EventMAP

  - Team members:

    - 1 Product Owner / Manager

    - 1 Senior Engineer

    - 2 Engineers

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DEVOPS – DEVELOPMENT METHODOLOGY

- Example – **Booker**

  - **Project Owner / Manager**

    - Populate Product Backlog

    - Plan work (Release / Sprint Backlog)

    - Provide technical direction

    - Review the completed work and progress

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DEVOPS – DEVELOPMENT METHODOLOGY

- Example – **Booker**

  - **Senior Engineer**

    - Provide technical leadership

    - Mentor and help engineers

    - Review work of engineers
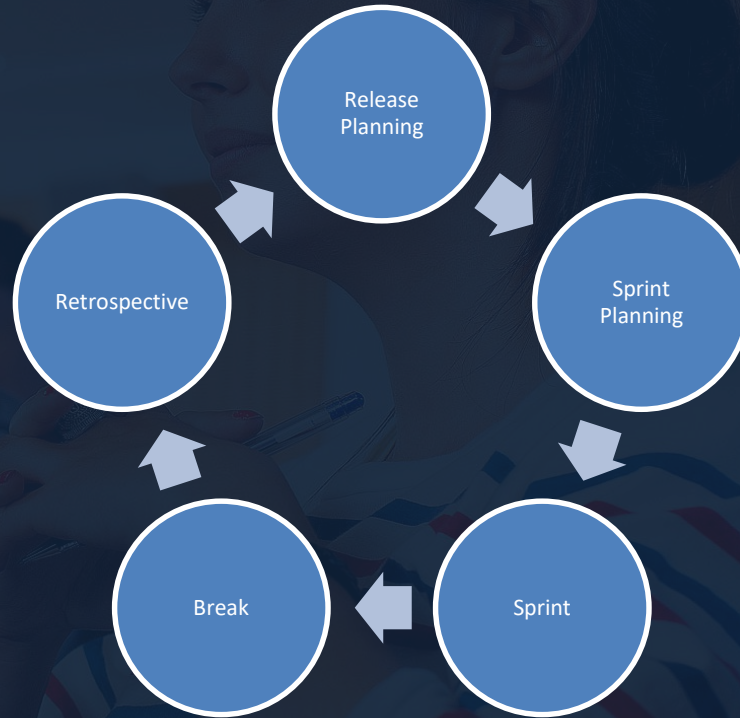
    - Complete tasks on the sprint backlog

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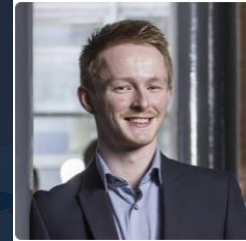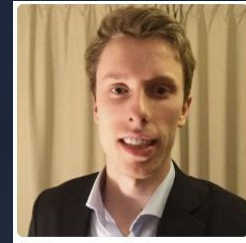
DEVOPS – DEVELOPMENT METHODOLOGY

- Example – **Booker**

  - **Engineers**

    - Complete tasks on sprint backlog

    - Review the work of peers

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DEVOPS — DEVELOPMENT METHODOLOGY

- Example – **Booker**

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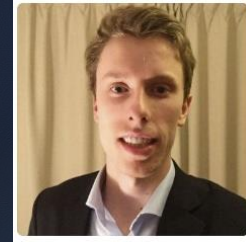
OUR TECHNOLOGY

Demonstrating Quality

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DEMONSTRATING QUALITY

- Deliver Quality, Working Software to the customer

  - Reliable

  - Performant

  - Functional

- Our approaches to software development are **well established**, follow **industry standards** and have a **successful track record**

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DEMONSTRATING QUALITY

- But how do we prove this ?

- Necessary to demonstrate that the processes and procedures your company adheres to results in a quality product.

- **For example**

  - Large public organisations require that suppliers evidence your products adhere and meet certain quality standards

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- **Certifications and Qualifications**

- In Summer 2017 EventMAP started it's journey towards ISO 9001 & ISO 14001 certification

  - *The ISO 9000 family of quality management systems standards is designed to help organizations ensure that they meet the needs of customers and other stakeholders while meeting statutory and regulatory requirements related to a product or service*

DEMONSTRATING QUALITY

- **What does it involve?**

- Developing policies and procedures that cover all aspects of the software development lifecycle

    - Project Initiation
    - Project Management
    - Software Development
    - Coding Standards
    - Software Deployment
    - Customer Service & Support
    - Risk Identification and Mitigation

ISO

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DEMONSTRATING QUALITY

- **What does it involve?**

  - Once these procedures are established

  - Necessary to use and evidence them

  - Time for certification!

    - Yearly audits

    - Yearly assessments (1-2 days)

bsi. ISO 9001 Quality Management

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DEMONSTRATING QUALITY

- **How has it helped EventMAP ?**

  - Allowed relationship to be formed with key clients

THANK
YOU

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