The Start-Up In Your Enterprise
Our Story of Disruption

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Velocity London - October 2017
My Work

Established in 1844
Adapting is in Our History
Inspiring Mission
Passionate People
From ISBN to FQDN
Embrace the Challenge!
A Brief History...

• Reputation of internal IT is slow and bureaucratic
• Siloed product teams resulted in broad standards
• Hard for central security and QA teams to engage
• Typically releases orbit annual education cycles
• Conflict over functional & nonfunctional requirements
• Roadmap planning horizon is 3-years out

A perfect storm is brewing...

There is an appetite for something new...
Bitesize is designed to be different. At Pearson, we are challenging ourselves not just with new technology but also new ways of working. In order to do that we need to be very clear about the expectations we have of each other in the way we collaborate, communicate and engage.

This Manifesto outlines a set of beliefs that you agree to respect and adhere to during your work on this project. By signing this Manifesto, you recognise that by agreeing to this you will:

- Hold others accountable for respecting this agreement
- Be held accountable by others if they feel you are not respecting the code of conduct
- Uphold Pearson's values of Bravery, Decency and Imagination outlined here at all times
- Be excellent to each other

Adherence to this code of conduct is voluntary and there are no formal or informal disciplinary proceedings if you do not follow it, we trust in the decency and common sense of our people. However, in order to succeed where other initiatives have failed we do need to understand that how we work together is the #1 indicator of success for the project. If we fall into old working habits let existing silos of knowledge influence our approach we will not deliver on the potential of what this technology can enable and we will join the list of good ideas which failed to deliver.
Bitesize - Our Startup Story

- **FOUNDED**: Aug'15
- **VC ONBOARDED (Selected as Preferred Platform)**: Dec'15
- **PROD WORKLOAD**: Oct'15
- **CUSTOMER #1**: Mar'16
- **APAC REGION**: Oct'16
- **B-ROUND**: Mar'17
- **FUTUREGEN PARTNER**: Dec'17
- **IPO?!**: 2018...

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How Hard Can This Be?!
PROBLEM #1
Fixing DevOps

“We don’t need Ops, we already have a DevOps team with Jenkins”
PROBLEM #2

What is “Developer Experience”? 

Understanding what Developers want…
PROBLEM #3

Governance

“Governance is what prevails when there is a vacuum of common sense.

Me, every day...”
So What Did We Do?
The Pearson Framework for Cloud Applications

Developer Experience
The entire framework is built with the Pearson developer in mind. With Universal API access, technical docs and open contribution models, the framework is extendable and easy to work with.

Deployment Pipelines
Our platform provides out of the box integration of popular CI tooling to streamline your testing and deployment process and integrate with Pearson CISO and QA standards.

Container Orchestration
We take the hassle out of managing containerised services. With our Kubernetes powered orchestration, you can deploy to a scalable production grade environment on-demand.

Cloud Networks
Automated network function means that you can build and deploy against other Pearson services in the cloud and in our data centres as quick as you can write the code!

Public Cloud Management
Our services are fully compliant with Pearson Cloud Governance and we handle all the low-level infrastructure management so you can get on with work that makes a difference to learners.

Introducing “Bitesize”
Well how else were you going to eat the elephant?

https://github.com/pearsontechnology
High-Level Architecture

- CLI/SDK/tools
- Bitesize UI
- Universal API
- Bitesize Manifest Files
- Pearson Developer
- environment-operator
- ReplicaSet Deployment
  - Application Pod
  - Application Pod
  - Application Pod
- App Namespace
- System Services

Control Plane

StackStorm

AWS
“A synthetic transaction is failing”
“I want to deploy my application”
“Our A/B soak completed successfully”

Desired Response:
Re-spawn pods, notify owners
Execute deployment process
Converge all production instances to B deployment

Stuff People Care About
Things that Happen
Stuff People Concentrate On
Mechanism to Execute

Trigger Systems
Workflows
Tooling
The Treadmill of Technology

Pearson Cloud Platforms

"INNOVATION SWEET SPOT"

COMMODITY SERVICE

Constant Technology Maturity

BLEEDING EDGE
Your Job as a Service(!)

My job is to help an engineer feel comfortable automating the work they currently do so that we can find them another more interesting job to automate...!

Constant People Development

PROVISIONING SERVERS

Pearson Cloud Platforms

"INNOVATION SWEET SPOT"

MACHINE LEARNING IN OPERATIONS

YOUR JOB’S CODE

YOUR NEXT JOB

Constant People Development
How Are We Changing Culture?

Or... Finding ways to make people comfortable with change

#1  Help people feel in control of change

#2  Make changing things fun!

#3  Assume everything is terrifying...
Open Source at Pearson

- **Education**
  - Sharing Information

- **Authz Webhook**
  - `pearsontechnology / bitesize-authz-webhook`
  - 52 commits
  - 7 branches

- **Environment Operator**
  - `pearsontechnology / environment-operator`
  - 153 commits
  - 18 branches

- **Kubernetes Tests Pack**
  - `pearsontechnology / kubernetes-tests`
  - 331 commits
  - 68 branches

- **Open Source**
  - Sharing Code

- **Knowledge**
Disruption Strategy #1 - Protect the Bubble!
Disruption Strategy #2 - Use the Bubble!
Disruption Strategy #3
Make Your Hubble Bubble a Pioneer
Pioneers - Finding the Path

- Engineering
- QA/Perf
- Operations
- Network
- Security
The Pioneers have a duty of care for the rest of the people who want to make the same journey.

What signposts and help can we leave for them to avoid them making the same mistakes we did?
## Internal Open Source Strategy

### Global Technical Community

<table>
<thead>
<tr>
<th>Community Engagement</th>
<th>Developer Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Practice and Standards Initiatives</td>
<td>Hackathons, Brown Bags and Meetups</td>
</tr>
<tr>
<td>New Technology Adoption &amp; Integration</td>
<td>“Do we already have a ... I can contribute to”</td>
</tr>
</tbody>
</table>

### Next-Generation Education Platform
Keeping My Promises...

What you'll learn

- Get advice and ideas for how to change your company's approach to technology

- Explore a startup within Pearson, including the DevOps approach, how it's trying to change culture at scale, how it uses containers and Kubernetes at scale in production across a global public cloud provider, and how it scales continuous delivery practices across a global development workforce while still enabling customization and empowering developers
WHERE WE NEED HELP
Get Involved?

https://github.com/orgs/pearsontechnology/

@chriswiggy

http://pearson-technology.jobs/
ALWAYS LEARNING