

# DevOperability



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# “Testing Is DevOps”

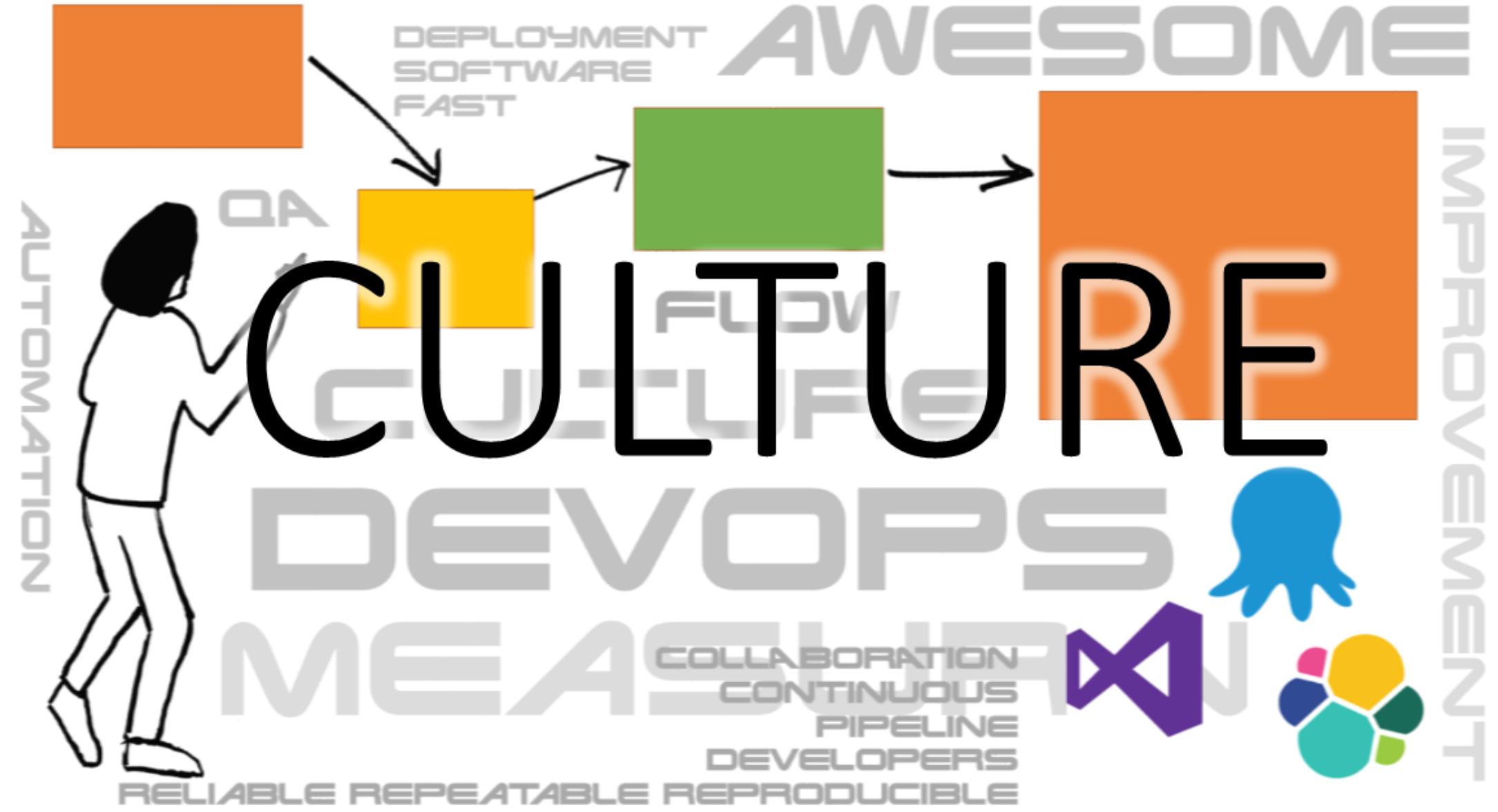


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A black dog with brown eyes is looking at a piece of meat on a plate. The background is blurred, suggesting motion. The text "DevOps In Five..." is overlaid on the right side of the image.

DevOps  
In  
Five...

C  
A  
L  
M  
S



# AUTOMATION

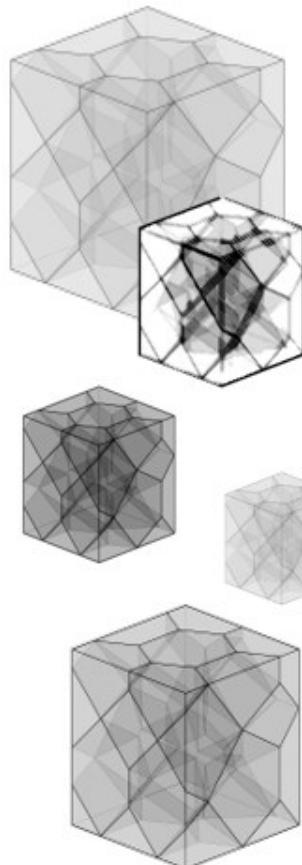
C

A

L

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S



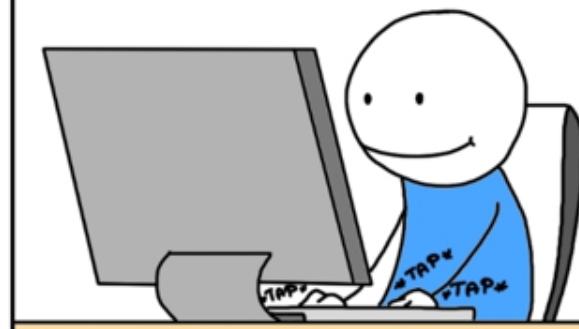
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C  
A  
L  
M  
S

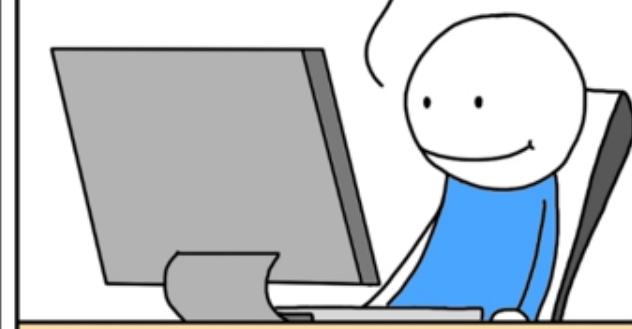
# LEAN

## UNFINISHED WORK

FRIDAY EVENING



PERFECT!  
I'LL FINISH  
THIS ON  
MONDAY



MONDAY MORNING...



C  
A  
L  
M  
S

# MONITORING



C  
A  
L

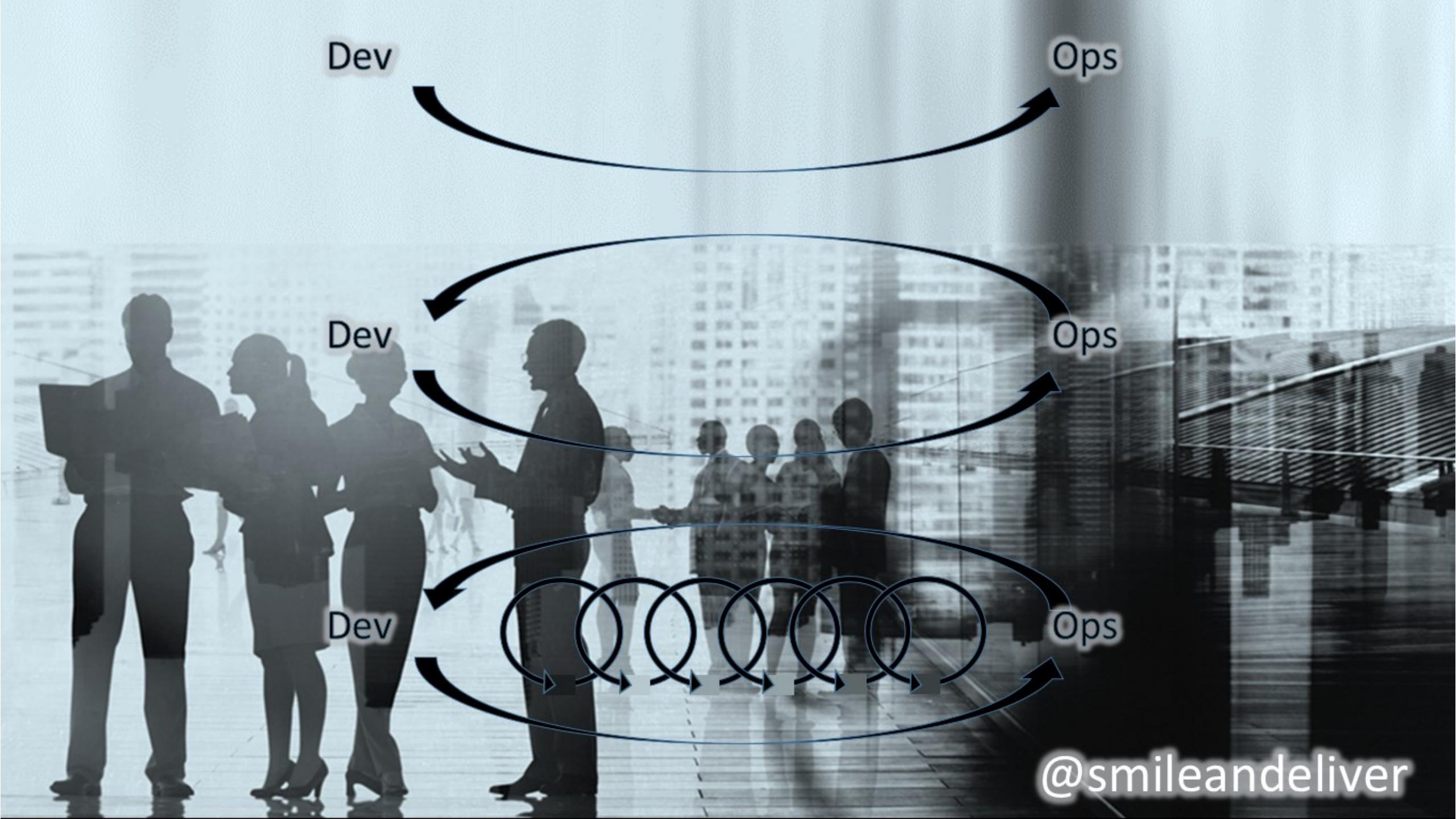
# SHARING

UGH, PEOPLE ARE MAD AT ME AGAIN  
BECAUSE THEY DON'T READ CAREFULLY.

I'M BEING PERFECTLY CLEAR.  
IT'S NOT MY FAULT IF EVERYONE  
MISINTERPRETS WHAT I SAY.

WOW, SOUNDS LIKE YOU'RE  
GREAT AT COMMUNICATING,  
AN ACTIVITY THAT FAMOUSLY  
INVOLVES JUST ONE PERSON.





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Three  
God



Ways of DevOps  
Reporter



Genius

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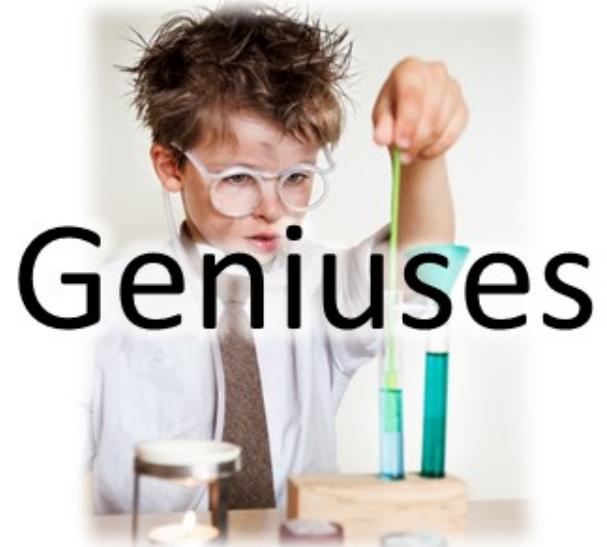
Gods

The First Way

Systems Thinking

The Second Way

Amplify Feedback Loops



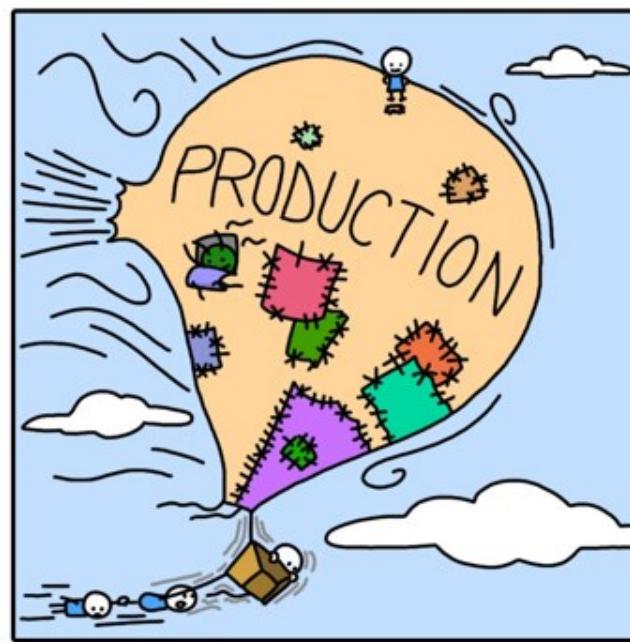
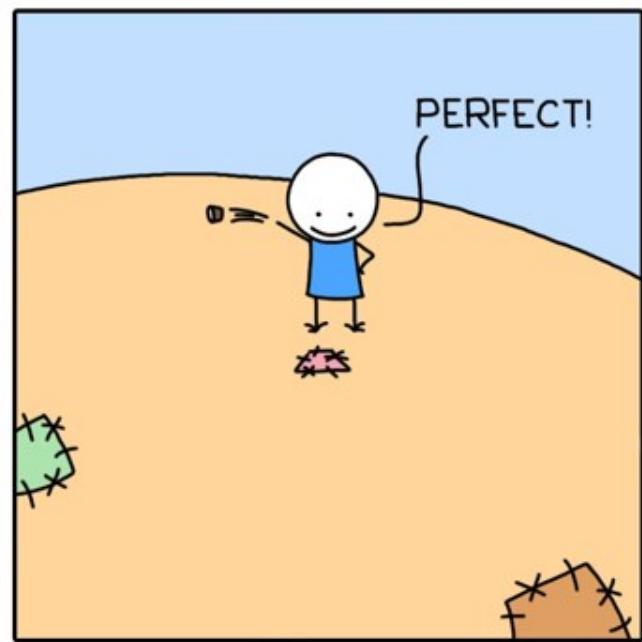
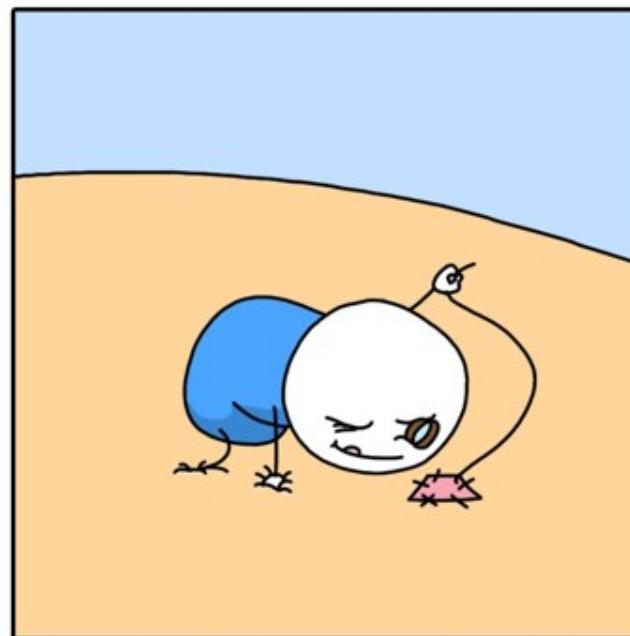
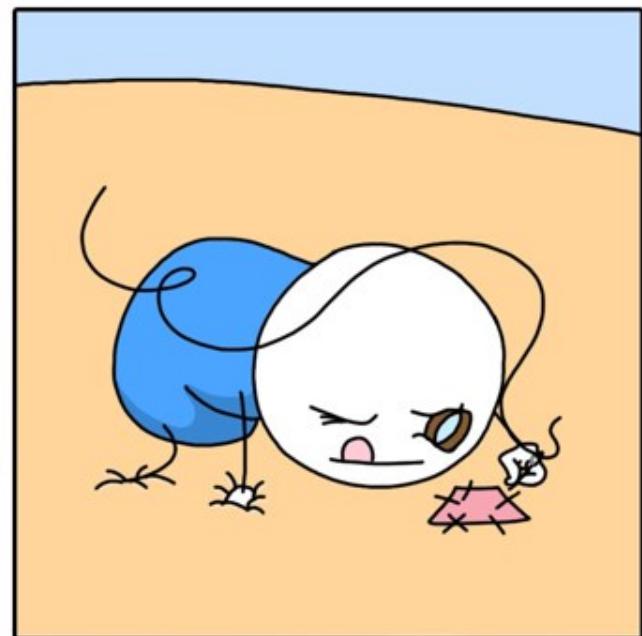
The Third Way

Culture of continual  
experimentation and learning



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# FINAL PATCH



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We can have fantastic sales,  
account management,  
innovative products,  
good pricing,  
fabulous marketing...

But if we don't deliver the service  
they will not come to us  
and/or walk away



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*the  
us* A romantic,  
candlelit dinner  
would be  
incomplete without

**An email about a  
critical production  
bug**

"Development" teams get something "working" then throw it to an "Operations" team who struggle to wrestle with the day-to-day running and support of it.

- ❖ Software Scoped to Functional Reqs
- ❖ No Resources once in Production
- ❖ Deliverable ≠ Operable

Complexity:  
One of the greatest  
enemies of Operability



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Do you know what just  
happened and why?

- ❖ The Right Metrics
- ❖ Sterile Environments
- ❖ Access Auditing
- ❖ Access Control
- ❖ Diagnostics

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# Operability

Your Ops Teams are now the Customer

- ❖ Deployment Engineers
- ❖ Ops Engineers
- ❖ Customer Support
- ❖ Configuration Team



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# Operability

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Operability is about making software that is reliable and handles failure gracefully in production (live).



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## Operability

WHAT IS IT?

Look At Your System In Terms  
OF USERS...

Who?

- DEPLOYMENT ENGINEERS
- OPS ENGINEERS
- CUSTOMER SUPPORT
- CONFIGURATION TEAM.

Your Ops teams are now the  
Customer

## DEPLOY

- RELIABLE
- REPEATABLE
- RAPID
- ROLL-BACK

### Pipeline

- EACH STEP UNDERSTOOD BY TEST TEAM
- TEST DURING DEPLOYMENT
- UNDERSTAND BEHAVIOUR OF
  - APPLICATIONS
  - DATABASES
  - ENVIRONMENTS
- ... DURING DEPLOYMENT
- UNDERSTAND DIFFERENCE BETWEEN ENVIRONMENTS.

## DOCUMENTATION

- AIs DOCUMENT (ACCEPTANCE INTO SERVICE)
  - THIS IS A CONTRACT BETWEEN THE PRODUCT TEAM & OPS.
  - TEST FOR CLARITY
  - UNDERSTANDING
- PRODUCT DOCUMENTATION
  - CUSTOMER
  - SUPPORT TEAMS

## Operability

- USERS = Ops Teams.

## INSPECT / ANALYSE

- What queries need to be run?
  - Source - controlled
  - Automated
- Access: No matter what - must not violate security reqs.
- Test + Ops able to trigger appropriate queries + reports.

## Diagnose / Debug

- RELEVANT / MEANINGFUL ERRORS
- PREREQUISITES CLEARLY DOCUMENTED
- APPLICATION CONFIGURATION: SIMPLE
- ARCHITECTURE - SIMPLE AS POSSIBLE

## CONTROL

- Protection against inappropriate access
  - Internally
  - Externally.
- Constantly review & Reduce Permissions → MINIMUM VISIBLE PERMISSIONS

## MAINTAIN

- What is generated over time?
  - Logs
  - Data
  - Audit
  - Disk Usage
  - Memory Usage / Handler
- What maintenance is needed?
  - Automatic
  - Manual

## MONITORING

- APPLICATION LOGS
- SYSTEM PERFORMANCE
- LINE OPERATIONAL MONITORING TO TEST RESULTS.

QUESTION EVERYTHING!

# Operability Documentation

## AIS DOCUMENT (Acceptance into Service)

## Operability Contract between All teams

- ❖ Clarity
- ❖ Understanding
- ❖ Completeness

## PRODUCT DOCUMENTATION

- ❖ Customer Facing
- ❖ Support
- ❖ Architecture

### Section 2 - Service Information

- 2.1 - Service Information - Service Overview
- 2.2 - Service Information - Stakeholders
- 2.3 - Service Information - Service Level Agreements
- 2.4 - Service Information - Service Relationships

### Section 3 - Support Requirements

- 3.1 - Support Requirements - Support Model
- 3.2 - Support Requirements - Internal Support
- 3.3 - Support Requirements - External Support
- 3.4 - Support Requirements - Support Hours
- 3.5 - Support Requirements - Monitoring
- 3.6 - Support Requirements - Incident Impact Statements

### Section 4 - Operational Maintenance

- 4.1 - Operational Maintenance - Maintenance Tasks - Overview
- 4.2 - Operational Maintenance - Backups, restores, and data retention

### Section 5 - Change control

- 5.1 - Change Control - Release approach

### Section 6 - Service Continuity

- 6.1 - Service Continuity

### Section 7 - Capacity Management

- 7.1 - Capacity Management

### Section 8 - Asset Management

- 8.1 - IT Asset Management

### Section 9 - Group Security

- 9 - Group Security Requirements

### Section 10 - Service Desk



# Deployability

- ❖ Reliable
- ❖ Repeatable
- ❖ Rapid
- ❖ Roll-back

## PIPELINES

- ❖ Each step understood
  - ❖ Applications / Services
  - ❖ Databases
  - ❖ Environments
- ❖ Walking Skeleton
- ❖ Test During Deployment

# Maintainability

What builds up over time?

- ❖ Logs
- ❖ Data
- ❖ Audit
- ❖ Memory Usage

What Maintenance is Needed?

- ❖ Automatic
- ❖ Manual



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# Control

## Protection against inappropriate access

- ❖ Internally
- ❖ Externally

## Regularly Review and Reduce Permissions

- Minimum Viable Permissions
- Access via Controlled System
- Access Audit



*How to ignore it and deliver your project*

O'RLY

*Awn Thyme*

# Monitoring

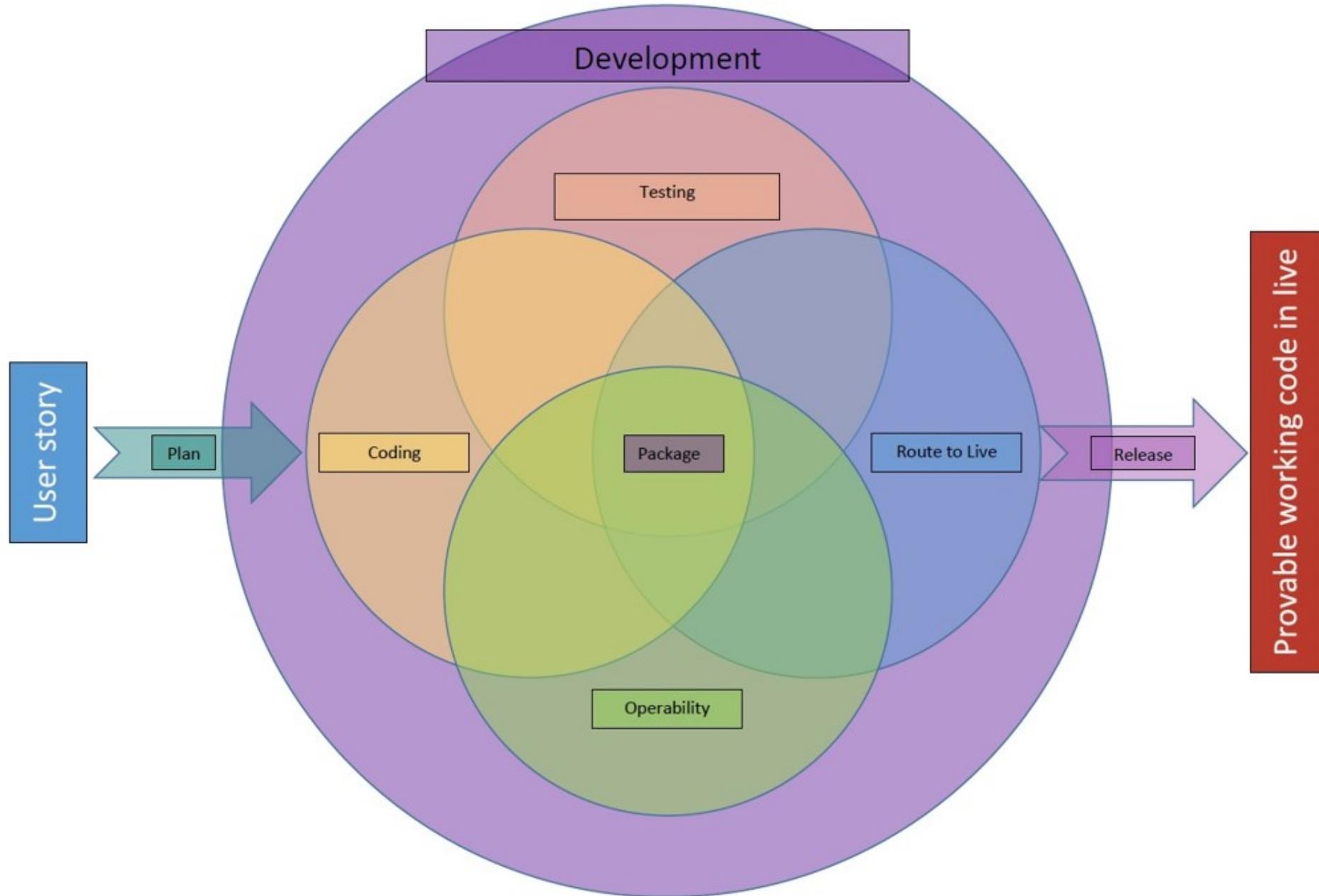
- ❖ Application Logs
- ❖ System Performance
- ❖ Link Ops Monitoring to Test Results

# Diagnose/Debug

- ❖ Relevant / Meaningful Errors
- ❖ Prerequisites Clearly Documented
- ❖ Simple:
  - ❖ Application Configuration
  - ❖ Architecture

# Inspect/Analyse

- ❖ What queries need to be run?
  - ❖ Source-Controlled
  - ❖ Automated
- ❖ Access: Must comply with Security Reqs
- ❖ Test & Ops Teams able to trigger Appropriate Queries & Reports



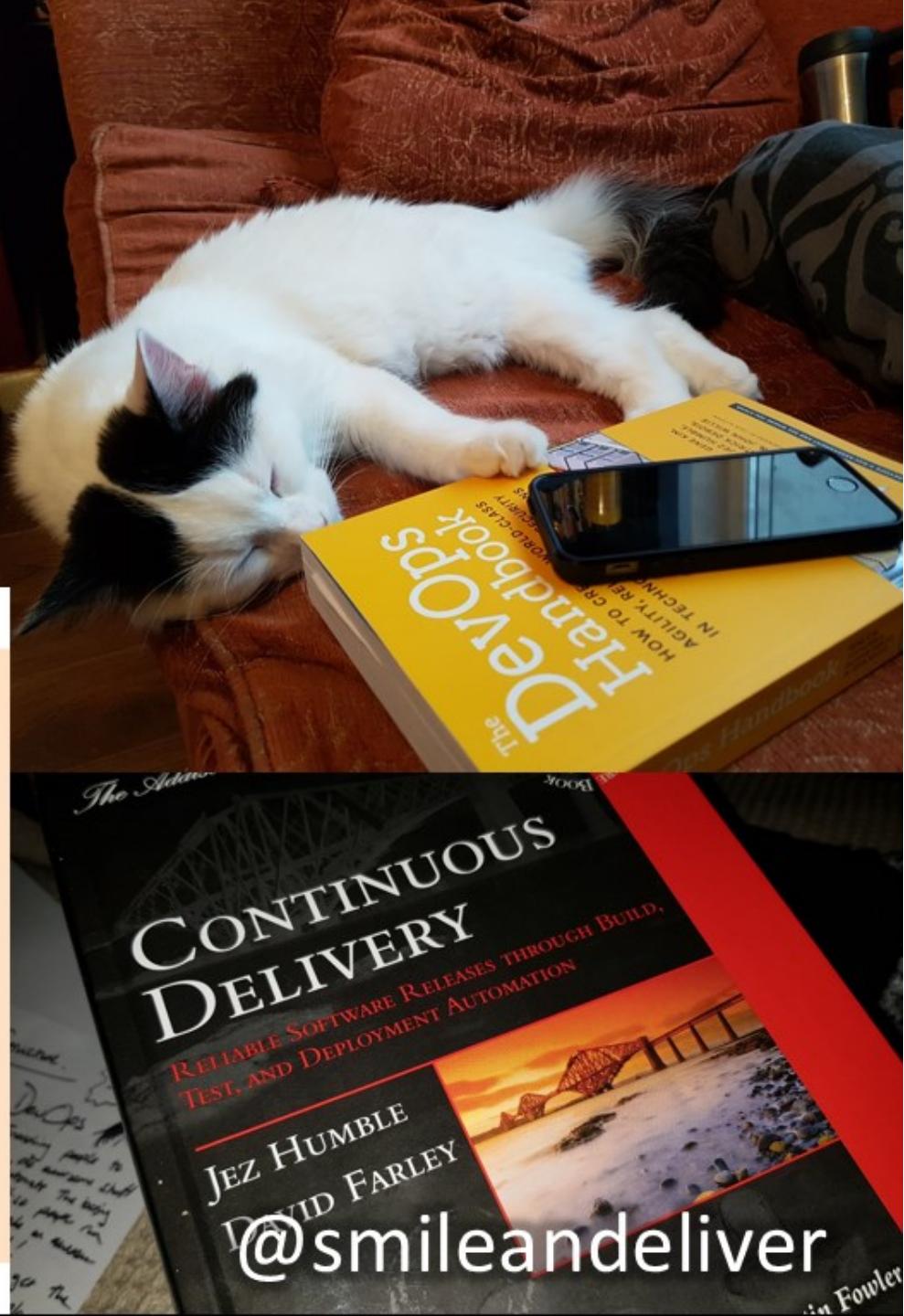


# The Phoenix Project

A Novel About IT, DevOps,  
and Helping Your Business Win

Gene Kim, Kevin Behr, and George Spafford

REVISED  
WITH NEW  
RESOURCE  
GUIDE



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A wide-angle photograph of a rural landscape. In the foreground, there's a dry stone wall and a small, shallow stone-lined reservoir or dam. A stream flows through the reservoir. Beyond the reservoir, the land is divided into large, green, rectangular fields by more dry stone walls. In the middle ground, a small cluster of traditional stone houses with dark roofs is visible. The background consists of rolling hills and mountains, with the sky above being a mix of bright blue and various shades of white and grey clouds.

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