Effective Communication of Code Changes

Agenda

1. What's the problem?

2. Story Time

3. My Proposed Solution

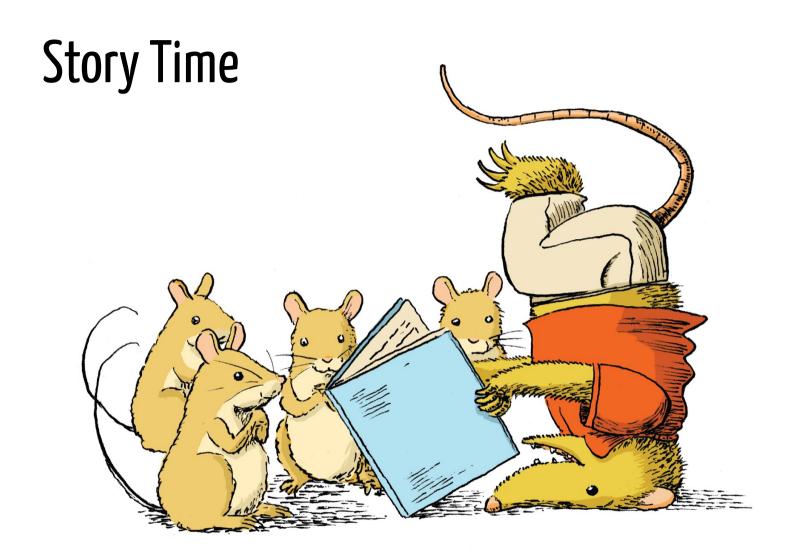[*]Press "p" for presenter's notes, and "c" for split view.

Code is our Enemy

```
> Code is bad. It rots. It requires periodic maintenance. It has bugs that
> need to be found. New features mean old code has to be adapted.
>
> The more code you have, the more places there are for bugs to hide. The
> longer checkouts or compiles take. The longer it takes a new employee to
> make sense of your system. If you have to refactor there's more stuff to
> move around.
```

[*]http://www.skrenta.com/2007/05/code_is_our_enemy.html

Communication

1. New features mean old code has to be adapted.

2. [Code] has bugs that need to be found.

Story Time

New Feature

```
commit 04bca5f9bad93642b6df6c7303dbc064f7a318db
Author: Prakash Surya <prakash.surya@delphix.com>
Date:   Fri May 29 23:12:11 2015 -0700

    DLPX-37794 Transformations Milestone 2: ...
```

Bug Found

```
> I created a new test, which attempts to create a transformation with a
> number of different invalid inputs for the 'operations' property. When
> setting the operations property to Python None (converted to null in
> json translation), we see the below DFE, which triggers the fatal
> fault logic and core dump on the server...
```

[*]http://jira.delphix.com/browse/DLPX-38039

Investigation

```
checkArgument(params.getOperations() != null, "A list of operations must be "
    "provided, this can be an empty list but must not be null; found 'null'.");
```

Huh? Interesting...

```
"operations": {
  "type": "array",
  "description": "...",
  "create": "required",
  "items": {
    "type": "object",
    "description": "...",
    "$ref": "/delphix-source-operation.json"
  }
}
```

Root Cause

```
commit bb9352d401d89e506056271bbee4c2ec82f5811a
Author: xxxxxxxxx xxx <xxx@delphix.com>
Date:   Wed Nov 14 16:21:06 2012 -0500

    21172 New World Network Configuration
    10533 backend restarts stack even ...
    12306 Enhancement: updating network ...
    12687 NWS should expose light-weight ...
    14509 have a UI control to set jumbo ...
    14783 Changing number of interface ...
    18029 remove code dealing with link ...
    18259 Server Setup > Network: Click ...
    18722 Race condition in ...
    19636 notify the user when network ...
    20616 GUI should not do reverse name ...
```

WAT

```
--- a/ValidatorFactoryImpl.java
+++ b/ValidatorFactoryImpl.java

+    if (type == JsonType.ARRAY)
+        acceptedTypes.add(JsonType.NULL);
```

Code is our Enemy

```
--- a/ValidatorFactoryImpl.java
+++ b/ValidatorFactoryImpl.java

+    if (type == JsonType.ARRAY)
+        acceptedTypes.add(JsonType.NULL);
```

```
147 files changes
3841 insertions(+)
8653 deletions(-)
```

Information Gathering

> The Five Ws are questions whose answers are considered basic in
> information-gathering or problem-solving.

[*]https://en.wikipedia.org/wiki/Five_Ws

Commit messages... Let's use them.

Baby Steps

```
commit a8f6344fa0921599e1f4511e41b5f9a25c38c0f9
Author: Eli Rosenthal <eli.rosenthal@delphix.com>
Date:   Wed Mar 2 14:51:48 2016 -0800

    6672 arc_reclaim_thread() should use gethrtime() instead of ddi_get_lbolt()
    6673 want a macro to convert seconds to nanoseconds and vice-versa
    Reviewed by: Matthew Ahrens <mahrens@delphix.com>
    Reviewed by: Prakash Surya <prakash.surya@delphix.com>
    Reviewed by: Josef 'Jeff' Sipek <jeffpc@josefsipek.net>
    Reviewed by: Robert Mustacchi <rm@joyent.com>
    Approved by: Dan McDonald <danmcd@omniti.com>
```

End