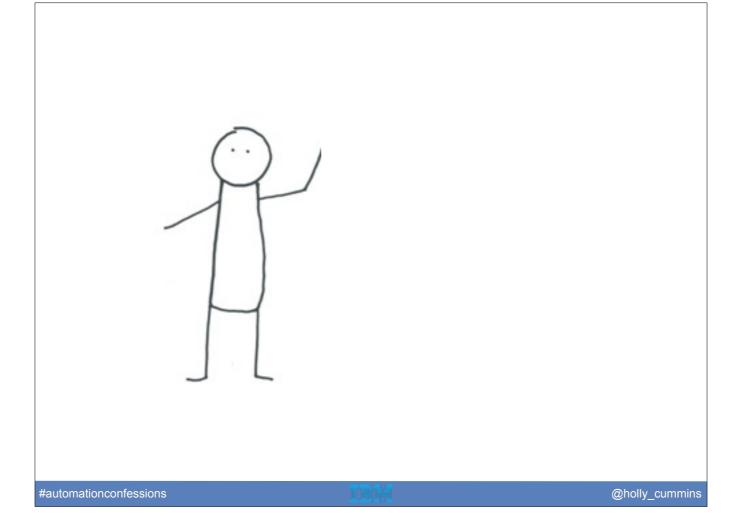


# confessions of an automation addict

Holly Cummins
@holly\_cummins

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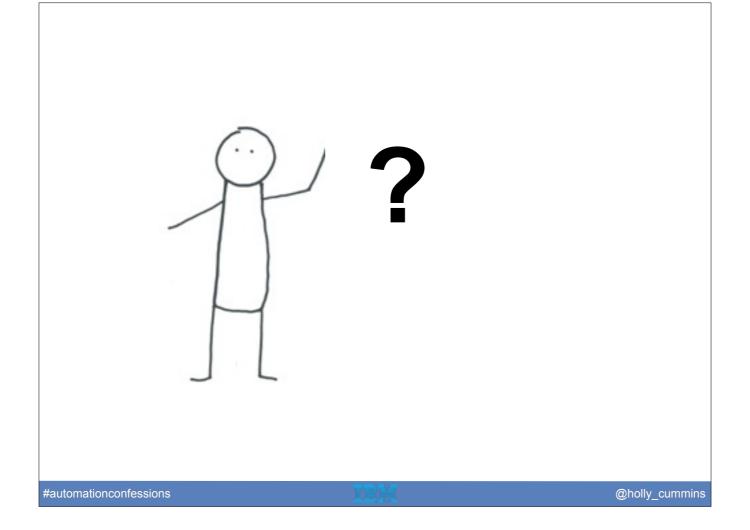


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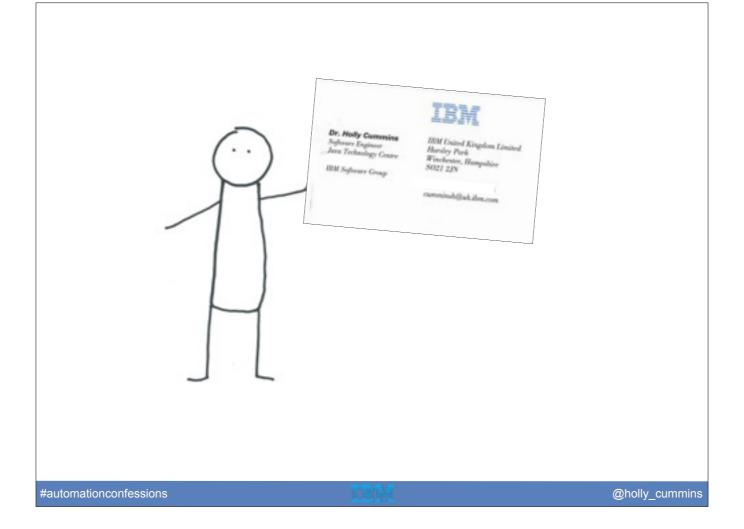


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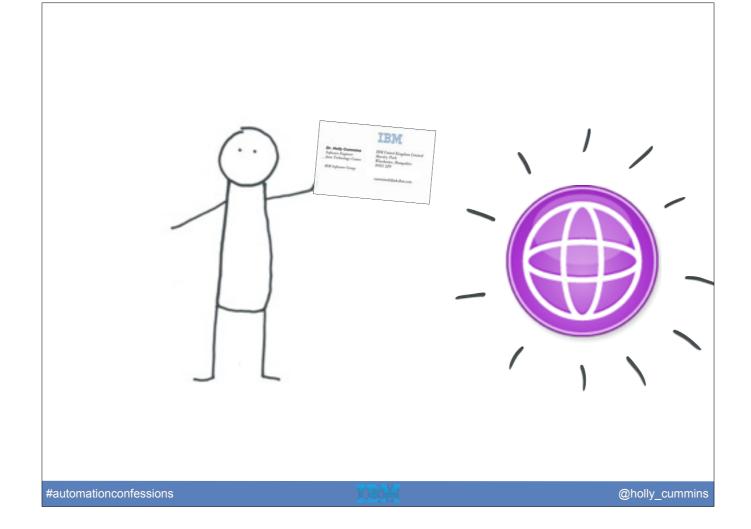


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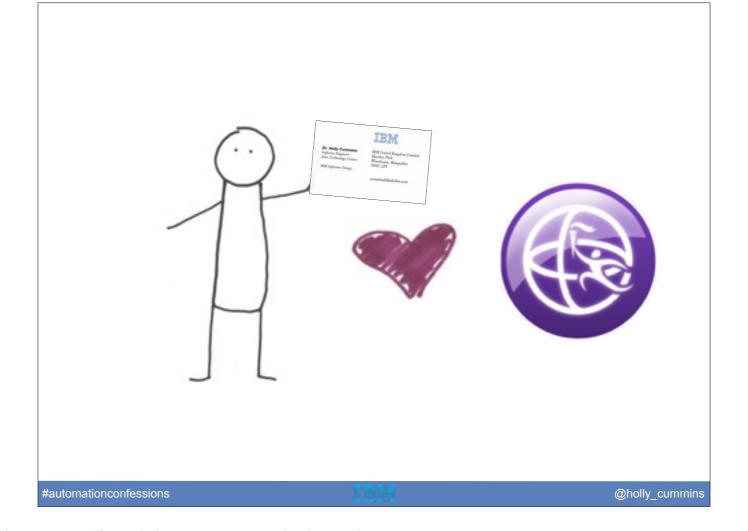


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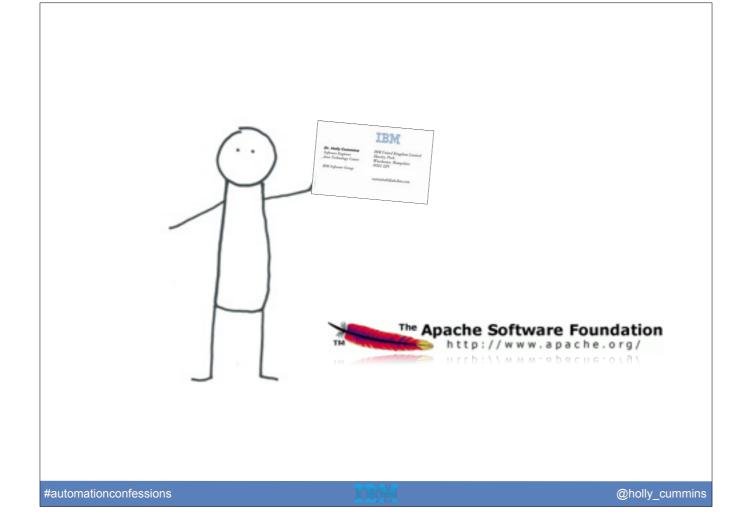


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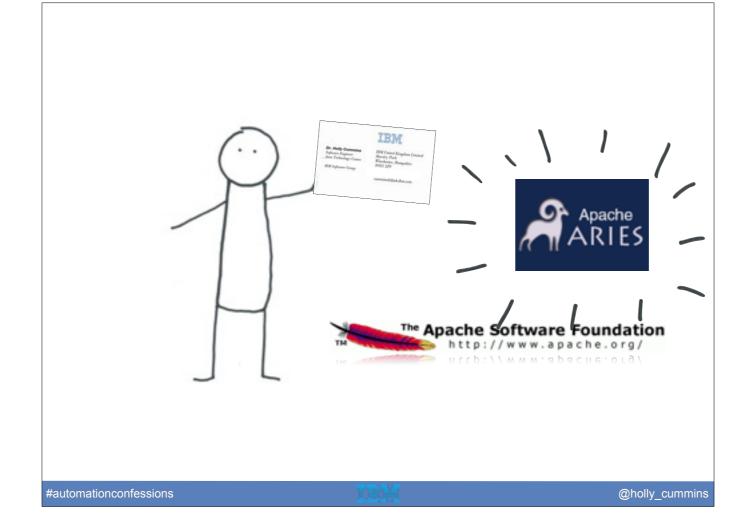


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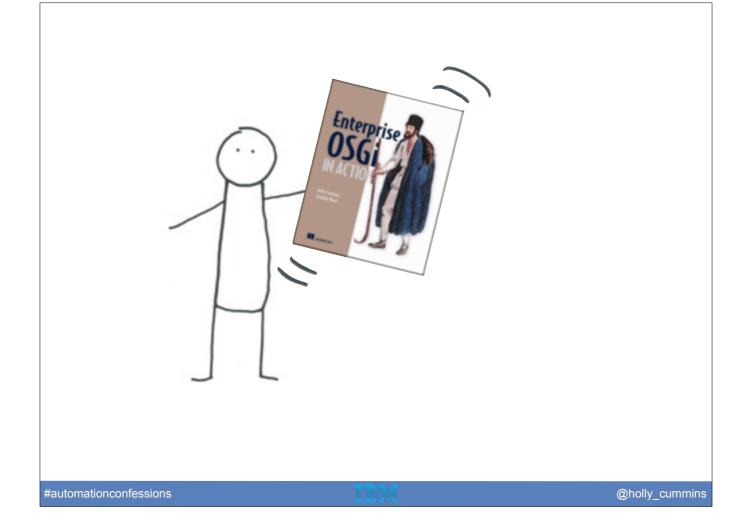


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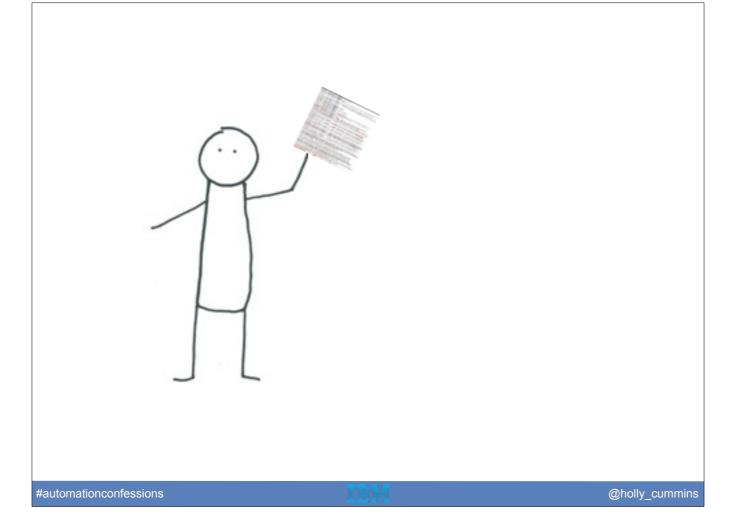


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I love automation. I really love automation.

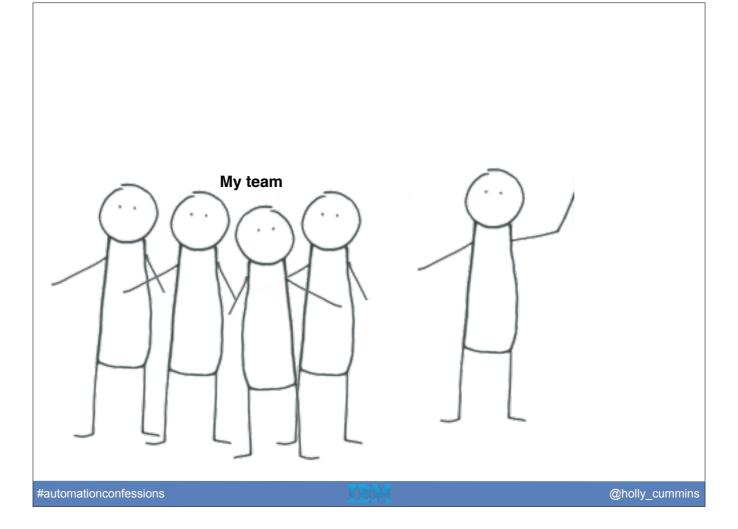
#### Examples -

1993, dialup, to university network, had a command replay thing on my mac, handled logging in to university dialup, if it was a bit slow to pick up would just display my password. I was a bit surprised first time a friend told me my password.

started at ibm, CMVC gui, I wrote a whole library of command line scripts

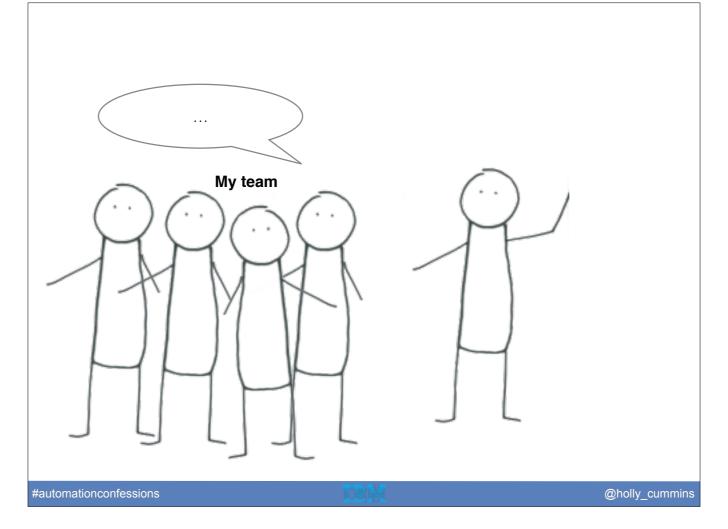
populating data for tests, wrote thing to inject them with data by reflection - this was before mocks - and kept breaking colleagues by leaving stuff which tested their edge cases in a shared db. I thought they should be grateful I was discovering problems in their code for them, but ...

And then there was the time I needed to write formal design docs, and people wanted to consume them in Word, and I wanted to have my objects automatically populated from Java, so I wrote a tool to convert Java to nicely formatted class diagrams in SVG and LaTEX, and then to word. There are products that do less than what I'd written ...



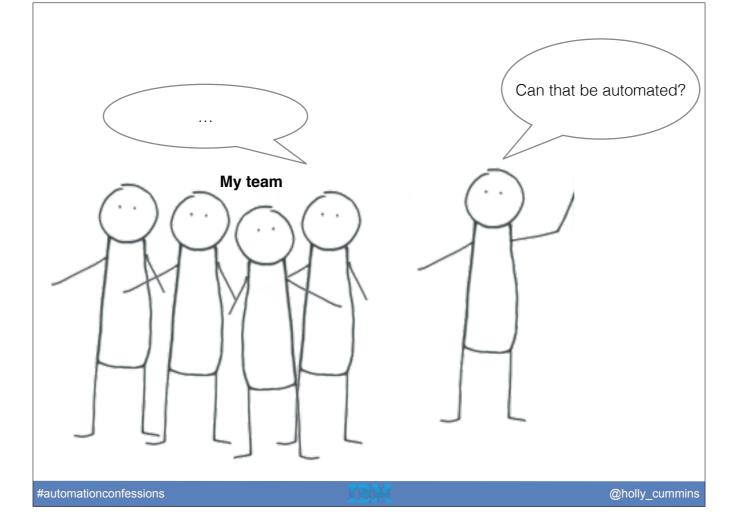
We all agree automation is good, but some do it more automatically than others.

I've never seen a thing I didn't want to automate. I'm always the one in our scrums who says "can that be automated?" whenever anyone else explains what they're doing.



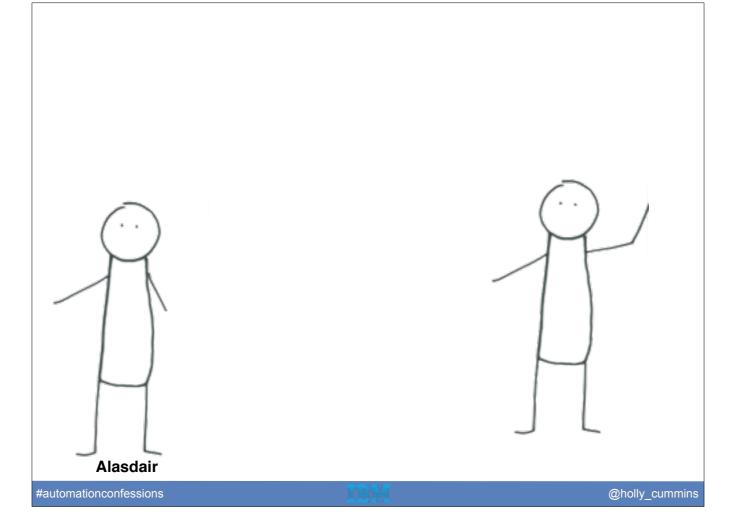
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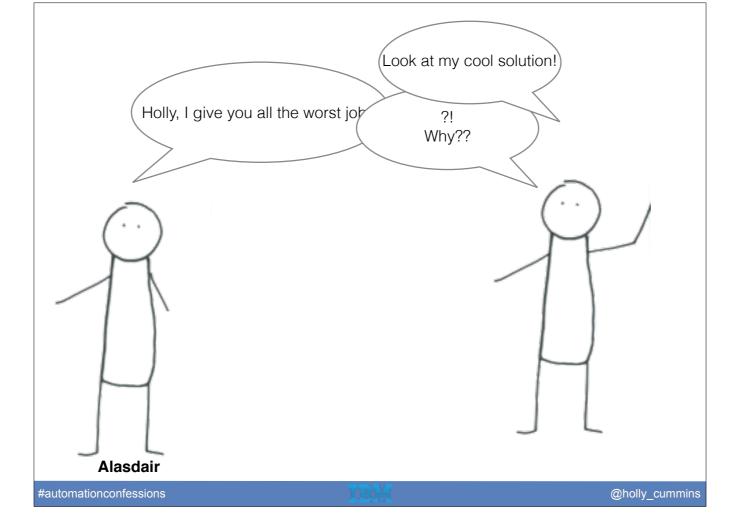
Aries reconsume - our customers expect iron-clad serviceability, so that means being able to rebuild several years down the line. We can't guarantee an external server will still be there so we need copies of source we ship. download tagged level of source tree, zip up, upload to filesystem, put link in to our builds, munge build labels, then build.



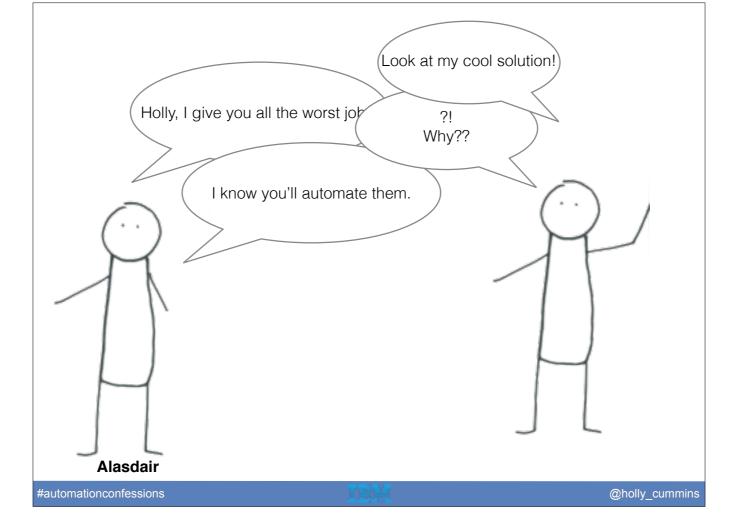
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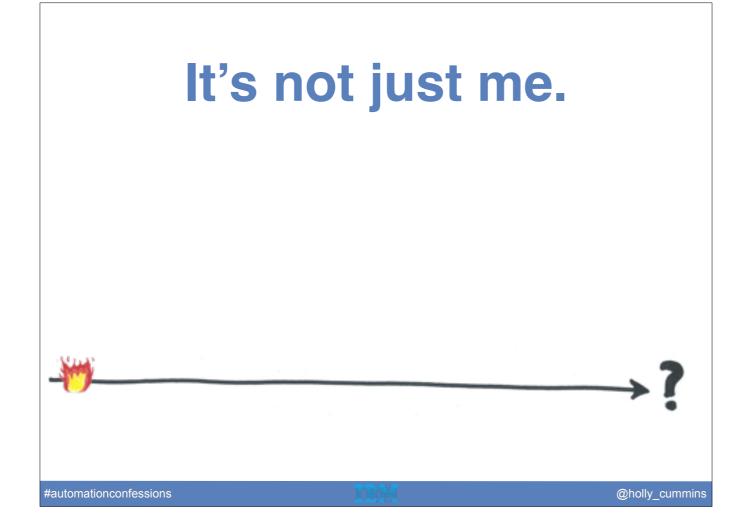
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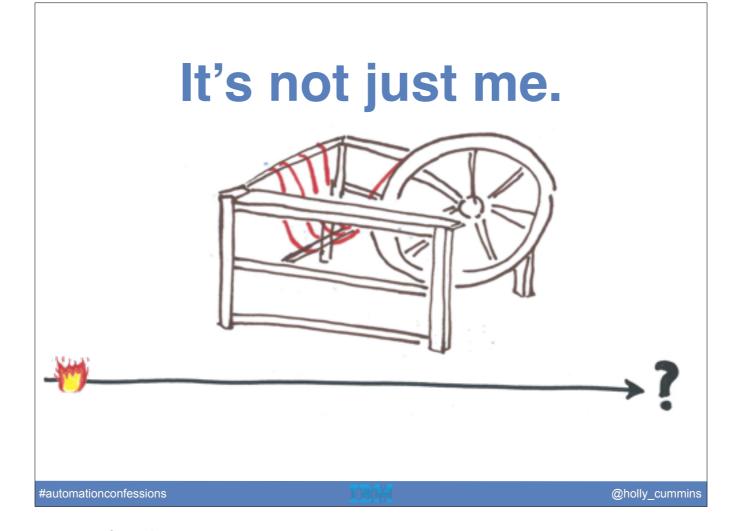


We're automating more and more ...

... because we need to do more and more

Devops trend

Chef

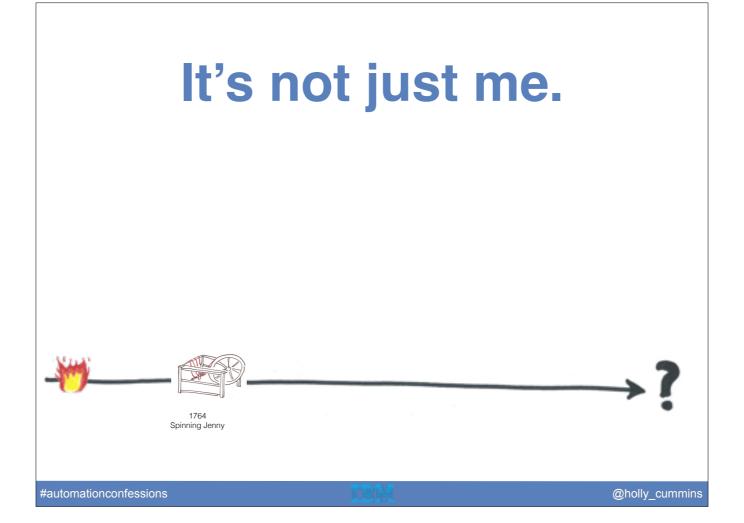


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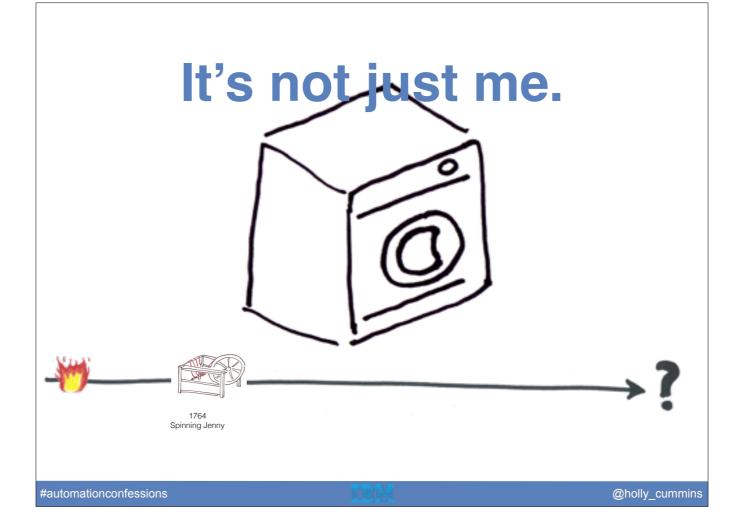


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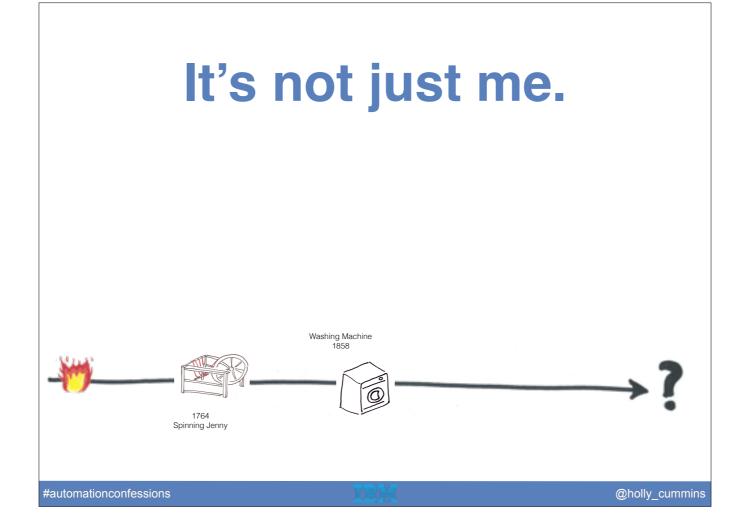


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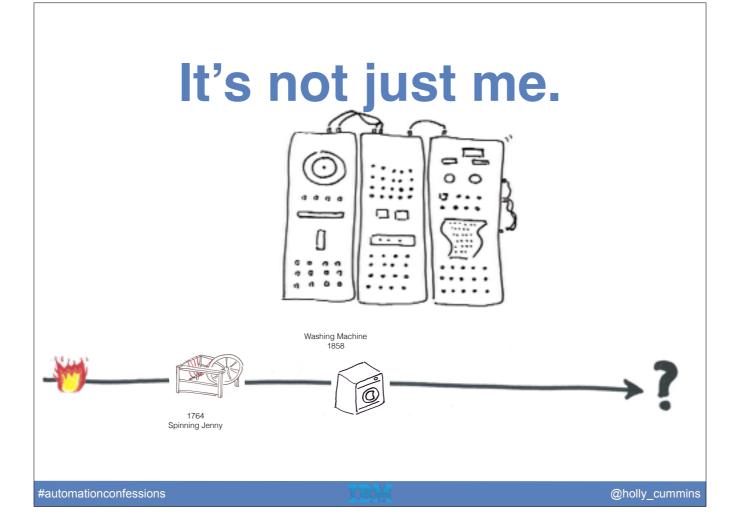


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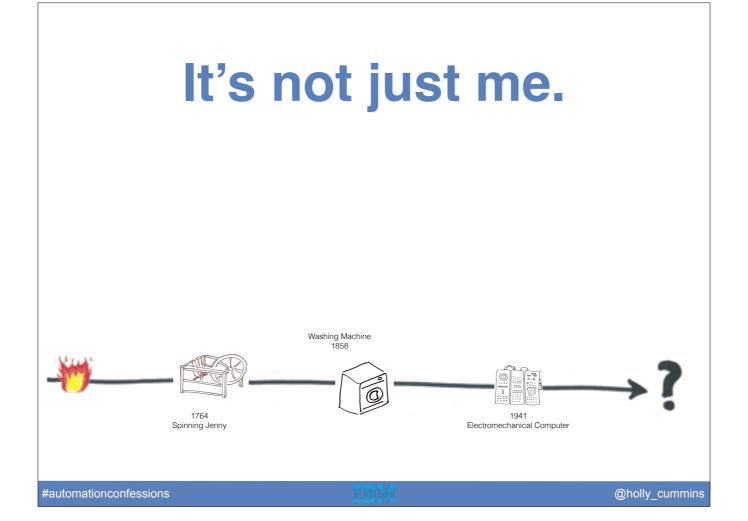


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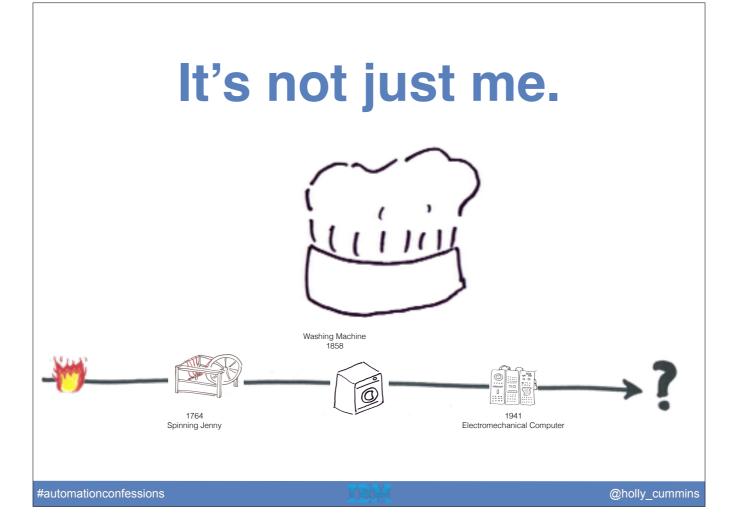


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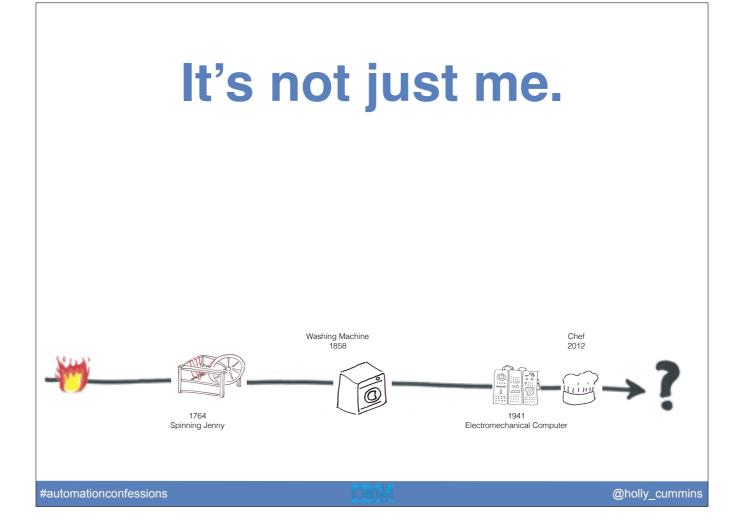


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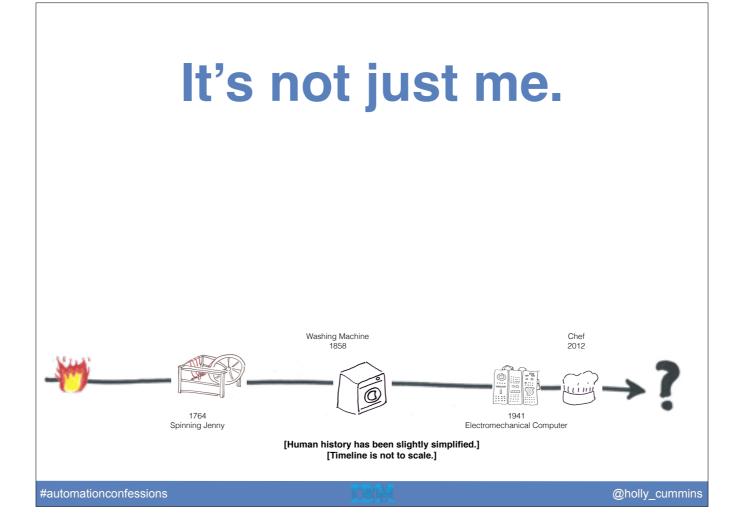


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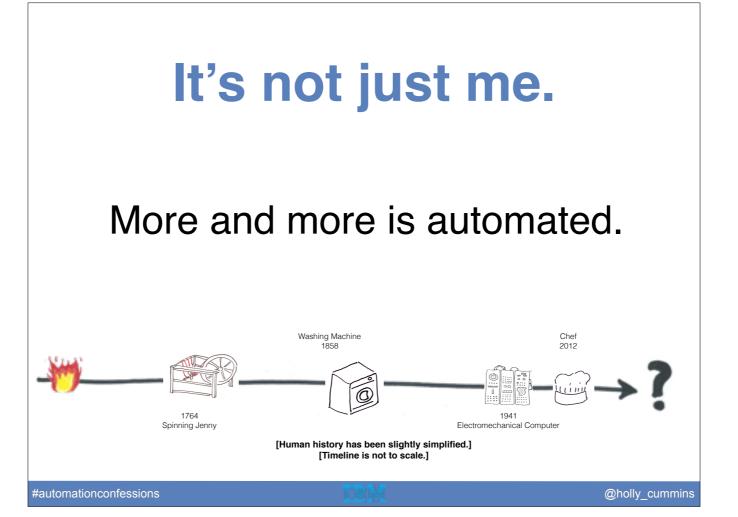


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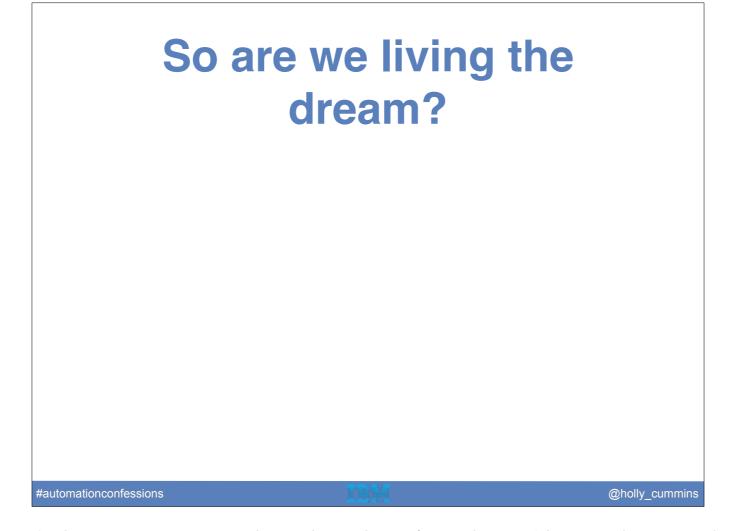


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Technology giveth, and technology taketh away. We've got machines doing things for us that couldn't even be comprehended in the 1700s. And yet, we still have to do tedious tasks. I sometimes suspect that the technology allows us to generate tedious tasks at a much greater level than was possible in the 1700s.

TODO Is there a cute cute for that, like to err is human to really foul things up takes a computer, or computers allow us to generate dull tasks at a faster rate than ever before?

## So are we living the dream?

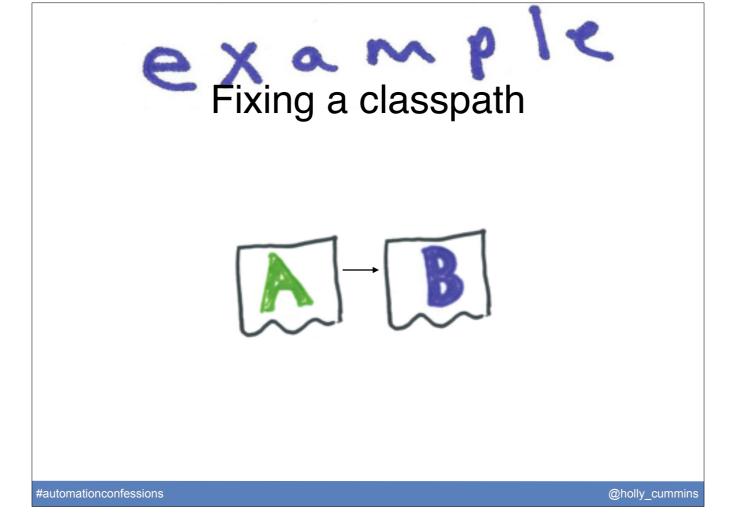
Well. Not quite.

#automationconfessions

@holly\_cummins

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We're an ant and Eclipse shop. We've got some clever stuff in our build which works out the right order in which to build projects from the Eclipse classpaths, and automatically adds the Eclipse .classpaths to the ant classpath. This ensures we don't have to write any dependency down twice, and updating a dependency is just a question of updating one .classpath.

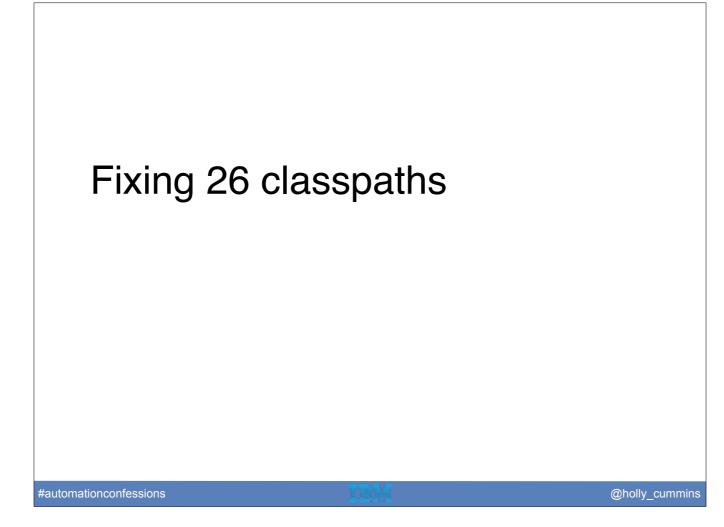


So far, so easy. But then we discovered we had 26 different copies of httpunit in the source tree.

Noticed it and thought "we have to fix this before it gets any worse," but it wasn't the kind of job that you mention in recruitment brochures. Job of correcting each class path was pretty tedious.

It's probably the sort of thing that would have benefited from automation with a sed script.

New twist: one line perl command, never wrote it down, can't find it with google

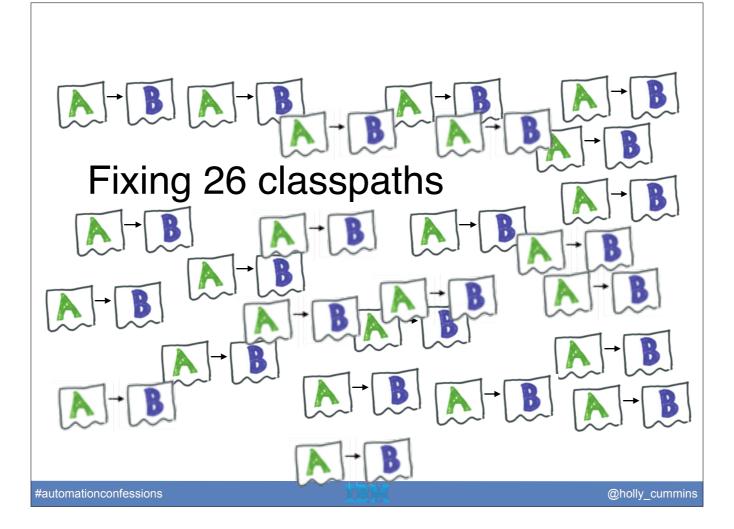


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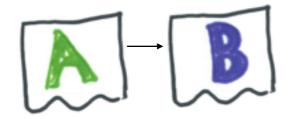
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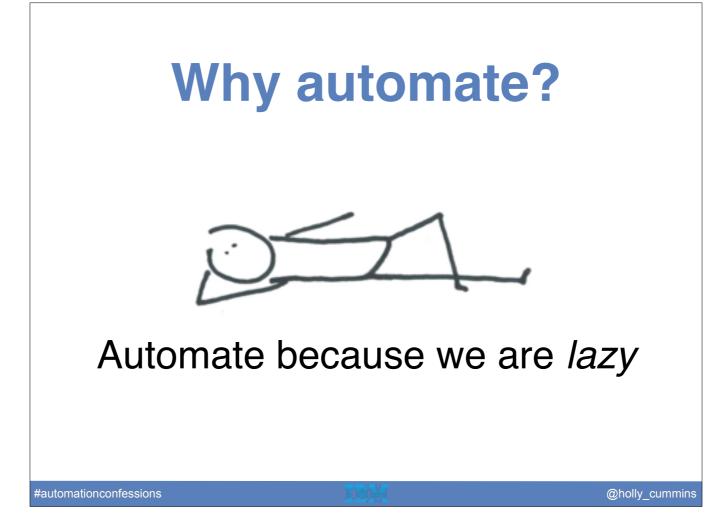
### Epilogue



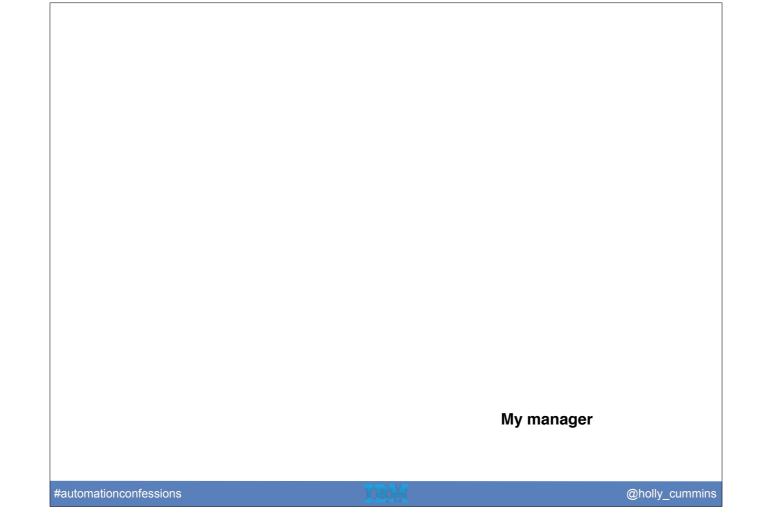
perl -pi -w -e 's/SEARCH\_FOR/REPLACE\_WITH/g;' \*.txt

#automationconfessions

@holly\_cummins



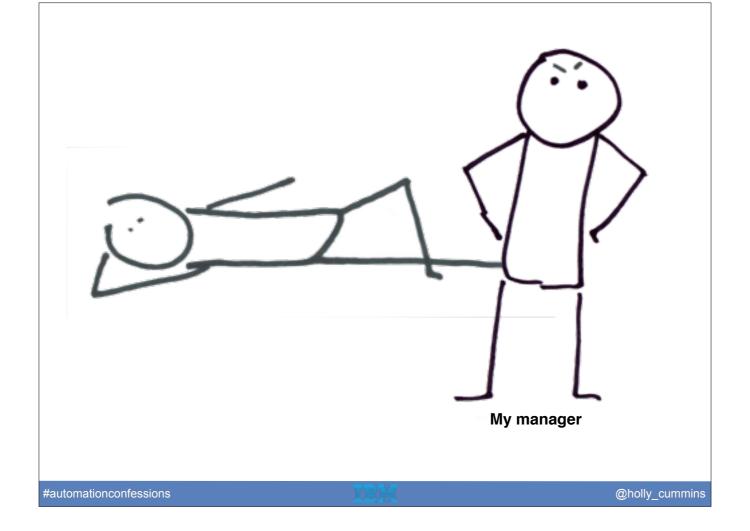
I think this story brings us nicely to the reason we automate. We automate because we don't want to be doing that. We automate because we are lazy.



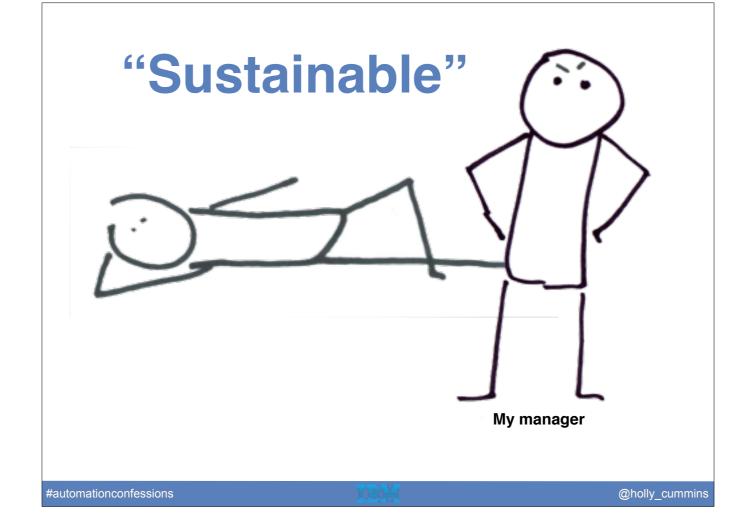
Telling my boss I'm lazy doesn't tend to give good end of year feedback.



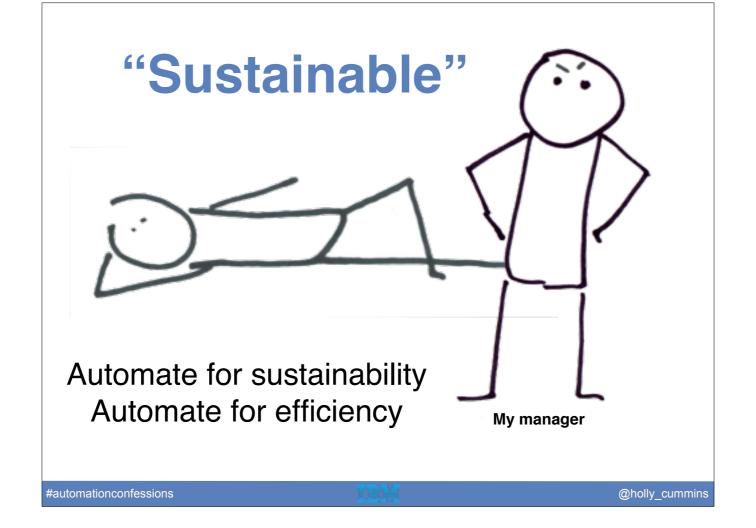
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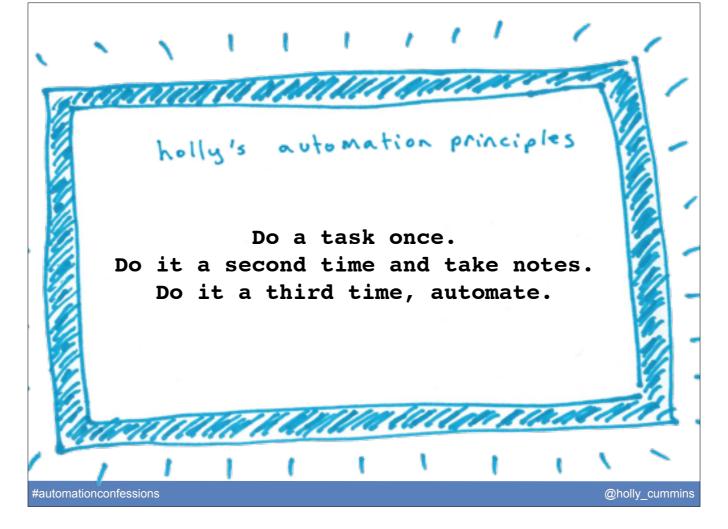
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TODO strike through for trent and holly

## Scale

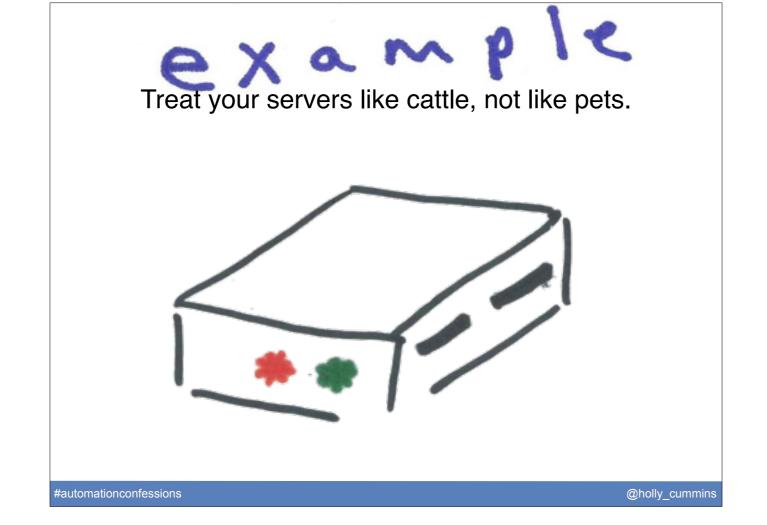
The more of you there are, the more it is worth investing in automation

#automationconfessions

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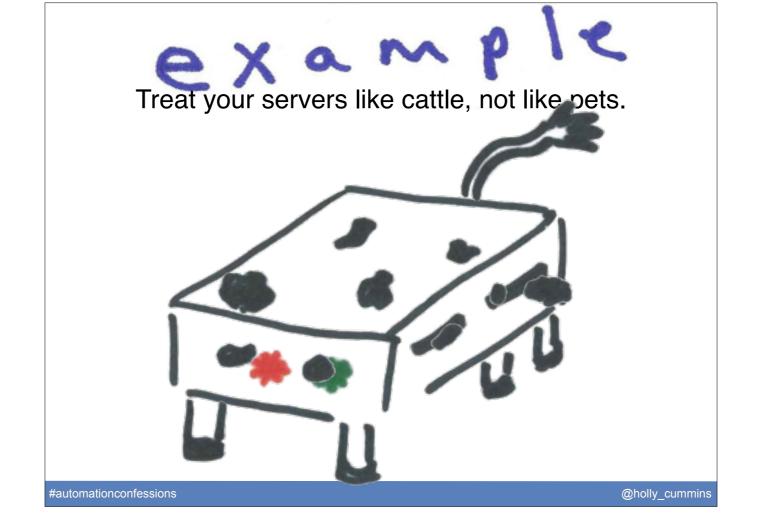
When you're operating at scale, it's very easy to trip the three times rule

Going back to the class path story, the reason that was a problem was that 26 different developers had had the idea of checking in that jar - if it had been one or two, would have been easy to fix.



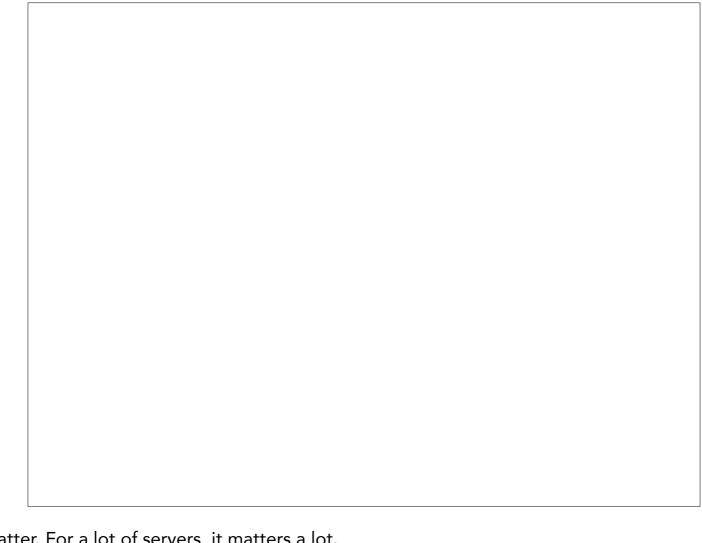
## Treat your

this has some interactions with robustness, too



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this has some interactions with robustness, too



For one server, it doesn't really matter. For a lot of servers, it matters a lot.

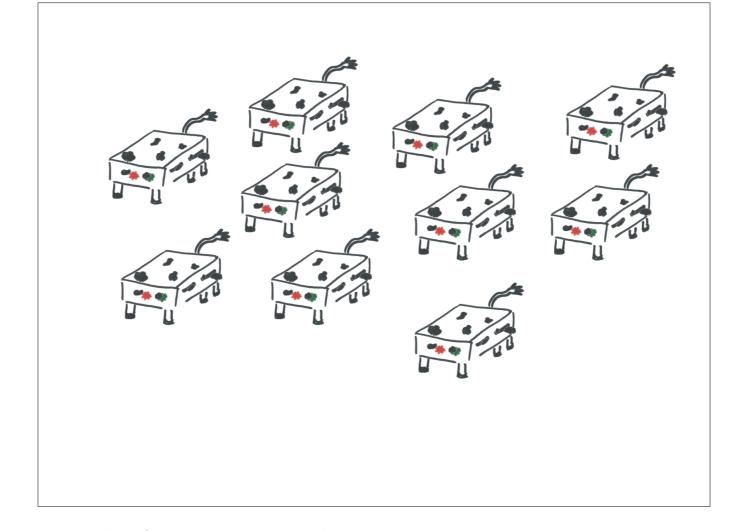
Our build farm is 500 servers, so I'm not going to illustrate that.

It matters when you're setting them up, and it matters more when they go wrong.

If they're not unique or special, you can cope with ones going away - you just get a replacement back.

So it's about scale, but also about managing failure.

There's another benefit to this way of managing servers, which is that you know servers won't end up misconfigured. We have a lot of build servers, and when we set up them up by hand, there's always some niggling thing which is wrong.



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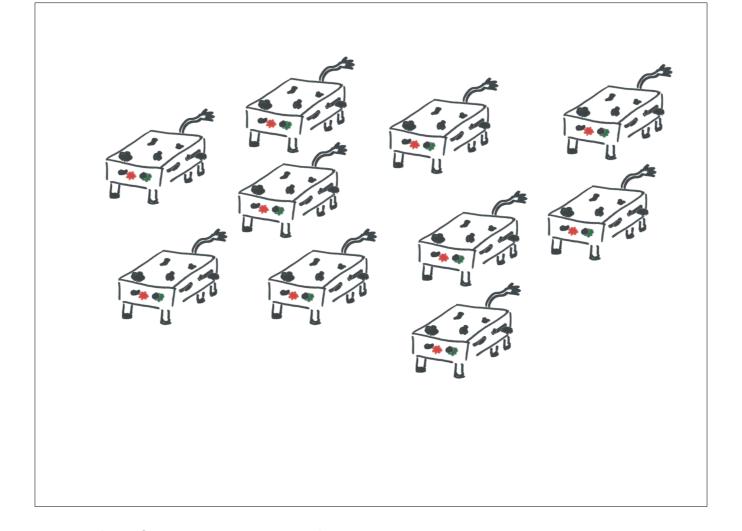
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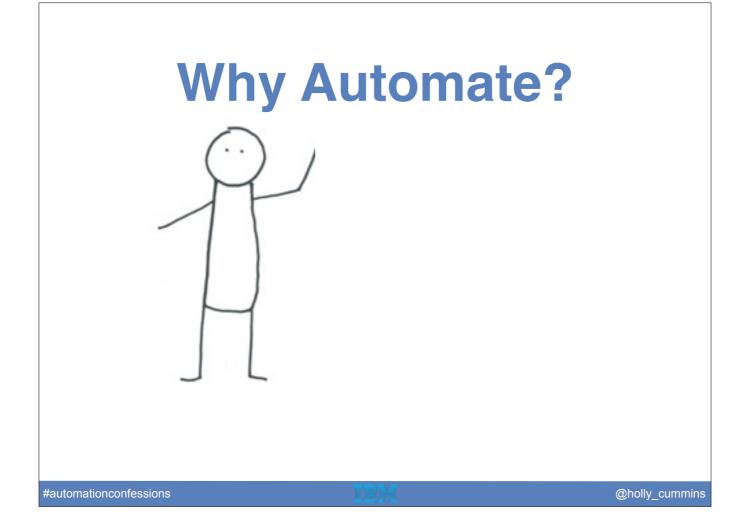
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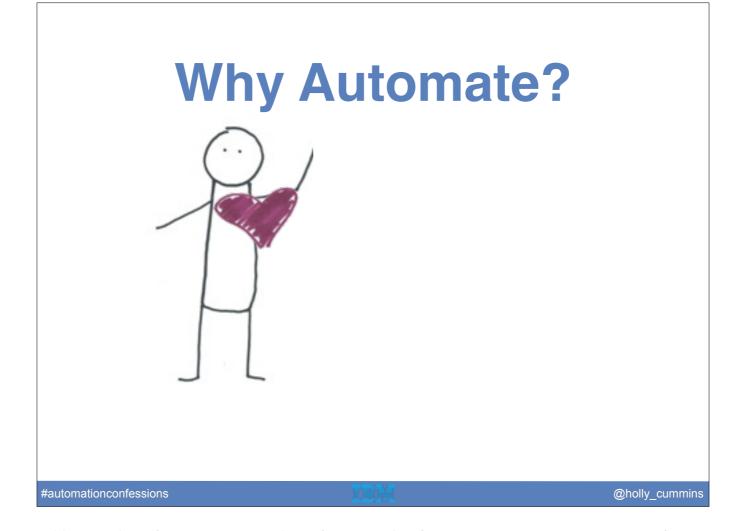
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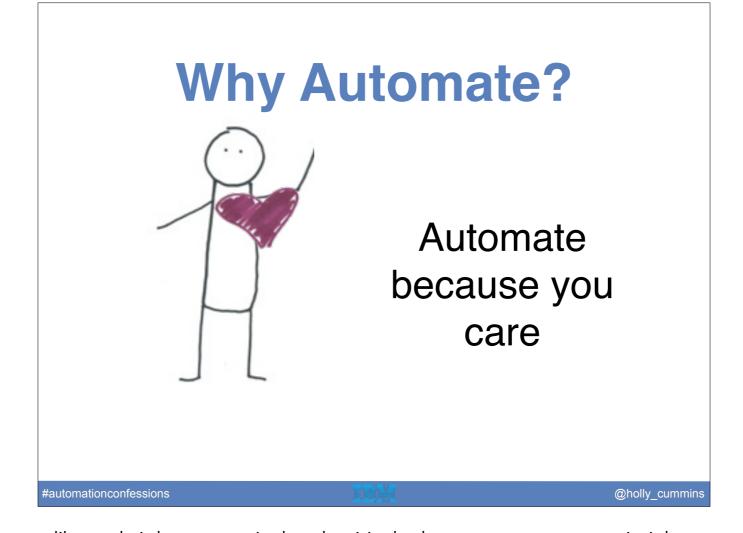
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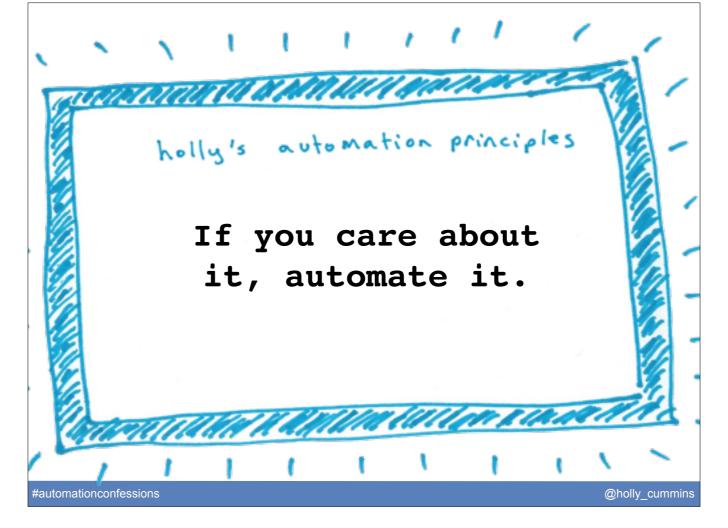
Part of the reason we treat our servers like cattle is because we're lazy, but it's also because we want to get it right



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Principle: If you care about it, automate it. if take one thing away, make it this one





@holly\_cummins

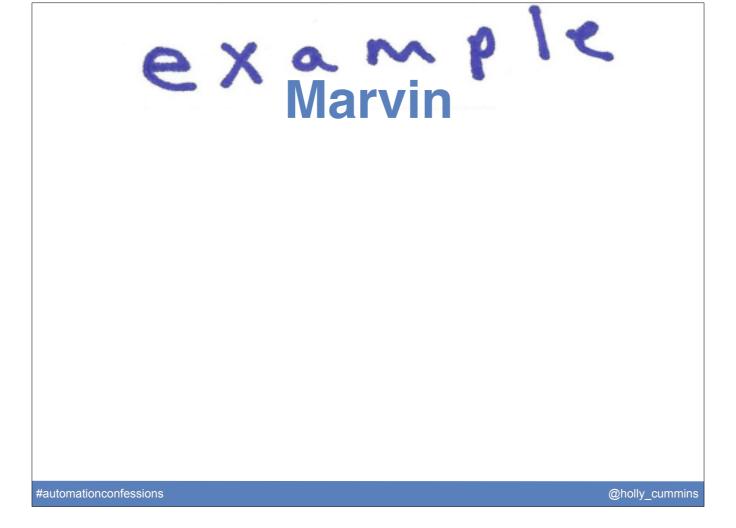
## Why Automate?



Automate because you care that it happens at all

#automationconfessions

@holly\_cummins





 Build breaks (including test failures) should be reverted from the stream

#automationconfessions

@holly\_cummins



- Build breaks (including test failures) should be reverted from the stream
- No one wanted to be the one who did it

@holly\_cummins



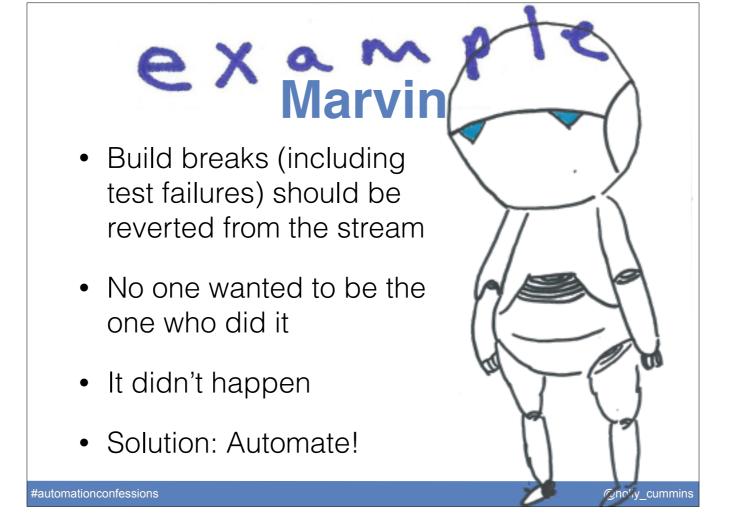
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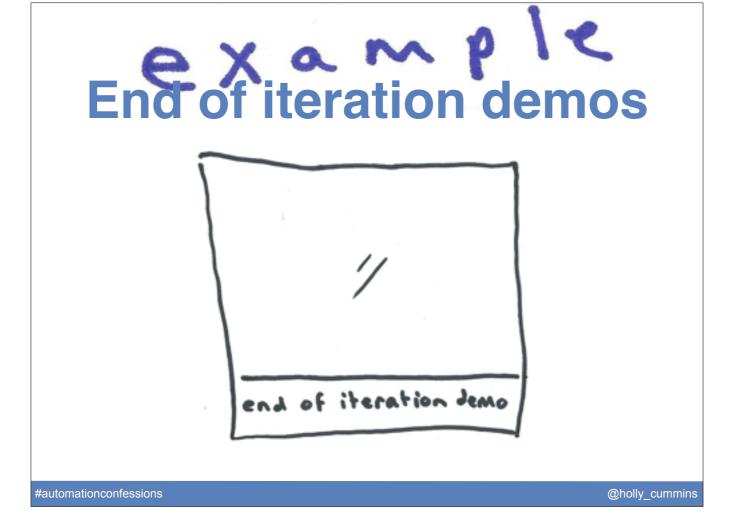
@holly\_cummins



- Build breaks (including test failures) should be reverted from the stream
- No one wanted to be the one who did it
- It didn't happen
- Solution: Automate!

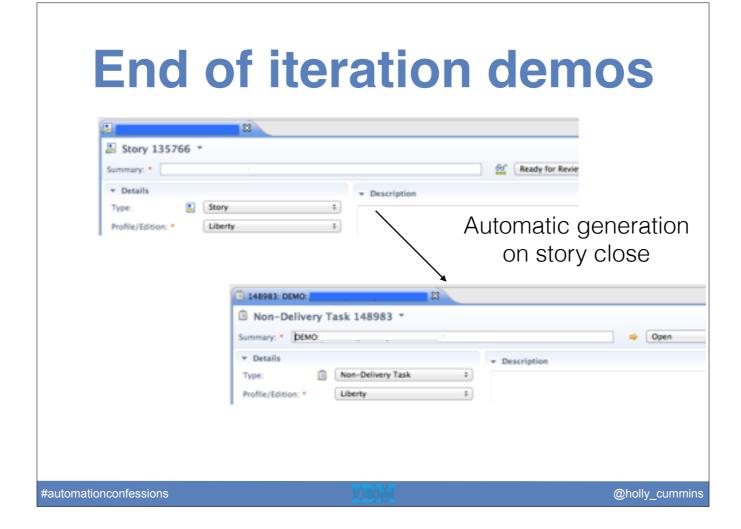
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Example - end of iteration demos, some people loved doing them and some people ignored them. At the kind of scale we're working on, we were relying on people to volunteer to do them, and so a lot of stories were missing being demoed.

This picture, by the way, is showing a whiteboard with someone not doing an end of iteration demo, but that's kind of hard to draw.



So we put in an automation, and changed RTC to automatically spawn a work item for an end of iteration demo when we close a story, got way more stories.

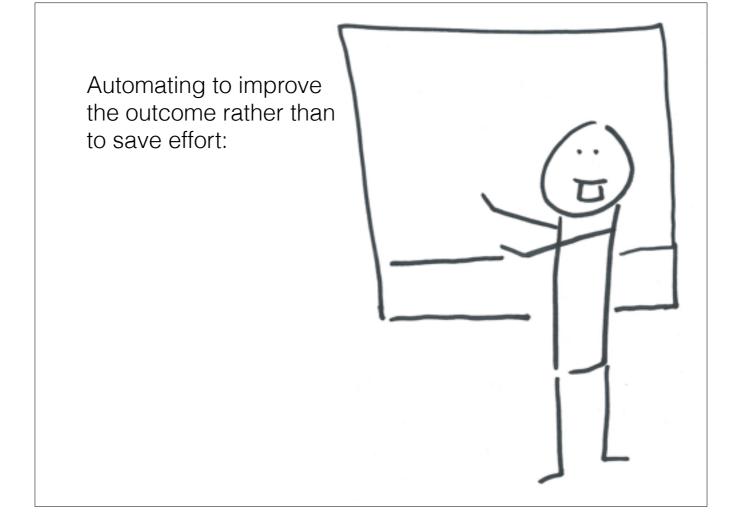
This is an example of a really simple automation - the only thing that's happening is a work item.



Not all success stories here, our iterations should exit with no must defects but doesn't ever happen because it's only an assertion Defect management

We shouldn't exit an iteration with any must-fix defects.

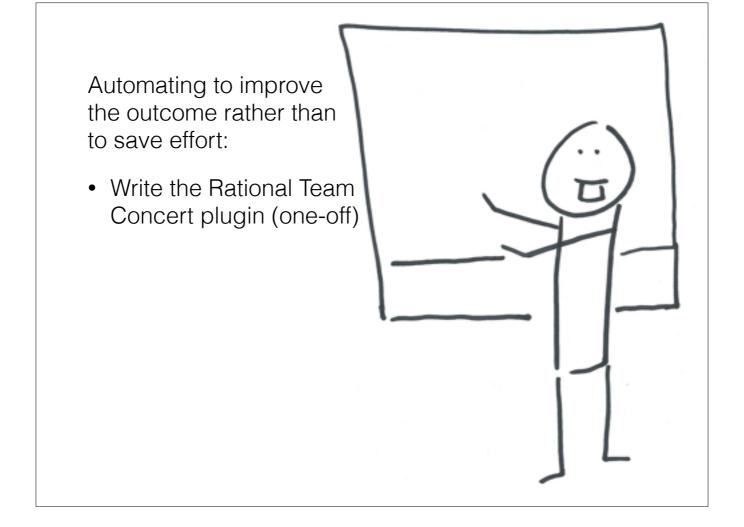
Priority inflation, scaling, we do exit, because nothing in our process forces that step



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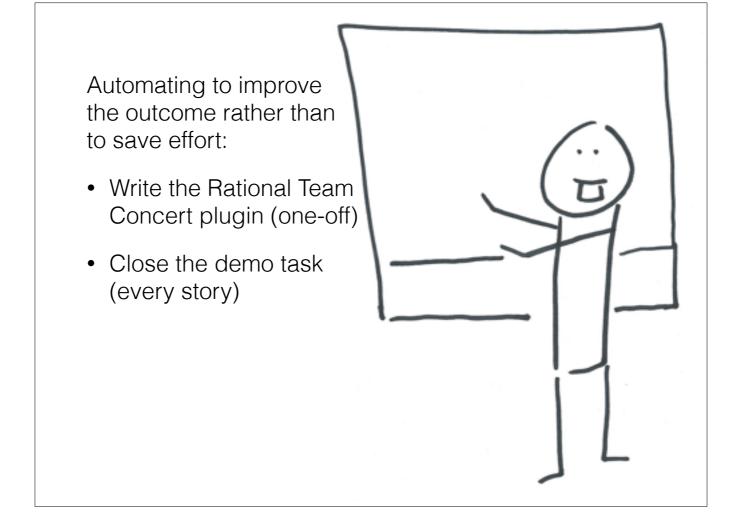
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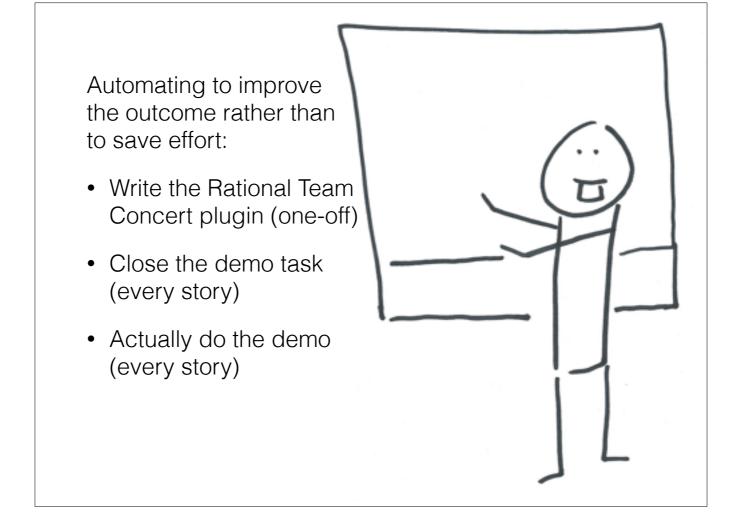
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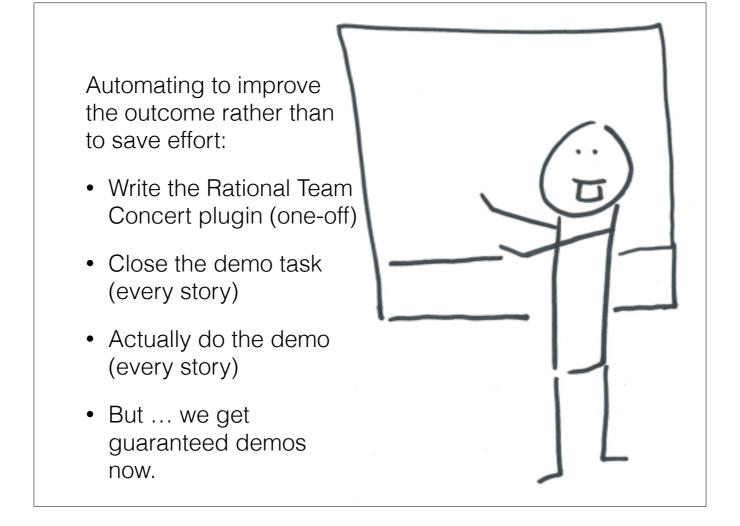
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@holly\_cummins

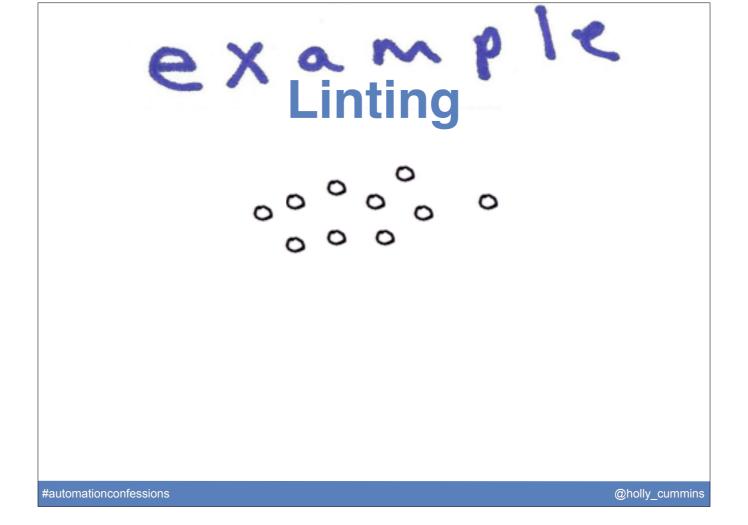
## Why Automate?



Automate because you care that it's done right

#automationconfessions

@holly\_cummins



If a find bugs failure gets delivered, marvin automatically backs it out

Findbugs, js linting

Other examples:

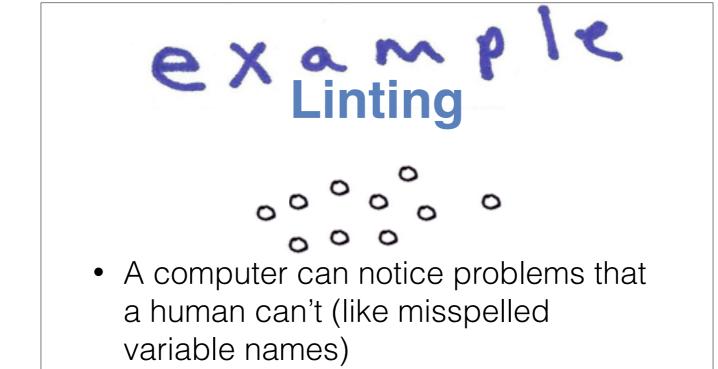
Suspending changesets

Semantic versioning

Release deployments can be unexpectedly complex, easy to forget one step

TODO where does this fit?

ie our build monitoring - A skilled person can do it better than a machine. An unskilled person will do it worse than a machine.



@holly\_cummins

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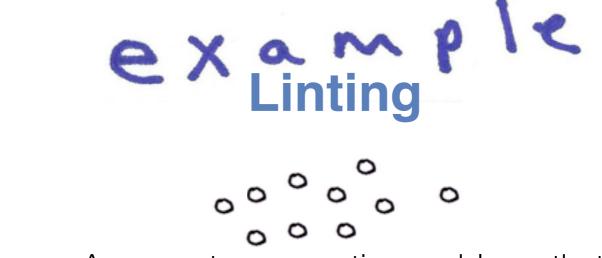
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TODO where does this fit?

ie our build monitoring - A skilled person can do it better than a machine. An unskilled person will do it worse than a machine.



- A computer can notice problems that a human can't (like misspelled variable names)
- We love findbugs

@holly\_cummins

If a find bugs failure gets delivered, marvin automatically backs it out

Findbugs, js linting

Other examples:

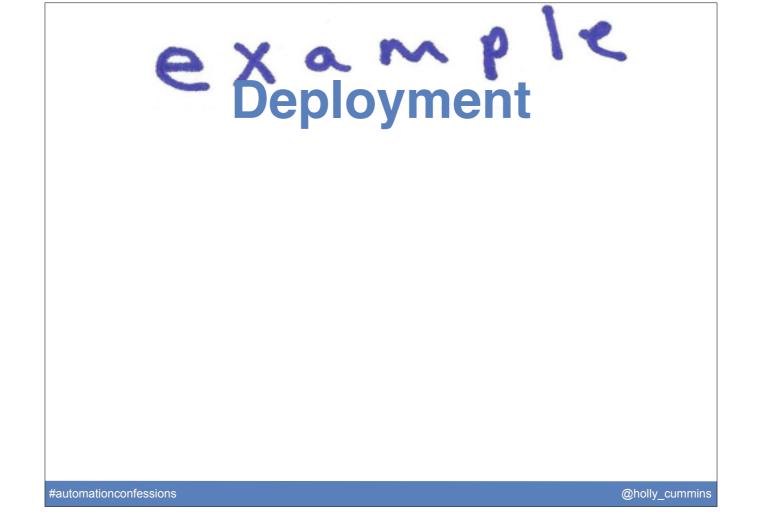
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#### Suspending changesets

Release deployments can be unexpectedly complex, easy to forget one step



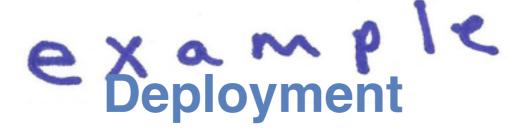
• Should be easy, right?

#automationconfessions

@holly\_cummins

Suspending changesets

Release deployments can be unexpectedly complex, easy to forget one step

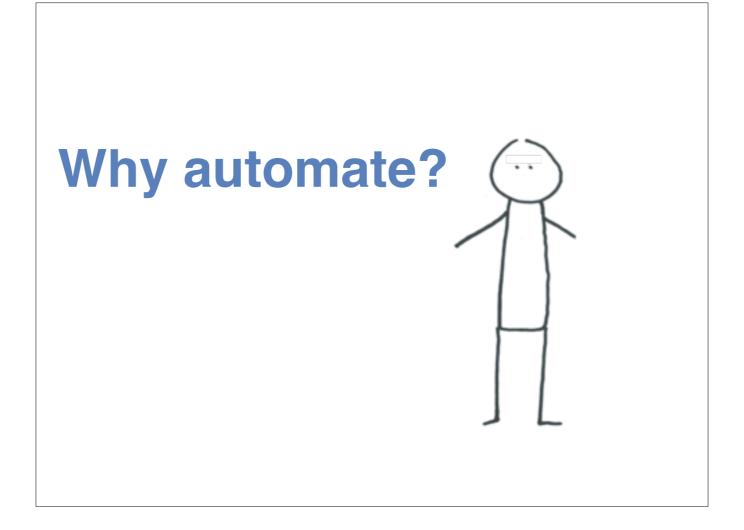


- Should be easy, right?
- Always one step that gets forgotten ...

@holly cummins

Suspending changesets

Release deployments can be unexpectedly complex, easy to forget one step

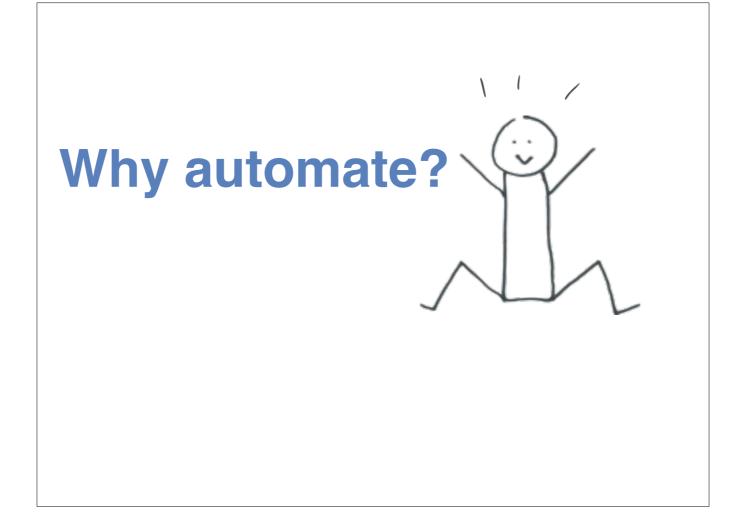


This is another one that I don't put in my performance appraisals.

I didn't want to leave it out, though, because it's really true, and this talk is all about confessions.

It's maybe not a *good* reason to automate, but it does happen.

If you're thinking about how interesting the problem is, rather than the long term picture, that's maybe a red flag It's maybe not the best use of your time and your employer's time

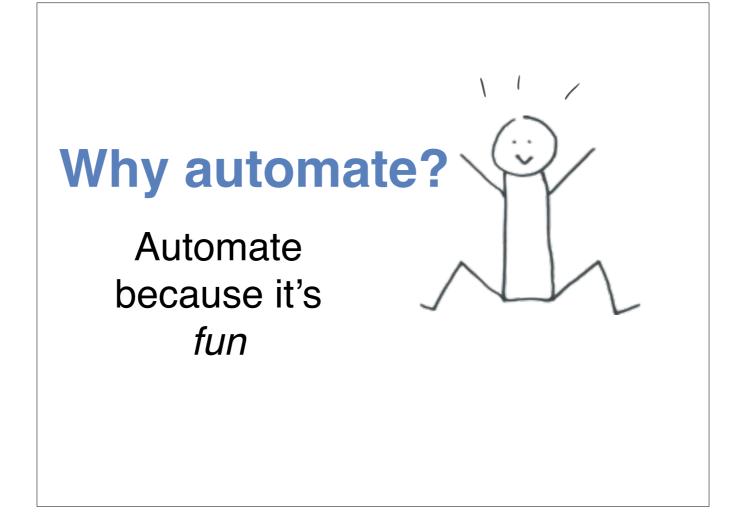


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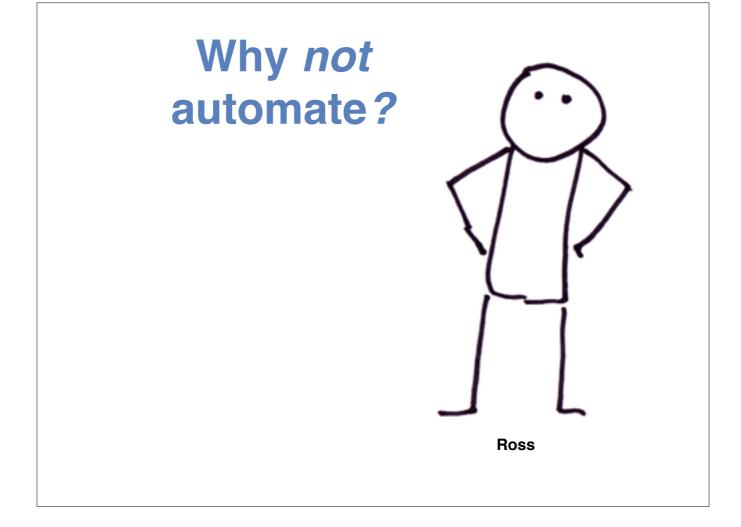


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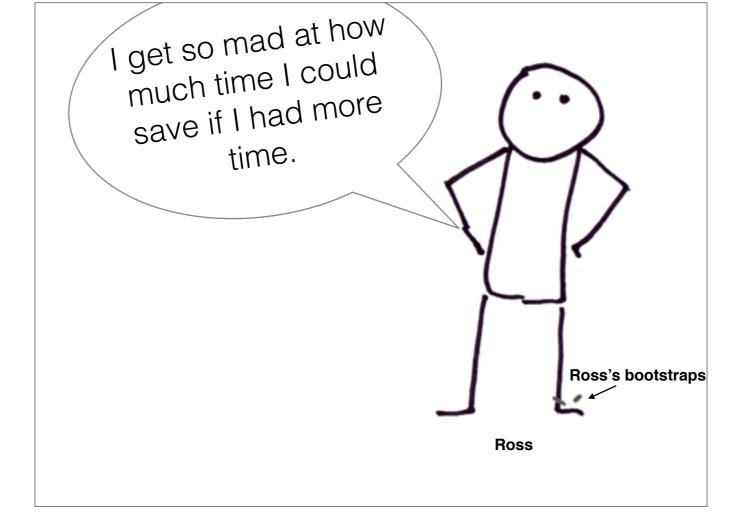
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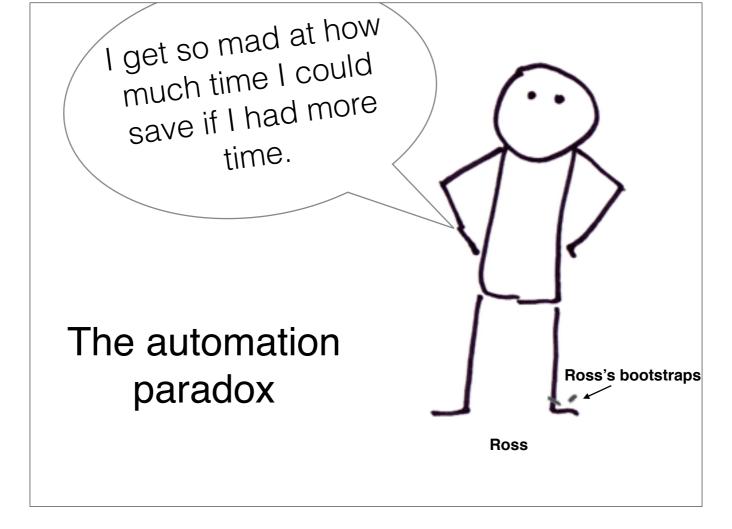
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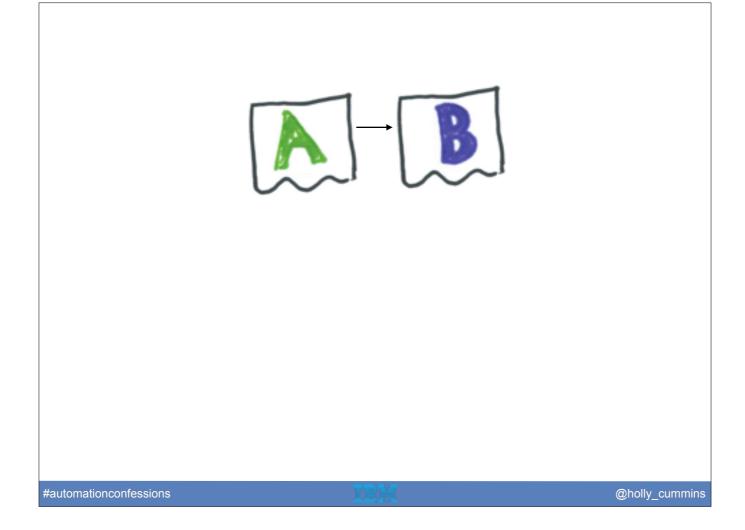
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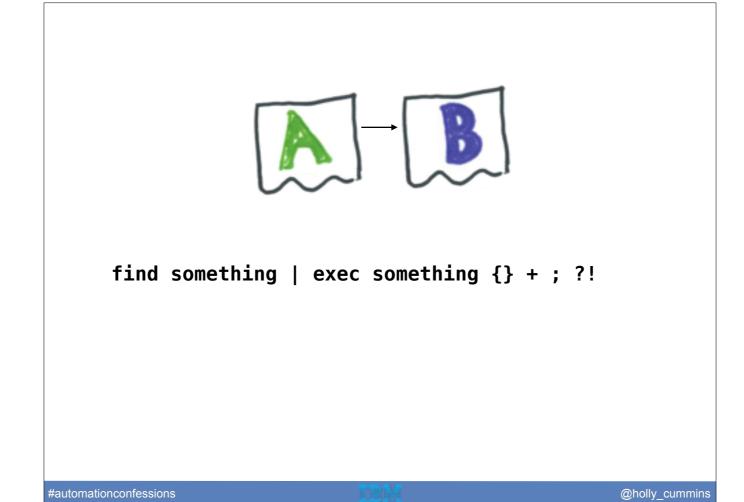


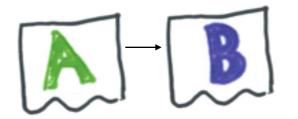






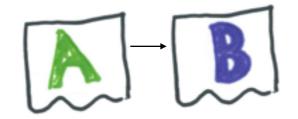






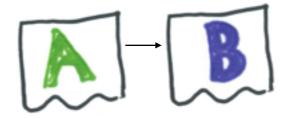
```
find something | exec something {} + ; ?!
for ... then sed something; mv $i.bak $i; ... ?
```

@holly\_cummins



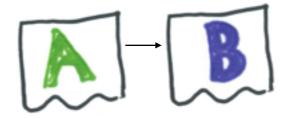
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sedder.sh and dosed.sh and ... ?
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@holly\_cummins



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find something | exec something {} + ; ?!
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sedder.sh and dosed.sh and ... ?
perl ... um .. something *.txt?
```

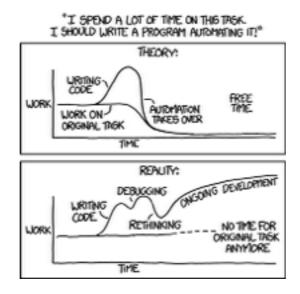
@holly\_cummins



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@holly\_cummins

#### Why not automate



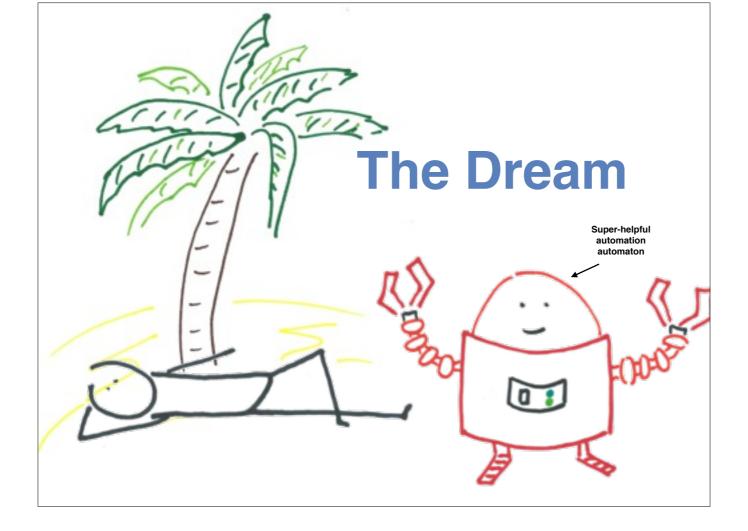
thanks (for everything!), xkcd.com

I saw this on a colleague's wall, and I just felt this sinking feeling as I recognised so many projects I'd worked on.



TODO make robot be juggling

Automation can be a good friend



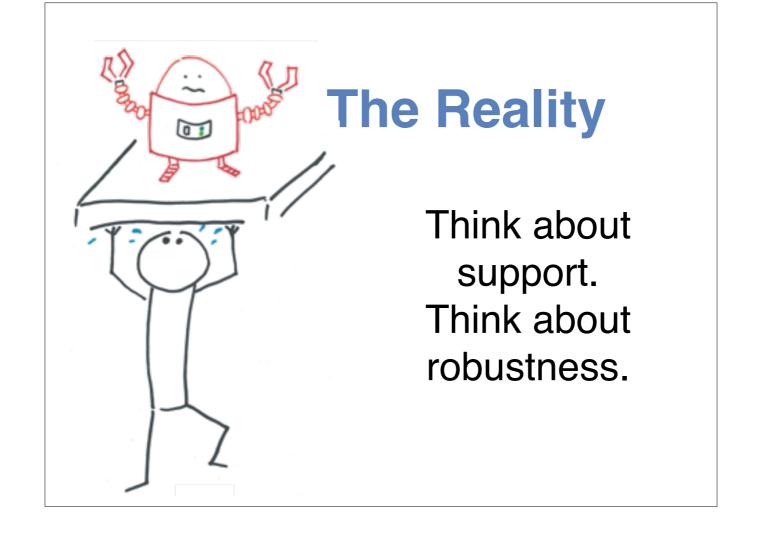
TODO make robot be juggling

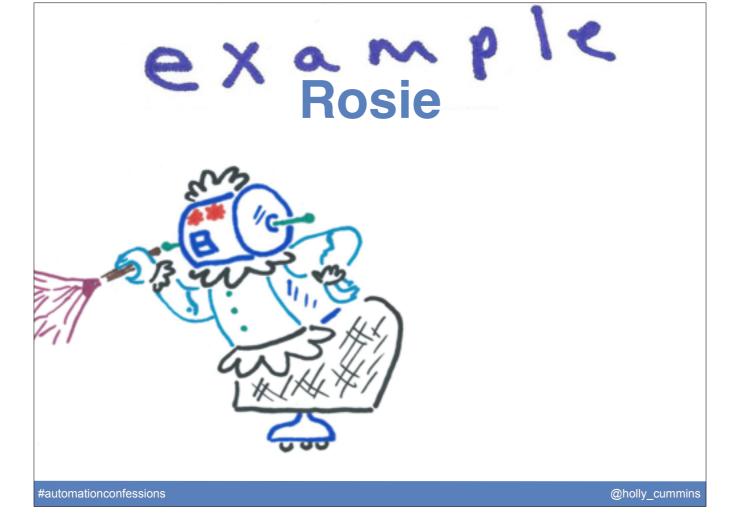
Automation can be a good friend











Move to CD makes it way simpler externally, more complex internally

Right way, right?

TODO example logo

Key points:

Scale of team doing deliveries, some basic process things like "did you do a sandbox build"? "are you using the right kind of work item"? get lost. Tool to replace unsustainable - there's that word again! - process of manual approvals, and guide team through process.

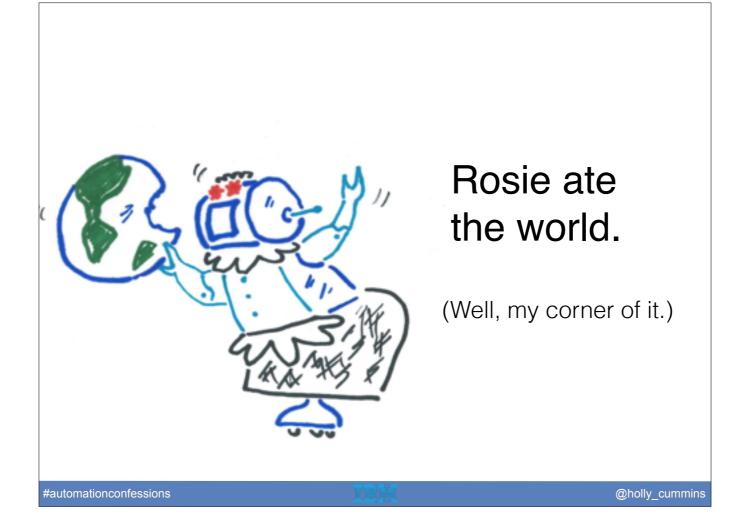


Rosie ate the world.

Total time sink, one of us, then two of us, then three of us, all our other development stopped.

A bit like don't fight a land war in asia. Don't do automations which involve javascript.

Or at least, be very cautious of automations with user interfaces.



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#automationconfessions

• Who can maintain this automation?

#automationconfessions

- Who can maintain this automation?
- Who can manage this automation?

#automationconfessions

- Who can maintain this automation?
- Who can manage this automation?
- Will it be robust? What if things change?

#automationconfessions

- Who can maintain this automation?
- Who can manage this automation?
- Will it be robust? What if things change?
- How much will it cost?

#automationconfessions

@holly cummir

#### **Checkpoint during**automation

#automationconfessions

#### **Checkpoint during**automation

• How do I define success?

#automationconfessions

#### Checkpoint during automation

- How do I define success?
- Have I got completion criteria?

#automationconfessions

# **Checkpoint during** automation

- How do I define success?
- Have I got completion criteria?
- Is this still worth it?

#automationconfessions

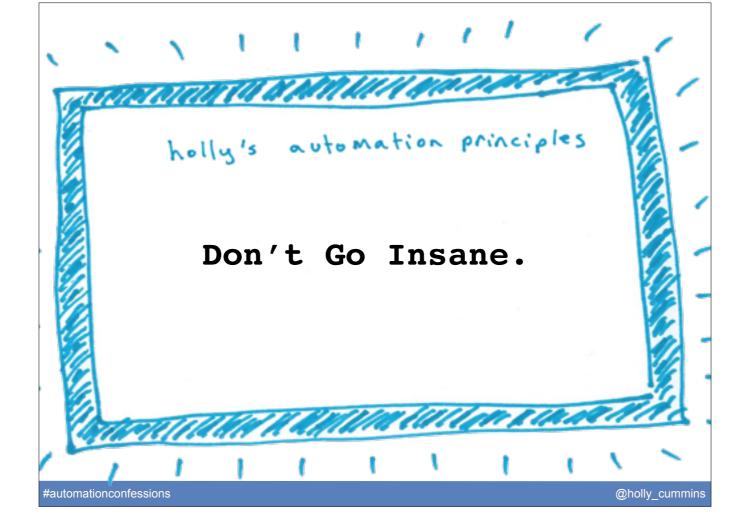
@holly\_cummins

# Checkpoint during automation

- How do I define success?
- Have I got completion criteria?
- Is this still worth it?
- Am I still saving time?

#automationconfessions

@holly\_cummins



Keep your sense of proportion.

Before - and during automating, checkpoint regularly to make sure the cost is still acceptable.



Example - my automation to reconsume Aries, rest of team scared to touch it and it breaks every now and then

#### Remember the bus

A clever automation isn't so clever if only one person understands it...

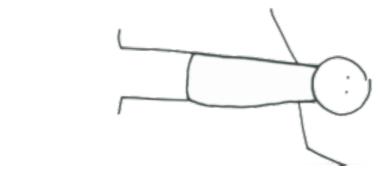
#automationconfessions

@holly\_cumming

Example - my automation to reconsume Aries, rest of team scared to touch it and it breaks every now and then

#### Remember the bus

A clever automation isn't so clever if only one person understands it... ... and they get hit by a bus.



#automationconfessions

@holly cummins

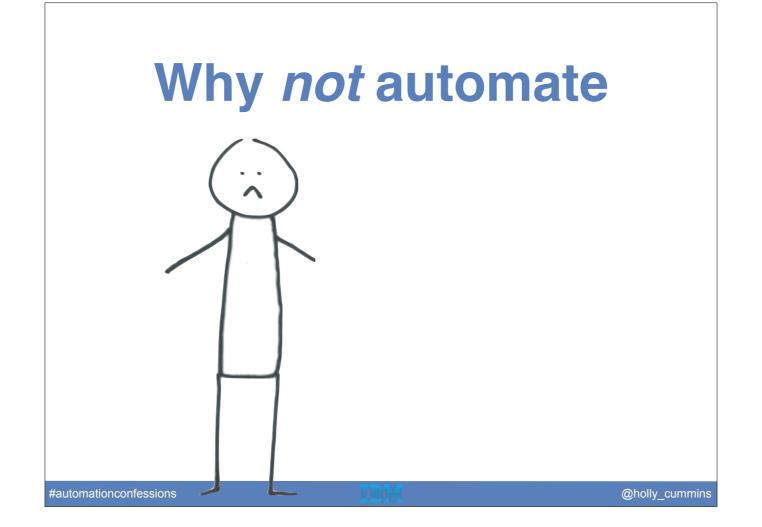
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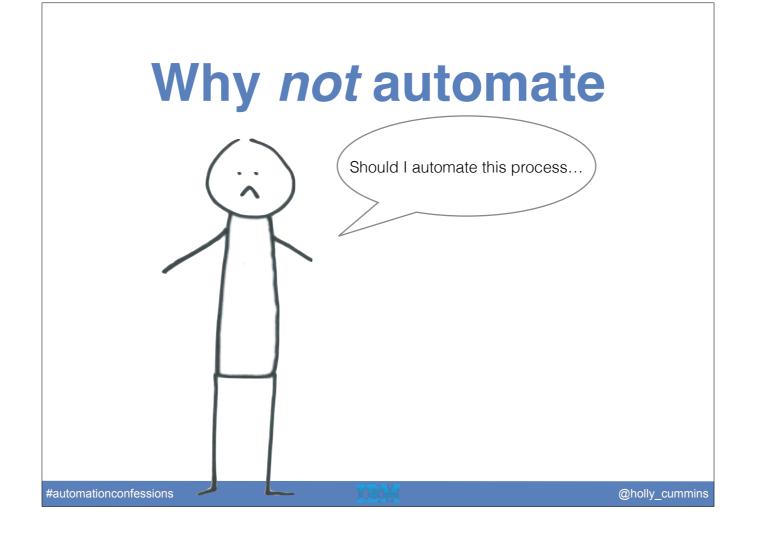


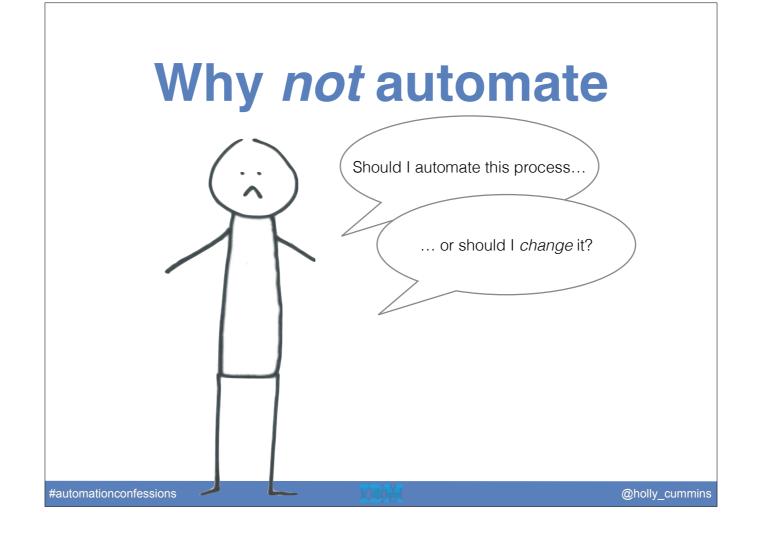
Dan North has Conan the deployer.

Rosie maid from Jetsons

So, no matter how much you checkpoint, some automations will be big. So This one is important. If this thing is going to take over your life, it better have a name, right? So you can say to your boss "I was up until midnight working on Rosie last night ..."









TODO can we come up with an example? Is server setup vs EBC an example?

TODO, want to talk more about Process - Is it always bad?
A structure for how to interact at scale
(credit, JavaPosse somewhere)

# The dumbness problem

It's dumb to automate dumb things

TODO can we come up with an example? Is server setup vs EBC an example?

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A structure for how to interact at scale
(credit, JavaPosse somewhere)

## The dumbness problem

- It's dumb to automate dumb things
- Automation allows you to do dumb things at a greater speed

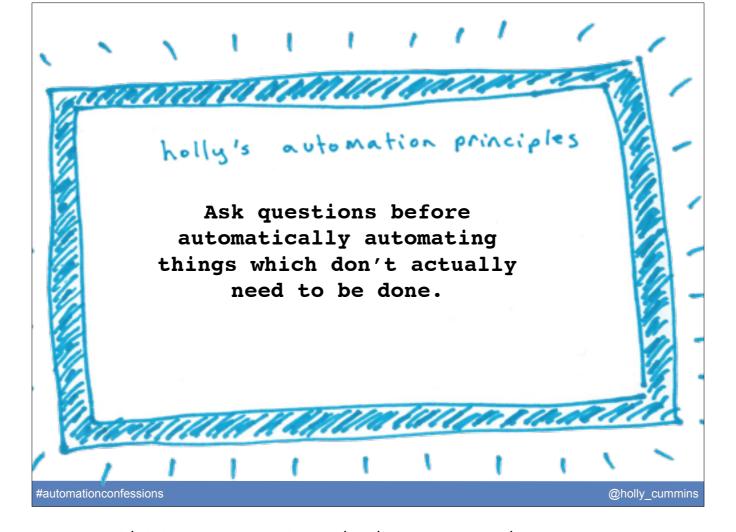
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A structure for how to interact at scale
(credit, JavaPosse somewhere)

e X o Defect	screening
Functional Area. * Severity: * Priority: Tags:	Roslie a Unassigned Must Should Could Can't
#automationconfessions	@holly_cummins

We screen defects daily to manually set a priority, and takes time, and isn't anyone's favourite activity.

Someone asked if we could automate it, and just automatically set them to should, which is what we usually end up settling on. Technically, we could, but is it the right thing to do? If the priority field doesn't have value, we shouldn't have it.



If a process is so painful the only way to cope with it is to automate it, maybe the process needs to go away.

The other way of phrasing this is "don't automate if you don't care"

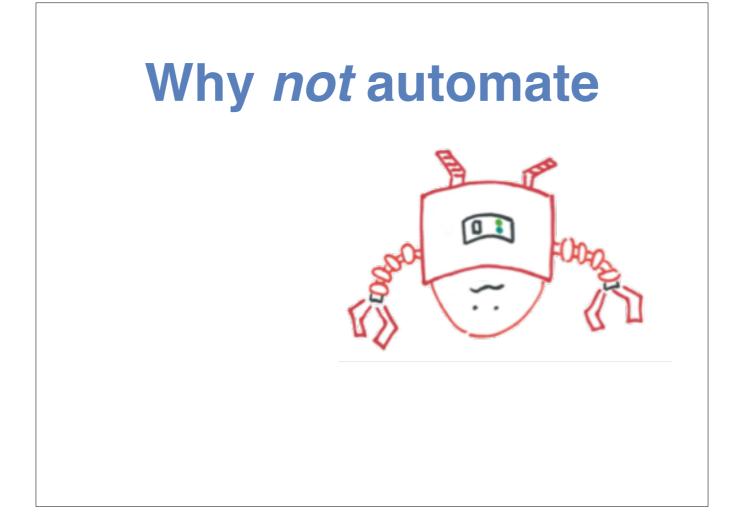


Lovely video on youtube of robot trying to feed a mannequin but instead repeatedly punching it in the face.

Some jobs are too hard for computers, either because they don't have intuition, or because the rules are too complex to be able to turn into an algorithm.

Some things, like deployment, computers are way better at

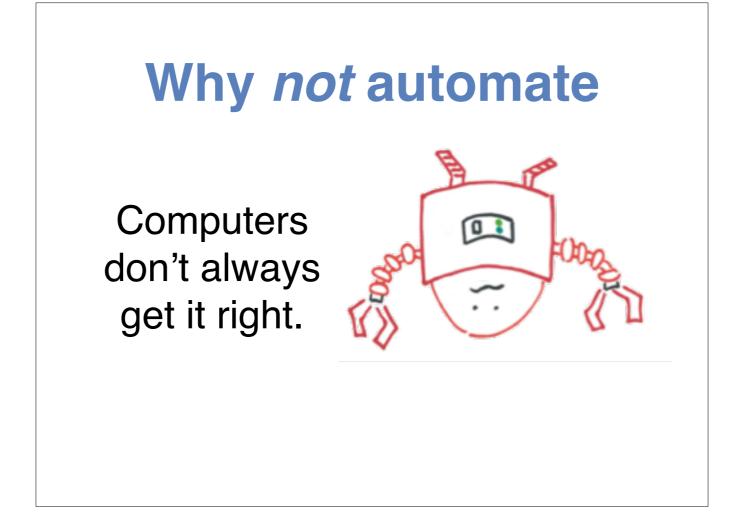
Others, computers can be worse at



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Others, computers can be worse at

<b>Build</b> r	nonitoring	
Compiles		
Name  Eq. toulid.example.project_test	Copy Filename 20C  Find Similar Work Items Create Work Item	
tomationconfessions		@holly_cumn

#### TODO example graphic

TODO screenshot of RTC build monitoring, lucene similarity search

What caused a failure?

If we could write a program to know, we could write a program that didn't fail

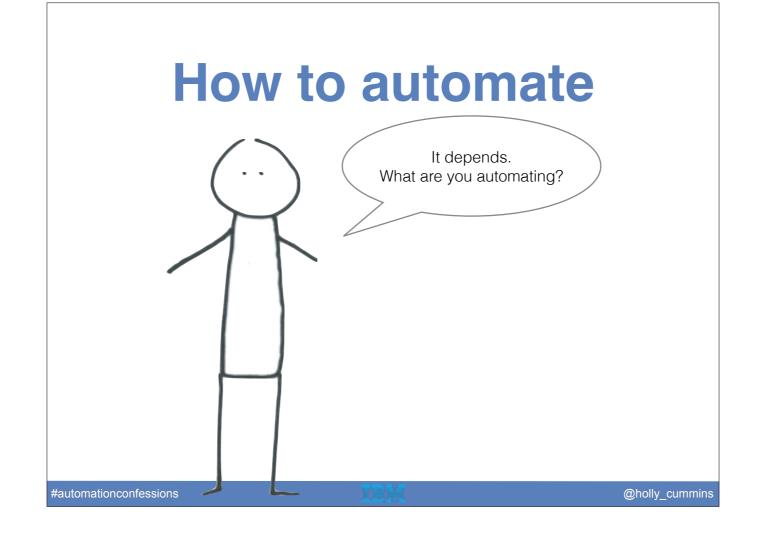
Need 100% accuracy

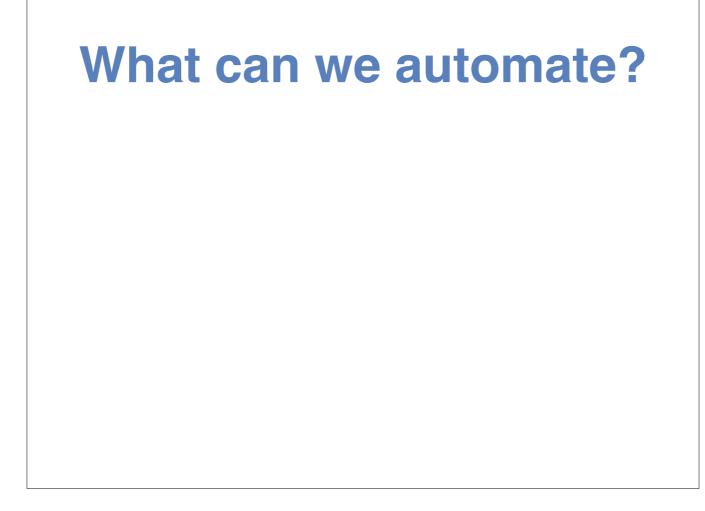
**Need** intuition

## How to automate

#automationconfessions

@holly\_cummins





IANAL, but need to care, which means a computer can help with 'did you forget this?' but the actual maintenance of the statements should be done by a person

Machine configuration

IANAL, but need to care, which means a computer can help with 'did you forget this?' but the actual maintenance of the statements should be done by a person

- Machine configuration
- Deployments

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- Machine configuration
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- Test environments

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```
infra.buildtasks (holly's rosie workspace – build.ant18)

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```

Project settings Code formatting

•••

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src

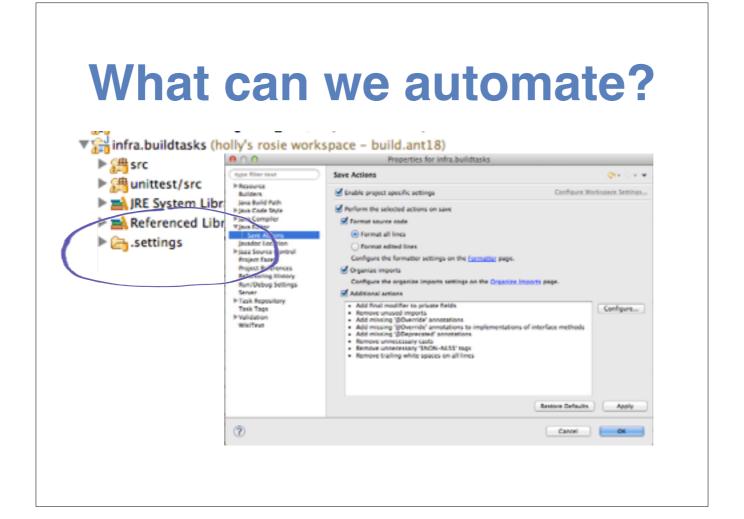
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Project settings

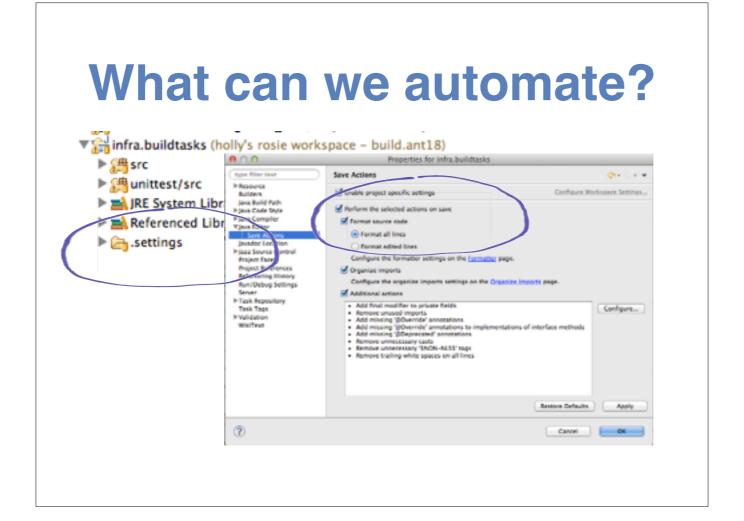
Code formatting

•••



Project settings Code formatting

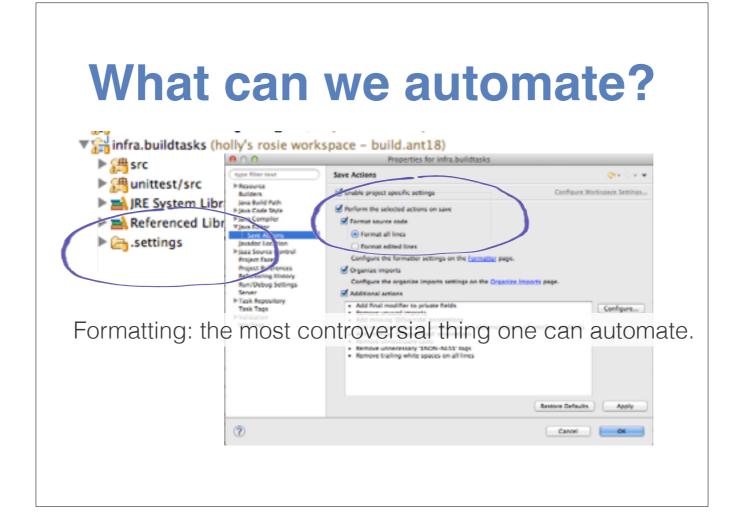
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Project settings

Code formatting

• • •



Project settings Code formatting

• • •

```
** IBM"

** OCO-Source-Materials"

** Copyright-IBM-Corp. 2013, 2015"

** The source code for this program is not published or otherwise divested "

* of its trade secrets, irrespective of what has been deposited with the "

* U.S. Copyright Office."
```

Actually kind of complex, legally.

Need to care, need to identify significant changes

```
/*|
-* IBM|
-* OCO · Source · Materials |
-* Copyright · IBM · Corp · 2013, 2015 |
-* The · source · code · for · this · program · is · not · published · or · otherwise · divested · |
-* · of · its · trade · secrets, · irrespective · of · what · has · been · deposited · with · the · |
-* · U.S. · Copyright · Office · |
-* / |
```

Copyright statements

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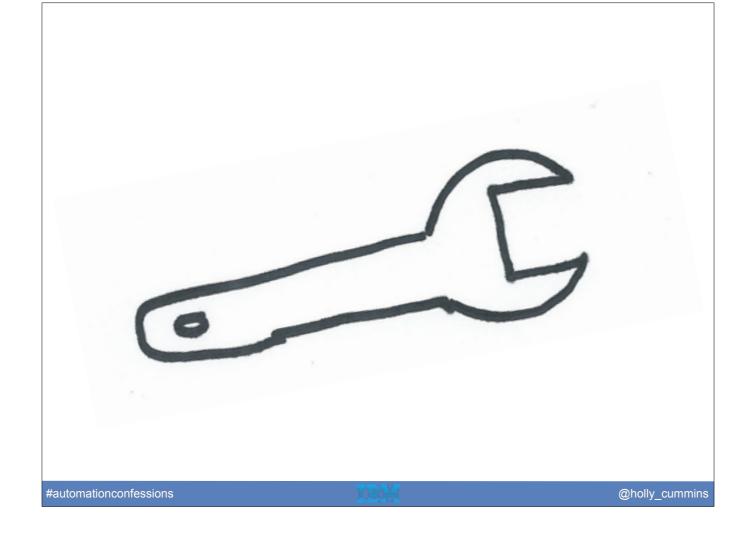
```
**Gopyright IBM Corp. 2013, 2015 Maybe.

**The source code for this program is not published or otherwise divested to the source secrets, irrespective of what has been deposited with the source copyright Office.
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Kind of hard and stupid to even write a list because automation is such a general term, covers things from deployment to server management to source control to design documents.

I had to write a wrapper - automation, again - around sed to allow me to get the hang of it

Maven can of course be used for automation, but I haven't included it in the list since often in Maven you'll shell out to ant for any kind of procedural process, unless you write your goal

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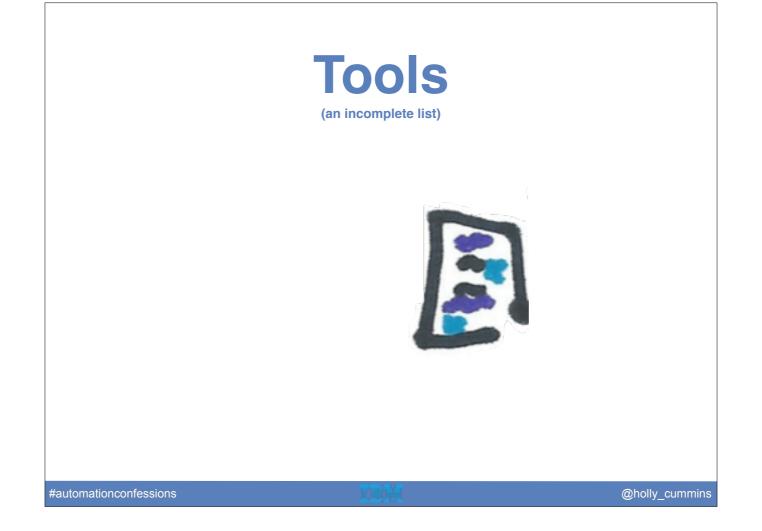


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ln



## TODO shell picture

I had to write a wrapper - automation, again - around sed to allow me to get the hang of it



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# TODO shell picture

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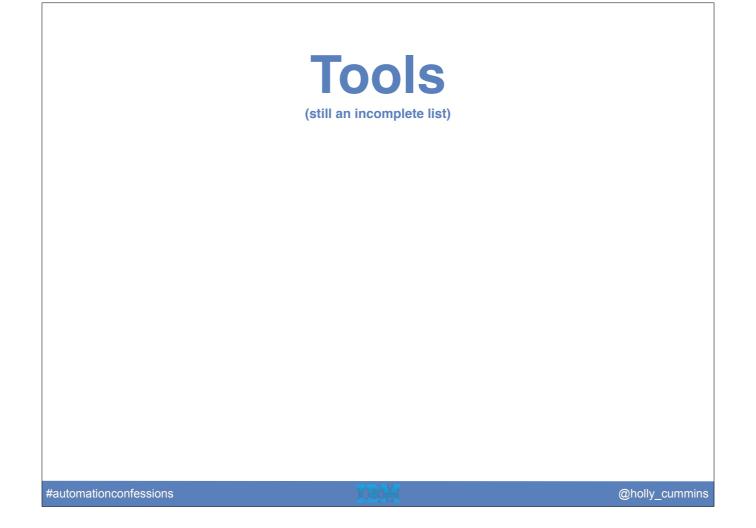


- Scripting
  - python
  - ruby



#automationconfessions

@holly\_cummins



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Jenkins or Rational Team Concert builds

#automationconfessions

@holly\_cummins

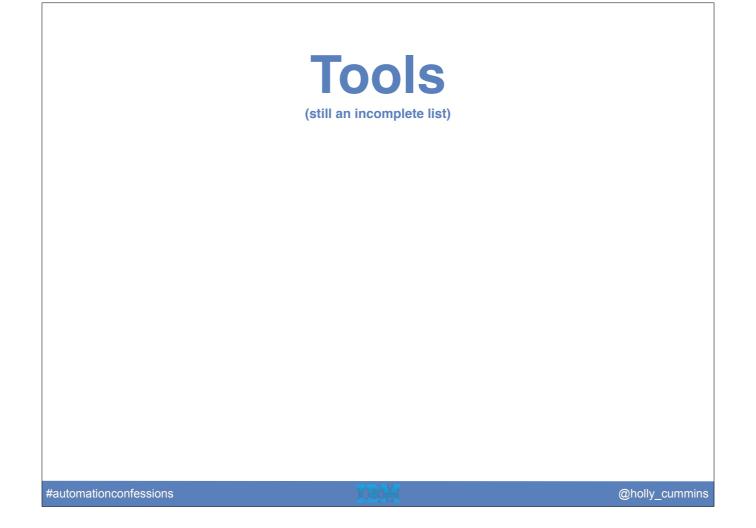
#### TODO picture of wrench?

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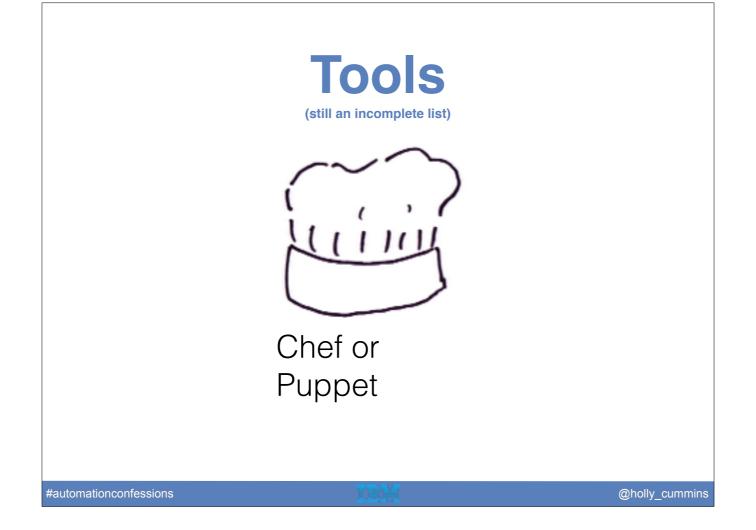
ln



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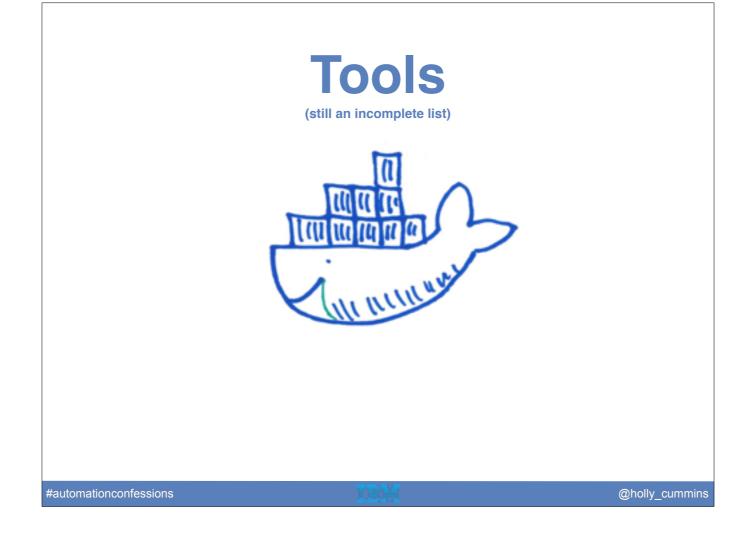
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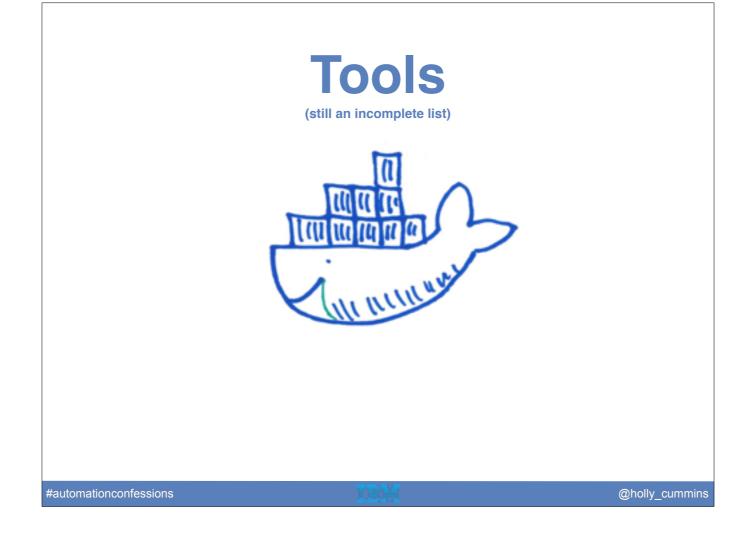


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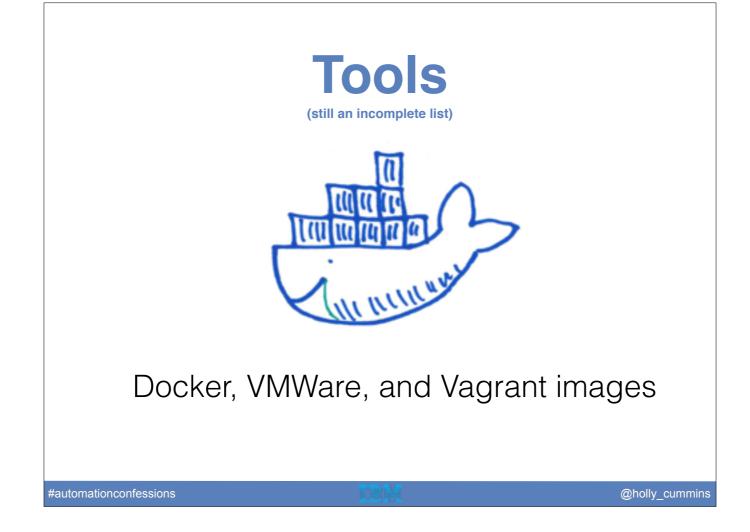


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If the phone-holder gets a callout, they have to be ready. However, in most cases they wont get a callout so don't want to invest in setting up an environment.

#### Solution:

The DOI 24/7 laptop, set up with the tools the support team need. Easier than a vmware image. Doesn't scale, but that's ok.

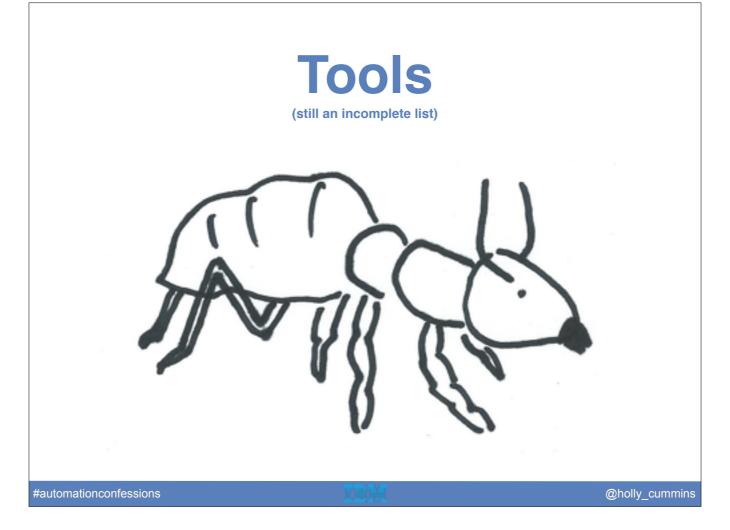


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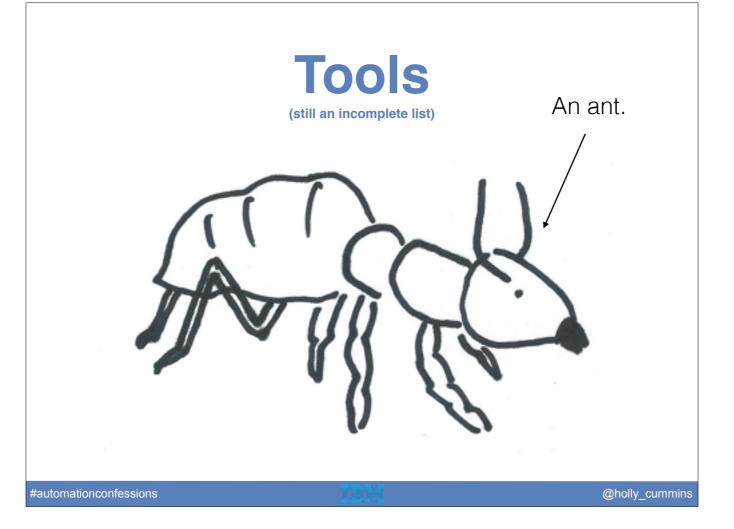
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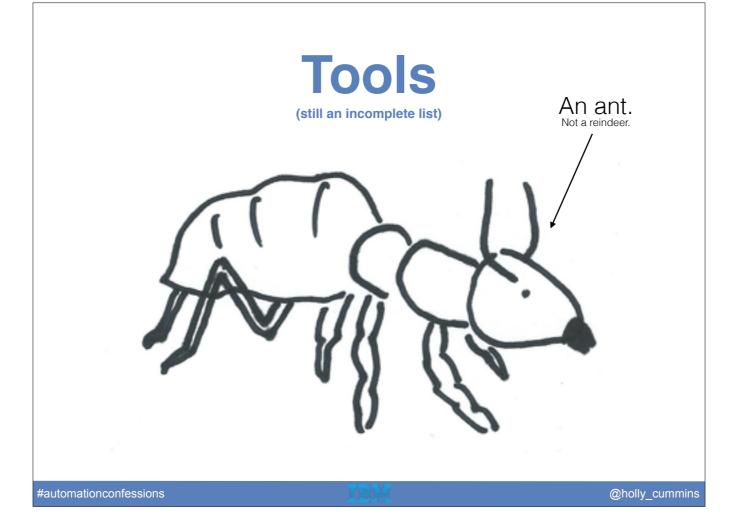
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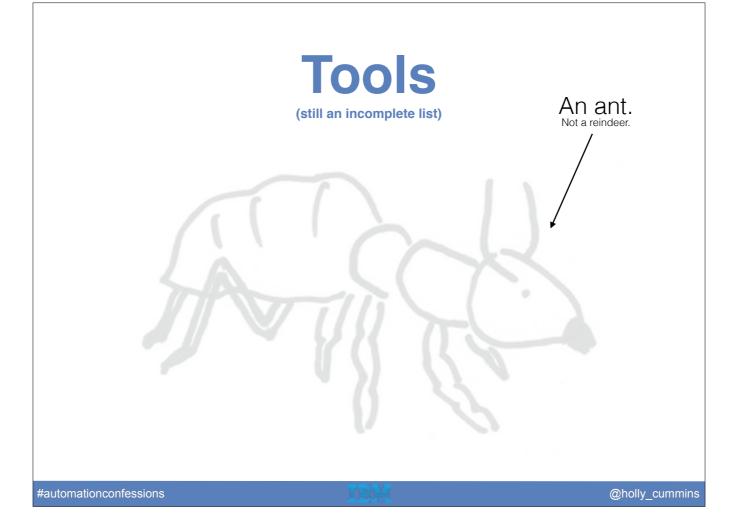
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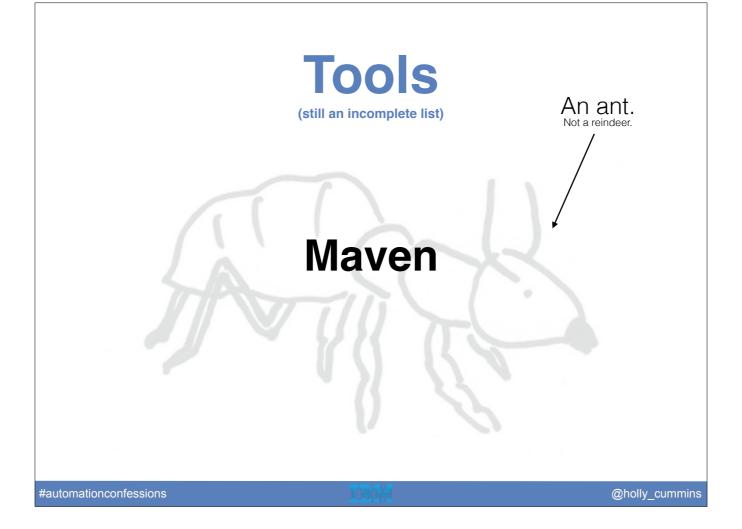
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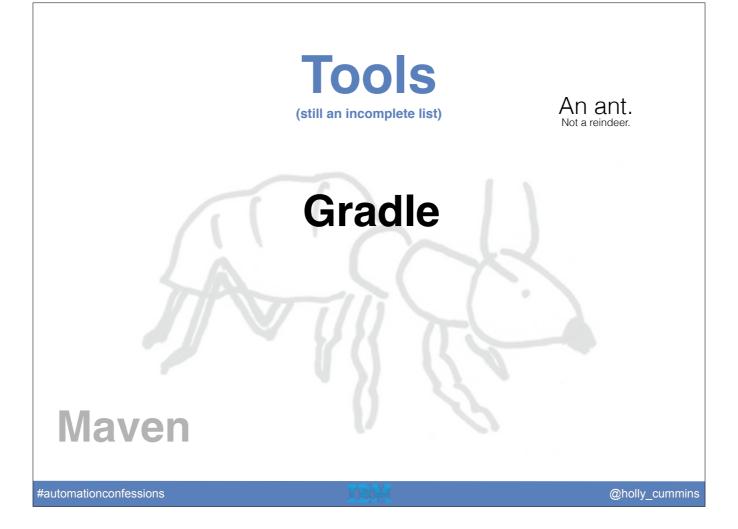
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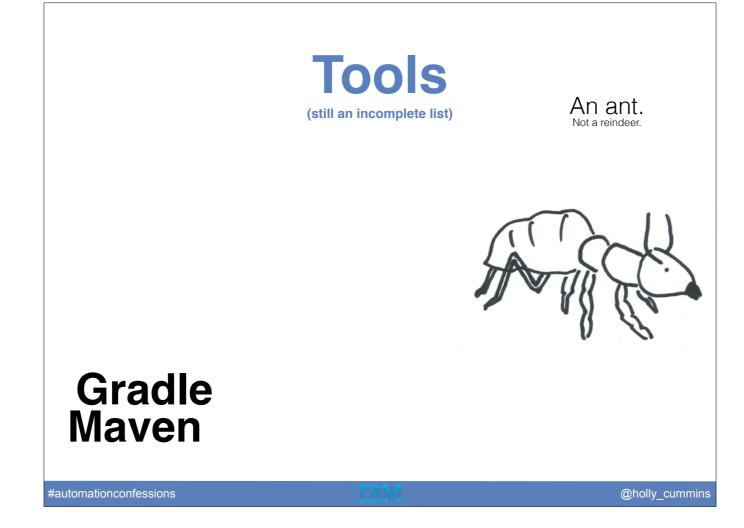
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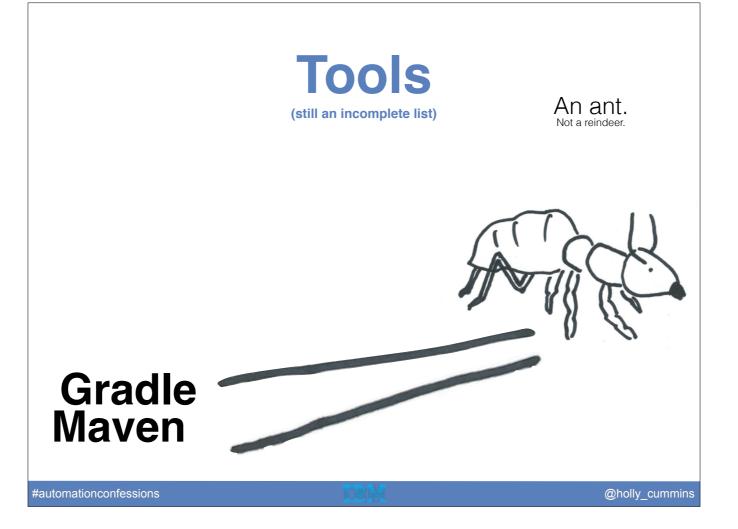
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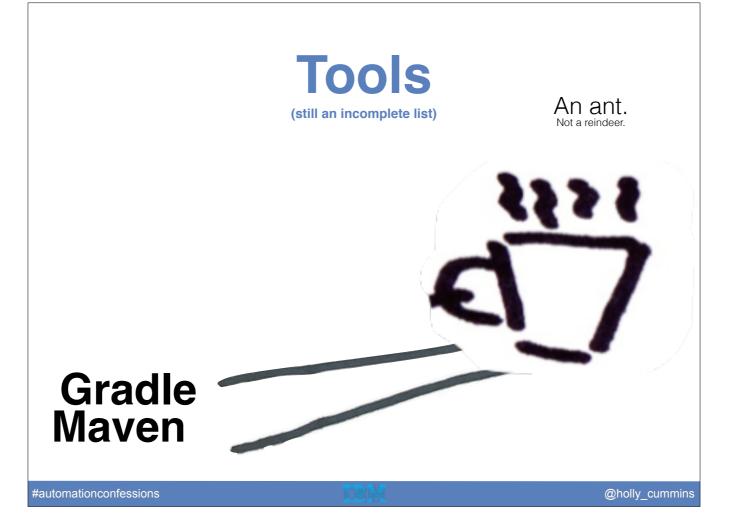
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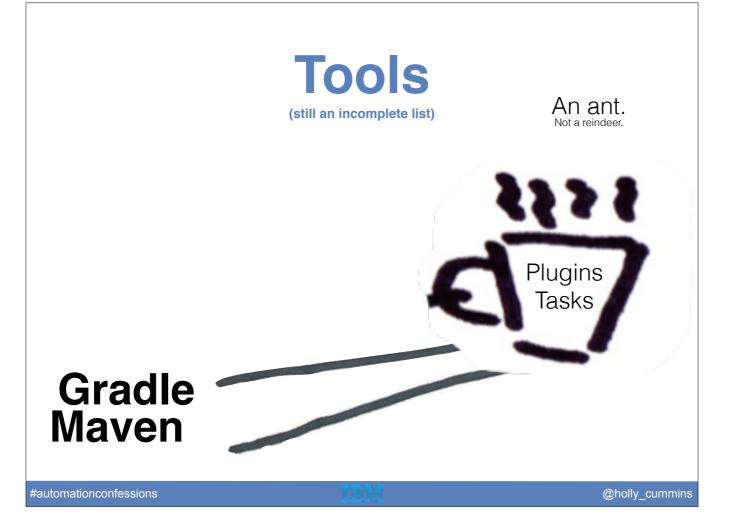
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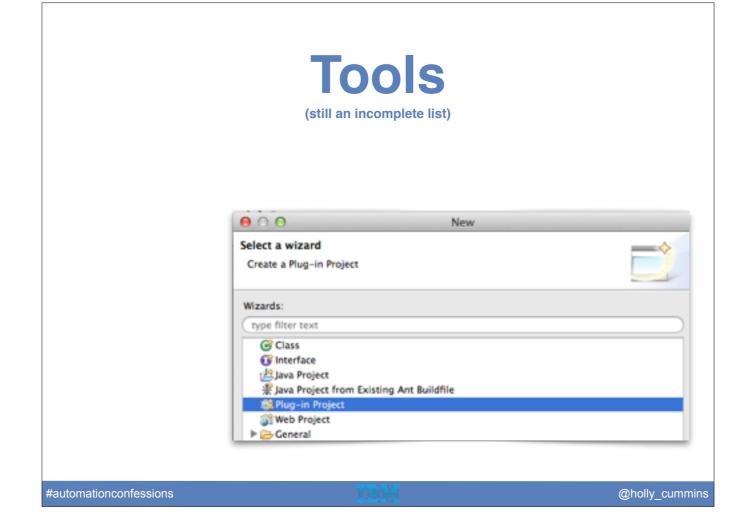
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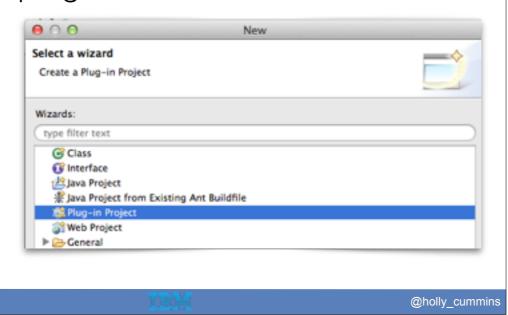


maintenance a problem



Eclipse plugins

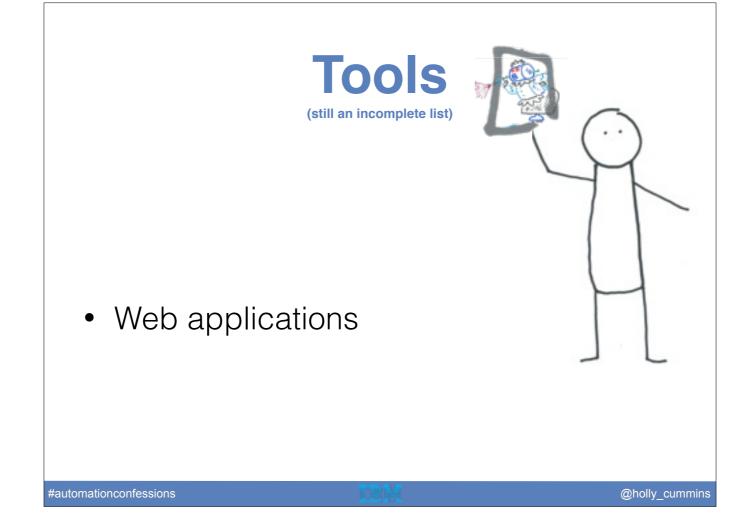
#automationconfessions



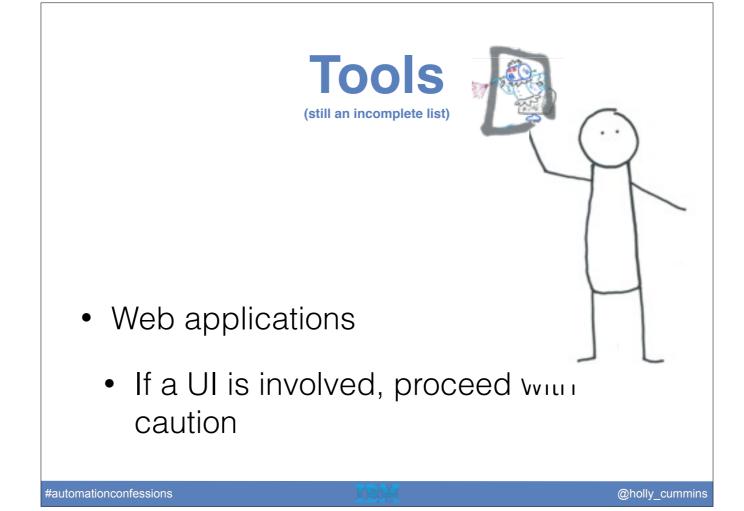
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can do more, because user makes choices
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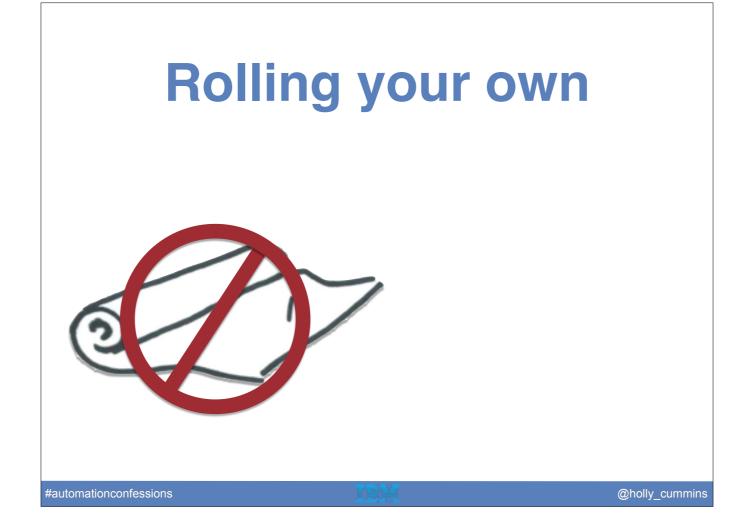
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This is really important, too. There's no right answer.

Should you roll your own, or is there something already out there?

If not, why not? (maybe you have a bad process, or a weird one?)

In general, be very wary of rolling your own. Beware of not invented here, getting seduced by interesting problems (like me and the design document generator)



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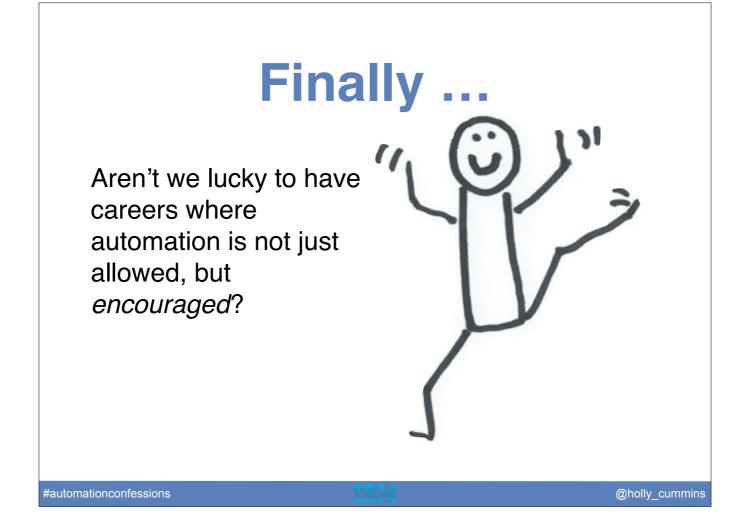
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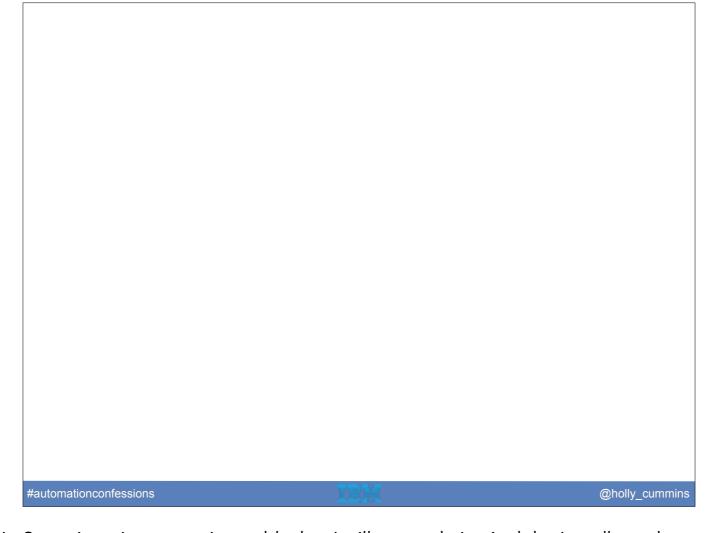
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# Any Questions?

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