

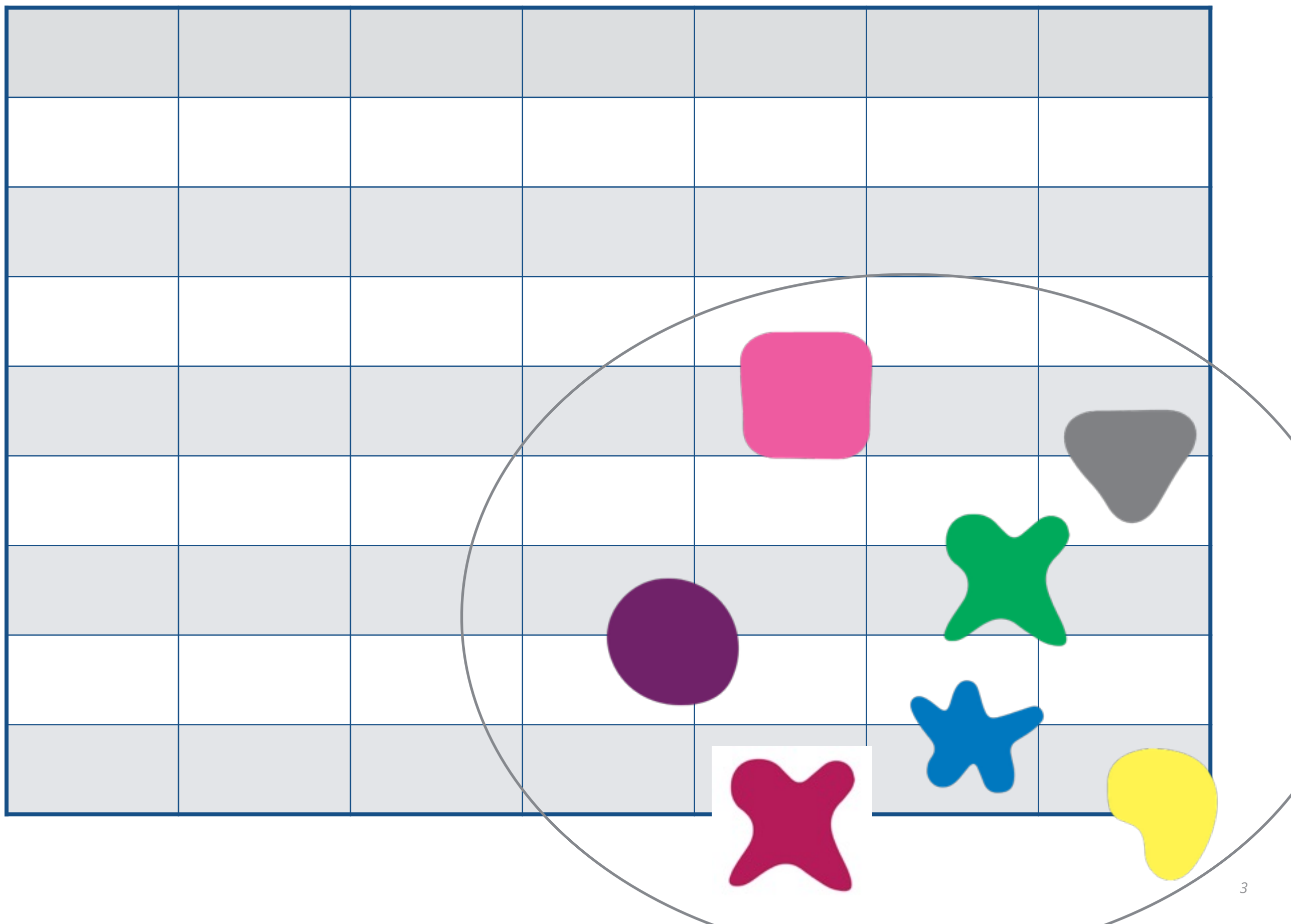
ThoughtWorks®

welcome

MIGRATING NOSQL

Molly Dishman
@mollyelise

What do we mean by NoSQL?





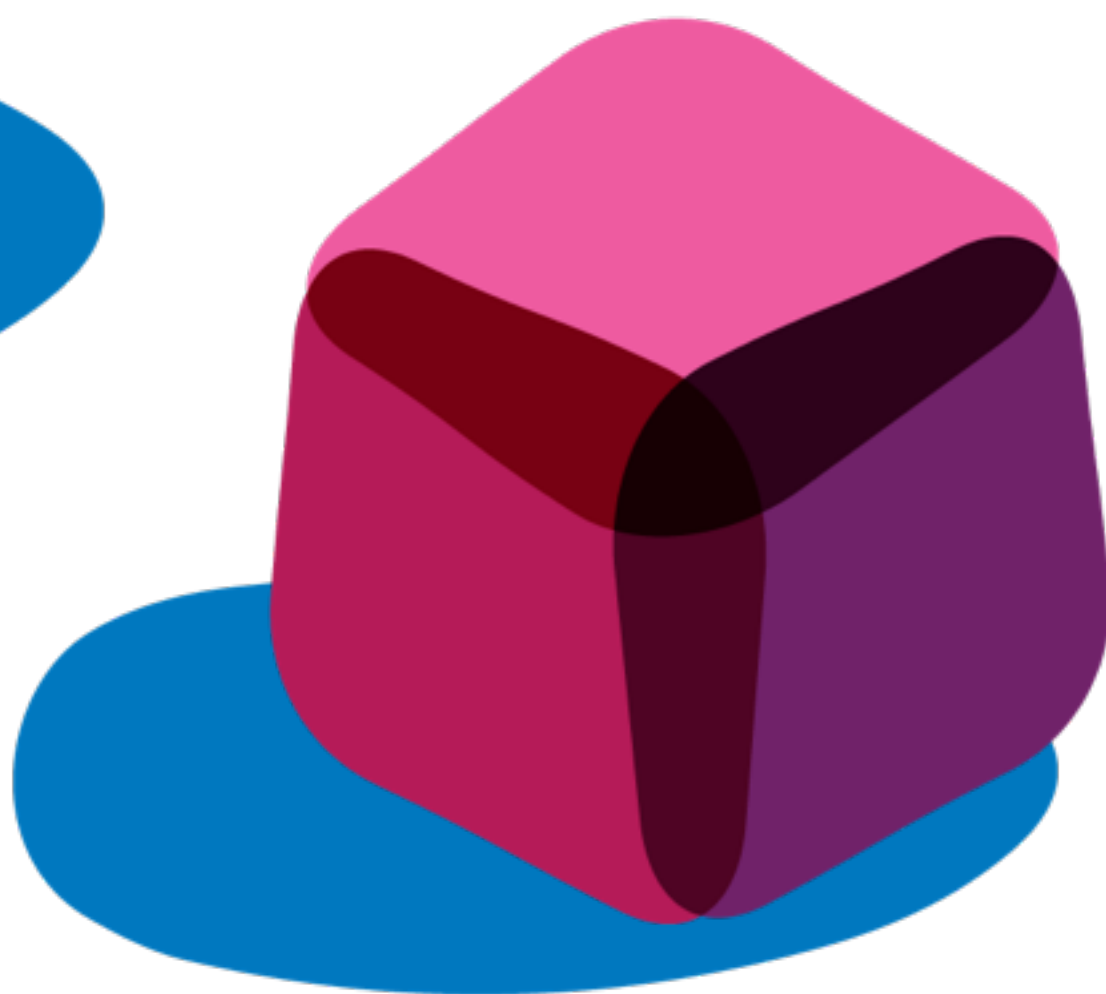
LOG::error people.cv FileNotFoundException

```
java.io.FileNotFoundException: stacktrace.log (Permission denied)
  at java.io.FileOutputStream.openAppend(Native Method)
  at java.io.FileOutputStream.<init>(FileOutputStream.java:177)
  at java.io.FileOutputStream.<init>(FileOutputStream.java:102)
  at org.apache.log4j.FileAppender.setFile(FileAppender.java:294)
  at org.apache.log4j.FileAppender.activateOptions(FileAppender.java:284)
  at org.apache.log4j.spi.OptionHandler$activateOptions.call(Unknown Source)
  at org.codehaus.groovy.runtime.callsite.CallSiteArray.defaultCall(CallSiteArray.java:49)
  at org.codehaus.groovy.runtime.callsite.AbstractCallSite.call(AbstractCallSite.java:121)
  at org.codehaus.groovy.runtime.callsite.AbstractCallSite.call(AbstractCallSite.java:126)
  at org.codehaus.groovy.grails.plugins.logging.Log4jConfig.createFileAppender(Log4jConfig.groovy:102)
```

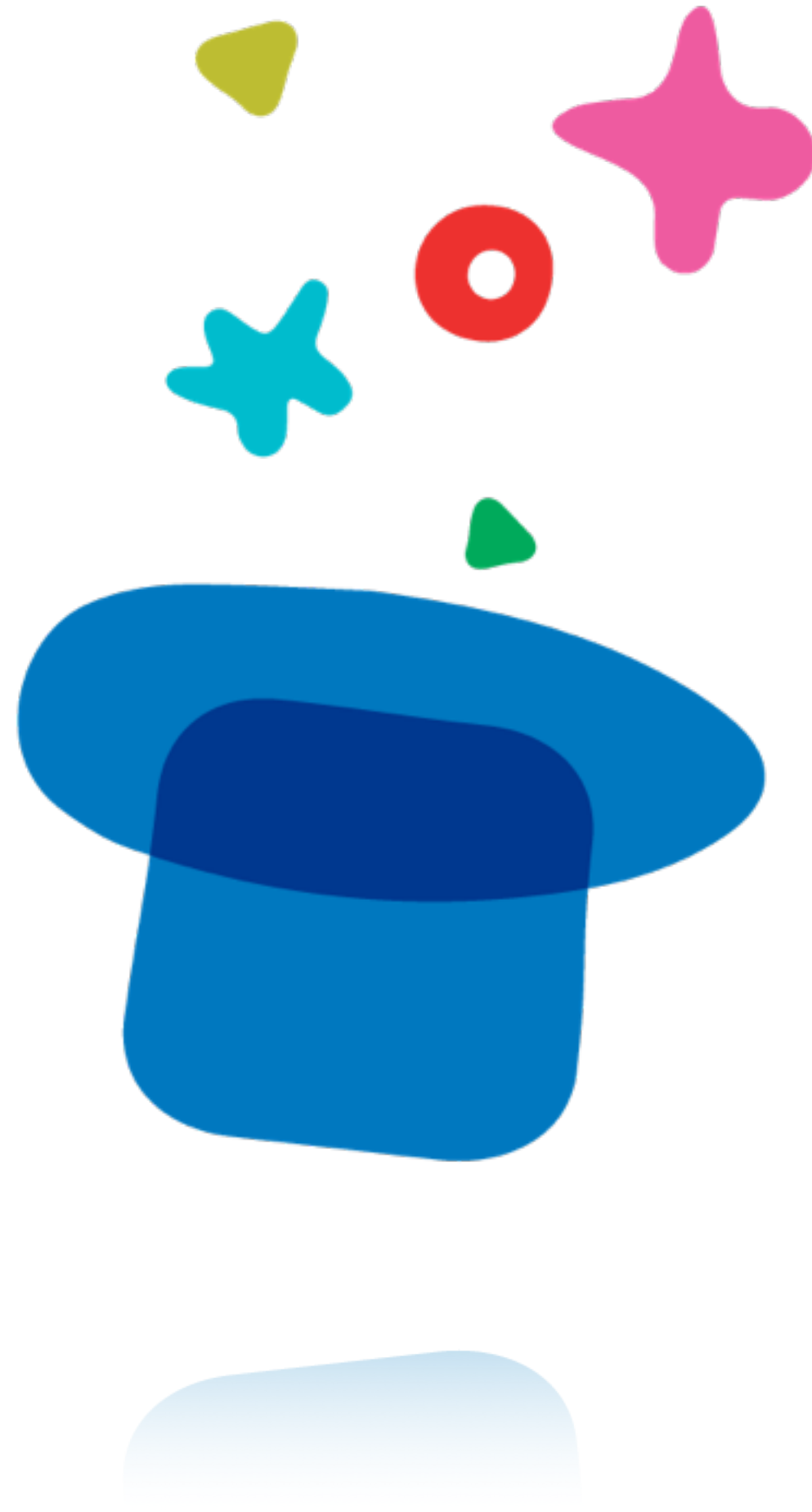
```
log_1234556 : {
  id: 1234556,
  error_message: "File Not Found",
  status_code: 404,
  request: "/people/list",
  exception_thrown: FileNotFoundException
},
log_89279834 : {
  id: 89279834,
  error_message: "ClassCastException",
  status_code: 404,
  request: "/people/list",
  exception_thrown: ResourceNotFoundException
}
```

Why use NoSQL?









dbdeploy.com

Information on the dbdeploy Open Source projects

Home Development Documentation News Software

great, we want a NoSQL database...

Recent Posts

dbdeploy for java 3.0M1 has been released

PHP and dbdeploy

DBDeploy.NET v.1.0 officially released

dbdeploy wins a Jolt Productivity Award

dbdeploy at COLLABORATE 07

Getting Involved

dbdeploy for java is hosted at <http://code.google.com/p/dbdeploy/>

dbdeploy.NET (for .NET) is hosted at <http://sourceforge.net/projects/dbdeploy-net>

PEAR:DbDeploy (for PHP) is hosted at <http://peardbdeploy.sourceforge.net/docs/>

If you would like to get involved with the development of dbdeploy, then contact the managers of the projects listed above, alternatively email the site admin at 'sam-newman at magpiebrain dot com'

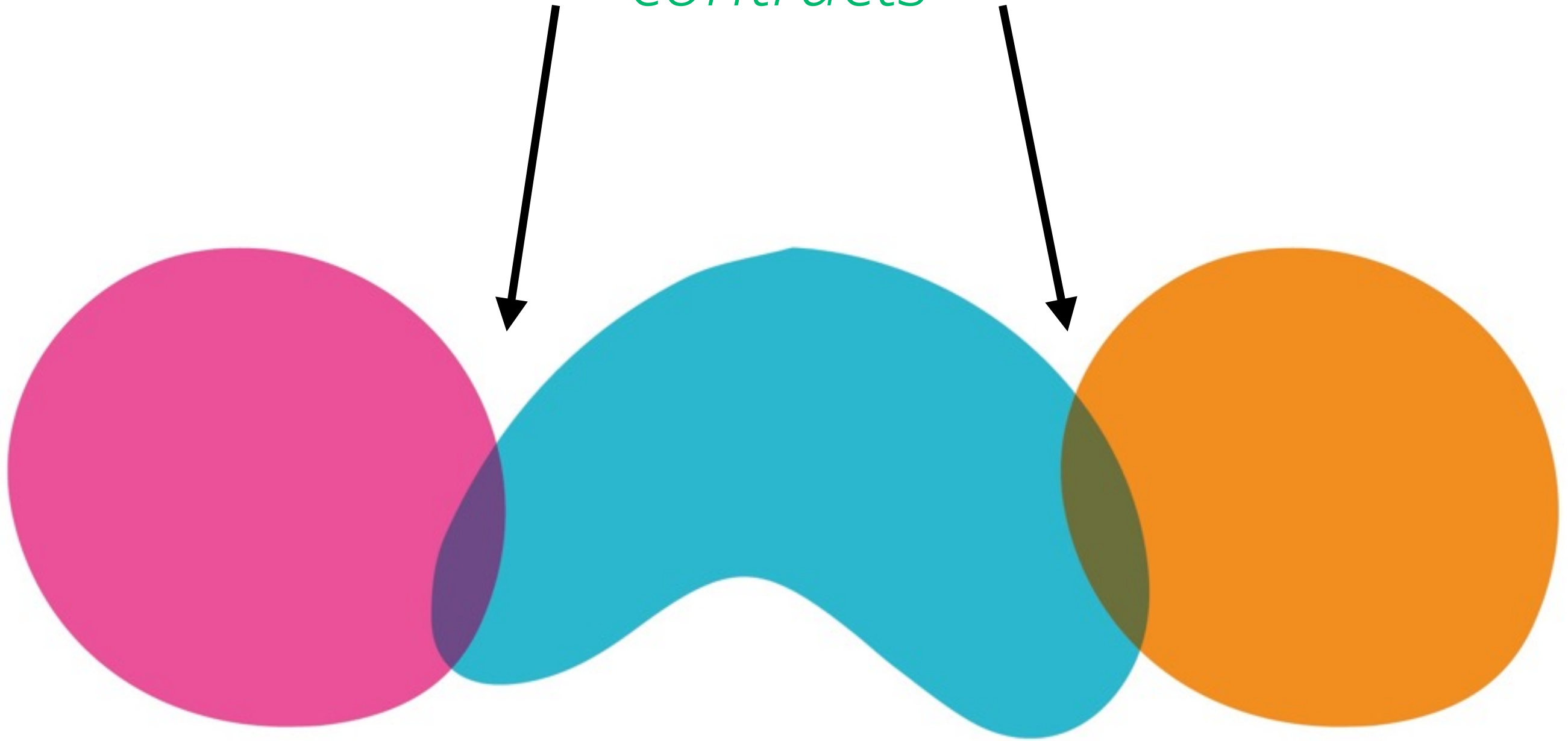
© 2015 dbdeploy.com

Wordpress Themes Design by Arcsin Web Templates

but NoSQL is schema-less.

```
{  
  id: 1  
  name: "Molly"  
  hometown: "Chicago"  
  ...  
}
```

contracts



WHY ARE DATA MIGRATIONS HARD?



*How easy
is change?*





Application
Development

Infrastructure,
Architecture
Operations

Business

Add new features to the application
Release new features quickly

Ensure quality

Use latest development practices

.....

.....

Application
Development

Ensure infrastructure supports the
application & data

Provide a service agreement of X%
uptime for primary applications

Ensure database uptime of X%

.....

.....

Infrastructure,
Architecture
Operations

Business

Where does your data live in your organization ?



Application
Development

Infrastructure,
Architecture
Operations

Business

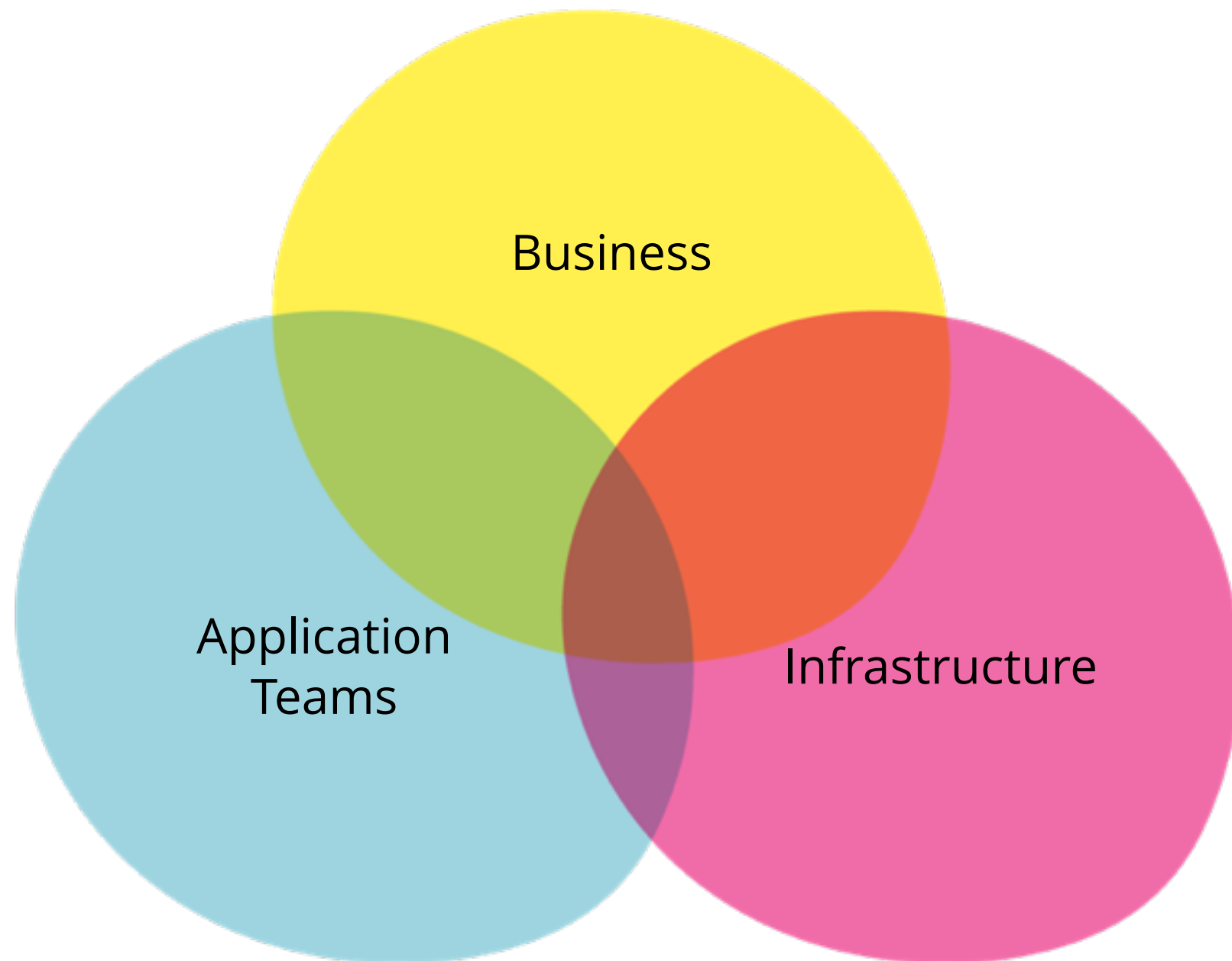
*What happens when
change is hard?*



ARE THEY MORE DIFFICULT WITH NOSQL?

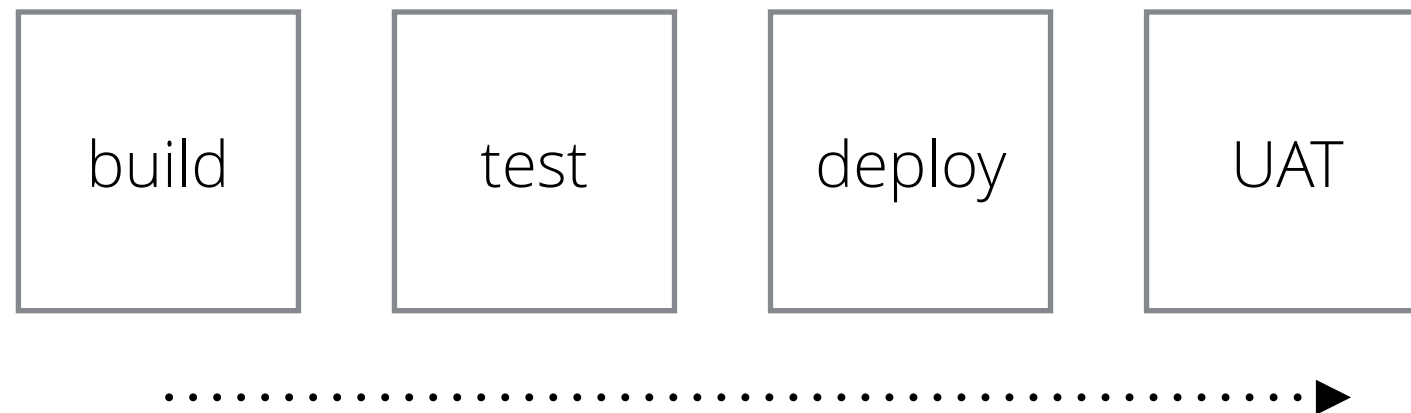


COLLABORATION





Source: clipartbest.com



**START EARLY
MIGRATE OFTEN**

migrate

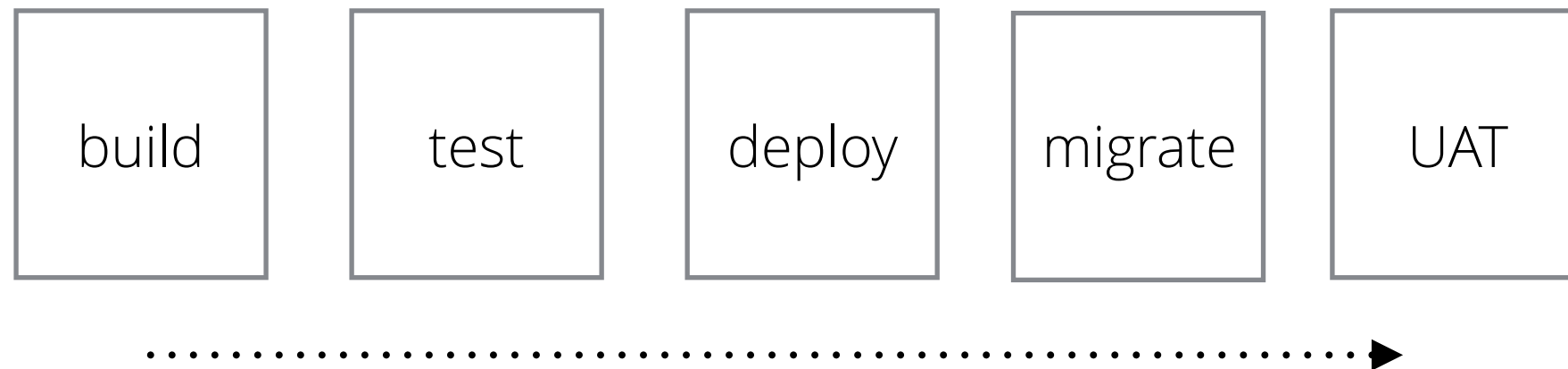
build

test

deploy

UAT

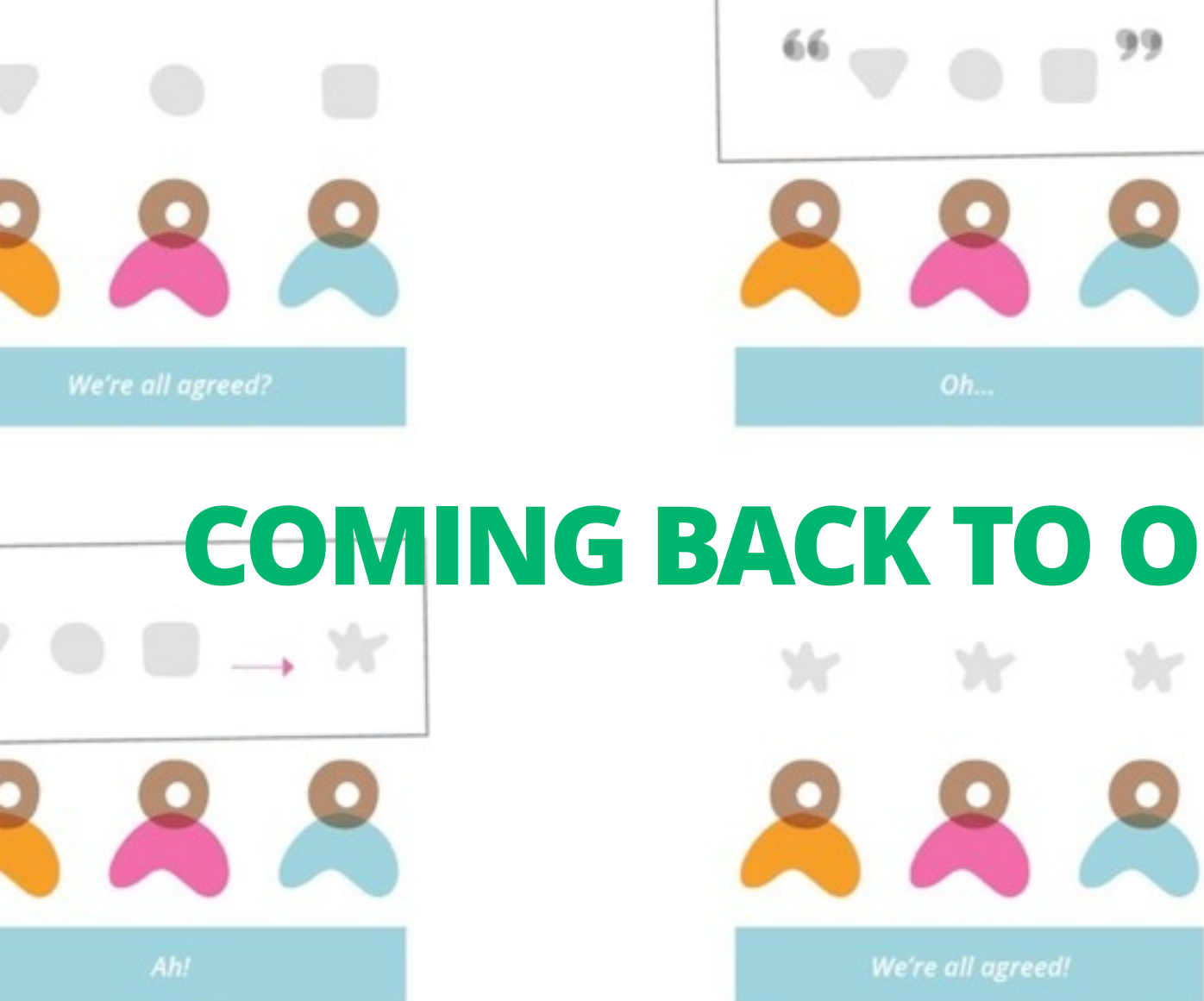






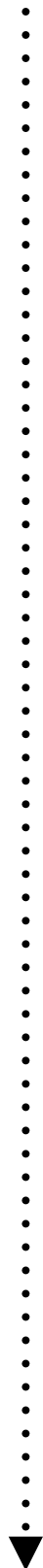
Migration Failed: 0032_add_favorite_sites_to_person.rb
Error: Duplicate migration number

Migration Failed: 0032_add_favorite_sites_to_person.rb
Error: Person collection is not populated
Date: 10/04/2014
Possible Culprit: Molly Bartlett



COMING BACK TO OUR SHARED VISION

**WHAT
MIGRATIONS
DO WE NEED TO
BE WRITING?**



```
{  
  name: "Molly"  
  email: "molly.b@thoughtworks.com",  
  ...  
}
```



```
{  
  name: "Molly"  
  favorites: [  
    ObjectId(432432644),  
    ObjectId(432432643)  
  ],  
  email: "molly.b@thoughtworks.com",  
  ...  
}
```




OPTION 1: LAZY MIGRATIONS

reddit.com | <http://i.imgur.com/yrR07jq.jpg>

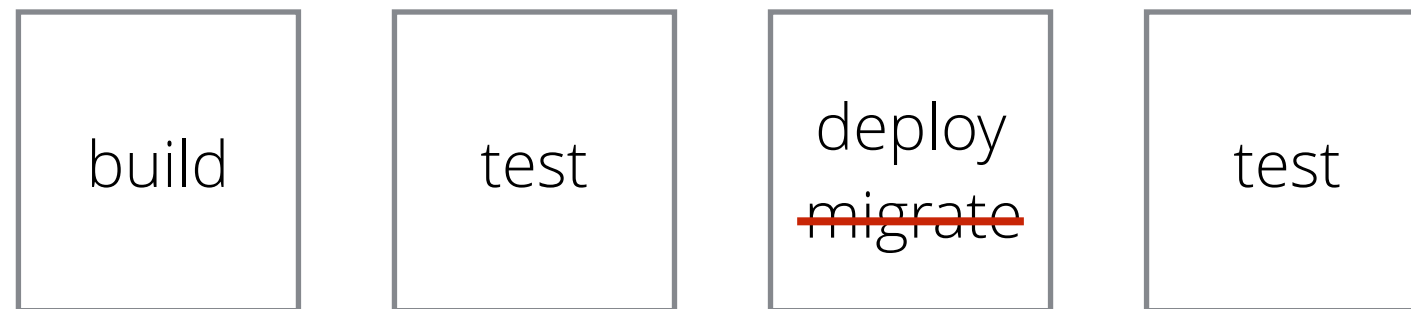
EX. 1

```
person = personRepository.get(:id)
if(person.favorites)
  return person.favorites
else
  return []
```

EX. 2

```
function AddFavorites() {
  function migrate(person) {
    if(!person.favorites)
      person.favorites = [];
  }
}
```

OPTION 1: LAZY MIGRATIONS







VERSIONING

add_favorites_11_15_2014_10_52.js





The Dreaded 404 Page

```
{  
  name: "Molly"  
  email: "molly.b@thoughtworks.com",  
  ...  
}
```

**WHAT HAPPENS
WHEN SOMETHING
IS MISSING?**





OPTION 2: EAGER MIGRATIONS

reddit.com | <http://i.imgur.com/Q4puEUK.jpg> 37



```
{  
  name: "Molly"  
  email: "molly.b@thoughtworks.com",  
  ...  
}
```

```
for each(user in users) {  
  user.favorites = [];  
  db.users.upsert(user);  
}
```



```
name: "Molly"  
favorites: [  
  ObjectId(432432644),  
  ObjectId(432432643)  
],  
email: "molly.b@thoughtworks.com",  
...  
}
```

```
{  
  name: "Molly"  
  favorites: [  
    ObjectId(432432644),  
    ObjectId(432432643)  
  ],  
  updatedAt: Date()  
}
```

```
if (person[:favorites]) {  
    return person[:favorites]  
} else {  
    return [];  
}
```

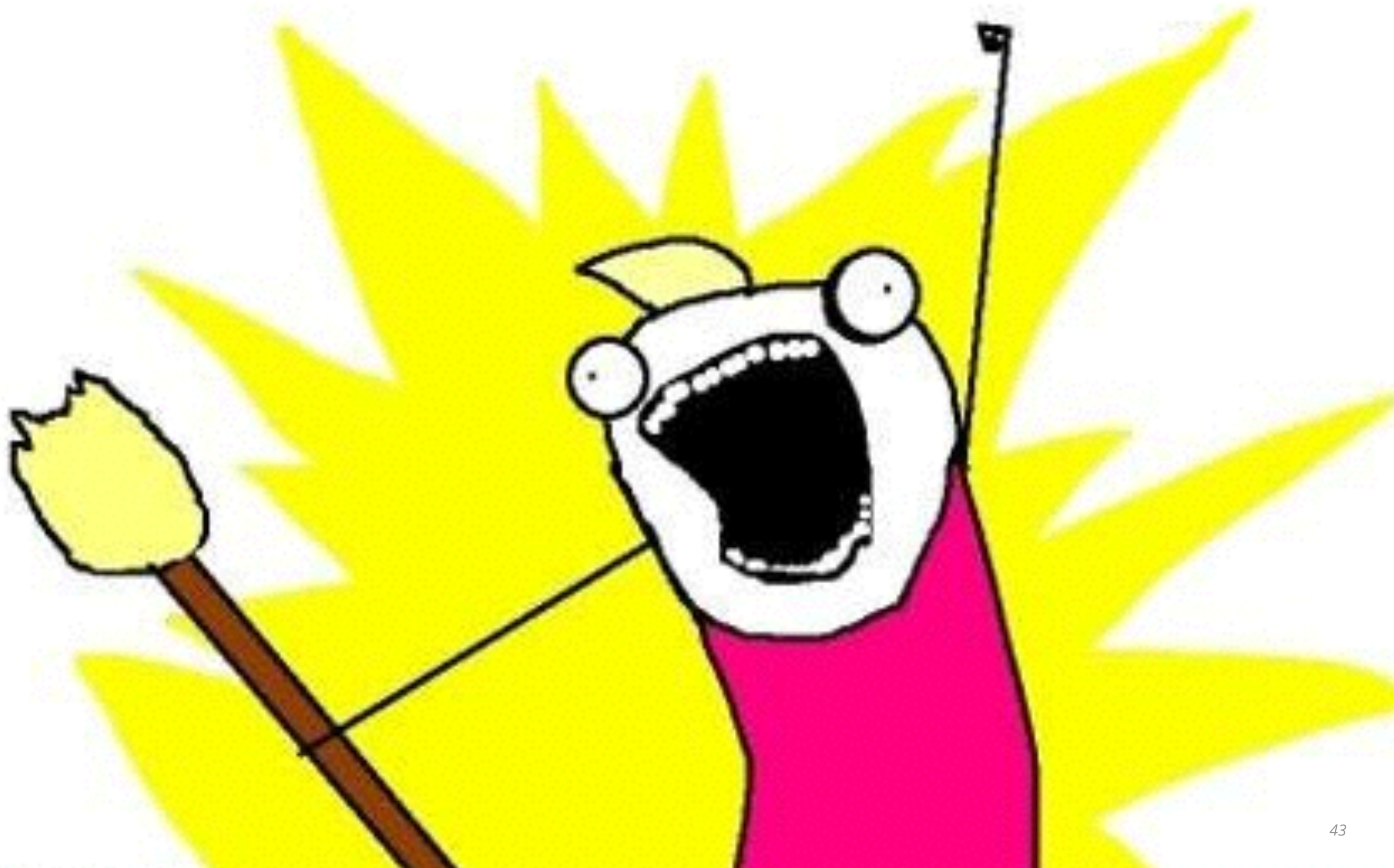



<http://bestwalkingfeet.com/best-walking-shoes-women-men>



The Dreaded 404 Page

OPTION 3: ALL THE THINGS (1&2)



Data Access

Test Creation

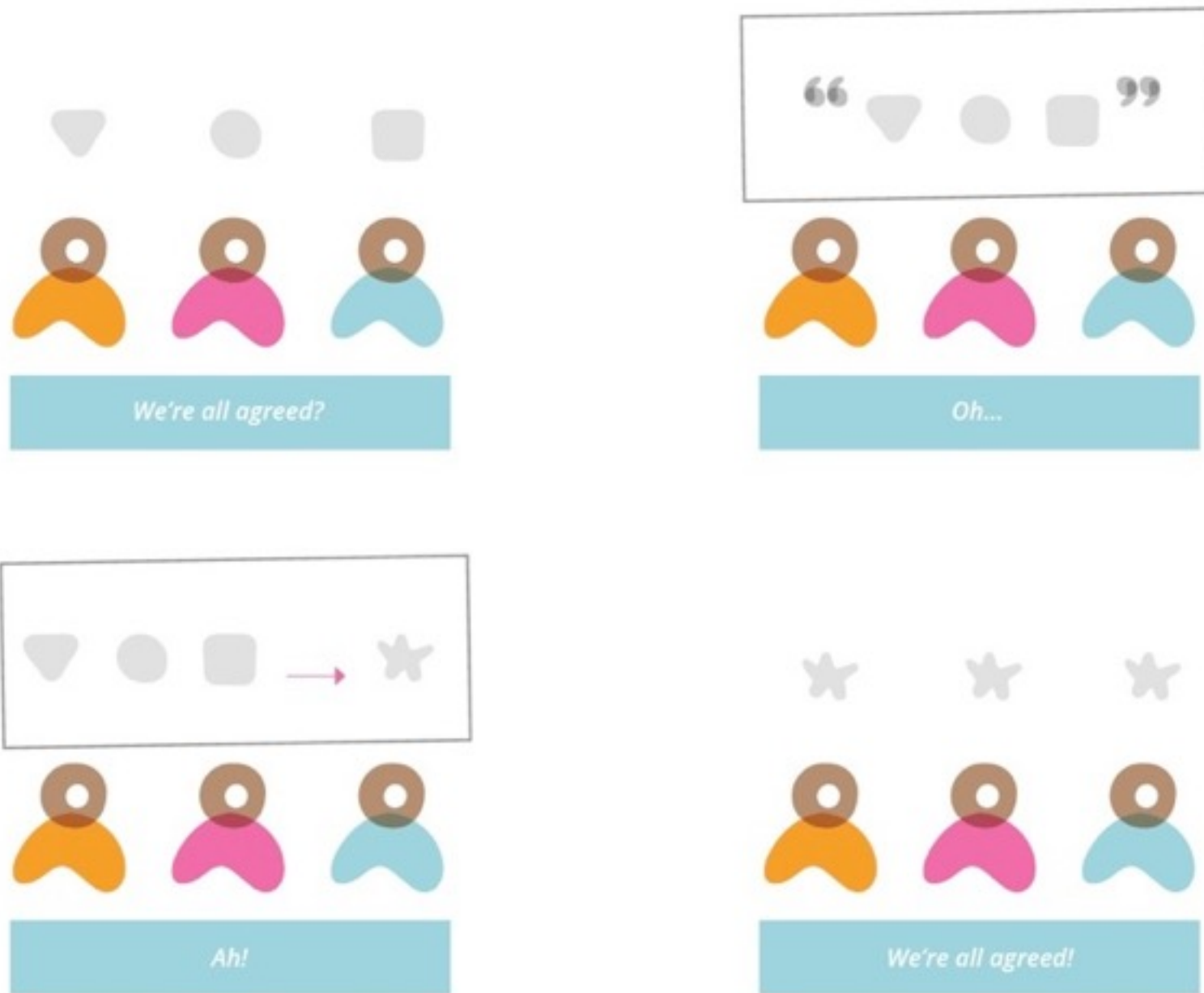
Up/Down

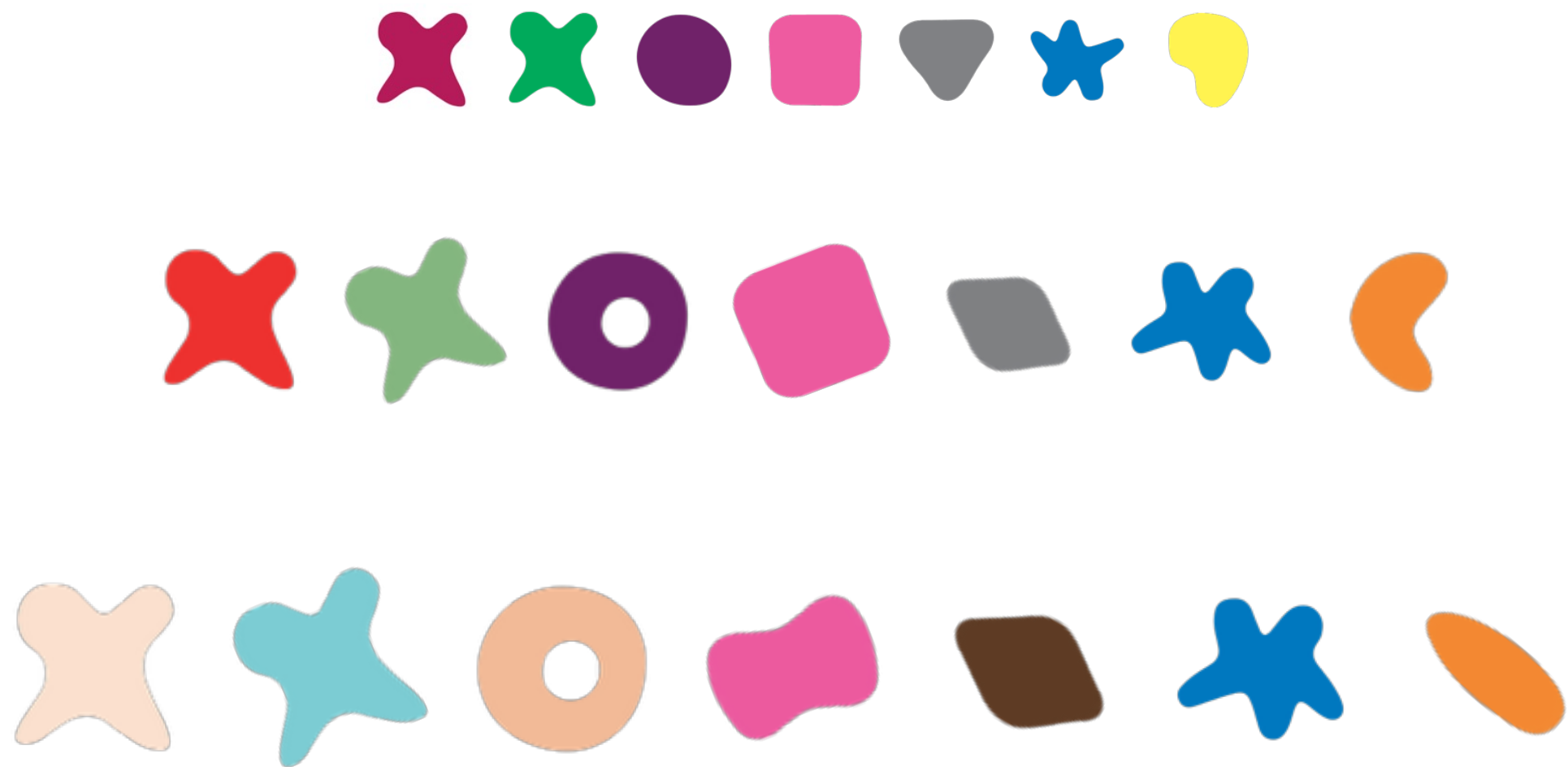
Avoid Conflicts

Language



COLLABORATION IS KEY





THANK YOU

Questions?

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molly.b@thoughtworks.com

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