XCODE TO UNREAL ENGINE

# LESSONS LEARNED FROM DOING THE IMPOSSIBLE

## WHAT IS THIS TALK GOING TO COVER?

- My Background: Who am I? Why am I here?
- Detroit Labs: How is DL uniquely positioned to take on “impossible” projects?
- The Impossible Challenge: Story Time!
- Lessons Learned: A recap in case you nod off.
- Questions and Possibly Answers

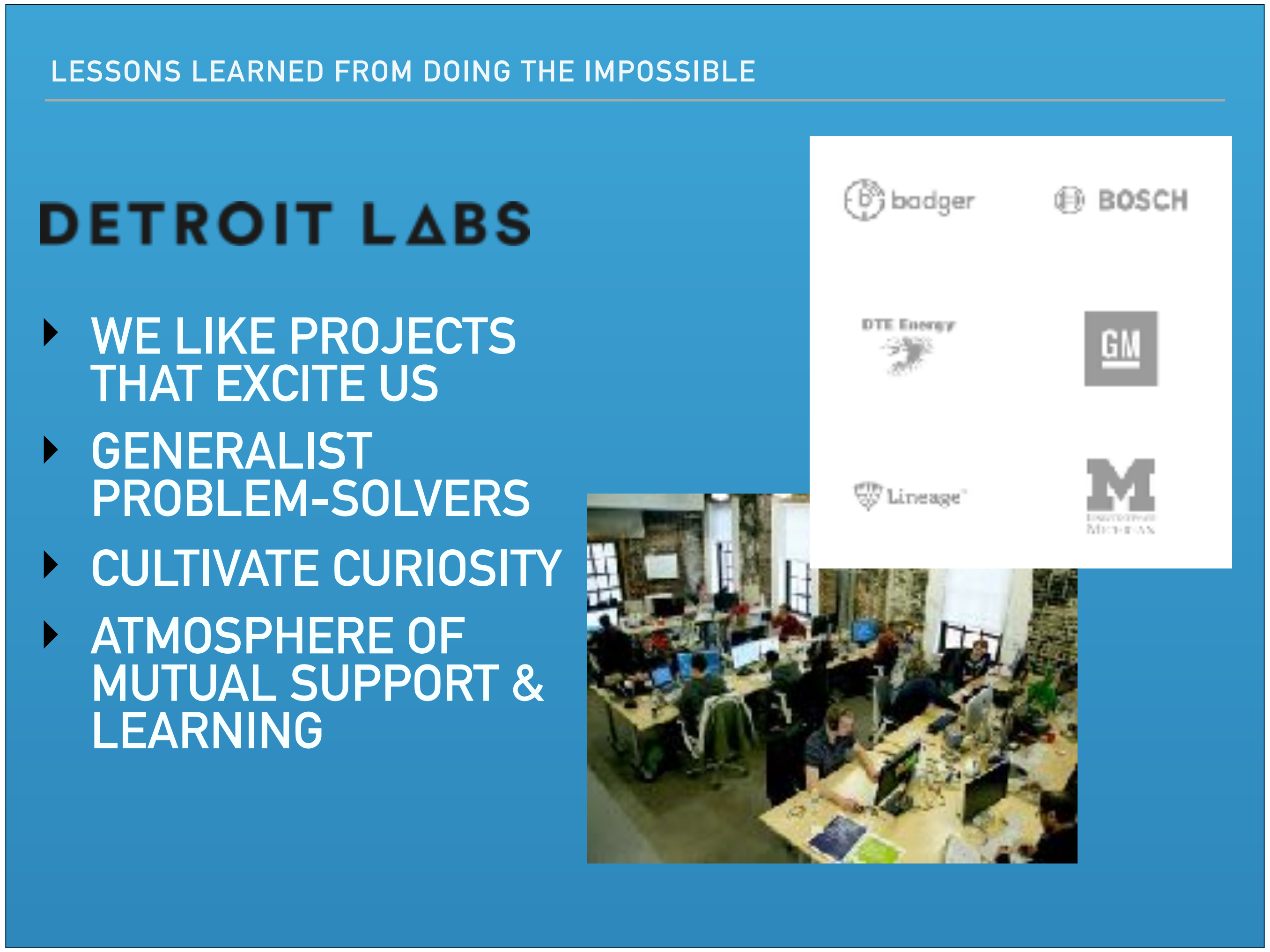
IOS DEVELOPER

# ELLEN MEY

DETROIT LABS

@MeydYouLook

iOS Developer at Detroit Labs
I love to travel, play ice hockey, and hang out with my cats.
That’s me riding a camel into the Sahara.

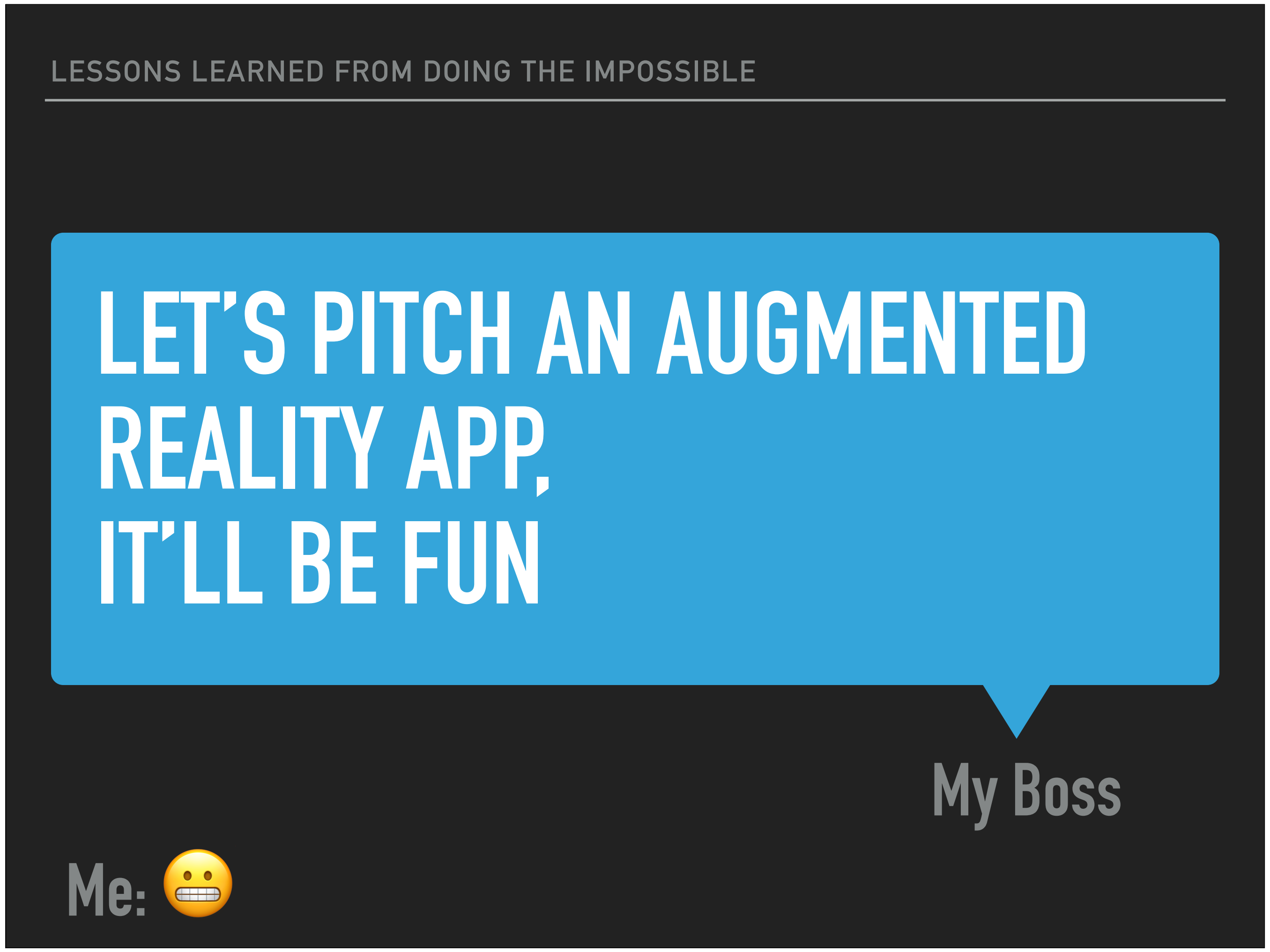

badger
BOSCH
DTE Energy
GM
Lineage
M

LESSONS LEARNED FROM DOING THE IMPOSSIBLE

DETROIT LABS

- WE LIKE PROJECTS THAT EXCITE US
- GENERALIST PROBLEM-SOLVERS
- CULTIVATE CURIOSITY
- ATMOSPHERE OF MUTUAL SUPPORT & LEARNING

1.) We sometimes say “yes” and then figure out how we’re going to do the thing, which comes from having deep confidence in our team  
2.) We are less technical specialists than generalist problem-solvers; we learn whatever tech we need to, so our process and ability to get shit done aren’t dependent on a specific medium/platform  
3.) We cultivate curiosity and we hire people who are interested in continuous growth, so our team is always seeking out new challenges  
4.) We’ve built an atmosphere of mutual support and learning where it’s understood that mistakes are just part of the deal sometimes, and that makes people feel safe pushing themselves to take on big challenges

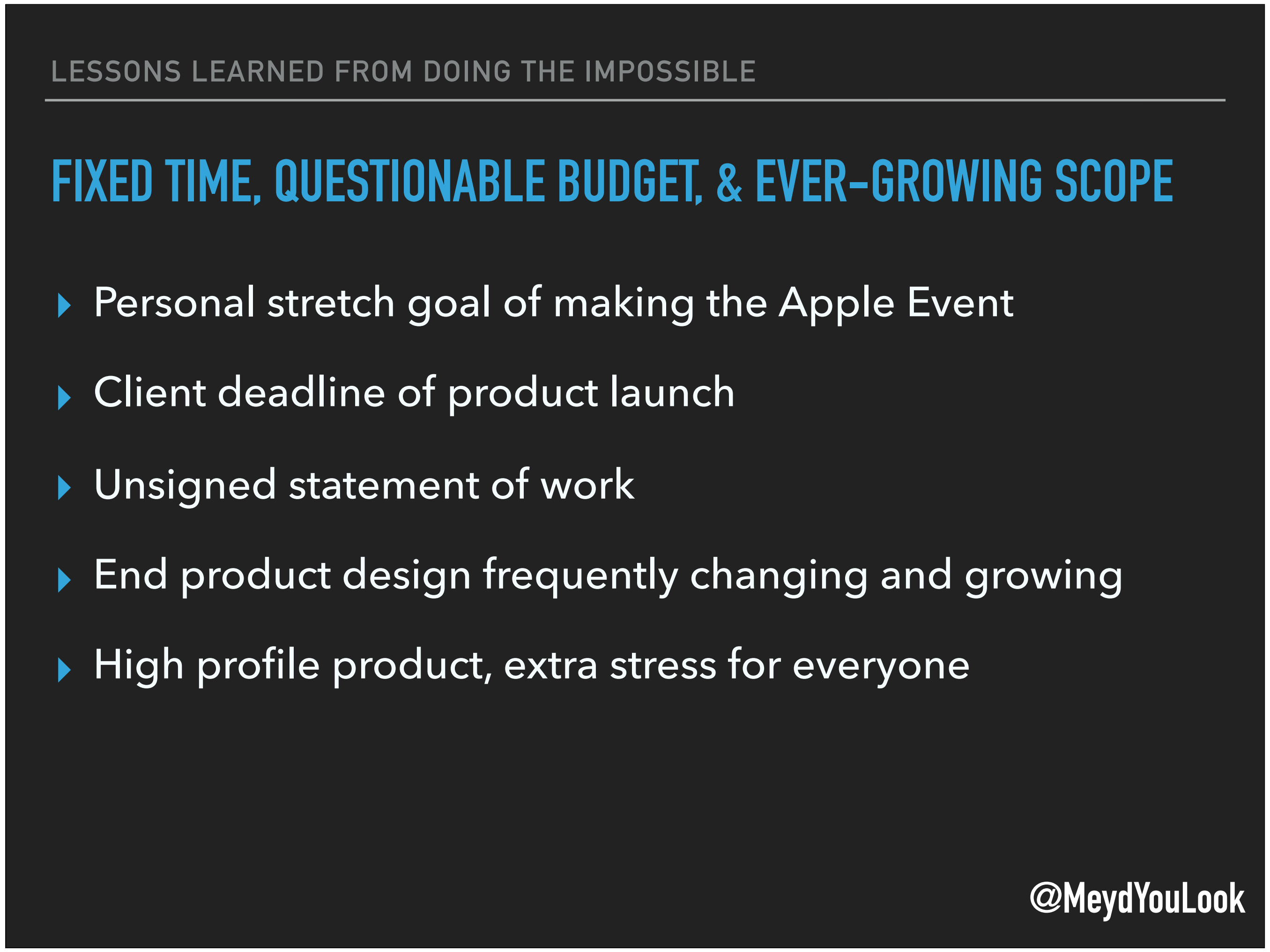


LET'S PITCH AN AUGMENTED REALITY APP,
IT'LL BE FUN

My Boss

Me: 😬

WWDC
They loved the demo - wanted to see more
Team was assembled



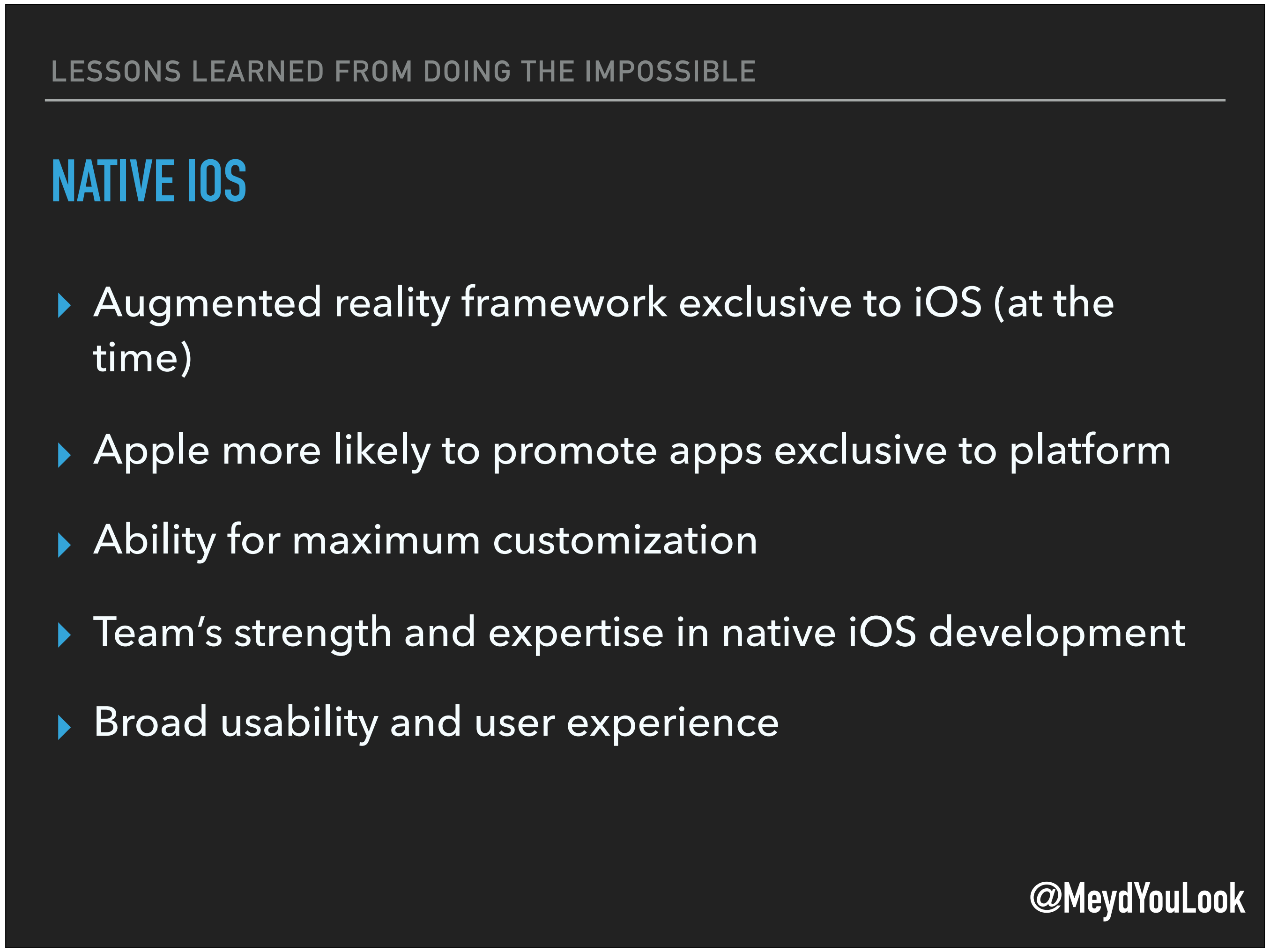
## FIXED TIME, QUESTIONABLE BUDGET, & EVER-GROWING SCOPE

- Personal stretch goal of making the Apple Event
- Client deadline of product launch
- Unsigned statement of work
- End product design frequently changing and growing
- High profile product, extra stress for everyone

1. While this quickly went away, we knew the Apple Event was early September which gave us about 8 weeks to get something to demo on stage
2. Final app needed to be ready to go by early December for product launch, date was not flexible
3. Did not have a signed contract for the work yet
4. First there was just place the product in your driveway, then it became a massive AR experience with multiple worlds

## LET'S ADD SOME MORE CONSTRAINTS

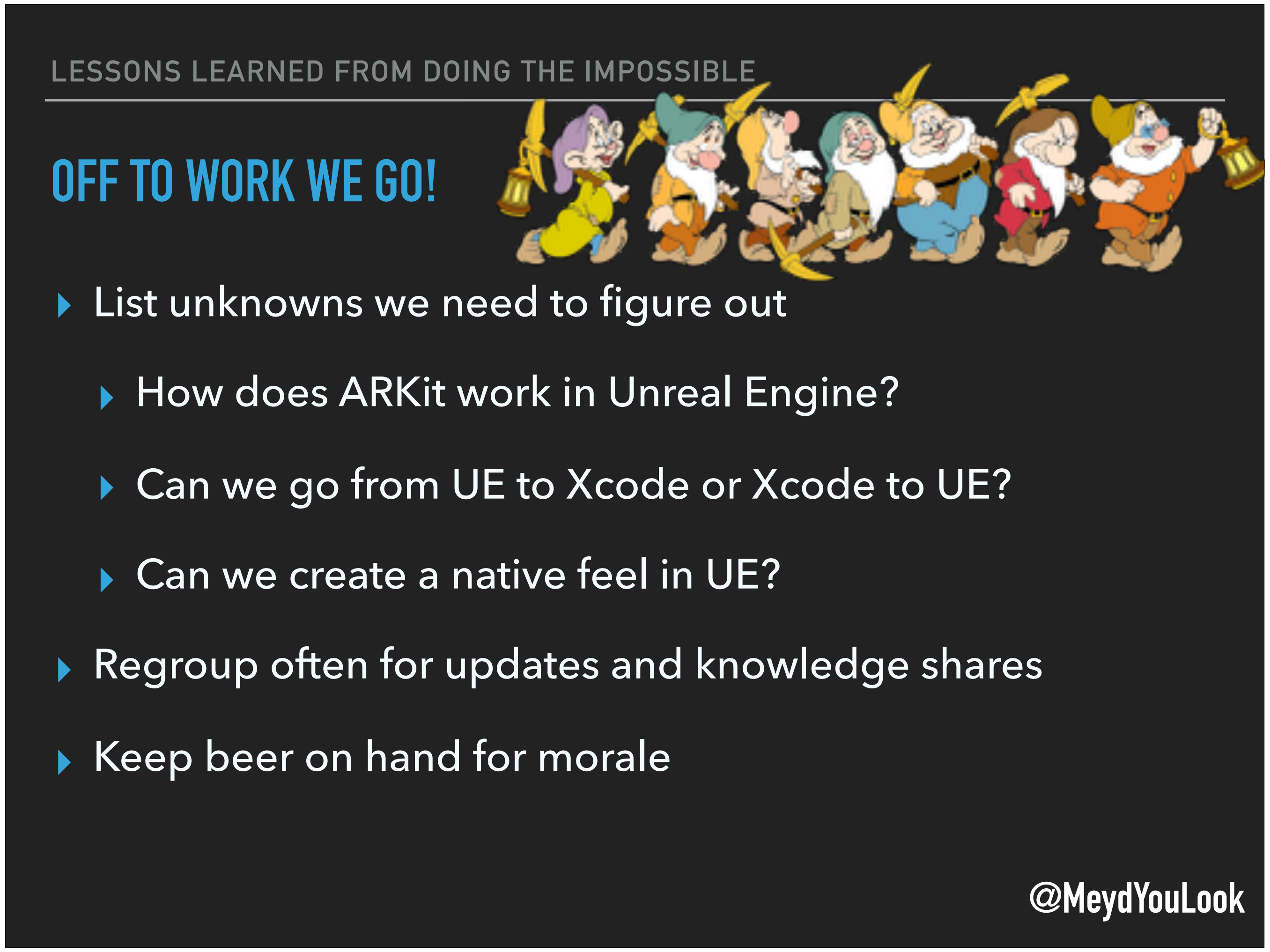
- Vendor pipeline required Unreal Engine
- ARKit in Unreal Engine was in beta
- Extremely limited resources and documentation
- Vendor approached project with a different mindset
- Can you create native iOS experience with Unreal Engine?



## NATIVE IOS

- Augmented reality framework exclusive to iOS (at the time)
- Apple more likely to promote apps exclusive to platform
- Ability for maximum customization
- Team's strength and expertise in native iOS development
- Broad usability and user experience

WHAT DID WE KNOW WE WANTED/NEEDED



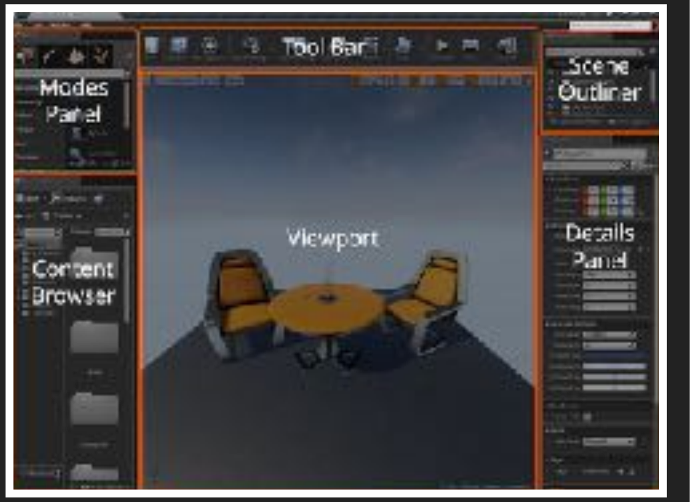
## OFF TO WORK WE GO!

- List unknowns we need to figure out
  - How does ARKit work in Unreal Engine?
  - Can we go from UE to Xcode or Xcode to UE?
  - Can we create a native feel in UE?
- Regroup often for updates and knowledge shares
- Keep beer on hand for morale

In the interest of time we divvy up the work in order to cover as much ground as quickly as we can.
I start to work on learning how to get the AR working inside unreal engine.
Another developer starts to look at the viability of creating a native interface inside UE.
And the last dev works on figuring out whether we can actually bridge Xcode an Unreal Engine so that we can put our expertise to use writing code in Xcode.

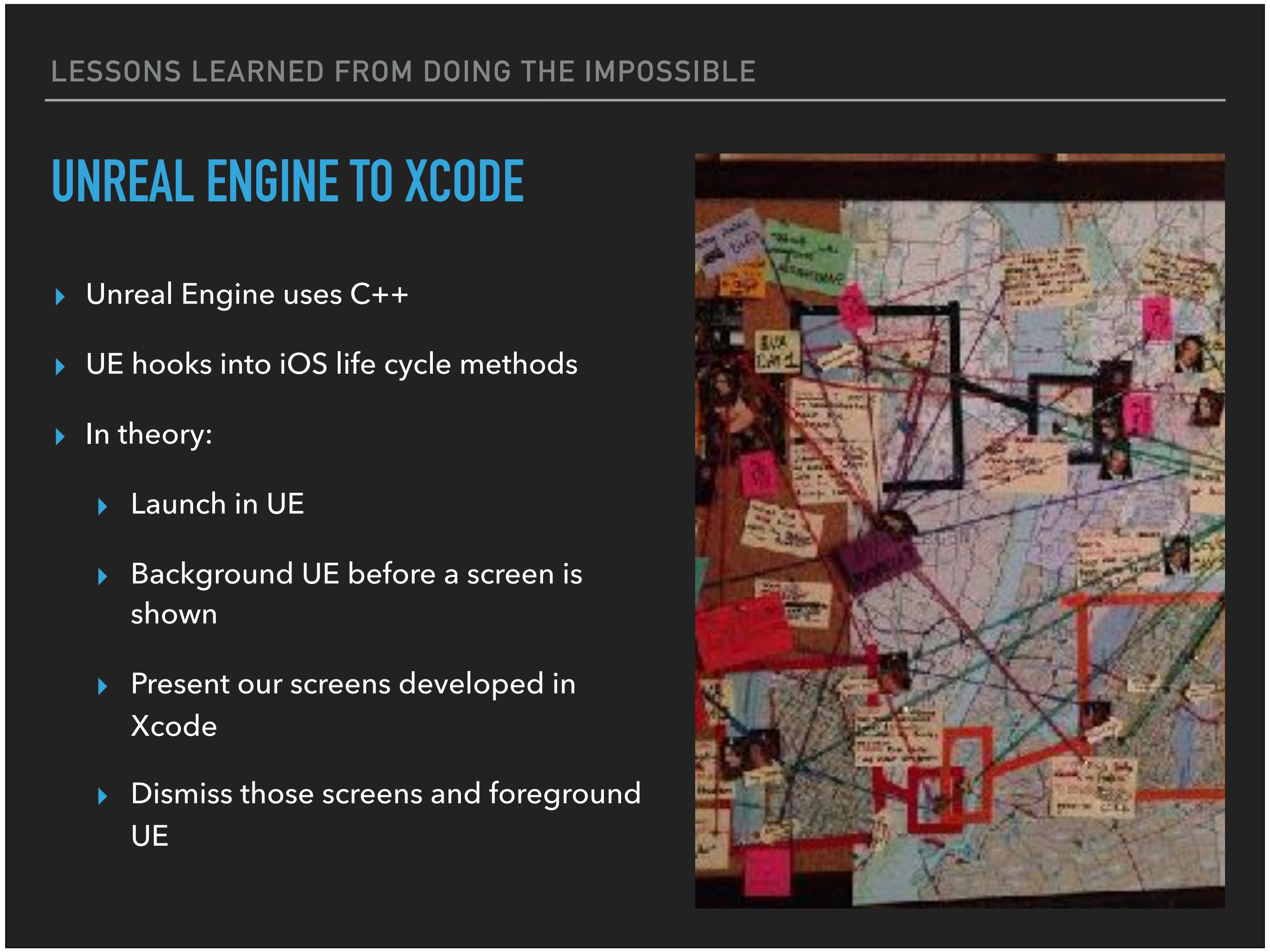
## ARKIT IN UNREAL ENGINE

- Originally had to launch UE from source
- Learning a new IDE
- Demo file issues
- Serious lack of documentation
- Able to place a banana in an AR space



@MeydYouLook

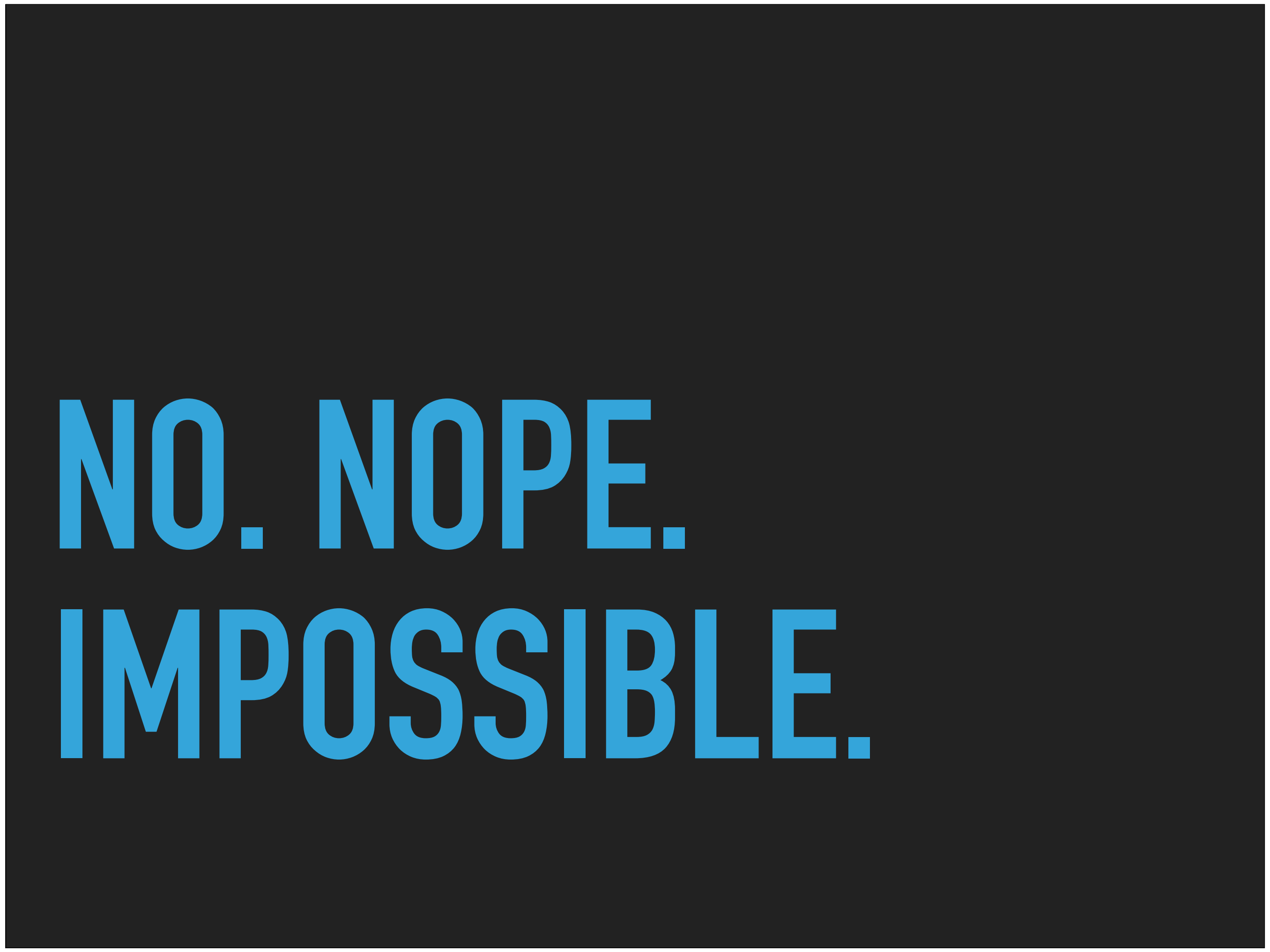
When we first started we had to launch UE from source to get access to ARKit, which took forever.
Learning a new IDE can be tricky and UE is not super user friendly. Lack of feedback, silent failures, difficult UI.



## UNREAL ENGINE TO XCODE

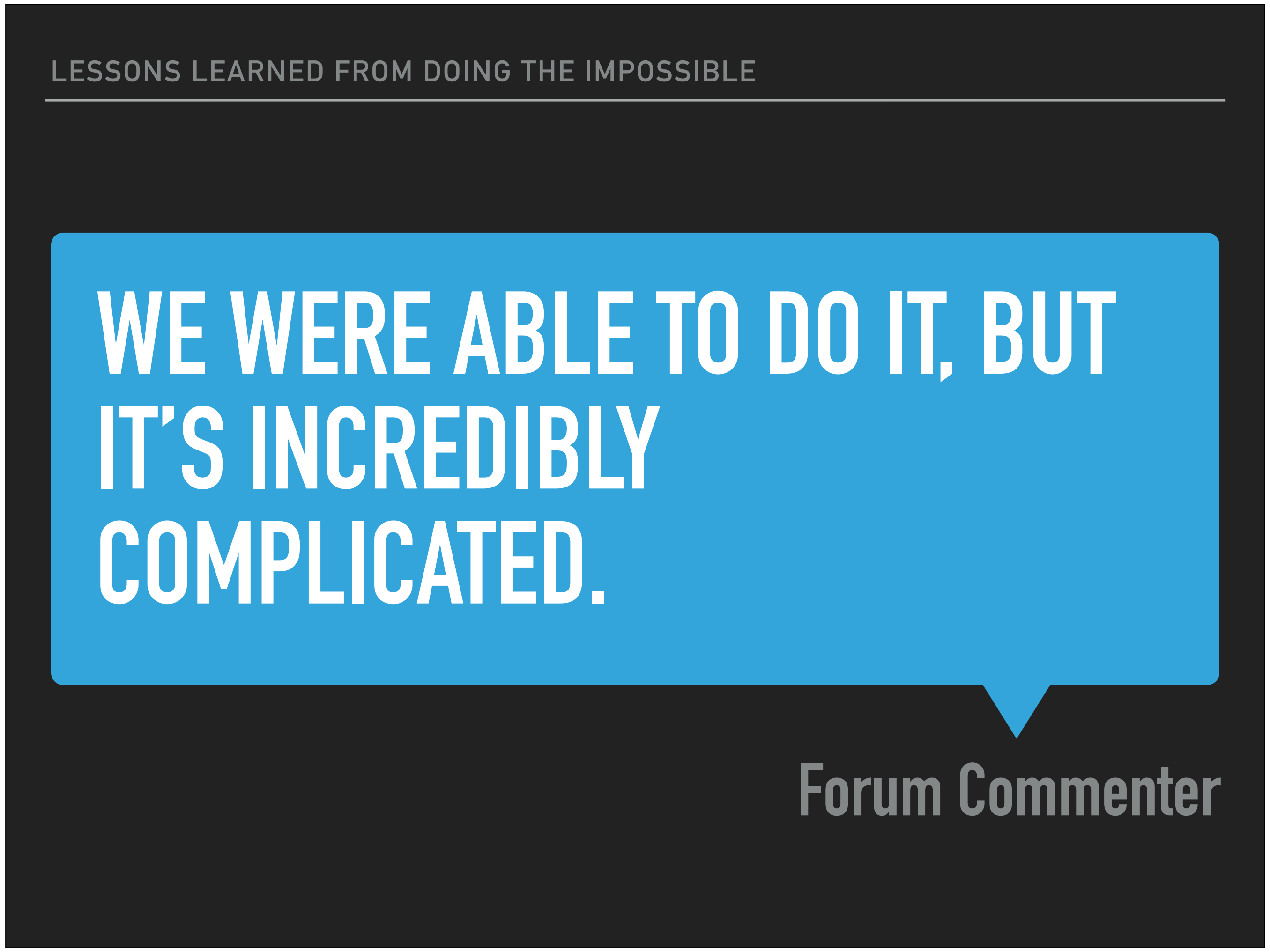
- Unreal Engine uses C++
- UE hooks into iOS life cycle methods
- In theory:
  - Launch in UE
  - Background UE before a screen is shown
  - Present our screens developed in Xcode
  - Dismiss those screens and foreground UE

C++ behind the scenes that hooks into life cycle methods we use in iOS development.
If we can intercept those methods, then we can have it call whatever we want when it launches.
So in theory we could have the app start in UE, but pause before presenting a screen we would tell it to show our screen we built in xcode. Placing UE in the background
Then on the Xcode side when we wanted the AR experience we could dismiss our screen and foreground UE.



# NO. NOPE. IMPOSSIBLE.

Everywhere we looked people said they tried and it was impossible.



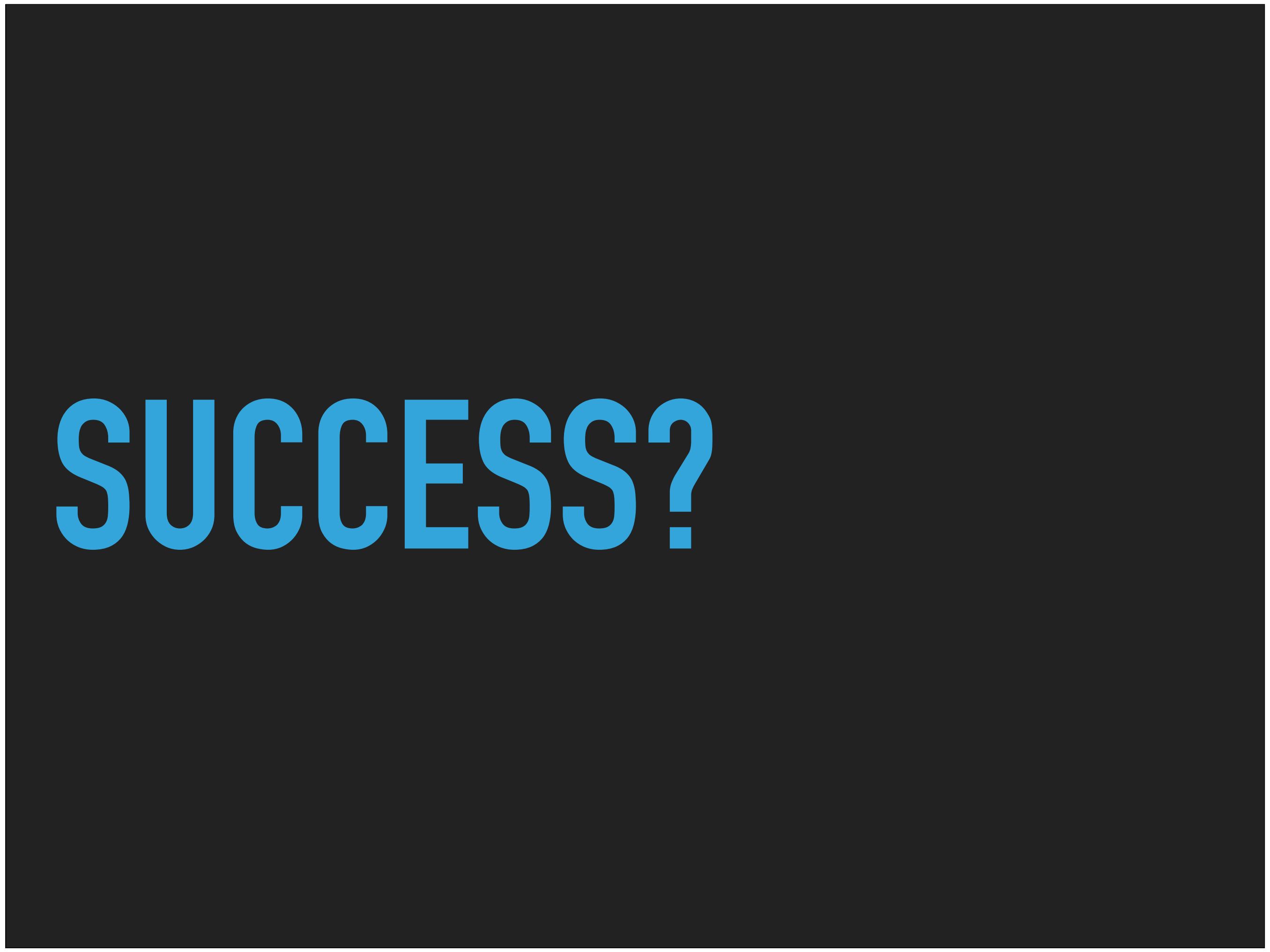
> WE WERE ABLE TO DO IT, BUT IT'S INCREDIBLY COMPLICATED.

Forum Commenter

A ray of light in the darkness

# SUCCESS!

My coworker actually figured it out. He was right and if you want the in depth technical step by step on how to do it, it’s up on the Detroit Labs blog.



# SUCCESS?

Project was canceled.
So what did we learn?

# DIVERSIFY TO DIVIDE & CONQUER

@MeydYouLook

Strategy is vital, especially on a short timeline.
Use the teams strengths to your advantage.
Knowledge share to accomplish more.

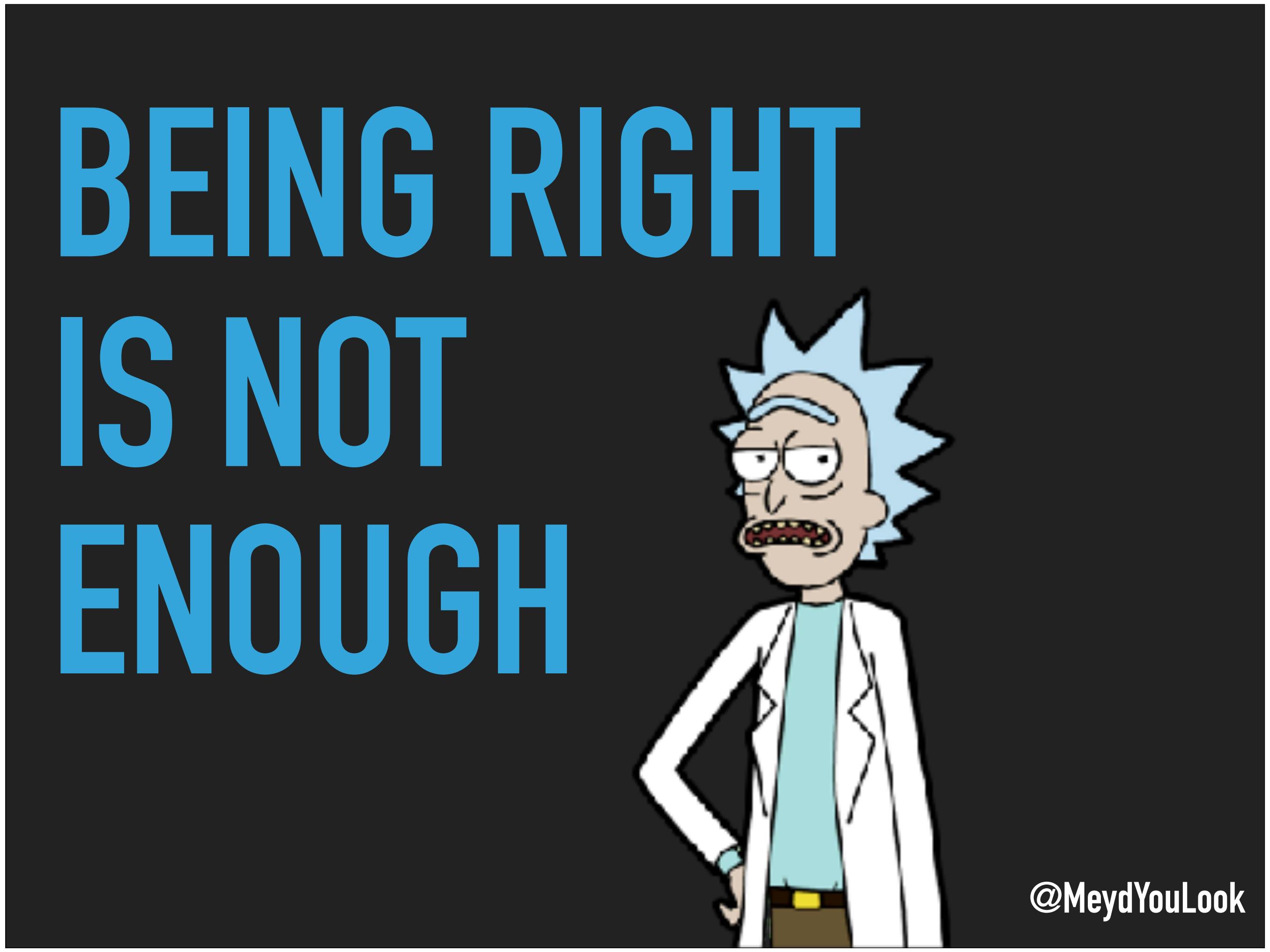
# BE A SCHOLAR

@MeydYouLook

Being able to dive deeply into documentation is a necessary skill.
Be a true student of your craft.

# SEMPER GUMBY

Always Flexible
In a project with a moving target try not to stress about things you can’t control.
This was not set up for success, but sometimes you can’t avoid that.



# BEING RIGHT IS NOT ENOUGH

@MeydYouLook

Have the courage of your convictions - enough to put your own time into getting the correct solution

# SHARING IS CARING

@MeydYouLook

Create the docs you wished you'd had. During and after.
Communication is key amongst the team.

# IT IS POSSIBLE

@MeydYouLook

Don’t get stuck in a rut.
May not be quick or easy but is likely possible.

# QUESTIONS?