

From one release per quarter to 30 times a day



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CTO, Xpirit Netherlands



WHY?

30

TO UNLOCK NEW THINKING!

IS DUPLICATE CODE BAD?

IS DUPLICATE CODE BAD?

IS DUPLICATE CODE BAD?

IS DUPLICATE CODE BAD?

LITTLE EXPERIMENT

BUILD A BASELINE

**WHAT IS IT THE ONE THING WE
DON'T HAVE ENOUGH OF?**

TIME

**MOST ORGANIZATIONS ARE
OPTIMIZED ON RESOURCES**

BETTER KNOWN AS PEOPLE

RESOURCE OPTIMIZED

EVERYONE WITH THE SAME TYPE OF WORK (LOGICAL COHESIVE) WORKS TOGETHER ON SIMILAR WORK

- ◇ PEOPLE ARE EXCHANGEABLE, PROCESS DRIVES THE DELIVERY AND IS DESCRIBED IN DETAIL TO CREATE A PREDICTABLE OUTCOME;
- ◇ WORK BECOMES MUNDANE, NO EMPOWERMENT, HIERARCHICAL ORGANIZATIONS;
- ◇ DEPARTMENTS ARE SILOS;
TICKETS TO TRANSFER WORK TO OTHERS.

**WE NEED TO MOVE FROM
RESOURCE OPTIMIZED
TO TIME TO MARKET OPTIMIZED**

NOW MOVE TO TIME TO MARKET OPTIMIZED

- CUSTOMER JOURNEY;
- ORGANIZED ON VALUE STREAM (FUNCTIONAL COHESIVE)
- LESS HAND-OFFS, HIGHER QUALITY AND FEWER HIGHLY SKILLED PEOPLE IN THE VALUE STREAM.

MEET DEVOPS

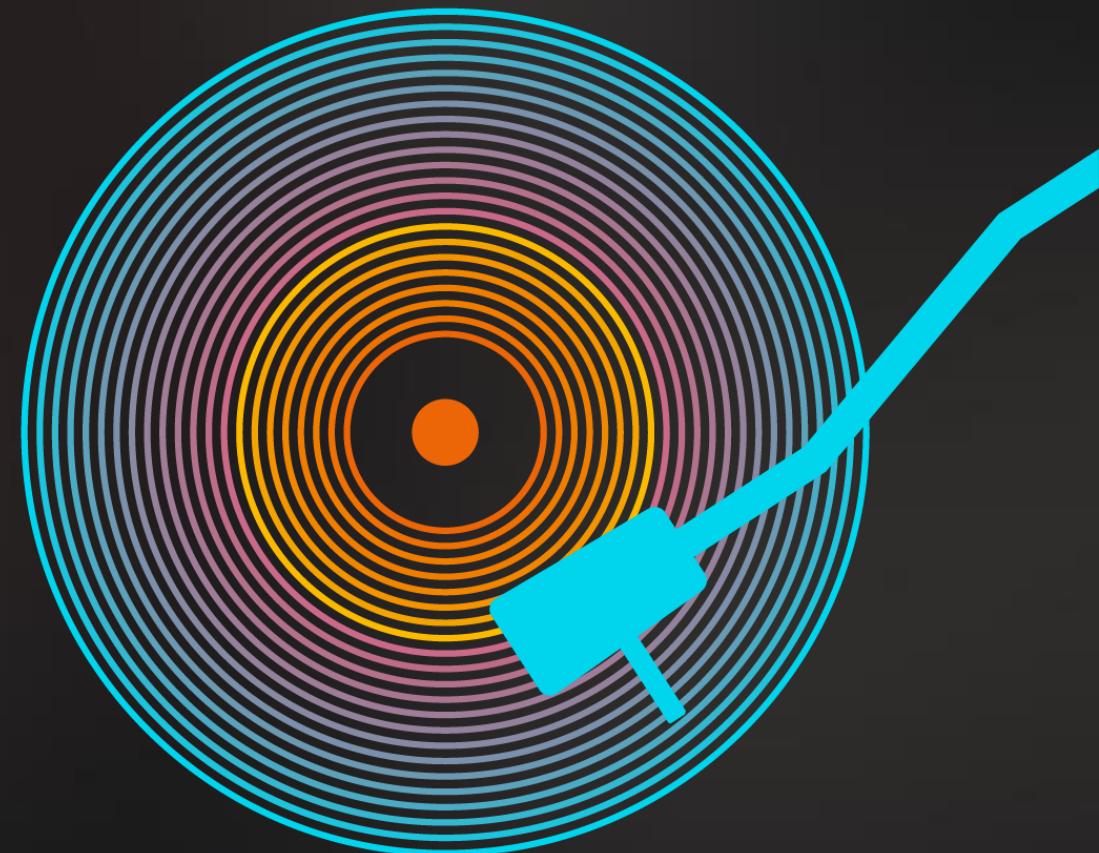
**“DEVOPS IS THE UNION OF PEOPLE, PROCESS, AND
TECHNOLOGY TO ENABLE CONTINOUS DELIVERY OF
VALUE TO OUR END USERS.”**

Donovan Brown – Principal DevOps Manager

**HOW WOULD A
JOURNEY TOWARDS
MULTIPLE RELEASES
IN A DEVOPS TEAM
LOOK LIKE?**

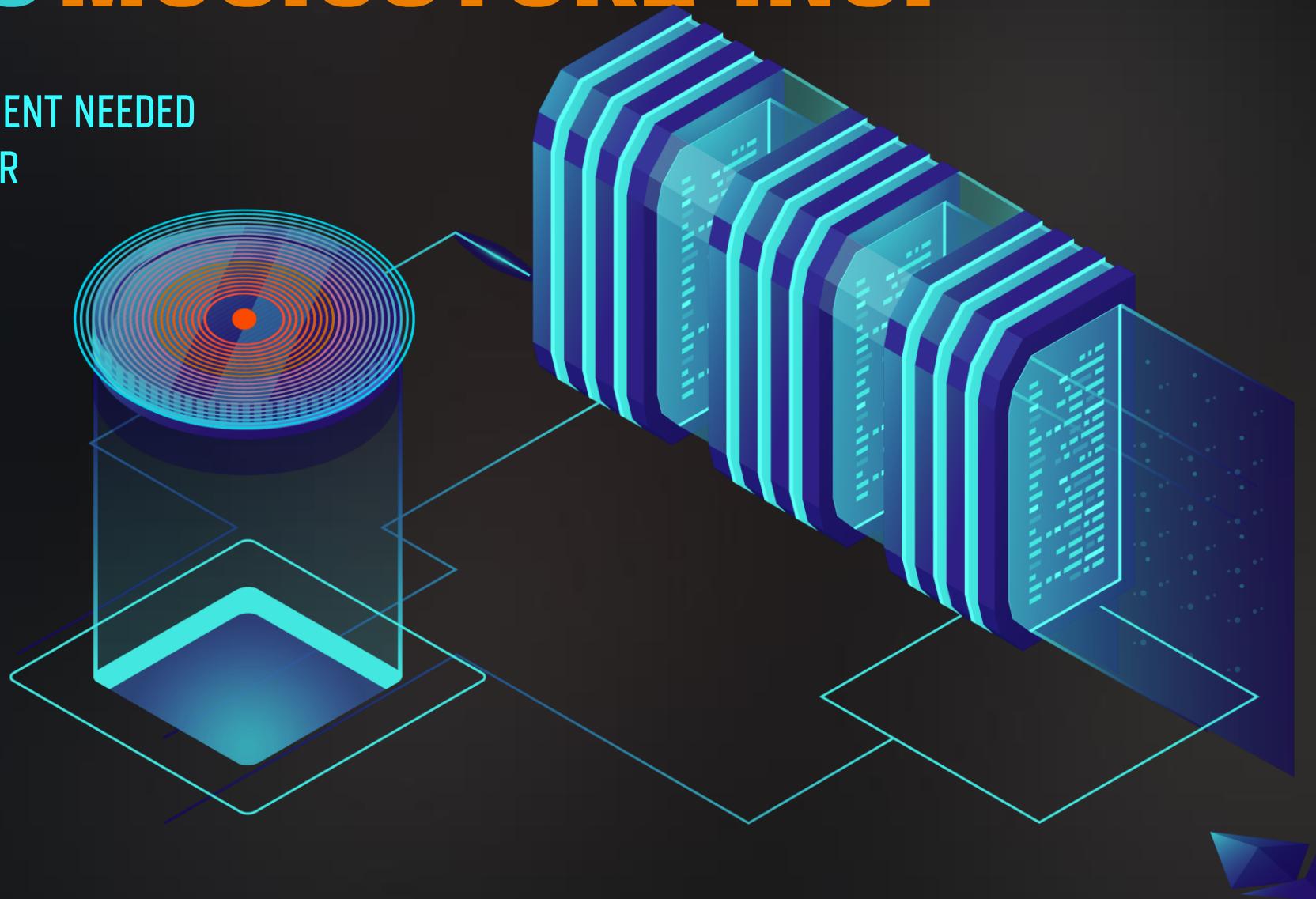
INTRODUCING MUSICSTORE INC.

MUSIC STORE COMPANY / SELLS VINYL RECORDS /
HAS ONLINE SHOP / NEEDS TO COMPETE NOW



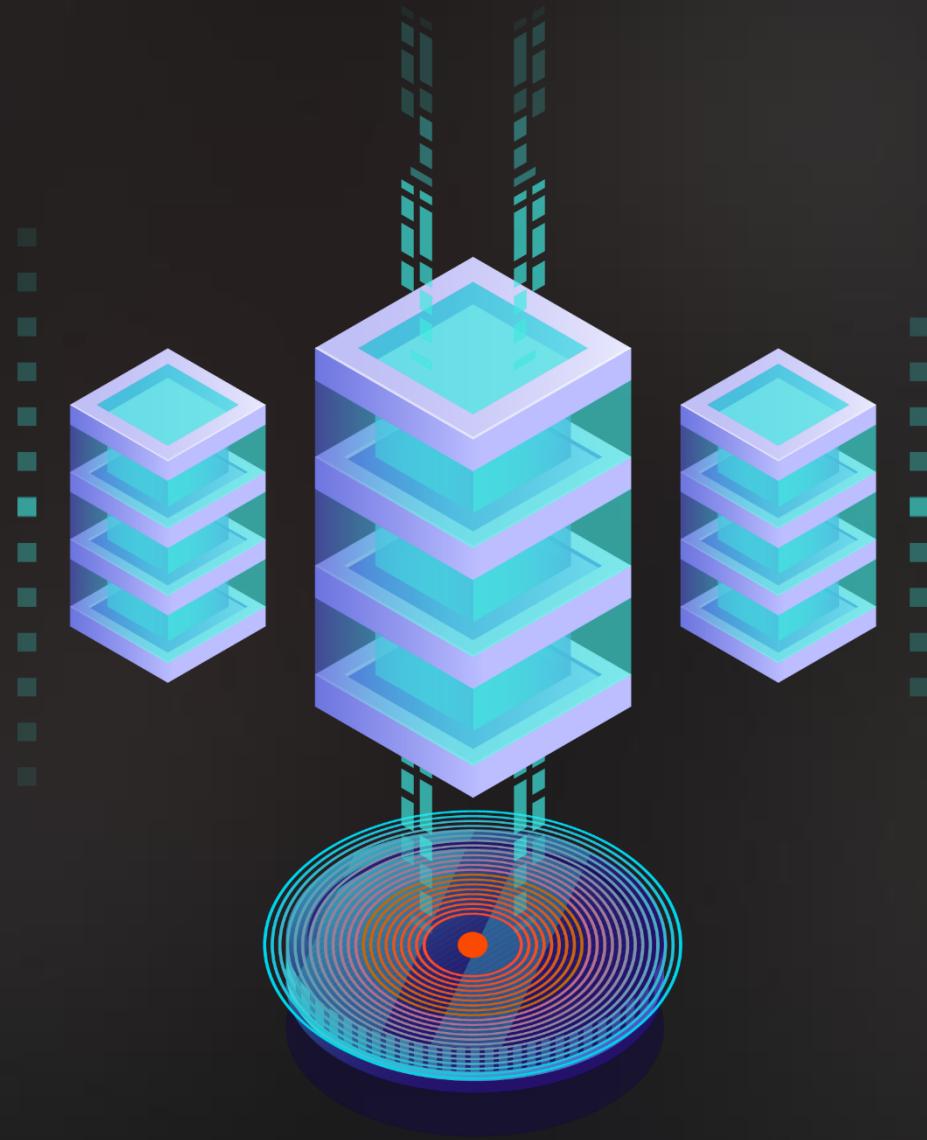
ISSUES MUSICSTORE INC.

- ◆ NEW INVESTMENT NEEDED
IN DATACENTER



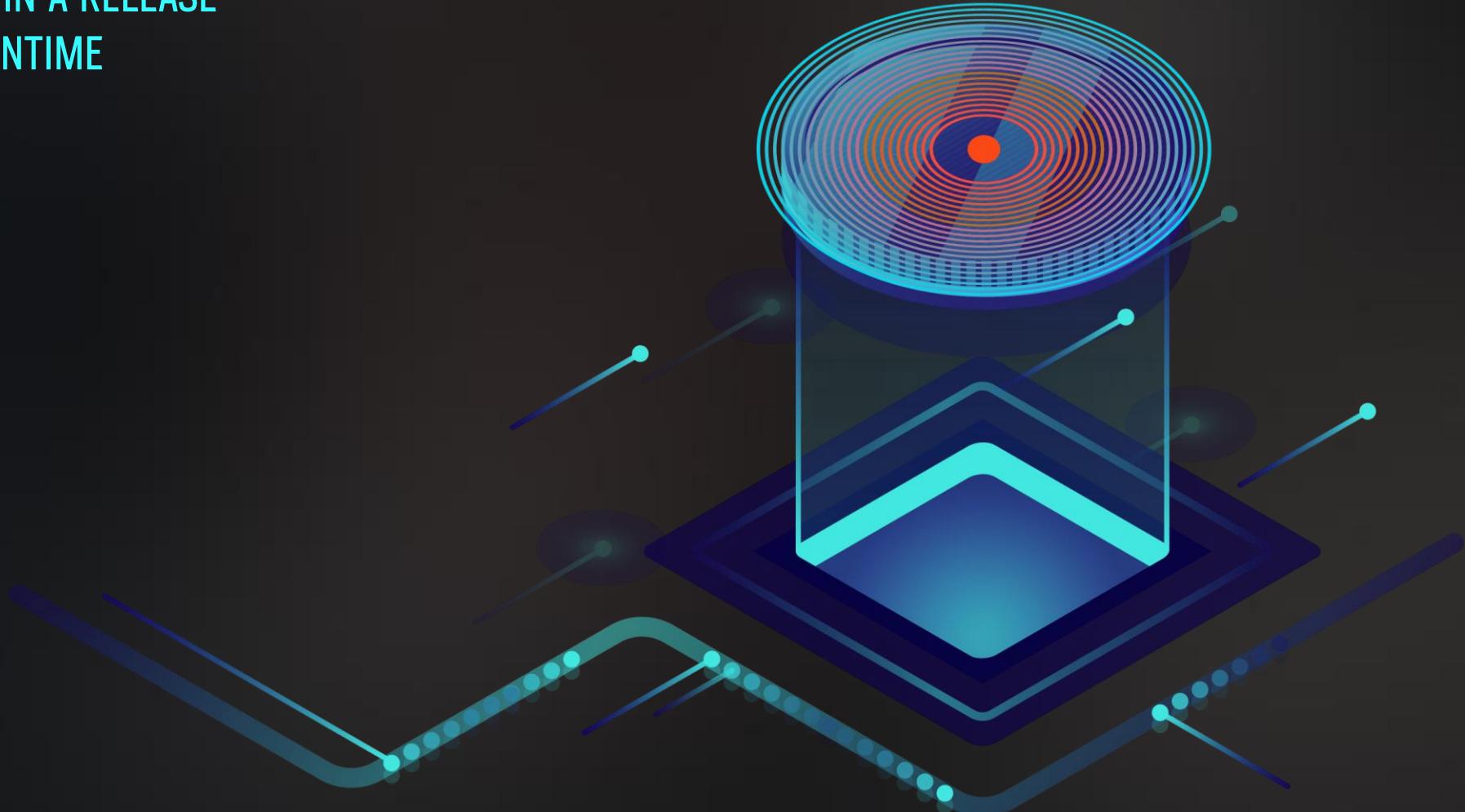
ISSUES MUSICSTORE INC.

- ⬢ HARD TO MAKE CHANGES TO CURRENT APPLICATION



ISSUES MUSICSTORE INC.

- ⬢ ALL CHANGES IN A RELEASE REQUIRE DOWNTIME



ISSUES MUSICSTORE INC.

- ❖ HARD TO COMPETE IN CURRENT BUSINESS,
NEED TO CHANGE THE MODEL
 - SELL OTHER PRODUCTS, SUBSCRIPTION
SERVICES, ETC?



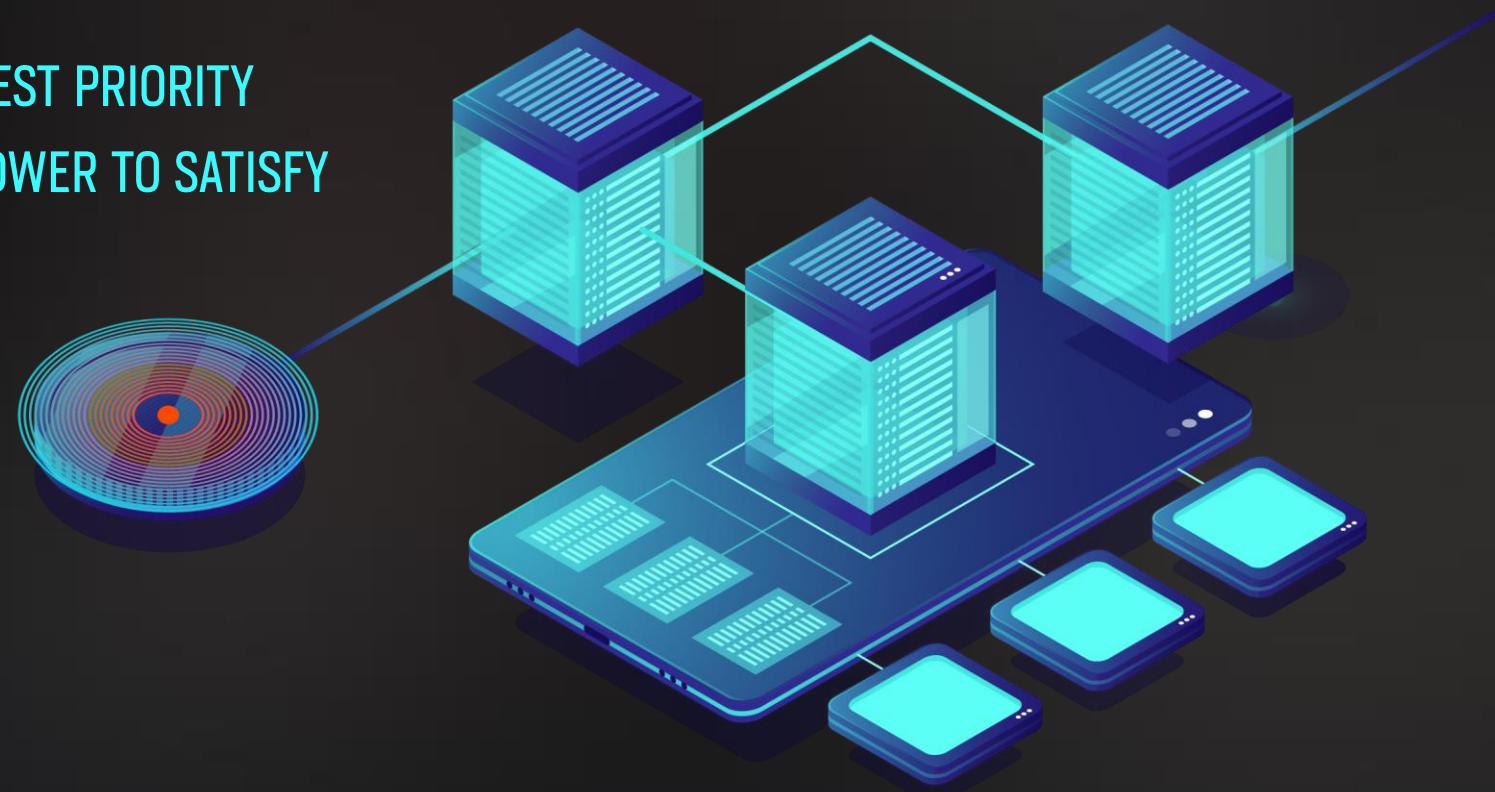
ISSUES MUSICSTORE INC.

- hexagon CUSTOMER FEEDBACK HAS BEEN THAT THE ONLINE SHOP WAS TO SLOW AND OLD FASHIONED
 - NEED FOR REVAMP OF THEIR ONLINE PLATFORM



STRATEGY MUSICSTORE INC.

- hexagon MOVE FROM THE TRADITIONAL ENTERPRISE APPROACH TO THE DEVOPS APPROACH
 - GET A CUSTOMER CENTRIC APPROACH TO DELIVER SOFTWARE
 - TIME TO MARKET IS HIGHEST PRIORITY
 - GIVES FLEXIBILITY AND POWER TO SATISFY CUSTOMERS FAST



STRATEGY MUSICSTORE INC.

- hexagon icon MOVE FROM TRADITIONAL DATA CENTER TO CLOUD
 - USE CLOUD AS ACCELERATOR TO TRANSFORM FASTER



STRATEGY MUSICSTORE INC.

- ❖ CHANGE REQUIRES RIGHT COMBINATION OF PEOPLE, PROCESS AND TECHNOLOGY TO BE IN ALIGNMENT TO MAKE THIS SUCCESSFUL

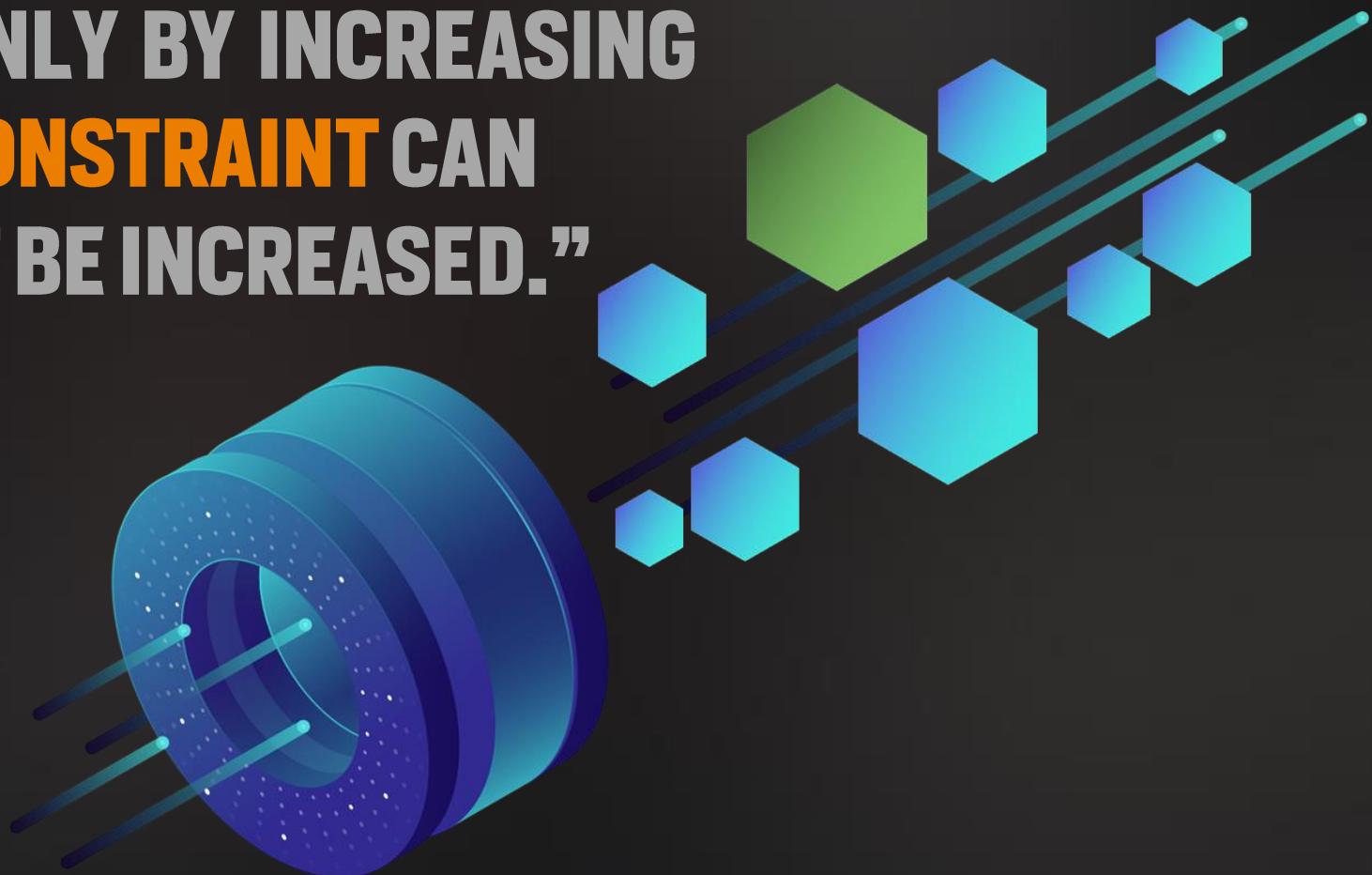


WE NEED TO CREATE

FLOW

**“IF THERE WAS NOTHING PREVENTING
A SYSTEM FROM ACHIEVING HIGHER
THROUGHPUT, ITS THROUGHPUT
WOULD BE INFINITE. ONLY BY INCREASING
FLOW THROUGH THE **CONSTRAINT** CAN
OVERALL THROUGHPUT BE INCREASED.”**

Elyahu M. Goldratt - The Goal



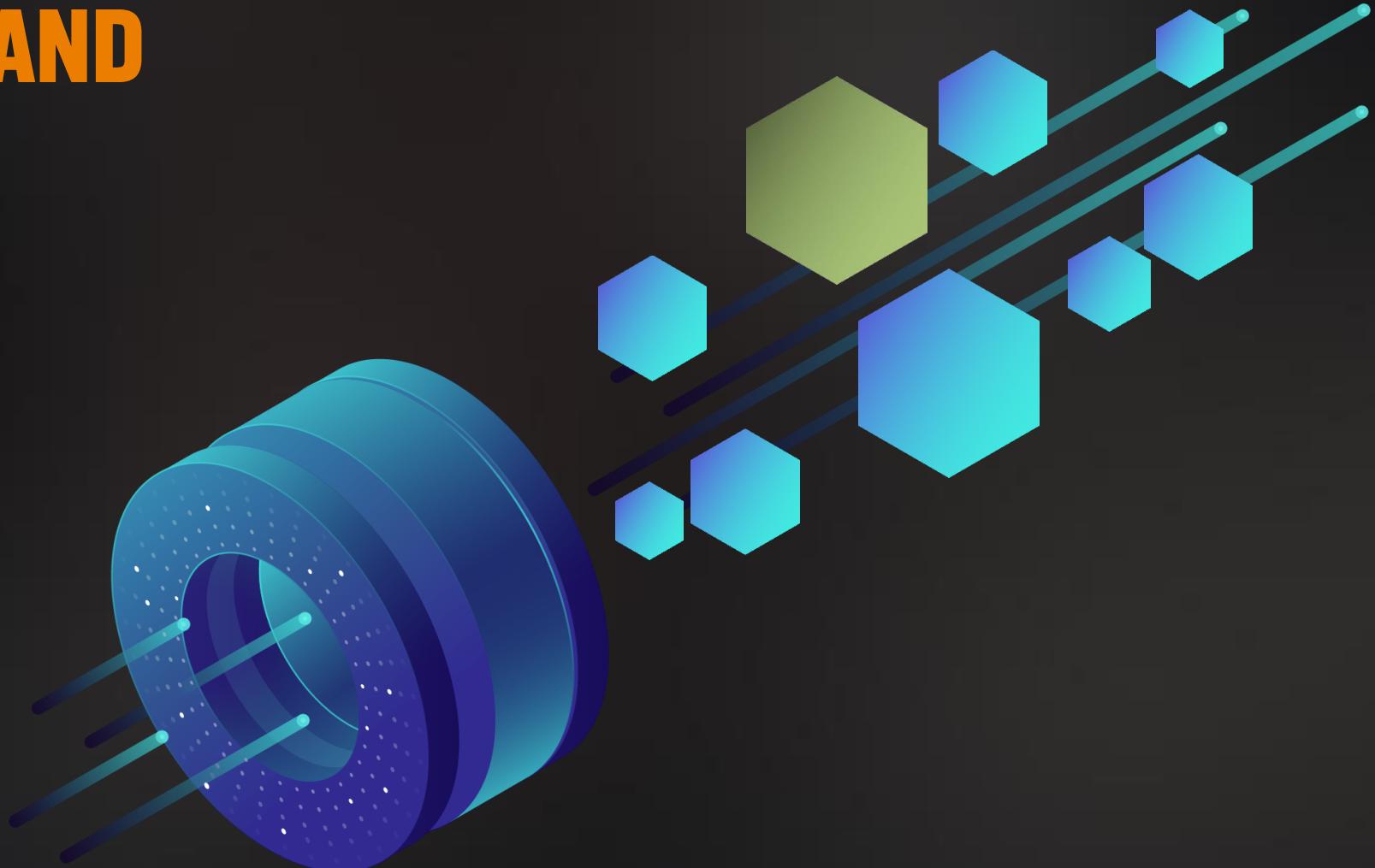
HOW TO OPTIMIZE MUSICSTORE INC. VALUE DELIVERY

- hexagon PIPE LINE WITH BOTTLENECK
- hexagon REMOVE BIGGEST BOTTLENECK / MORE FLOW
- hexagon WHAT IS NEXT / NEXT BIGGEST BOTTLENECK

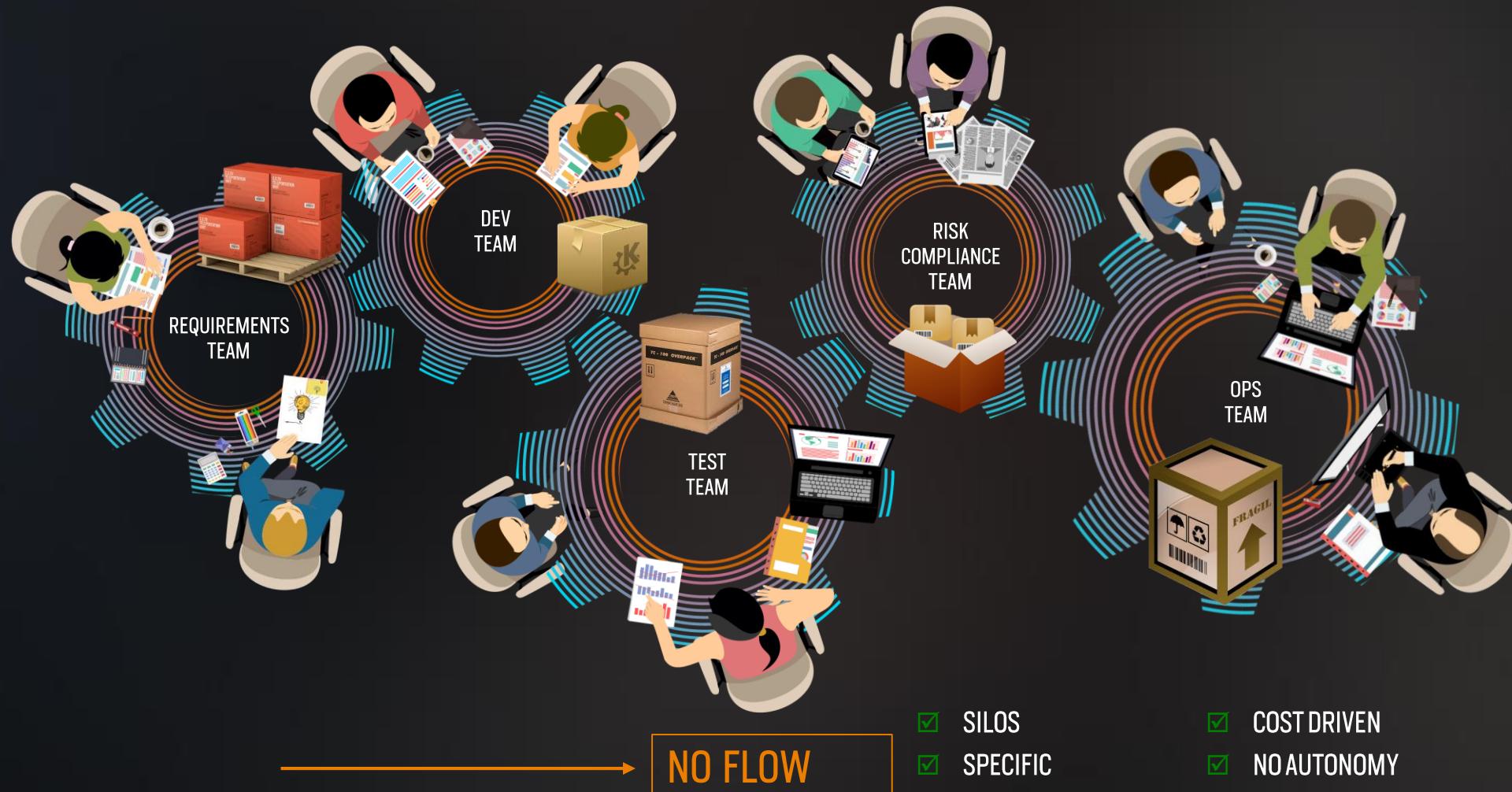
1

BOTTLENECK

**ORGANISATION AND
LACK OF FLOW**



CURRENT ORGANIZATION



CHANGES TO GET TO DEVOPS



INTELLIGENT INFRASTRUCTURE PLATFORM

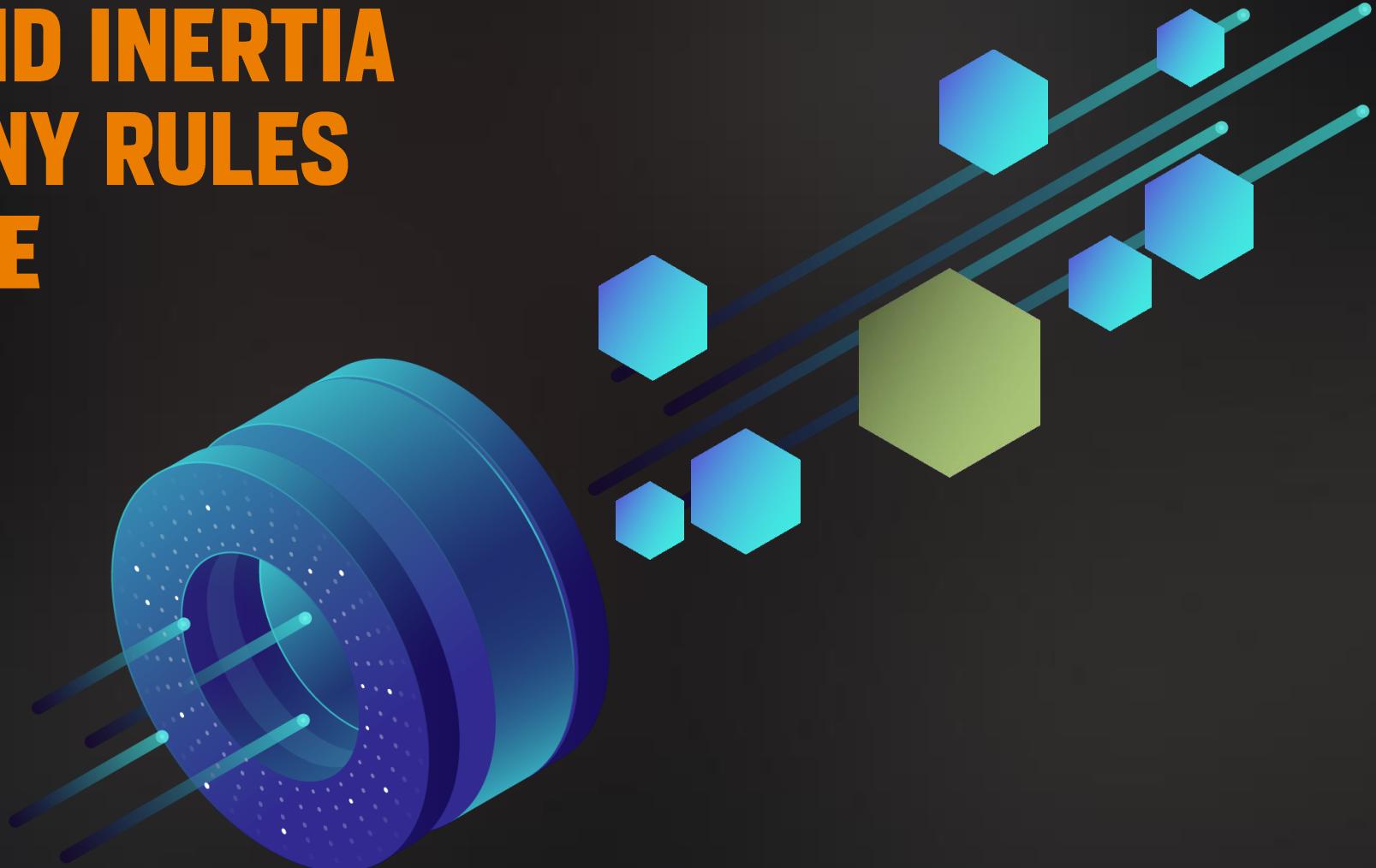
FLOW PER
VALUE STREAM

- MISSION COMMAND VALUE DRIVEN
- END TO END AUTONOMOUS
- CROSS-FUNCTIONAL PRODUCT TEAMS

2

BOTTLENECK

**EXISTING DC AND INERTIA
OF IT OPS / MANY RULES
ON GOVERNANCE**



DO OLD CONSTRAINTS STILL APPLY?

30x

- I NEED A TICKET TO GET A NEW MACHINE
- I NEED A DESIGN BEFORE IT CAN BE CREATED
 - HIGH COST OF CREATION AND REWORK
- I NEED TO BUY NEW HARDWARE, WILL COST WEEKS TO MONTHS

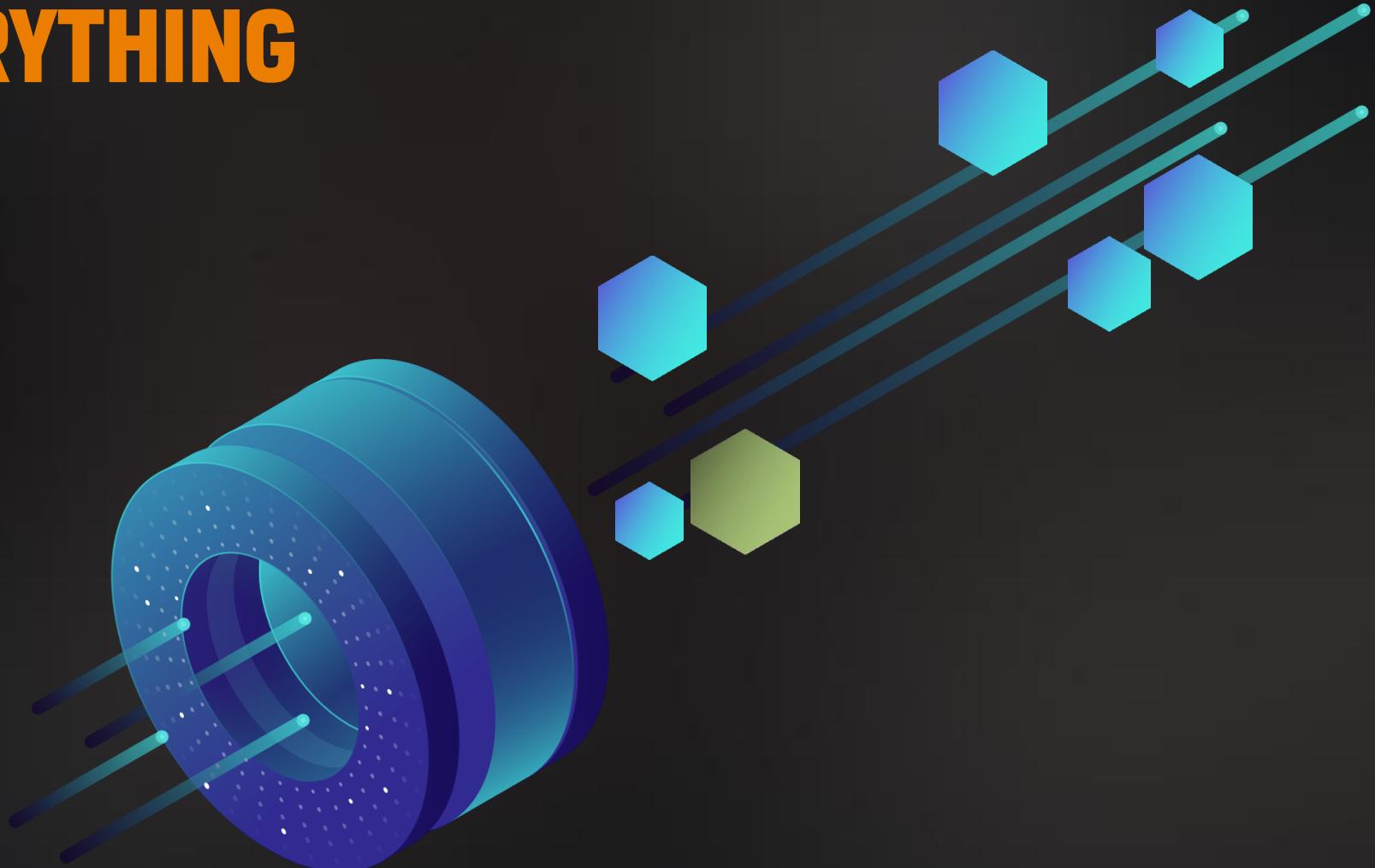
NO! MOVE TO PUBLIC CLOUD

- NEW MODEL CAPEX-/OPEX
- ALTERNATIVES TO GET BETTER CUSTOMER EXPERIENCE
 - FLEXIBLE SCALE
- STILL CAN BE USED AS PRIVATE INFRASTRUCTURE!
- FIRST STEP IS TO MOVE OUR EXISTING APPLICATION TO THE CLOUD
- FOLLOW DEVOPS PRACTICES
 - AUTOMATE AS MUCH AS YOU CAN!

3

BOTTLENECK

**TOOLING / EVERYTHING
STILL MANUAL**



SETTING UP CI, CD AND CLOUD DEPLOYMENT(S)

- AUTOMATE AS MUCH AS YOU CAN
- NEED FOR REPEATABLE AND RELIABLE DEPLOYMENTS TO THE CLOUD
- USE E.G. VSTS & AZURE ARM/CLI or JENKINS & AWS CLOUD FORMATION
- CI, ON EVERY COMMIT TO GIT TRIGGER A BUILD
- CD, ON EVERY BUILD, DEPLOY TO CLEAN AZURE RESOURCES

WHERE ARE WE?

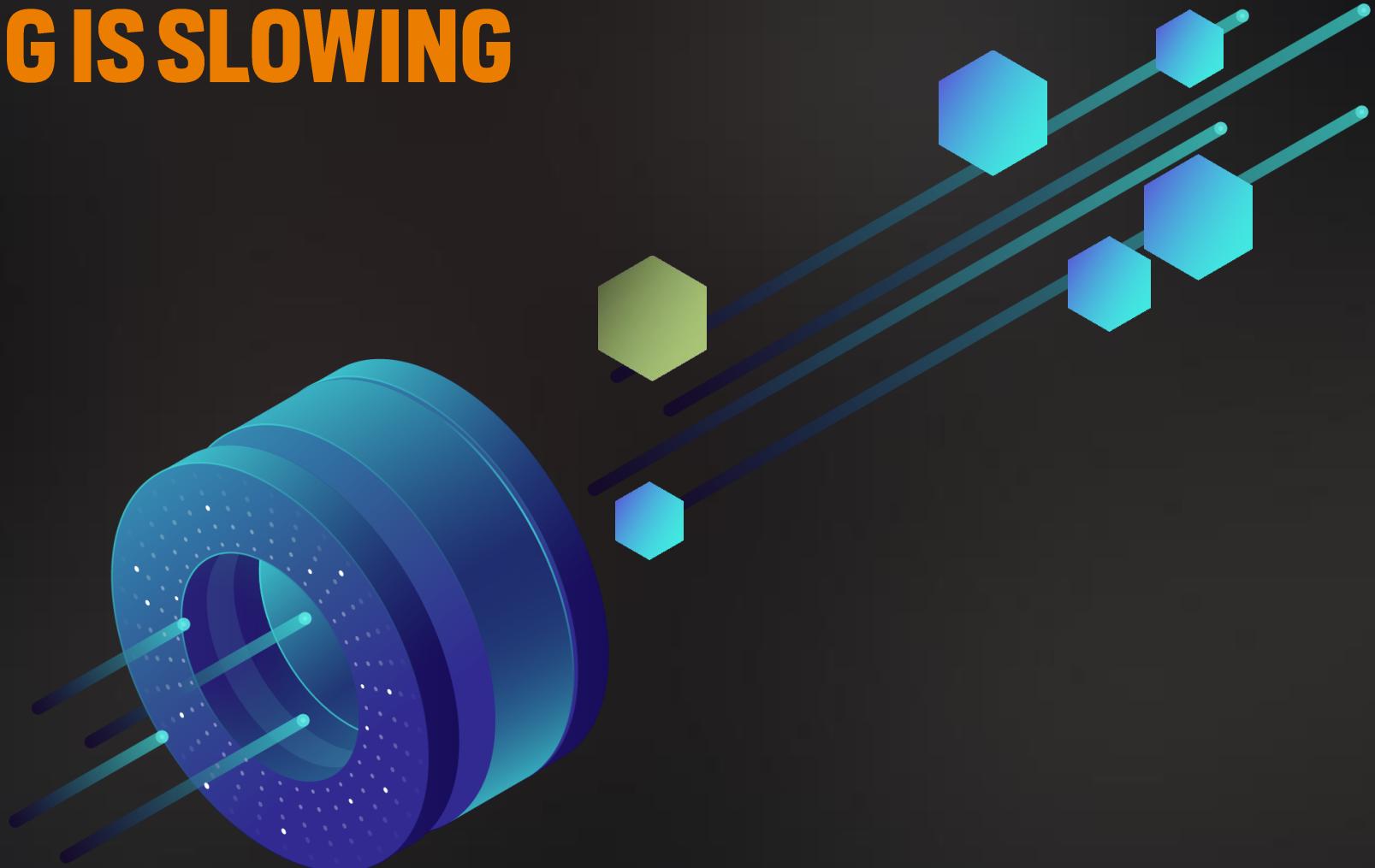
- hexagon icon WE HAVE VALUE STREAM BASED TEAMS
- hexagon icon WE HAVE A FULLY AUTOMATED BUILD
- hexagon icon WE HAVE FULLY AUTOMATED DEPLOYMENT TO YOUR PLATFORM OF CHOICE

WHAT IS NEXT?

4

BOTTLENECK

MANUAL TESTING IS SLOWING
US DOWN



LITTLE EXPERIMENT

MEASURE PROGRESS

TESTING IN PRODUCTION!

- hexagon icon SEPARATE DEPLOYMENT FROM FEATURE REVEAL
- hexagon icon ENABLE FEATURE FOR SPECIFIC USERS ON DEMAND
- hexagon icon MEASURE (BUSINESS) RESULTS
- hexagon icon A/B TESTING, DARK LAUNCH, CANARY RELEASE

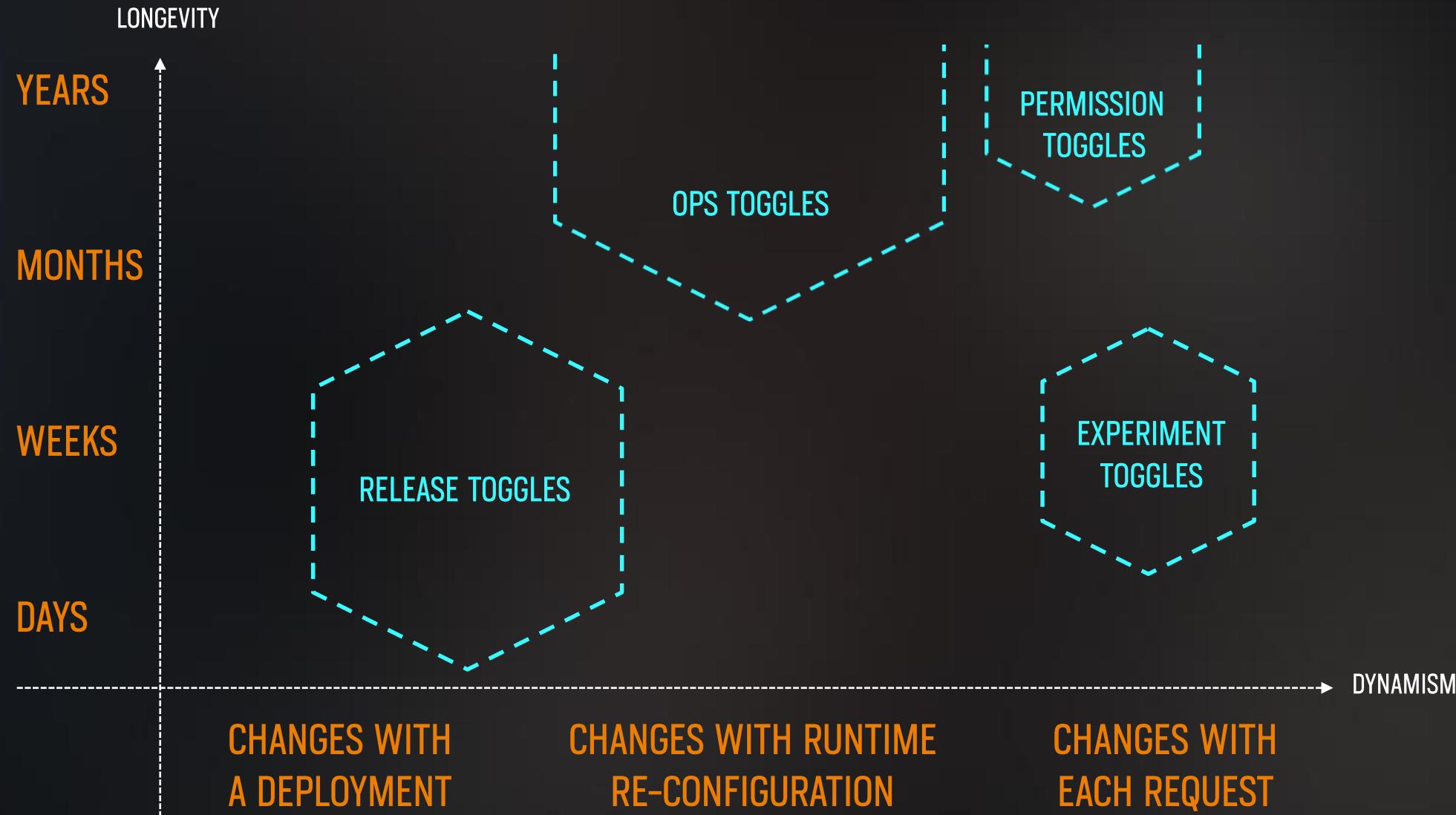
USE OF FEATURE FLAGS / TOGGLES

- hexagon WHEN YOU WANT TO SHIP OFTEN, HOW DO YOU COPE WITH UNFINISHED OR UNTESTED CODE?
- hexagon TRADITIONALLY, YOU USE FEATURE BRANCHES TO ISOLATE
 - BUT WHAT IF YOU SHIP DAILY OR WEEKLY?
- hexagon BREAK UP CHANGES IN INDEPENDENT PARTS THAT CAN BE RELEASED SEPARATELY
 - USE FEATURE TOGGLES/FLAGS TO ENABLE OR DISABLE FEATURES
 - GIVE BUSINESS CONTROL OVER WHO GETS WHICH FEATURE

FEATURE TOGGLES

- ⬢ FEATURE TOGGLES NEED TO BE MAINTAINED!
- ⬢ REMOVE THEM AS SOON AS YOU DO NOT NEED THEM
- ⬢ YOU PRODUCE TECHNICAL DEBT IF YOU KEEP THEM AROUND

source: <http://martinfowler.com/articles/feature-toggles.html>



WHERE ARE WE?

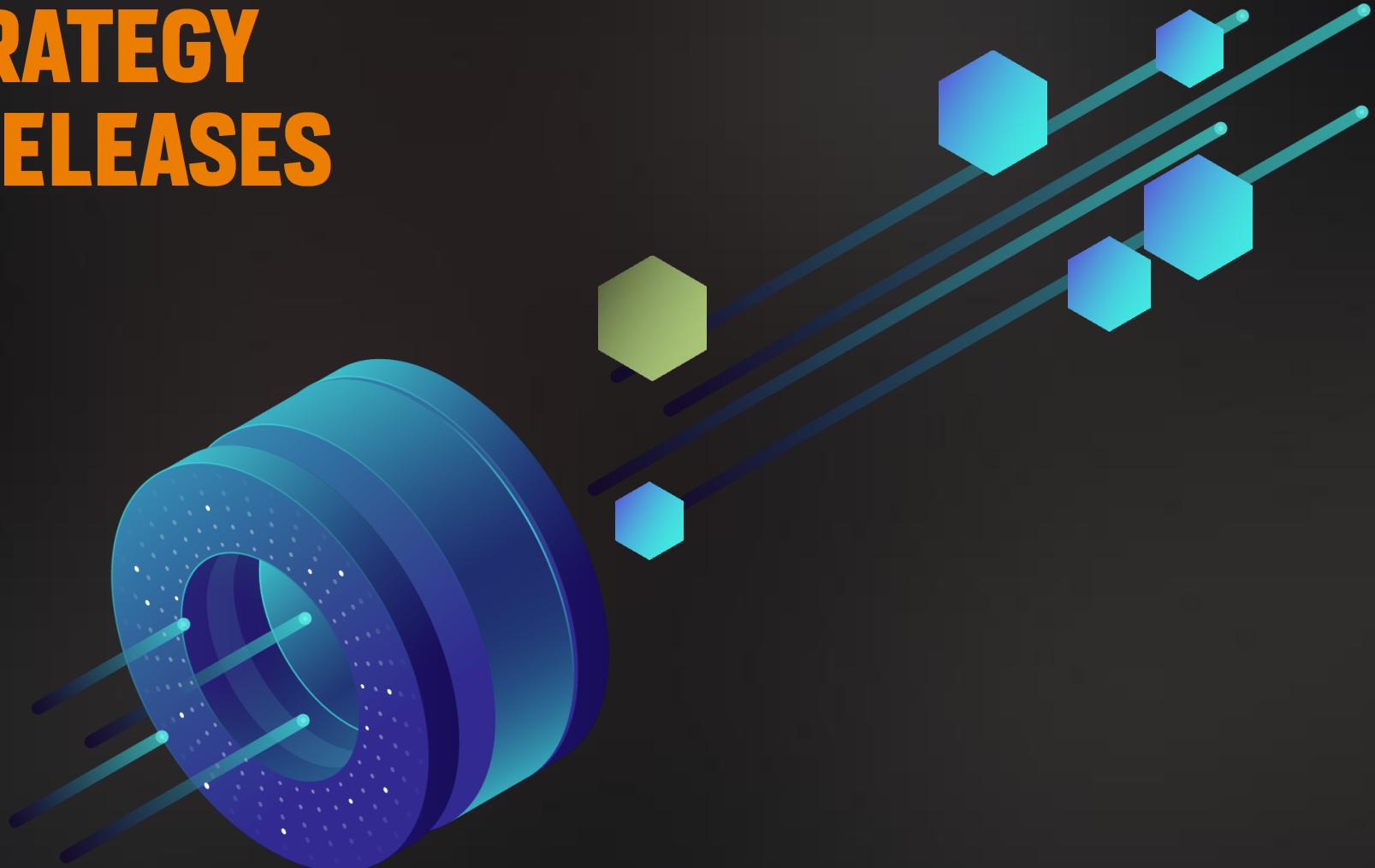
- hexagon icon WE HAVE VALUE STREAM BASED TEAMS
- hexagon icon WE HAVE A FULLY AUTOMATED BUILD
- hexagon icon WE HAVE FULLY AUTOMATED DEPLOYMENT TO CLOUD INFRASTRUCTURE
- hexagon icon TEST TIME IS REDUCED TO MINUTES

WHAT IS NEXT?

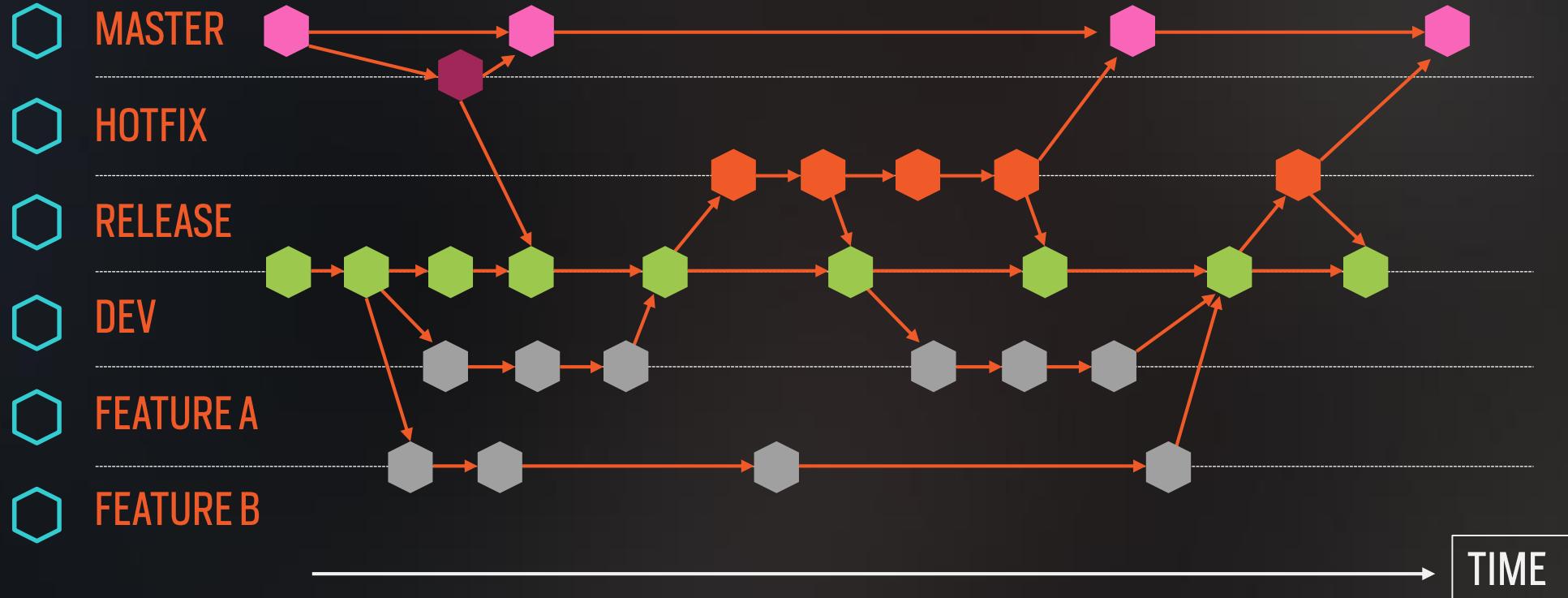
5

BOTTLENECK

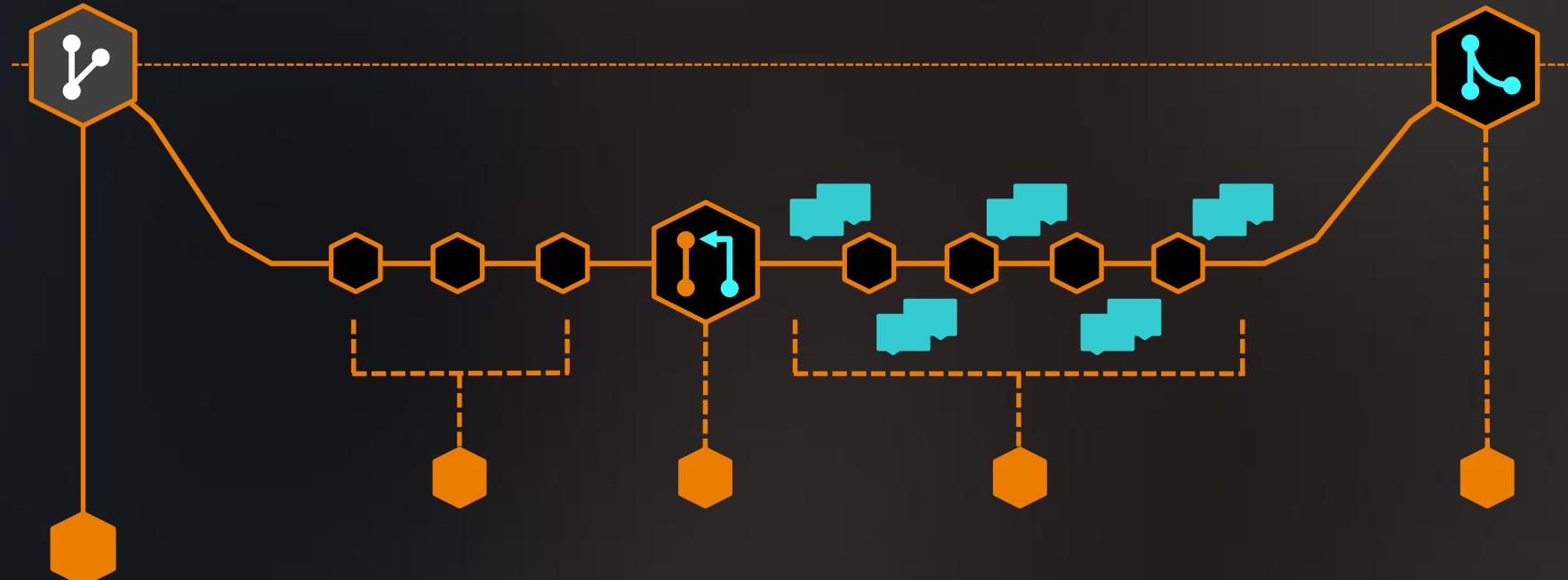
**BRANCHING STRATEGY
SLOWS DOWN RELEASES**



CURRENT: GIT-FLOW



NEW: GITHUB-FLOW



WHAT ABOUT COMPLIANCY?

USE BRANCH POLICY
BUILD / REVIEW /
MERGE USE PULL
REQUESTS

WHERE ARE WE?

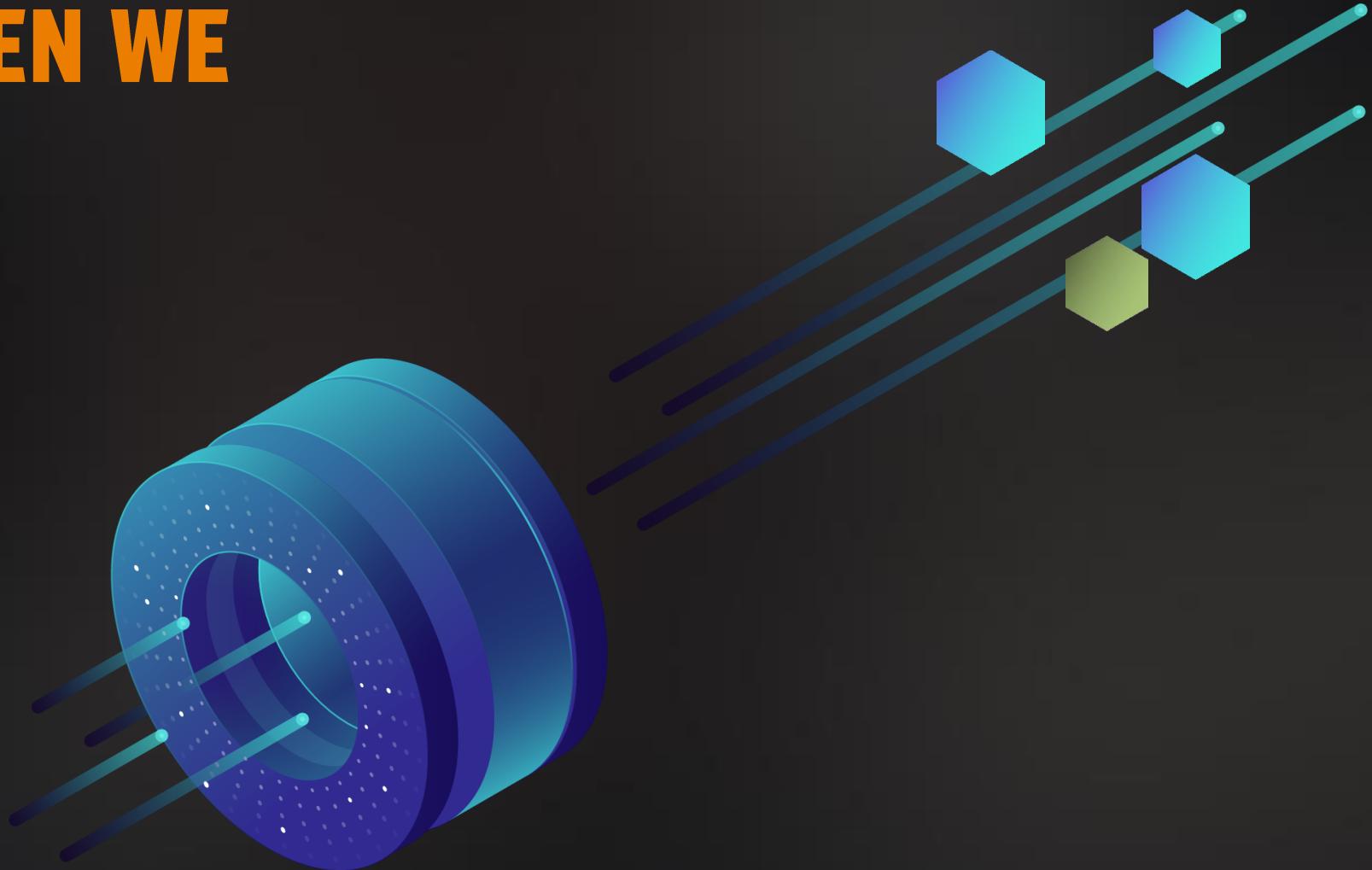
- hexagon icon WE CAN RELEASE MUCH FASTER
- hexagon icon EVERYTHING IS AUTOMATED AND COMPLIANT BY DEFAULT

WHAT IS NEXT?

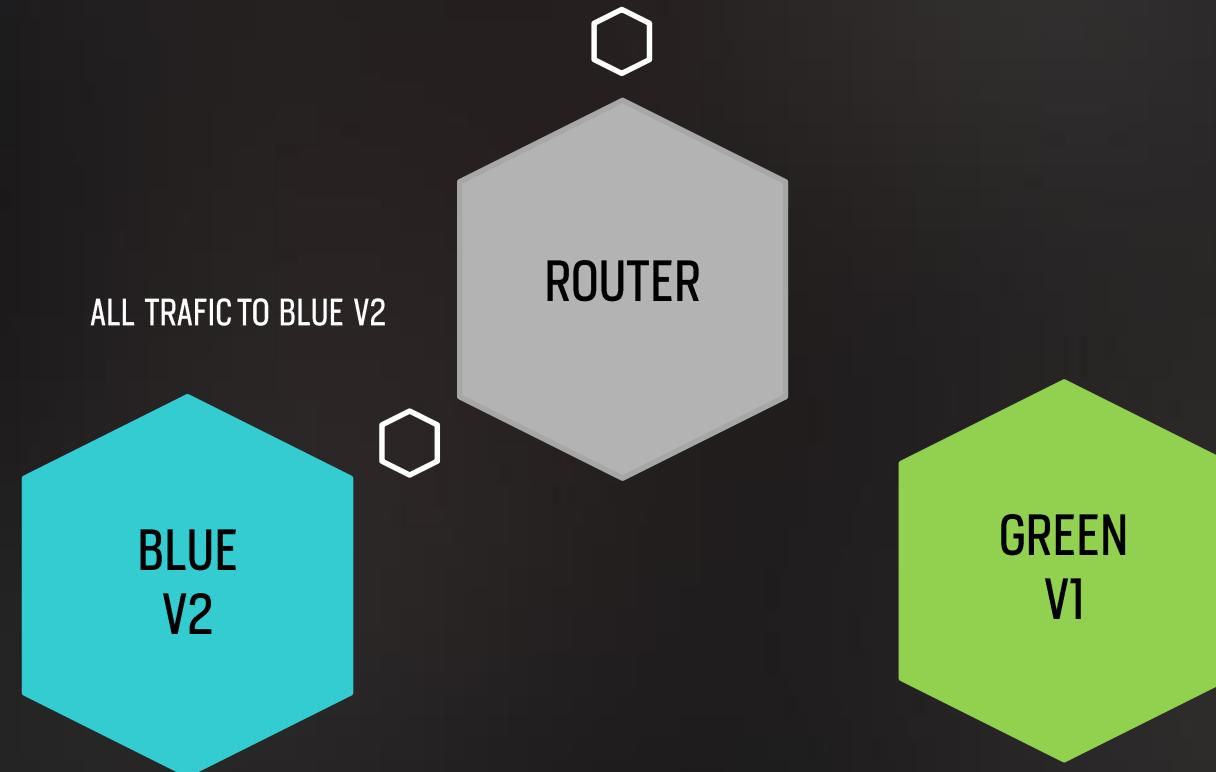
6

BOTTLENECK

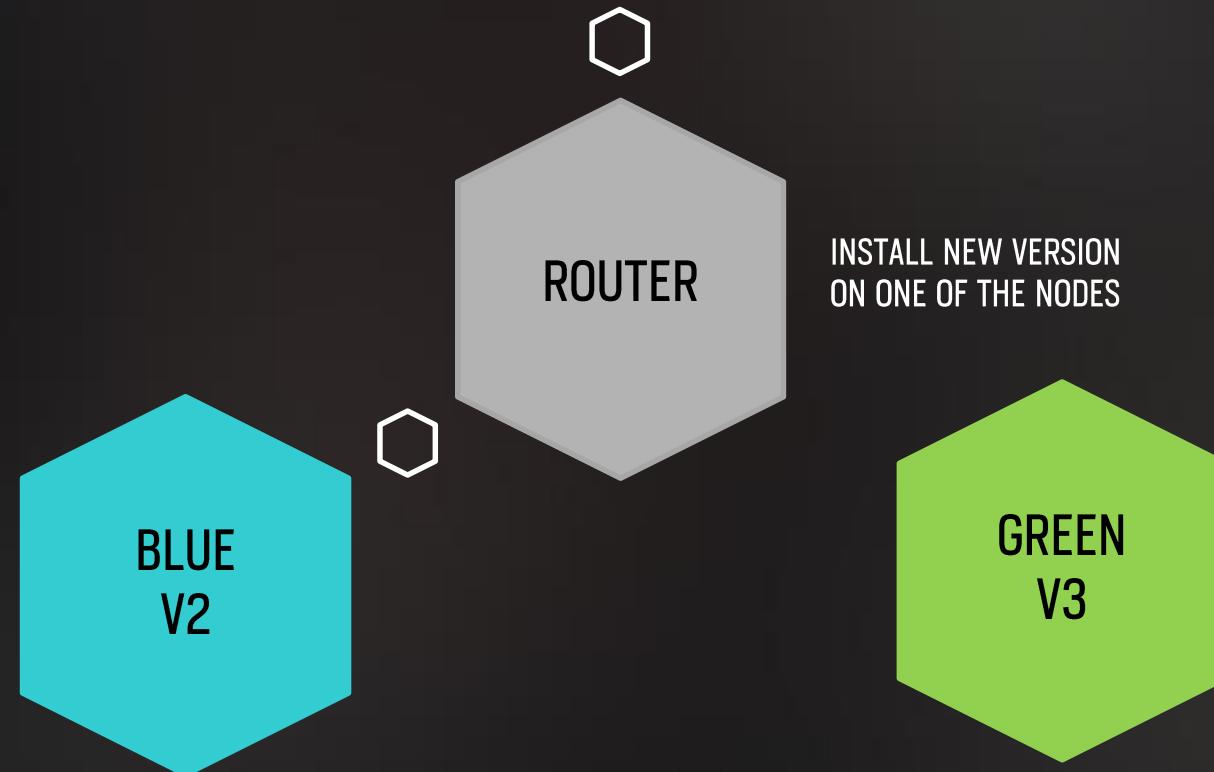
DOWNTIME WHEN WE
DEPLOY



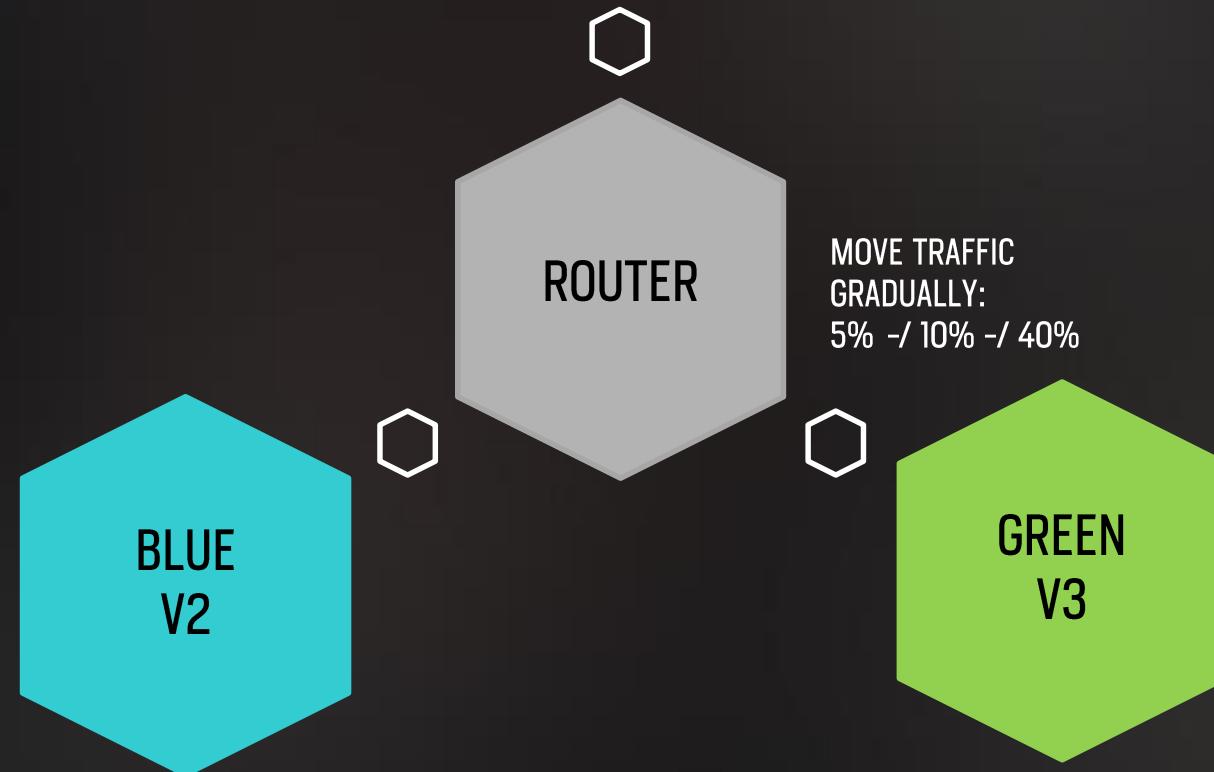
BLUE / GREEN DEPLOYMENTS



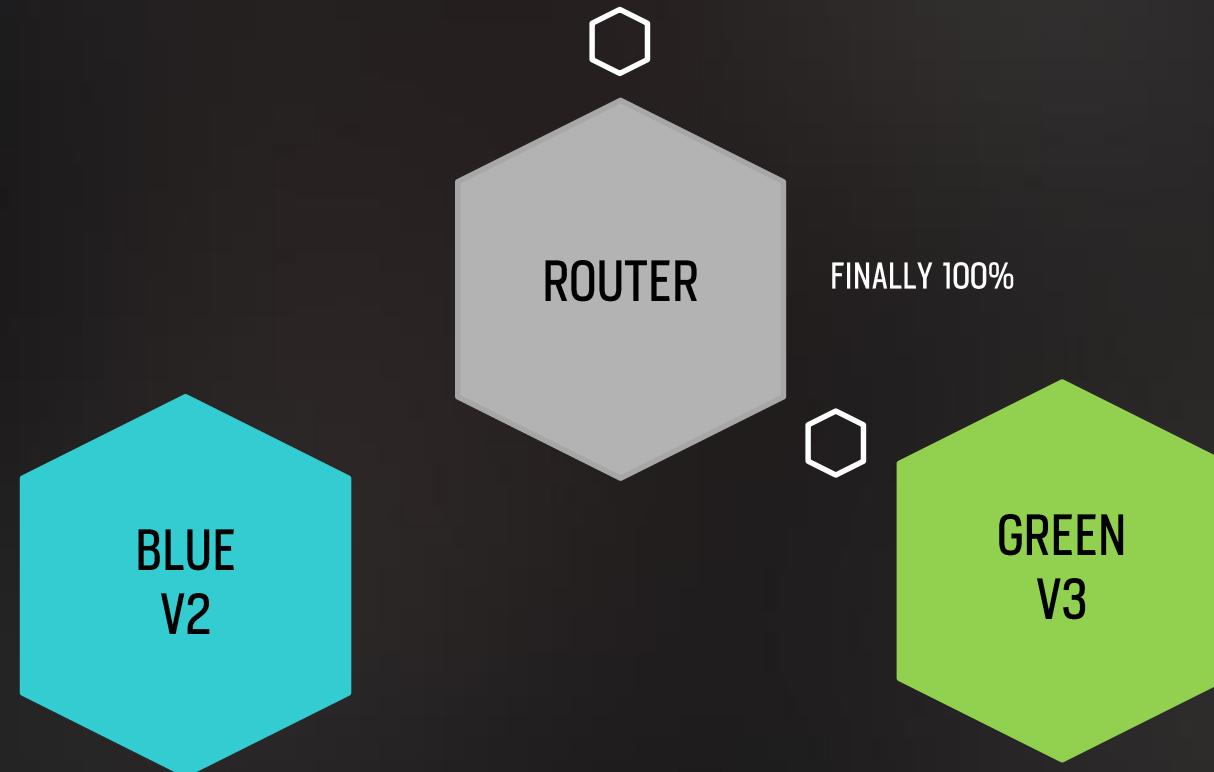
BLUE / GREEN DEPLOYMENTS



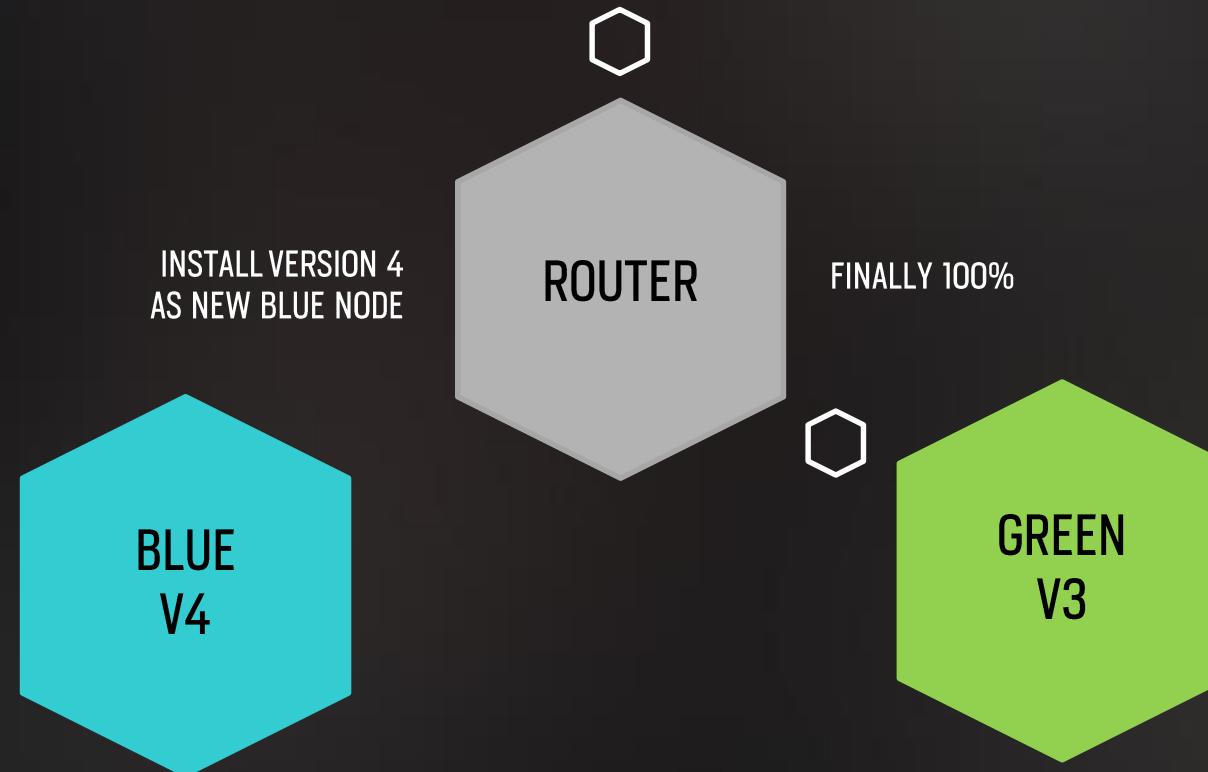
BLUE / GREEN DEPLOYMENTS



BLUE / GREEN DEPLOYMENTS



BLUE / GREEN DEPLOYMENTS



WHERE ARE WE?

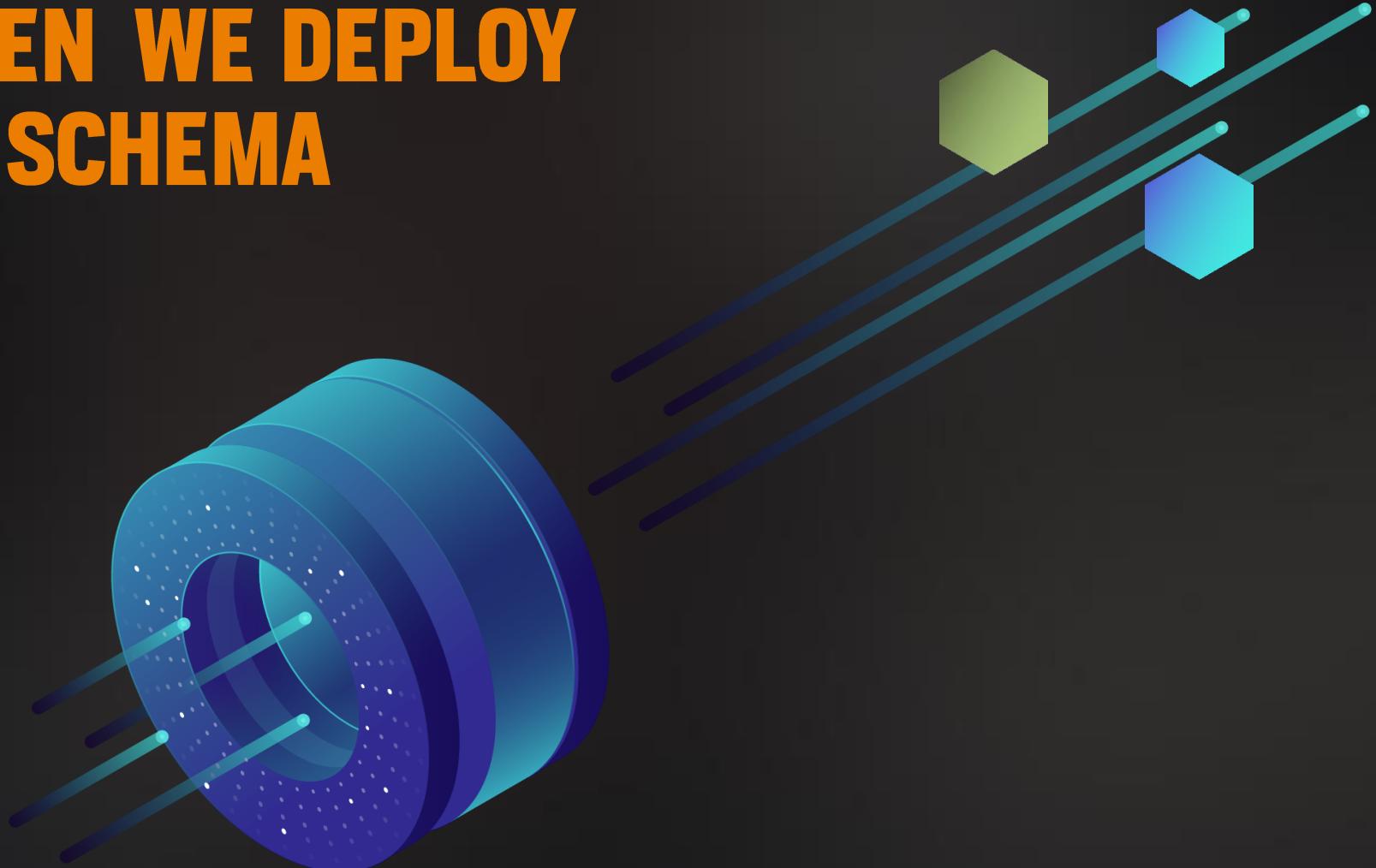
- ⬢ ALMOST NO DOWNTIME, EXCEPT WHEN WE NEED A DATABASE CHANGE

WHAT IS NEXT?

7

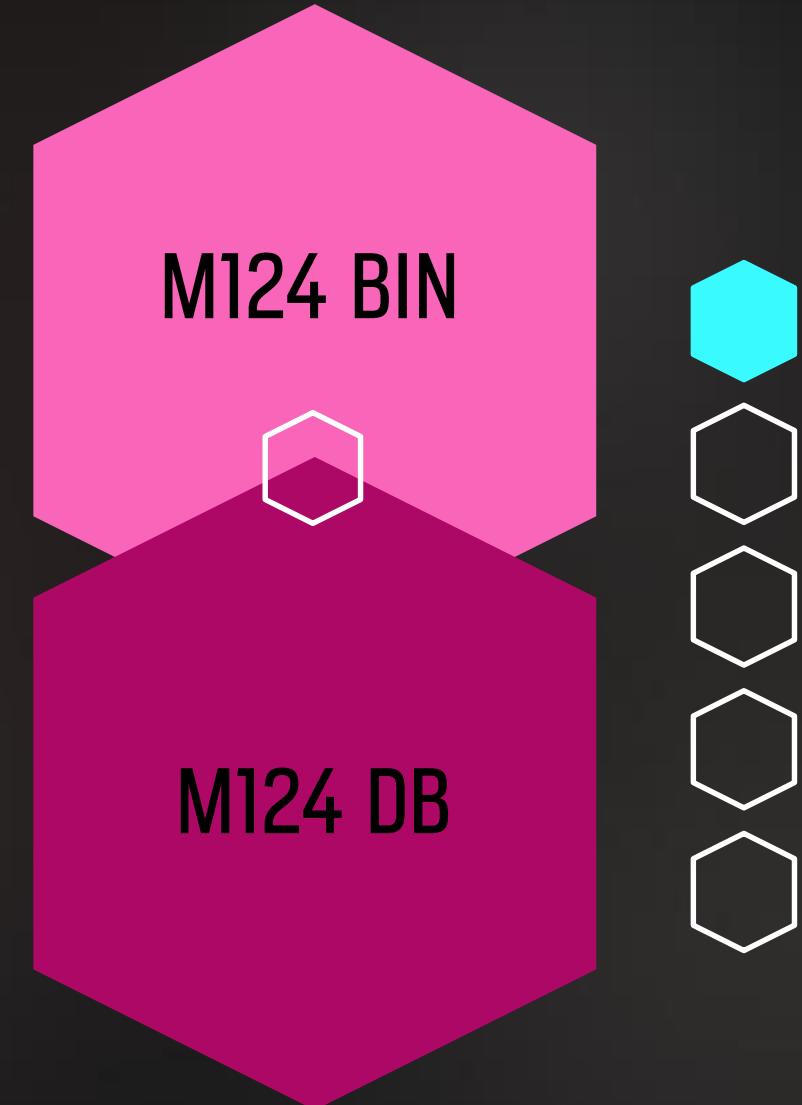
BOTTLENECK

DOWNTIME WHEN WE DEPLOY
NEW DATABASE SCHEMA



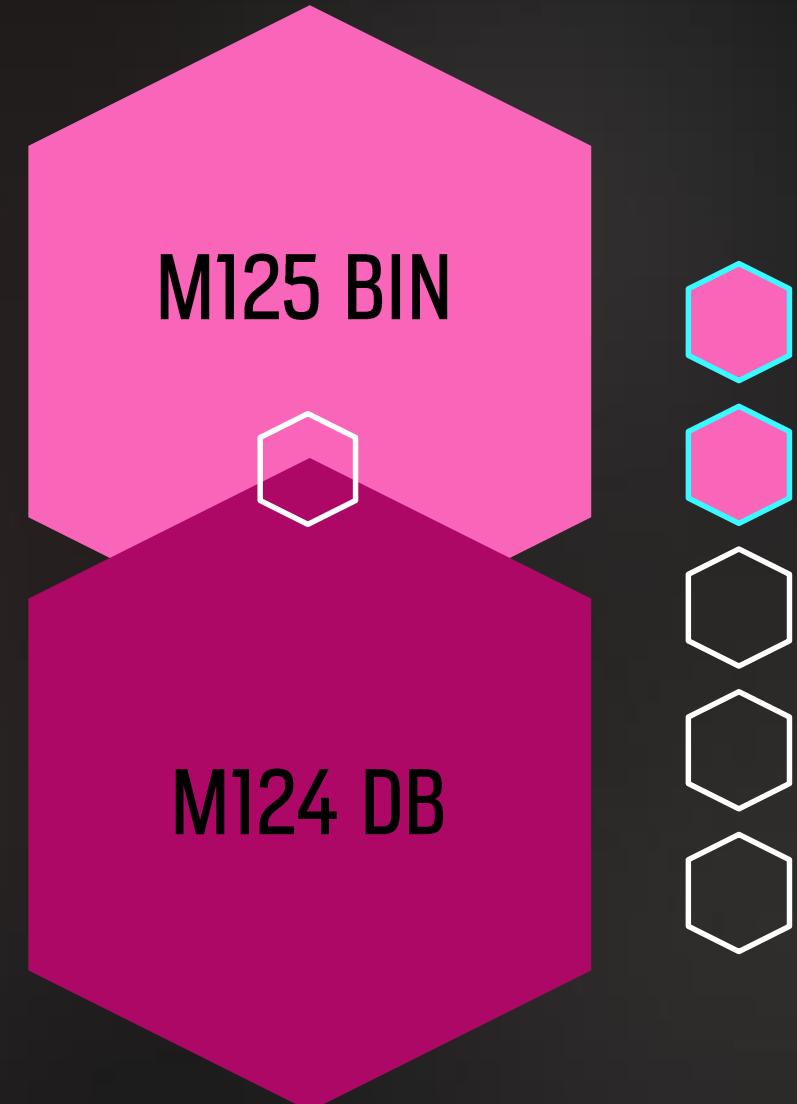
DB SCHEMA CHANGES-STEP 1

- CREATE BINARIES THAT ARE MULTI SCHEMA COMPATIBLE



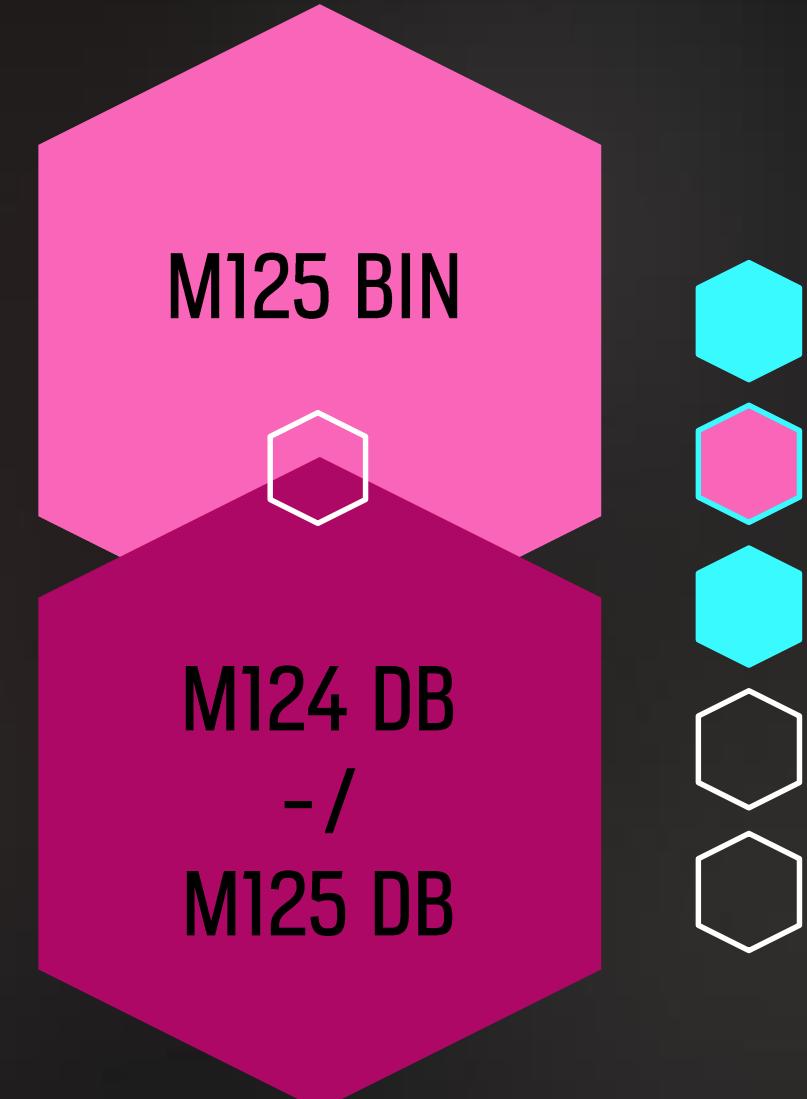
DB SCHEMA CHANGES-STEP 2

- hexagon icon UPDATE THE BINARIES TO SUPPORT NEW SCHEMA AND OLD SCHEMA



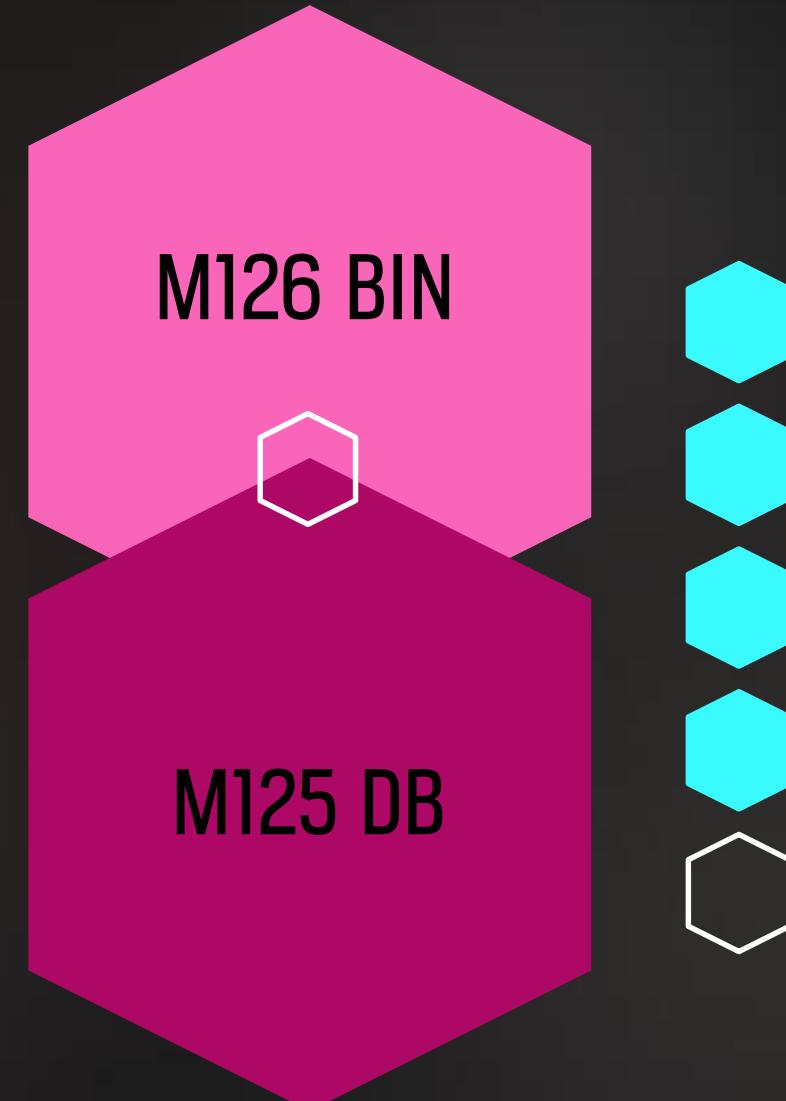
DB SCHEMA CHANGES-STEP 3

- UPDATE THE DB WITH THE NEW SCHEMA
- MIGRATE DATA SLOWLY TO NEW SCHEMA
- BE CAREFULL WITH UPDATING TABLES
 - DON'T TAKE A LOCK ON THE TABLE
 - ALWAYS APPEND ON THE TABLE
 - USE NULLABLE FIELDS FIRST



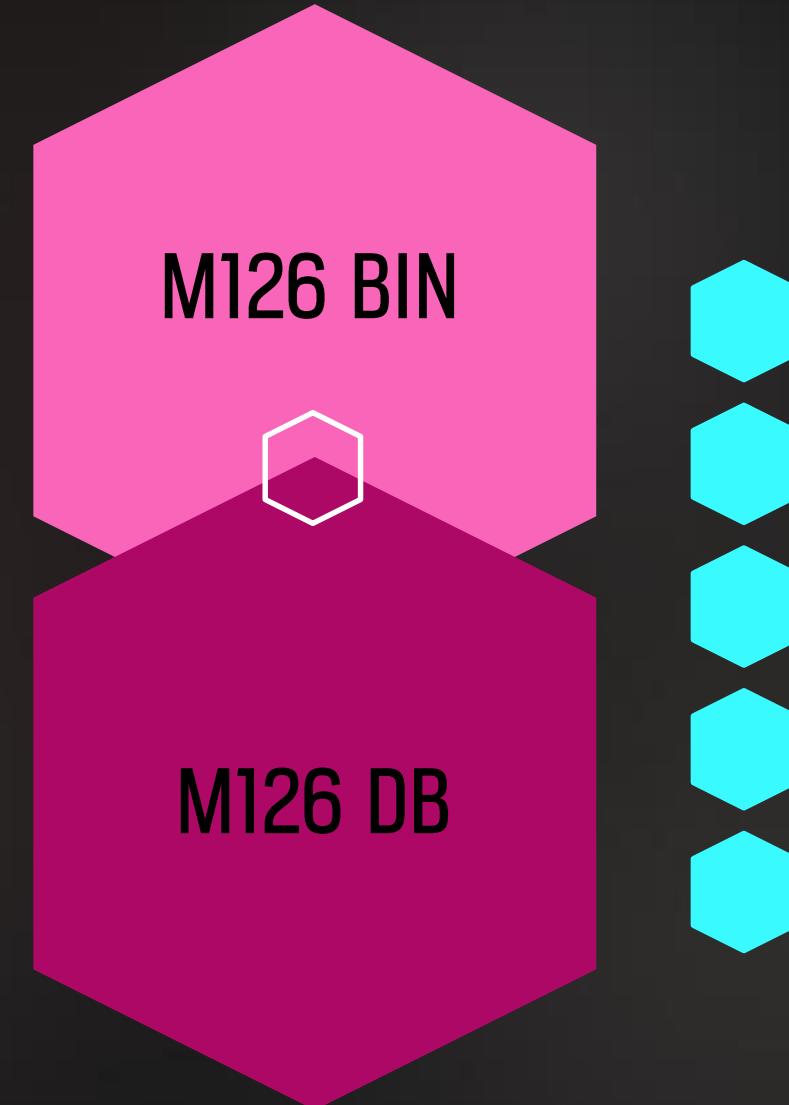
DB SCHEMA CHANGES-STEP 4

- hexagon icon UPDATE BINARIES TO ONLY USE NEW SCHEMA



DB SCHEMA CHANGES-STEP 5

- hexagon icon CLEAN THE OLD SCHEMA



WHERE ARE WE?

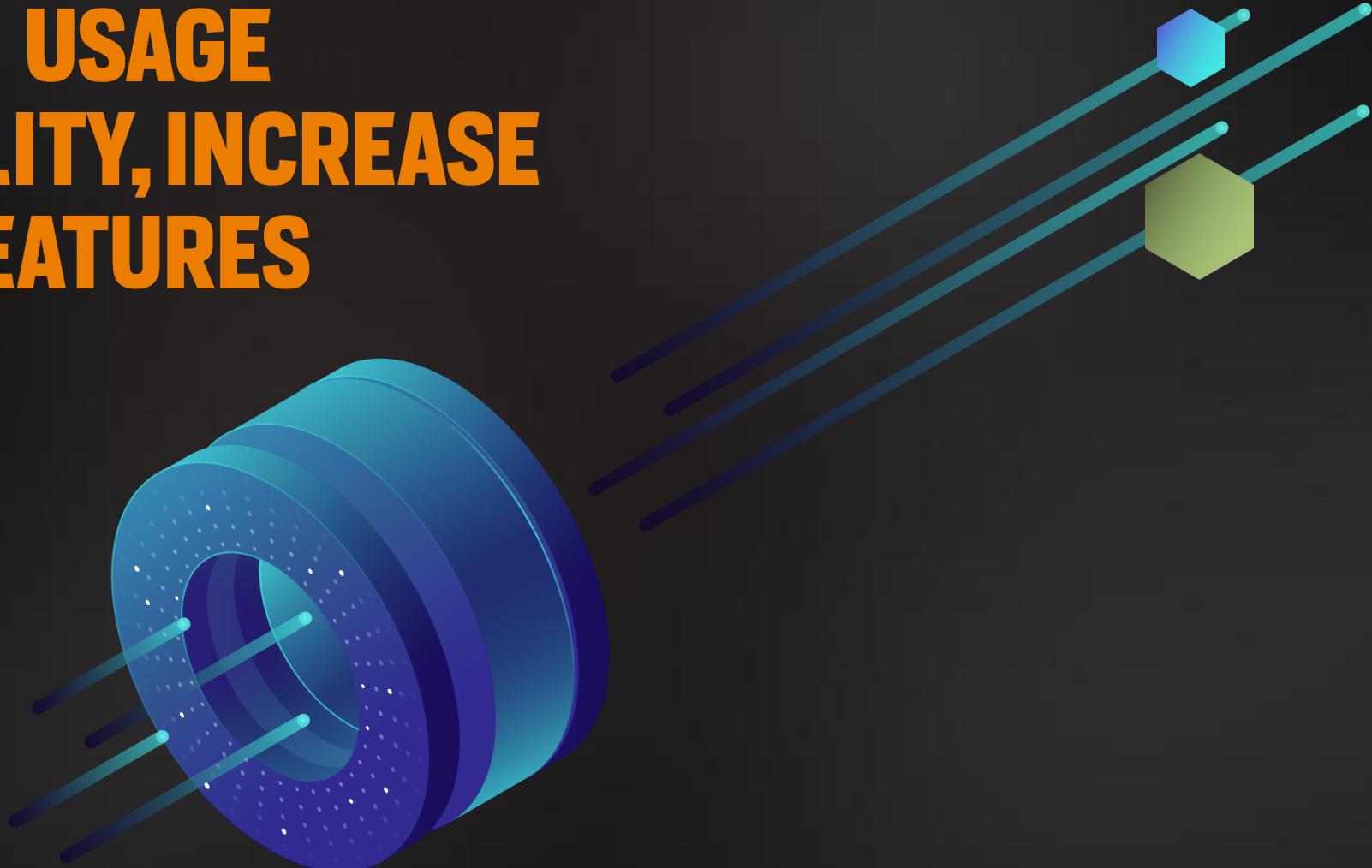
- hexagon icon ALL AUTOMATED
- hexagon icon MULTIPLE RELEASES A DAY
- hexagon icon ZERO DOWNTIME DEPLOYMENTS INCLUDE DB CHANGES

WHAT IS NEXT

8

BOTTLENECK

**NO INSIGHTS IN USAGE
AND AVAILABILITY, INCREASE
FLOW OF NEW FEATURES**



MEASURE & LEARN

-  USAGE
-  PERFORMANCE
-  AVAILABILITY
-  LOGS

WHERE ARE WE?

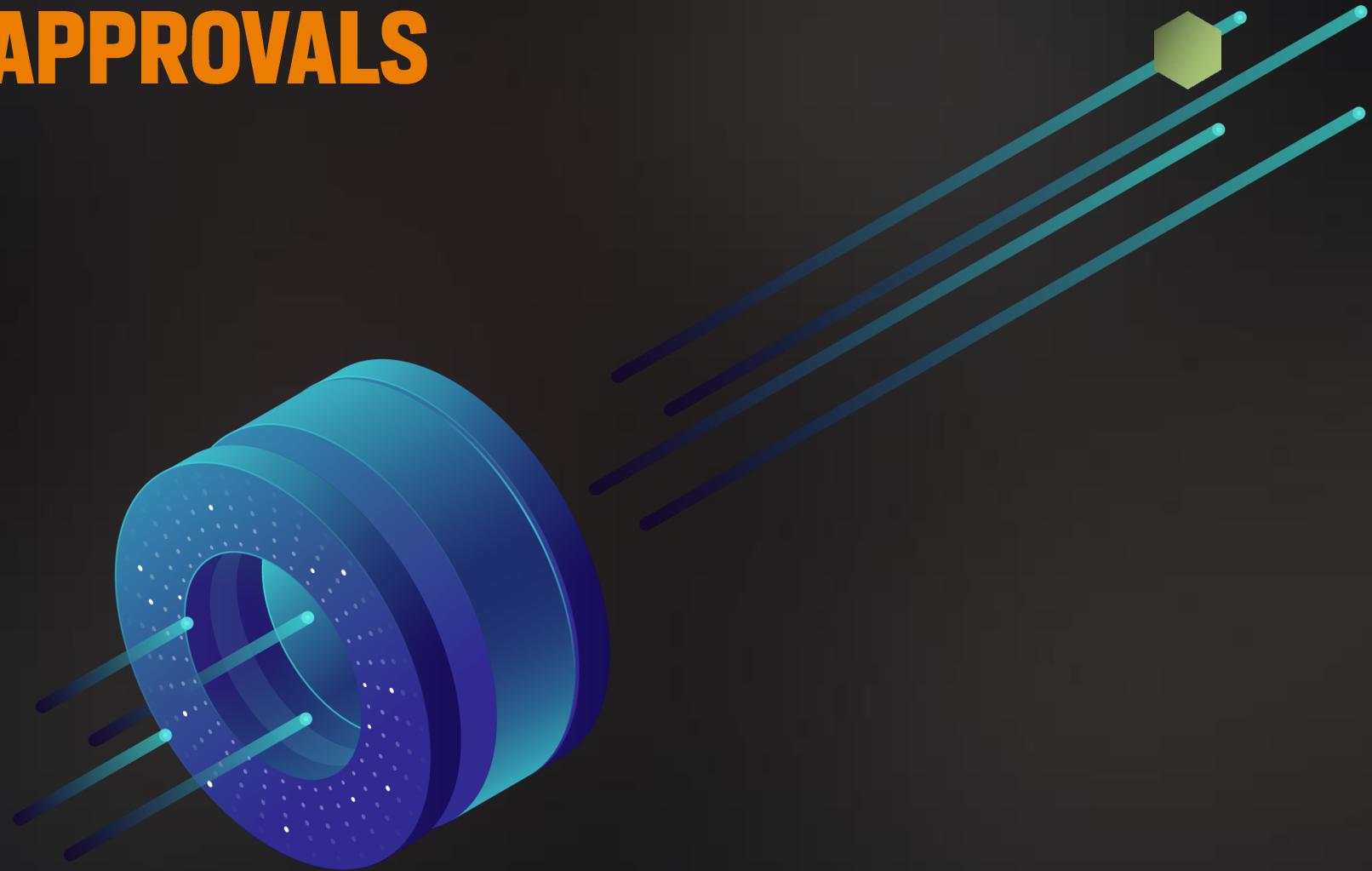
- hexagon icon ALL AUTOMATED
- hexagon icon WE KNOW WHICH FEATURES ARE BEING USED
- hexagon icon MULTIPLE RELEASES A WEEK

WHAT IS NEXT

9

BOTTLENECK

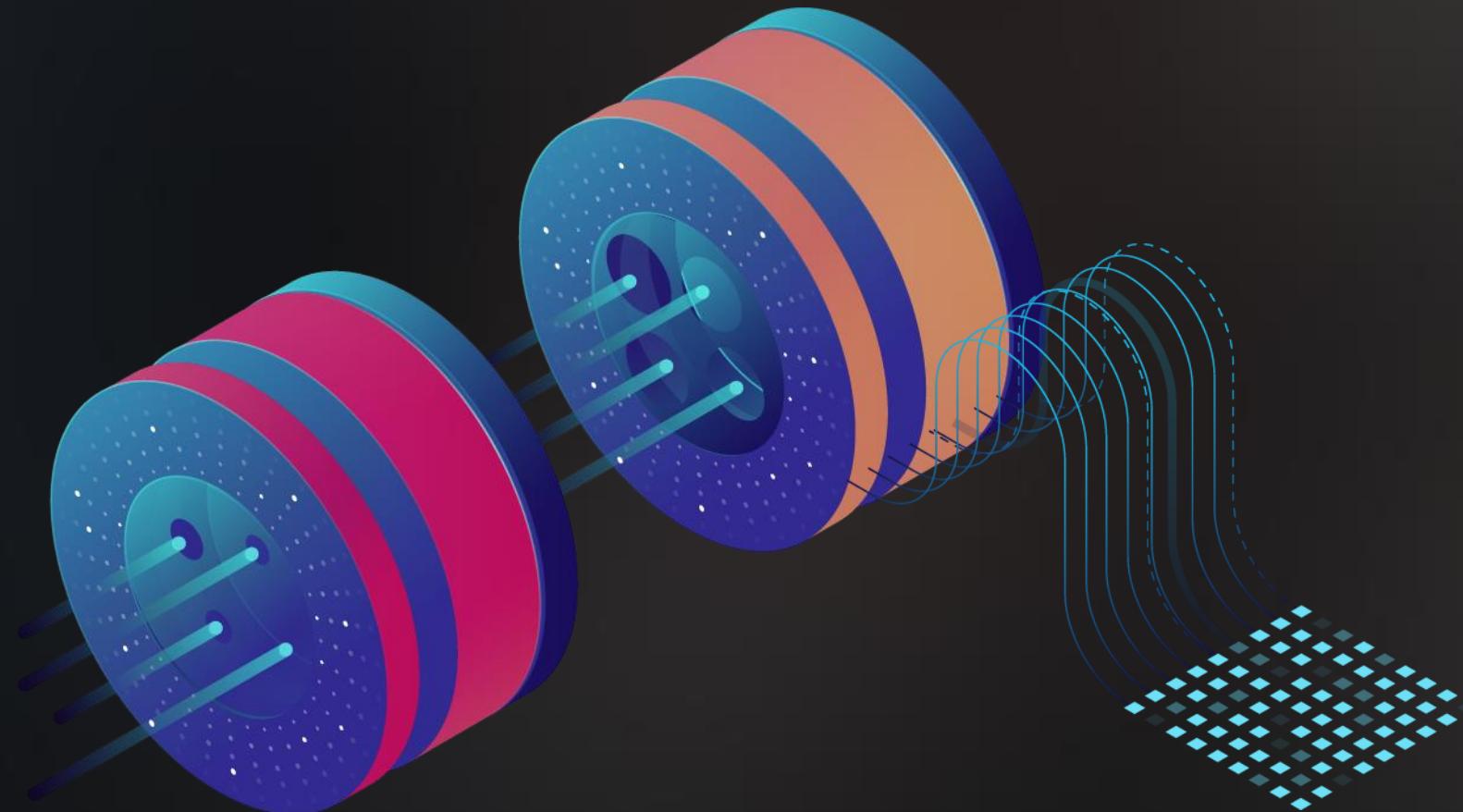
STILL MANUAL APPROVALS



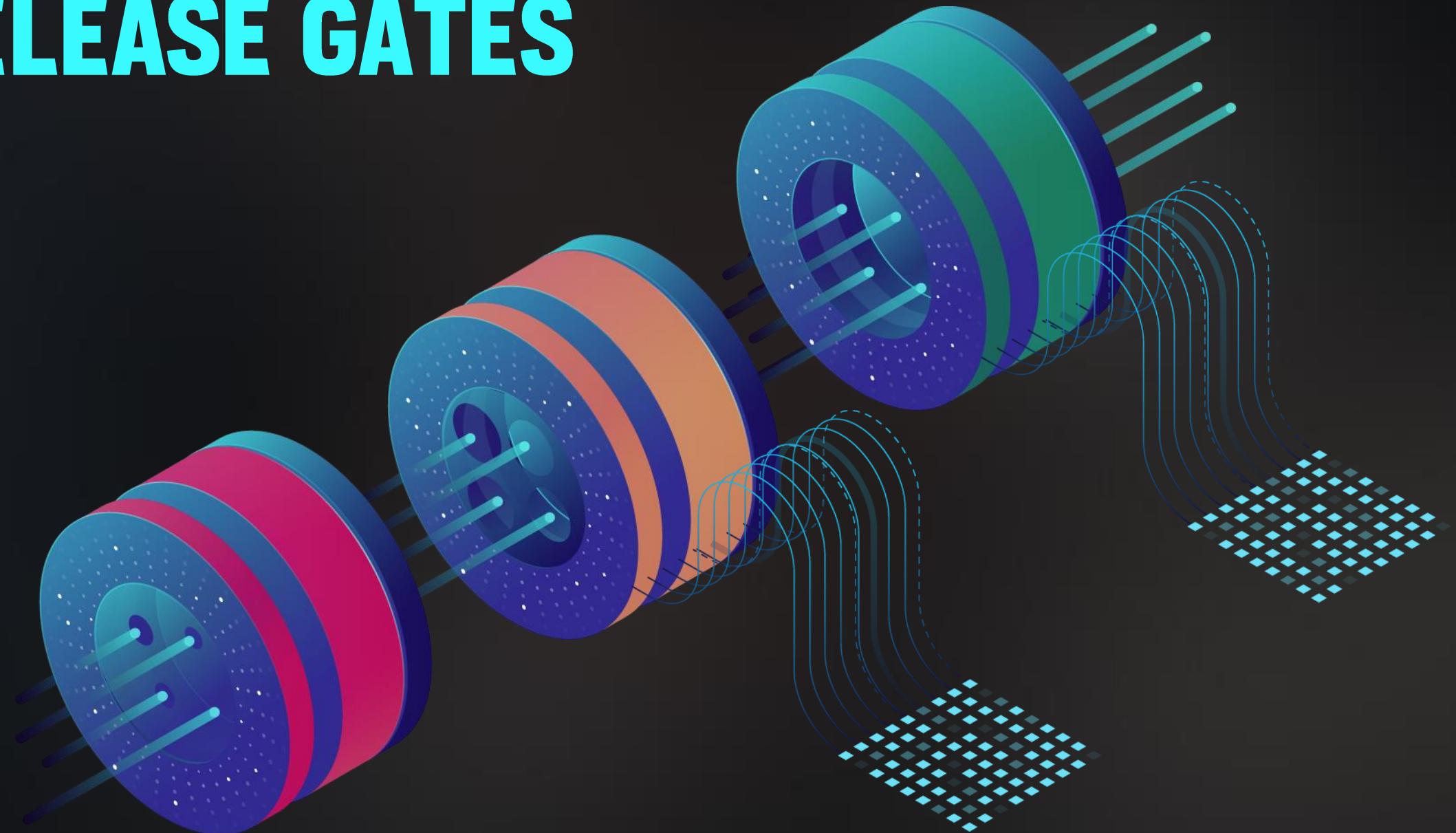
INTRODUCING RELEASE GATES



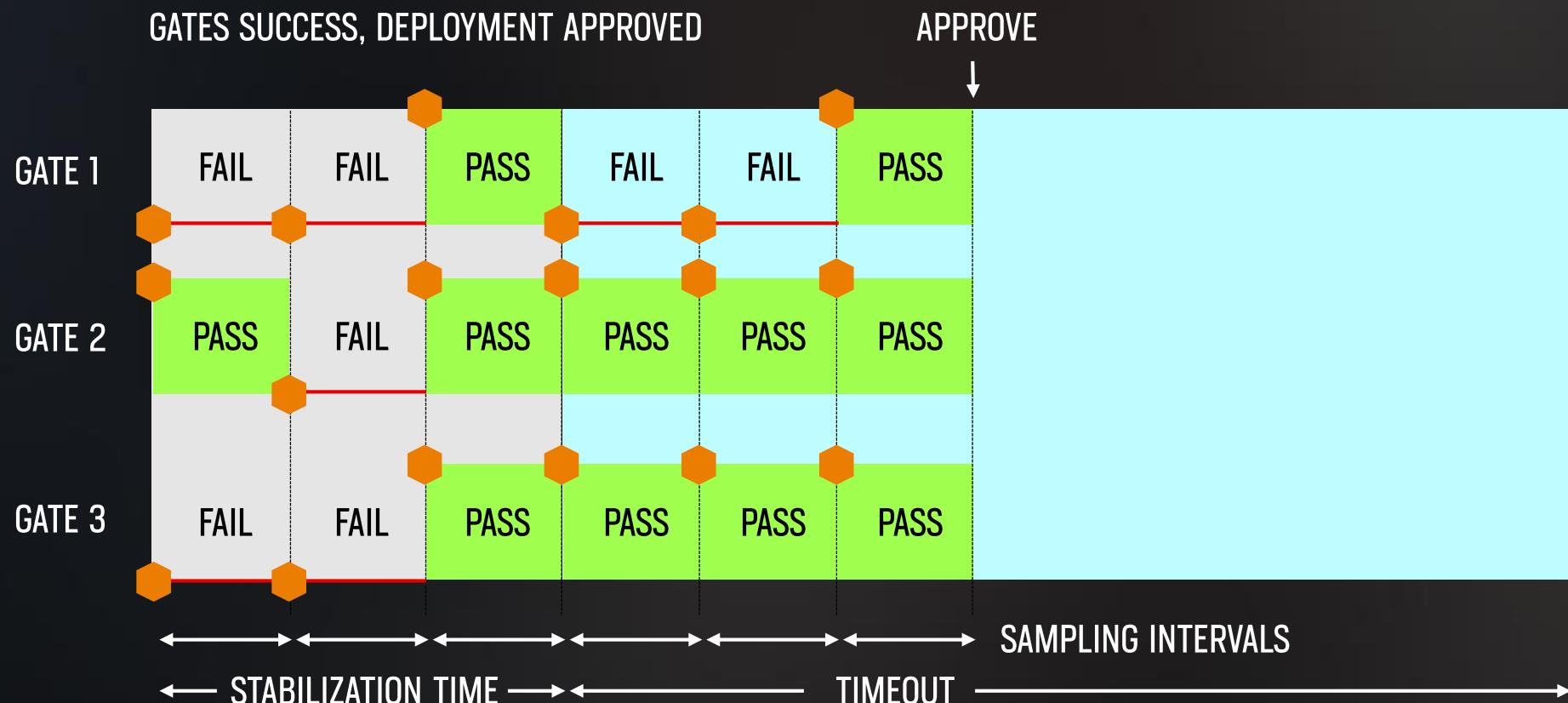
RELEASE GATES BASED ON TELEMETRY



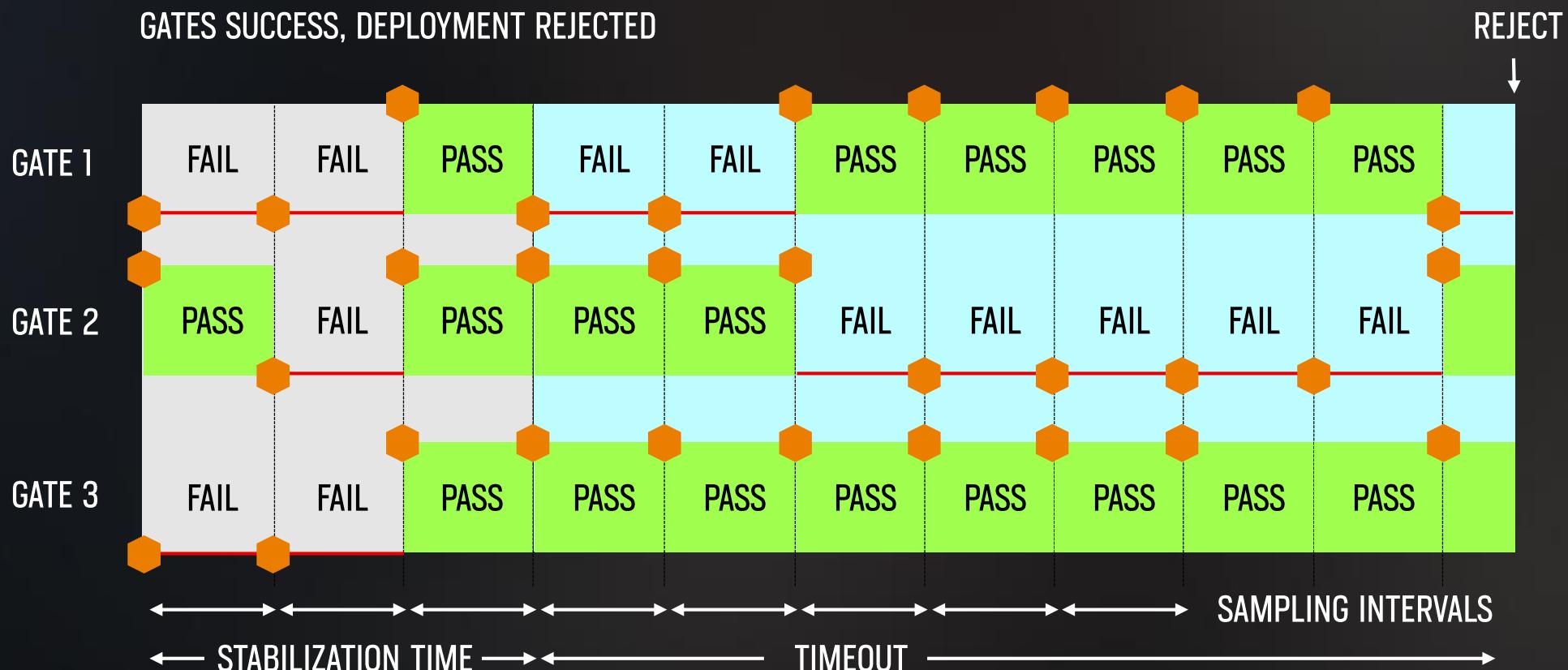
RELEASE GATES



RELEASE GATES EVALUATION

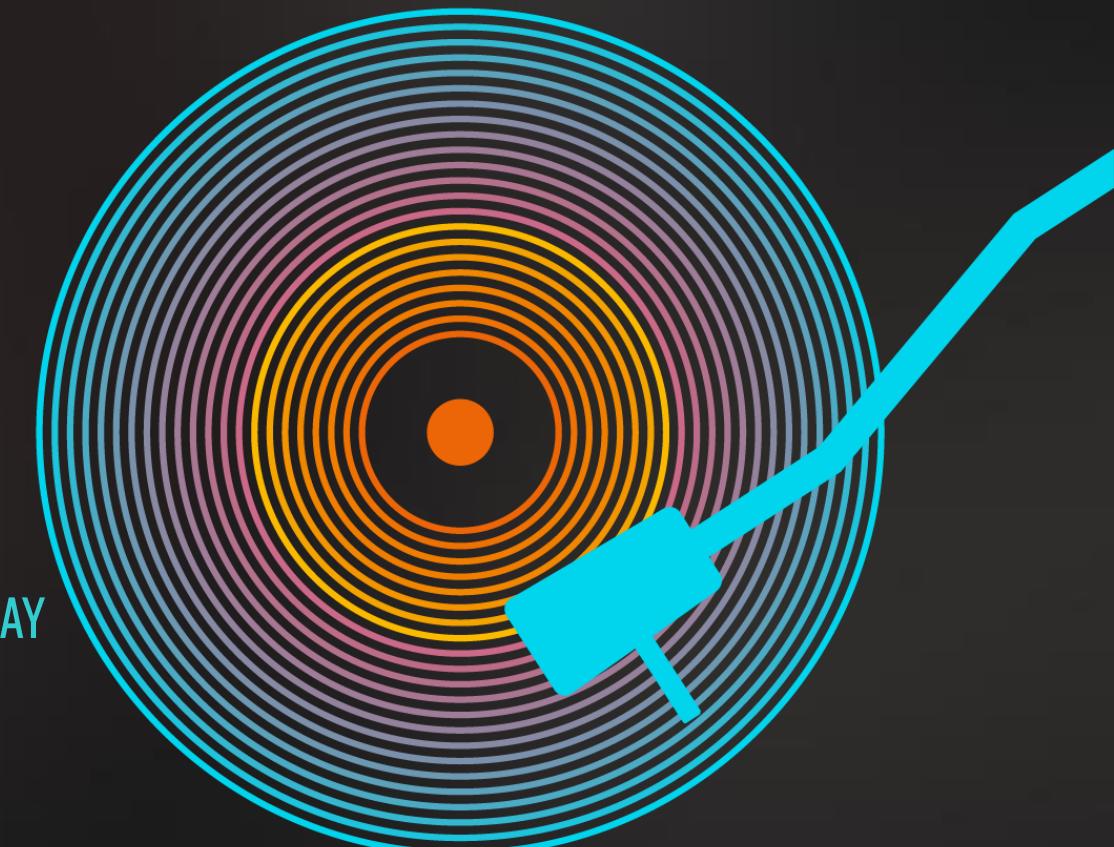


RELEASE GATES EVALUATION



MUSICSTORE INC. FINAL RESULTS

- ORGANIZATION TRAINED TO RUN THE BUSINESS
- CONTINUOUS LEARNING ORGANIZATION
- EVERYONE ENGAGED IN THE TEAM
- EVERYONE EMPOWERED
- EVERYONE RESPONSIBLE AND ON CALL
- MOVED FROM ONCE A QUARTER TO MULTIPLE TIMES A DAY



SESSION FINAL RESULTS

REMEMBER
THE EXPERIMENT?



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<http://marcelv> <http://fluentbytes.com>

THANK YOU!

Attributions

Unsplash.com, pictures used for backgrounds
giphy.com for animated gifs



- Continuous Delivery and DevOps with TFS and VSTS 2018, Managing Builds
- Continuous Delivery and DevOps with TFS and VSTS 2018, Managing releases
- Feature Toggles, Package Management and Versioning in Microsoft TFS and VSTS 2017
- Source Control with Microsoft TFS/VSTS and Visual Studio 2017
- Introduction to Docker on Windows with Visual Studio 2017
- Building a Continuous Delivery Pipeline with TFS and Visual Studio 2015