

FROM ONCE A MONTH TO MULTIPLE TIMES A DAY

WANT THE PPT VERSION OF THIS DECK, PLEASE SEND AN EMAIL REQUEST TO

MDEVRIES@XPIRIT.COM AND WE CAN SHARE IT WITH YOU

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FROM ONCE A MONTH TO MULTIPLE TIMES A DAY

APPLIED MODERN RELEASE PATTERNS AND PRACTICES

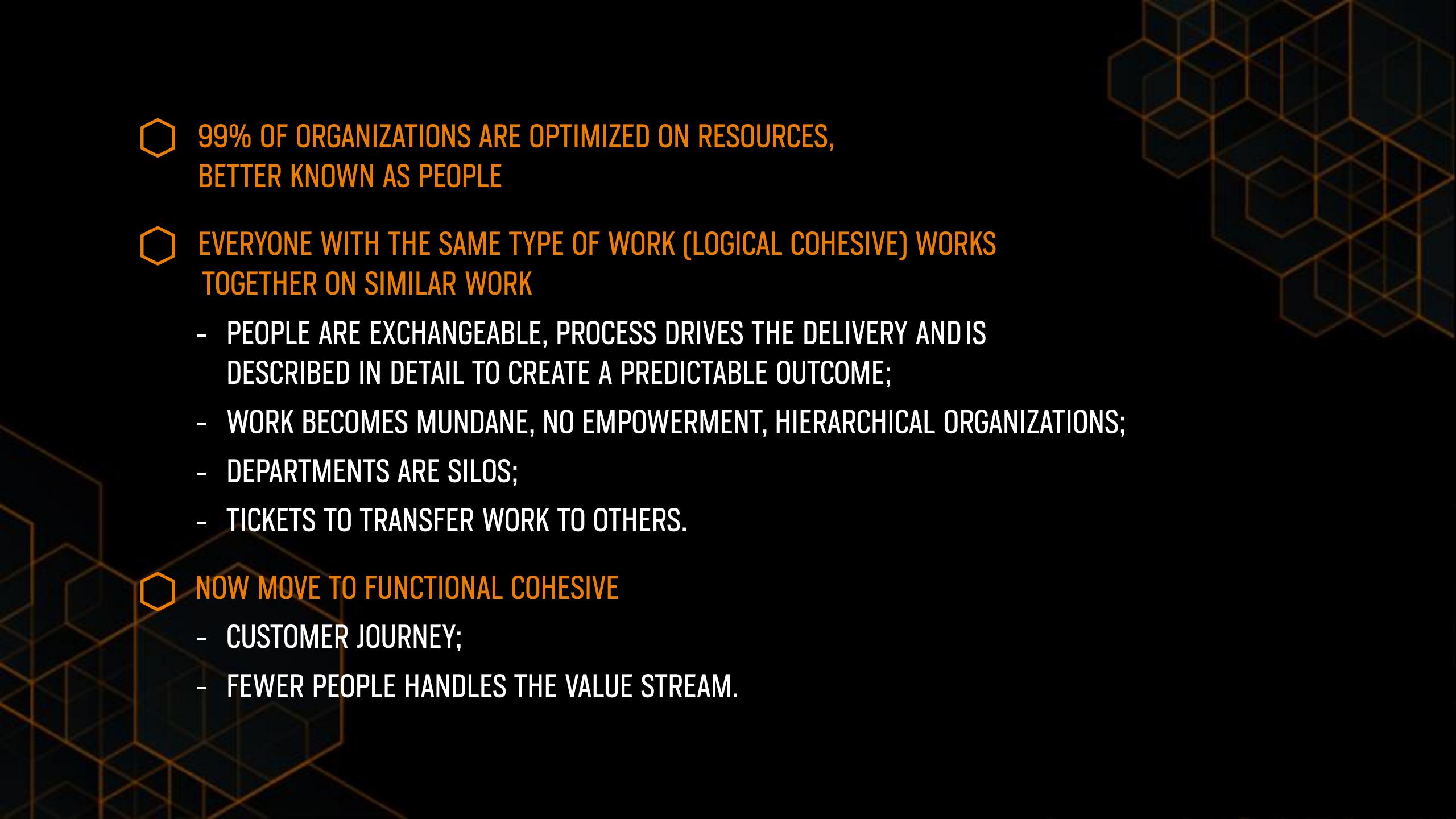


WHY? DRIVING FORCES

- hexagon icon DIGITAL TRANSFORMATION, DIGITAL DISRUPTION, TIME TO MARKET PRESSURE, COST PRESSURE
 - hexagon icon CLOUD ENABLES NEW BUSINESS MODELS, FAST INNOVATION, LOW BARRIER TO ENTRY IN A NEW MARKET AND CAN BE A COST SAVER
 - CAPEX - OPEX CHANGE IS DISRUPTIVE FOR THE INDUSTRY;
 - E.G. MICROSOFT VSTS OFFERS 24X7 SERVICES WITH MARGINAL COSTS PER USER COMPARED TO CAPEX INVESTMENT IN TFS IN THE PAST.
- ADDITIONAL BONUS FOR CUSTOMER: NO MAINTENANCE AT ALL!**

MOVING FROM RESOURCE OPTIMIZED TO TIME TO MARKET OPTIMIZED BUSINESS MODELS



- 
- hexagon 99% OF ORGANIZATIONS ARE OPTIMIZED ON RESOURCES,
BETTER KNOWN AS PEOPLE
 - hexagon 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.
 - hexagon NOW MOVE TO FUNCTIONAL COHESIVE
 - CUSTOMER JOURNEY;
 - FEWER PEOPLE HANDLES THE VALUE STREAM.

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



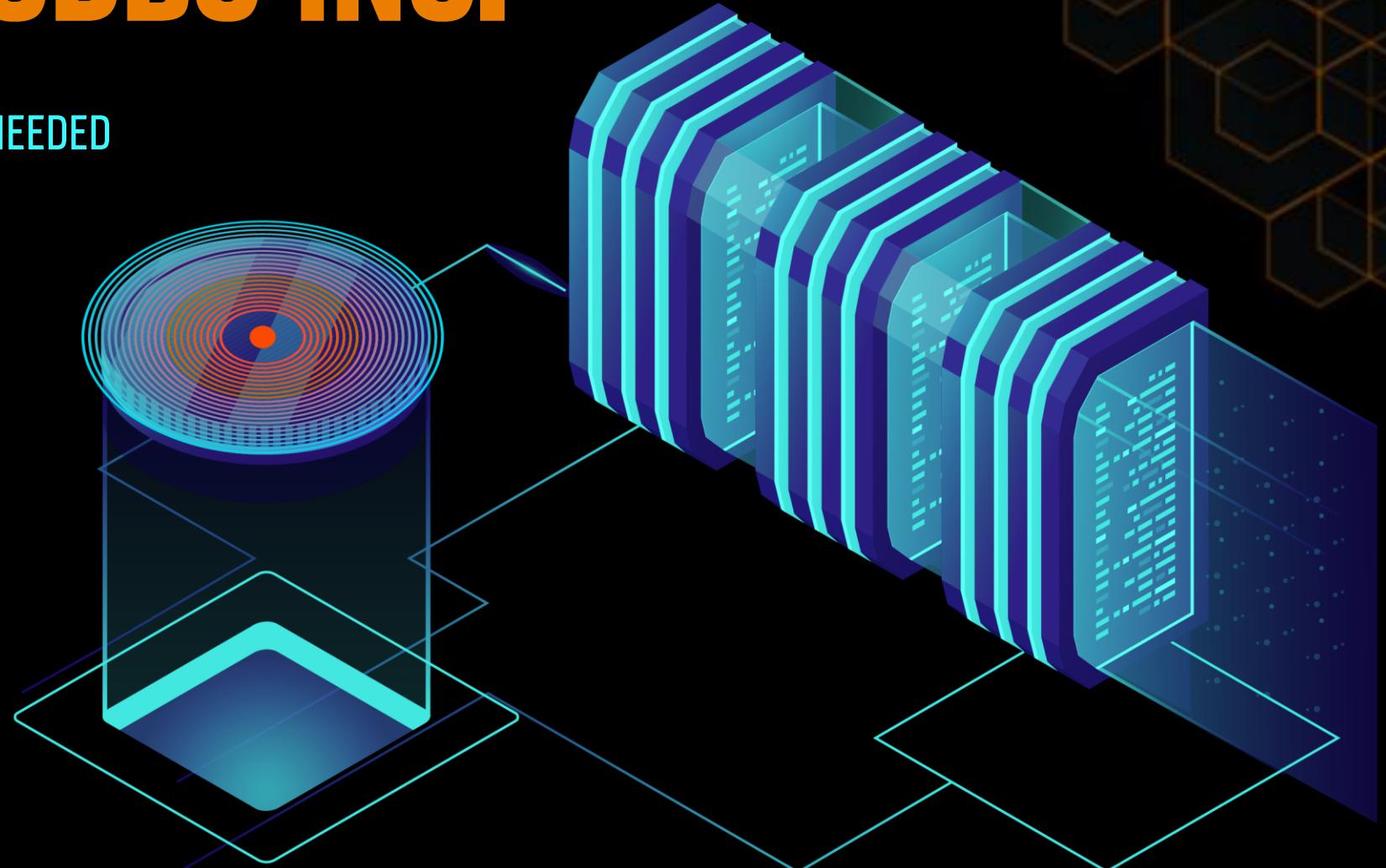
INTRODUCING GDBC INC.

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



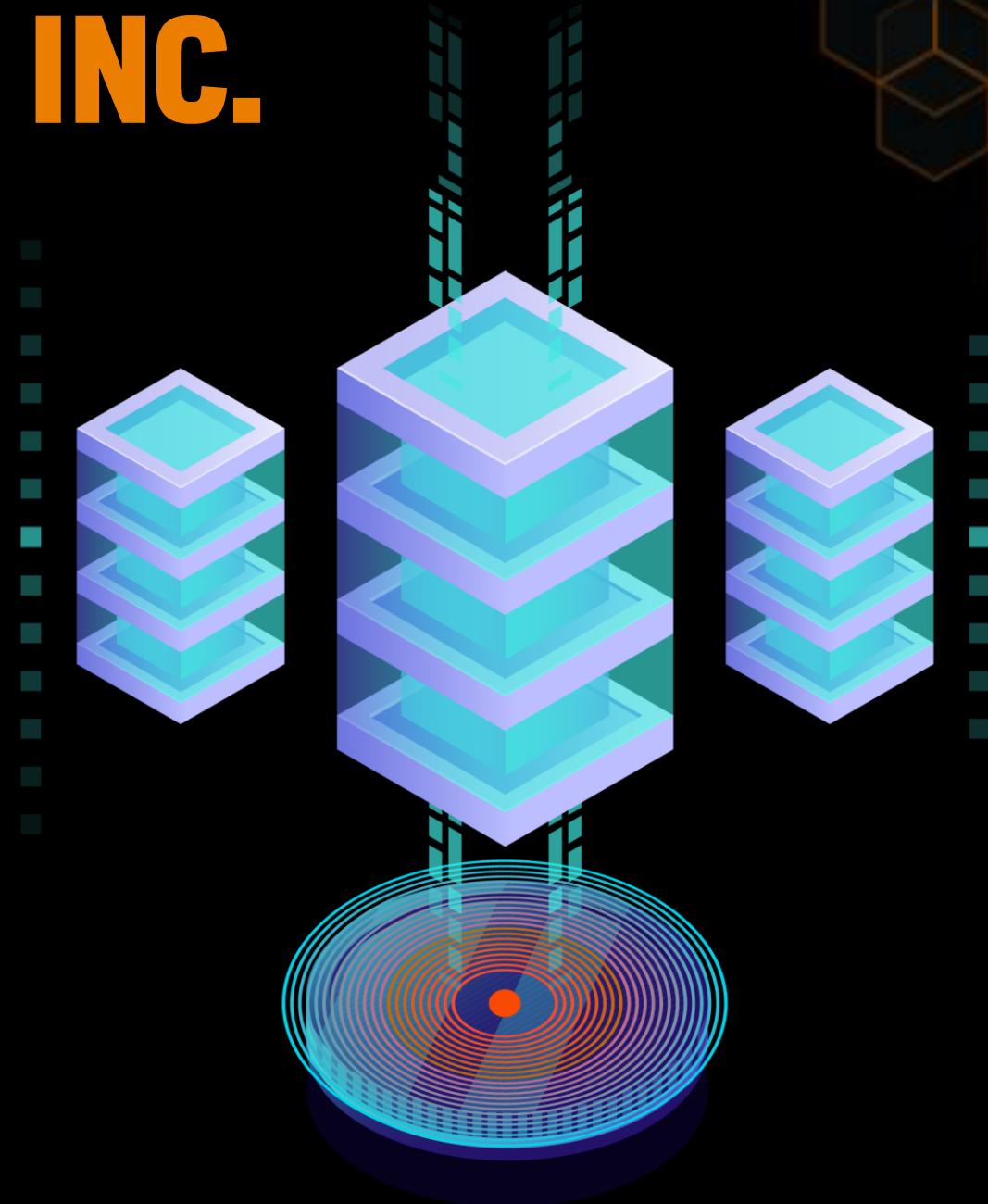
ISSUES GDBC INC.

- NEW INVESTMENT NEEDED
IN DATACENTER



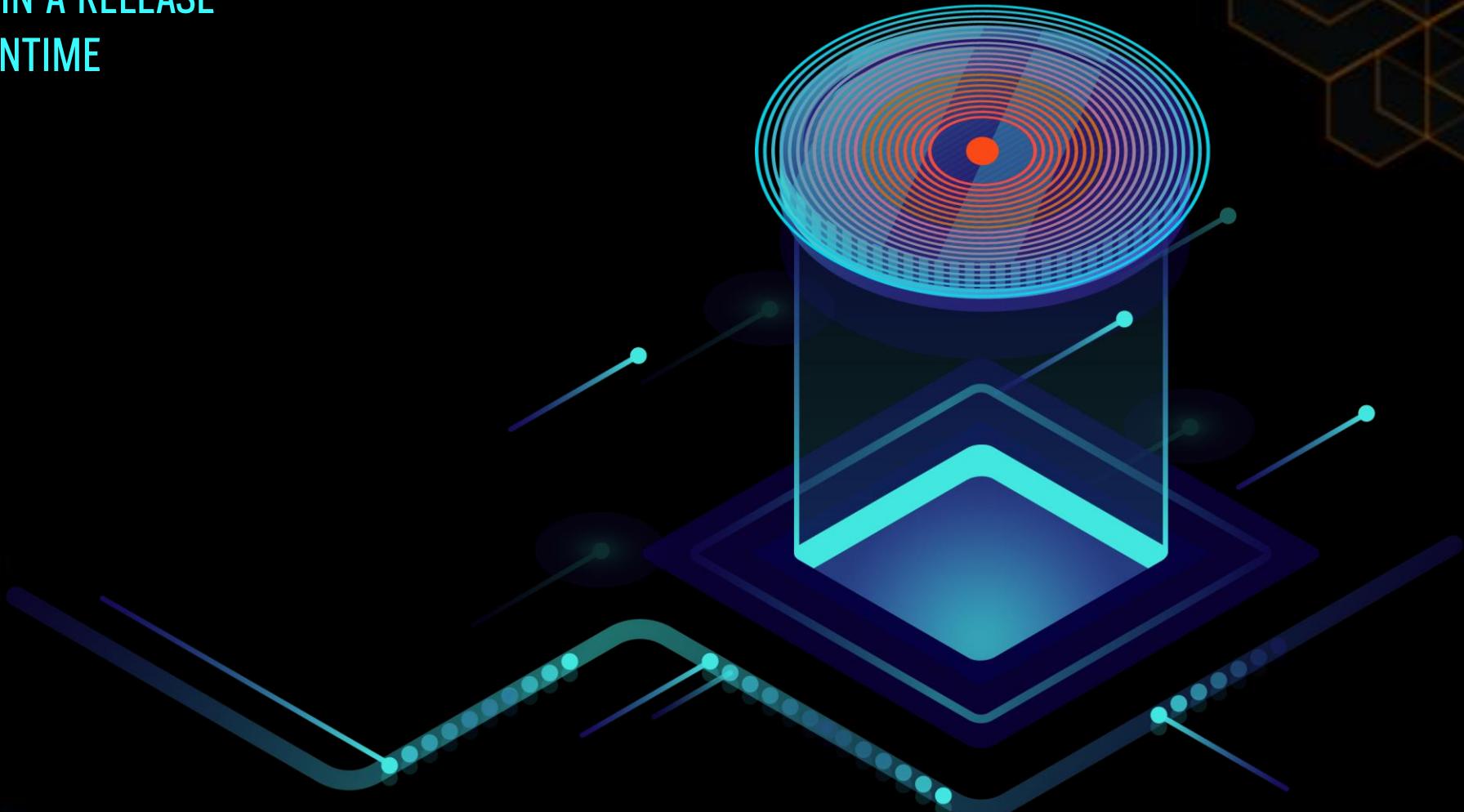
ISSUES GDBC INC.

- ⬢ HARD TO MAKE CHANGES TO CURRENT APPLICATION



ISSUES GDBC INC.

- ⬢ ALL CHANGES IN A RELEASE REQUIRE DOWNTIME



ISSUES GDBC INC.

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



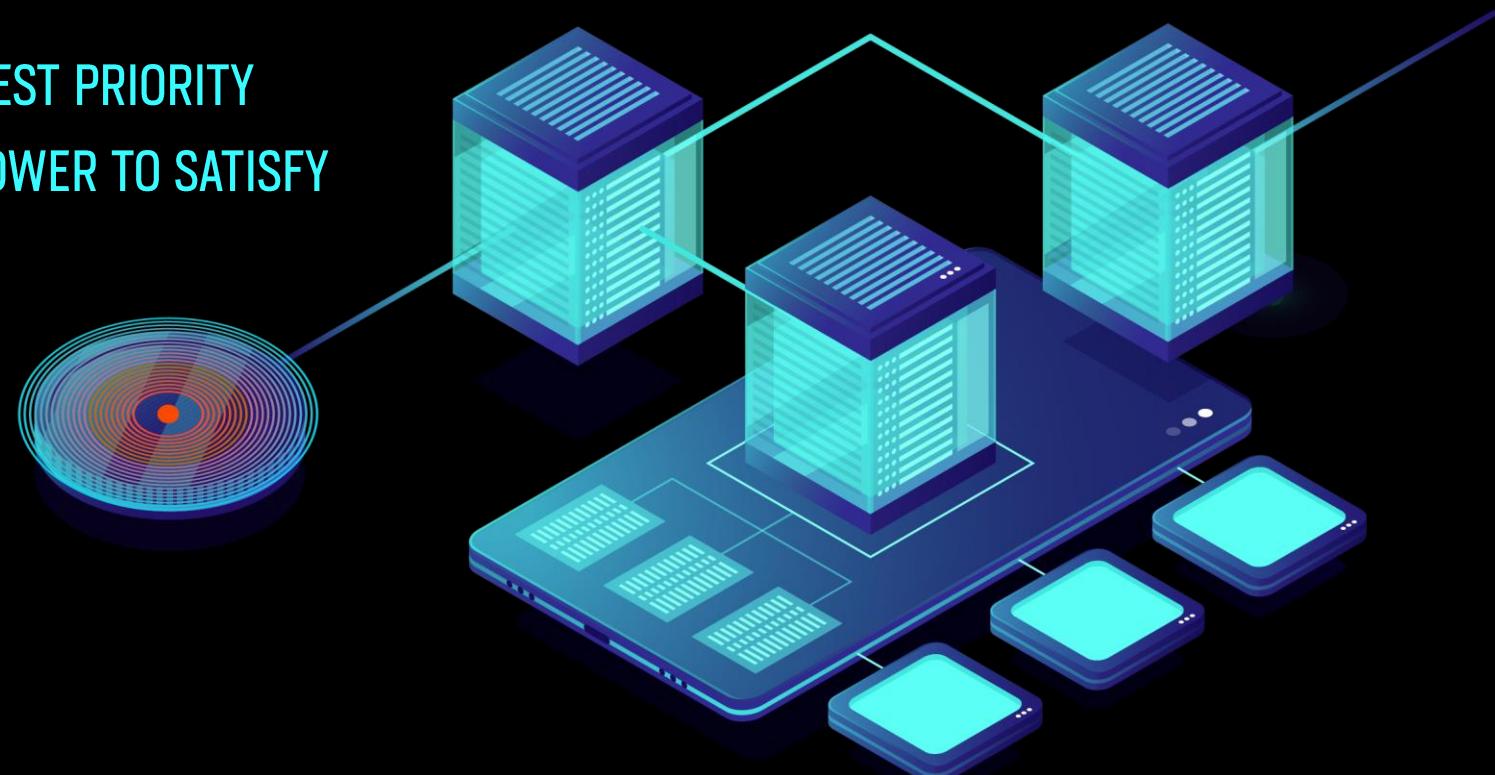
ISSUES GDBC INC.

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



STRATEGY GDBC INC.

- hexagon icon 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 GDBC INC.

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



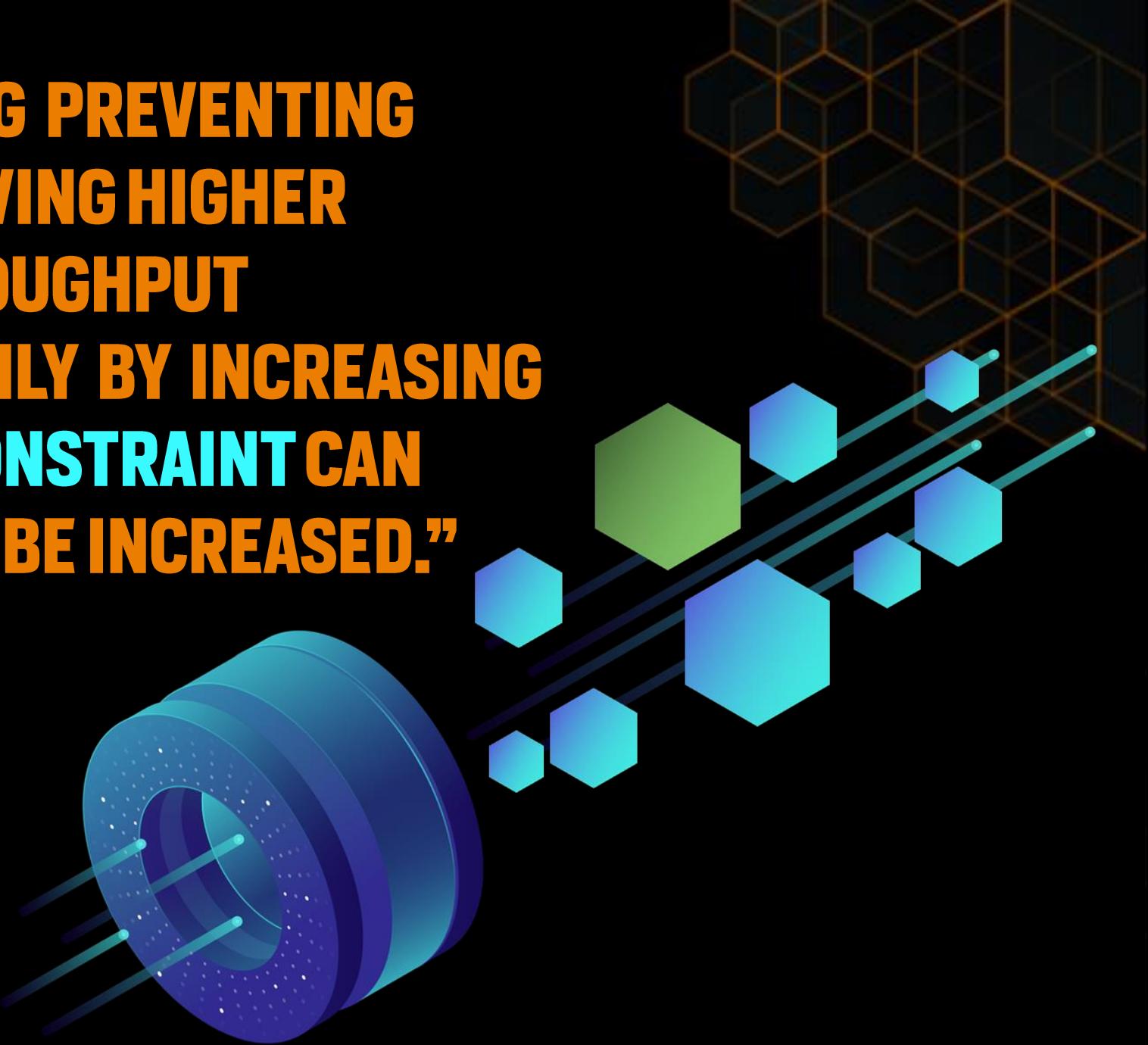
STRATEGY GDBC INC.

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



**“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

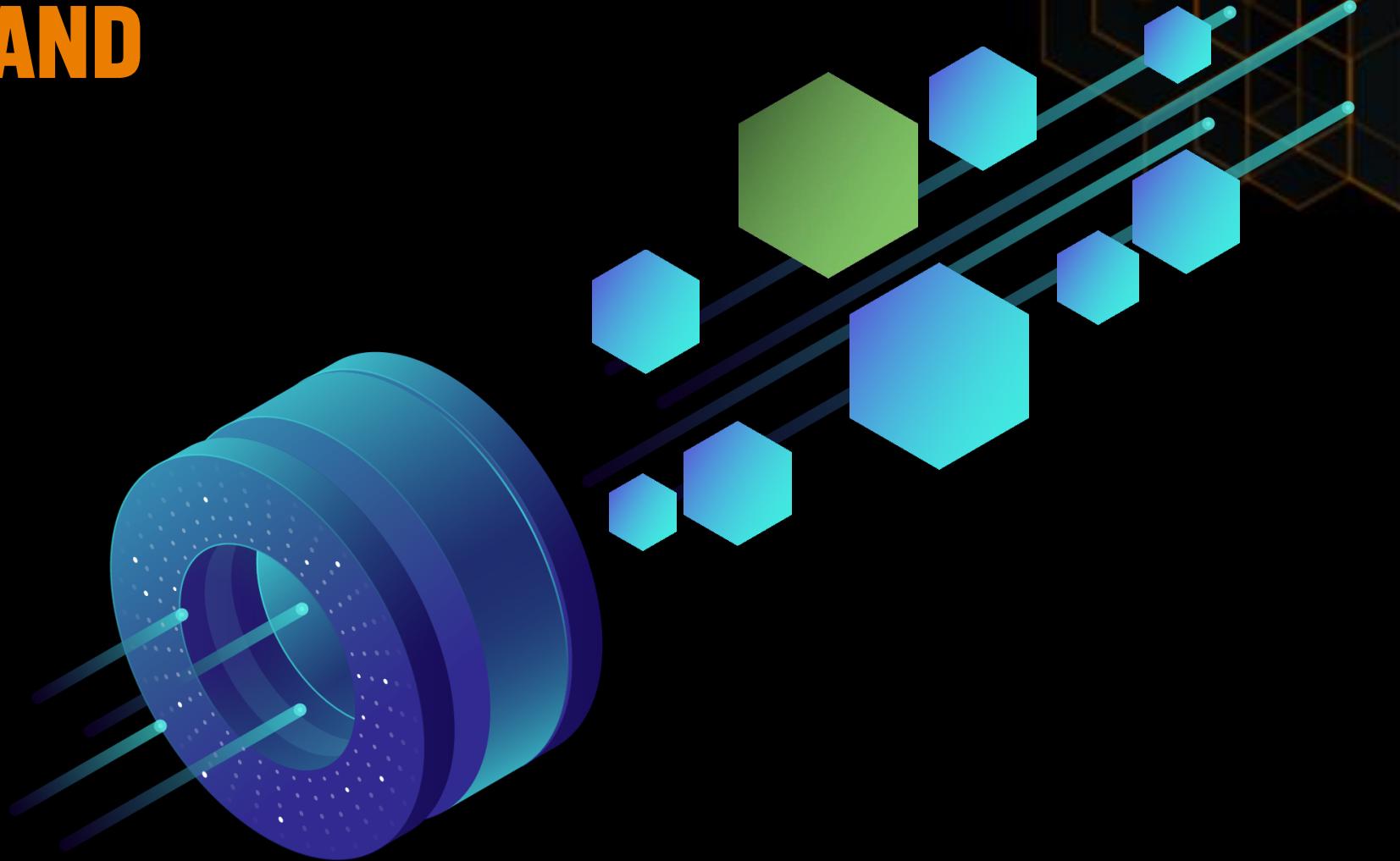


HOW TO OPTIMIZE GDBC INC. VALUE DELIVERY

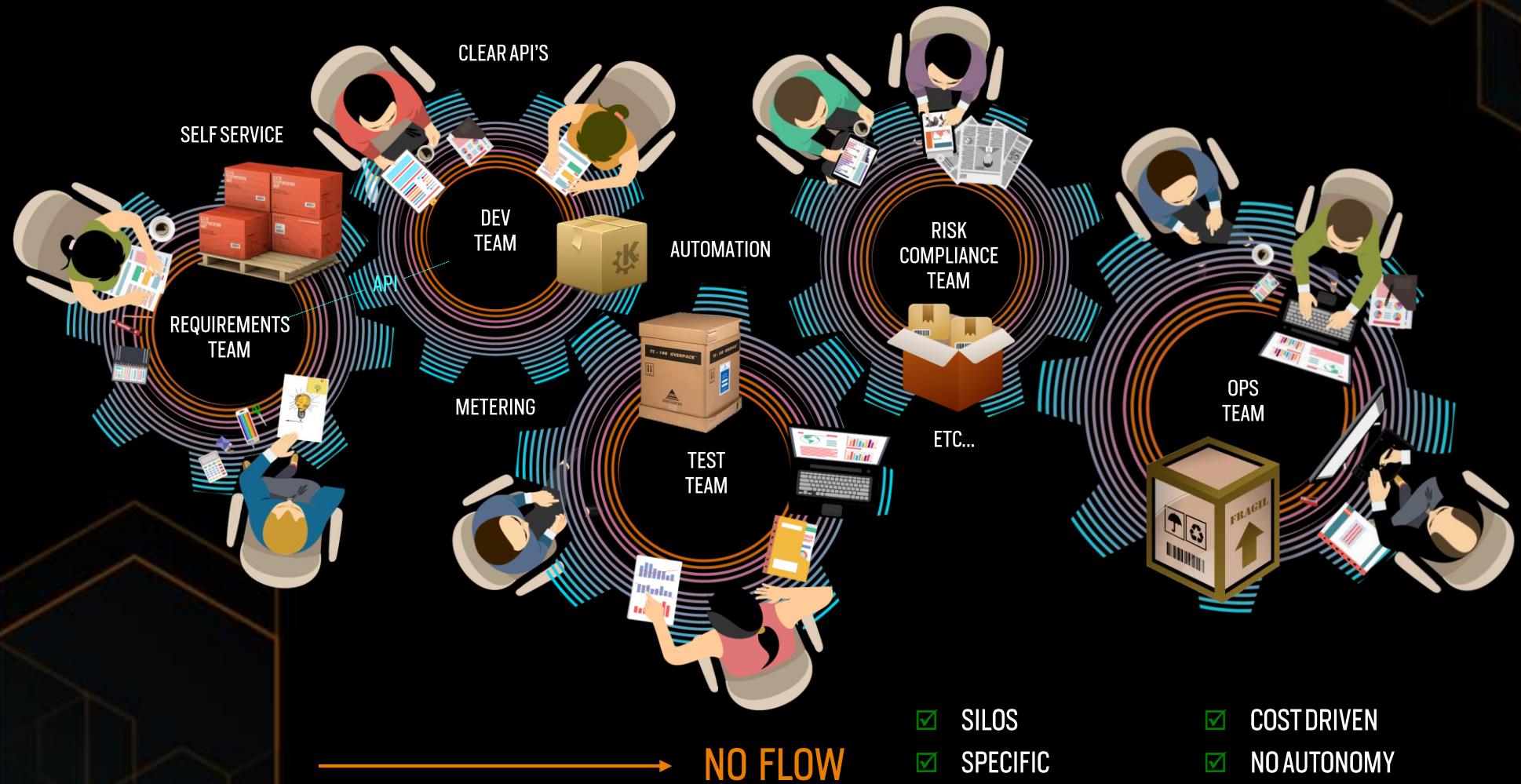
- PIPE LINE WITH BOTTLENECK
- REMOVE BIGGEST BOTTLENECK / MORE FLOW
- WHAT IS NEXT / NEXT BIGGEST BOTTLENECK

1 BOTTLENECK

ORGANISATION AND
LACK OF FLOW

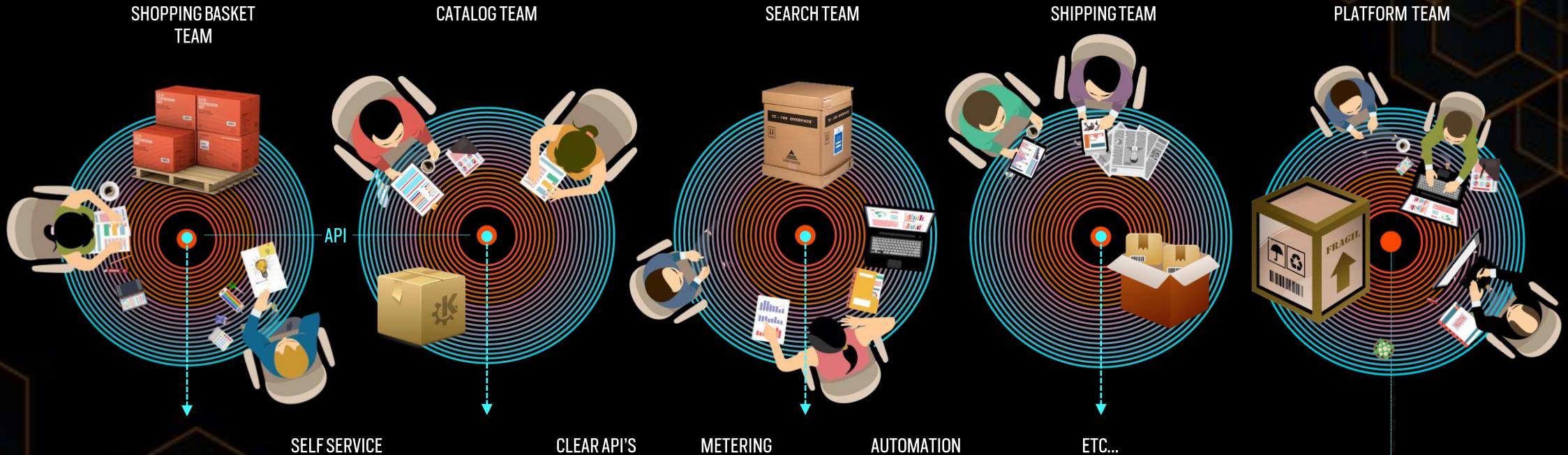


CURRENT ORGANIZATION



- SILOS
- COST DRIVEN
- SPECIFIC
- NO AUTONOMY
- RESPONSIBILITY
- PROJECT TEAMS

ORGANIZATIONAL CHANGES TO GET TO DEVOPS

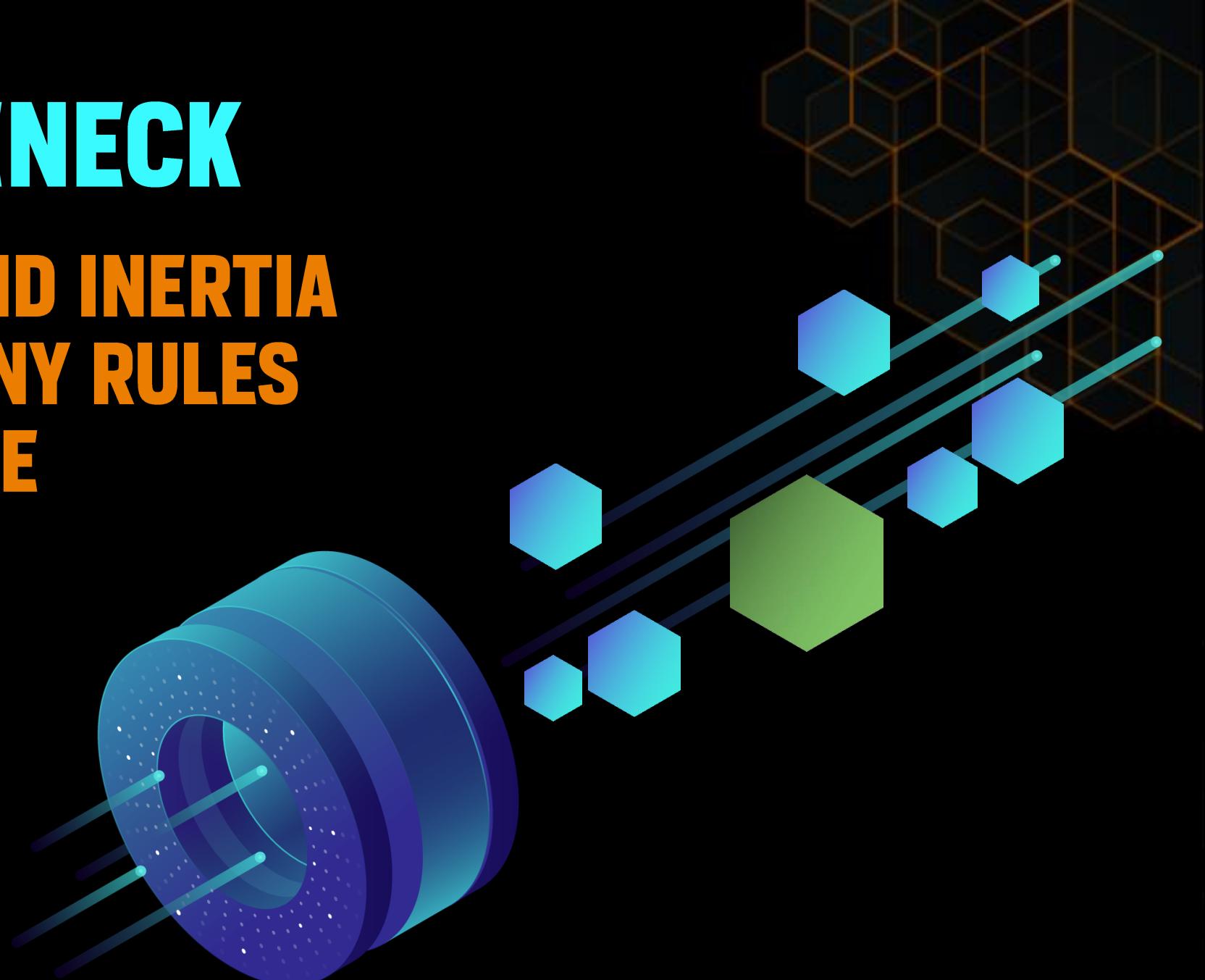


INTELLIGENT INFRASTRUCTURE PLATFORM

- 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

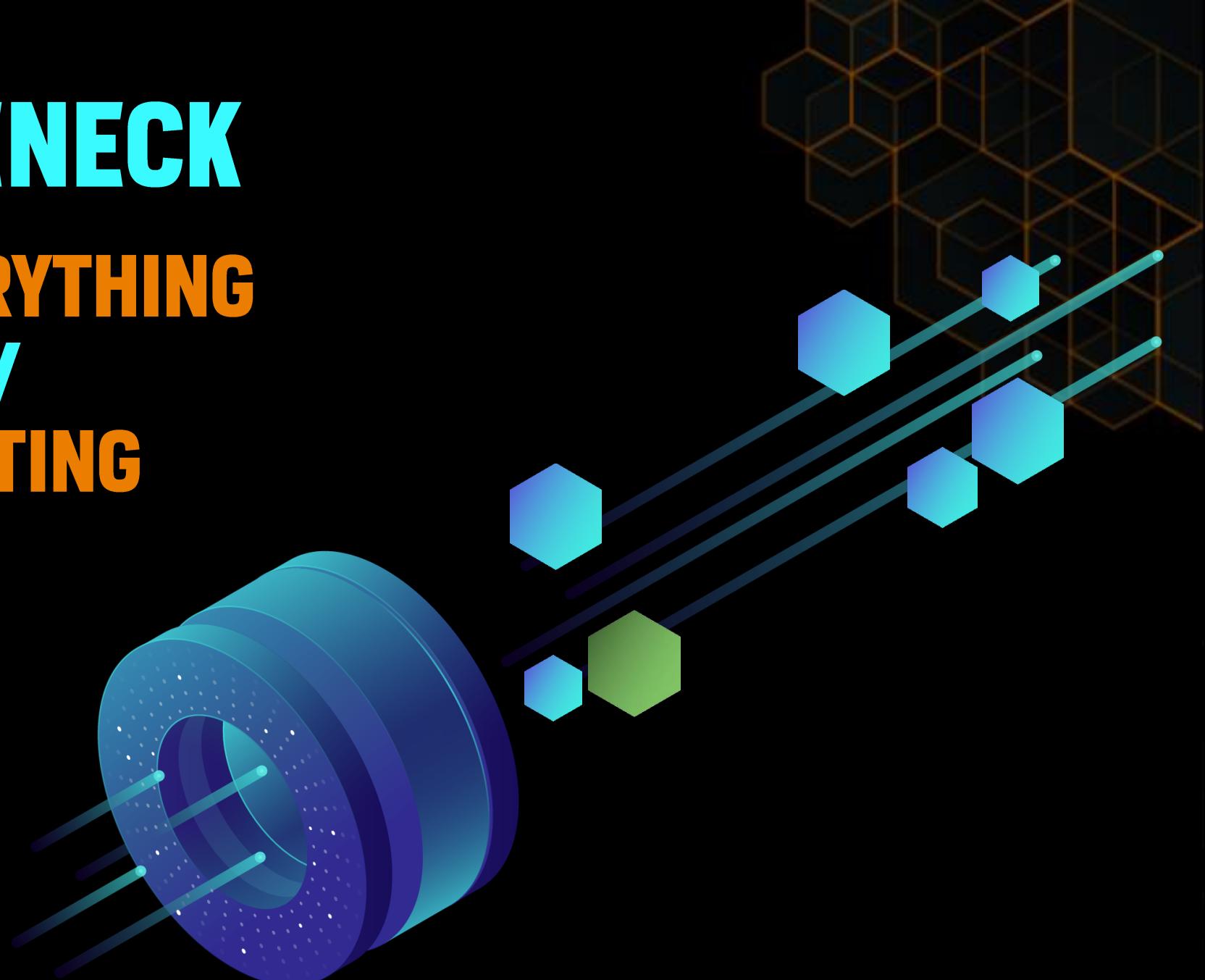


MOVE TO PUBLIC CLOUD

- NEW MODEL CAPEX-/OPEX
- ALTERNATIVES TO GET BETTER CUSTOMER EXPERIENCE
 - FLEXIBLE SCALE
- RETOOLING FOR THE CLOUD
- 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 /
START AUTOMATING



SETTING UP CI, CD AND CLOUD DEPLOYMENT(S)

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

WHERE ARE WE?



- hexagon WE HAVE VALUE STREAM BASED TEAMS
- hexagon WE HAVE A FULLY AUTOMATED BUILD
- hexagon WE HAVE FULLY AUTOMATED DEPLOYMENT TO AZURE APP SERVICES
- hexagon ISSUE: WE STILL DEPLOY ONCE PER MONTH AFTER WE STABILIZED OUR RELEASE

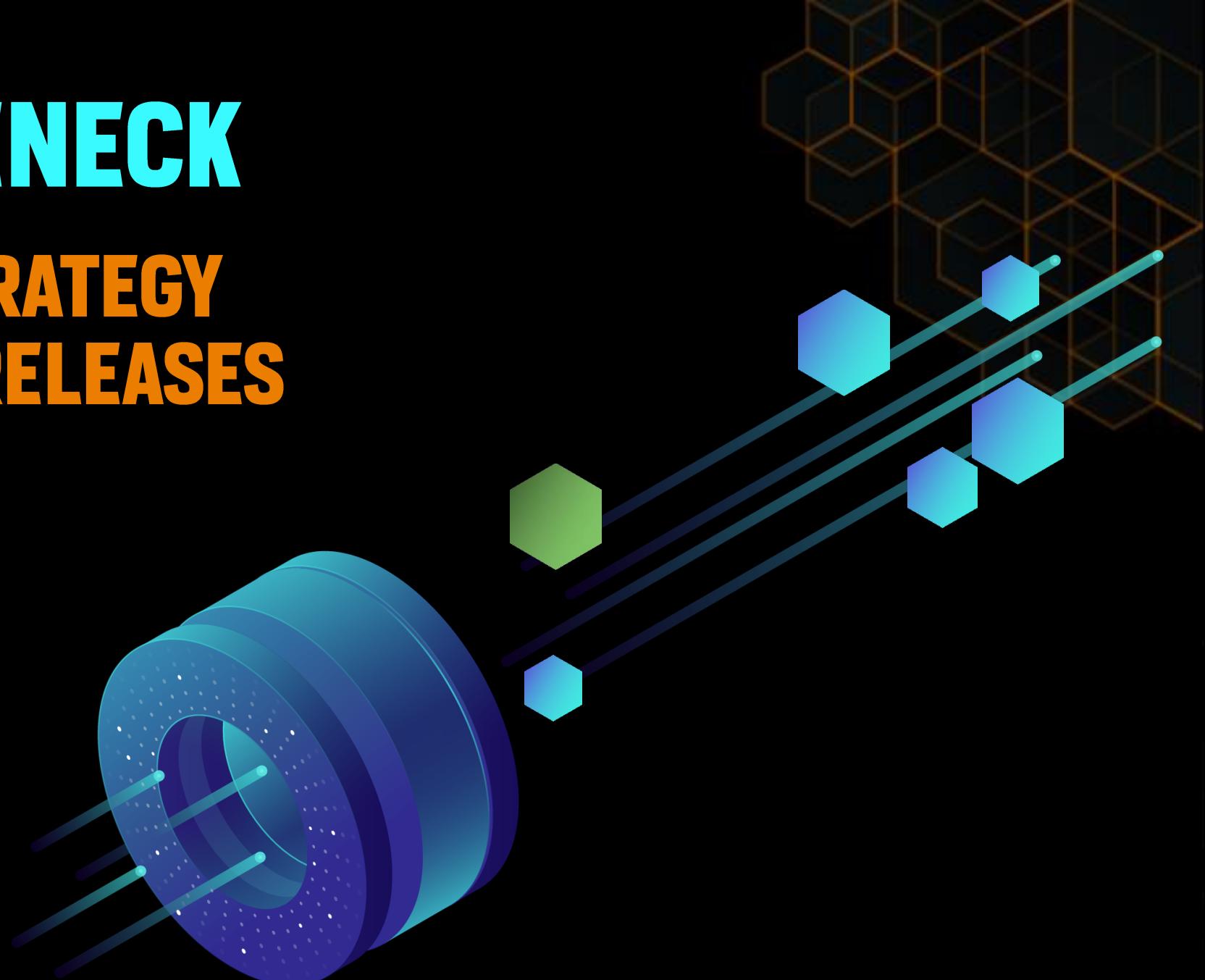
WHAT IS NEXT?

- hexagon IMPROVE THE BRANCHING STRATEGY FROM GIT FLOW TO GIT HUB FLOW
(TRUNK BASED DEVELOPMENT)

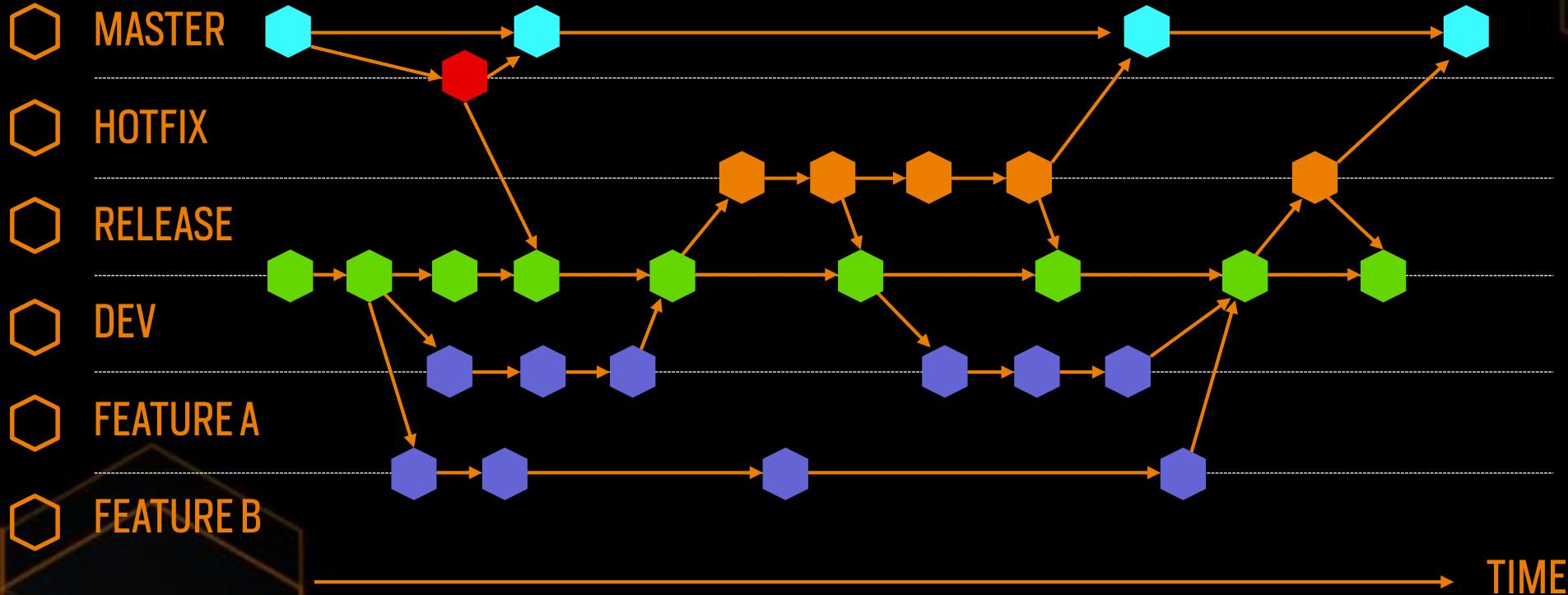
4

BOTTLENECK

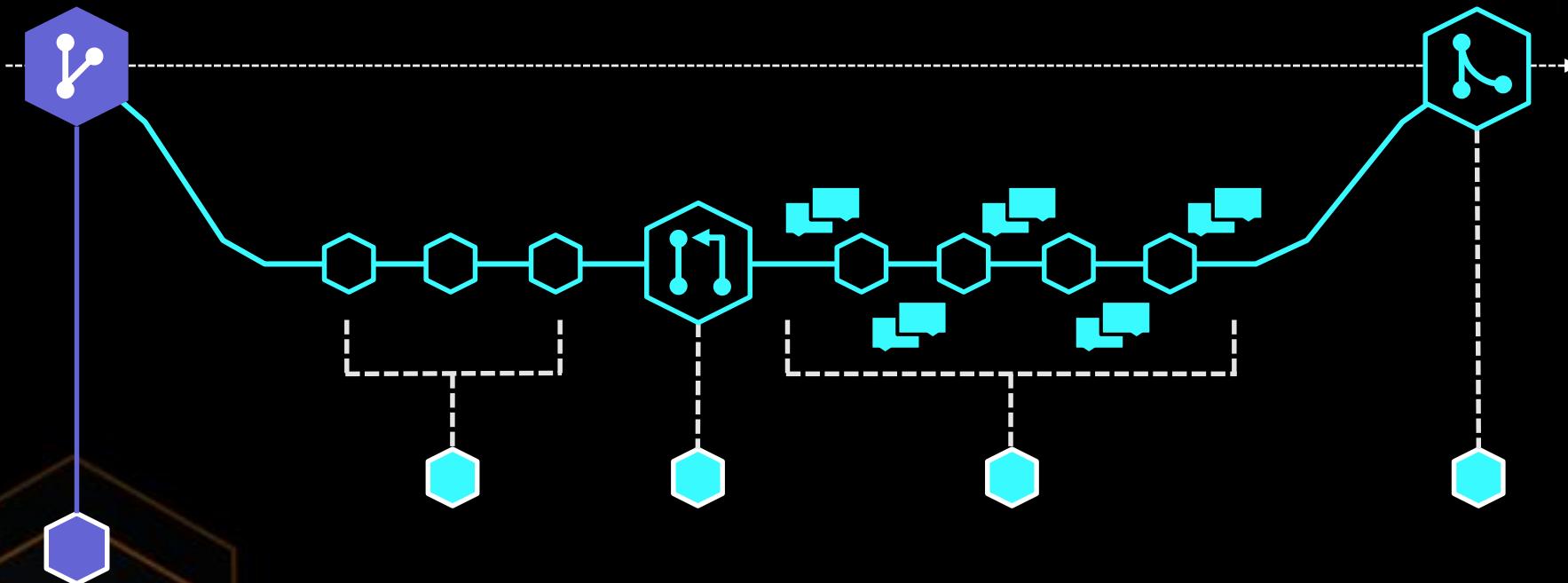
BRANCHING STRATEGY
SLOWS DOWN RELEASES



CURRENT: GIT-FLOW



NEW: GITHUB-FLOW



BRANCH POLICY BUILD / REVIEW / MERGE USE PULL REQUESTS



WHERE ARE WE?

- hexagon icon WE CAN RELEASE FASTER
- hexagon icon EVERYTHING IS AUTOMATED AND SECURE BY DEFAULT
- hexagon icon ISSUE: WE HAVE HAD MANY LIVE SITE INCIDENTS (LSI) CAUSED BY UNFINISHED OR UNTESTED CODE



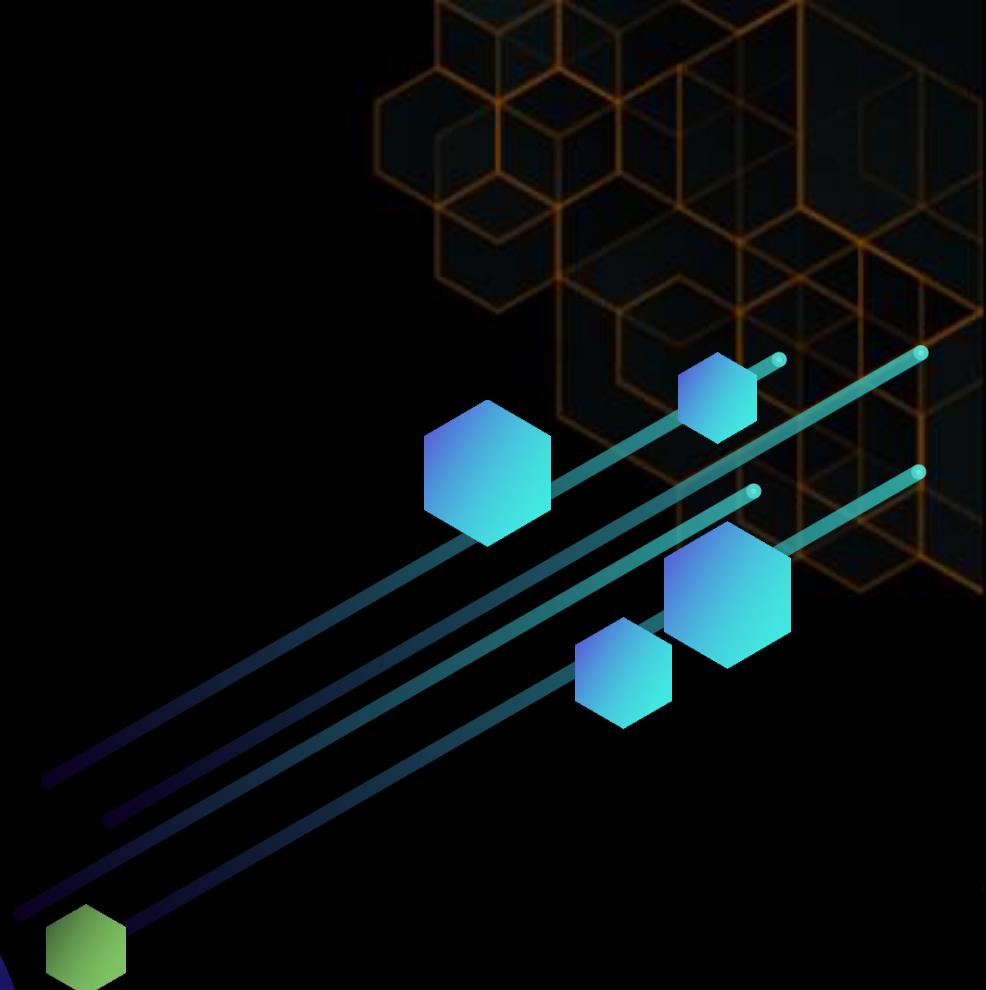
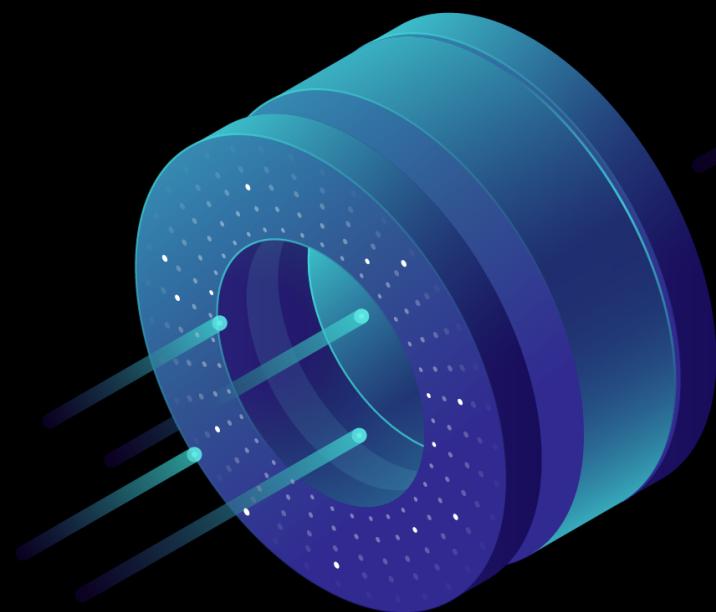
WHAT IS NEXT?

- hexagon icon IMPROVE THE DEVELOPER FLOW AND CREATE MORE STABLE DEPLOYMENTS
- hexagon icon INTRODUCE FEATURE TOGGLIES



5 BOTTLENECK

DEPLOYMENTS ARE NOT
ALWAYS STABLE / ENABLE
EXPERIMENTATION



USE OF FEATURE FLAGS / TOGGLES

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

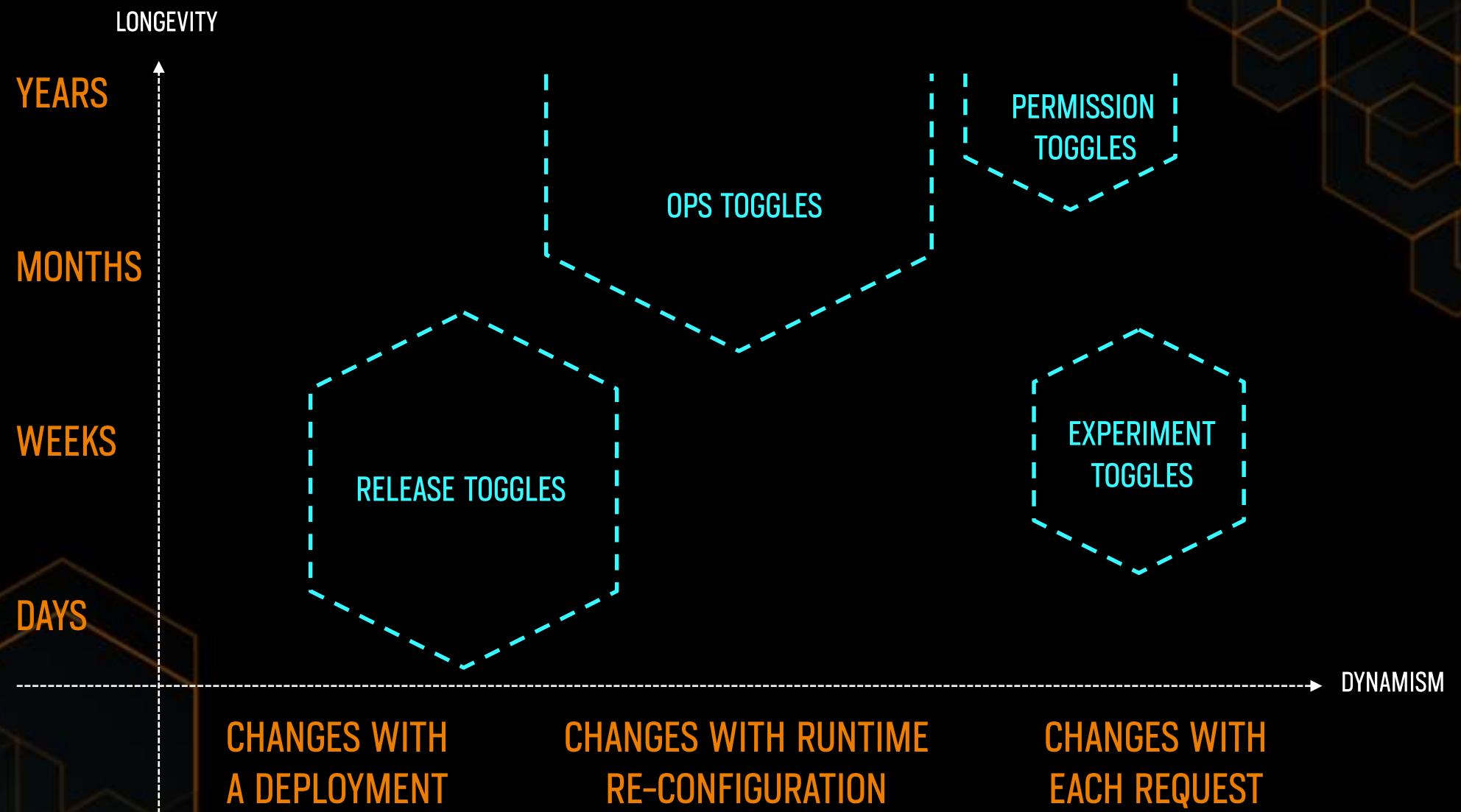
DON'T BUILD YOUR OWN, MANY OPTIONS OUT THERE

- hexagon icon IF-ELSE
- hexagon icon NFEATURE (LGPL-3.0!, LAST UPDATE JUNE 2012)
- hexagon icon FEATURE TOGGLE (APACHE 2.0, LAST UPDATE APRIL 2017)
- hexagon icon FEATURE SWITCHER (APACHE 2.0, LAST UPDATE JANUARY 2014)
- hexagon icon FLIPIT (APACHE 2.0, LAST UPDATE FEBRUARY 2012)

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 FASTER AND MORE STABLE DEPLOYMENTS
- hexagon icon ISSUE, WE STILL HAVE DOWNTIME AT THE MOMENT OF RELEASE



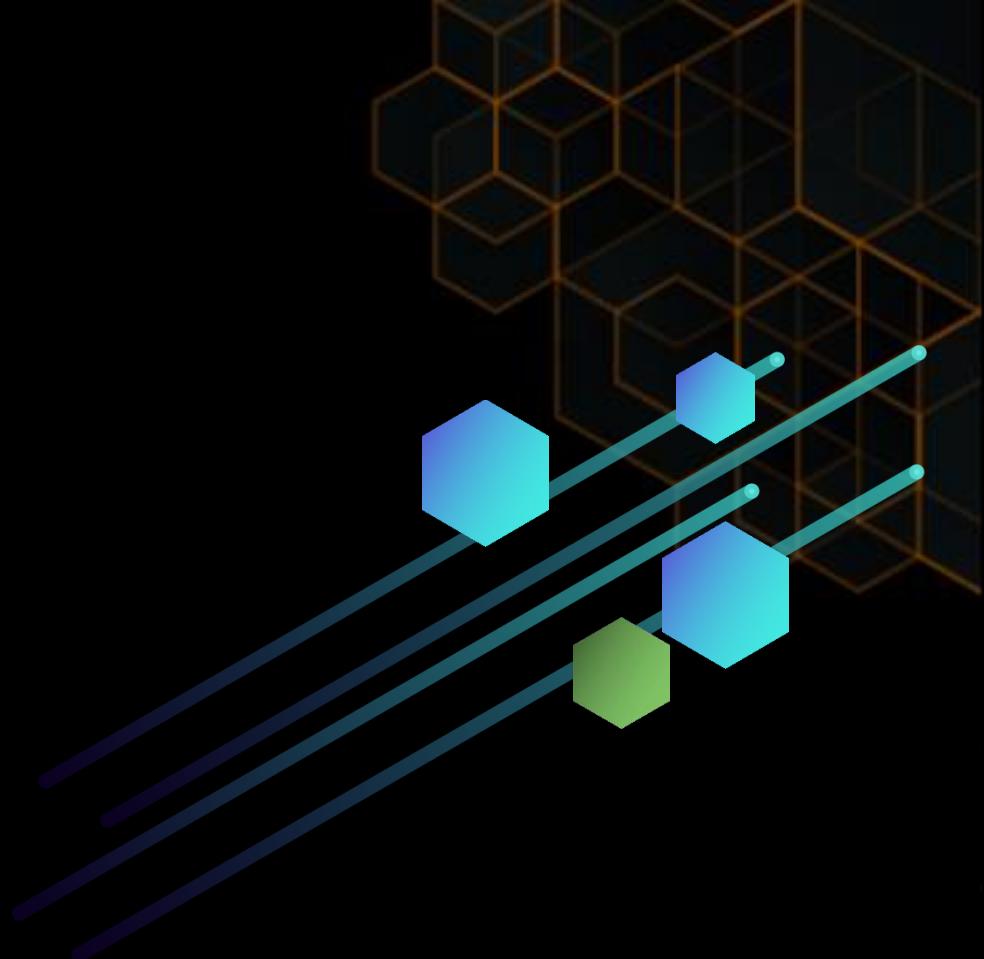
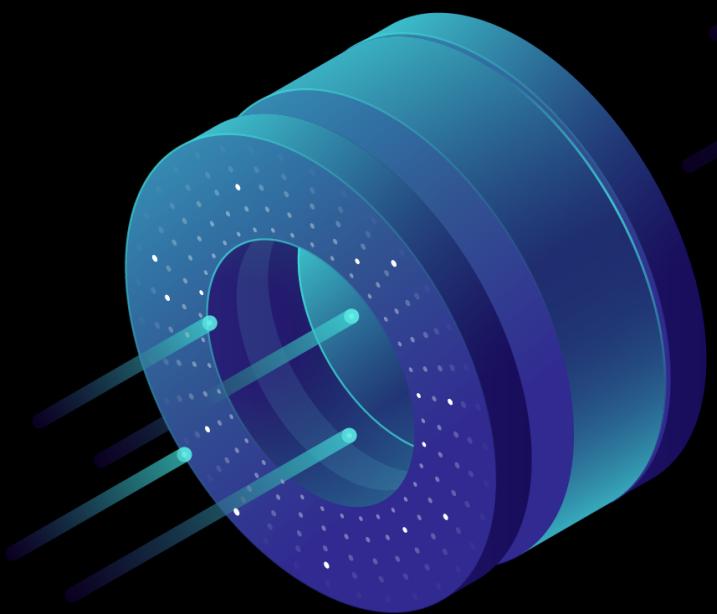
WHAT IS NEXT?

- hexagon icon SOLUTION: BLUE / GREEN DEPLOYMENTS
 - DEPLOY TO NEW ENVIRONMENT
 - THE MOMENT DEPLOYMENT IS DONE, SLOWLY MOVE TRAFFIC TO NEW ENVIRONMENT
 - PREVENTS DOWNTIME
 - IMPROVED ABILITY TO ROLL BACK

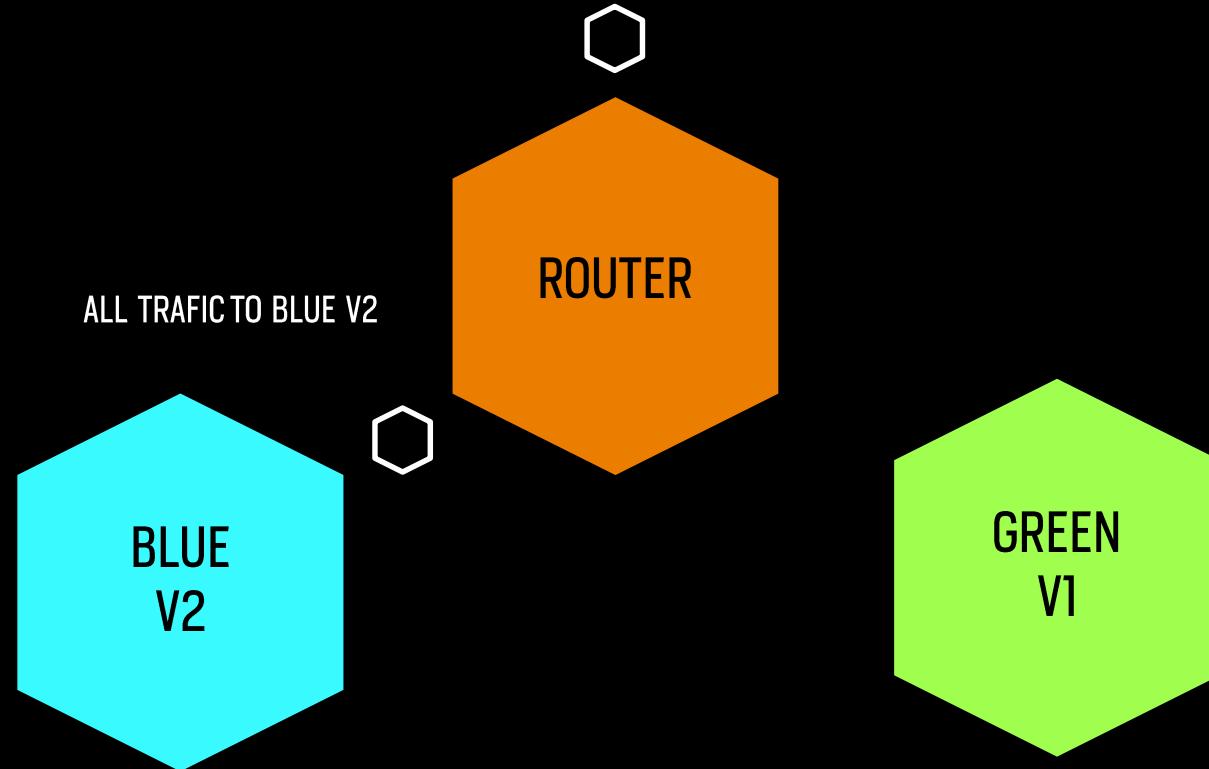


6 BOTTLENECK

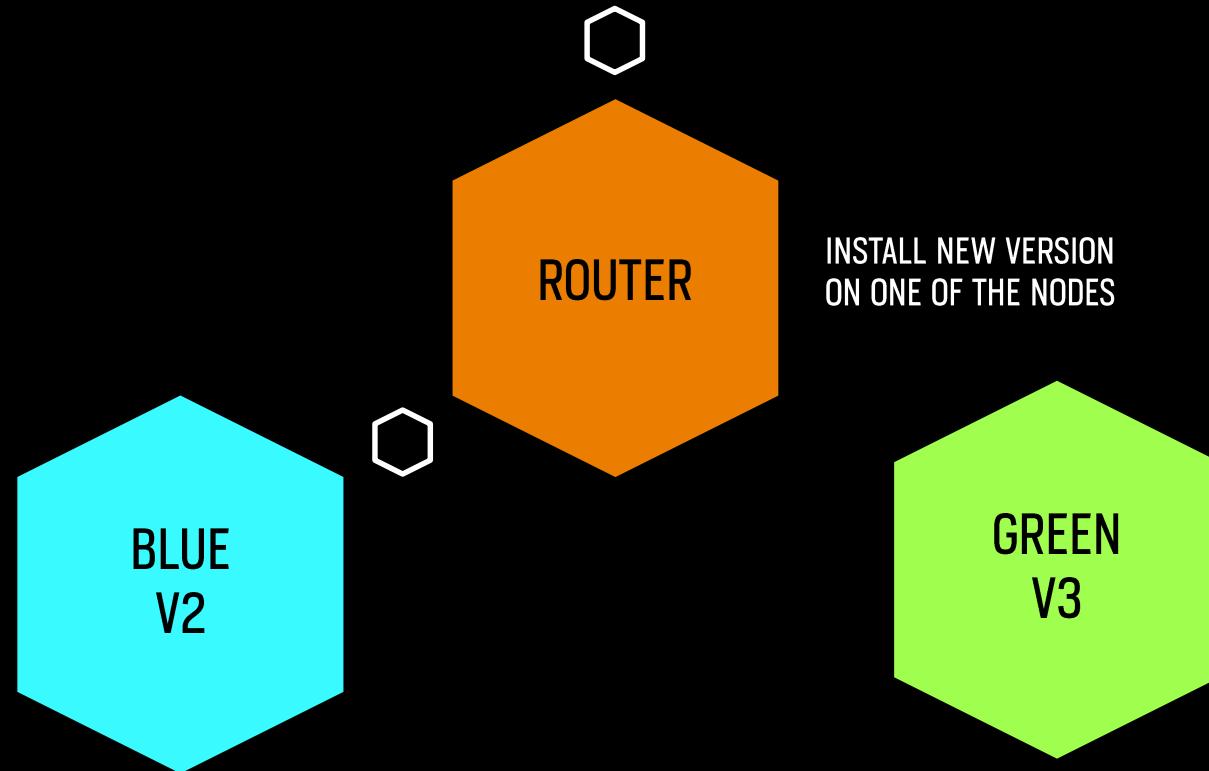
DOWNTIME WHEN WE
DEPLOY



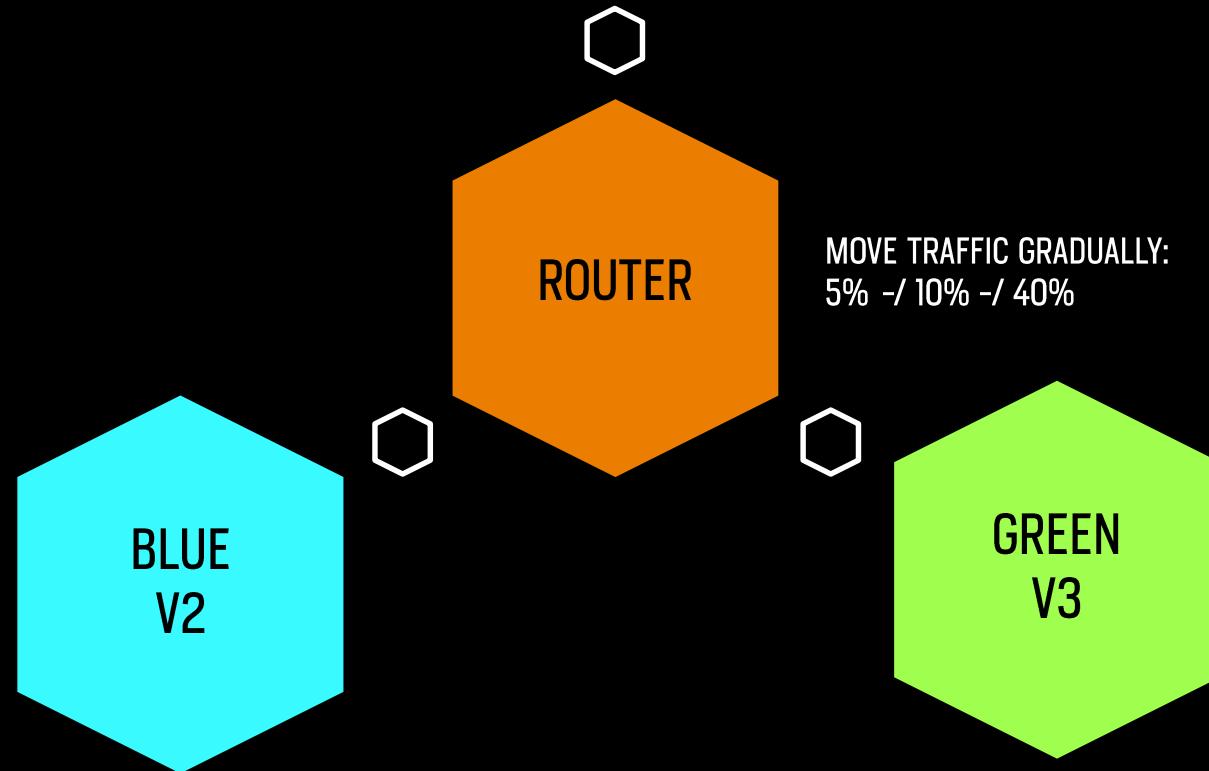
BLUE/GREEN DEPLOYMENTS



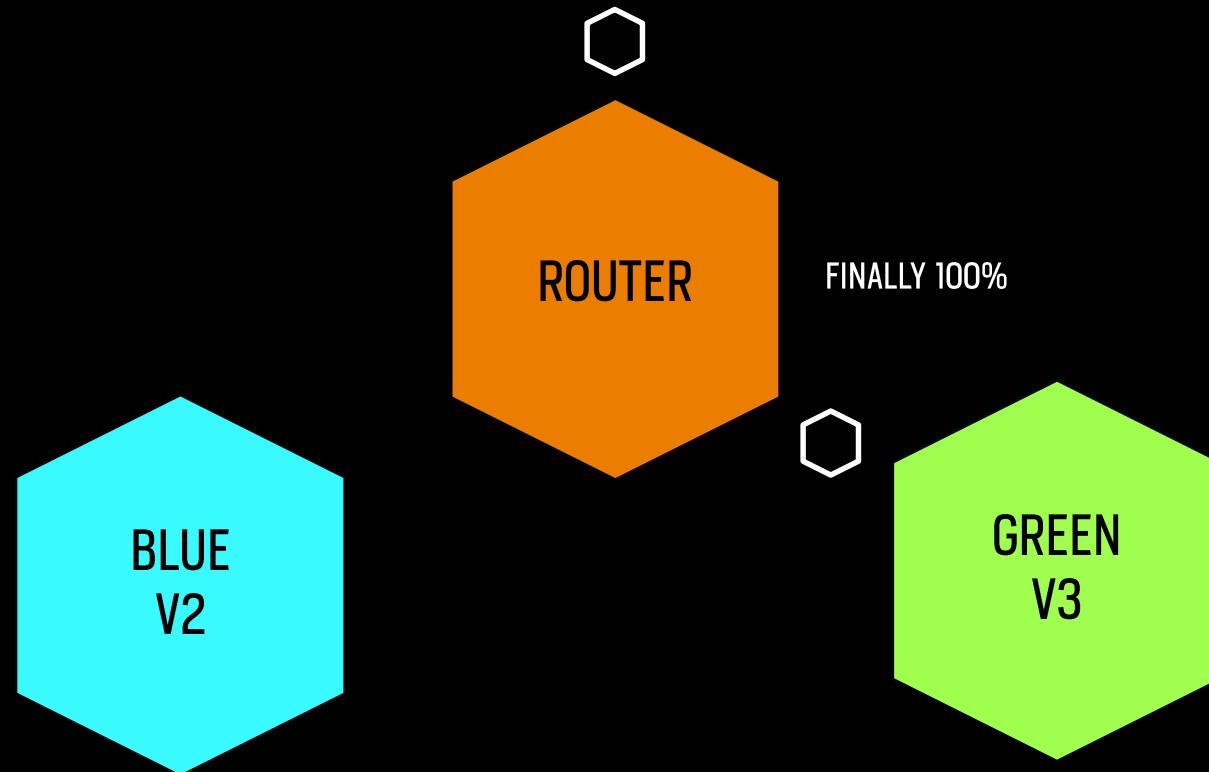
BLUE/GREEN DEPLOYMENTS



BLUE/GREEN DEPLOYMENTS

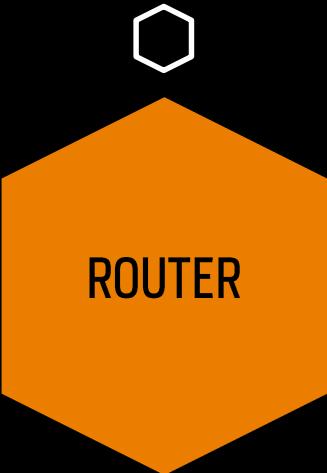
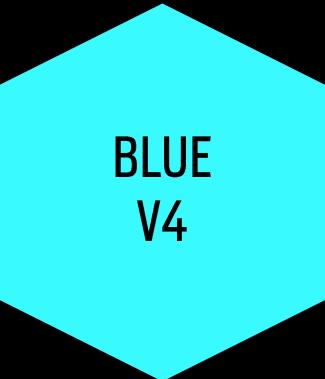


BLUE/GREEN DEPLOYMENTS



BLUE/GREEN DEPLOYMENTS

INSTALL VERSION 4
AS NEW BLUE NODE



FINALLY 100%



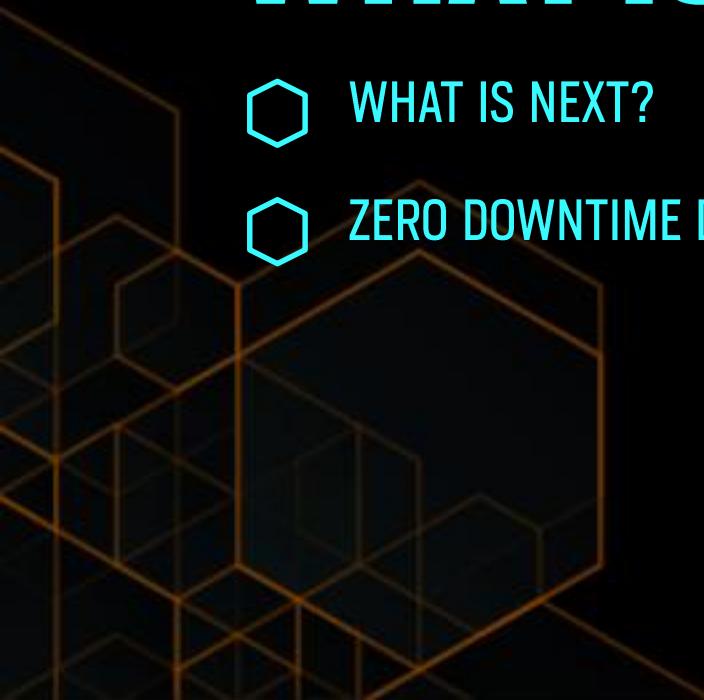
WHERE ARE WE?

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



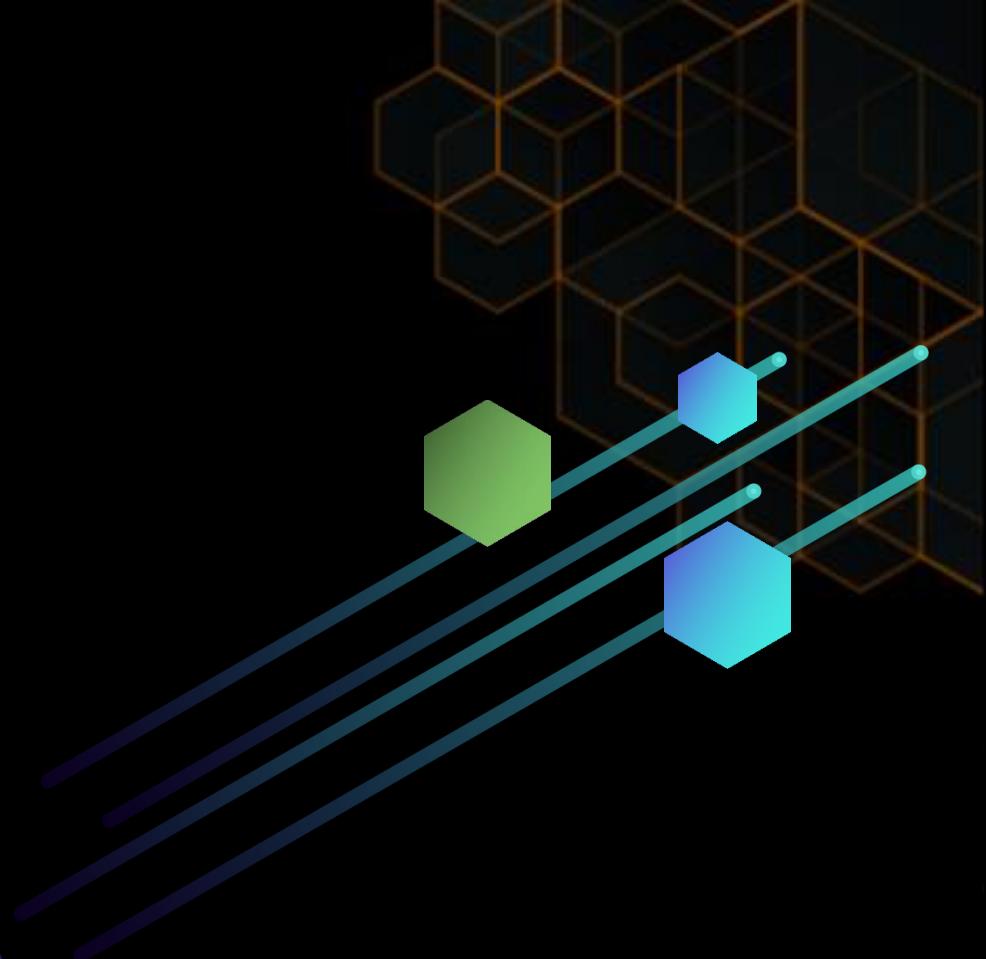
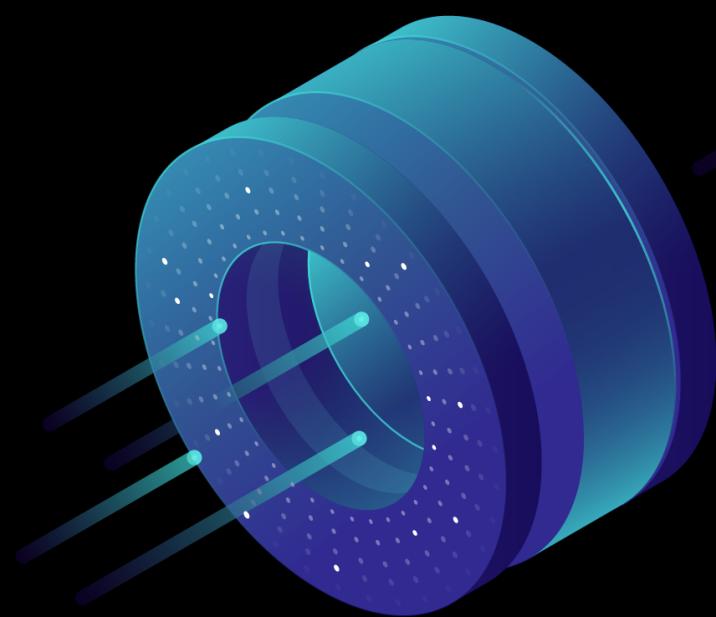
WHAT IS NEXT?

- hexagon icon WHAT IS NEXT?
- hexagon icon ZERO DOWNTIME DEPLOYMENT OF THE DATABASE



7 BOTTLENECK

DOWNTIME WHEN WE DEPLOY
NEW DATABASE SCHEMA



DB SCHEMA CHANGES AND ZERO DOWNTIME

- CREATE BINARIES THAT ARE MULTI SCHEMA COMPATIBLE
- DEPLOY BINARIES
- NOW CREATE CHANGE IN DB
 - ENSURE DDL STATEMENTS DON'T BLOCK YOUR QUERIES OR IMPACT DB PERFORMANCE
- CREATE SINGLE SCHEMA, LATEST IN CODE
- DEPLOY BINARIES
- NOW DELETE UNUSED DATA

DB SCHEMA CHANGES-STEP 1

- CREATE BINARIES THAT ARE MULTI SCHEMA COMPATIBLE

M124 BIN



M124 DB



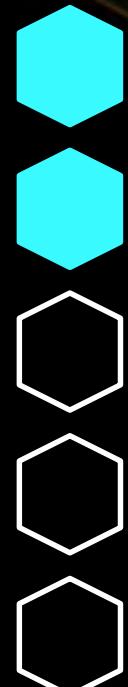
DB SCHEMA CHANGES-STEP 2

- UPDATE THE BINARIES TO SUPPORT
NEW SCHEMA AND OLD SCHEMA

M125 BIN



M124 DB



DB SCHEMA CHANGES-STEP 3

- UPDATE THE DB WITH THE NEW SCHEMA
- MIGRATE DATA SLOWLY TO NEW SCHEMA
- DON'T UPDATE TABLES, ALWAYS CREATE NEW
 - WON'T TAKE A LOCK ON THE TABLE
 - WOULD CREATE A READ BLOCK ON DB

M125 BIN



M124 DB
-/
M125 DB

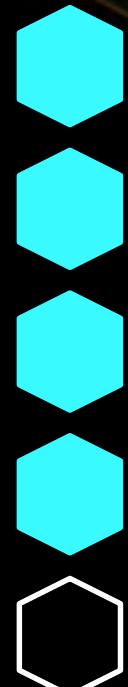


DB SCHEMA CHANGES-STEP 4

- hexagon icon UPDATE BINARIES TO ONLY USE NEW SCHEMA

M126 BIN

M125 DB

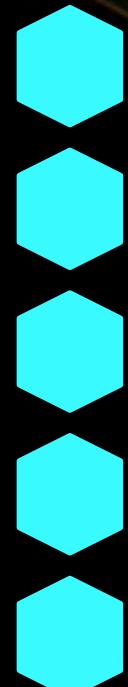


DB SCHEMA CHANGES-STEP 5

hexagon icon CLEAN THE OLD SCHEMA

M126 BIN

M126 DB



WHERE ARE WE?

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



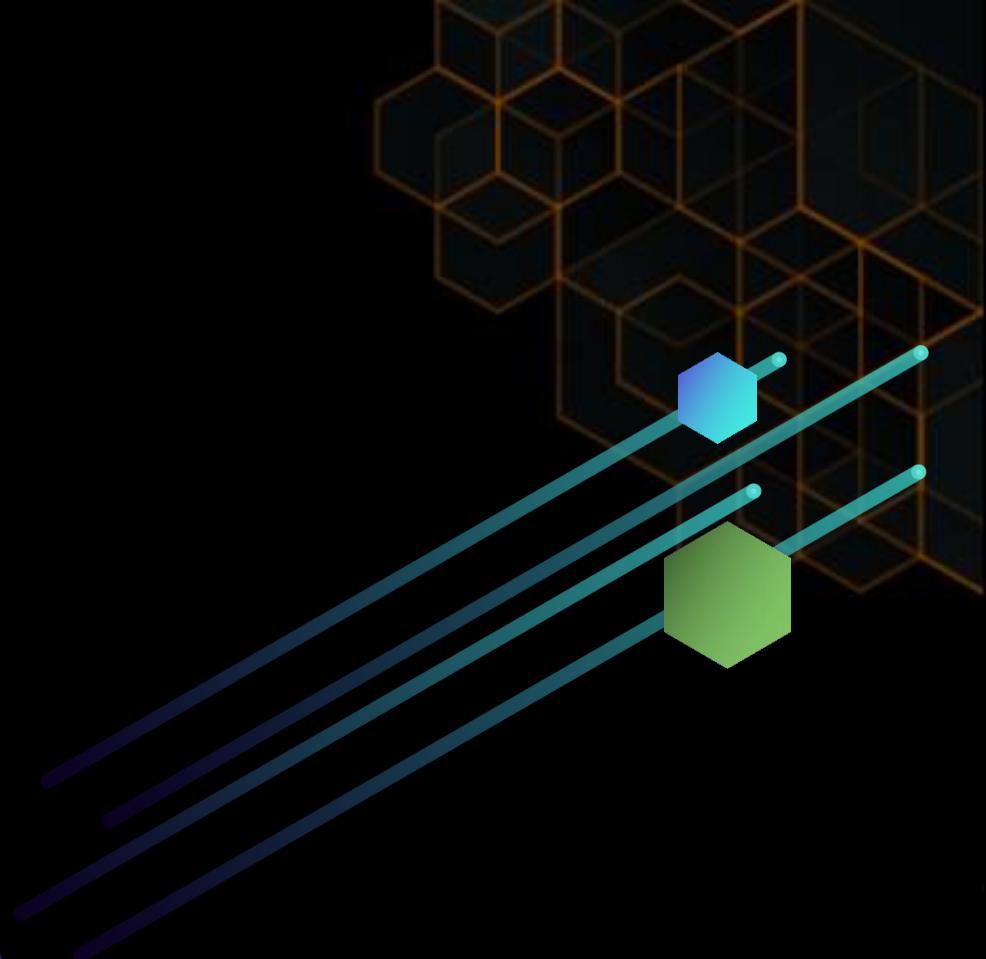
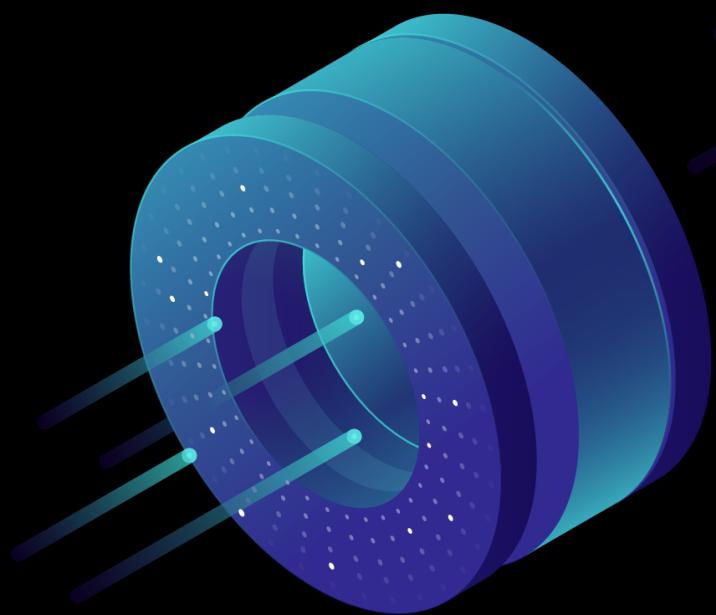
WHAT IS NEXT

- hexagon icon WHAT IS NEXT?
- hexagon icon BUSINESS NEEDS MORE INSIGHTS INTO FEATURES BEING USED
 - ADD TELEMETRY TO THE SYSTEM



8 BOTTLENECK

NO INSIGHTS IN USAGE
AND AVAILABILITY



TELEMETRY

- hexagon icon **USAGE**
- hexagon icon **PERFORMANCE**
- hexagon icon **AVAILABILITY**
- hexagon icon **LOGS**



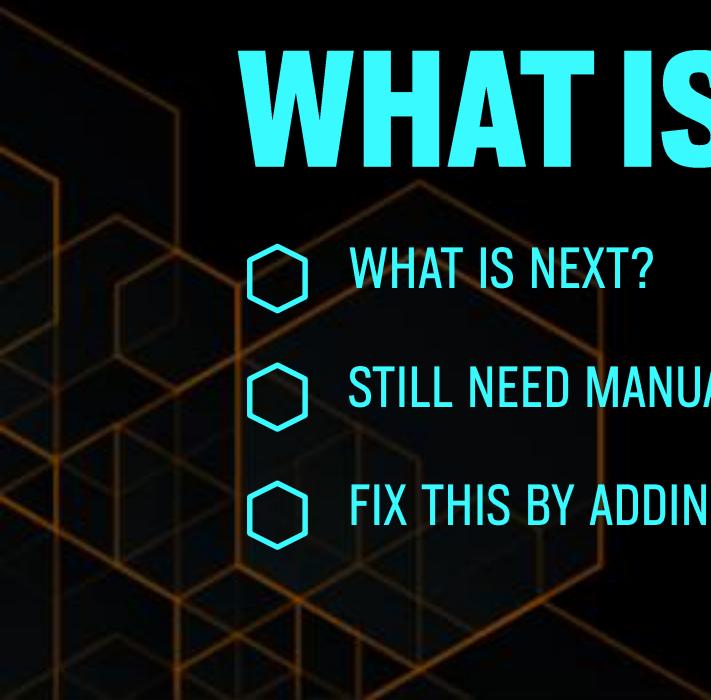
WHERE ARE WE?

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



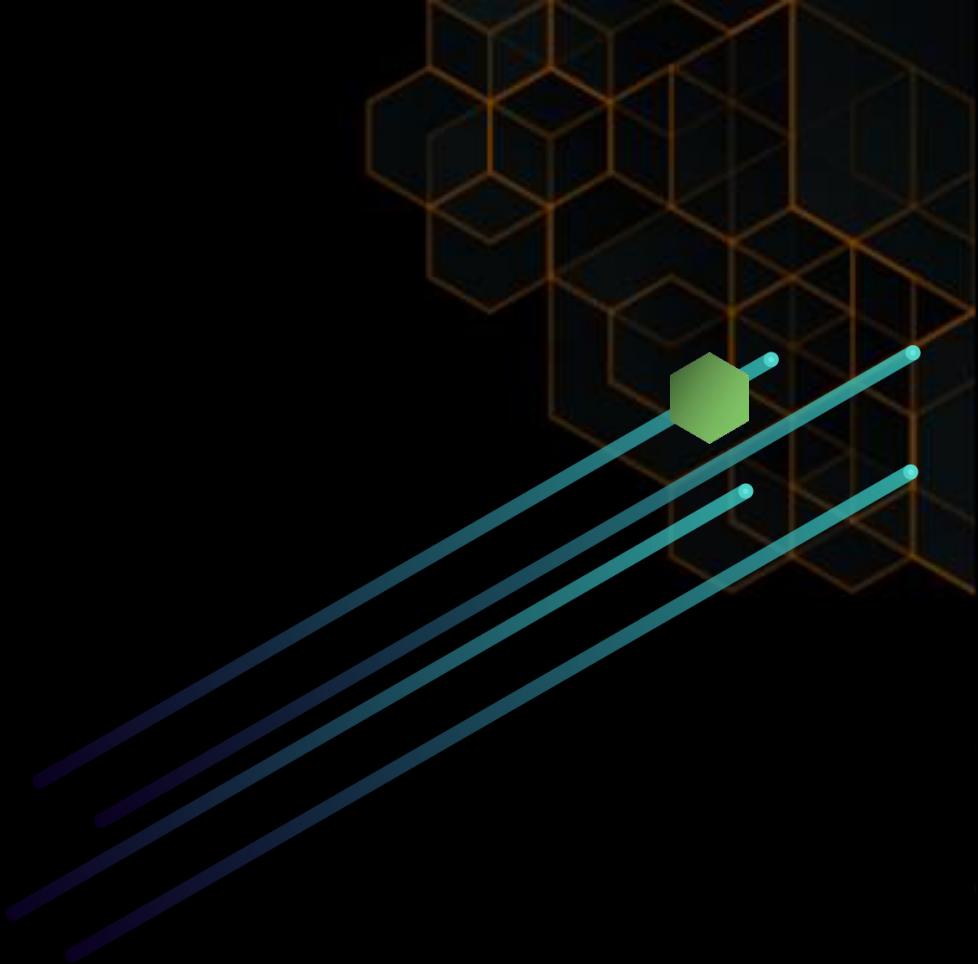
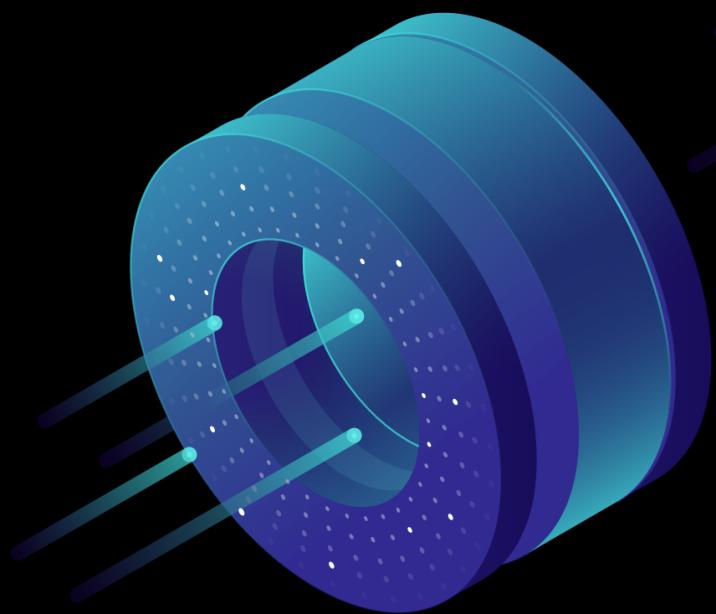
WHAT IS NEXT

- hexagon icon WHAT IS NEXT?
- hexagon icon STILL NEED MANUAL APPROVALS
- hexagon icon FIX THIS BY ADDING RELEASE GATES THAT USE TELEMETRY

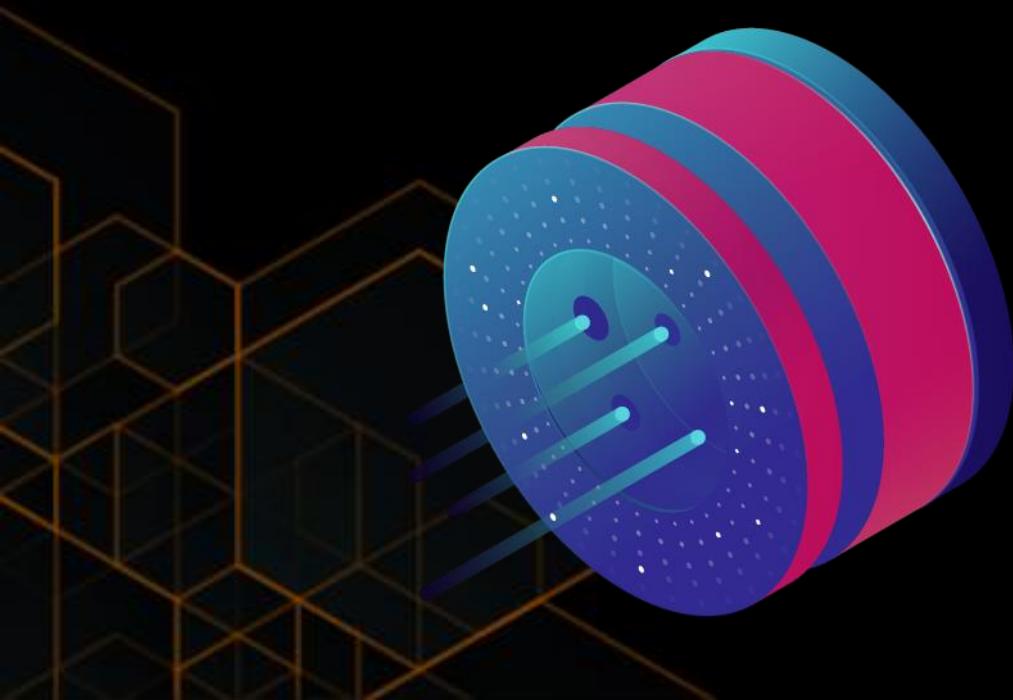


9 BOTTLENECK

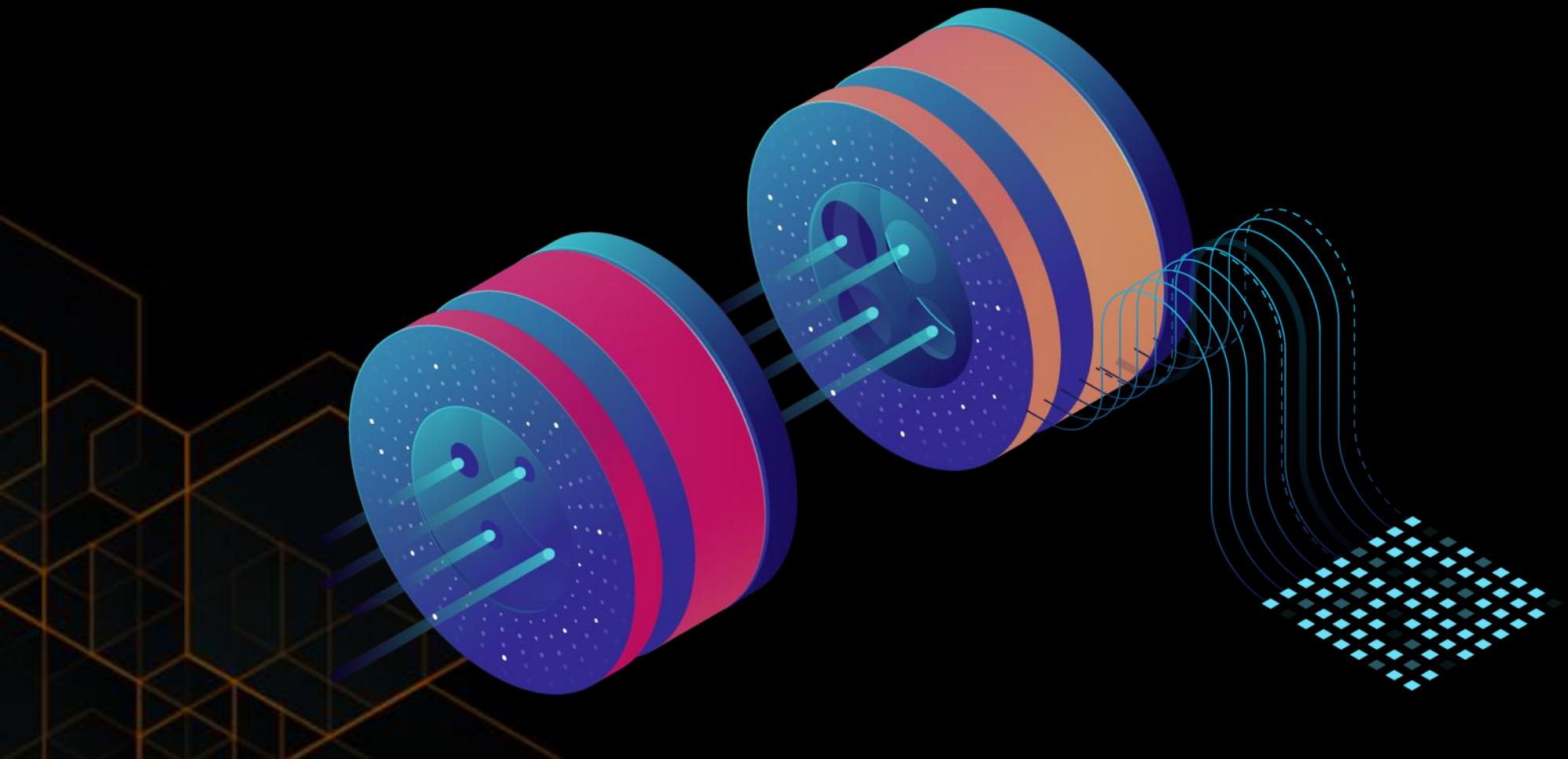
STILL MANUAL APPROVALS



RELEASE GATES



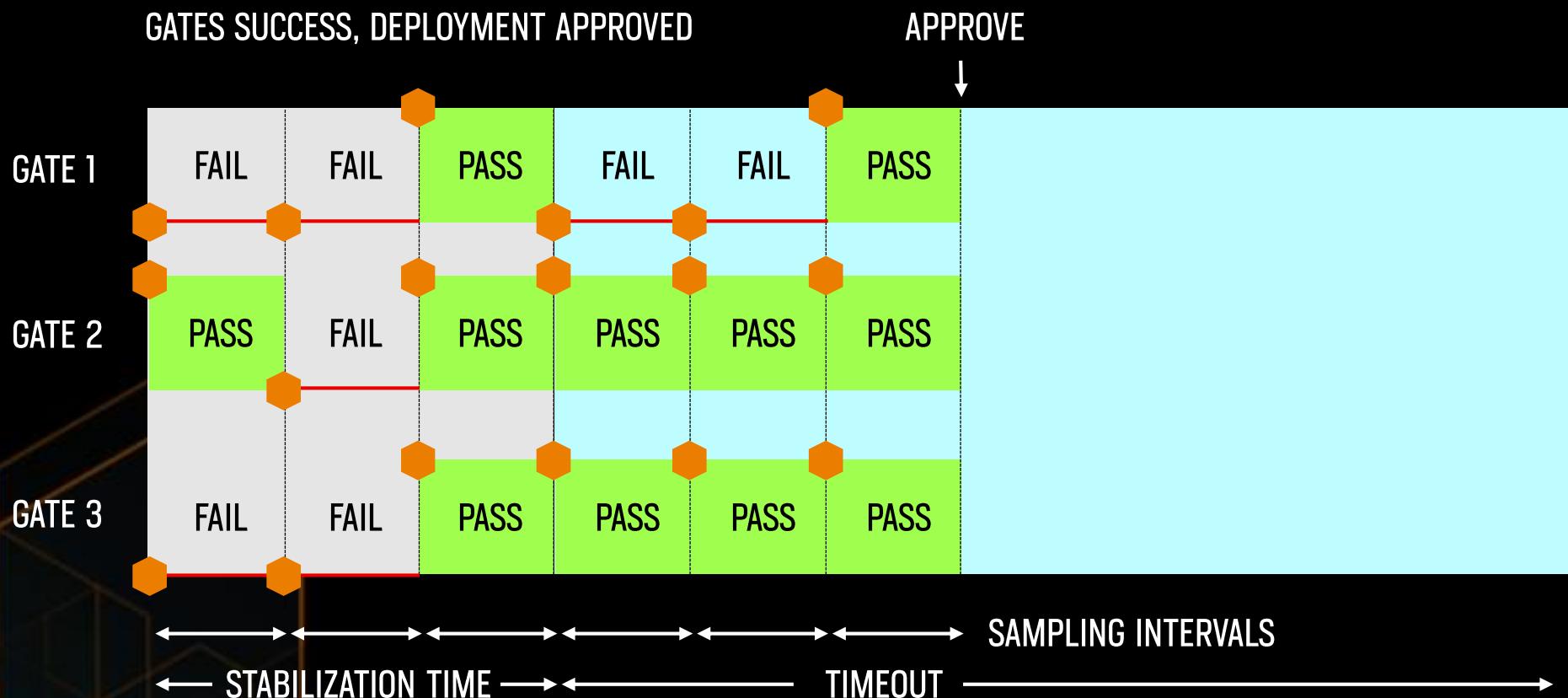
RELEASE GATES



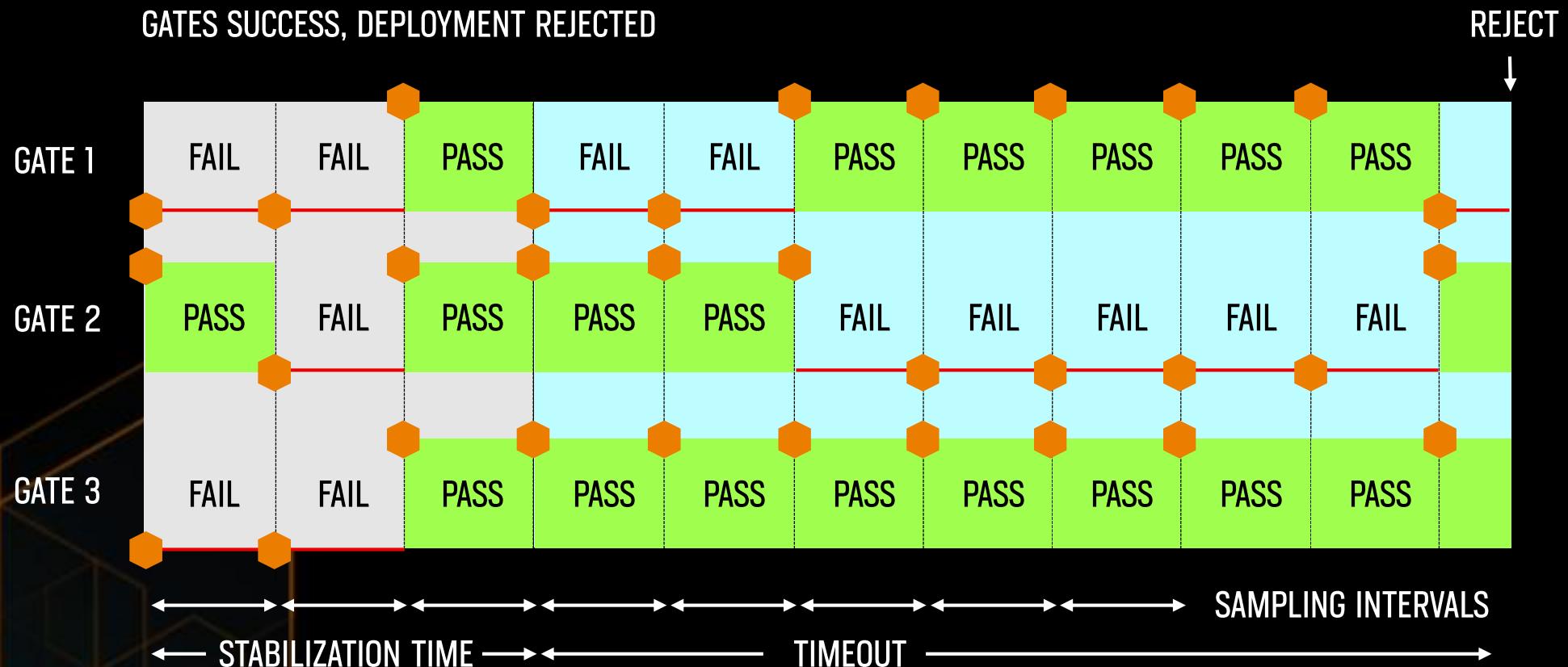
RELEASE GATES



RELEASE GATES EVALUATION



RELEASE GATES EVALUATION



GDBC INC. FINAL RESULTS

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





THANK YOU!

NAT FRIEDMAN - ANISHA PINDORIA - MARTIN WOODWARD

BUCK HODGES - ROB BOS - JAKOB EHN - TAAVI KOOSAR

MARTIJN VAN DER SIJDE - JASPER GILHUIS - DONOVAN BROWN

ABEL WANG - JESSICA DEEN - STEVEN MURAWSKI - DAMIAN BRADY

VIVIAN ANDRINGA - GEERT VAN DER CRUISEN - KEESEN VERHAAR

BRIAN RANDELL - IAN GRIFFITHS - BERIT REISENAUER

MICHIEL VAN OUDHEUSDEN - OLAF WALTHER - MARCEL DE VRIES

MATHIAS OLAUSSON - RENE VAN OSNABRUGGE

THANK YOU!



