Dennis van der Stelt

Autonomous microservices don’t share data. Period!

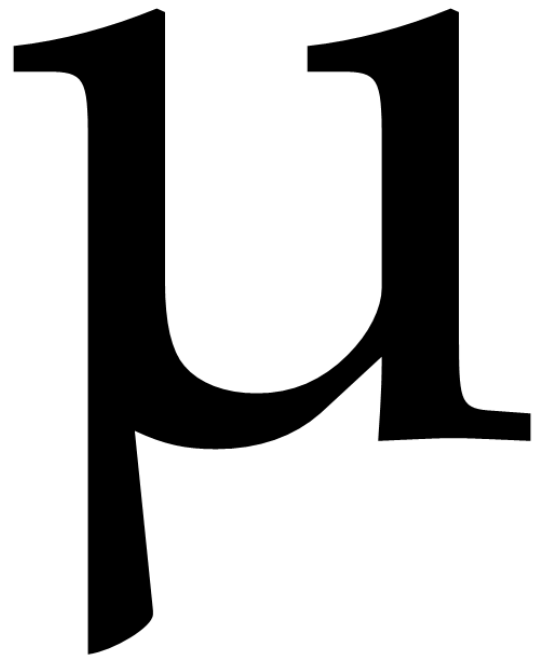
@dvdstelt

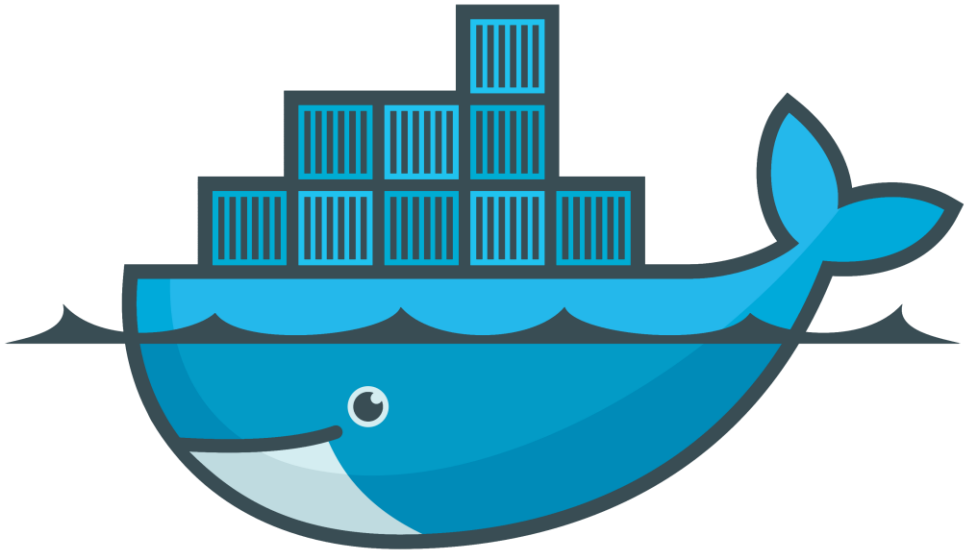
DENNIS VAN DER STELT

Particular
Software

NServiceBus

in Particular





docker

kubernetes

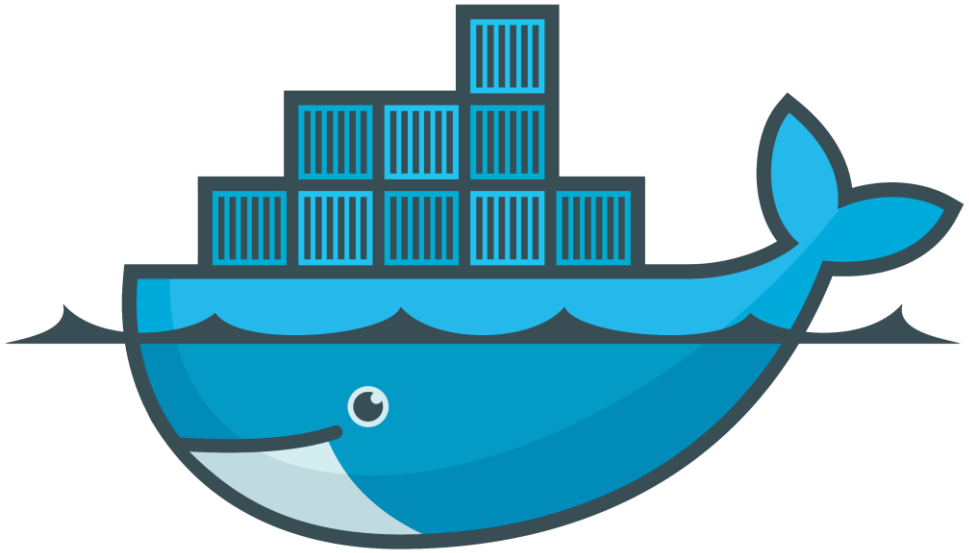
RENA
MONROVIA

RENA
MONROVIA
msc

WHY?

WHY?

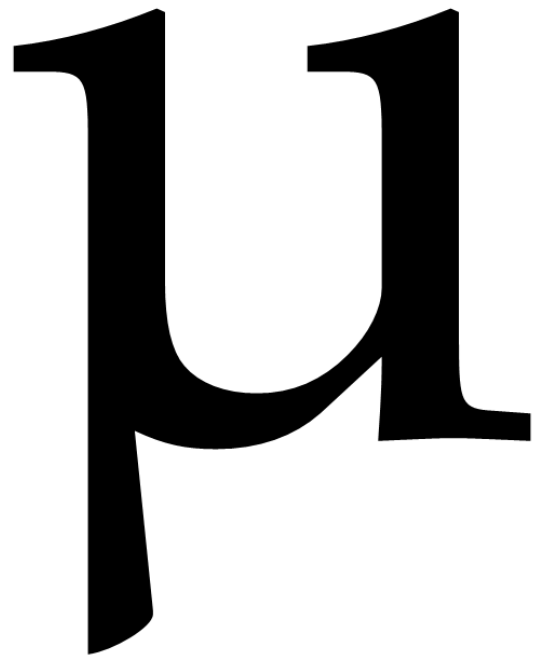
Maintenance cost



docker

MODULAR MONOLITH

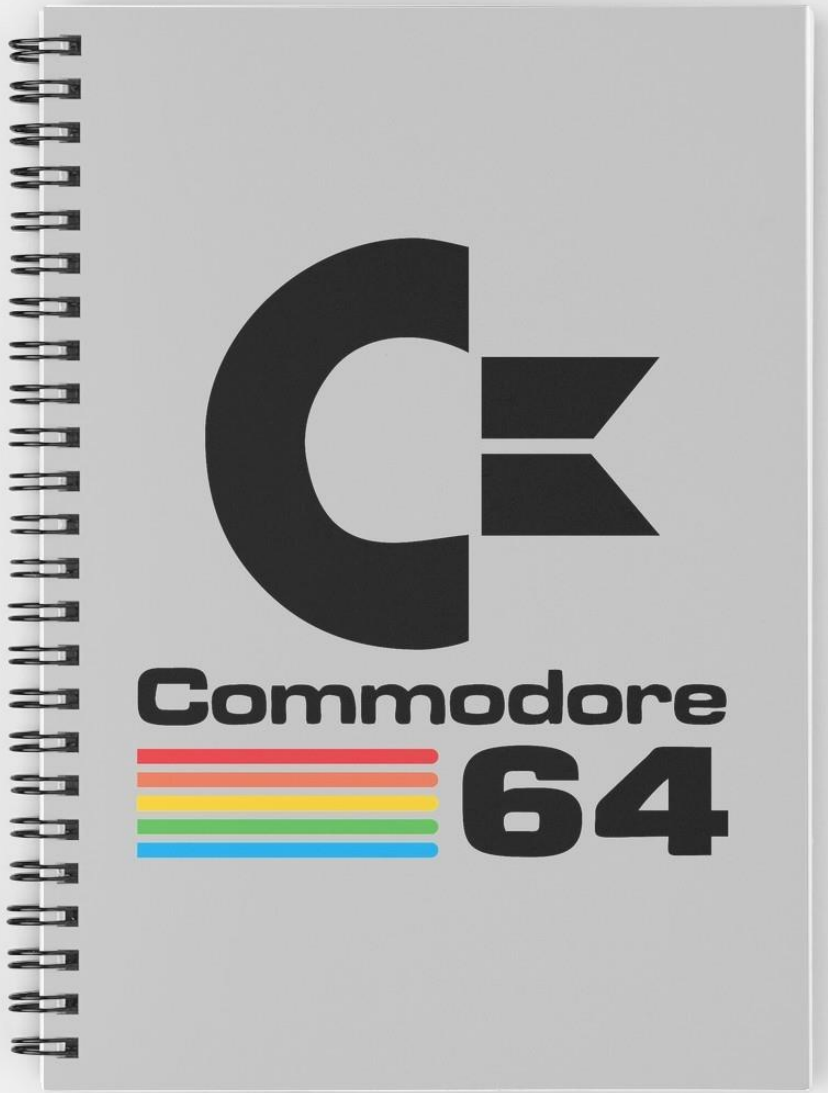
dapr



1st

FIRST...

commodore 64
POWER
CTRL
RUN STOP
SHIFT LOCK
SHIFT
CLR HOME
INST DEL
RESTORE
RETURN
SHIFT
CRSR
CRSR
f 1
f 2
f 3
f 4
f 5
f 6
f 7
f 8


Commodore
64

VIDEO RAM : 128Kbytes
USER RAM : 128Kbytes

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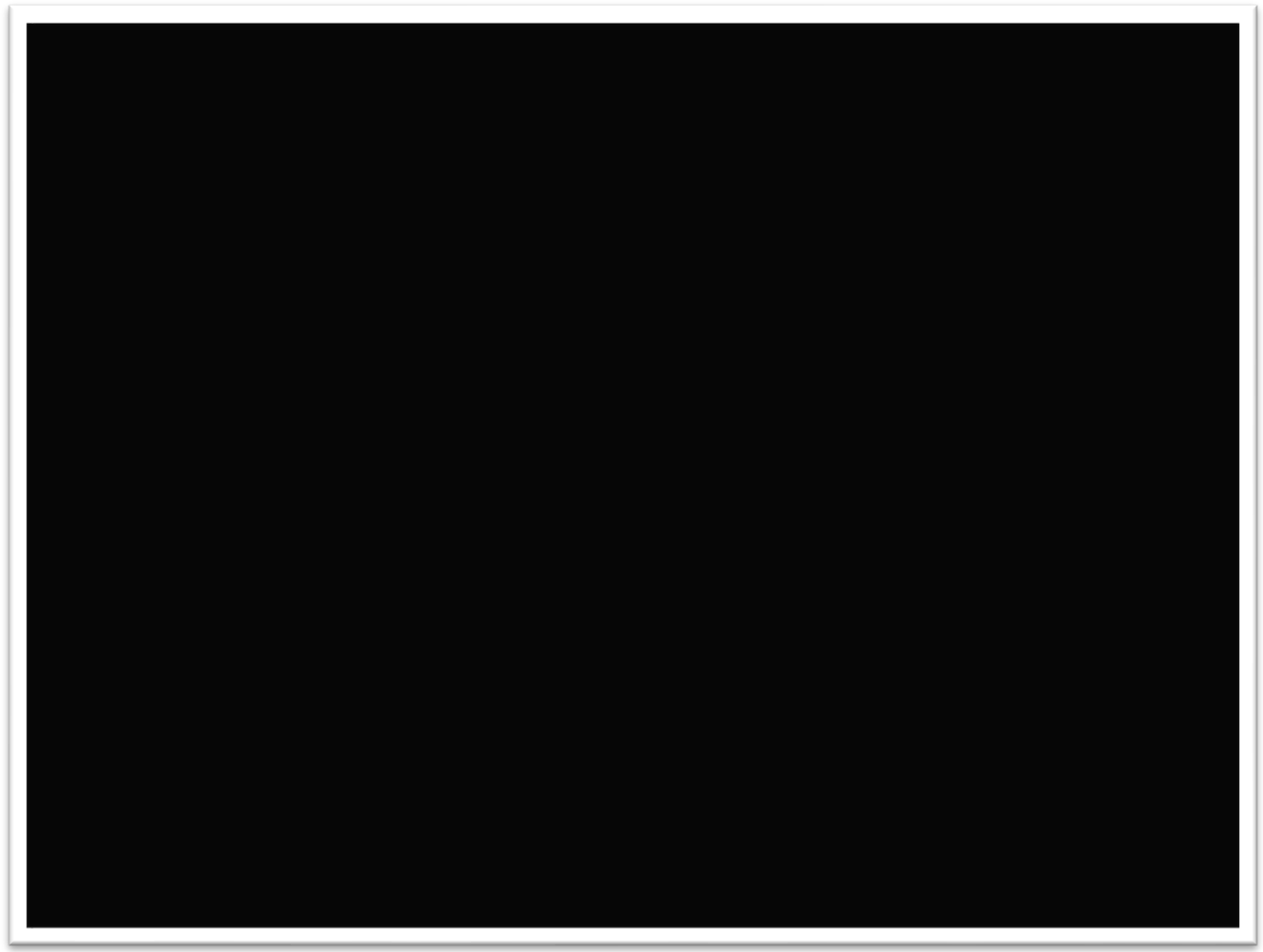
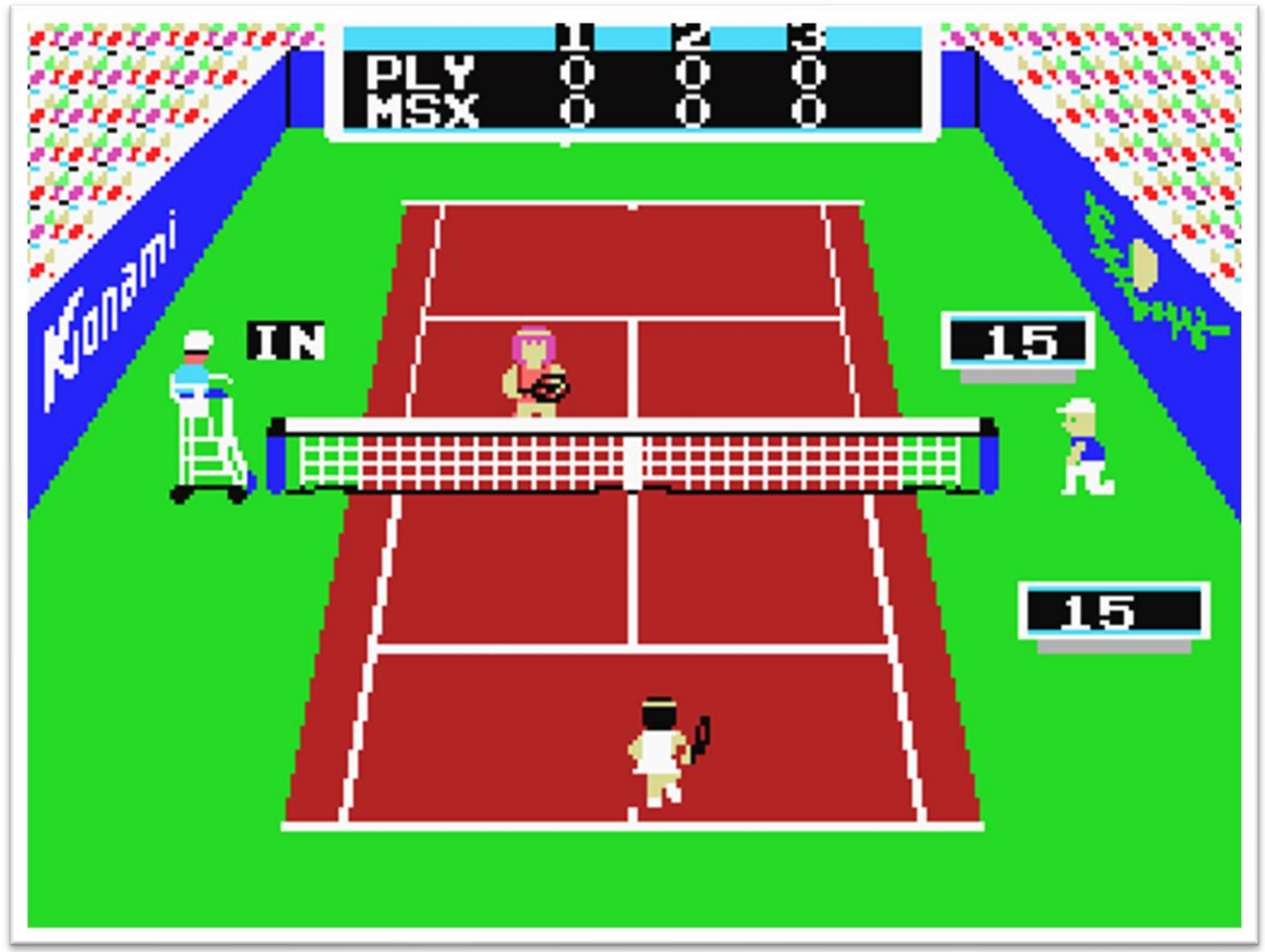
www.minimaexpresion.es




1
2
3
PLY 0 0 0
MSX 0 0 0
Konami
IN
15
15

Konami
コナミのテニス
KONAMI'S TENNIS
©1984 Konami
MSX
RC 720
Konami

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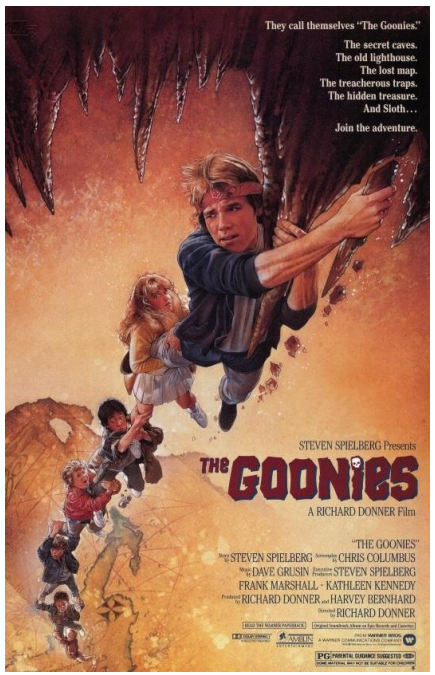
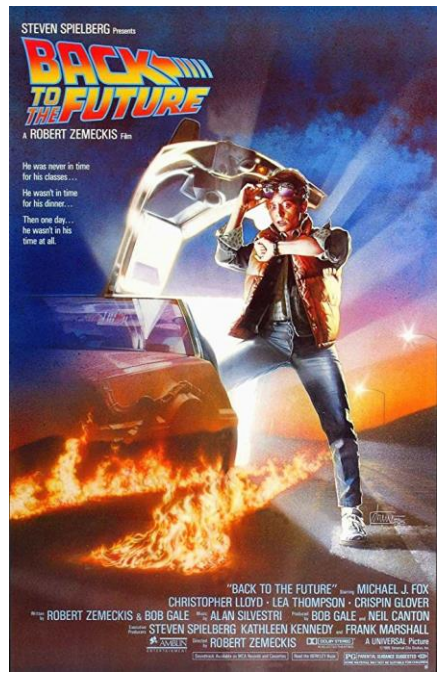
```
MSX BASIC version 3.0
Copyright 1983 by Microsoft
23414 Bytes free
Disk BASIC version 1.0
Ok
10 PRINT “Hello world”
20 GOTO 10
RUN
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
Hello world
```

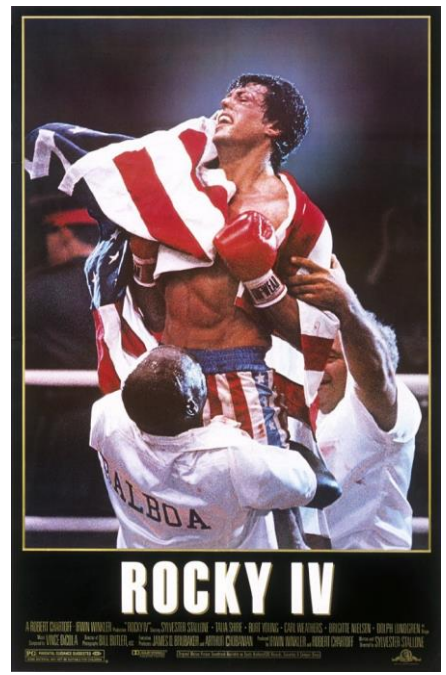
DENNIS
PROGRAMMING
MSX BASIC


They call themselves "The Goonies."
The secret caves.
The old lighthouse.
The lost map.
The treacherous traps.
The hidden treasure.
And Sloth...
Join the adventure.
STEVEN SPIELBERG Presents
THE GOONIES
A RICHARD DONNER Film
"THE GOONIES"
STEVEN SPIELBERG
CHRIS COLUMBUS
DAVE GRUSIN
STEVEN SPIELBERG
FRANK MARSHALL · KATHLEEN KENNEDY
RICHARD DONNER and HARVEY BERNHARD
RICHARD DONNER
PG PARENTAL GUIDANCE SUGGESTED


STEVEN SPIELBERG Presents
BACK TO THE FUTURE
A ROBERT ZEMECKIS Film
He was never in time for his classes...
He wasn't in time for his dinner...
Then one day... he wasn't in his time at all.
"BACK TO THE FUTURE"
MICHAEL J. FOX
CHRISTOPHER LLOYD · LEA THOMPSON · CRISPIN GLOVER
ROBERT ZEMECKIS & BOB GALE
ALAN SILVESTRI
BOB GALE and NEIL CANTON
STEVEN SPIELBERG KATHLEEN KENNEDY and FRANK MARSHALL
ROBERT ZEMECKIS
A UNIVERSAL Picture

THEY ONLY MET ONCE, BUT IT CHANGED THEIR LIVES FOREVER.
They were five total strangers, with nothing in common, meeting for the first time.
A brain, a beauty, a jock, a rebel and a recluse.
Before the day was over, they broke the rules.
Bared their souls.
And touched each other in a way they never dreamed possible.
THE BREAKFAST CLUB
BC
A JOHN HUGHES Film · An A&M FILMS/CHANNEL Production "THE BREAKFAST CLUB"
EMILIO ESTEVEZ · PAUL GLEASON · ANTHONY MICHAEL HALL · JUDD NELSON · MOLLY RINGWALD · ALLY SHEEDY
JOHN HUGHES
DEDE ALLEN
KEITH FORSEY
MICHELLE MANNING
GIL FRIESEN and ANDREW MEYER
R RESTRICTED
NED TANEN and JOHN HUGHES
A UNIVERSAL PICTURE

SOMETHING WEIRD IS HAPPENING AT WYATT AND GARY'S
It all started with some wishful thinking and a little help from the supernatural.
Now, there's a Pershing missile sticking through the roof. Expensive sports cars in the driveway. And an incredibly sexy woman heading for the bedroom.
Nobody knows where it will end.
But it's burning their lives. Their minds.
And their house upside down.
WEIRD SCIENCE
They went from zeroes to heroes in one fantastic weekend.
A JOHN HUGHES Film
A HUGHES/SILVER Production "WEIRD SCIENCE"
ANTHONY MICHAEL HALL ILAN MITCHELL-SMITH and KELLY LeBROCK
Written and Directed by JOHN HUGHES
Music by IRA NEWBORN
Director of Photography MATTHEW F. LEONETTI A.S.C.
Produced by JOEL SILVER
COMING SOON TO A THEATRE NEAR YOU.
A UNIVERSAL PICTURE

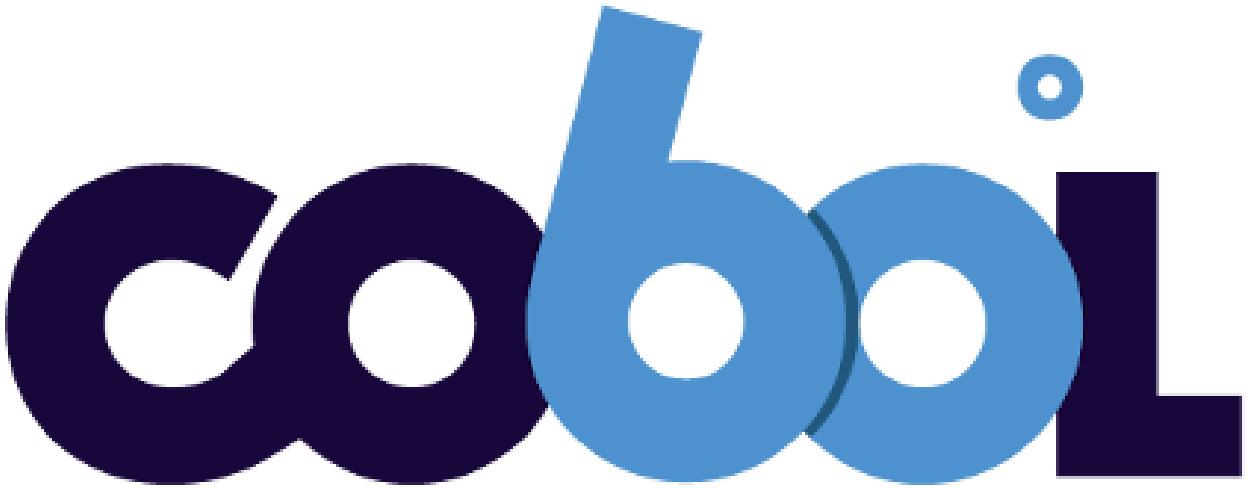

ROCKY IV

1985

1960
PROCEDURAL PROGRAMMING

BASIC

Programming language



Cool Business Oriented Language

IF

THEN

ELSE

GOTO 150

GOTO 1337

GOTO

GOTO 150

GOTO 1337

GOTO *EVERYWHERE*

BEST CODE EVER

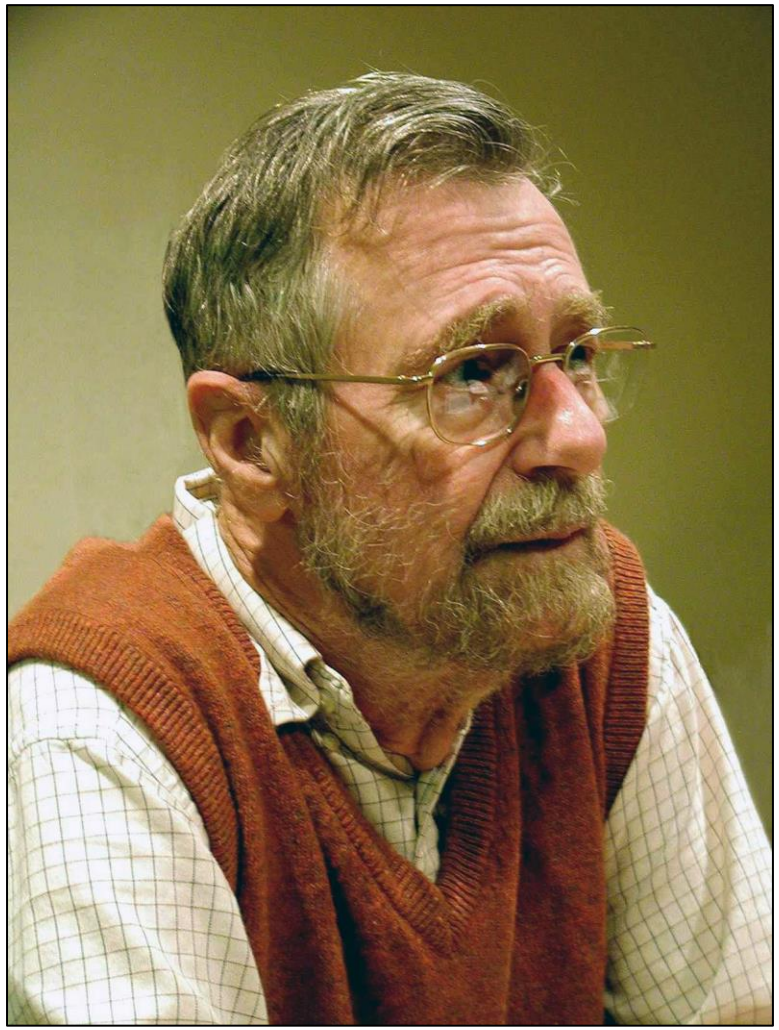
1 LINES OF CODE

MY CODE IS IN HERE
SOMEWHERE...

“GOTO

STATEMENT CONSIDERED

HARMFUL”



EDSGER W. DIJKSTRA

STRUCTURED PROGRAMMING

EARLY 70’S
STRUCTURED PROGRAMMING

WHILE TRUE

```
VOID FUNCTION()
{

}
```

LATE 80'S
OBJECT ORIENTED PROGRAMMING

CLASSES

INHERITANCE

INTERFACES

OBJECTS

METHODS

POLYMORPHISM

CLASSES

INHERITANCE

INTERFACES

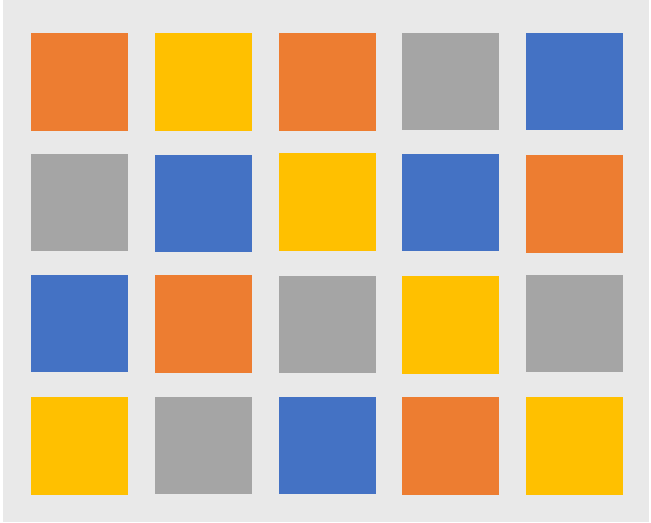
ENCAPSULATION

OBJECTS

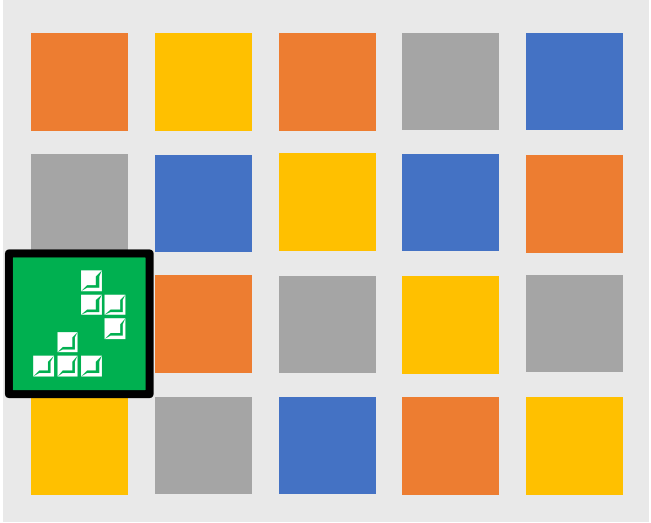
METHODS

POLYMORPHISM

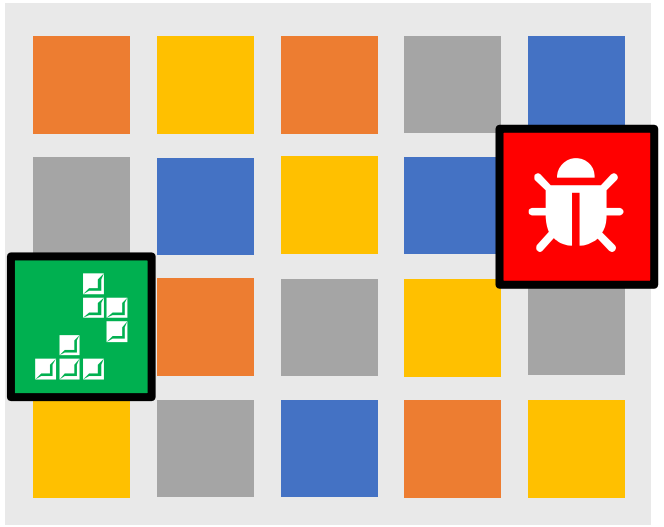
HIGH COHESION
LOW COUPLING



CLASSES CALLING CLASSES CALLING CLASSES



CLASSES CALLING CLASSES CALLING CLASSES



CLASSES CALLING CLASSES CALLING CLASSES

WHAT WE WANTED WAS

ENCAPSULATION

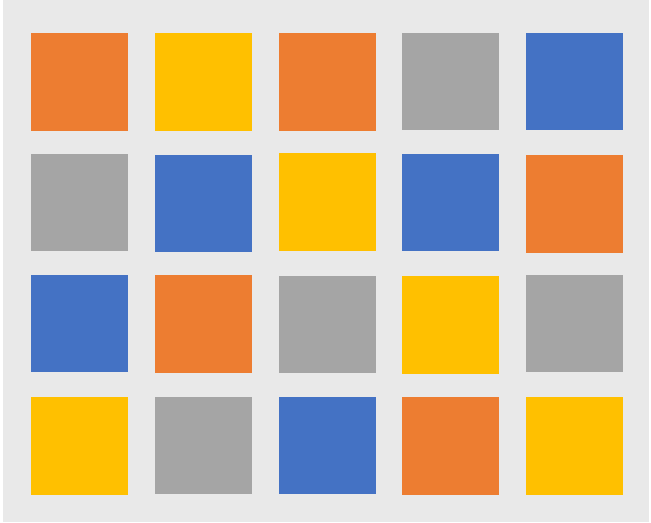
BUT WE ENDED UP WITH PROCEDURAL CODE

UNDER THE GUISE OF OO

MY CODE IS IN HERE
SOMEWHERE...

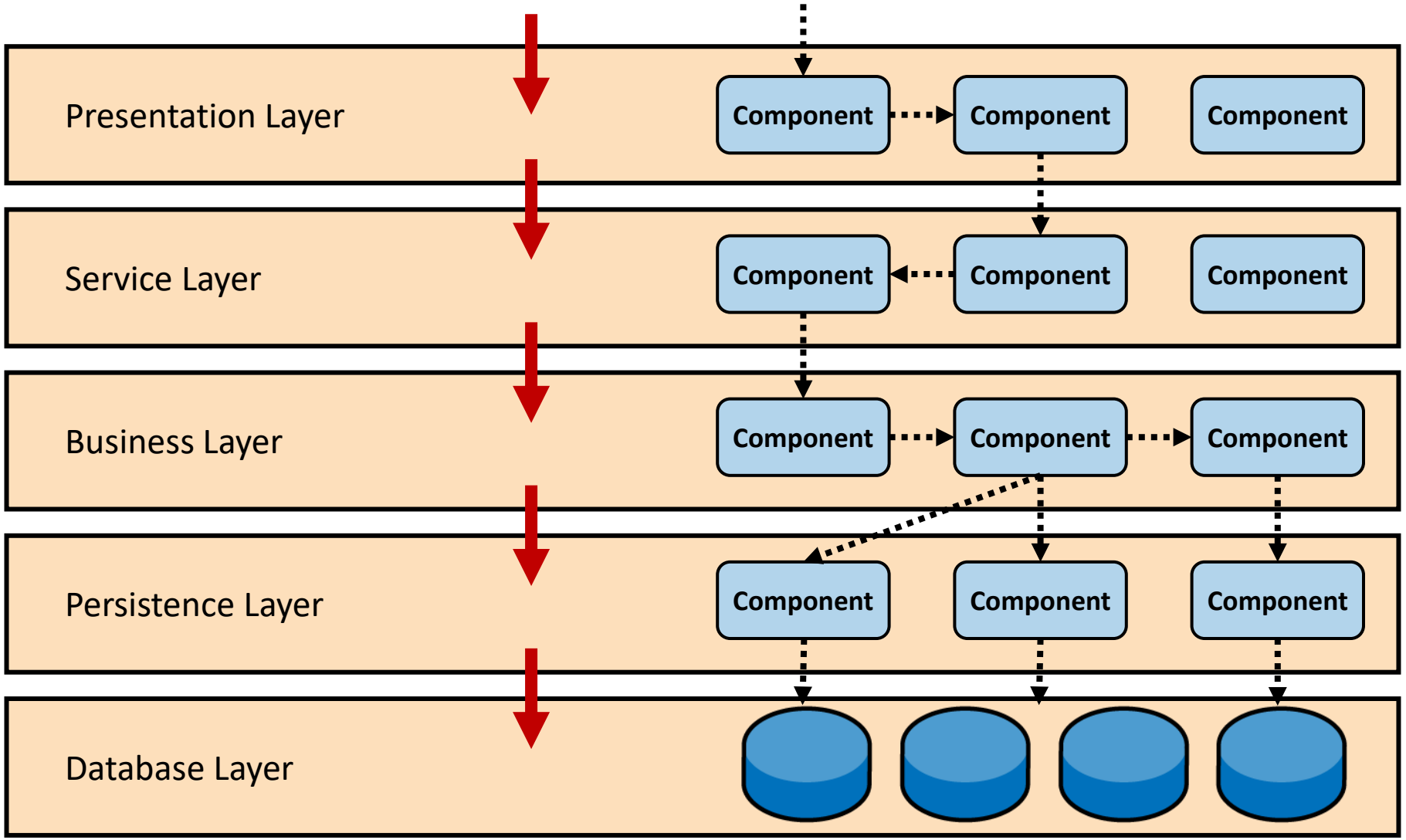
EARLY 90'S
COMPONENT OBJECT MODEL

COM



COMPONENTS CALLING COMPONENTS CALLING COMPONENTS

LAYERED
ARCHITECTURE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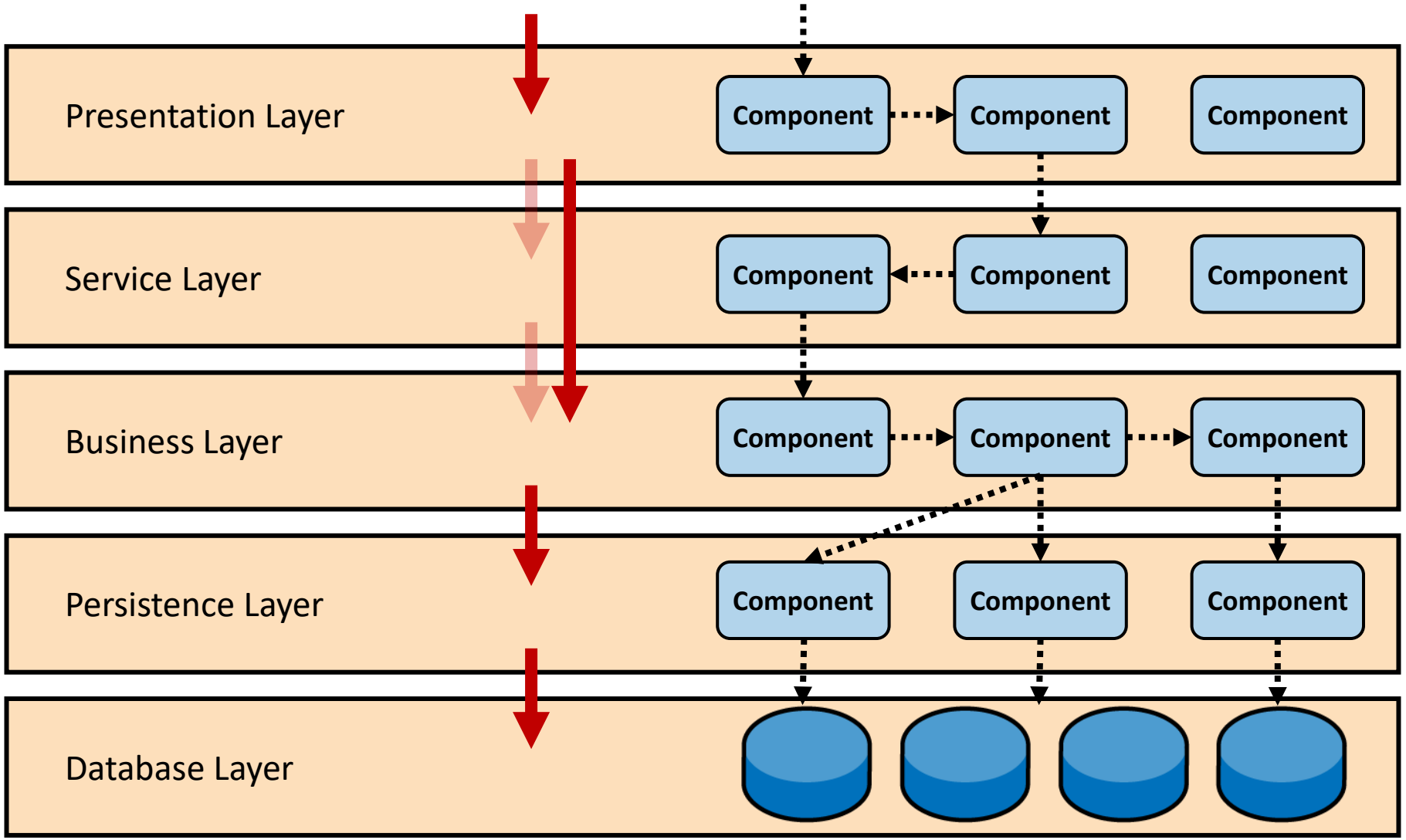
Component
Component
Component
Service Layer
Component
Component
Component
Business Layer
Component
Component
Component
Persistence Layer
Component
Component
Component
Database Layer


Presentation Layer
Component
Component
Component
Service Layer
Component
Component
Component
Business Layer
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Component
Component
Persistence Layer
Component
Component
Component
Database Layer

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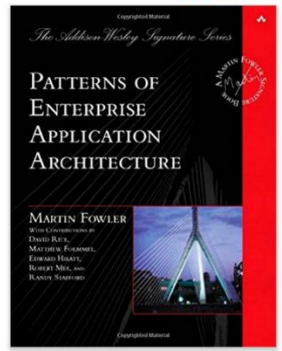

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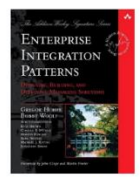

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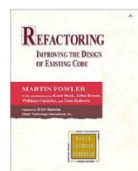

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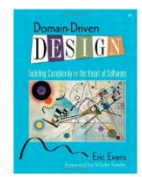

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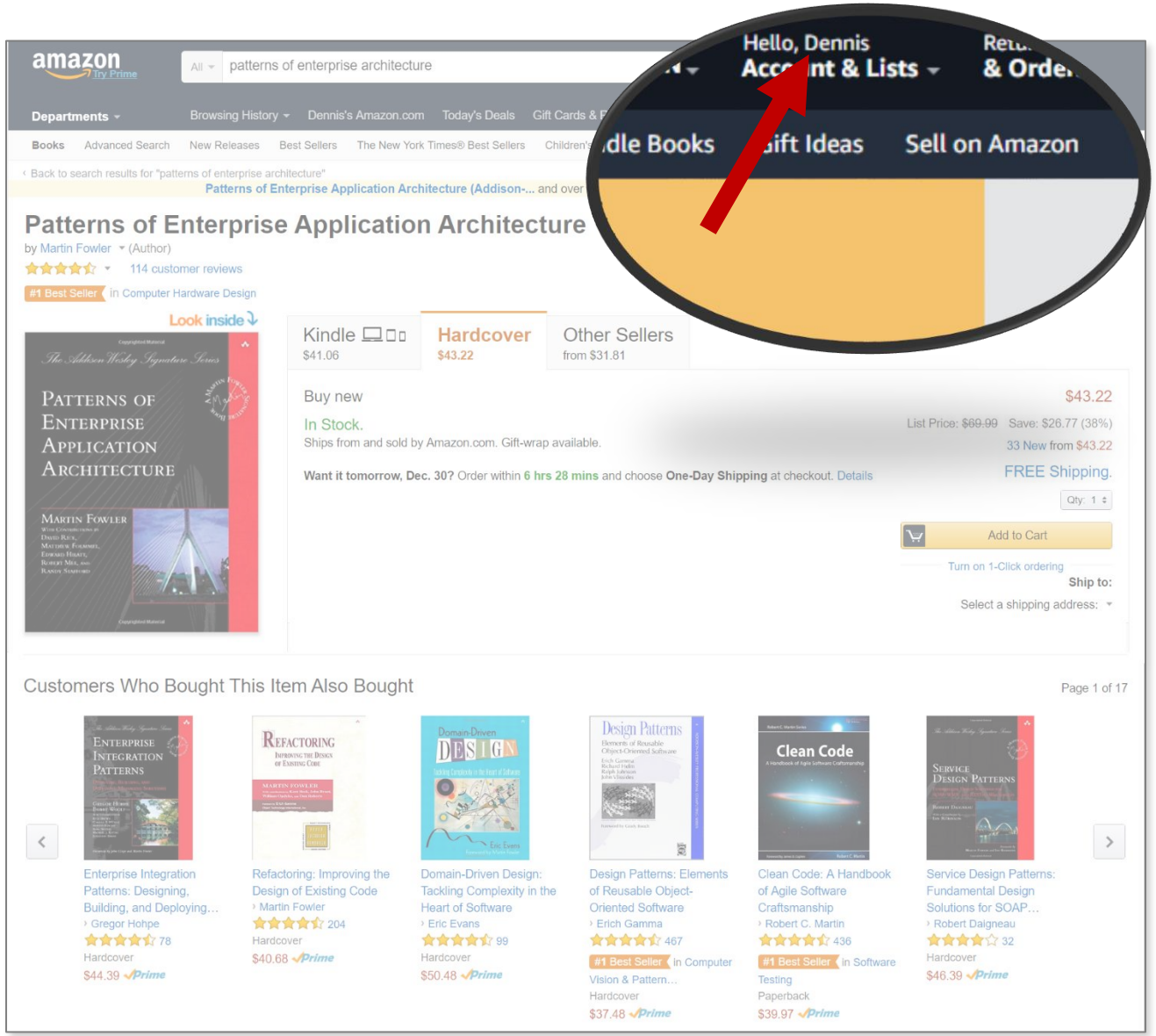
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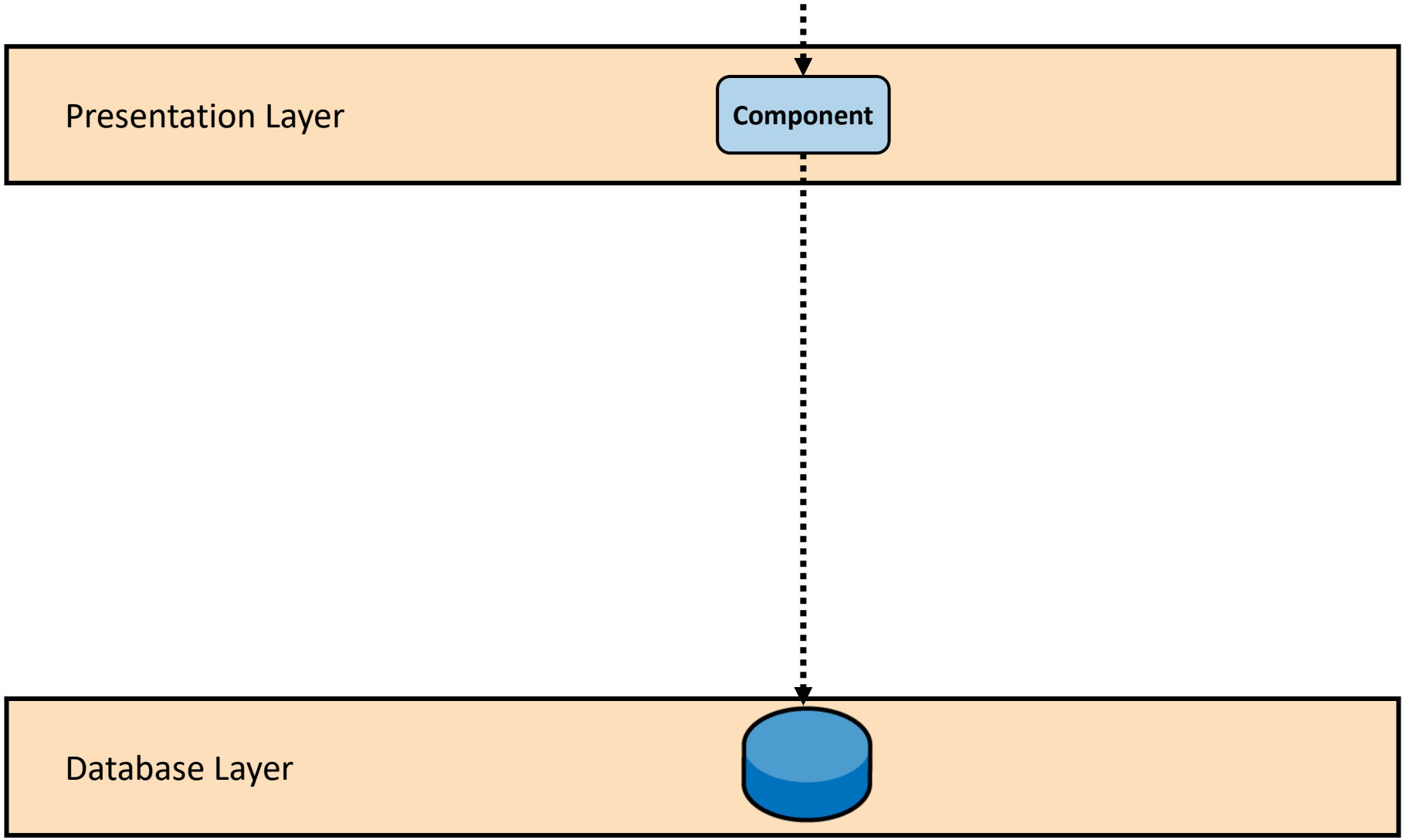
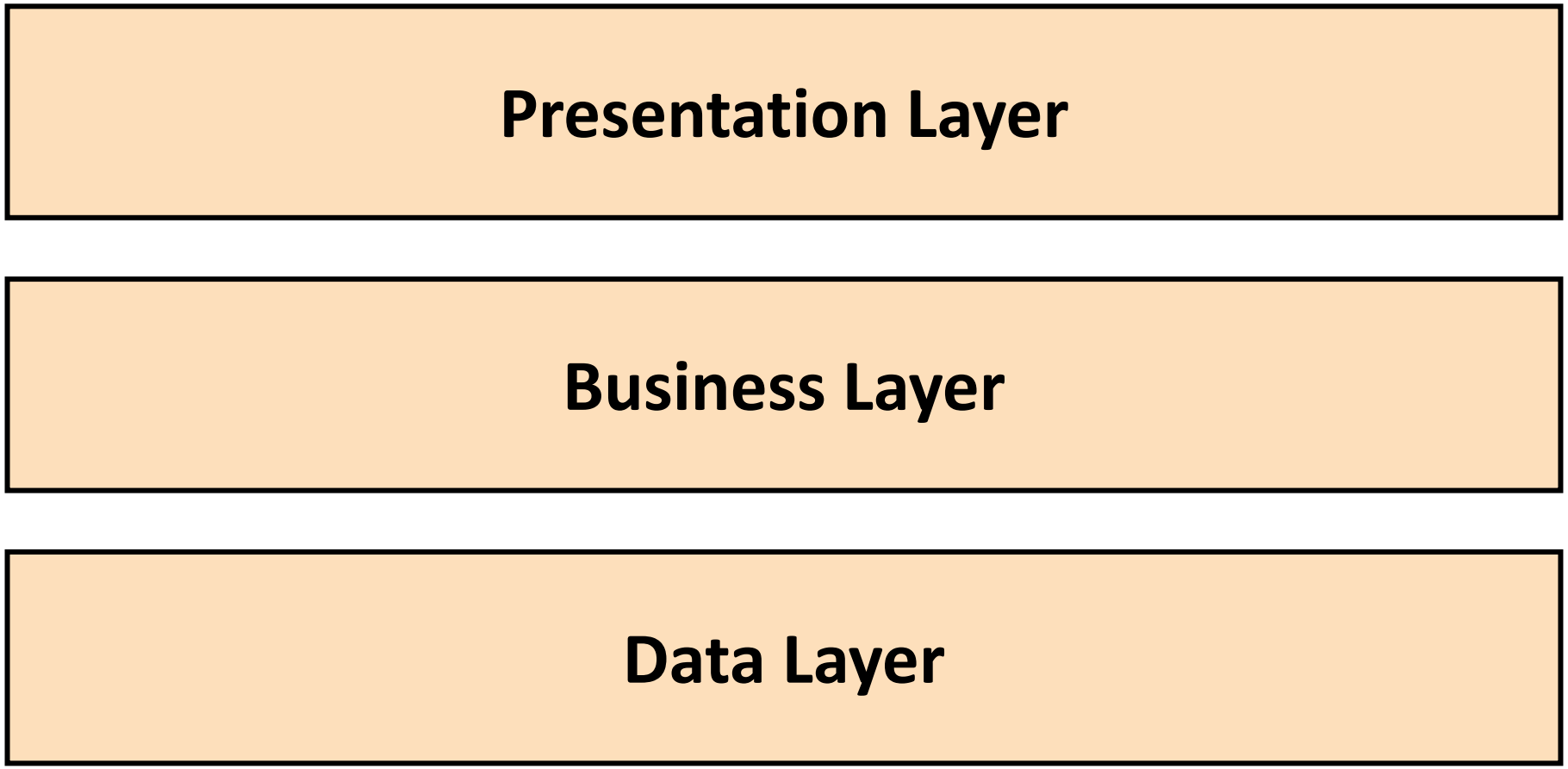

Presentation Layer
Component
Database Layer

This will be the **sixth time** we have destroyed it, and we have become exceedingly efficient at it


Presentation Layer
Business Layer
Data Layer

2000
WEBSERVICES & SOA

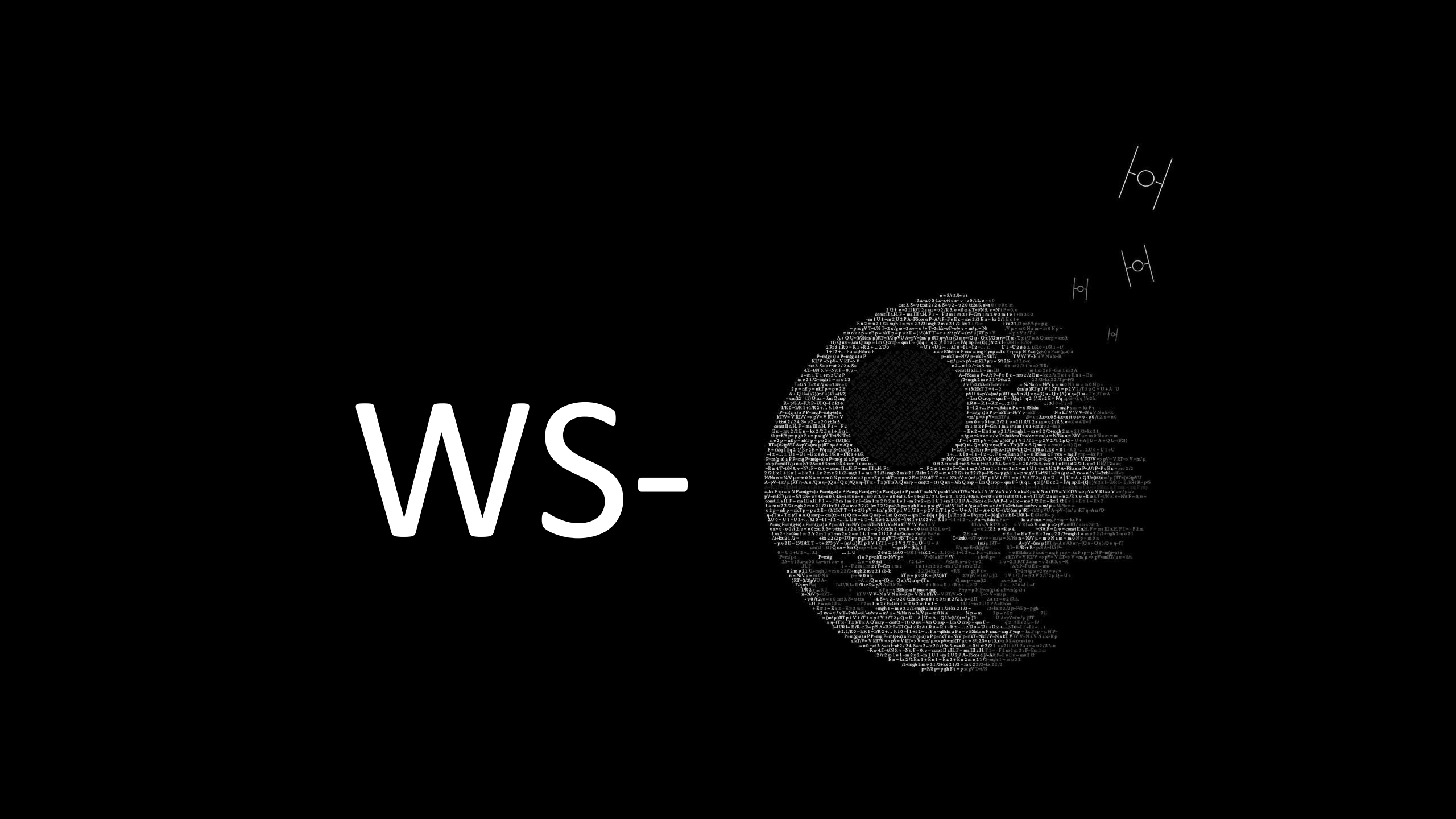
TM
WCF

INDIGO GIRL

TM
WCF

SOAP / XML / XSD

WS*


WS-

REMEMBER...

THIS WAS IN

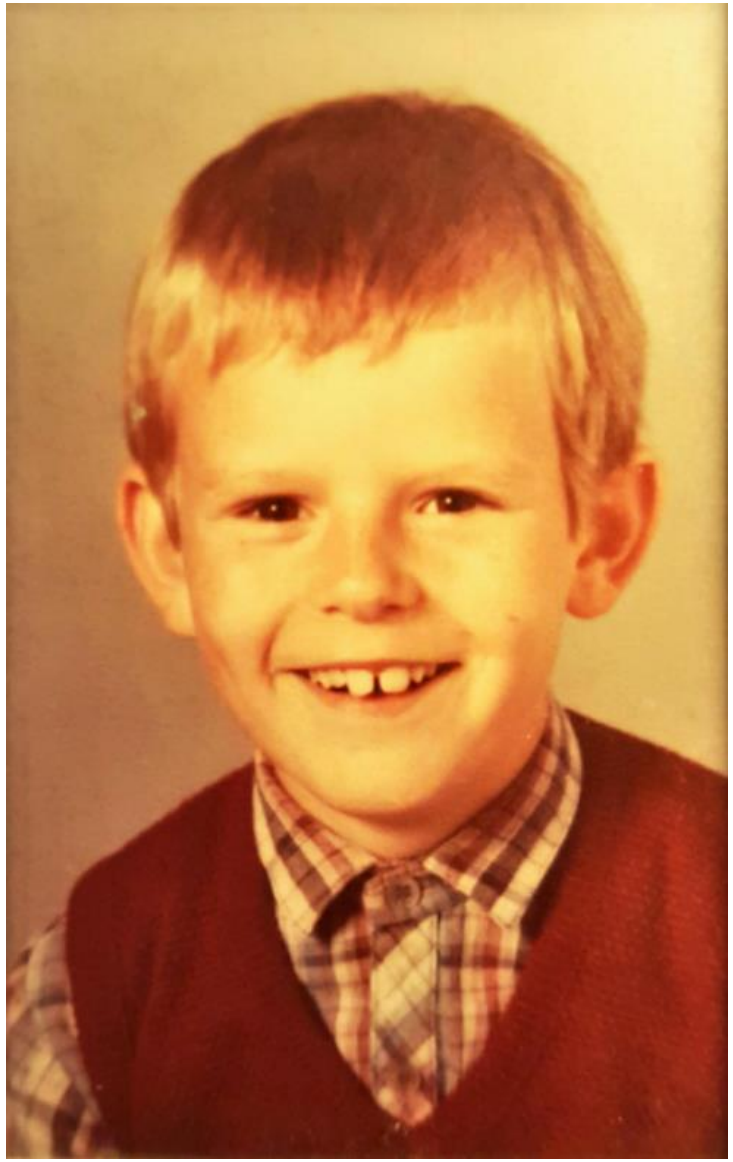
A TIME

WHERE WE JUST DID NOT KNOW

ANY BETTER

STEVEN SPIELBERG PRESENTS
BACK TO THE FUTURE
PG
A ROBERT ZEMECKIS FILM
OUTATIME

1985

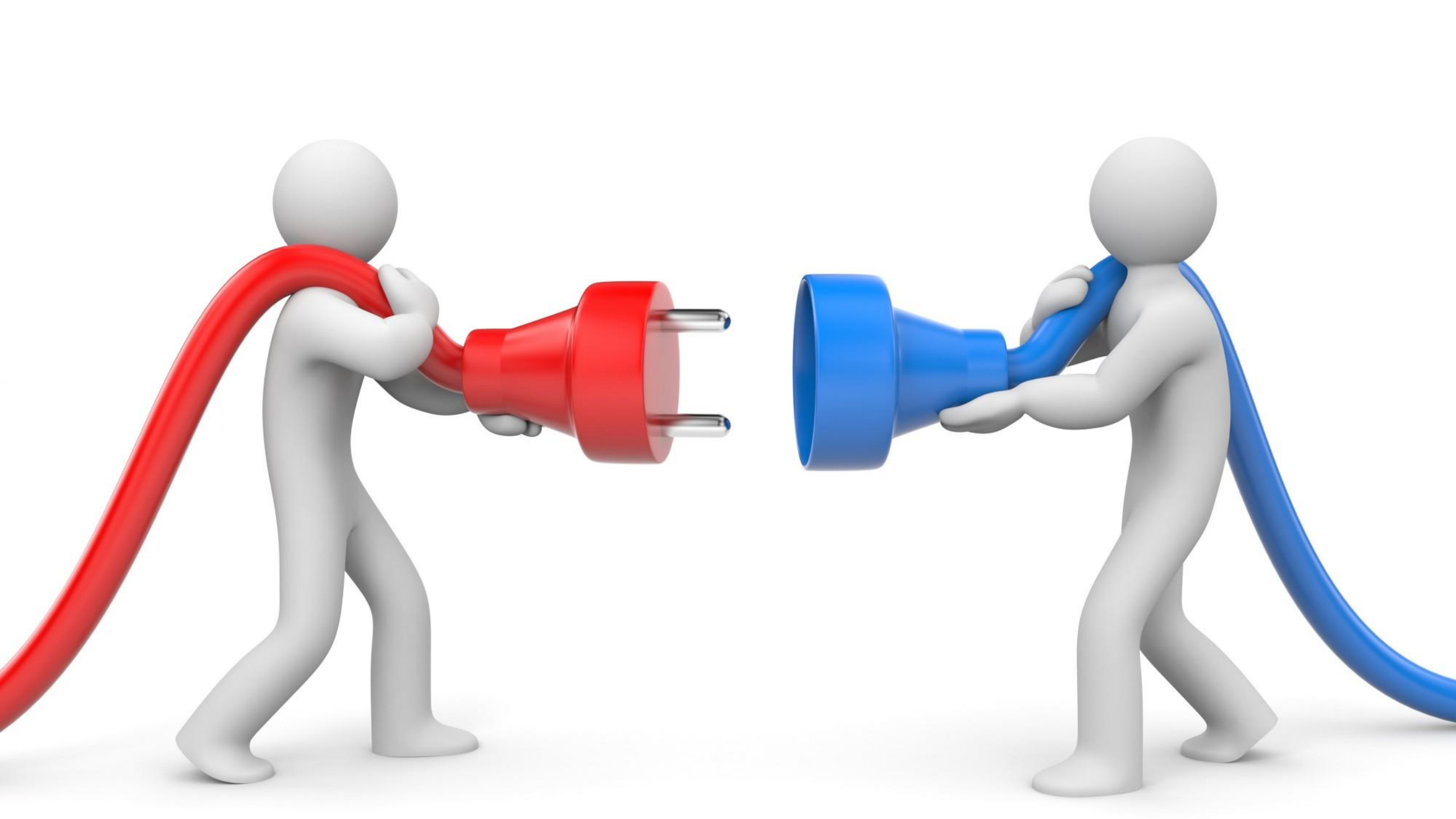


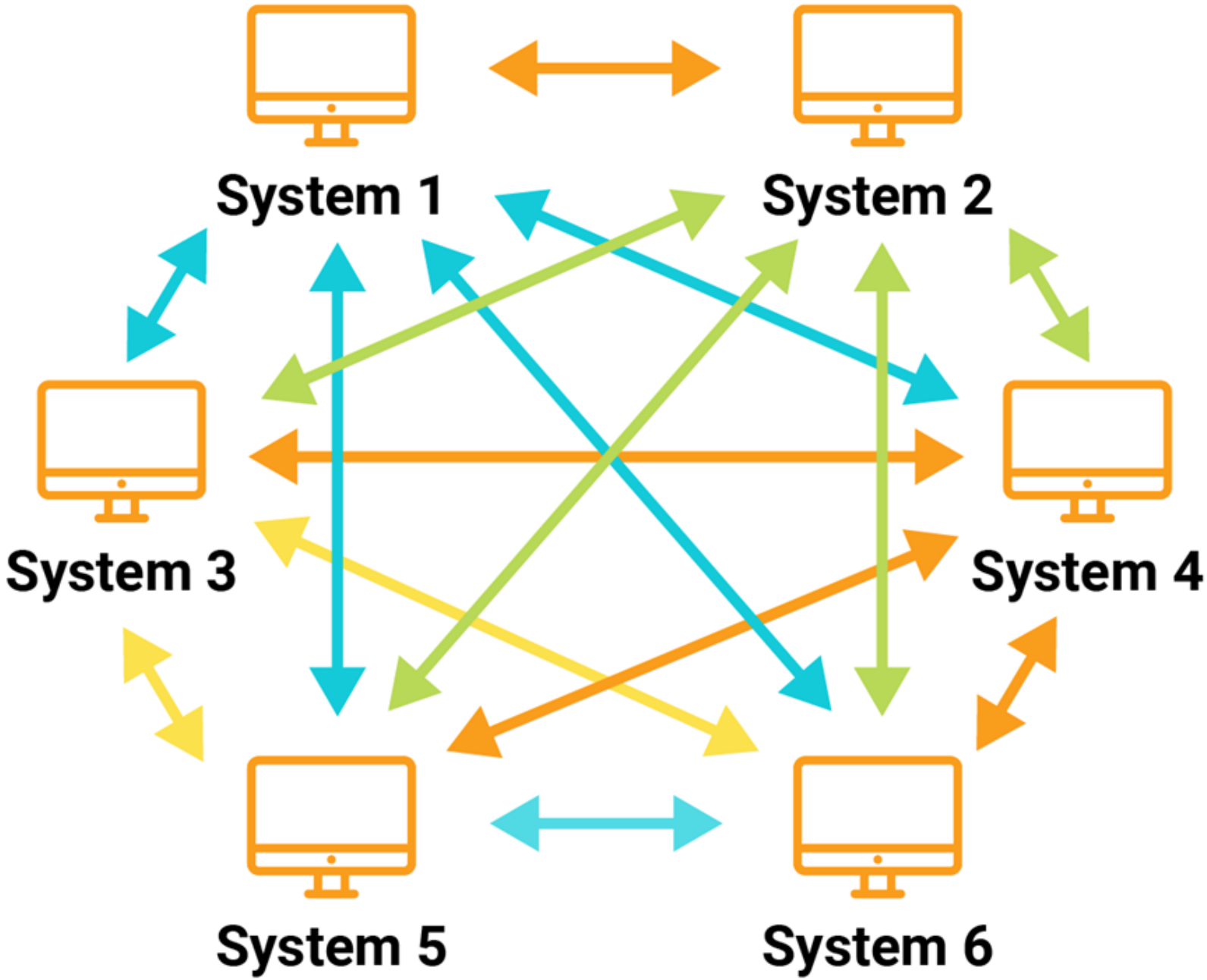
DON’T GET A SOA !

ANYWAY...

AT THE SAME TIME...

WEBSERVICES & SOA




System 1
System 2
System 3
System 4
System 5
System 6

SYSTEMS INTEGRATION

STAR WARS
THE RISE OF THE ENTERPRISE SERVICES BUS
EPISODE IX

Microsoft®
BizTalk® Server

IBM
WebSphere.

Solution

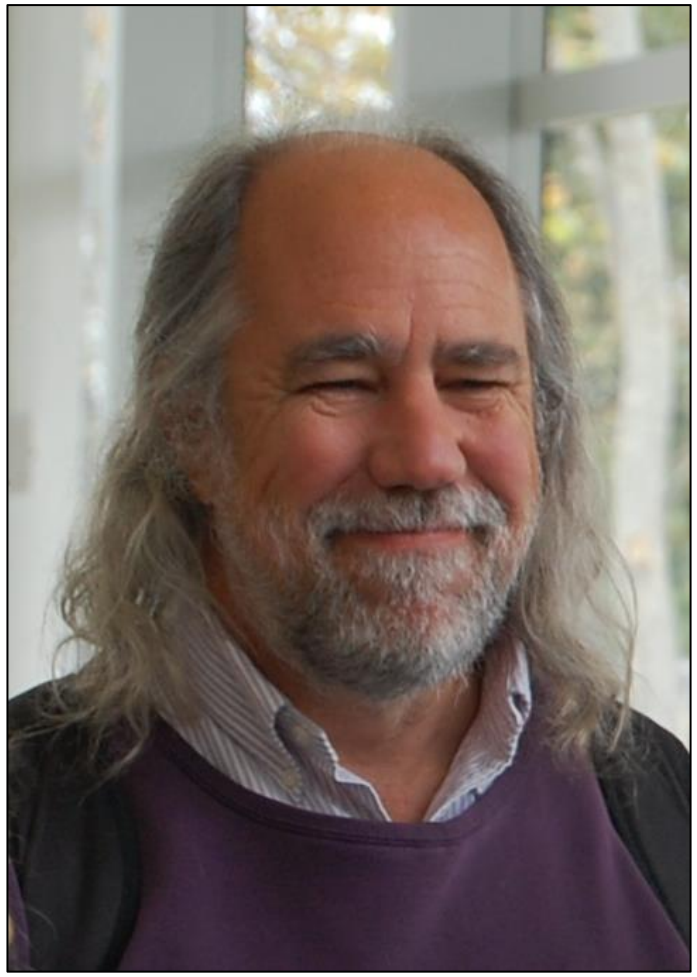
SERVICE ORIENTED ARCHITECTURE

ENTERPRISE SERVICE BUS

WEB SERVICES

Service

WEBSERVICES & SOA

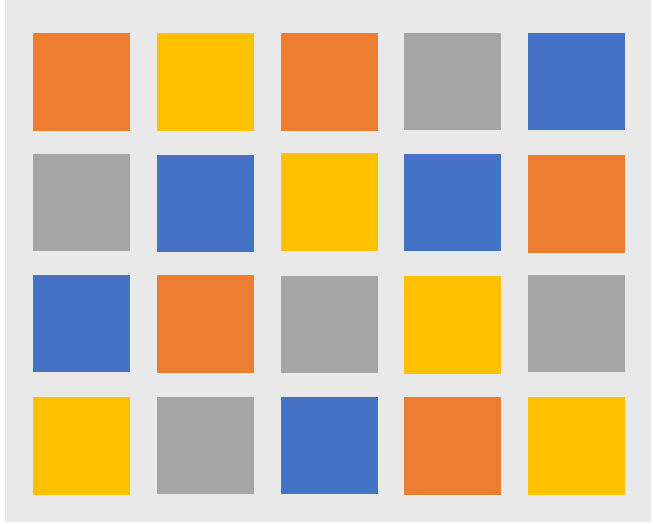


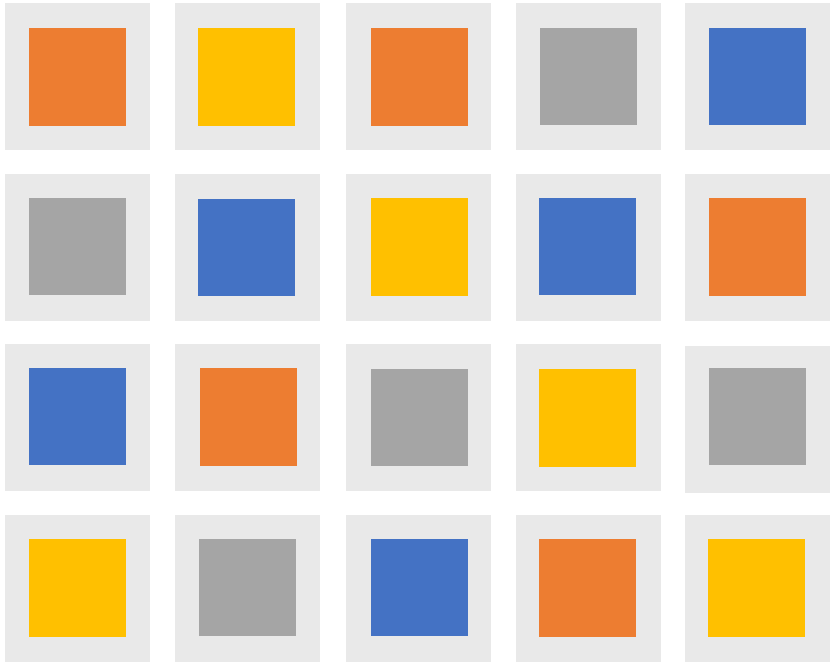
GRADY BOOCH

“SOA is the best since punched cards.
You’ll even become a better lover.

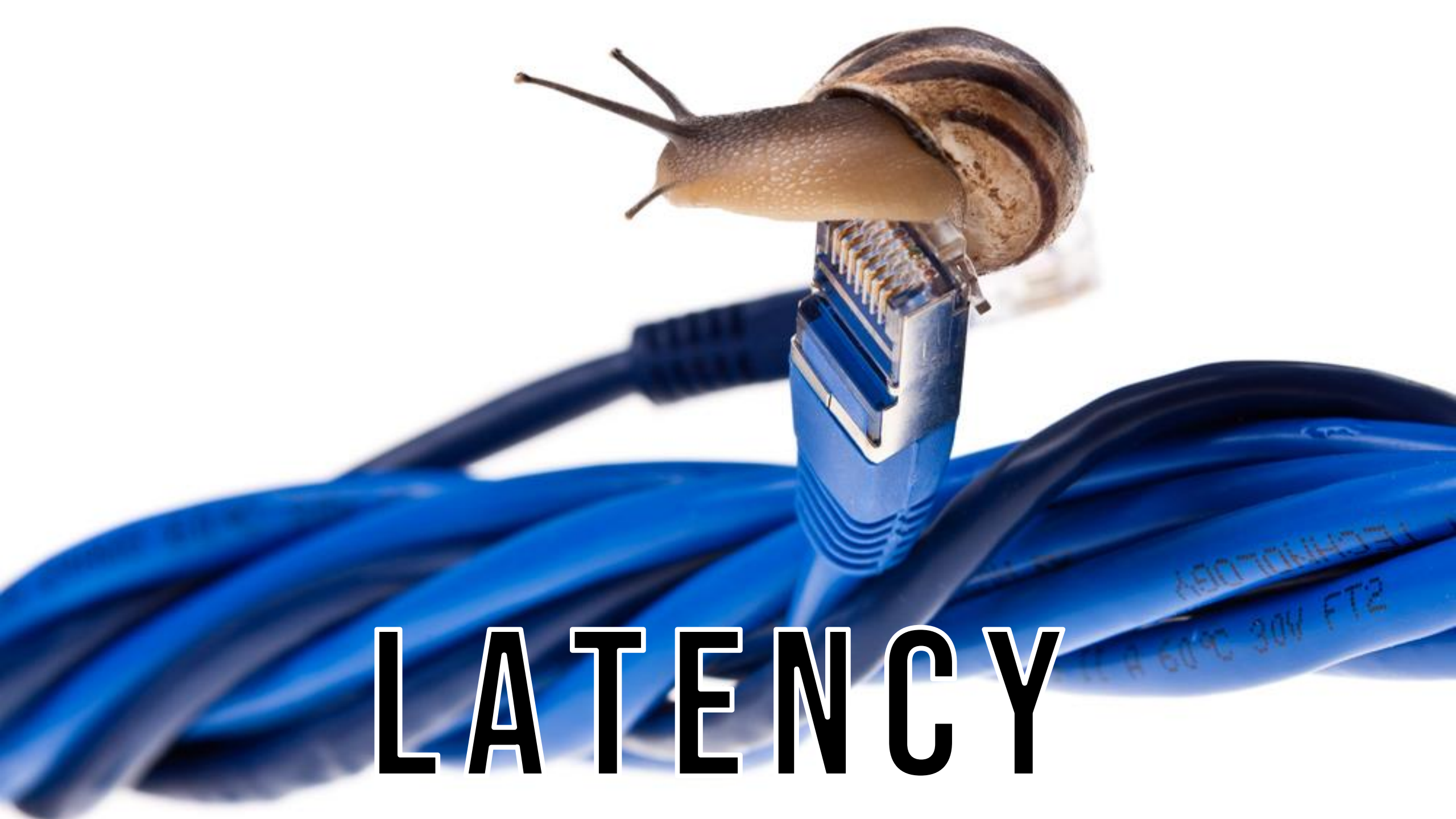
What a rubbish…

”





WEBSERVICES CALLING WEBSERVICES CALLING WEBSERVICES

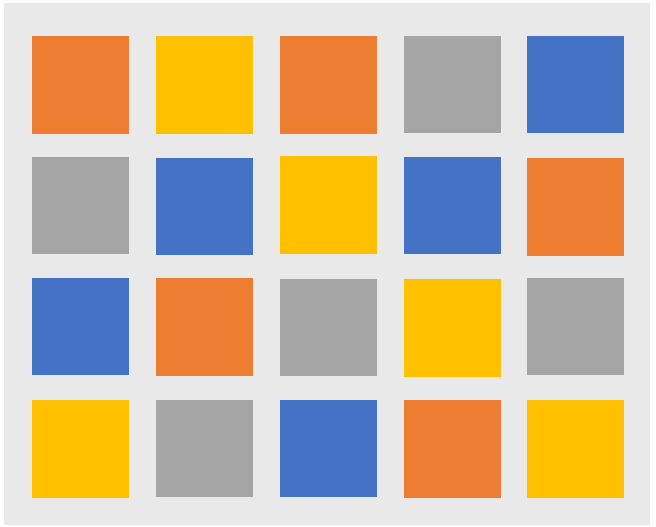

LATENCY

SOA CLASSIFIED AS
REUSE

HOWEVER

DO NOT CROSS

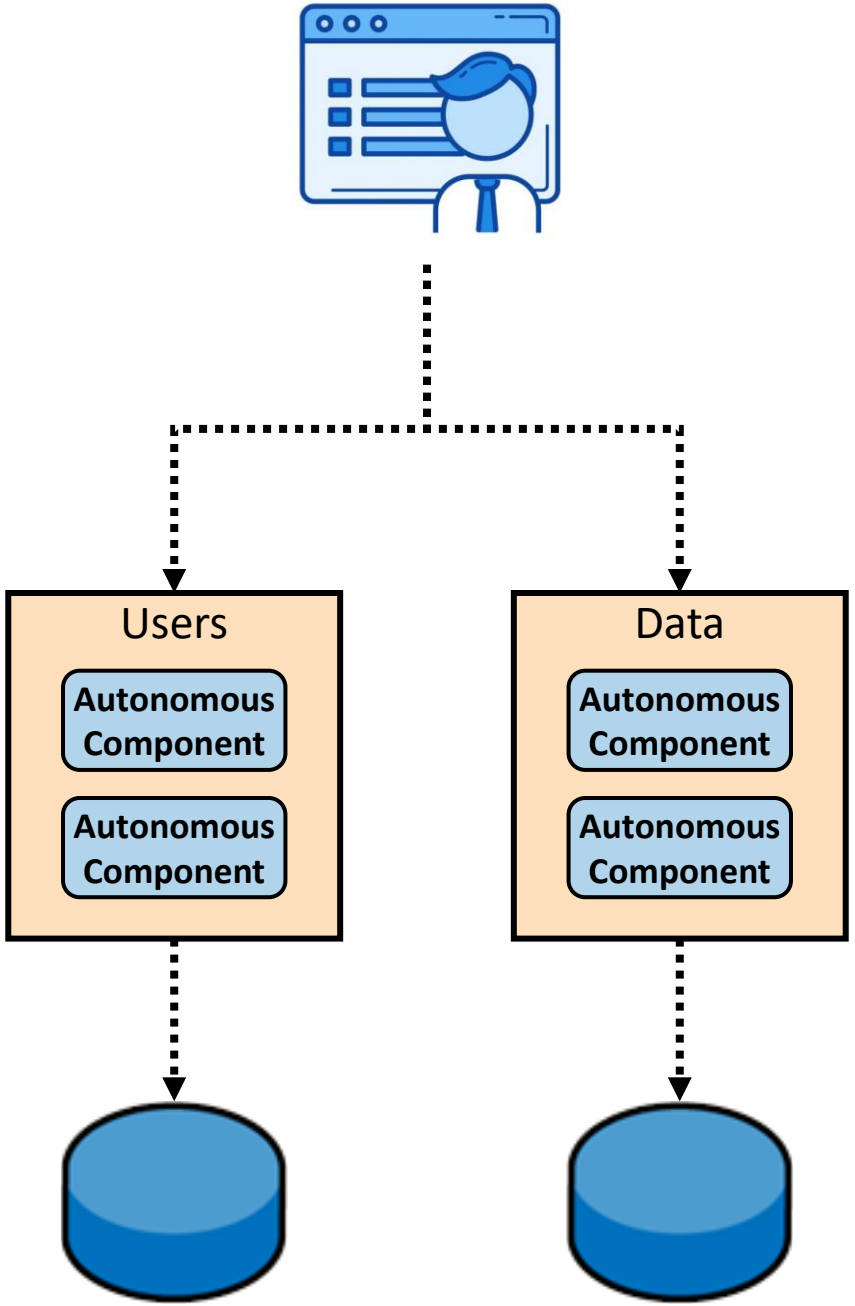
CLASSES



SERVICES

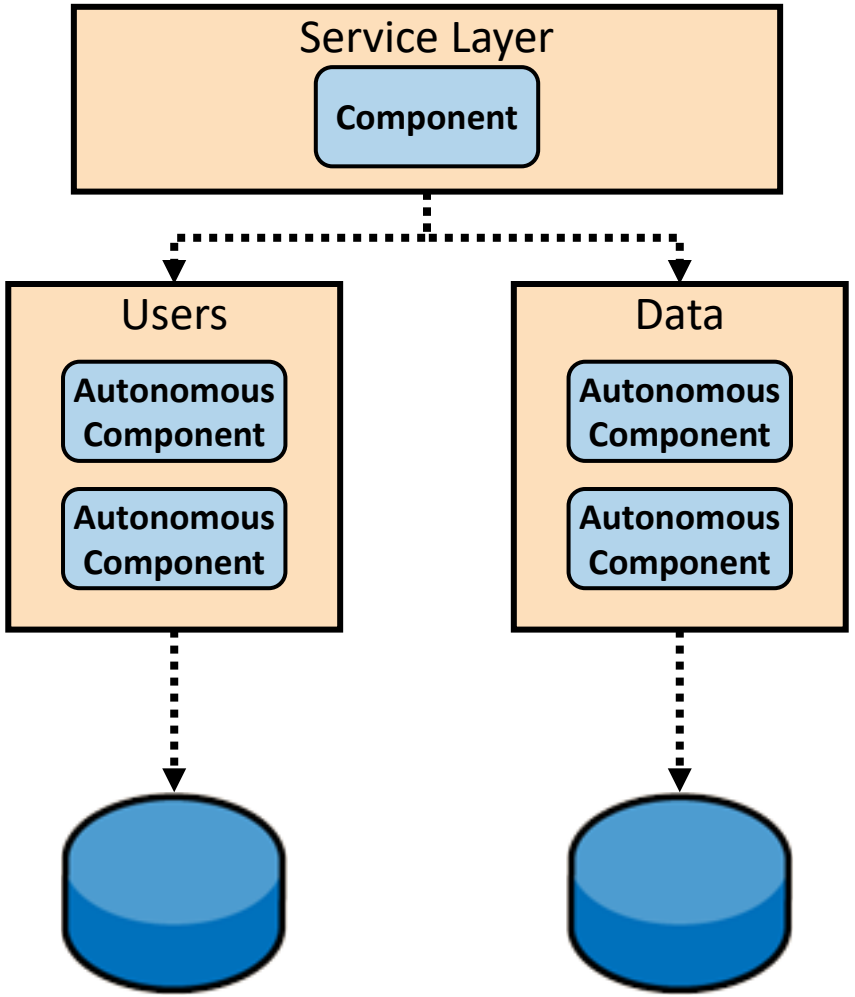
BUILD AN APPLICATION WHERE **USERS** CAN CONSULT AND ADD SOME **DATA**

This will be the **sixth time** we have destroyed it, and we have become exceedingly efficient at it


Users
Autonomous Component
Autonomous Component
Data
Autonomous Component
Autonomous Component

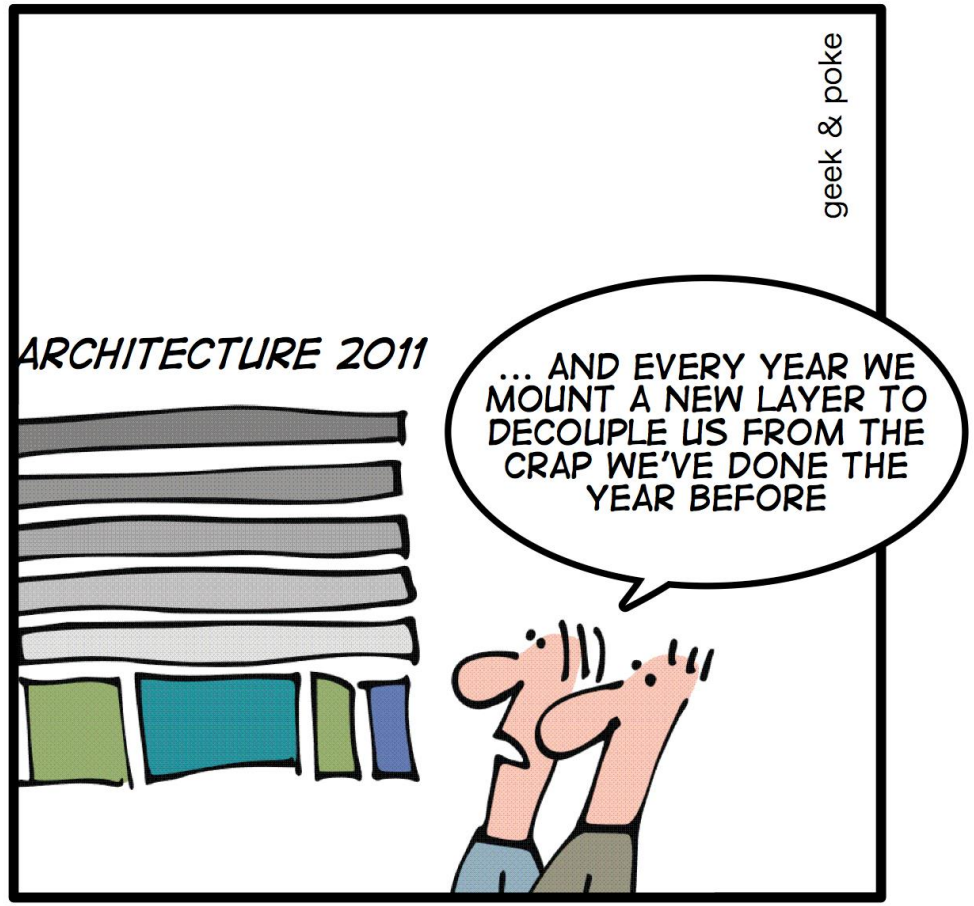
SOME **USERS**
CAN ONLY SEE A CERTAIN
AMOUNT OF **DATA**

Users
Autonomous Component
Autonomous Component
Data
Autonomous Component


Service Layer
Component
Users
Autonomous Component
Autonomous Component
Data
Autonomous Component
Autonomous Component

BEST PRACTICES IN APPLICATION ARCHITECTURE

TODAY: USE LAYERS TO DECOUPLE



if it hurts …
you’re probably doing it wrong
Some developer

2010
MICROSERVICES

~~SOAP / XML / XSD~~

Your code is fine. It's
the XML that sucks.
Ricky Gervais

REST / JSON

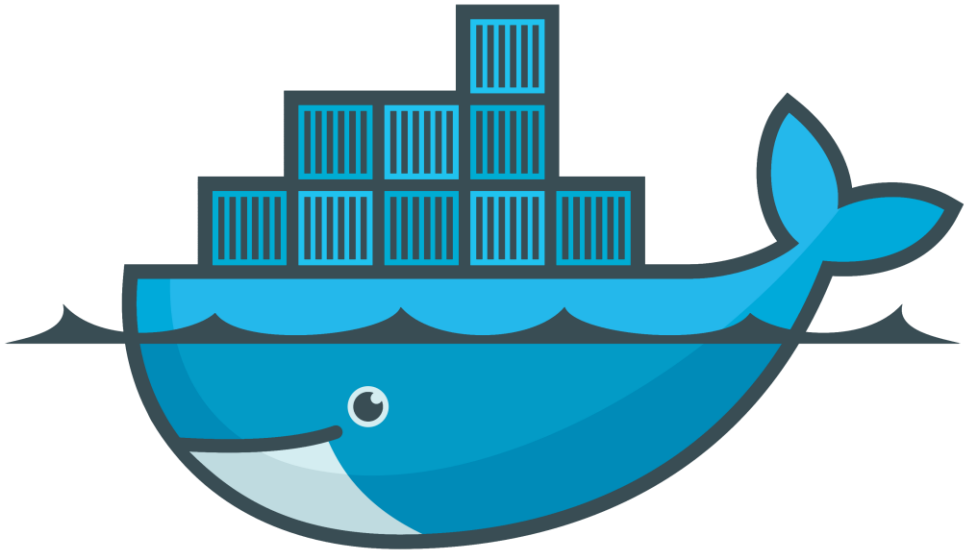
SWAGGER

SWAGGER CLIENT

GRAPHQL

SO MUCH BETTER

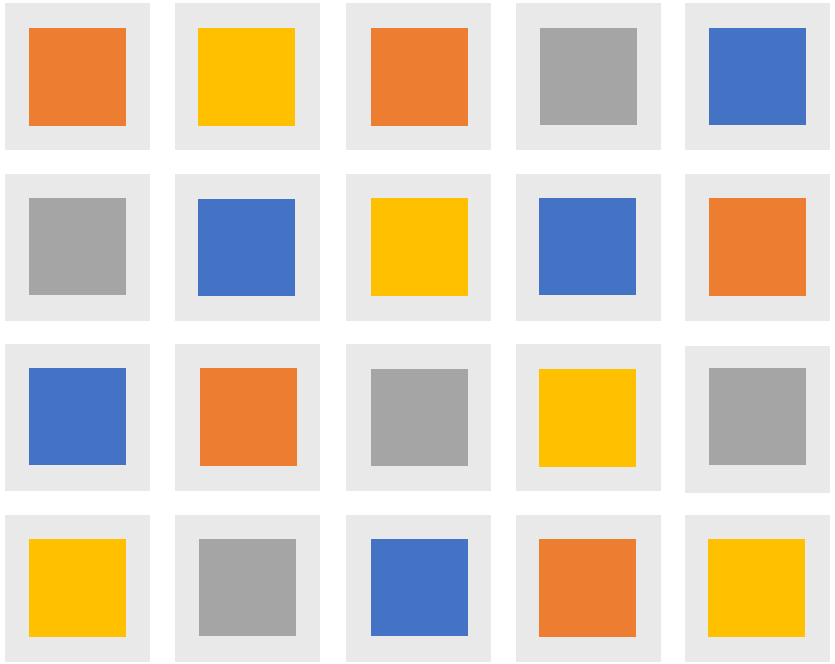
TOGETHER WITH



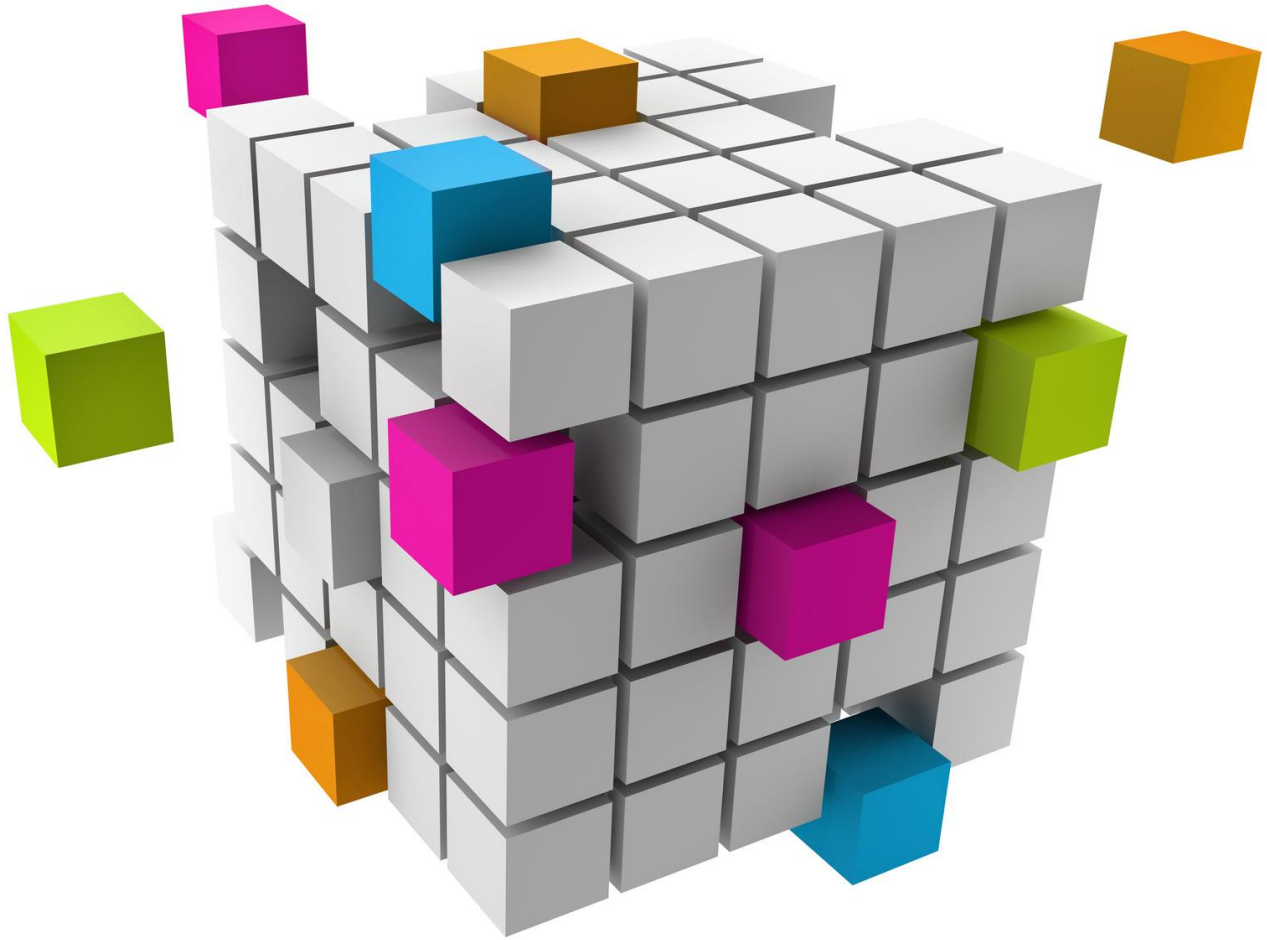
docker

kubernetes

RENA
MONROVIA
msc



MICROSERVICES CALLING MICROSERVICES CALLING MICROSERVICES

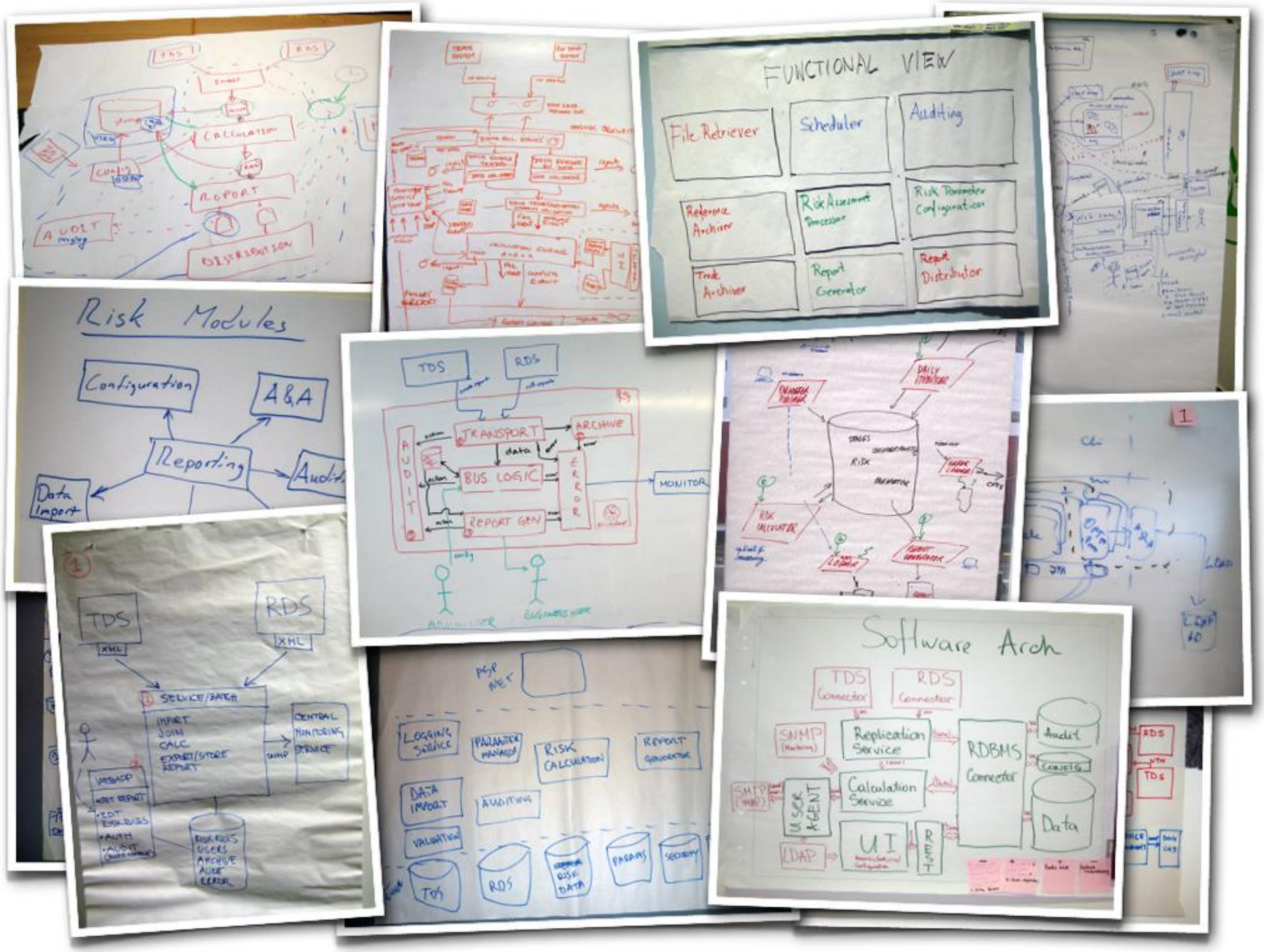


DISTRIBUTED MONOLITH

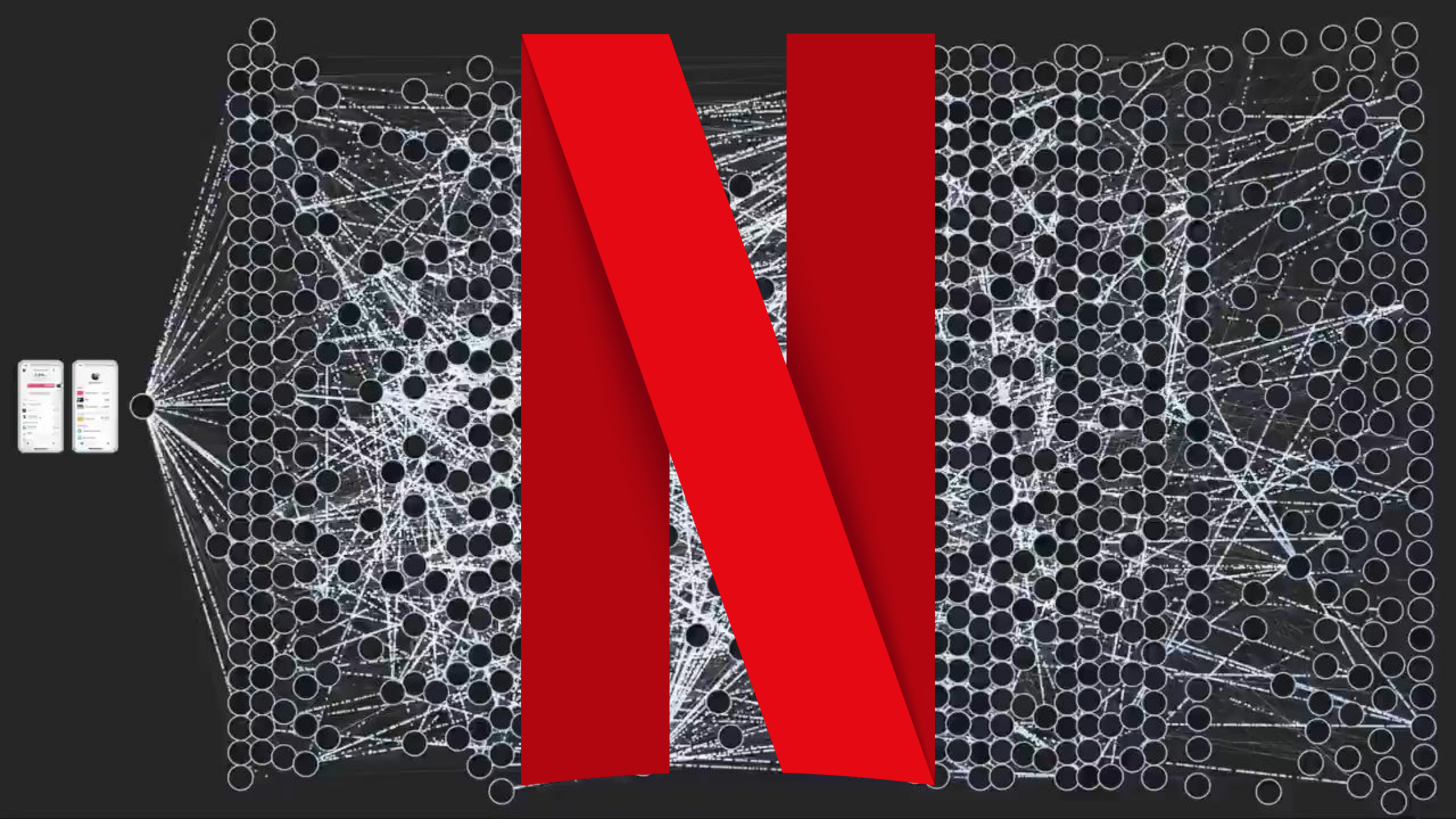
“IF YOU CAN’T BUILD A **MONOLITH** WHAT MAKES YOU THINK **MICROSERVICES** ARE THE ANSWER?”

SIMON BROWN

stackoverflow


FUNCTIONAL VIEW
File Retriever
Scheduler
Auditing
Reference Archiver
Risk Assessment Processor
Risk Parameter Configuration
Trade Archiver
Report Generator
Report Distributor
Risk Modules
Configuration
A&A
Reporting
Data Import
TDS
RDS
TRANSPORT
ARCHIVE
BUS LOGIC
REPORT GEN
AUDIT
ERROR
MONITOR
Software Arch
TDS Connector
RDS Connector
SNMP
Replication Service
RDBMS Connector
Audit
Calculation Service
User Agent
Data
LDAP
UI
REST

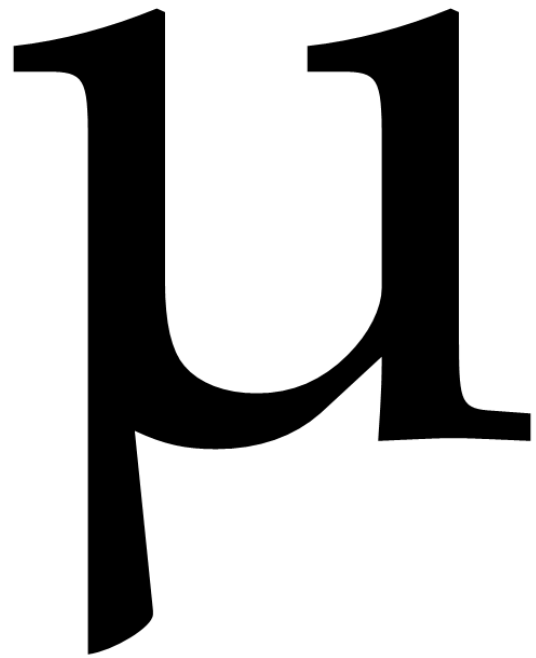
30.000



DON'T GIVE UP
ON YOUR DREAMS.
WE STARTED WITH DVDS.
NETFLIX

MENU
hulu
PLEX

Microsoft
.NET
WCF
kubernetes
dapr
docker
{OOP}
object-oriented programming
AWS Lambda



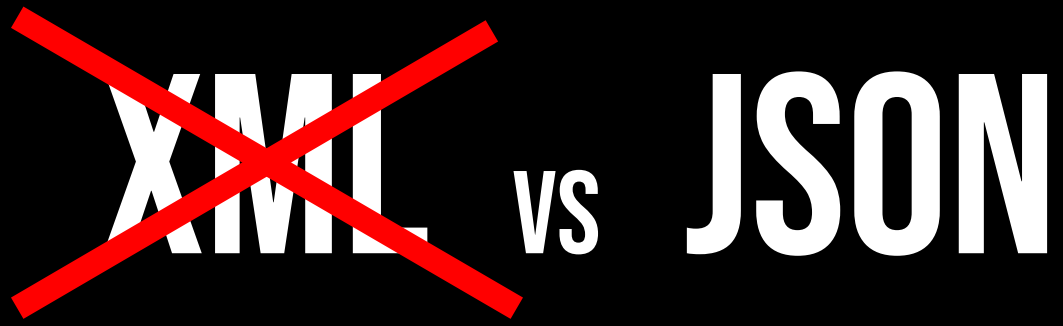
DEBUNK

SOME OF THE MYTHS ON

MICRO SERVICES

~~ONLY 10 LINES OF CODE~~

XML vs JSON


XML
VS
JSON

```
<review>
  <rating>3.0</rating>
</review>
```

```
{ "rating" : 3.0 }
```

HOW IS JSON BETTER THAN XML?

LESS VERBOSE

READABLE

BUT XML HAD SOME GREAT FEATURES

XSD

XPATH & XQUERY

XSLT

ISN'T IT FUNNY

THAT JSON NOW ALSO HAS ALL THE

FEATURES

THE DESPISED XML ALREADY HAD

REST / JSON

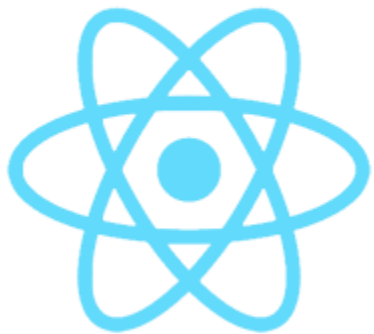
SWAGGER

SWAGGER CLIENT

GRAPHQL

{json}

ANGULAR



React

WE MAP OUR DATA

RELATIONAL MODEL TO DOMAIN OBJECTS

WE MAP OUR DATA

DOMAIN OBJECTS TO DATA TRANSFER OBJECTS

WE MAP OUR DATA

DATA TRANSFER OBJECTS TO VIEWMODEL

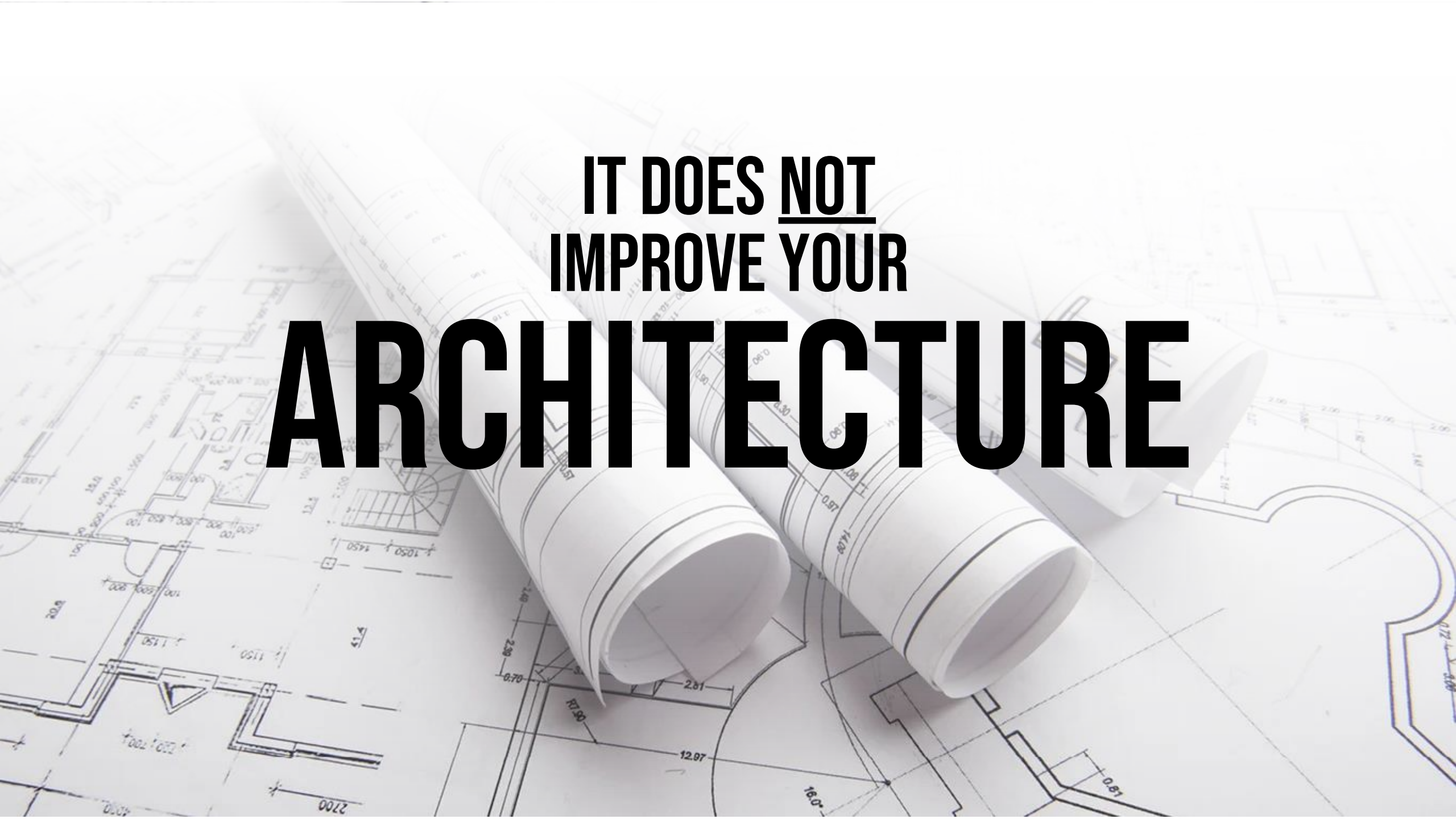
WE MAP OUR DATA

VIEWMODEL TO JSON

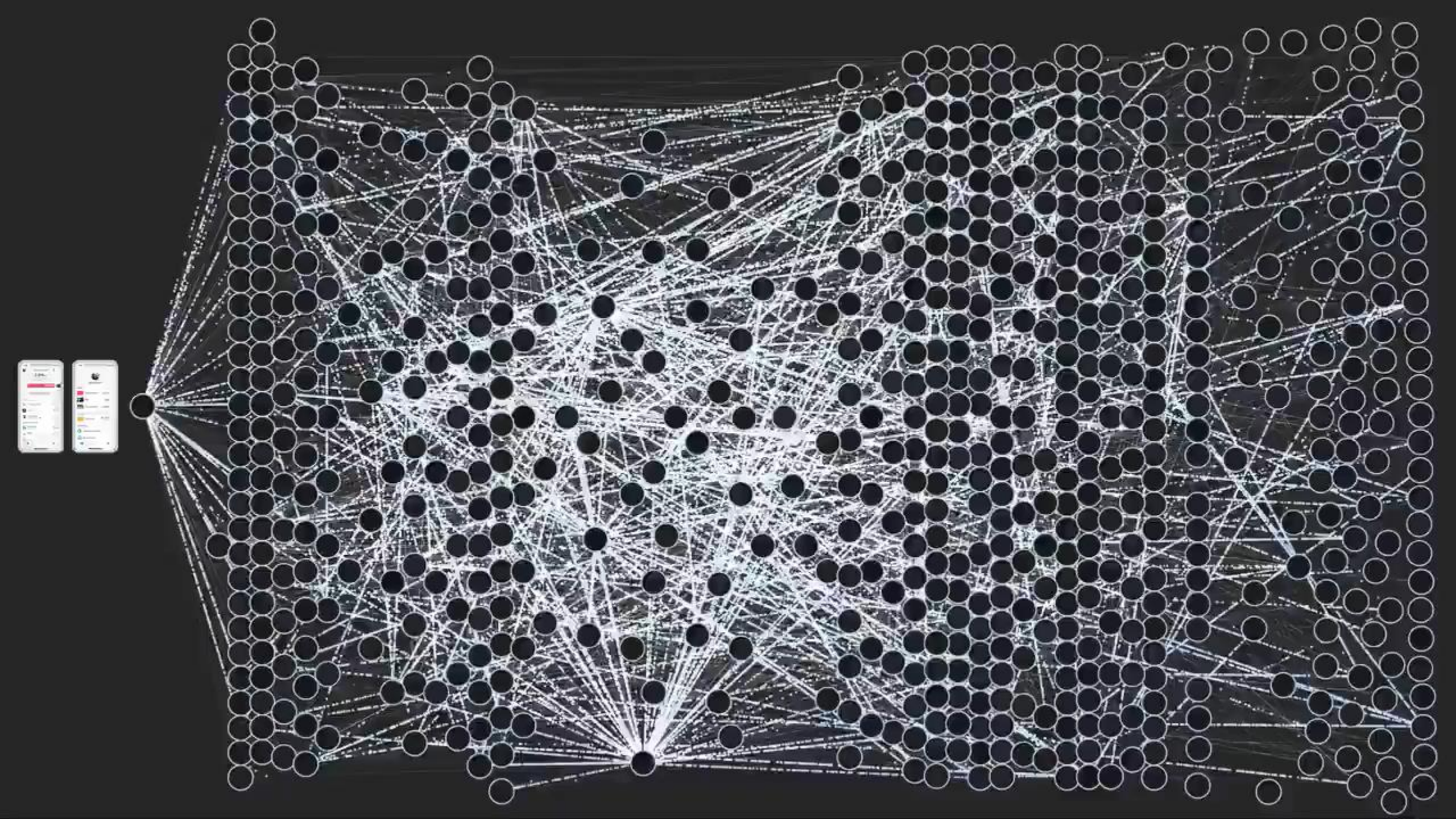
FINALLY

NO MORE MAPPING
INSTANT USAGE OF JSON

JSON


IT DOES NOT
IMPROVE YOUR
ARCHITECTURE

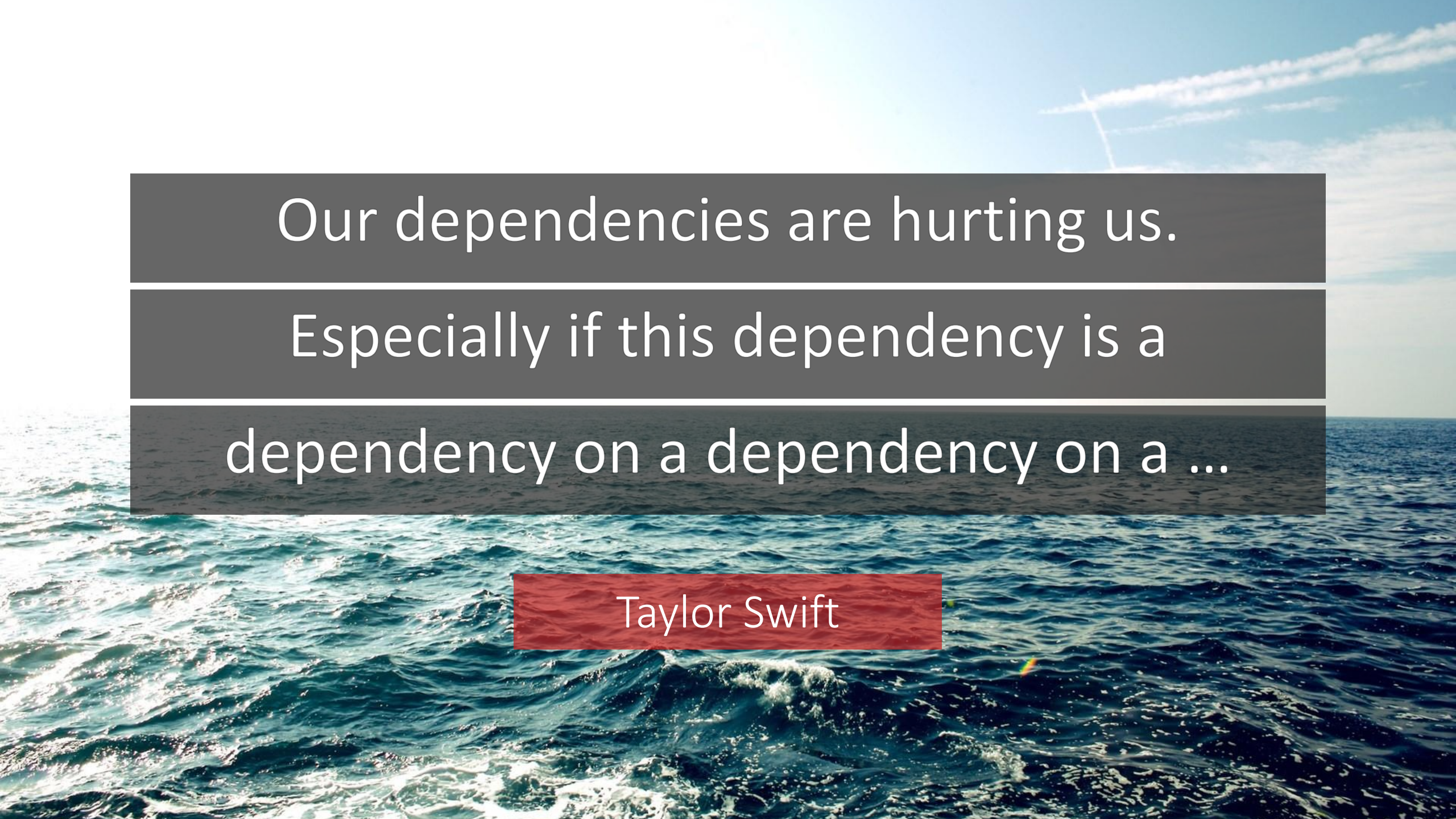
μ



RPC

WHY

IS IT BAD TO CALL ANOTHER SERVICE?


Our dependencies are hurting us.
Especially if this dependency is a
dependency on a dependency on a …
Taylor Swift

YOU LOSE AUTONOMY

WHY

IS IT BAD TO CALL ANOTHER SERVICE?

AN EXAMPLE

IMAGINE YOU HAVE TO

BUY SOME LIQUOR

AT A LIQUOR STORE

RUGGEDedge
592
sterCard
HAWAII
DRIVER
LICENSE
NUMBER 01-47-87441
DOB 06/03/1981
EXP 06/03/2008
HT WT HAIR EYES SEX CTY
5-10 150 BRO BRO M 0
ISSUE DATE CLASS RESTR ENDORSE
06/18/1998 3
McLOVIN
892 MOMONA ST
HONOLULU, HI 96820

OR DECIDE YOURSELF HOW TO PAY FOR THE LIQUOR?

HAWAII
DRIVER LICENSE
01-47-87441
06/03/1981
06/03/2008
McLOVIN
892 MOMONA ST
HONOLULU, HI 96820

NO
PERSONS
UNDER
21
ALLOWED
WIDES
BIG-FAT-DELICIO
ADDITIVE FREE • NATURALLY SMOOTH
WARNING!
SPECIAL PRICE
NEW
XL
WIDER IS
SMOOTHER
CLARK COUNTY
POLICE
Trident White
Orbit
CANDY

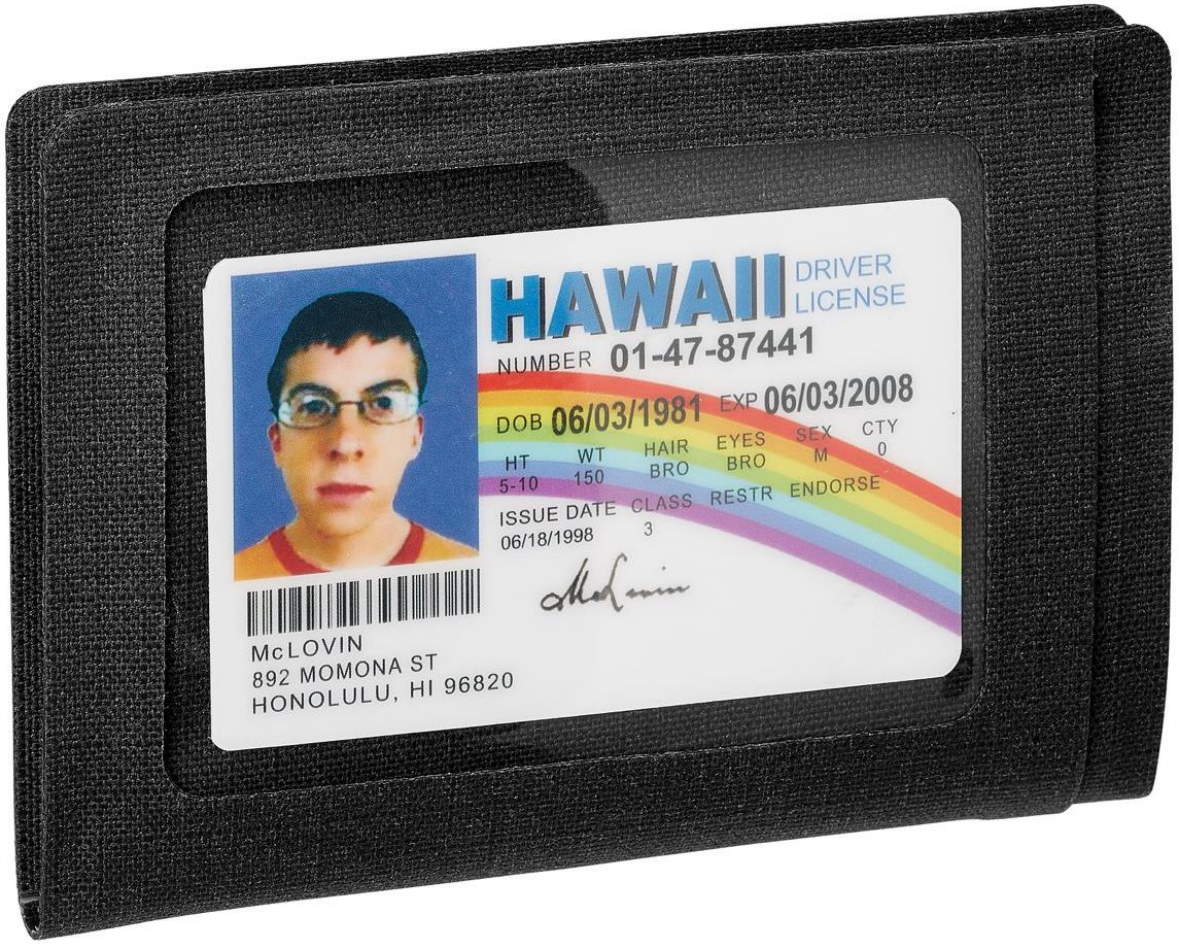
IF YOU HAND OVER

YOUR BUSINESS DATA

YOU

NO LONGER
HAVE AUTHORITY OVER

YOUR OWN DATA



OTHERS START MAKING DECISIONS

BASED ON WHAT IS YOURS

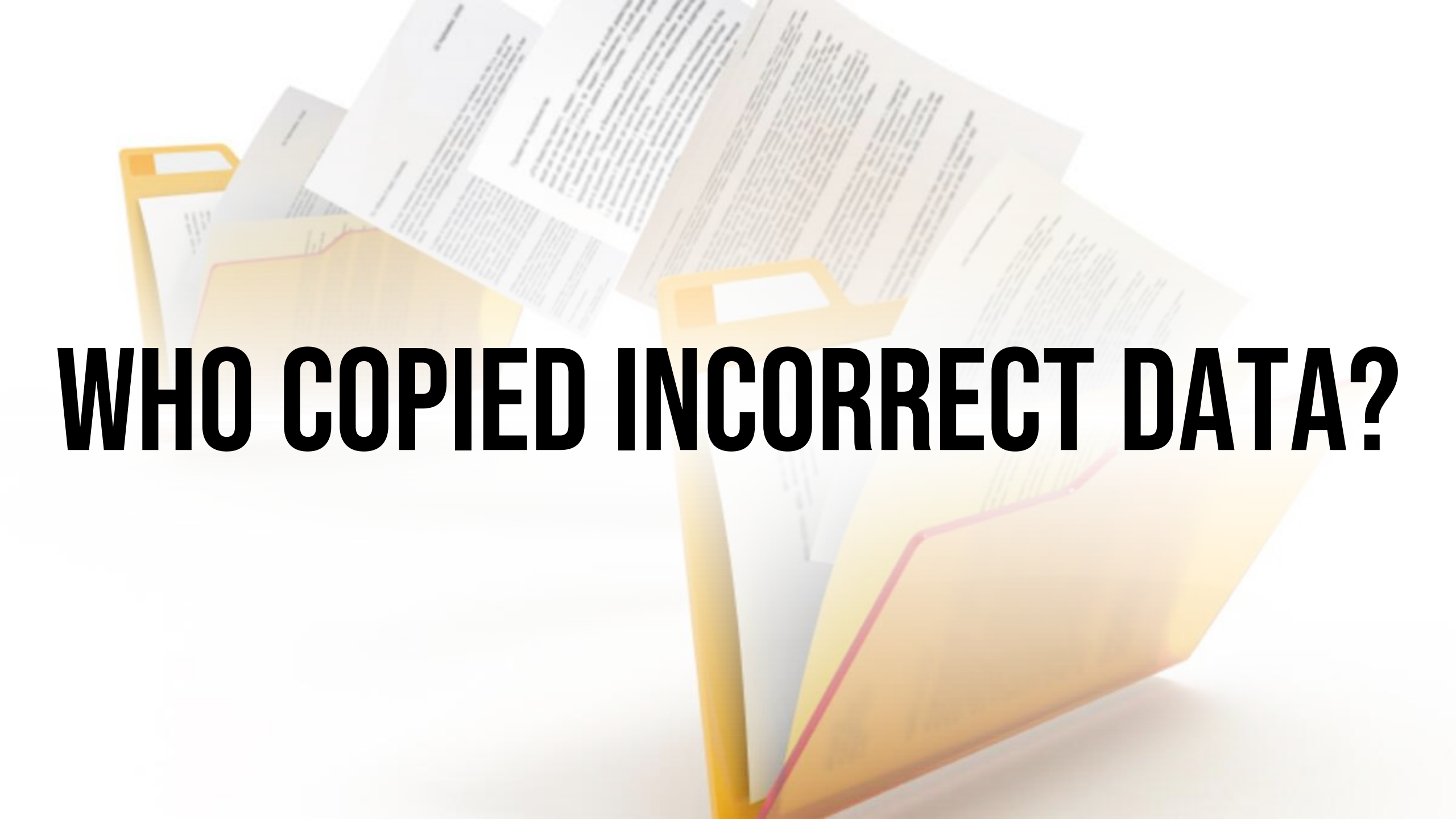
YOU LOSE AUTONOMY

NO PROPER ENCAPSULATION

WHAT IF YOU SHARED DATA BETWEEN

300 MICROSERVICES

AND THE DATA IS INCORRECT?


WHO COPIED INCORRECT DATA?

DO YOU KNOW

WHICH SERVICES

QUERIED YOUR DATA?

INVOICES CALCULATED

PROCESSED PAYMENTS

WHY CUSTOMER GOT PREFERRED STATUS

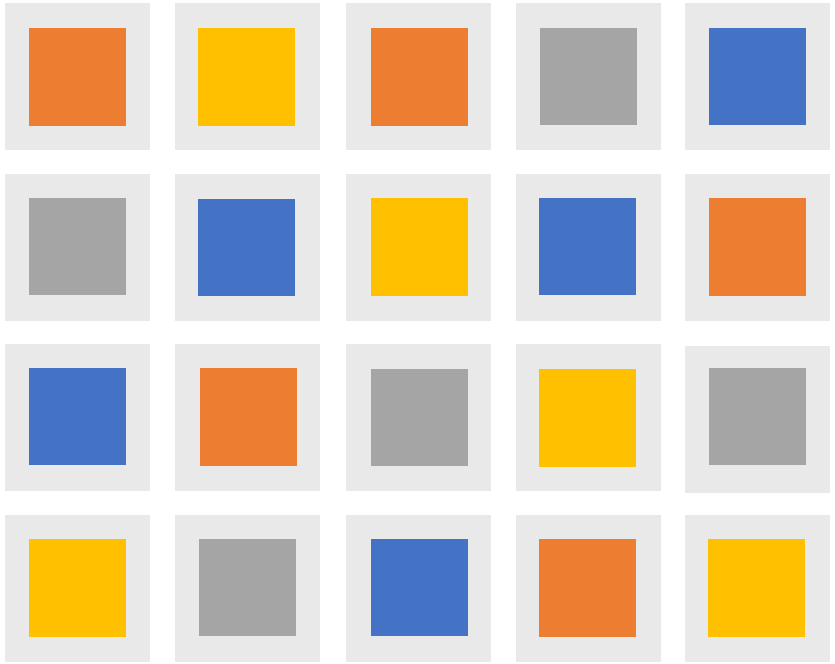
YOU ARE NOT
AUTONOMOUSLY
RESPONSIBLE

GET IF EVERYONE CAN JUST YOUR BUSINESS DATA VIA YOUR API

RPC HAS ITS PLACE

DECLARE @invoiceDateTemp Datetime
SET @invoiceDateTemp =
INSERT #CTemp
(line, itemCode, itemBarCode,
couponSerialNoRef,
SELECT DISTINCT
T.line, T.itemCode, T.itemBarCode,
DATEADD(day, I.dayShelfLife,
IIF(T.couponUpgrade = 'Y',
T.couponUpgrade
FROM
OrderDetail AS T INNER JOIN
WHERE
(T.companyCode = @companyCode)

BUT REMEMBER...



THINGS CALLING THINGS CALLING THINGS

RPC DOES NOT
IMPROVE YOUR
COUPLING
AND
COHESION

DEPLOYMENT

“It's difficult to achieve operational agility in the repeated deployment of monolithic application artifacts.”

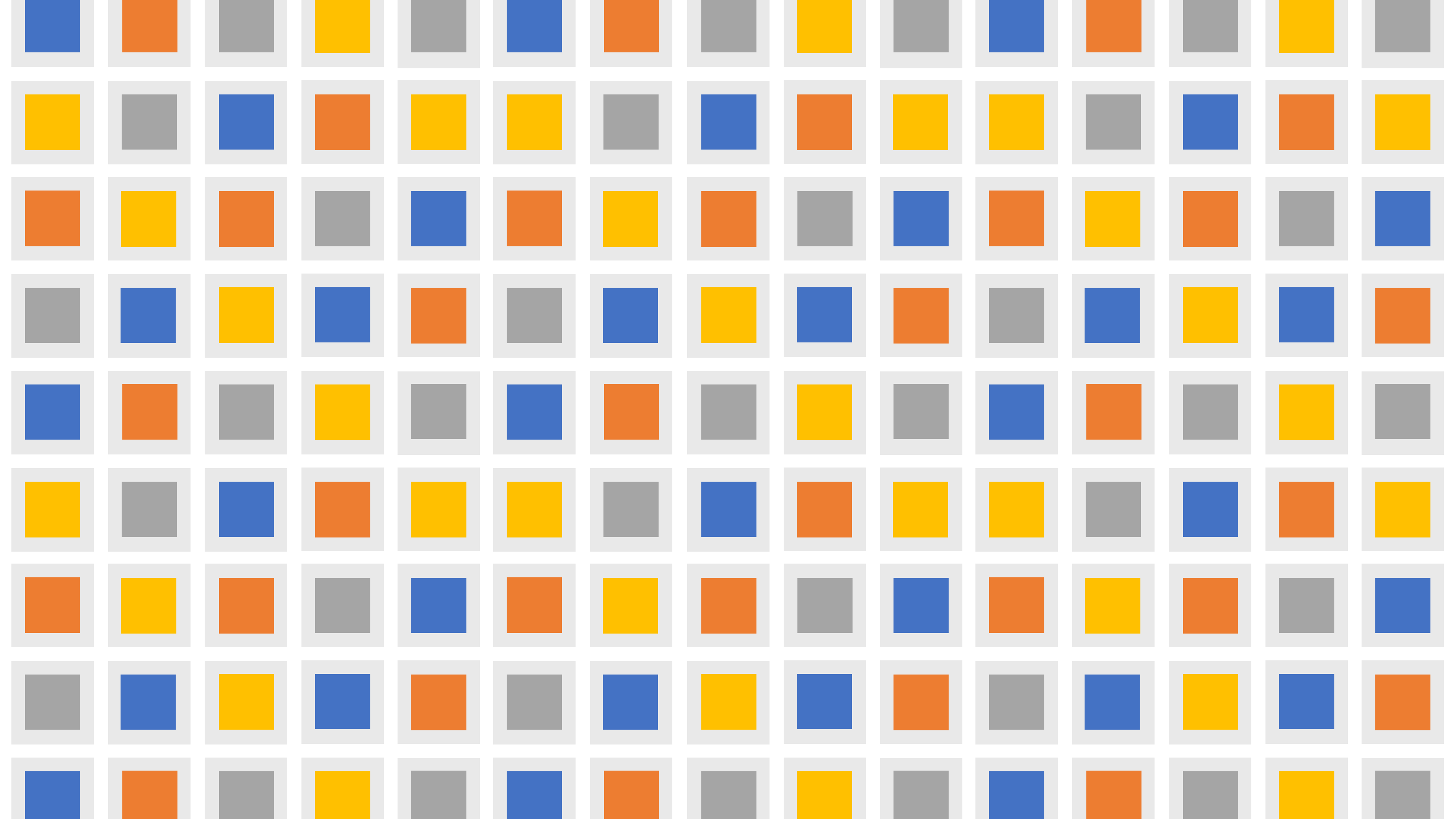
BECAUSE DEPLOYING

300 MICROSERVICES

IS EASIER THEN DEPLOYING

1 MONOLITH

ALL WITH THEIR OWN UNIQUE STORAGE TECHNOLOGY

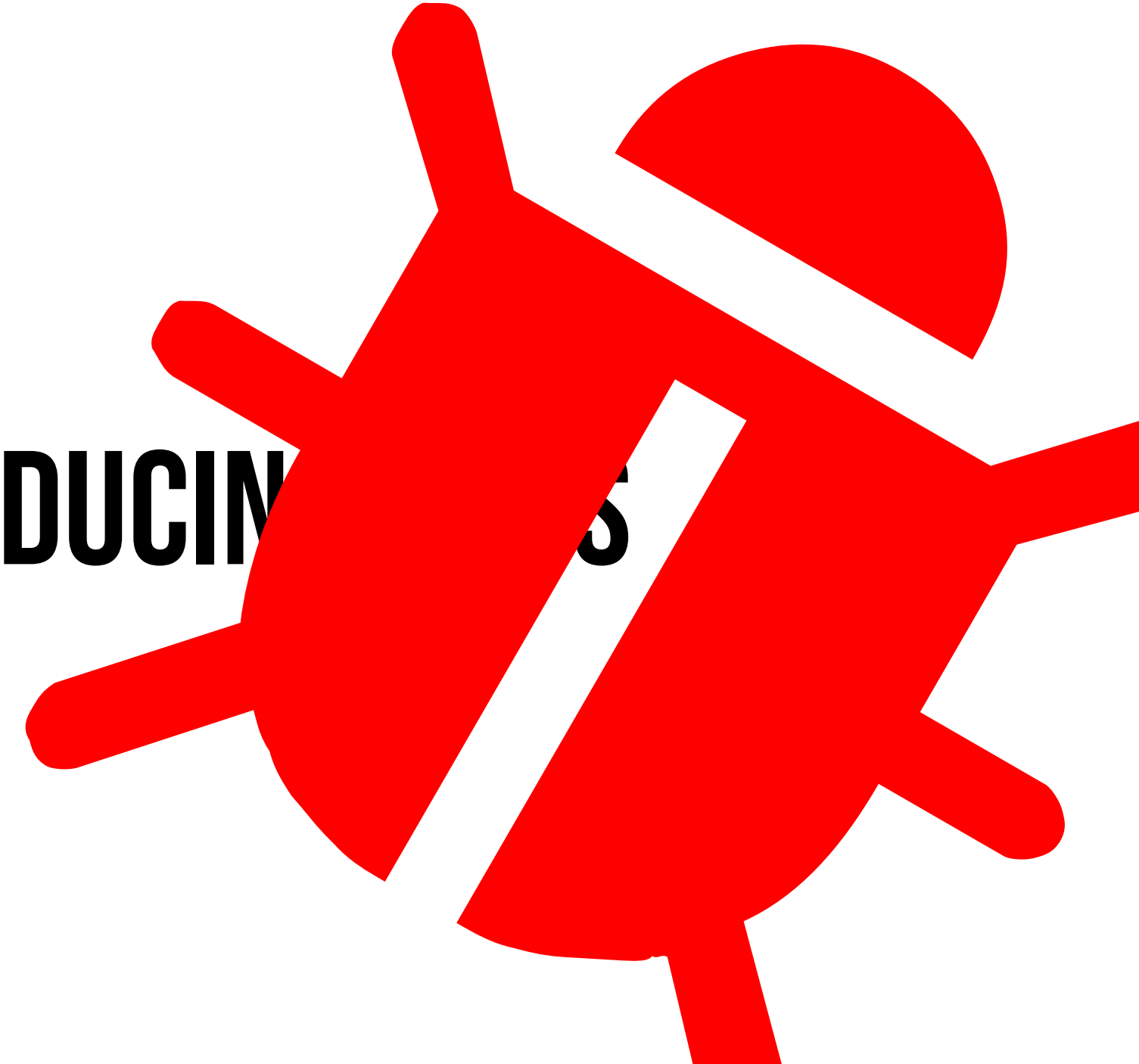


EVEN WITH A SMALL NUMBER LINES OF CODE

IT'S STILL A TOTAL REWRITE

AS PREVIOUSLY WITH CLASSES

INTRODUCIN S

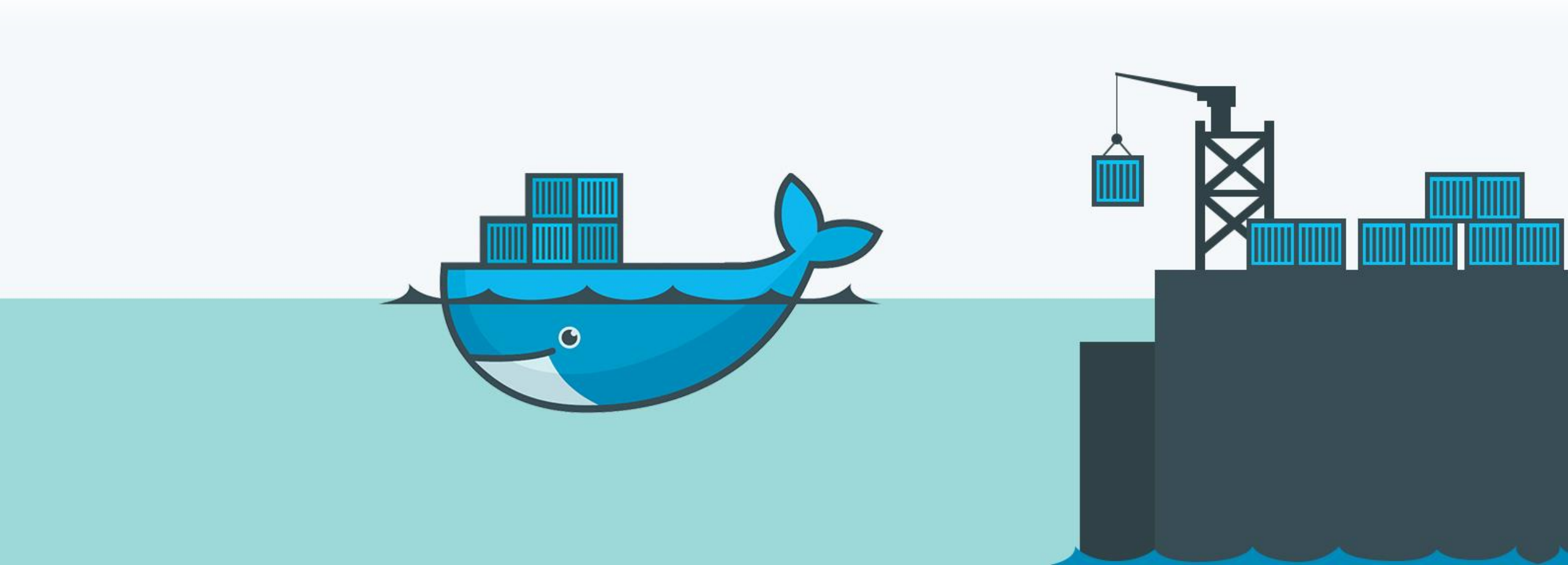


BECAUSE **COUPLING** EVERYWHERE

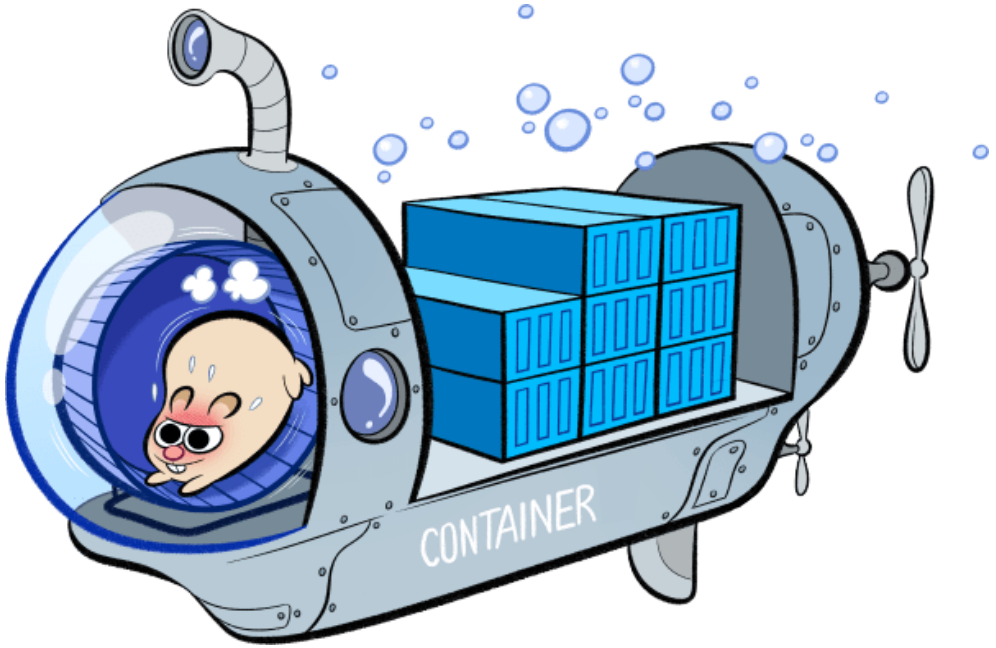
KNOW WHO LOVE MICROSERVICES

KEEP
CALM
AND LET THE
OPERATION
DEPARTMENT
HANDLE IT

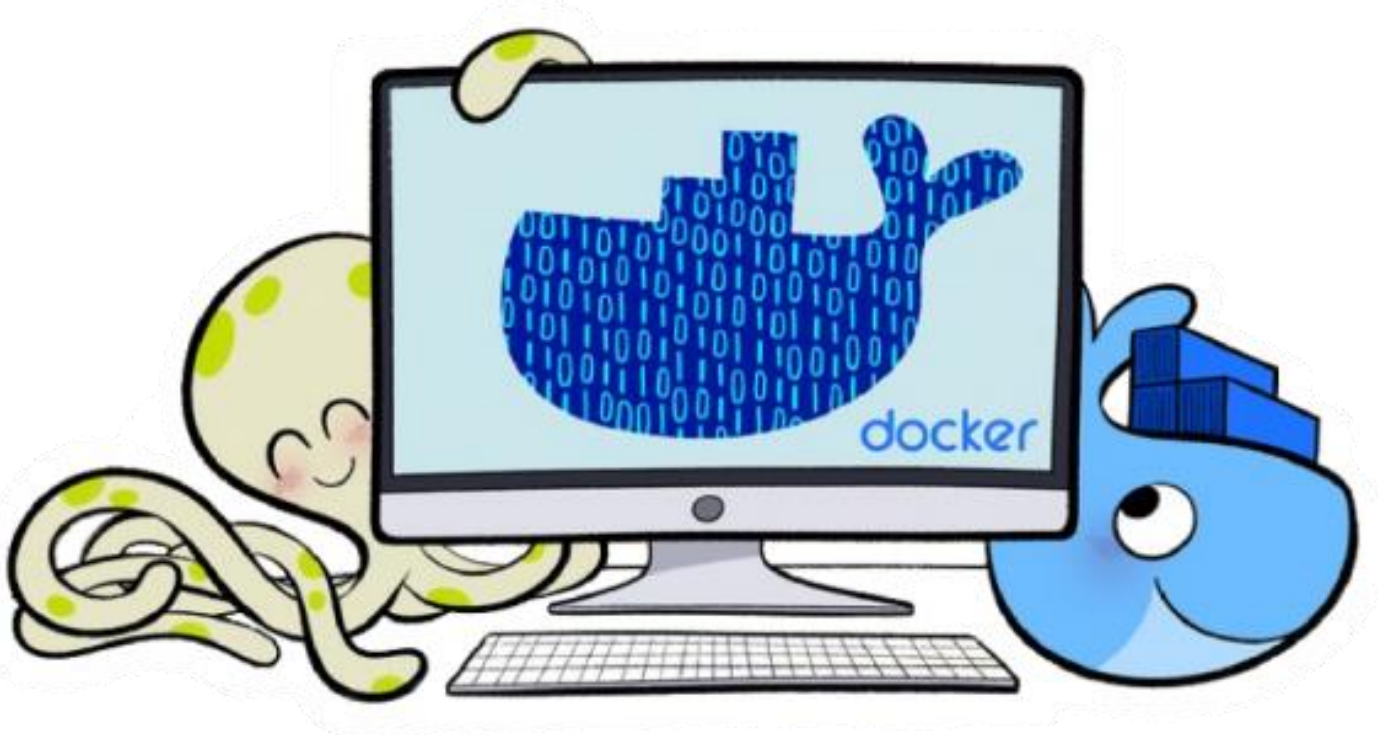
DEPLOY MICROSERVICES



MAINTAIN INFRASTRUCTURE



MONITOR

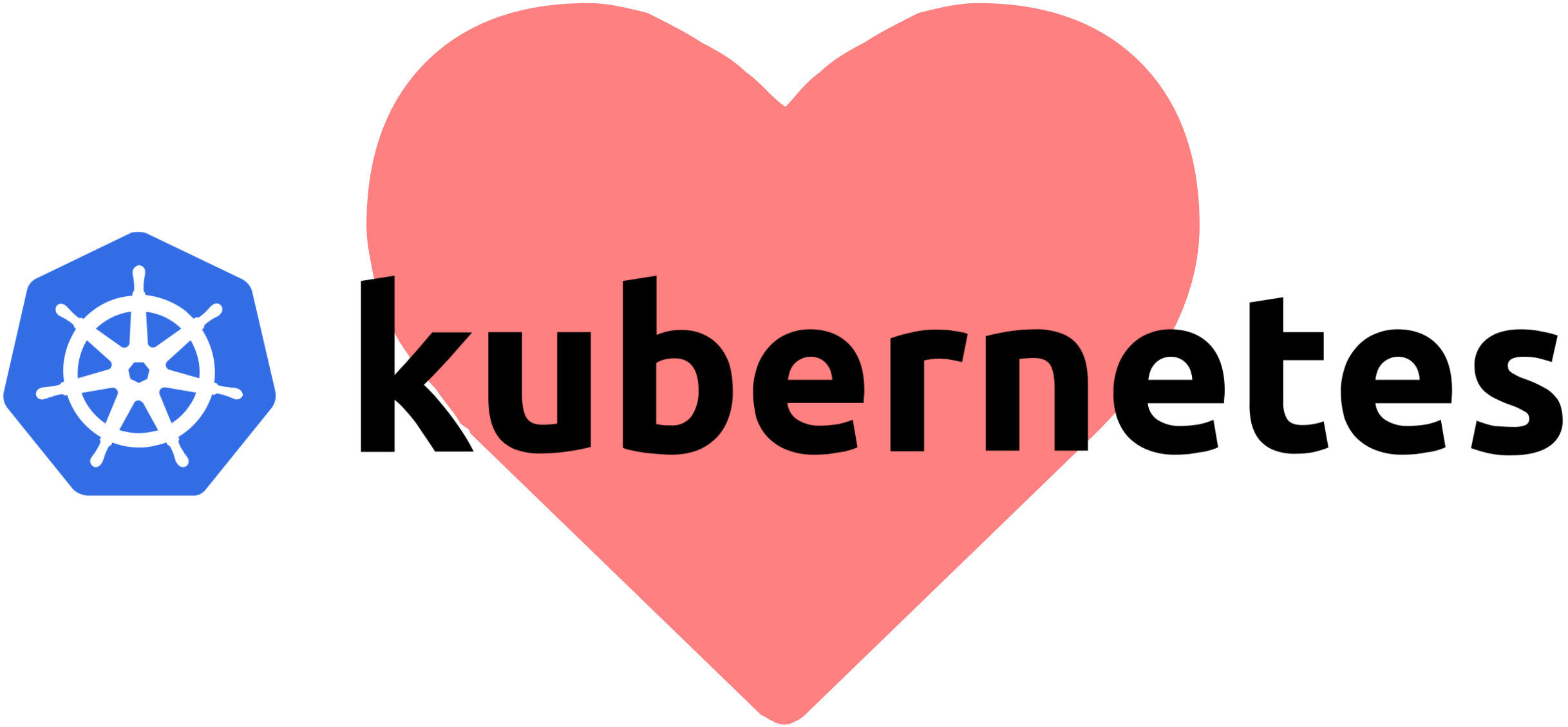


BUT 300 TIMES OVER

MORE

TOYS

docker

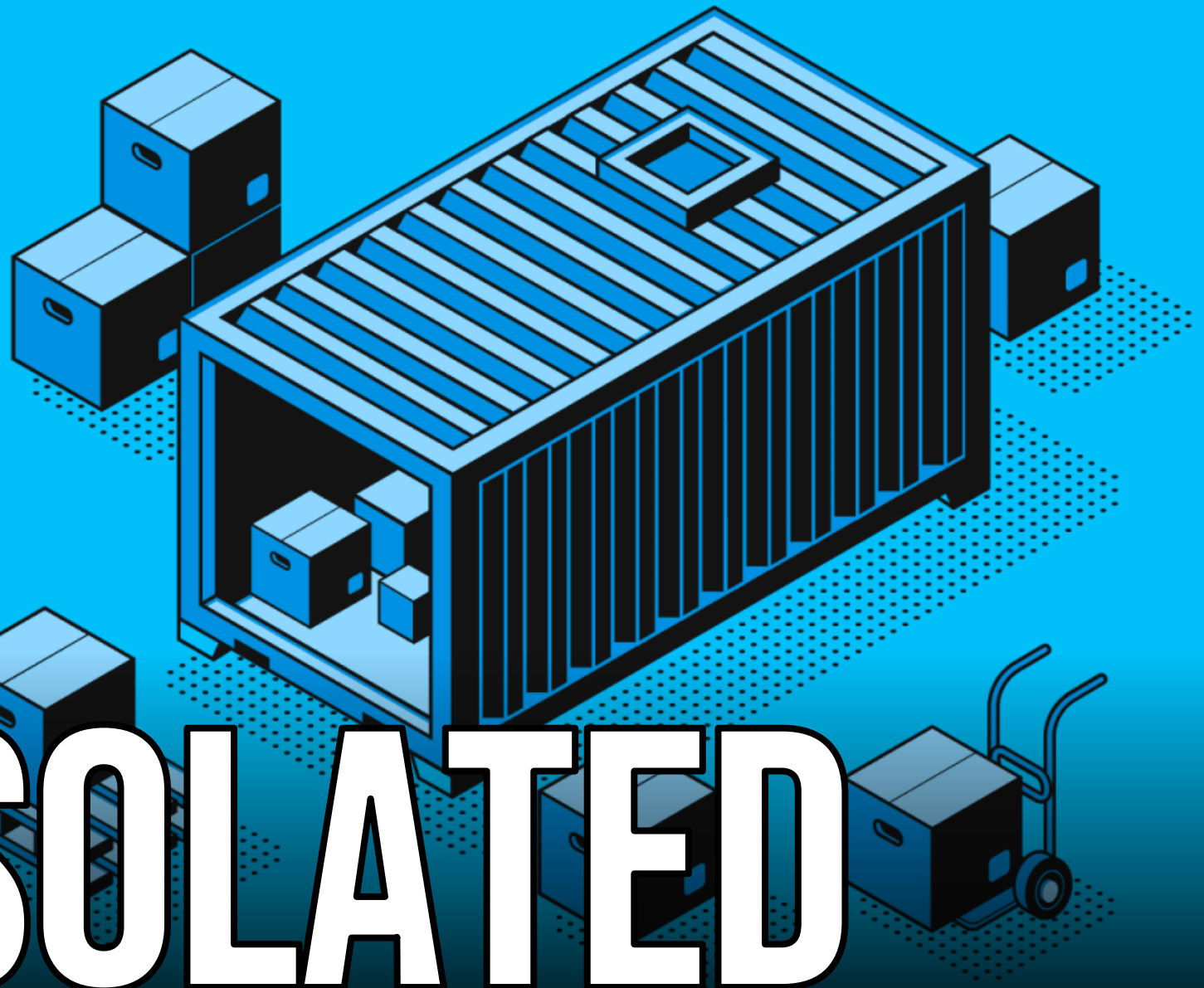

kubernetes

DOCKER

IS ABSOLUTELY GREAT FOR

DEPLOYMENT

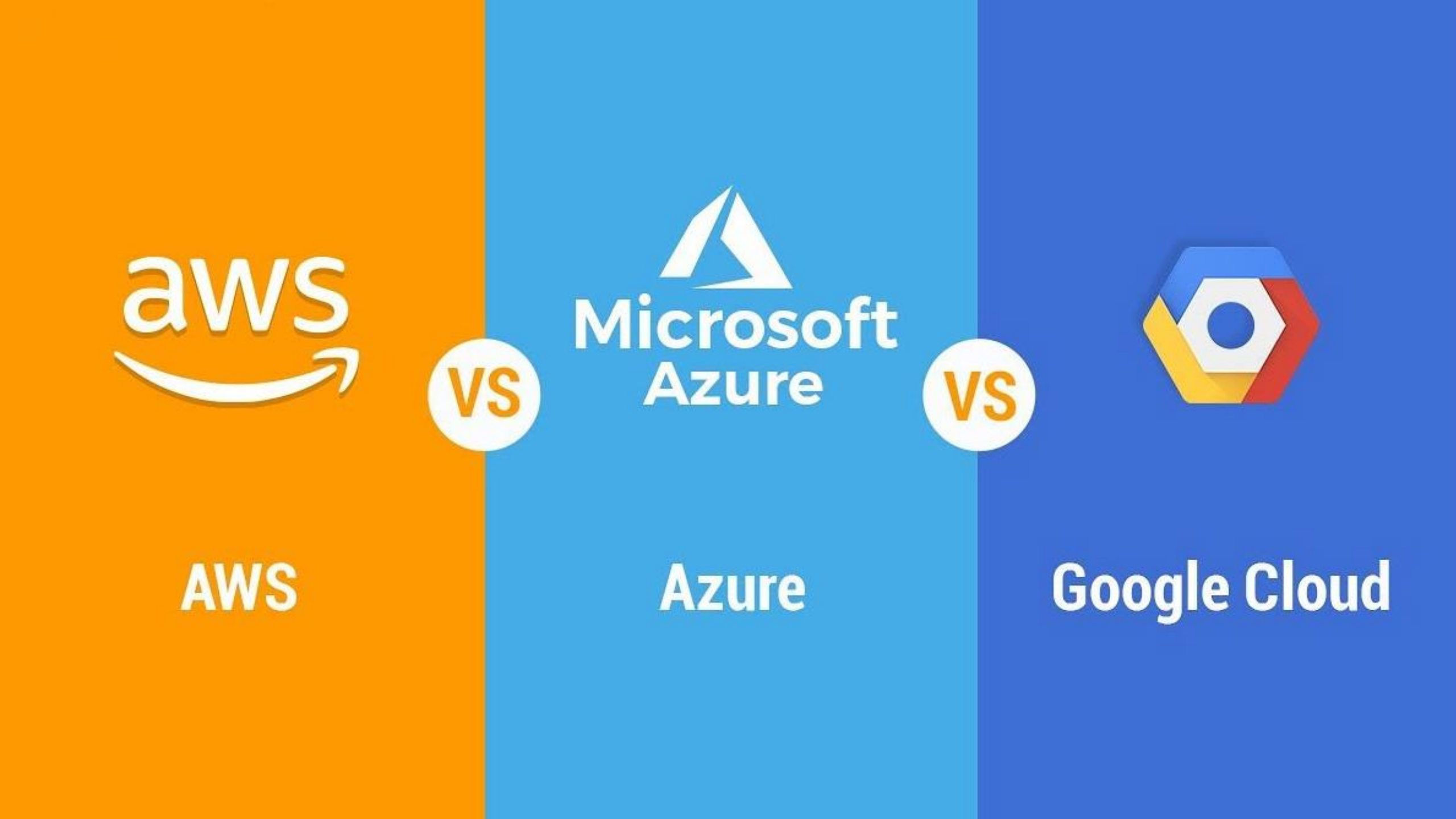
docker



ISOLATED

SCALES

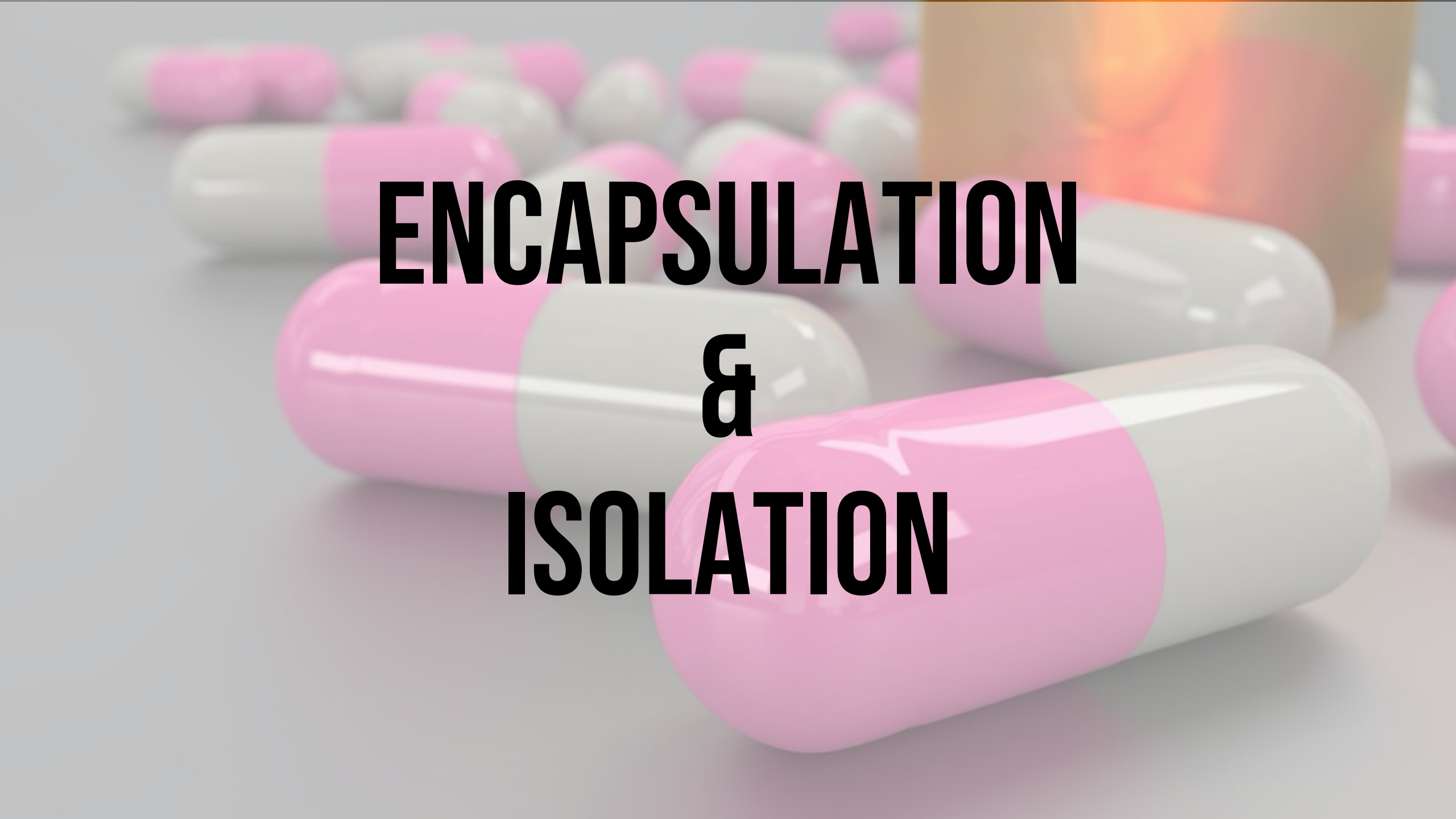
MULTI-CLOUD


aws
VS
Microsoft
Azure
VS
AWS
Azure
Google Cloud

works on
my
machine

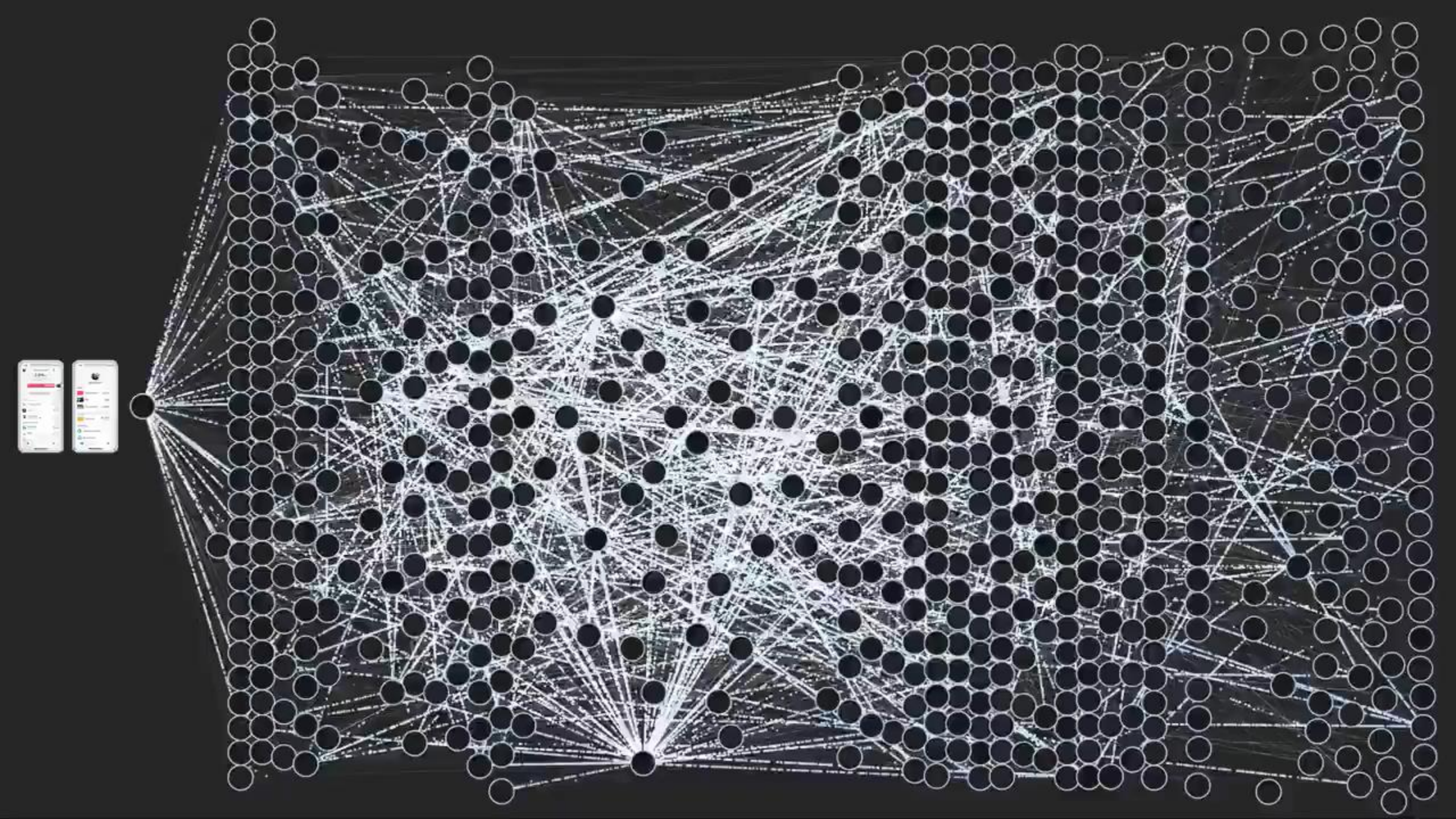
docker

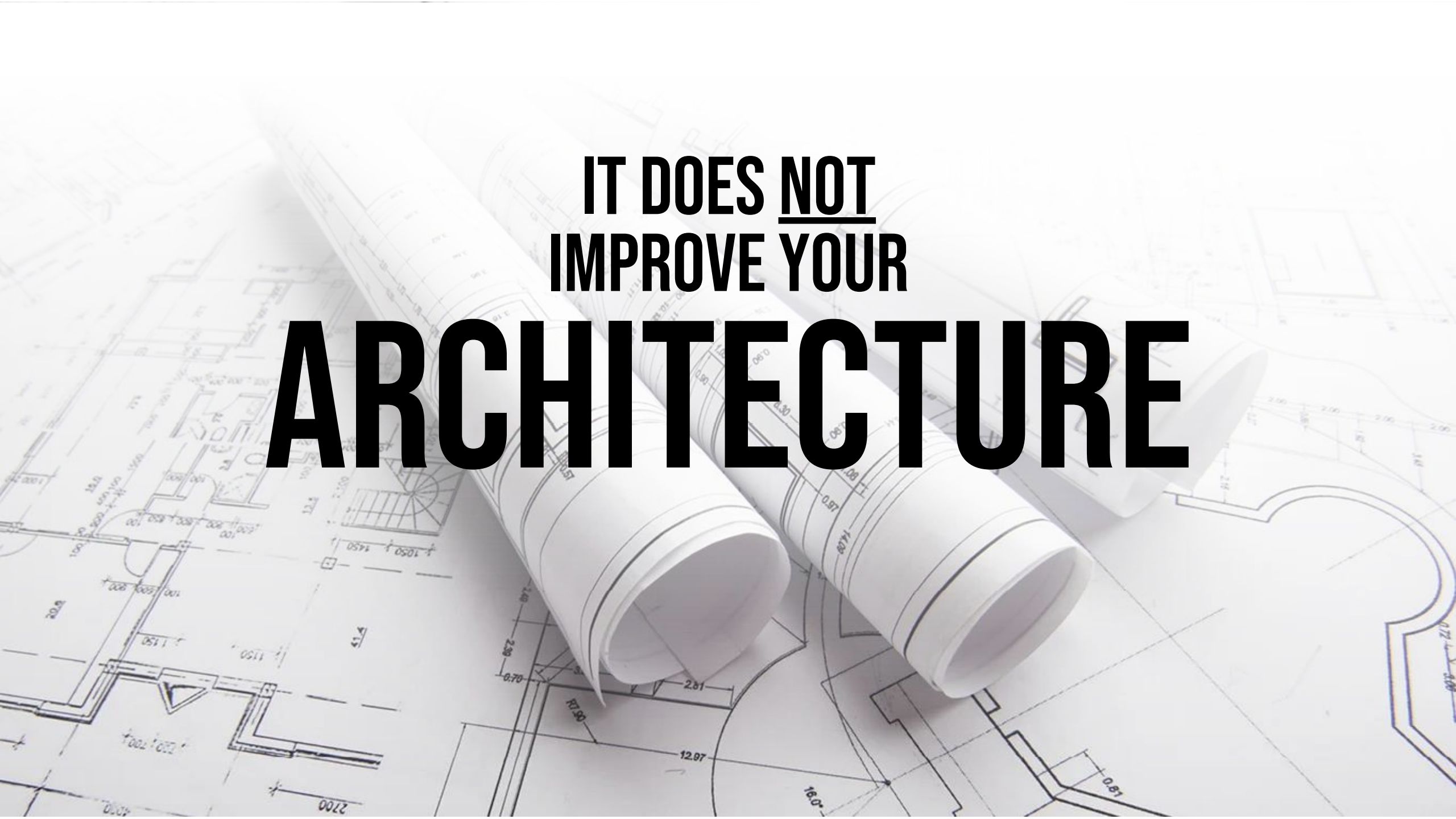
DOES IMPROVE


ENCAPSULATION
&
ISOLATION

OF YOUR PROCESS

BUT NOT THE COUPLING
AT RUNTIME OF OUR ARCHITECTURE




IT DOES NOT
IMPROVE YOUR
ARCHITECTURE

© & ™ Lucasfilm Ltd.

HOW

CAN WE ACHIEVE THIS

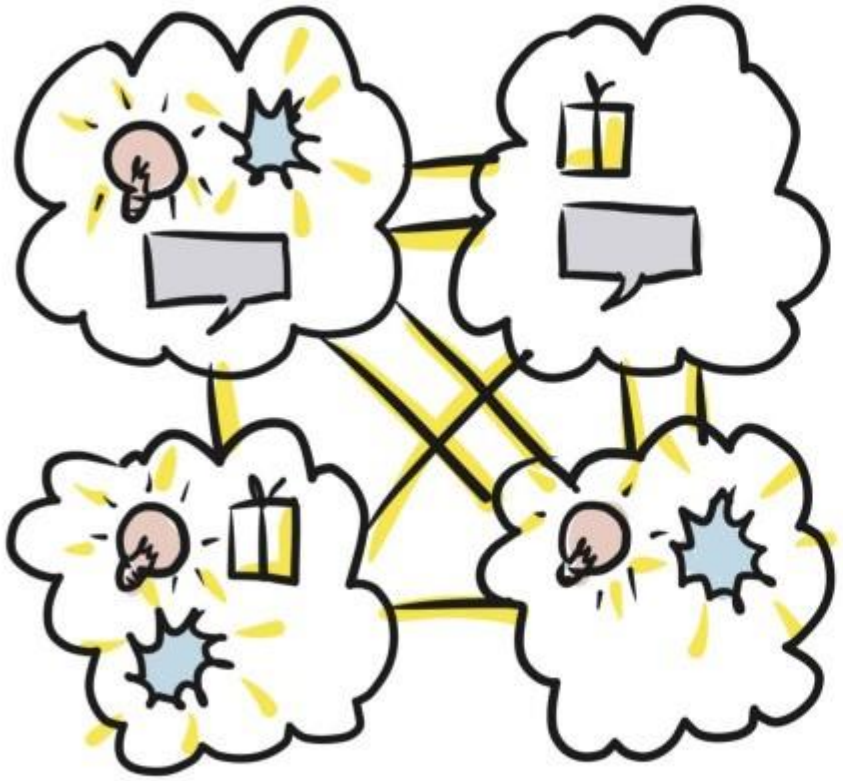
HIGH COHESION
LOW COUPLING?

THERE IS NO GOLDEN HAMMER

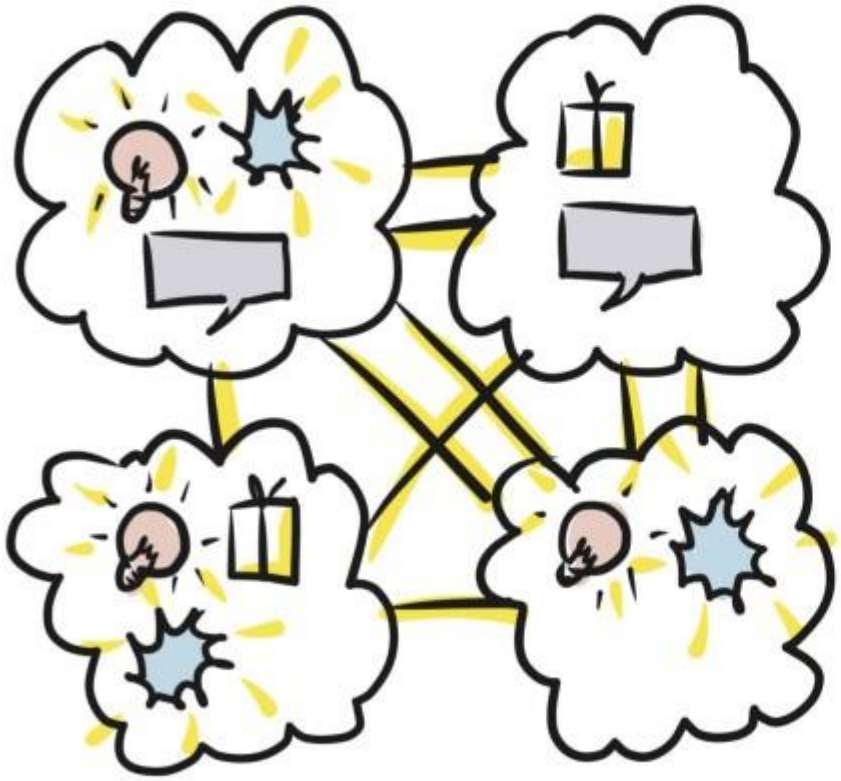
Microsoft
.NET
WCF
kubernetes
dapr
docker
{OOP}
object-oriented programming
AWS Lambda

Chance
GO BACK
3 SPACES
© 1936

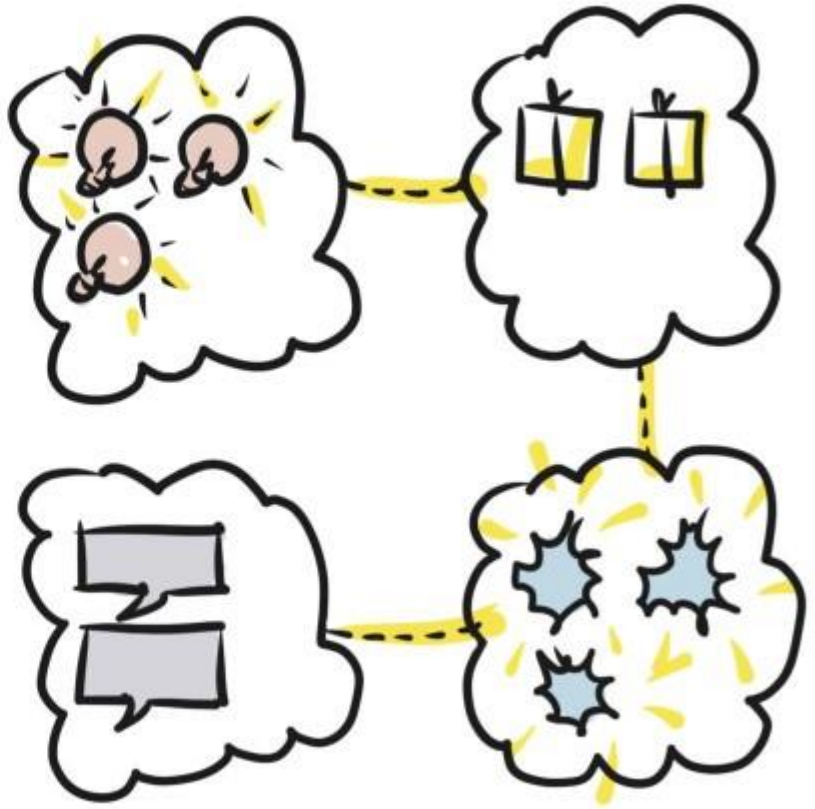
DO NOT CROSS



HIGH COUPLING
LOW COHESION



HIGH COUPLING
LOW COHESION



LOW COUPLING
HIGH COHESION

PLAN
NO
YES
$2^2=x$
$\sqrt{24}-?$
x22
$450 \pm 0 \approx x^2$
***
$4+3+5x+(?)$
$M^2+xy=?$
x200=?
$10000?
xxx
4x4=8?
PARTY.
POP
WTF
$45^2=\sqrt{\frac{x}{y}}$
BUT NO
$+++

NOUNS

CUSTOMER

PRODUCT

ORDER

ENTITIES

CUSTOMER PRODUCT ORDER

VERBS

CUSTOMER **ORDERS** A PRODUCT

ORDER **SHIPPED** TO A CUSTOMER

CUSTOMER **RECEIVES** DISCOUNT

COUPLING

CUSTOMER ORDERS A PRODUCT

But we've
always done
it this way
GCIU 7

ORDER

CUSTOMER
PRODUCTS
PRICES
DISCOUNT
SHIPPING STATUS

ORDER

CUSTOMER
PRODUCTS
PRICES
DISCOUNT
SHIPPING STATUS

DO THEY HAVE TO BE IN THE SAME TRANSACTION

DISCOUNT
?
PRODUCT INFO
ONLINE·SHOP
BOUTIQUE | OUTFITS | FULL LOOKS | FASHION
WOMAN | MAN
Clothing | Shoes | Lingerie | Accesories
Qty:
Size:

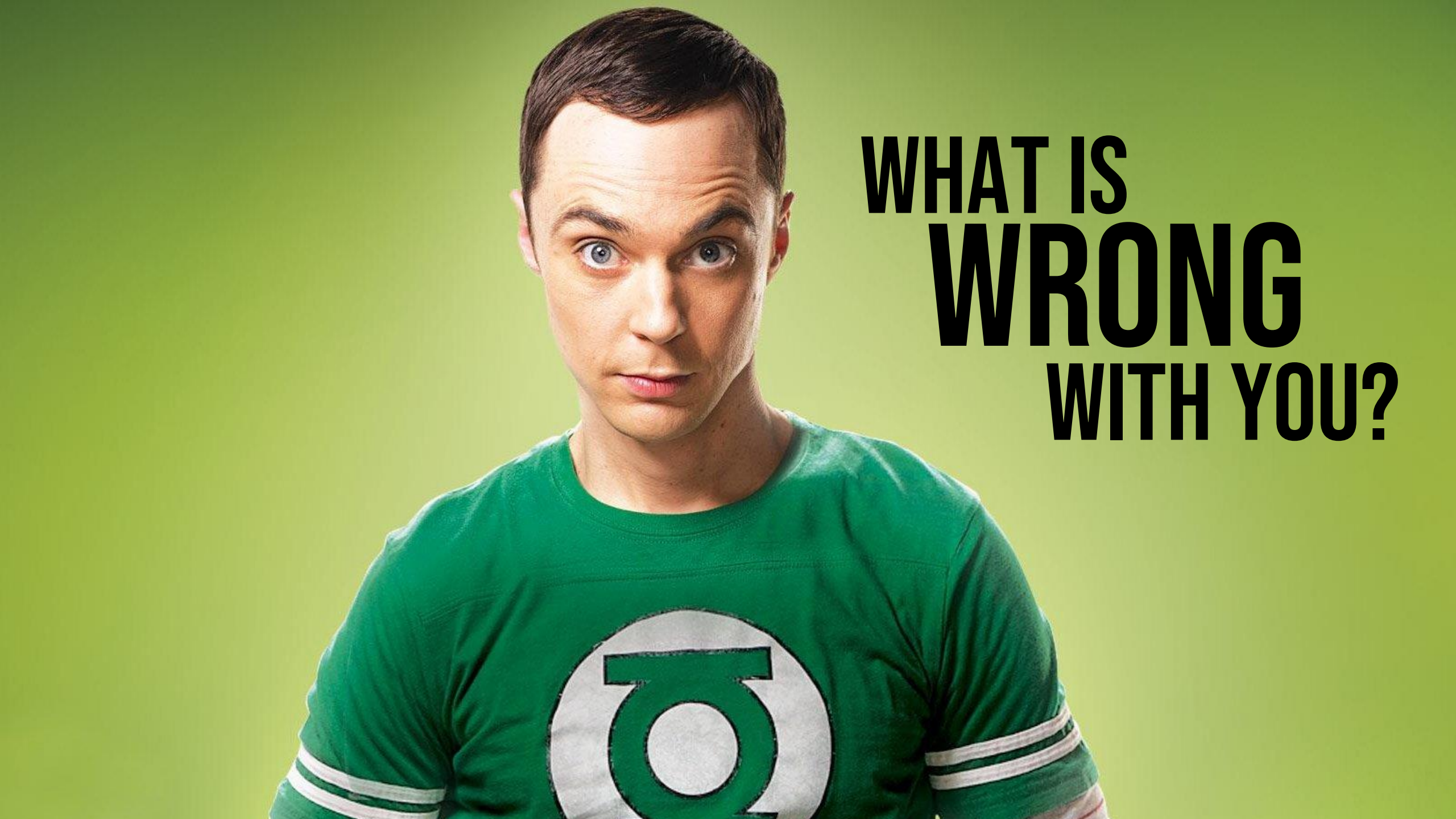
CONSISTENCY REQUIREMENTS

REQUIREMENT

IF A CUSTOMER **DISCOUNT** IS HIGHER THAN 12%

THEY CANNOT ORDER

PURPLE PRODUCTS


WHAT IS
WRONG
WITH YOU?

WE ARE LOOKING FOR THINGS THAT DO

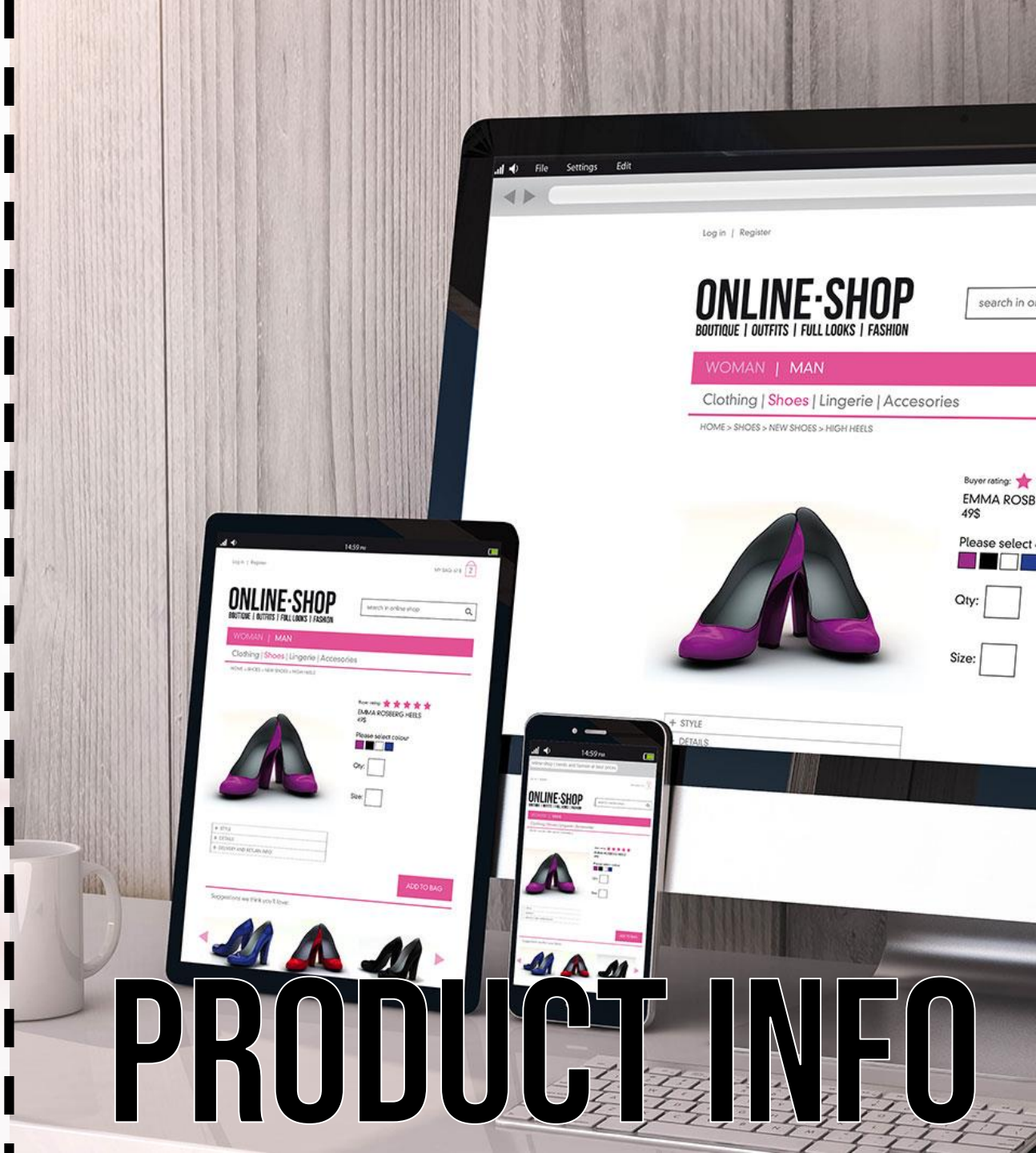
NOT SHARE

THE SAME

HIGH CONSISTENCY

WITH EACH OTHER

DISCOUNT



PRODUCT INFO

NOT RELATED

CONSISTENCY REQUIREMENTS

TRANSACTION

ORDER

CUSTOMER
PRODUCTS
PRICES
DISCOUNT
SHIPPING STATUS

PRICE

DISCOUNT

IF A PRODUCT IS ON SALE

THE CUSTOMER MIGHT NOT GET ITS REGULAR

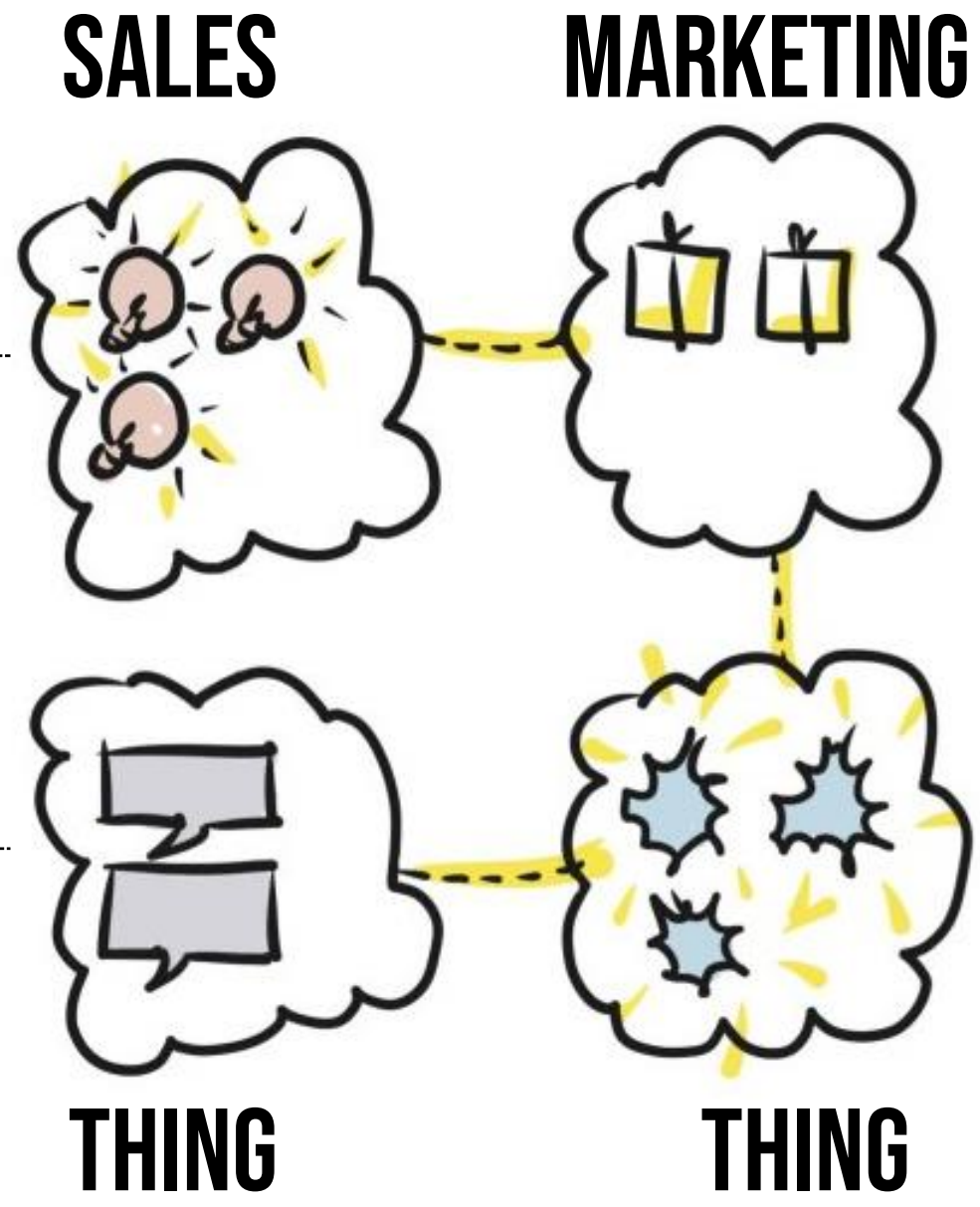
CUSTOMER DISCOUNT

CONSISTENCY BOUNDARIES

Prospect

Customer
First Name
Last Name

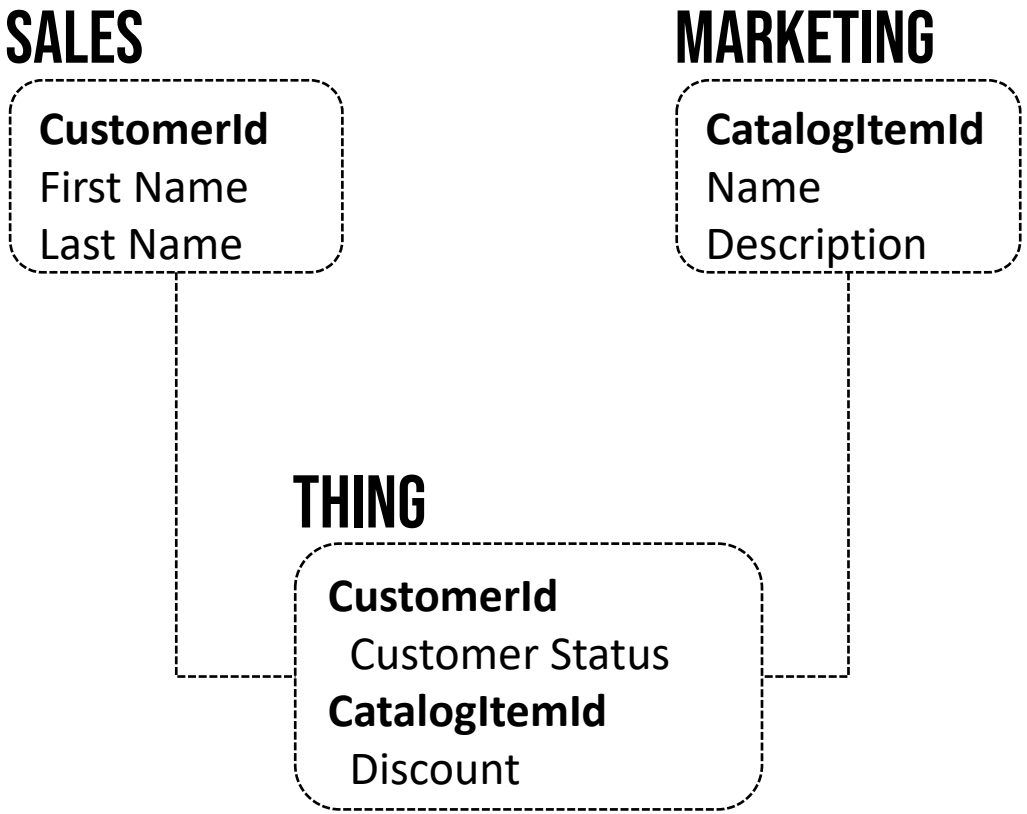
Catalog Item
Name
Description



Customer
Status
Product
Discount

Order
Status
Shipping
Status

IDENTIFIERS


SALES
CustomerId
First Name
Last Name
MARKETING
CatalogItemId
Name
Description
THING
CustomerId
Customer Status
CatalogItemId
Discount

THIS CHANGES HOW WE

TRADITIONALLY THINK

ABOUT OUR DOMAIN ENTITIES

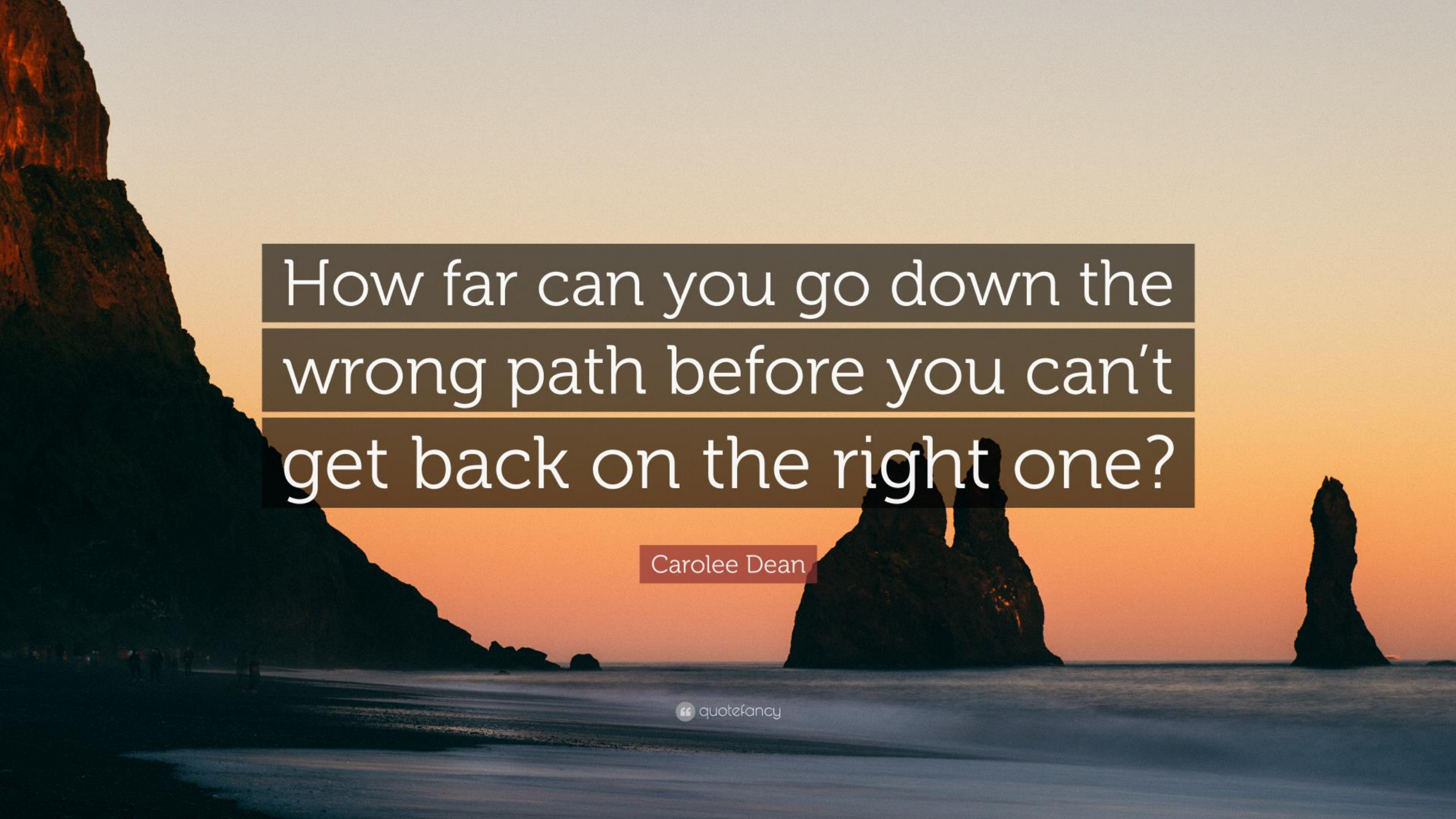
FINDING THESE

ATTRIBUTES

THAT SHARE THIS CONSISTENCY BOUNDARY

TAKES TIME

THE ARCHITECT IS TAKING A DECISION TOWARDS THE RIGHT DIRECTION


How far can you go down the wrong path before you can't get back on the right one?
Carolee Dean
quotefancy

MY CODE IS IN HERE
SOMEWHERE...

BUT ONCE WE HAVE THESE

HIGHLY COHESIVE

THINGS INSIDE A

CONSISTENCY BOUNDARY

LOGICAL
SERVICES

THEY COMMUNICATE LESS

BECAUSE

WHY WOULD CODE DEALING WITH

PRICES AND DISCOUNTS

NEED TO TALK TO SOMETHING DEALING WITH

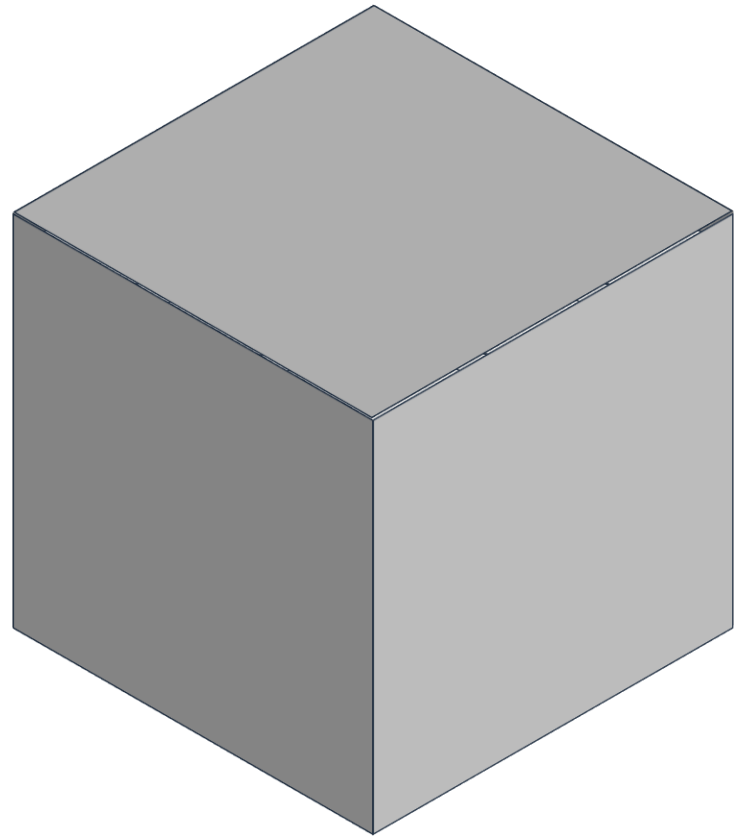
A CUSTOMER'S PHONE NUMBER?

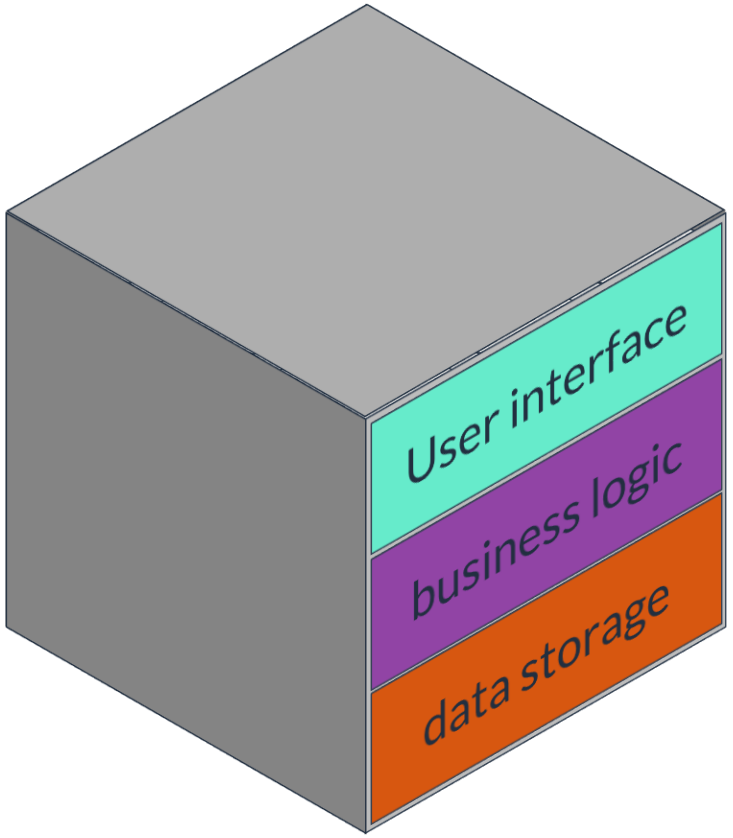
WHY WOULD CODE DEALING WITH DELIVERY

NEED TO TALK TO SOMETHING DEALING WITH THE PRICE OF A PRODUCT?

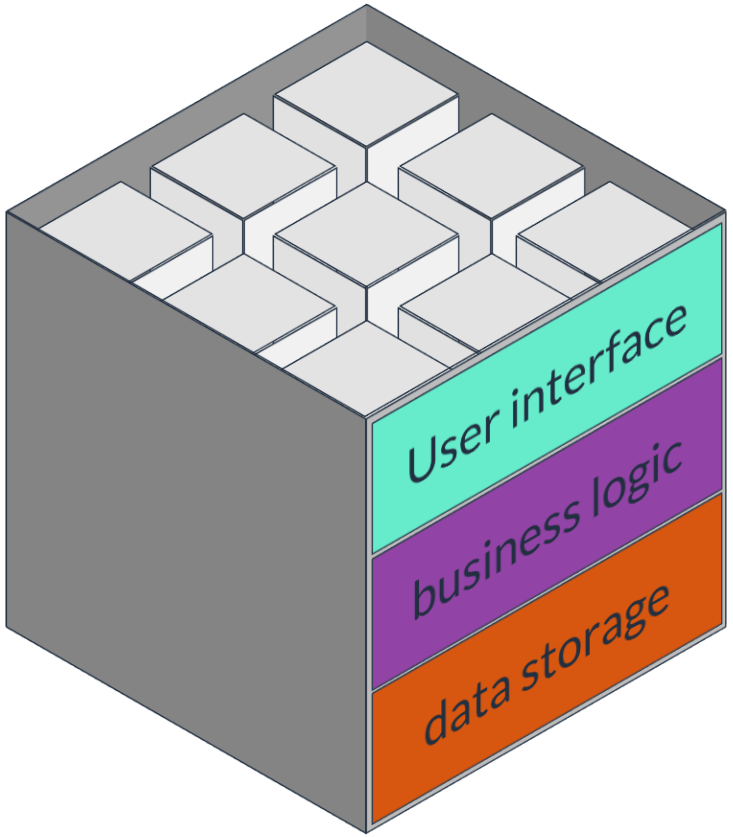
DO NOT CROSS

LOOKING AT OUR
MONOLITH
FROM THIS ANGLE

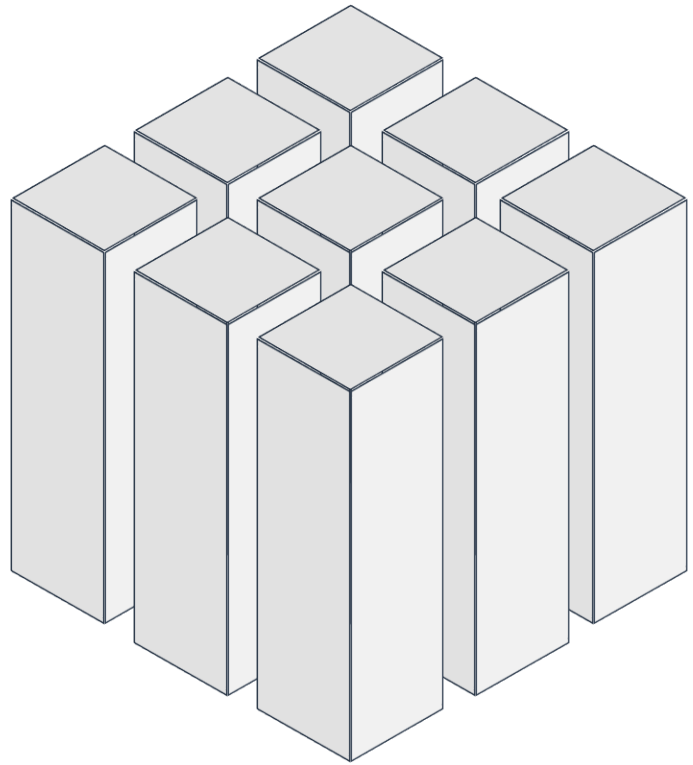


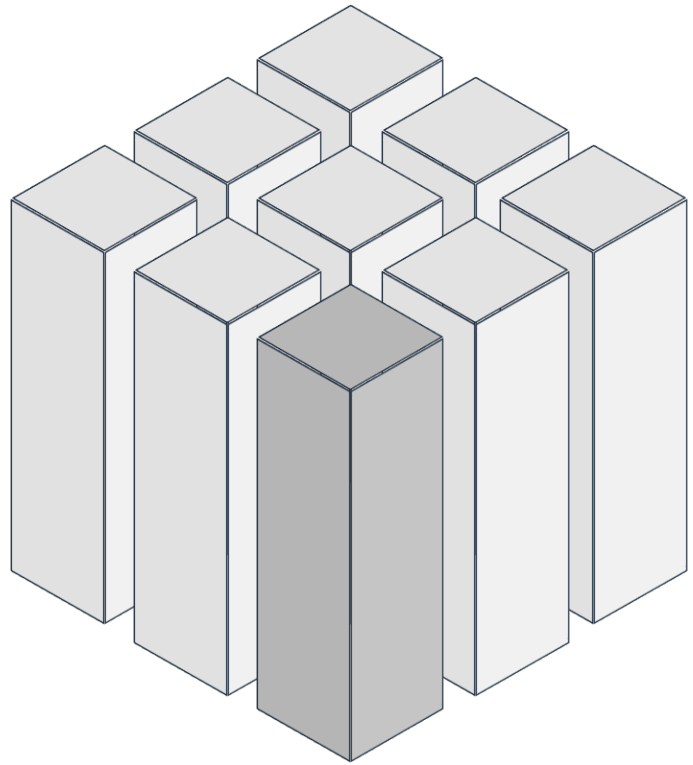


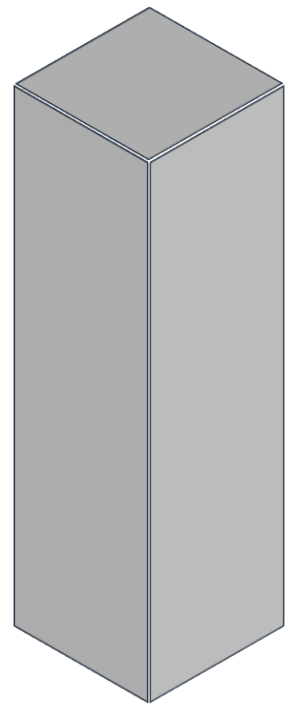
EVERY LAYER IS RESPONSIBLE FOR ALL ENTITIES



EVERY LAYER IS RESPONSIBLE FOR ALL ENTITIES





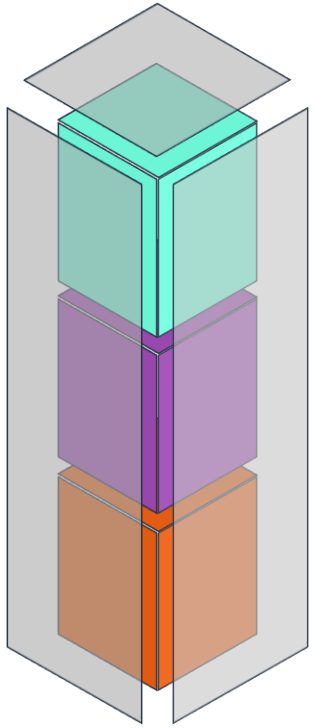


MICROSERVICES

MICROVIEWS

MICROVIEWMODELS

MICROCONTROLLERS



A SERVICE IS RESPONSIBLE FOR EVERYTHING FROM DATA TO UI

COMPOSITE UI

Sales

Shows popular products or related products

Customer

Displays customer information such as name

Finance

Displays status of all financial transactions and outstanding bills

Shipping

Shows the status of your shipment and when it will arrive.

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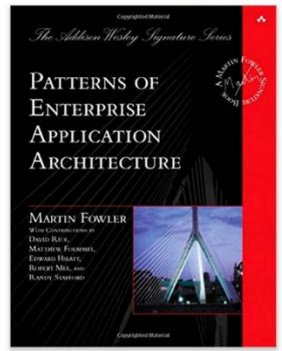

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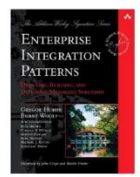

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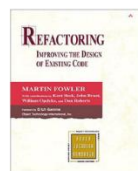

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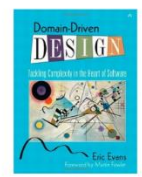

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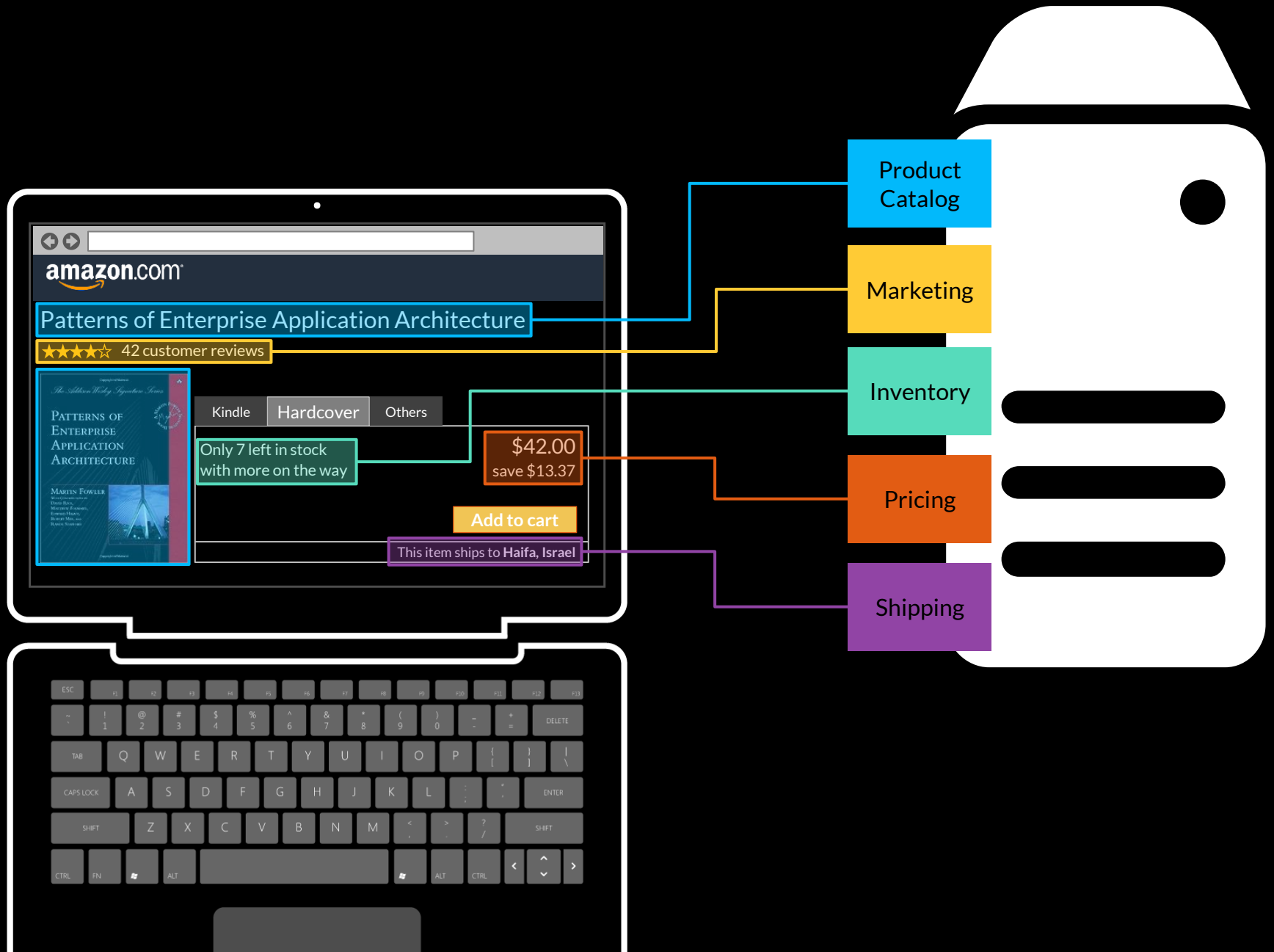
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MICROVIEWS

DON’T EVEN HAVE TO

COMMUNICATE

WITH EACH OTHER

ONE MORE THING

FUNCTIONS CALLING FUNCTIONS CALLING FUNCTIONS

CLASSES CALLING CLASSES CALLING CLASSES

COMPONENTS CALLING COMPONENTS CALLING COMPONENTS

WEBSERVICES CALLING WEBSERVICES CALLING WEBSERVICES

THINGS CALLING THINGS CALLING THINGS

MICROSERVICES CALLING MICROSERVICES CALLING MICROSERVICES

FUNCTIONS CALLING FUNCTIONS CALLING FUNCTIONS

FUNCTIONS CALLING FUNCTIONS CALLING FUNCTIONS

CLASSES CALLING CLASSES CALLING CLASSES

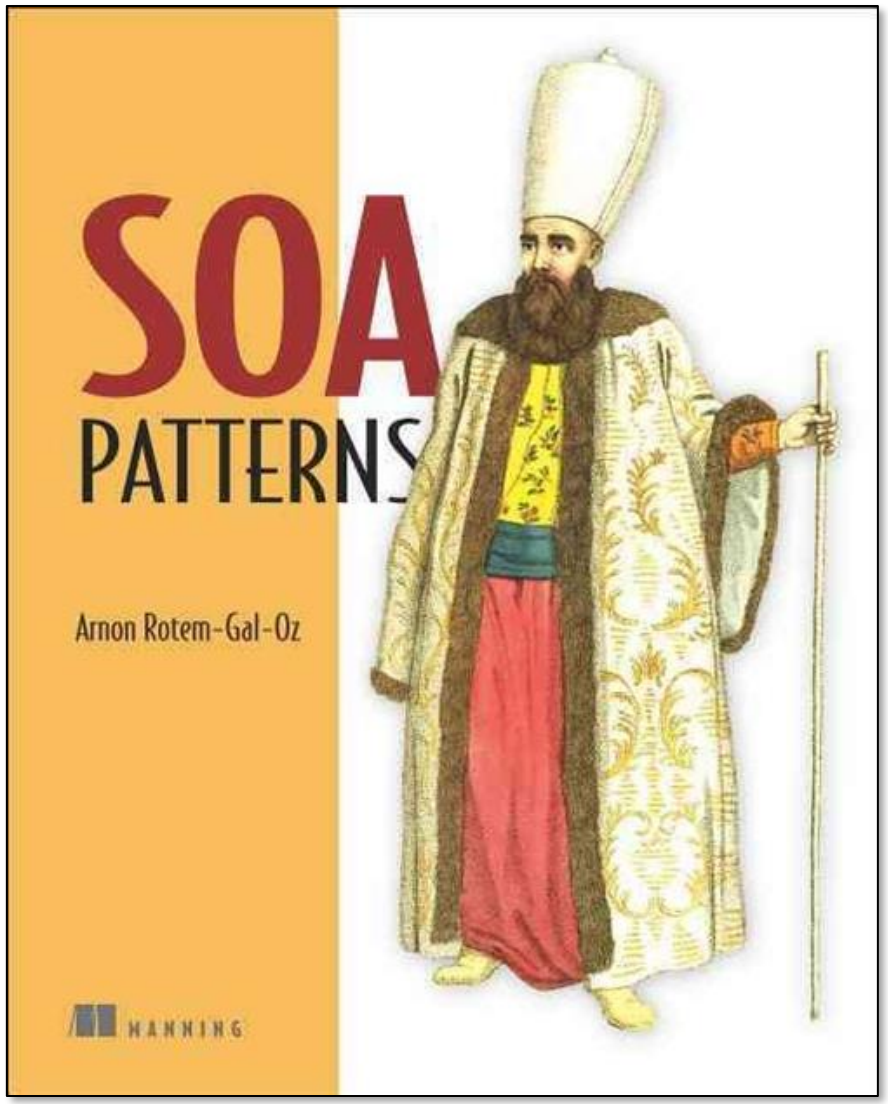
COMPONENTS CALLING COMPONENTS CALLING COMPONENTS

WEBSERVICES CALLING WEBSERVICES CALLING WEBSERVICES

THINGS CALLING THINGS CALLING THINGS

MICROSERVICES CALLING MICROSERVICES CALLING MICROSERVICES

FUNCTIONS CALLING FUNCTIONS CALLING FUNCTIONS



“

Handle business events through

Inversion of communication

by supplementing SOA with EDA

”

Arnon Rotem-Gal-Oz, 2008

EVENT DRIVEN

SERVICES CANNOT

CALL EACH OTHER

THESE MODELS HAVE TO STAY

IN SYNC SOMEHOW

PUBLISH / SUBSCRIBE

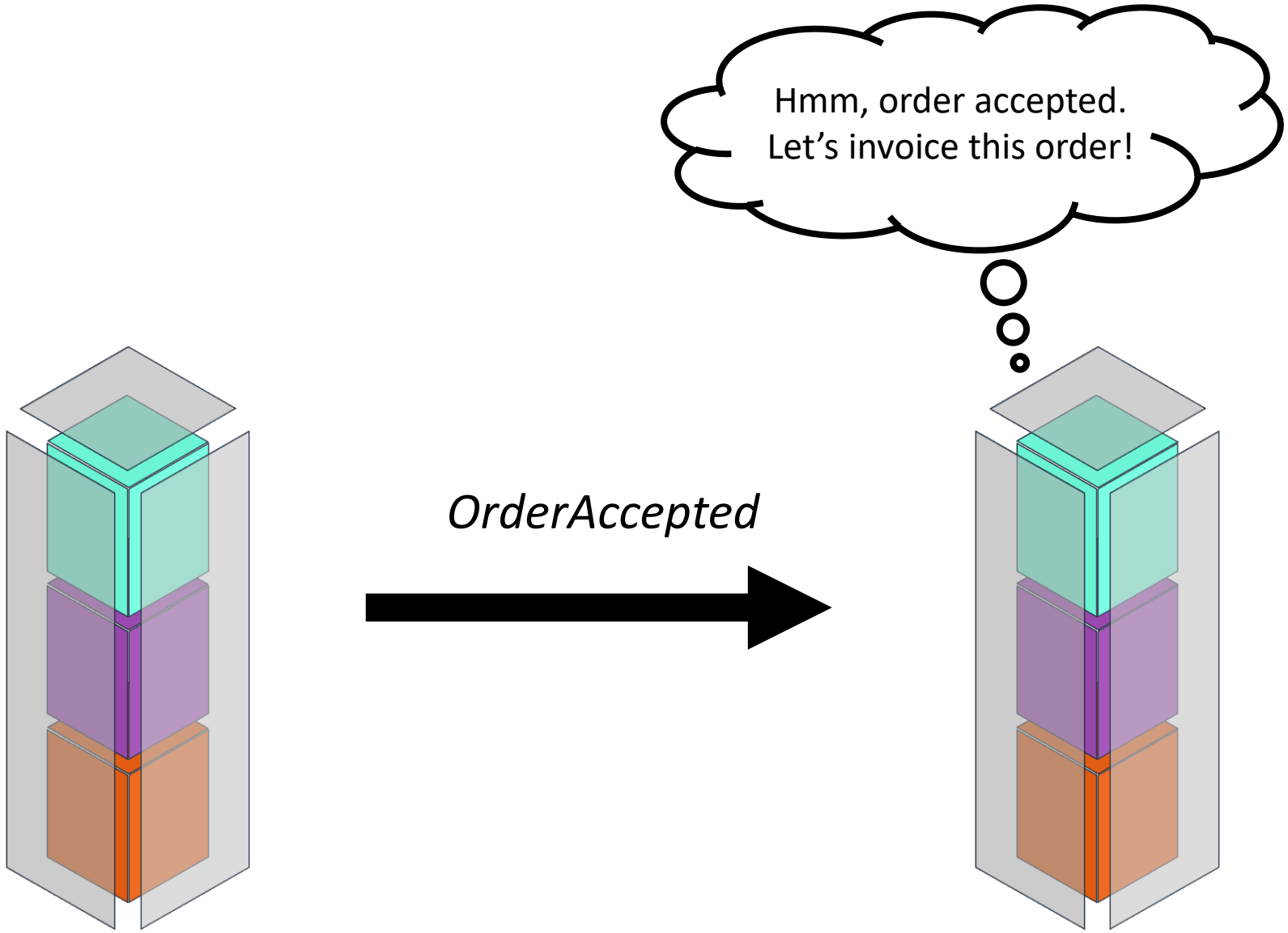
WITHOUT SHARING BUSINESS DATA

DO NOT CROSS

~~ORDER SHIPPING ADDRESS~~

ORDER ACCEPTED

ORDER ID


Hmm, order accepted.
Let's invoice this order!
OrderAccepted

DON’T KNOW PRODUCT

NAME

DON’T KNOW PRODUCT

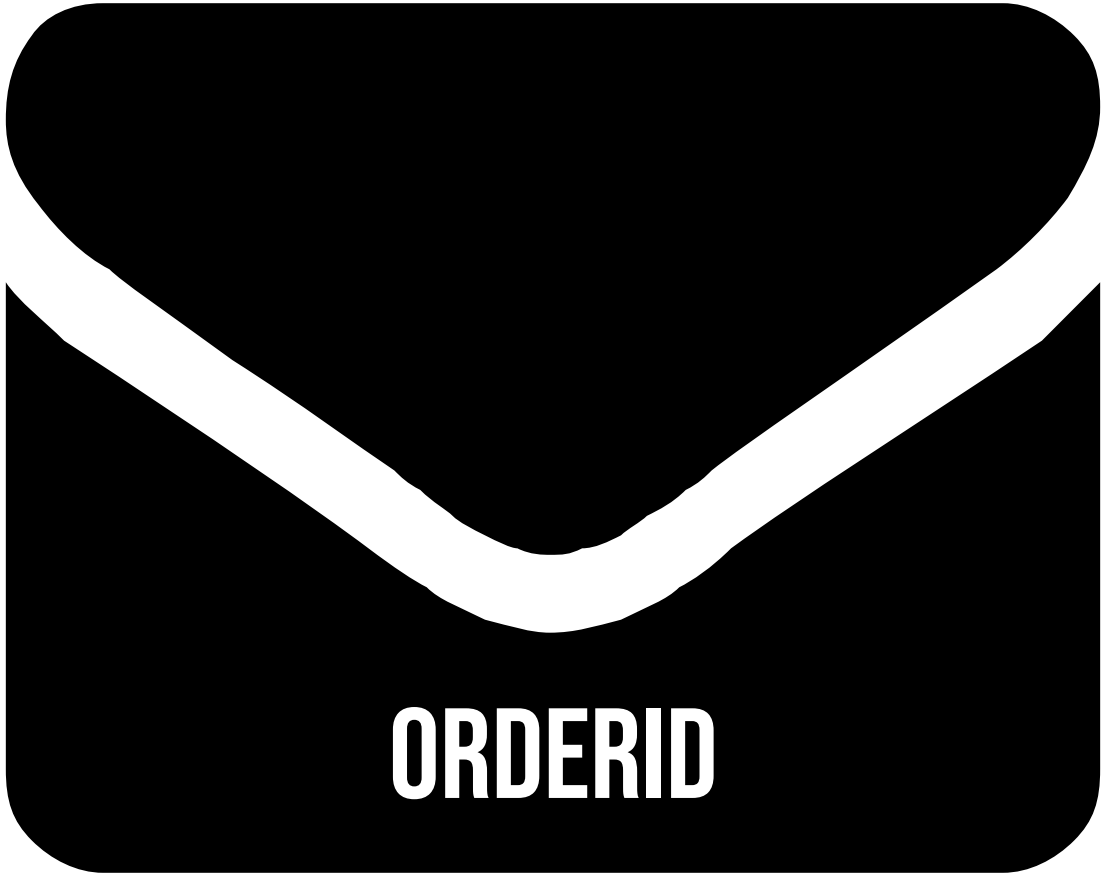
IS IN STOCK

I DO KNOW

PRICE

I DO KNOW

POSSIBLE DISCOUNT


ORDERID

BECAUSE

WHY COMMUNICATE

ADDRESS

IF NO ONE IS GOING TO USE IT?

WHY WOULD CODE DEALING WITH

PRICES AND DISCOUNTS

NEED TO RECEIVE DATA IN AN EVENT ABOUT

A CUSTOMER'S PHONE NUMBER?

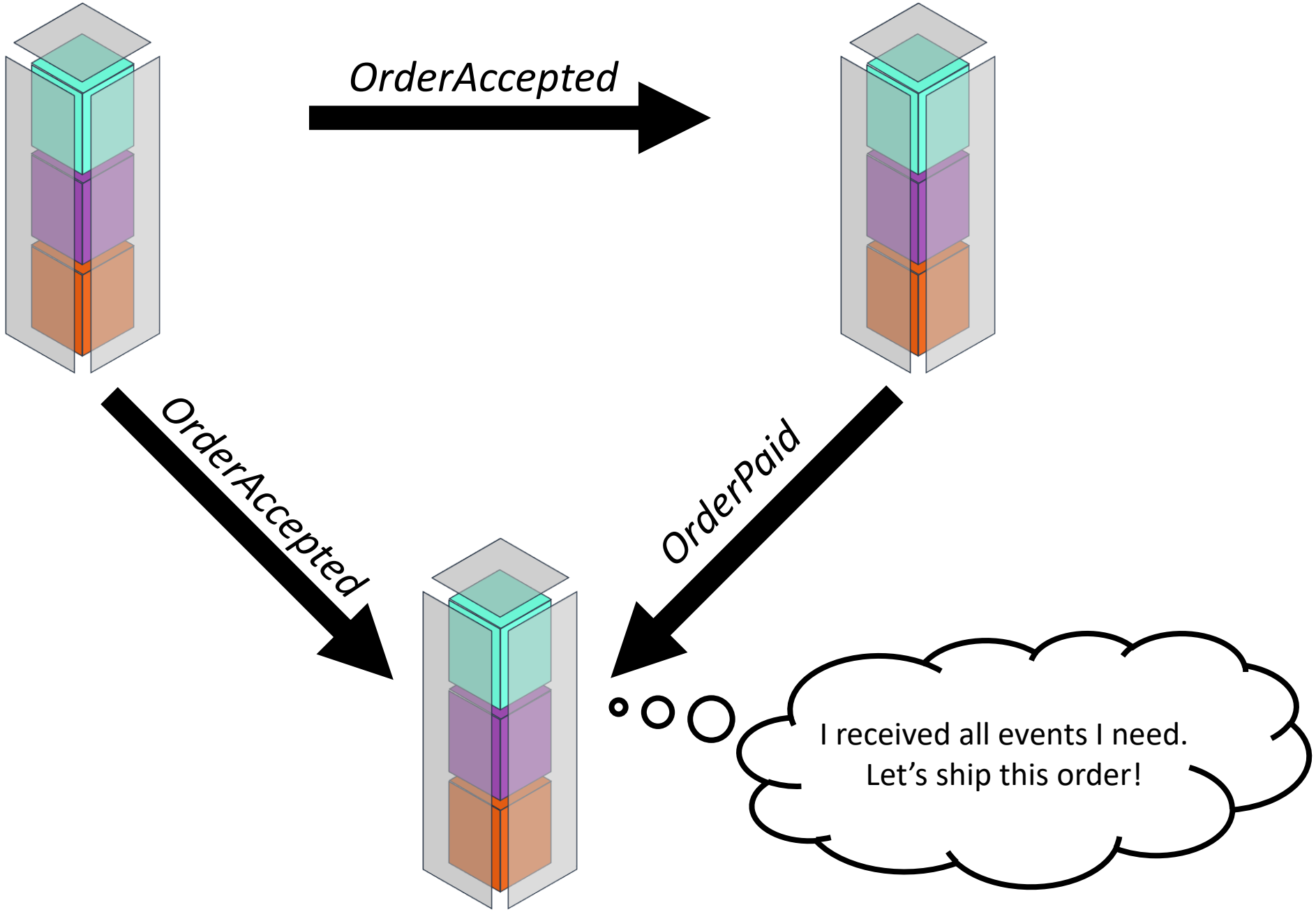
IT DOESN’T

BECAUSE

THIS SERVICE IS THE

TECHNICAL AUTHORITY

FOR A SPECIFIC BUSINESS CAPABILITY


OrderAccepted
OrderAccepted
OrderPaid
I received all events I need.
Let's ship this order!

DON’T KNOW PRODUCT

NAME

DON’T KNOW PRODUCT

PRICE

I DO KNOW

WEIGHT

I DO KNOW

SIZE

MAERSK
MAERSK
MAERSK
MAERSK
HABCOCK

I DO KNOW

SHIPPING ADDRESS

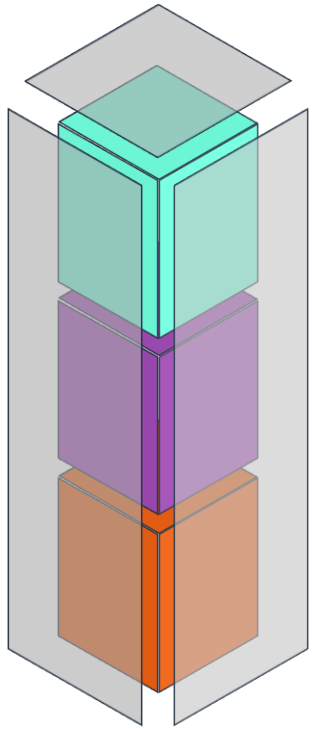
BECAUSE

THIS SERVICE IS THE

TECHNICAL AUTHORITY

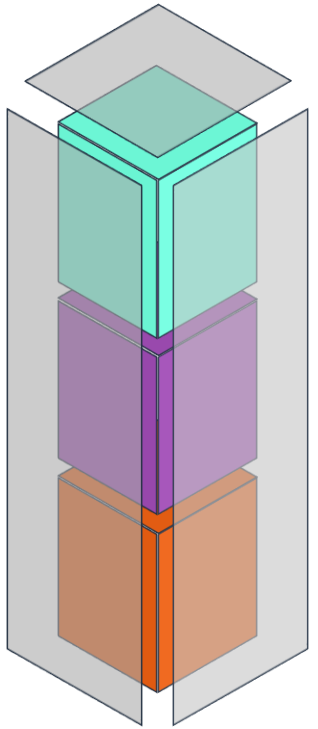
FOR A SPECIFIC BUSINESS CAPABILITY

ONE MORE THING



CustomerBecamePreferred

{bc62b860-7ea1-44ab-9863-080bccc147d2}



INVOICING

SHIPPING

DON’T KNOW WHO
MADE CUSTOMER

PREFERRED

DON’T KNOW WHY
CUSTOMER BECAME

PREFERRED

I DO KNOW

SHIP FASTER

I DO KNOW

BECAUSE

THIS SERVICE IS THE

TECHNICAL AUTHORITY

FOR A SPECIFIC BUSINESS CAPABILITY

BUSINESS DATA
IS NOT
SHARED

autonomy

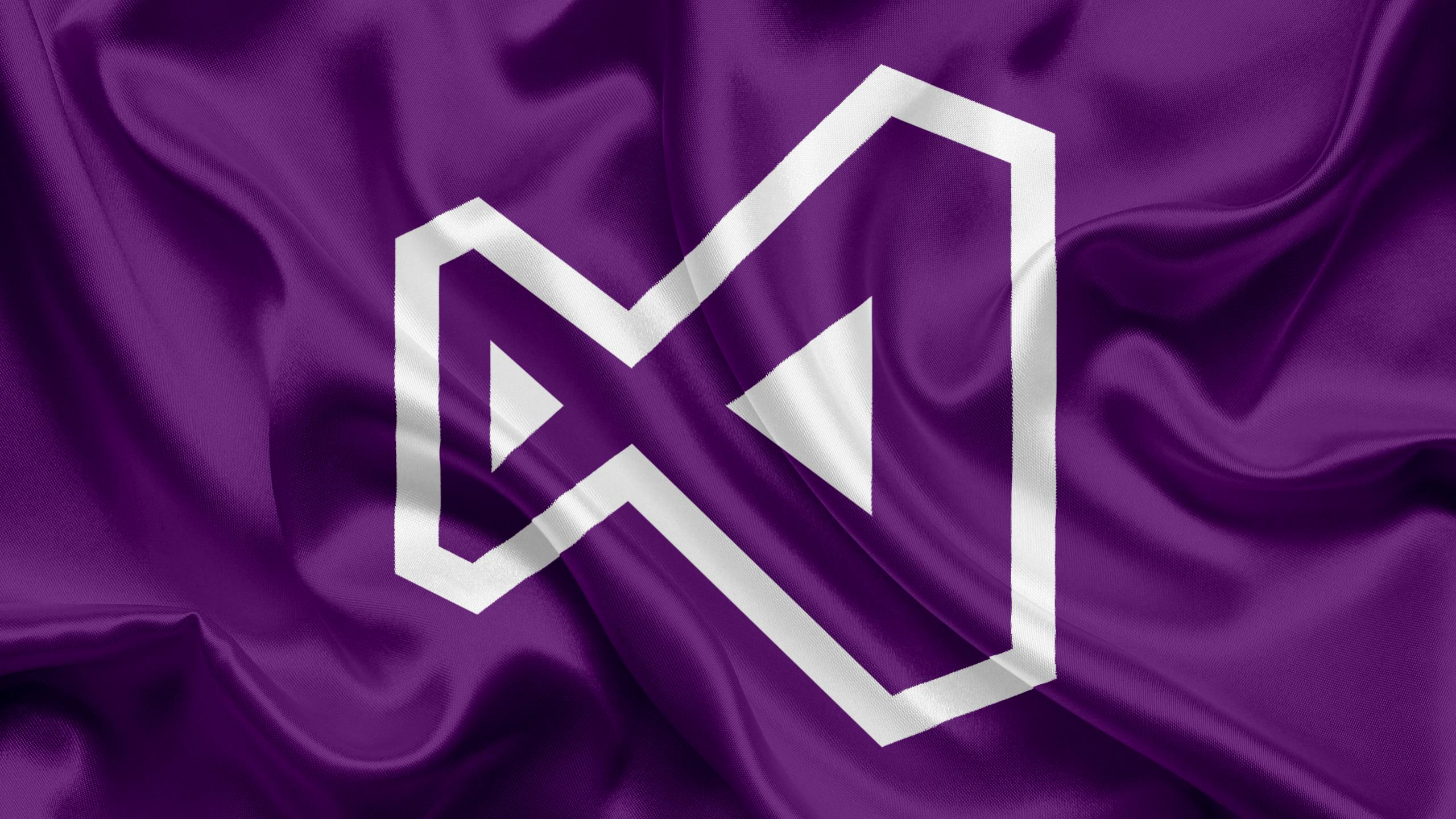
HAWAII
DRIVER LICENSE
01-47-87441
06/03/1981
06/03/2008
McLOVIN
892 MOMONA ST
HONOLULU, HI 96820

BOUNDARIES

ENCAPSULATION

HIGH COHESION & LOW COUPLING

RIGHT SIZED SERVICES



Rider

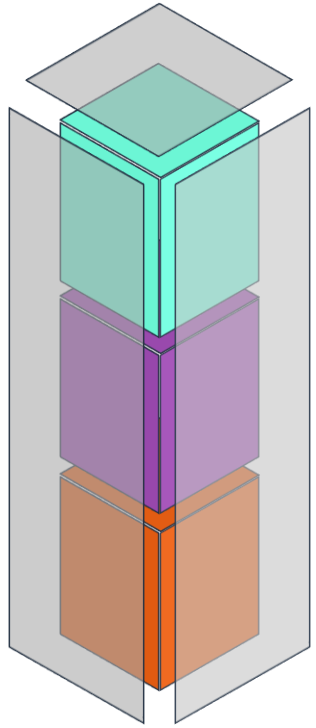
JET BRAINS

MICROSERVICES

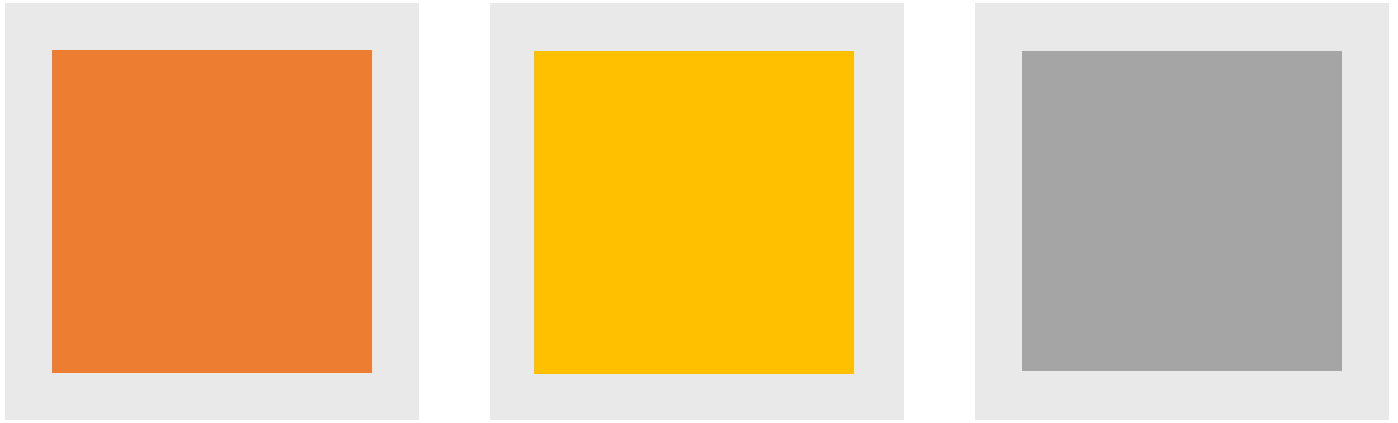
MICROVIEWS

MICROVIEWMODELS

MICROCONTROLLERS



RIGHT SIZED SERVICES

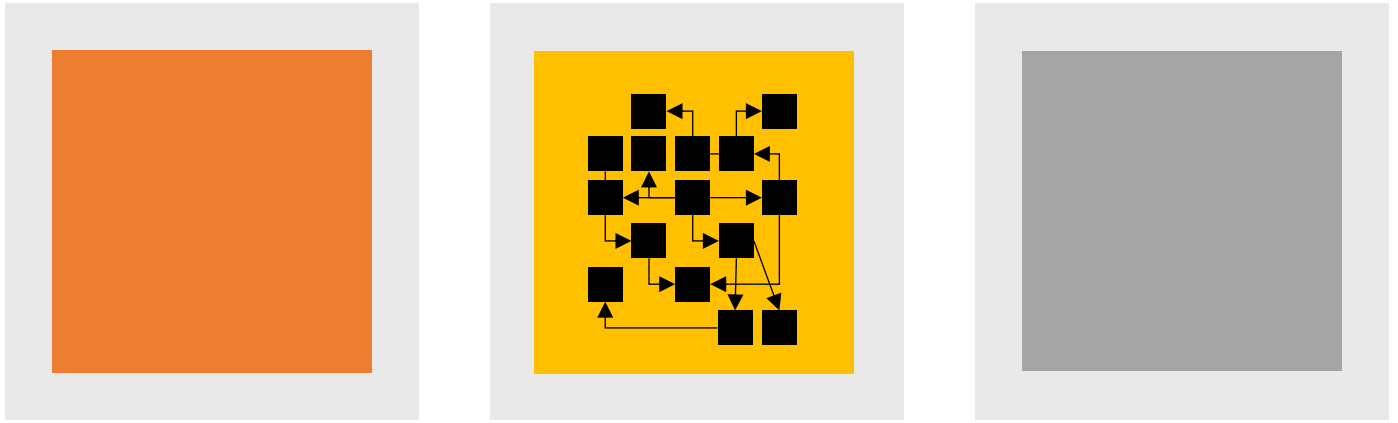


AUTONOMOUS SERVICES

INSIDE WE HAVE COMPONENTS THAT PROCESS EVENTS

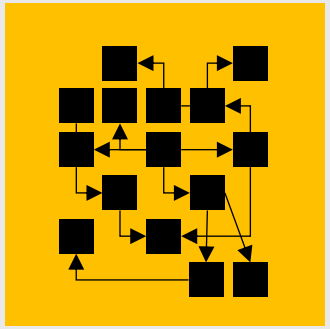
DO SOME WORK AND IMMEDIATELY PUBLISH NEW EVENTS

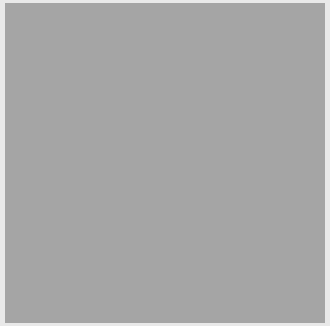
RIGHT SIZED SERVICES



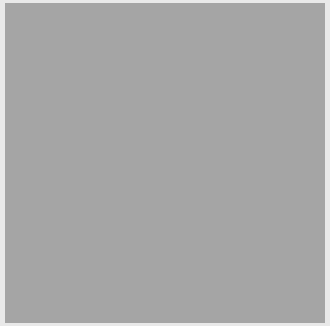
MICROSERVICES

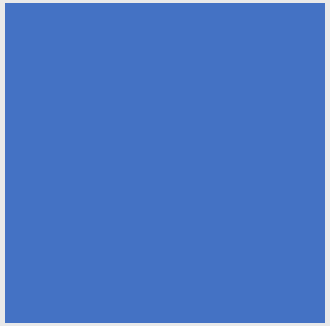
RIGHT SIZED SERVICES



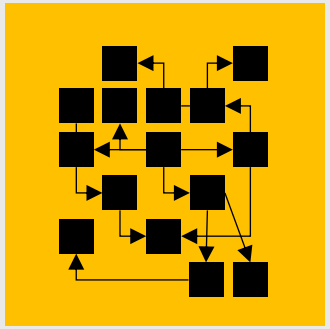


DOMAIN DRIVEN DESIGN

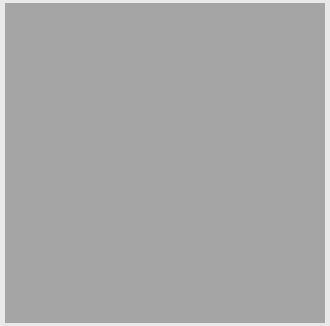


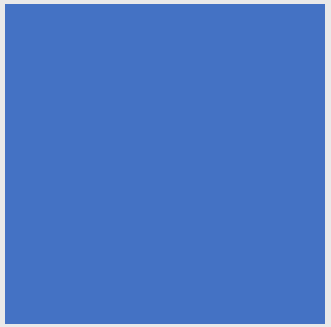


RIGHT SIZED SERVICES



CQRS/ES



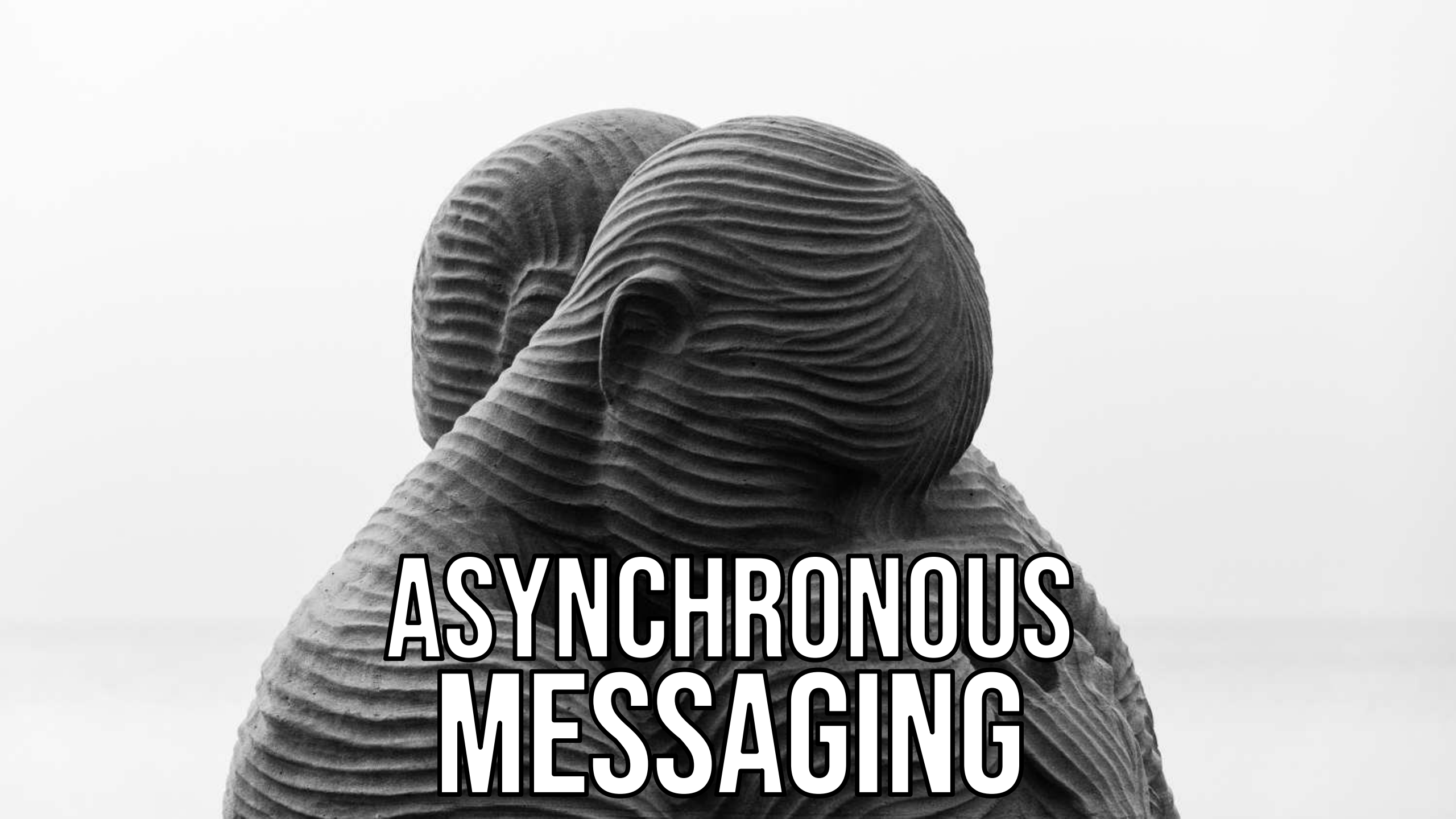


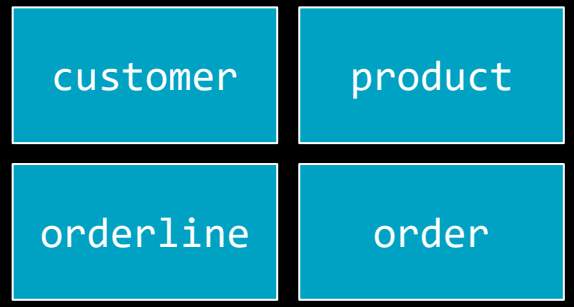
THERE IS NO ONE-SIZE FITS ALL

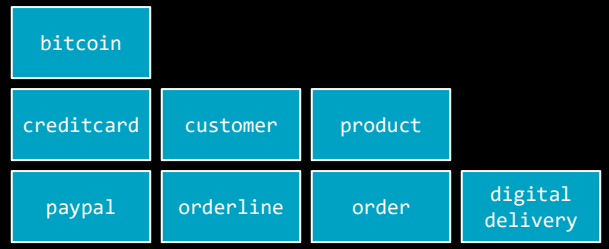
Microsoft
.NET
WCF
kubernetes
dapr
docker
{OOP}
object-oriented programming
AWS Lambda

WHERE
DO I
START?

MY CODE IS IN HERE
SOMEWHERE...


ASYNCHRONOUS
MESSAGING


customer
product
orderline
order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product
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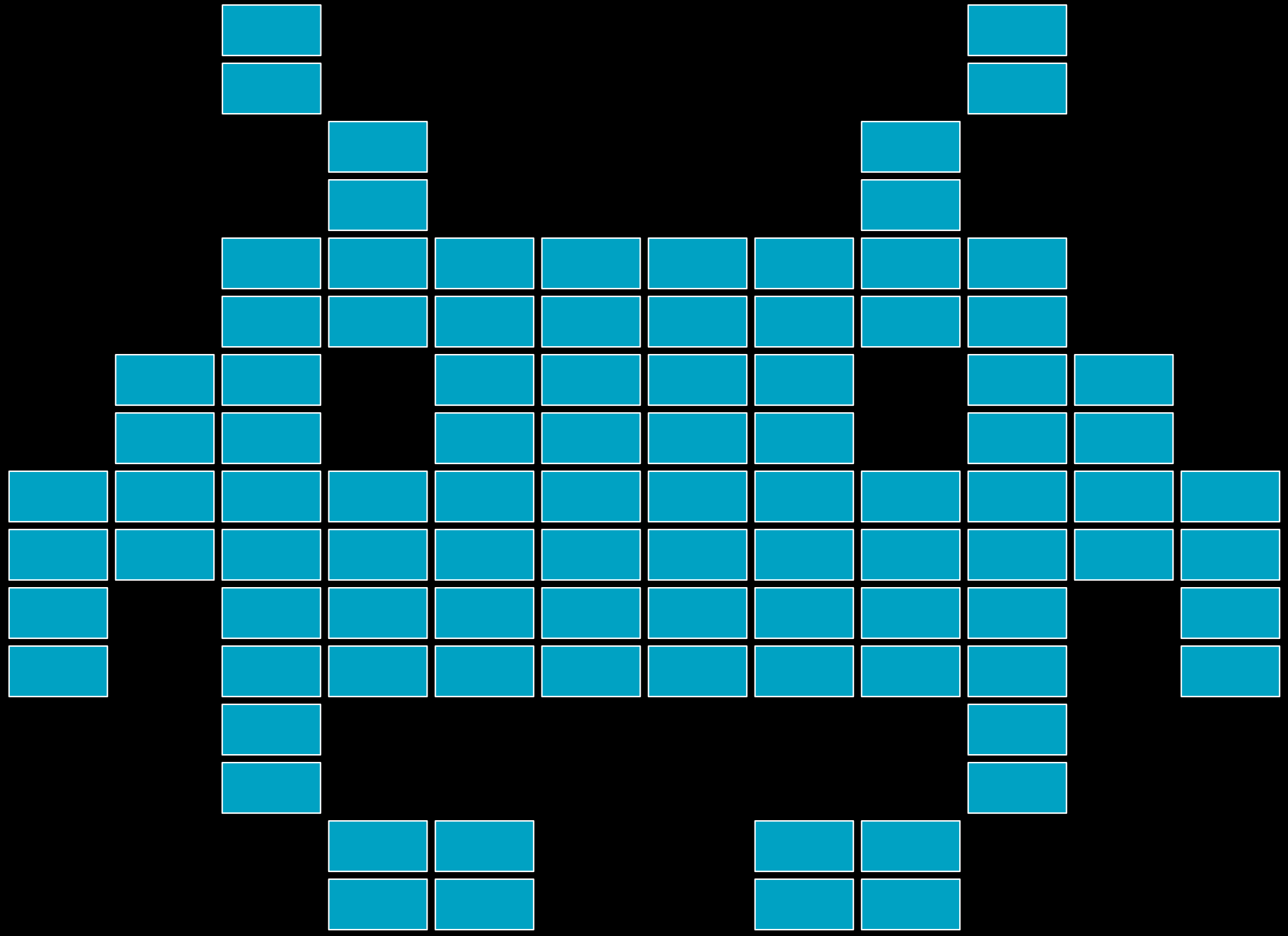

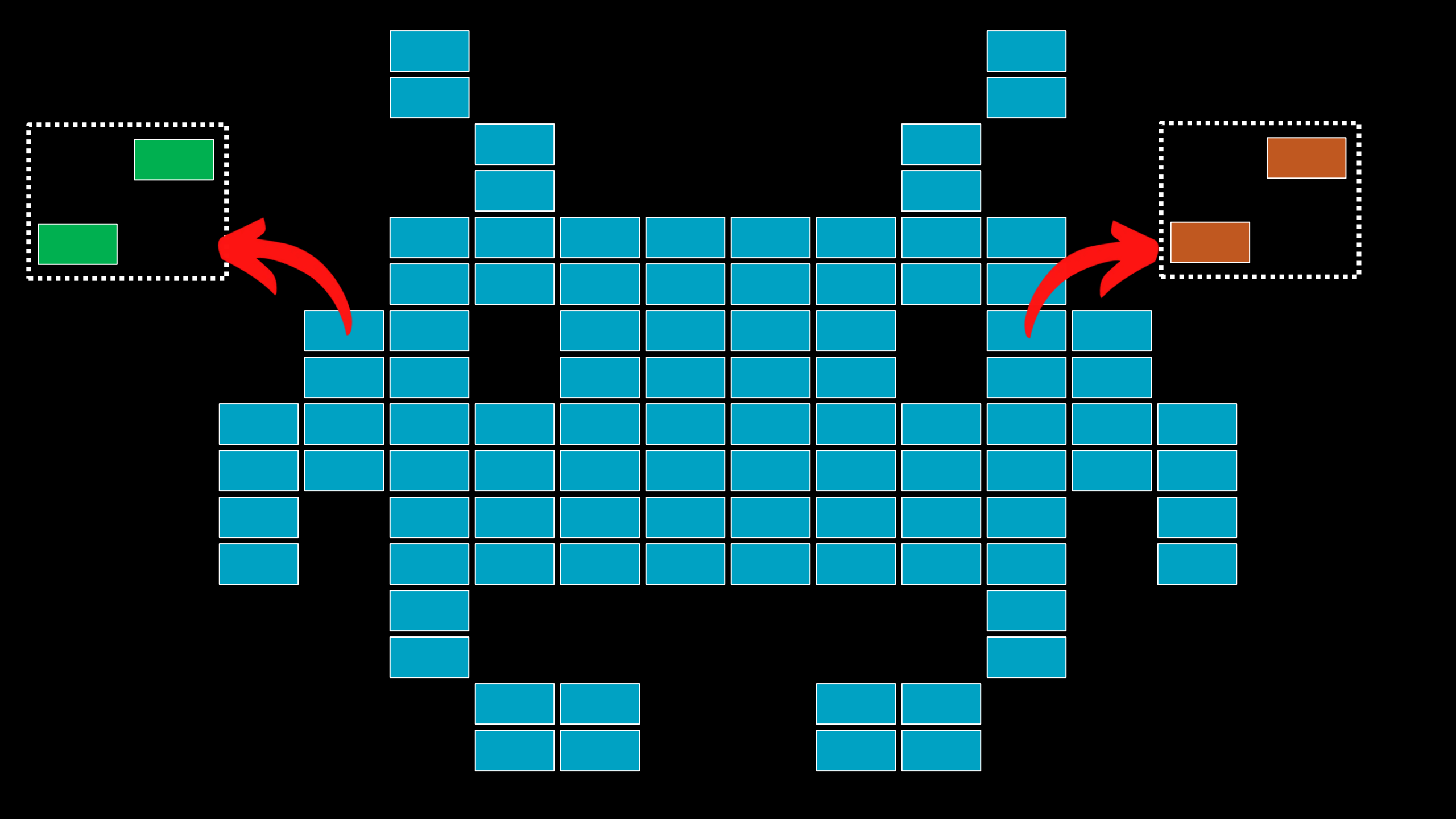

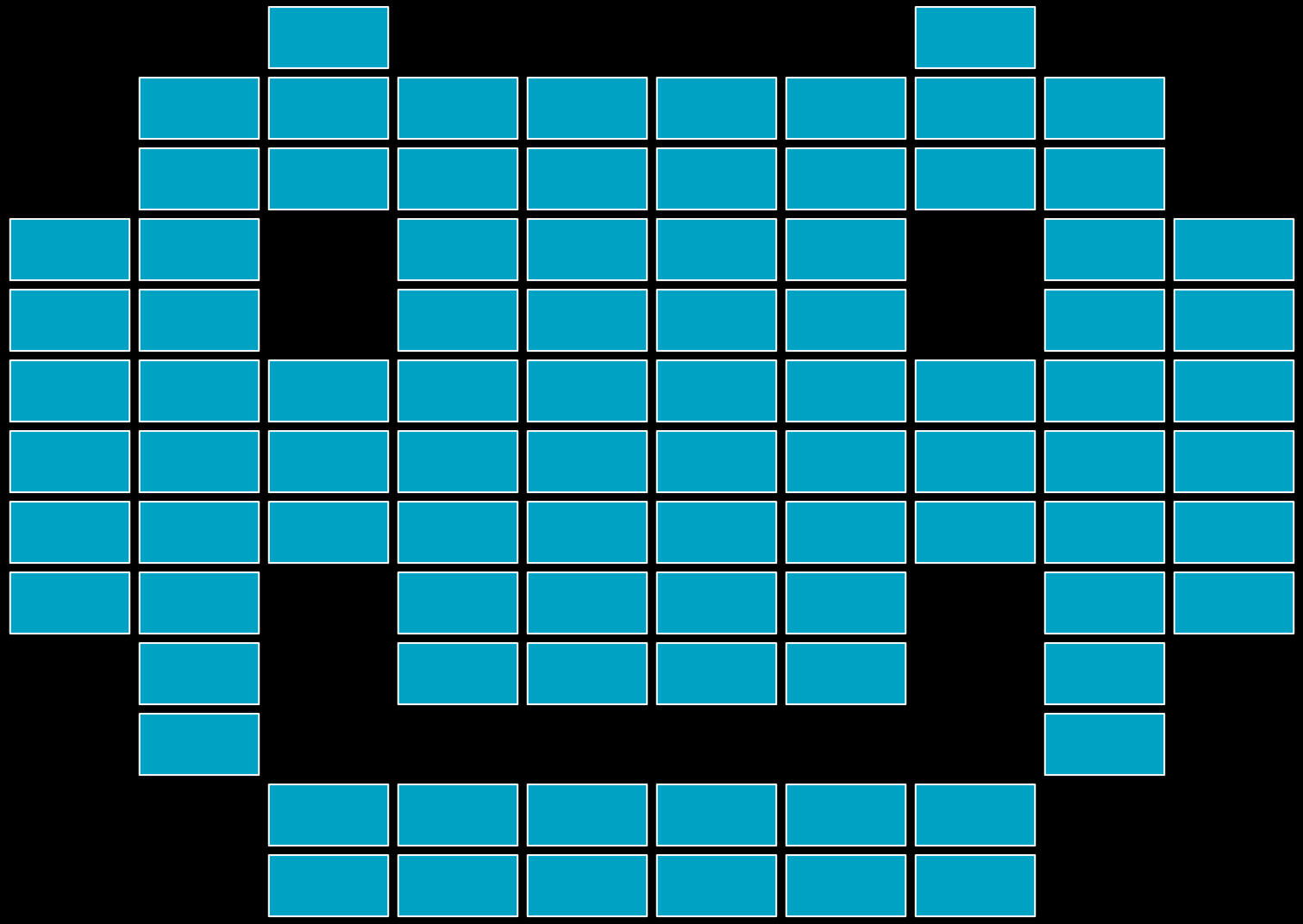

SUMMARY

MICROSERVICES

IS AN ATTEMPT TO RECLAIM

THE CORE MEANING OF SOA

BOUNDARIES

PUBLISH / SUBSCRIBE
EVENT-DRIVEN ARCHITECTURE

AUTONOMOUS SERVICES

WHERE

A SERVICE IS THE

TECHNICAL AUTHORITY

FOR A SPECIFIC BUSINESS CAPABILITY

HIGH COHESION
LOW COUPLING

MICROSERVICES IS SOA DONE RIGHT

AUTONOMOUS SERVICES
DON'T SHARE DATA
PERIOD

IF YOU WANT TO KNOW MORE

IMPLEMENTING THE WORLDS LARGEST E-COMMERCE SITE IN VERTICAL SLICES

JUST NOW AT 12:00 – ROOM C

DEALING WITH EVENTUAL CONSISTENCY

TOMORROW AT 10:20 – ROOM C

DENNIS VAN DER STELT

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