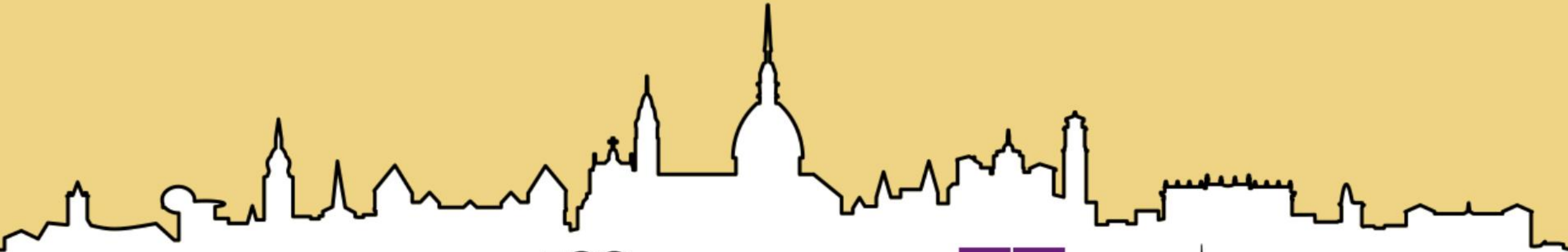
AZURE DAY

Sei Sicuro di Conoscere Azure ServiceBus?

Alberto Acerbis @ INTR3



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JET BRAINS

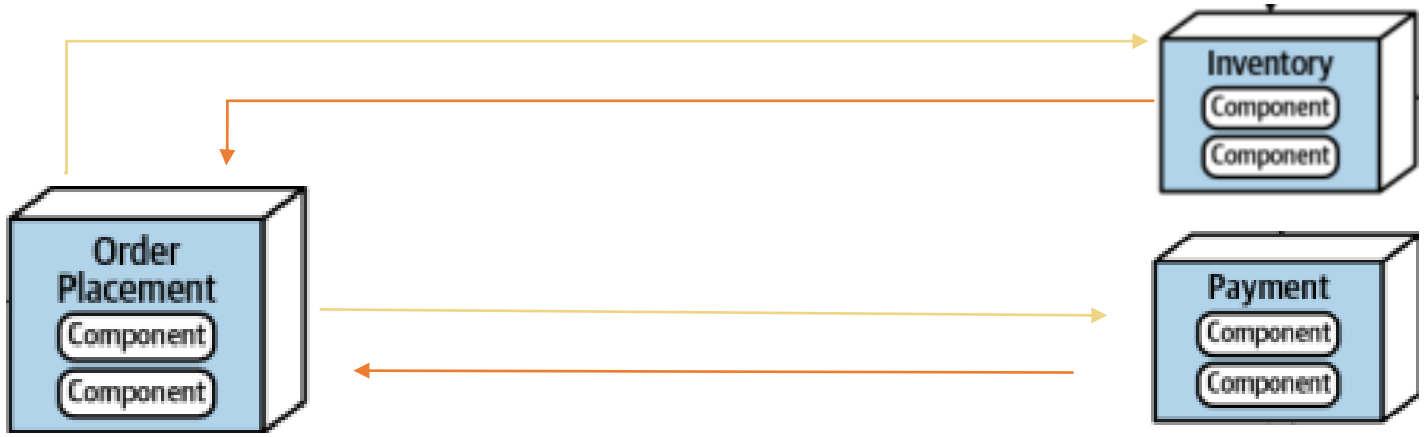
- Make architecture decisions
- Keep current with latest trends
- Continually analyze the architecture
- Ensure compliance decisions
- Have business domain knowledge

Make architecture decisions

Understanding Business Drivers

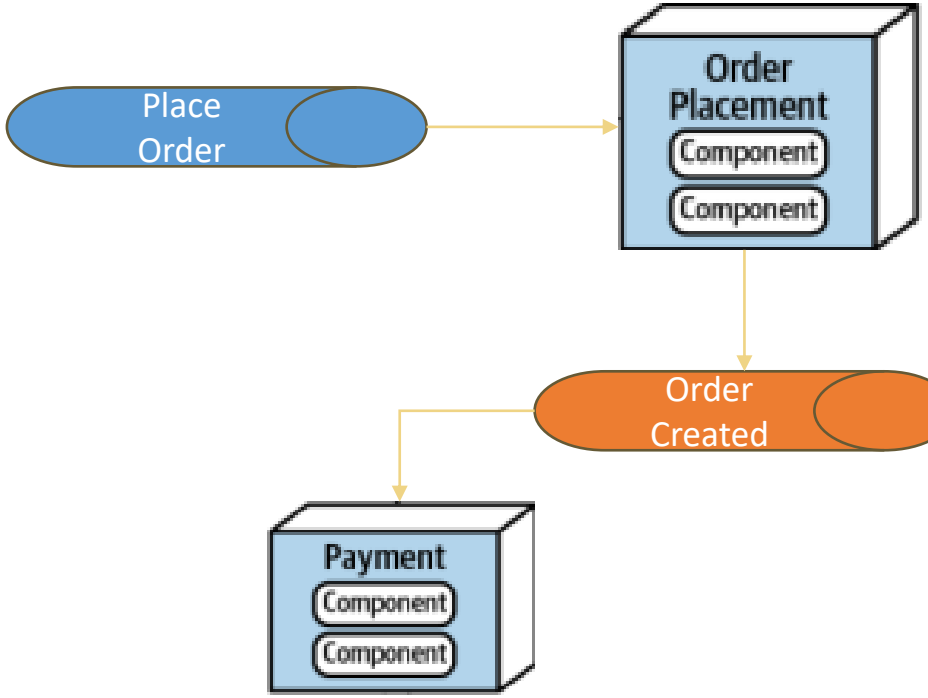
We're supporting high levels of agility, fault tolerance, and testability in the architecture

API Gateway



Coupling Index = 5

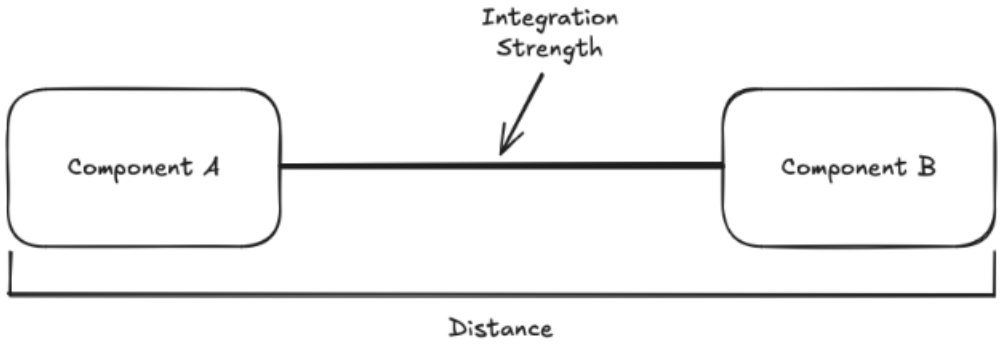
API Gateway



Coupling Index = 0

Coupling and Cohesion

Cohesion / Distance	High	Low
High	Tight Coupling	Loose Coupling
Low	High Cohesion	Low Cohesion



- Low integration strenght, high distance → Loose coupling
- High integration strenght, low distance → High cohesion
- High integration strenght, high distance → Tight coupling
- Low integration strenght, low distance → Low cohesion

Everything is a trade-off

Why is most important than how!

RabbitMQ

APACHE kafka®

amazon SQS

Azure Service Bus

Managing Connection Lifetime

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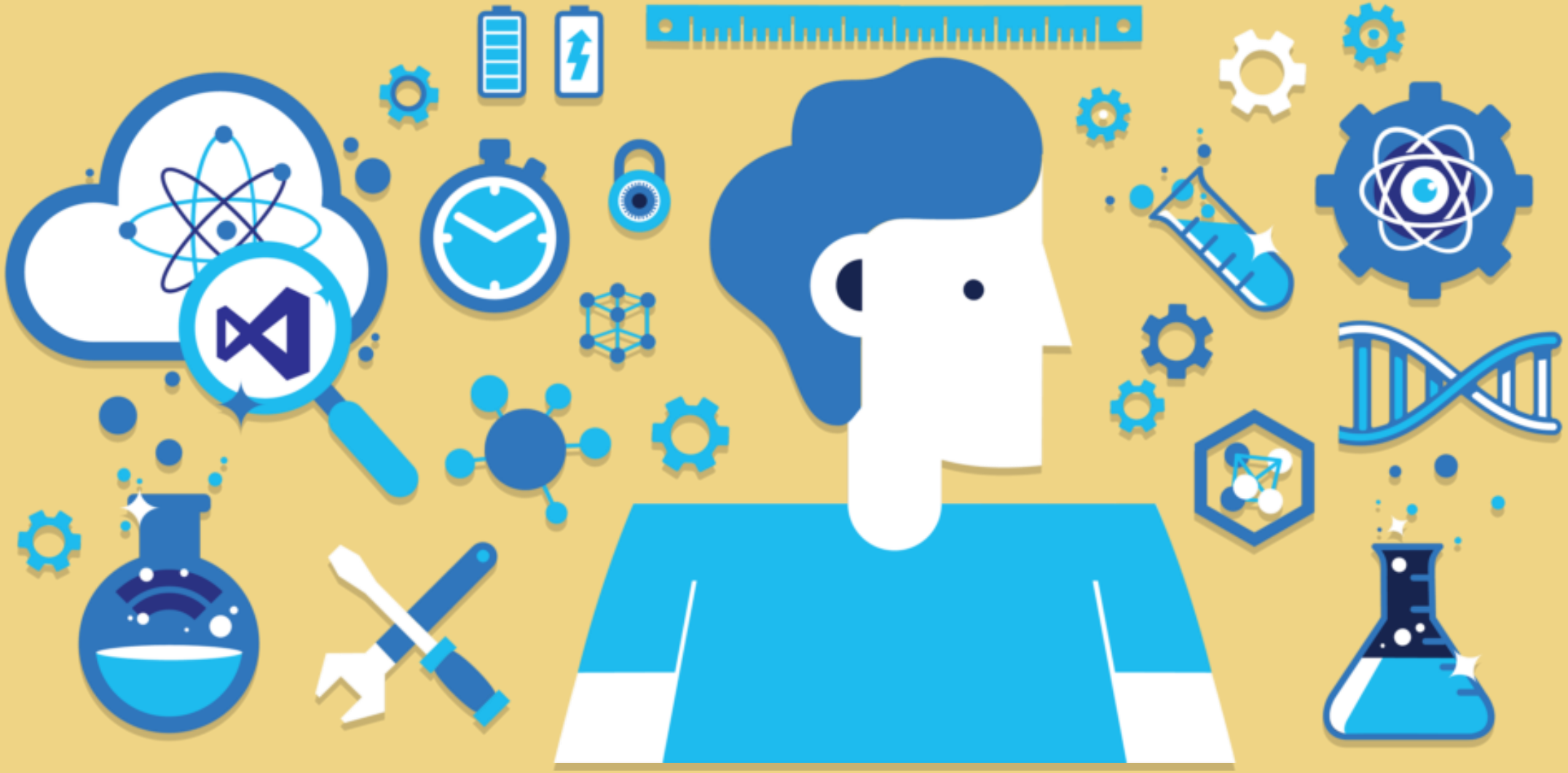
Demo



A new SDK to study

Prepare the infrastructure

Domain / Business ????

Keep current with latest trends


.NET Aspire
A cloud ready stack for building observable, production ready, distributed applications

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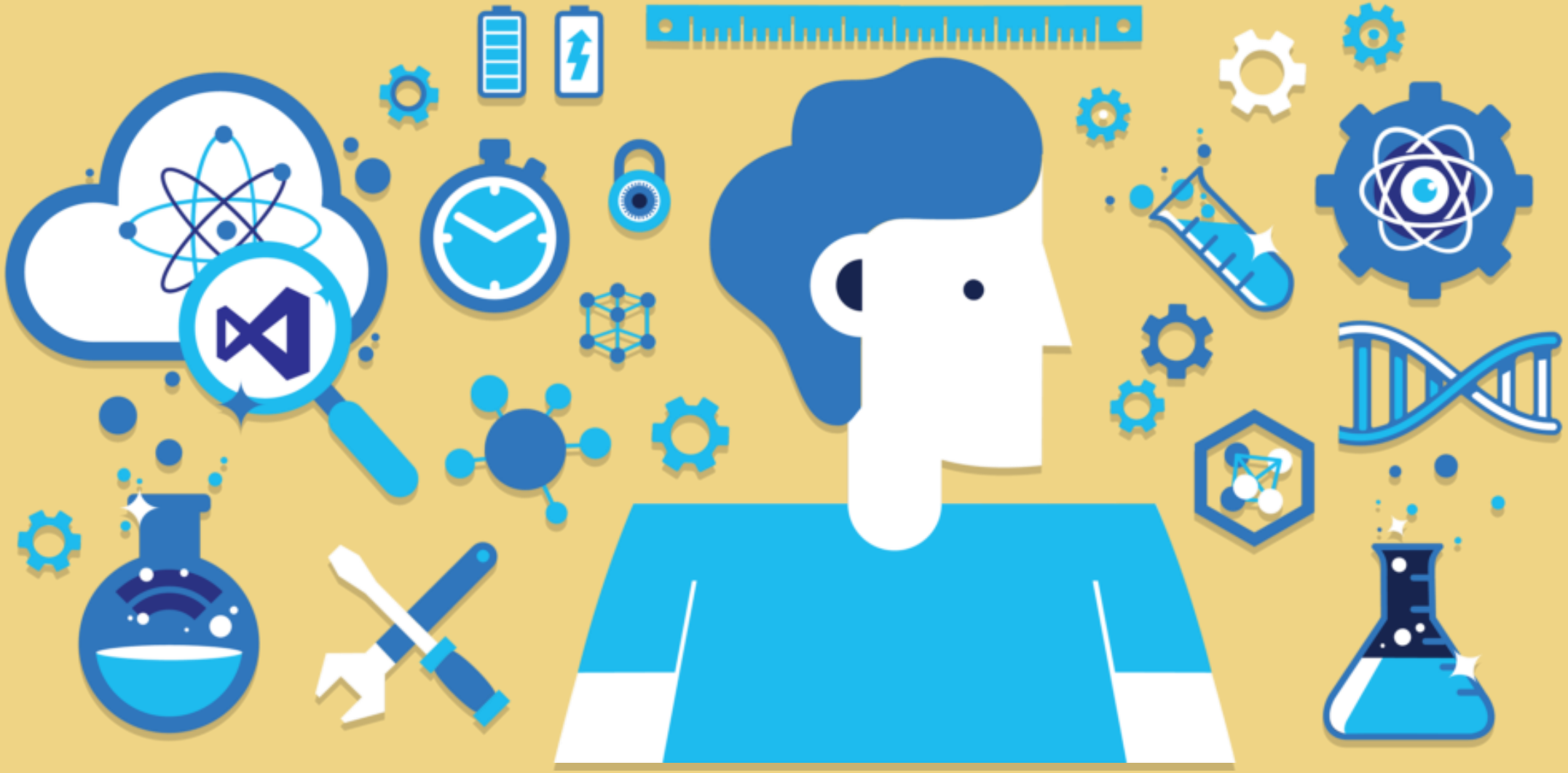
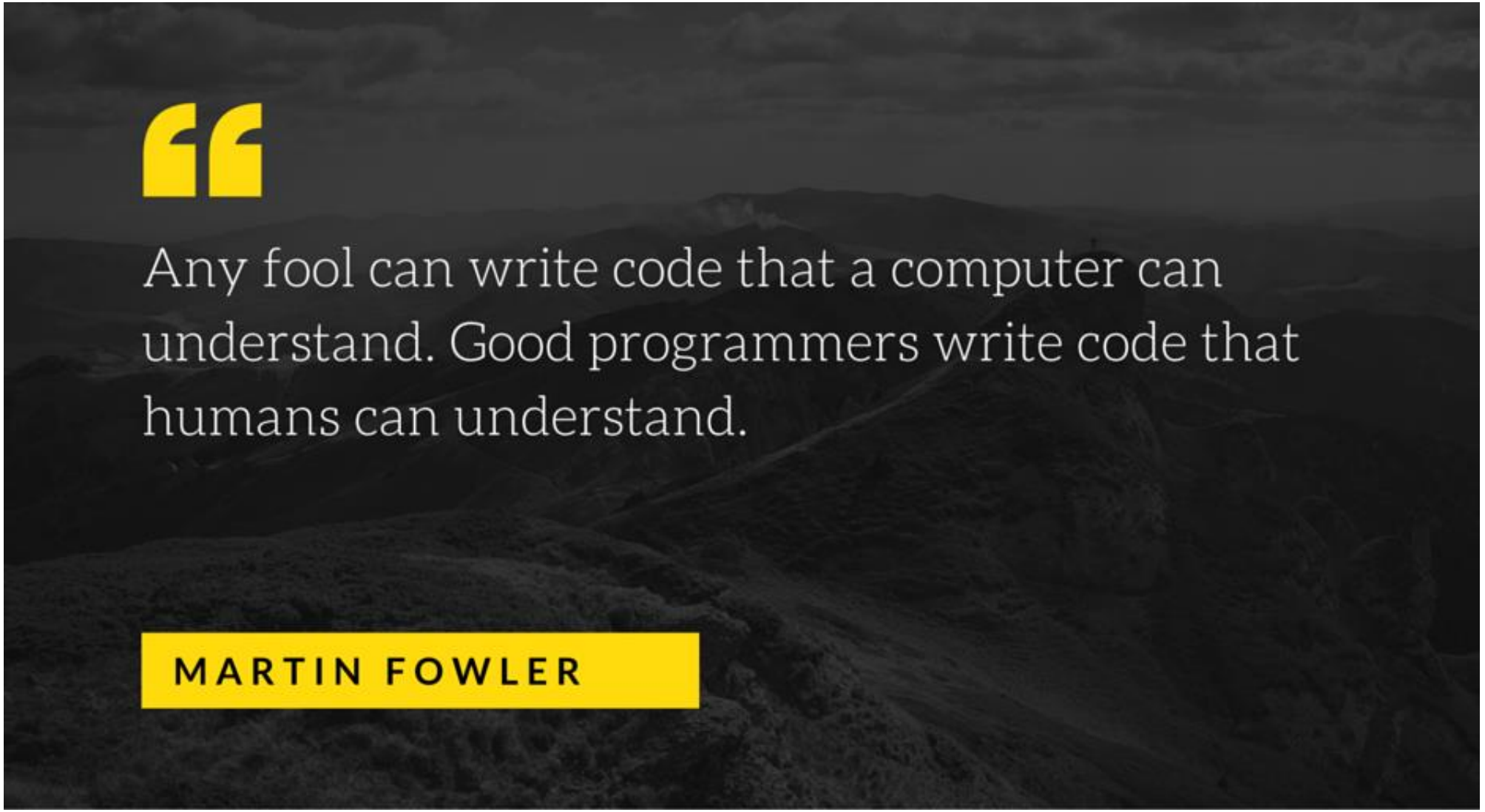
Demo




Any fool can write code that a computer can understand. Good programmers write code that humans can understand.
MARTIN FOWLER

API Gateway

Place Order

Order Placement
Component
Component

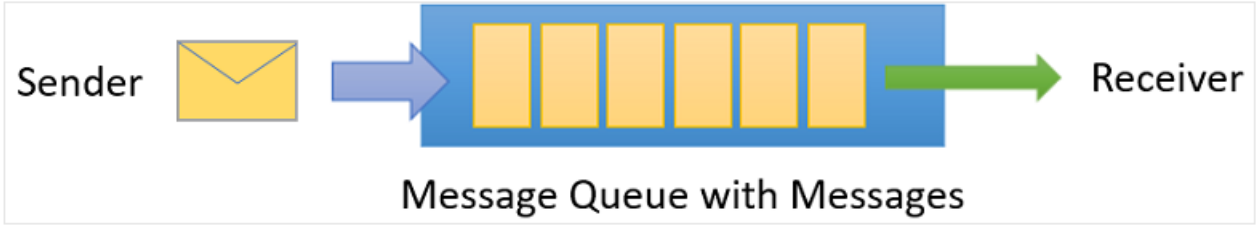
Order Created

Payment
Component
Component

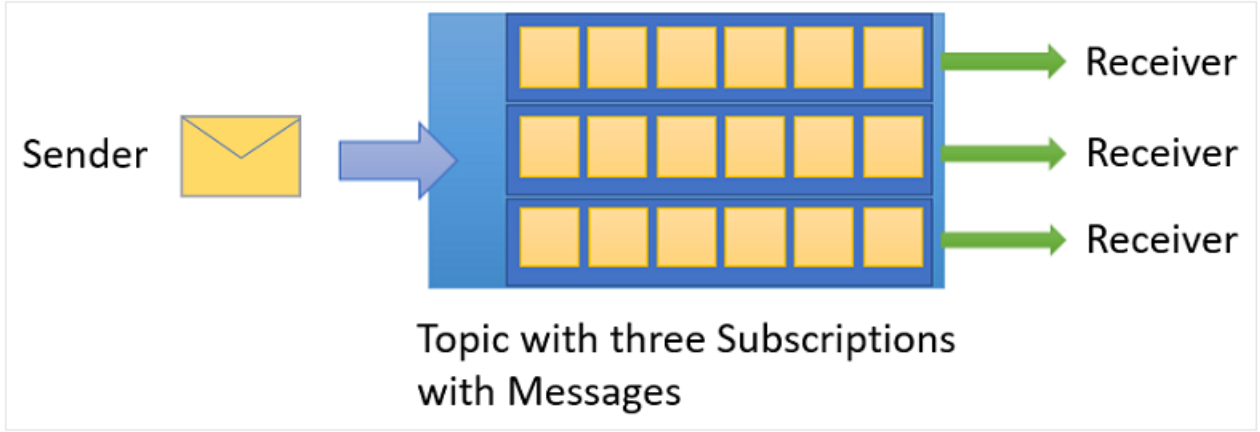
Inventory
Component
Component

Have the same pattern?

Queues vs Topics



- Producer - Consumer
- First In, First Out
- One message consumer receives and process each message



- Publisher - Subscriber
- One to many
- Each published message is made available to each subscription registered with the topic

Ask to Oracle

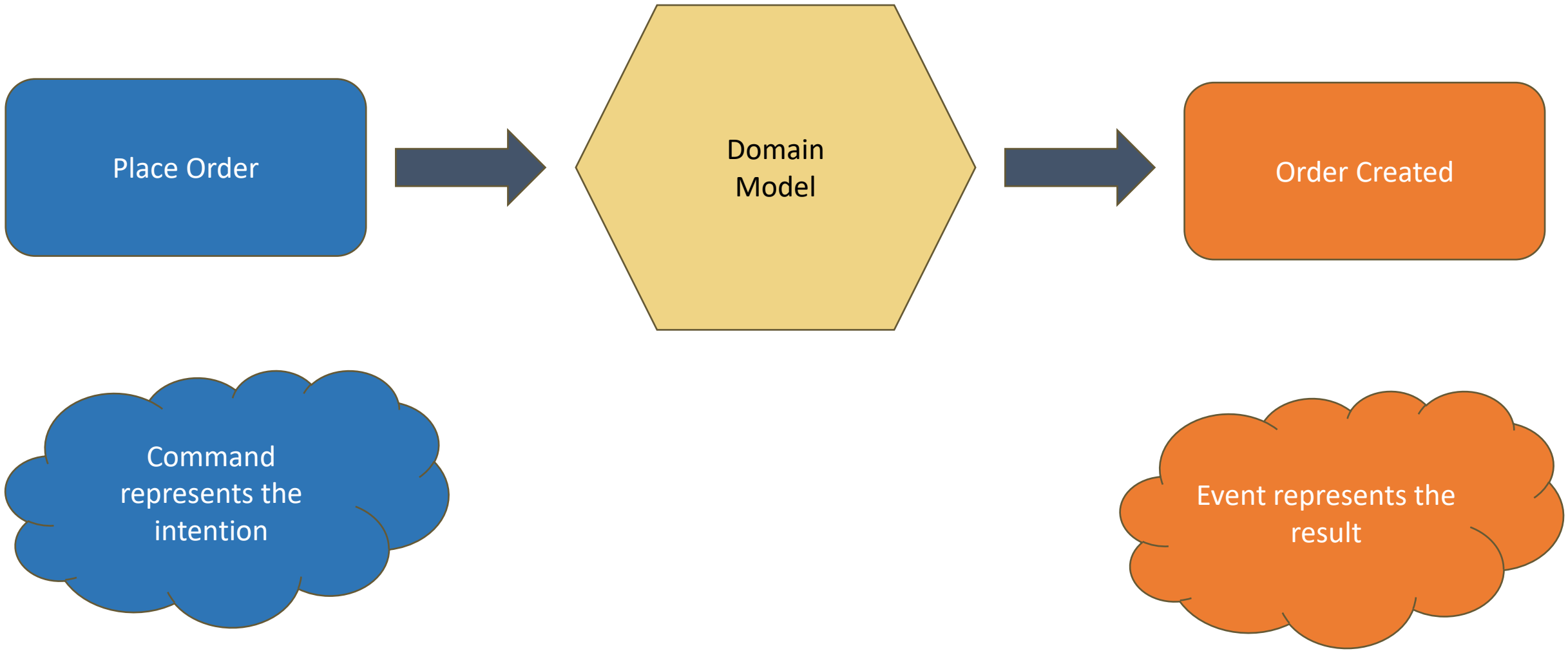
should I use queues or topics for sales orders process?

Conclusion:

- If you only have one service or component handling the sales order, **queues** are sufficient.
- If multiple services need to handle different aspects of the sales order process (e.g., inventory, billing, shipping), **topics** are the better choice to broadcast the event to all relevant services.

For most **sales order processes** in a complex microservices architecture, **topics** are likely the better fit because multiple services will need to react to the same sales order.

Commands vs Events



API Gateway

Place Order

Order Placement
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Component
Component

Inventory
Component
Component

Should I use One Event?

API Gateway

Place Order

Order Placement
Component
Component

Order Created

Payment
Component
Component

Inventory
Component
Component

Should the message payload include all of the data necessary for processing, or only keys?

API Gateway

Place Order

Order Placement
Component
Component

250KB

200KB

Order Created

Payment
Component
Component

Inventory
Component
Component

256 KB
Standard tier

100 MB
Premium tier

API Gateway

Place Order

Order Placement
Component
Component

Easy Scalability

Order Created

Payment
Component
Component

Inventory
Component
Component

Shipping
Component
Component

API Gateway

Place Order

Order Placement
Component
Component

Coupling?

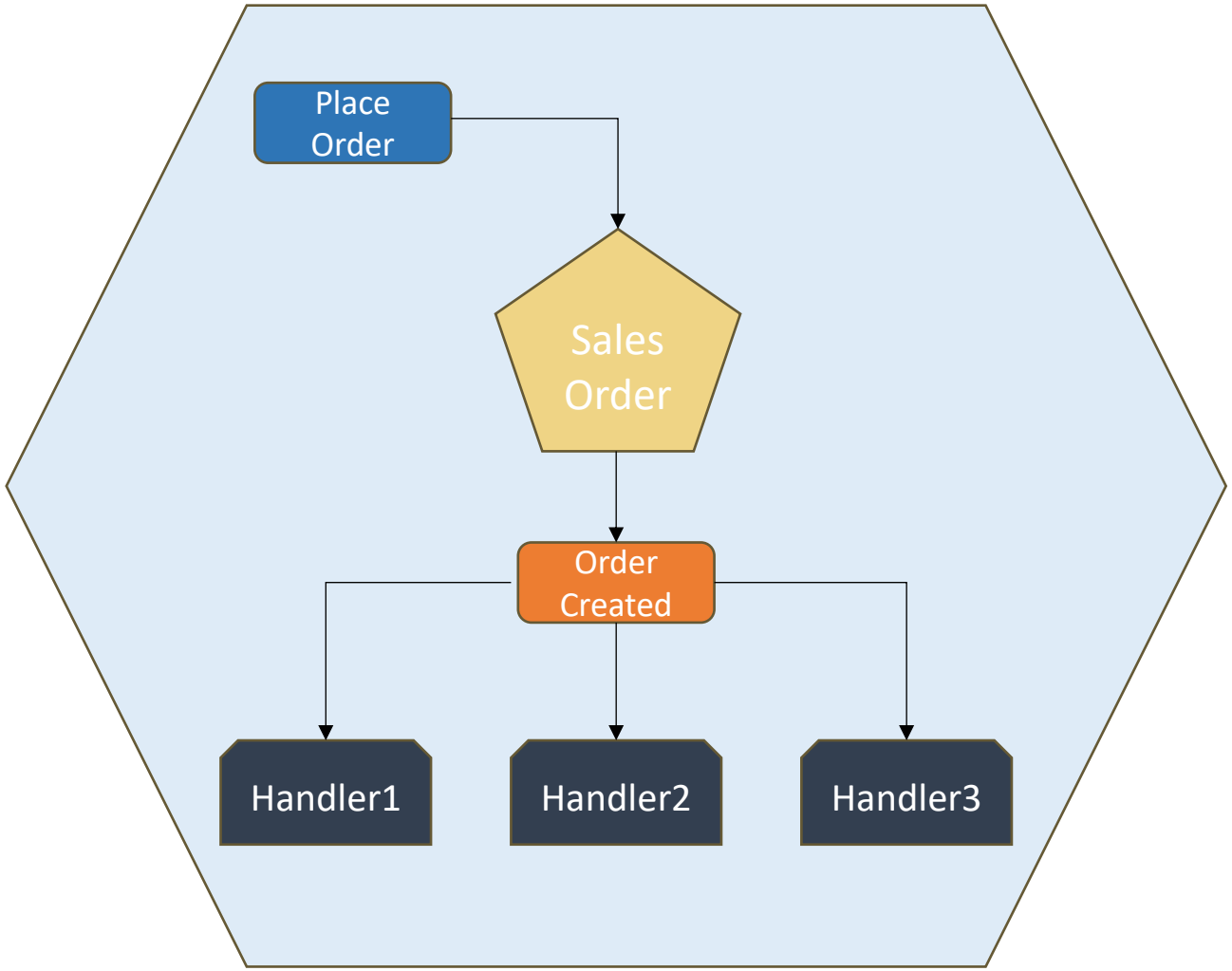
Order Created

Payment
Component
Component

Inventory
Component
Component

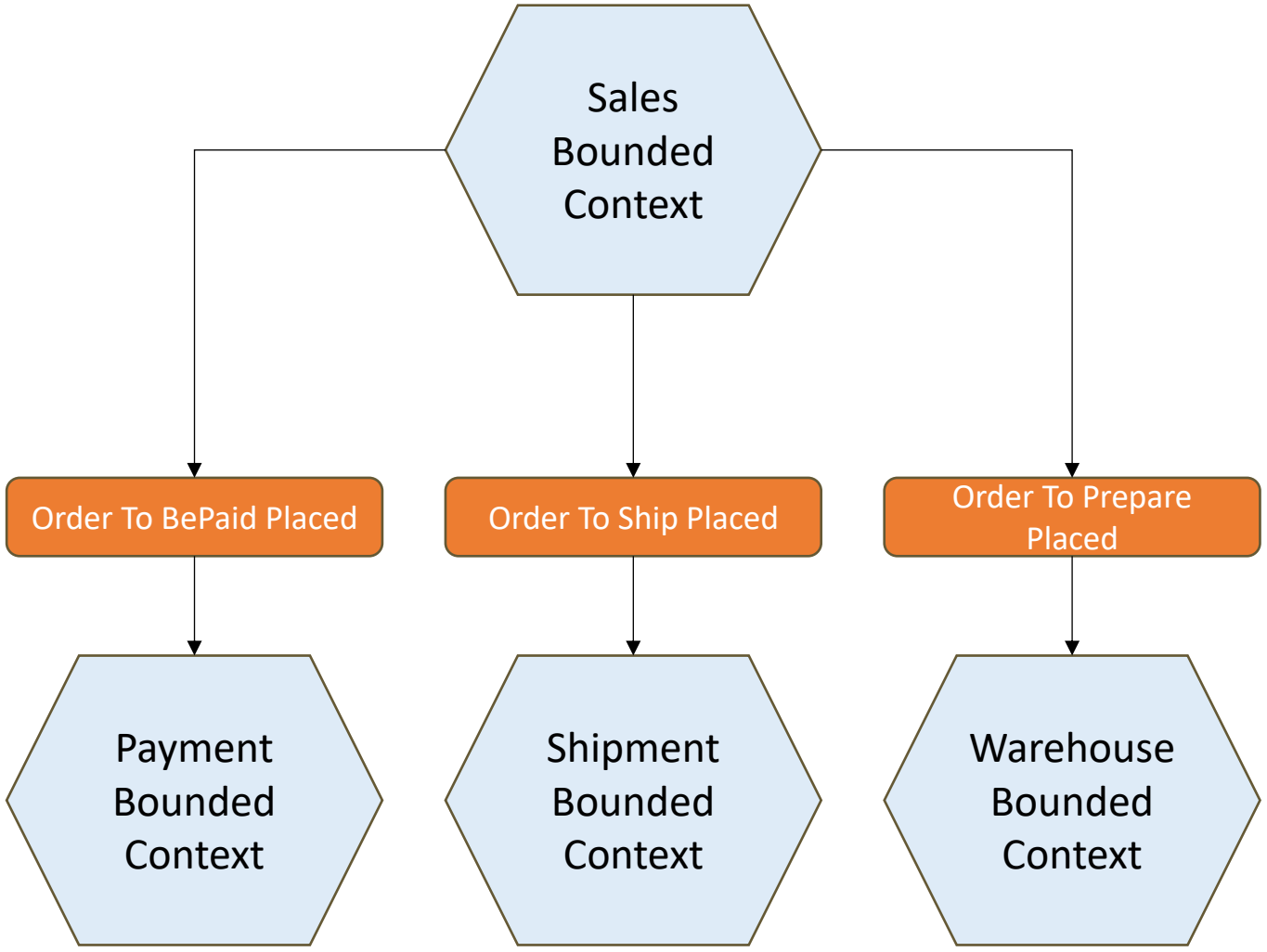
Shipping
Component
Component

Domain vs Integration



Scope	Domain Events are internal to a Bounded Context
Purpose	Domain Events model business logic
Granularity	Domain Events are often more fine-grained
Consumers	Domain Events are consumed within the same bounded context

Domain vs Integration



Scope	Integration Events are cross context boundaries
Purpose	Integration Events enable inter-context communication
Granularity	Integration Events tend to be coarser
Consumers	Integration Events are consumed by other bounded contexts

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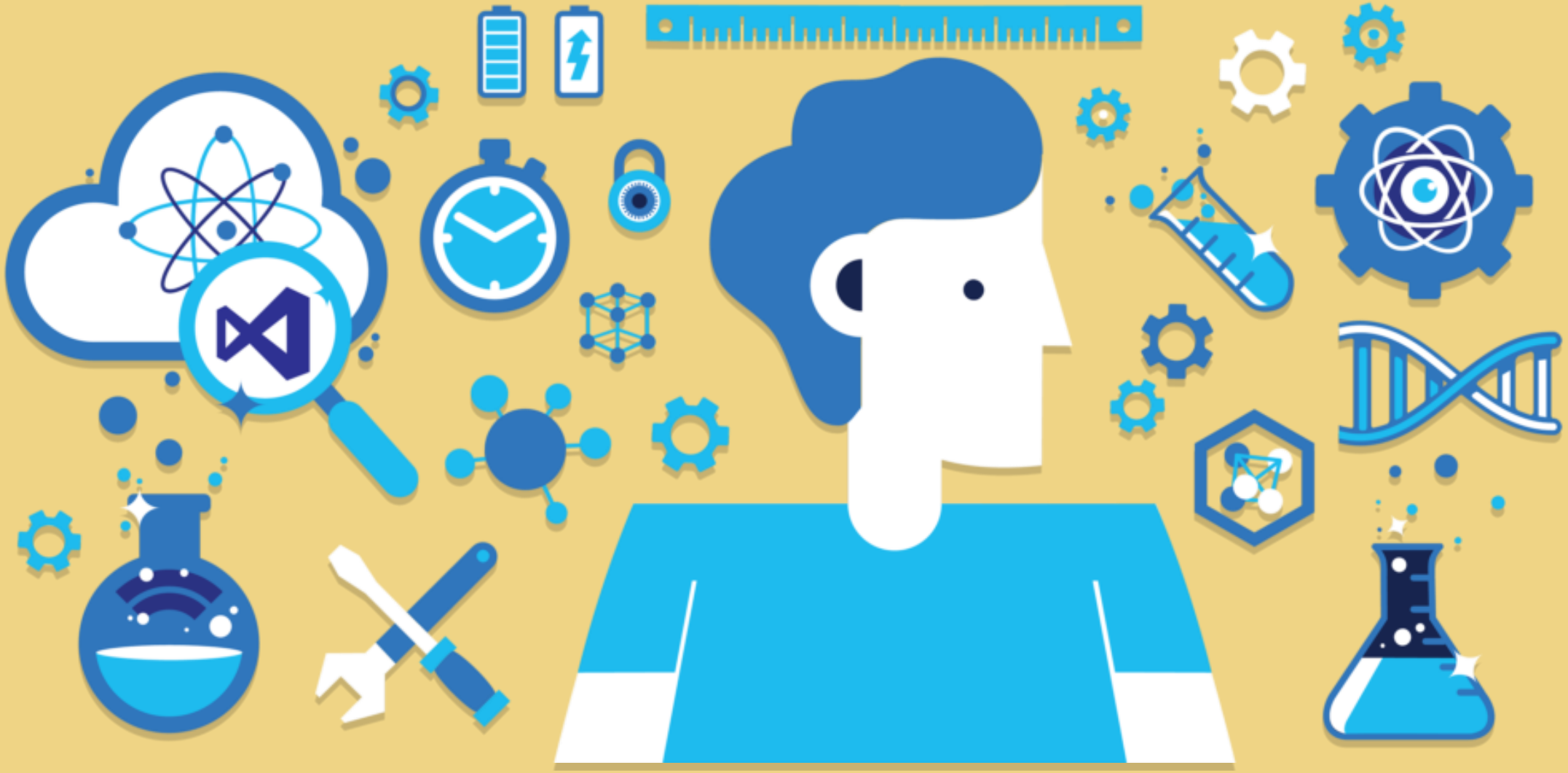
Demo



Continually analyze the architecture

Abstractness, Instability, Distance from the Main Squence

$$A = \frac{\sum m^a}{\sum m^c}$$

m^a = abstracts elements
m^c = concrete elements

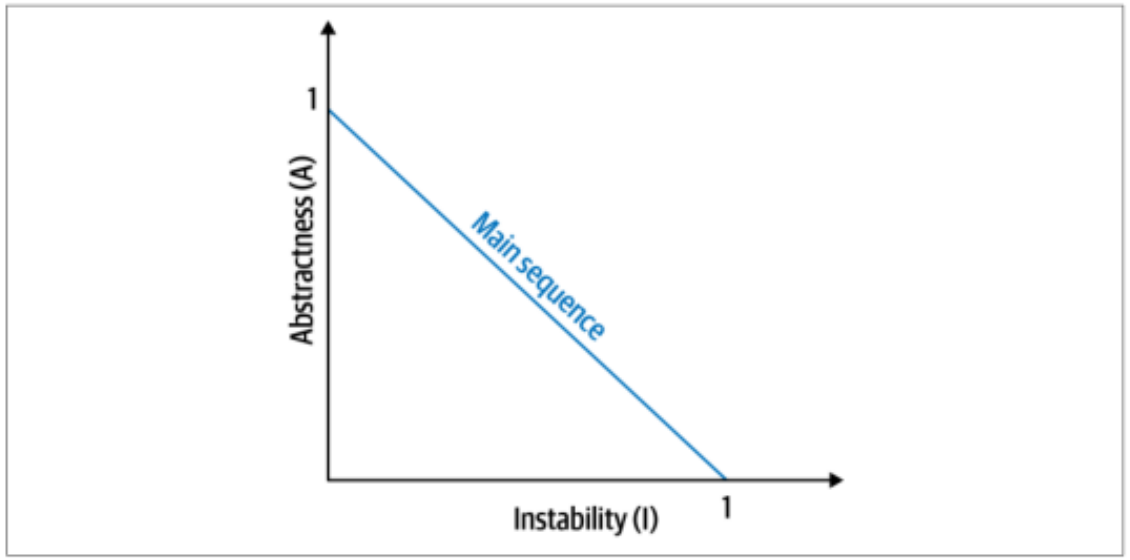
$$I = \frac{C^e}{C^e + C^a}$$

C^e = represents efferent (outgoing) coupling
C^a = represents afferent (incoming) coupling

$$D = |A + I - 1|$$

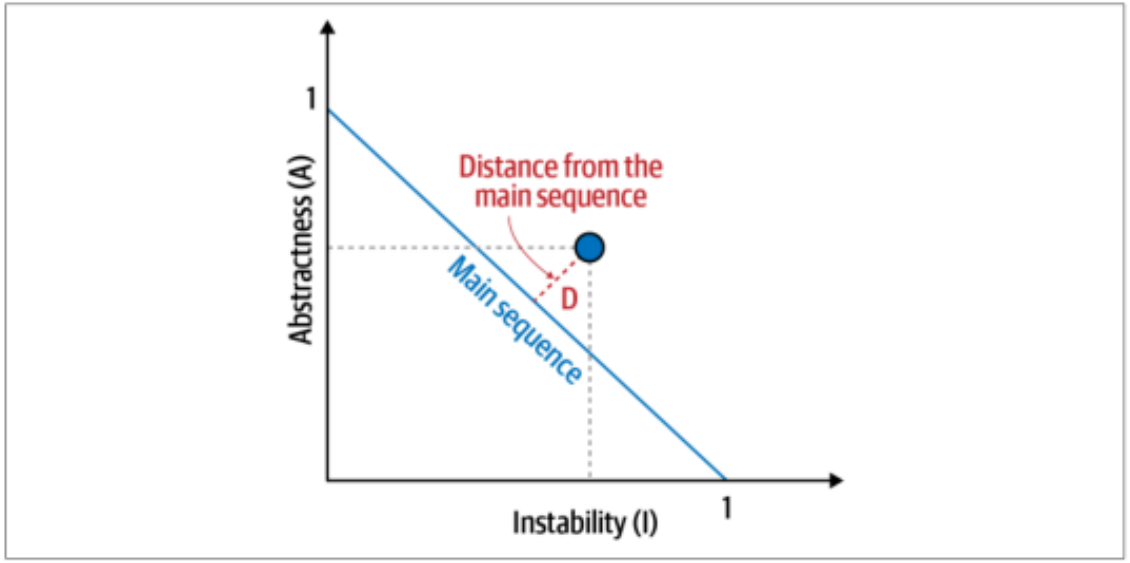
D = distance from the main sequence

Ideal Relationship



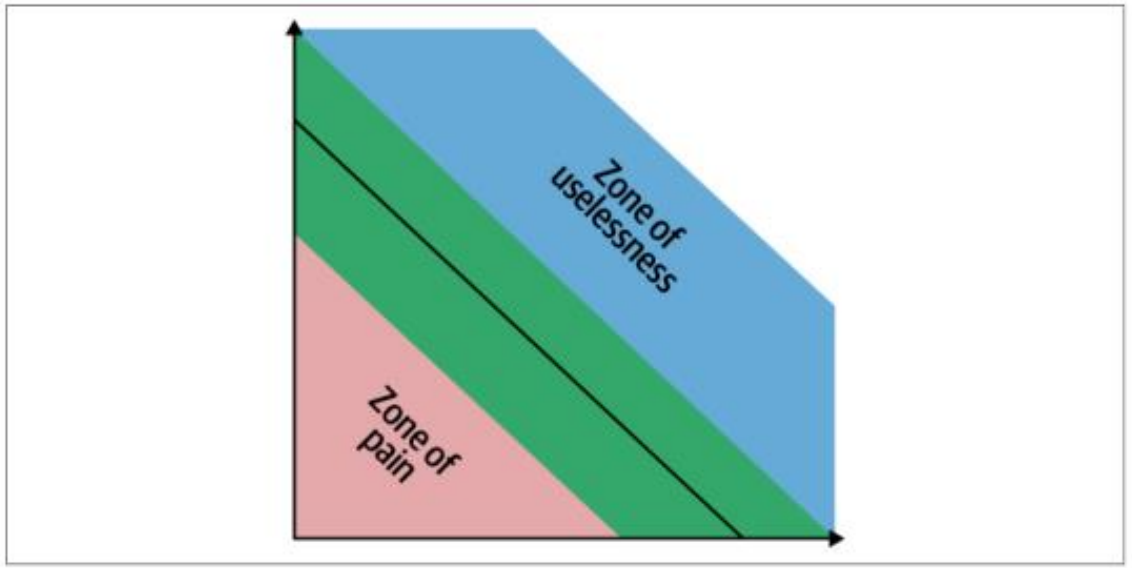
The main sequence defines the ideal relationship between abstractness and instability

Ideal Relationship



Normalized distance from the main sequence for a particular class

Useless vs Pain



Zones of Uselessness and Pain

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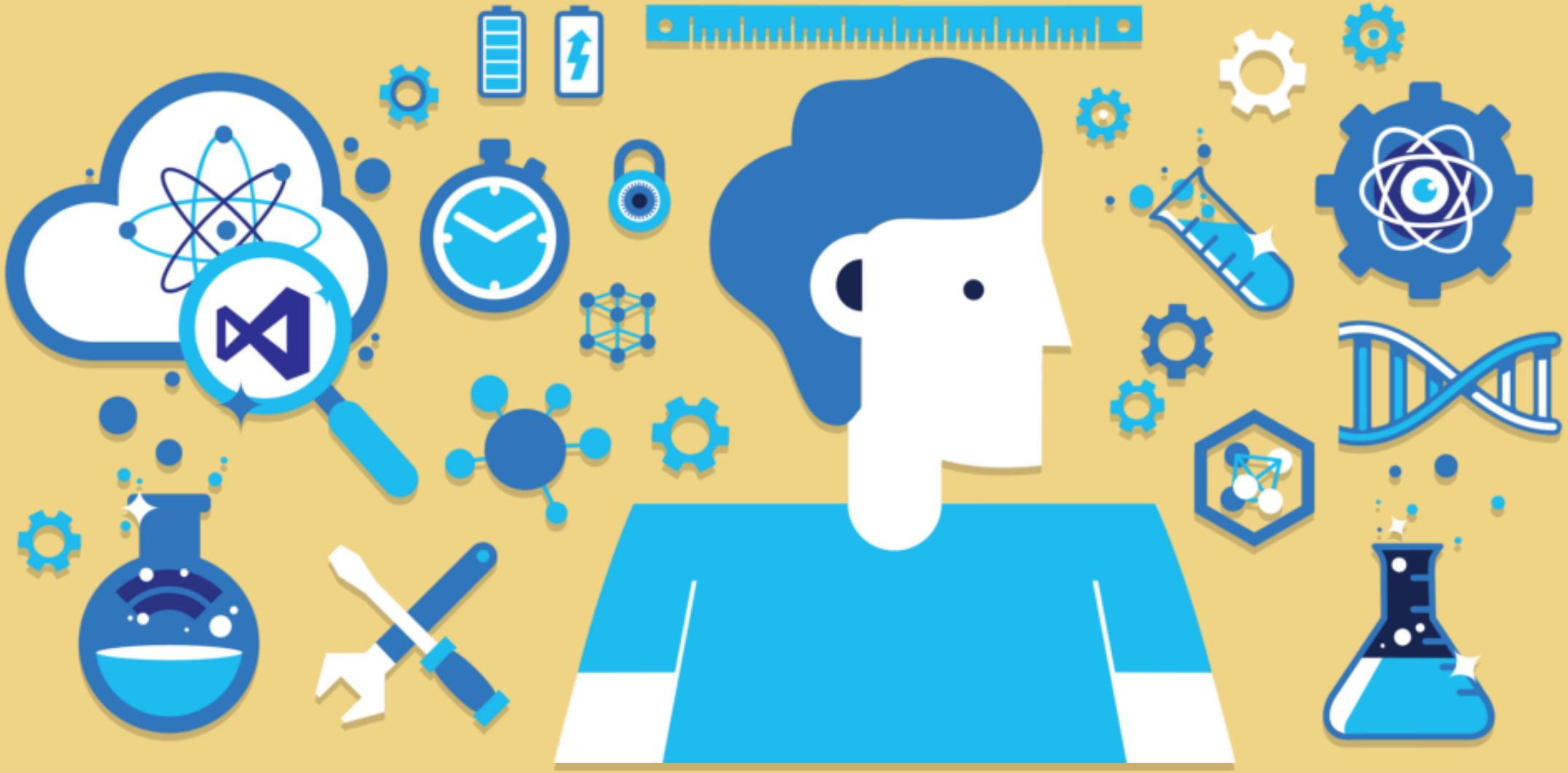
Demo



Thank You!

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- Alberto Acerbis | LinkedIn
- https://github.com/Ace68/AzureDay-2024
- https://github.com/cqrs-muflone
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