Discovering the Domain Architecture Through DDD

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Key Points

Ubiquitous Language

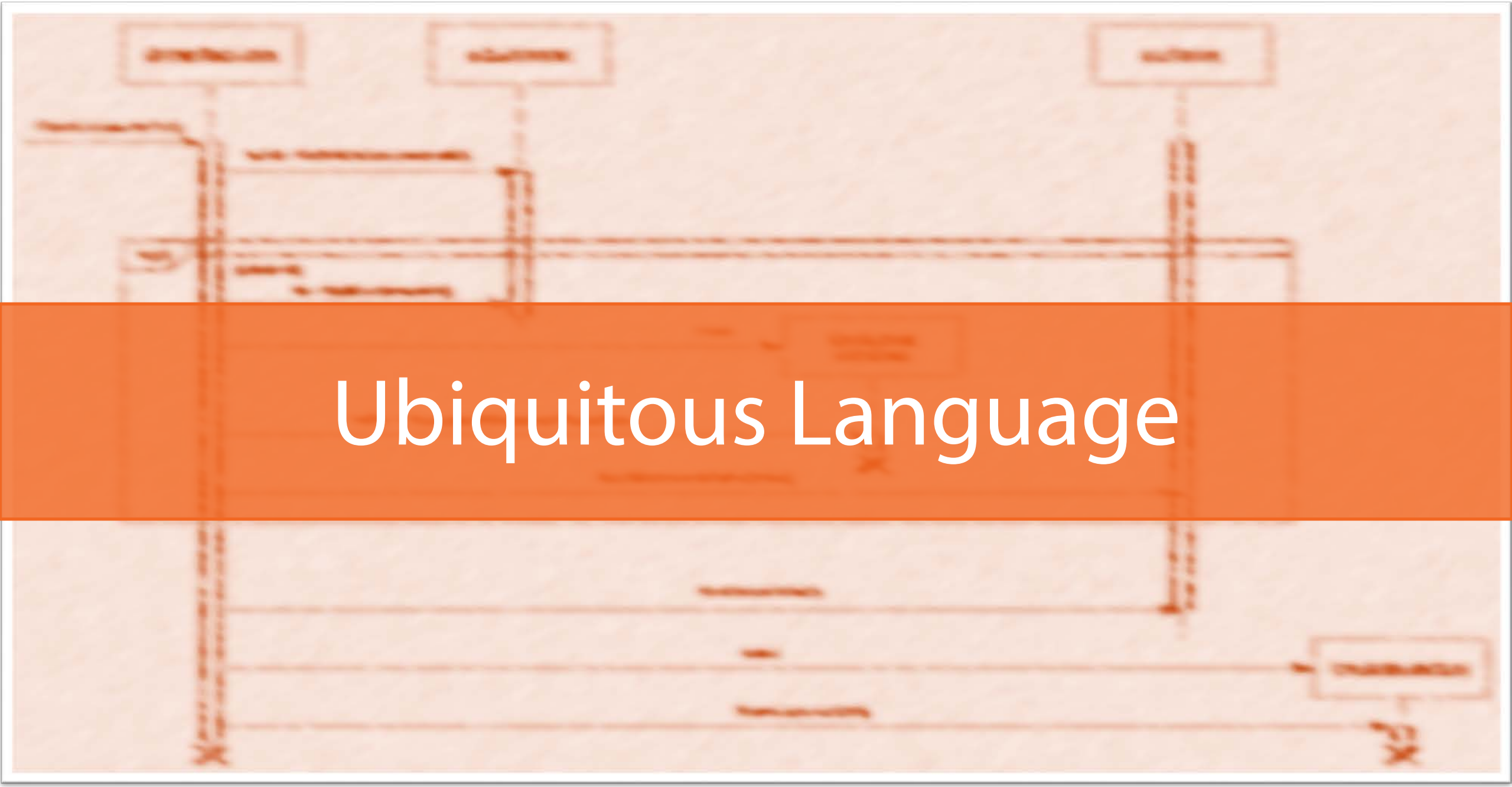
Definition and Discovery

Bounded Context

Definition and Discovery

Context Map

Design of Top-level Architecture



Ubiquitous Language

Ubiquitous Language—**What's That**?

- **Vocabulary of domain-specific terms**
  - Nouns, verbs, adjectives, idiomatic expressions and even adverbs
- **Shared by all parties involved in the project**
  - Primary goal of avoiding misunderstandings
- **Used in all forms of spoken and written communication**
  - Universal language of the business as done in the organization

Motivation

Definition

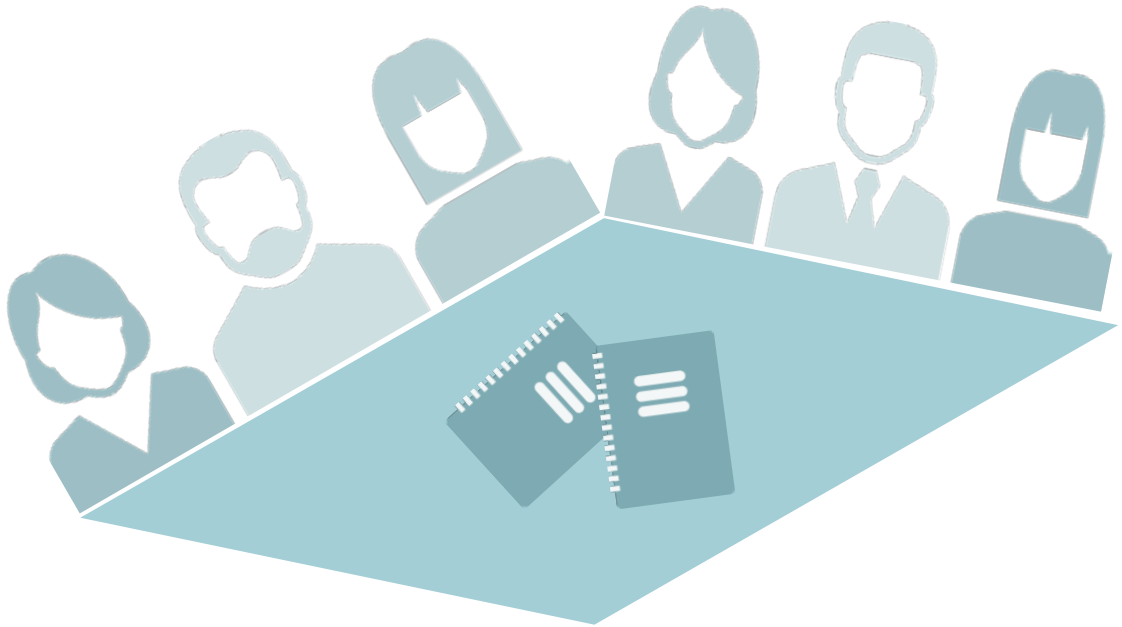
Natural language, not artificial

Comes out of interviews and brainstorming

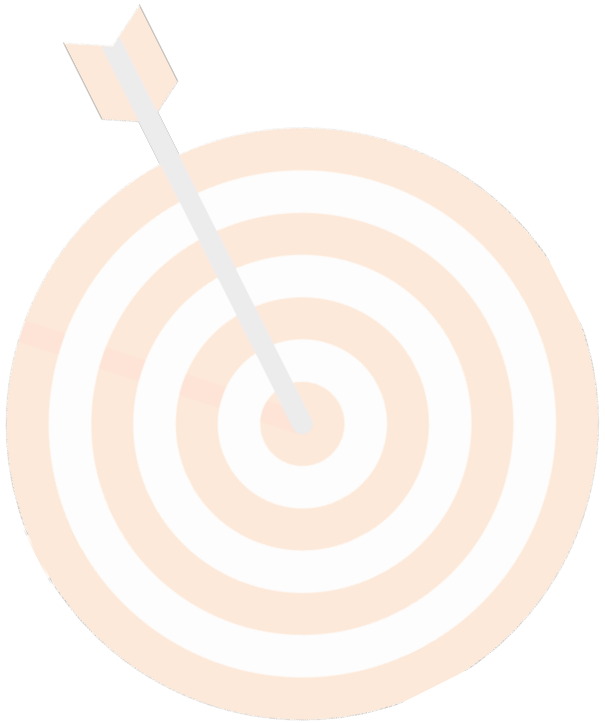
Iteratively composed and refined along the way

Unambiguous and fluent

- Meets expectations of **domain** experts
- Meets expectations of **technical** people

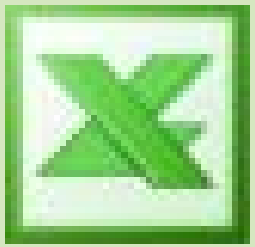


Ubiquitous ≈ Used Everywhere



- User Stories & RFC
- Meetings
- Emails
- Technical Documentation
- Schedule
- **Source code** ←

Structure



List of terms saved to Office documents

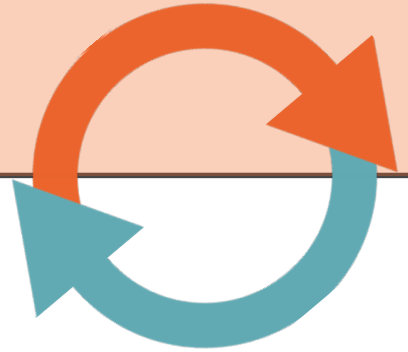
- Glossary of terms fully explained
- Made available to everyone
- Part of the project documentation

Continuously updated

- Responsibility of the development team

“Use the model as the backbone of a language.”

Eric Evans



- **Discovering** the ubiquitous language
- leads you to **understand** the business domain
- in order to **design** a model.

PS: Any model that works.
Not necessarily an object-oriented model.

Start from User Requirements

Noun

Verb

Registered Customer

Redeem

Voucher

Order

Place

Pay

Ordered Items

- **Voucher** is the domain name.
- Synonyms like coupon or gift card are **not** allowed.

UBIQUITOUS LANGUAGE

Words and verbs that truly reflect the semantics of the business domain.

At Work Defining the Ubiquitous Language

Delete the booking	→	Cancel the booking
Submit the order	→	Checkout
Update the job order	→	Extend the job order
Create the invoice	→	Register/Accept the invoice
Set state of the game	→	Start/Pause the game

No Ambiguity
No Synonyms

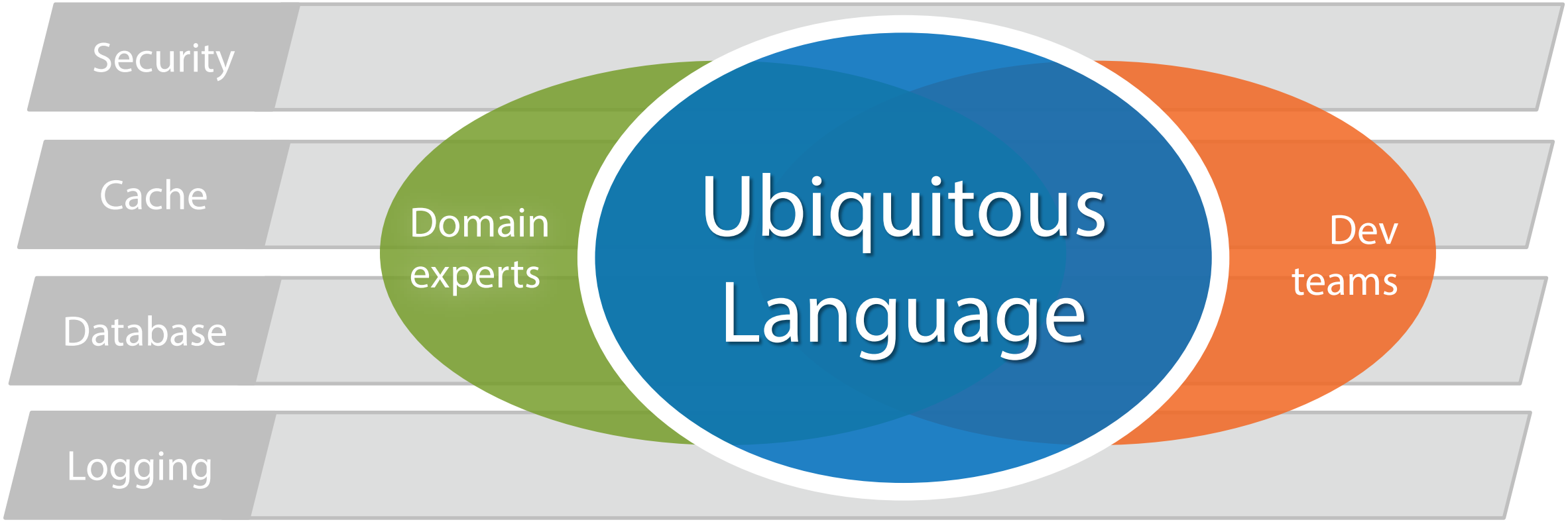
Extra threshold costs should be emphasized in the user account

What's really meant here?

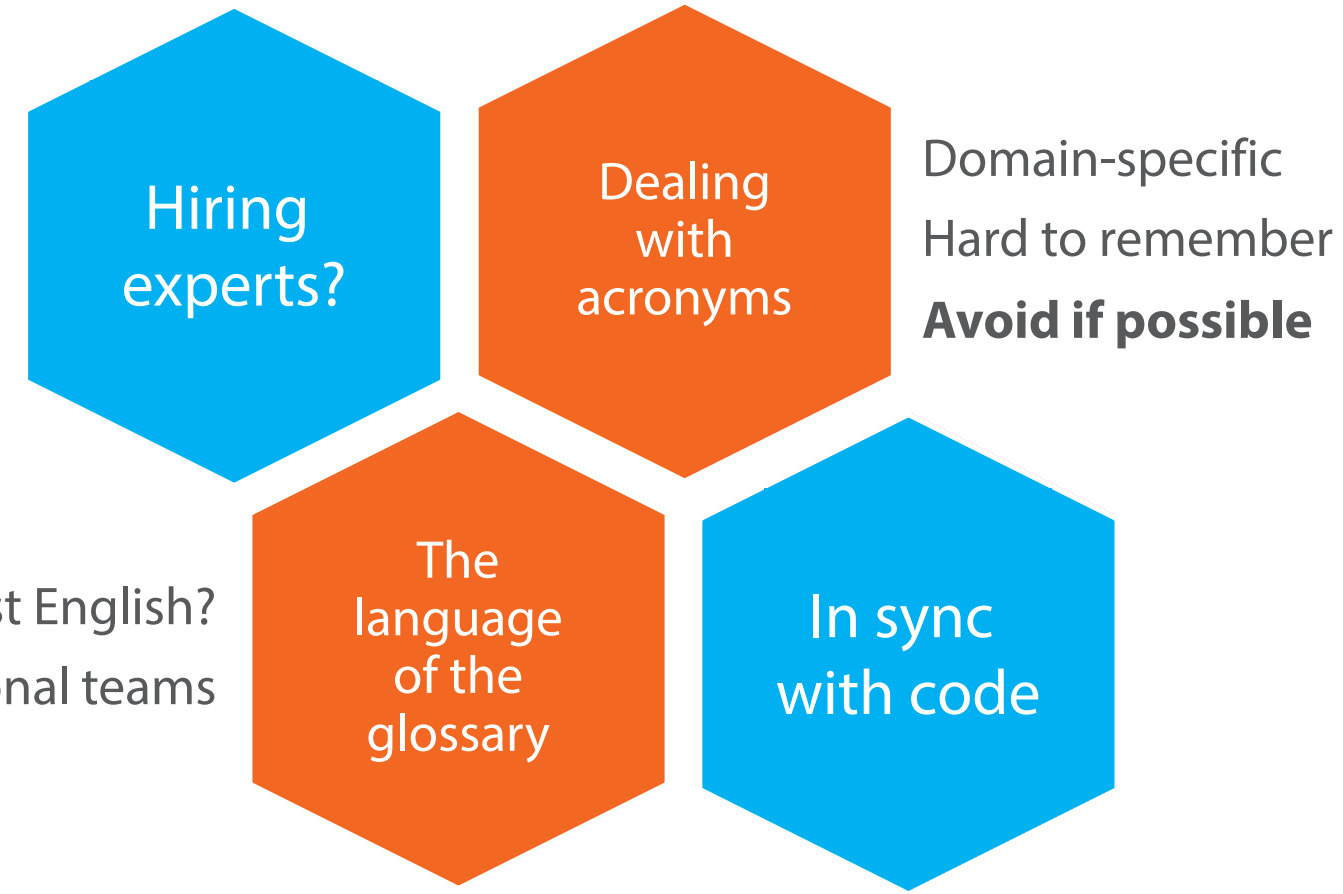
- Show costs when the user logs in?
- List costs in a detail page?
- Mark extra costs in the bill?
- Other? Specify …

Different concepts named differently.
Matching concepts named equally.

How Much Is Technical?



Tips from the Trenches



Scenarios Where UL Is Key to Have

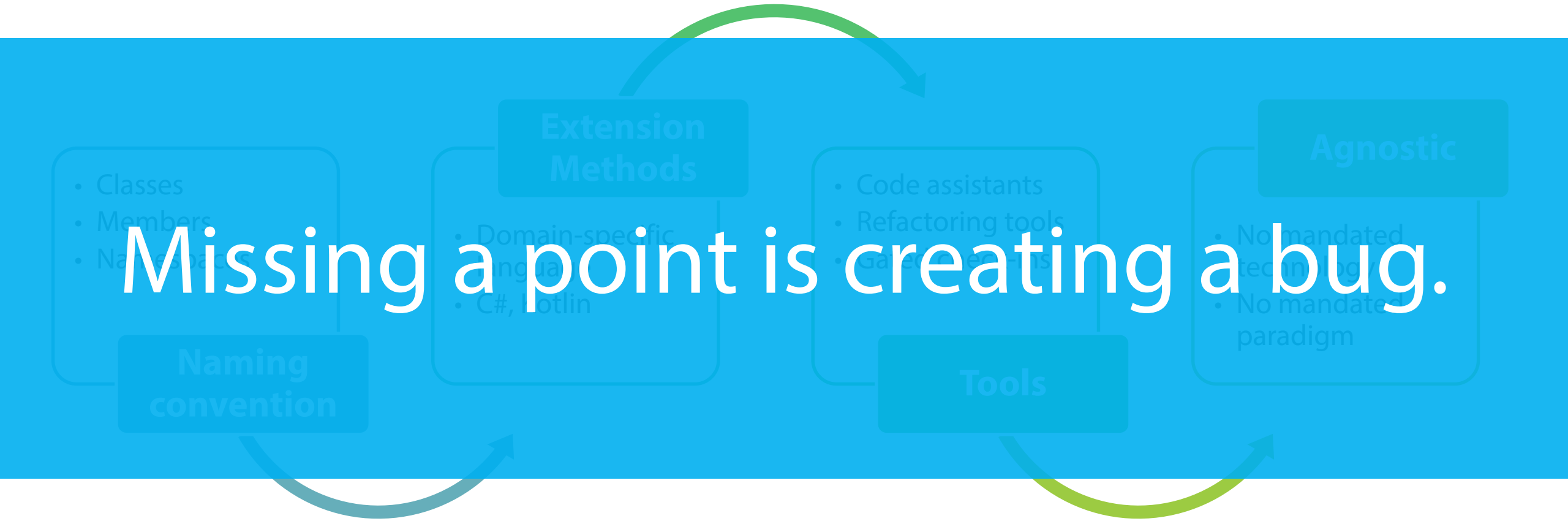
Really a lot of domain logic tricky to digest

- Ensures all relevant terms are understood
- No other term is used to indicate same/similar concepts

Business logic not completely defined

- Business is young and growing with the system (i.e., startup)
- Domain logic discovered along the way

Ubiquitous Language in Code



Missing a point is creating a bug.

The ubiquitous language **changes**.

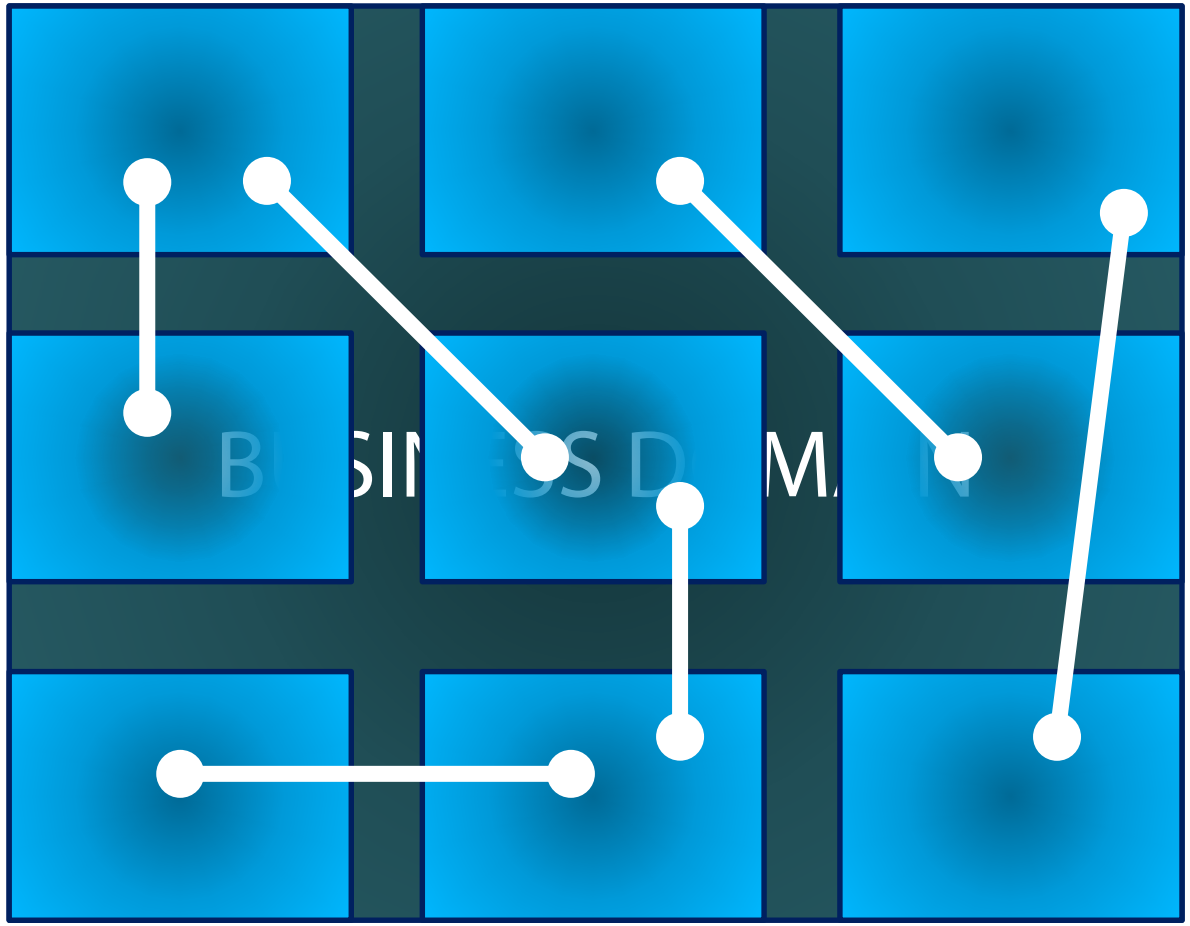
But not **indefinitely**.

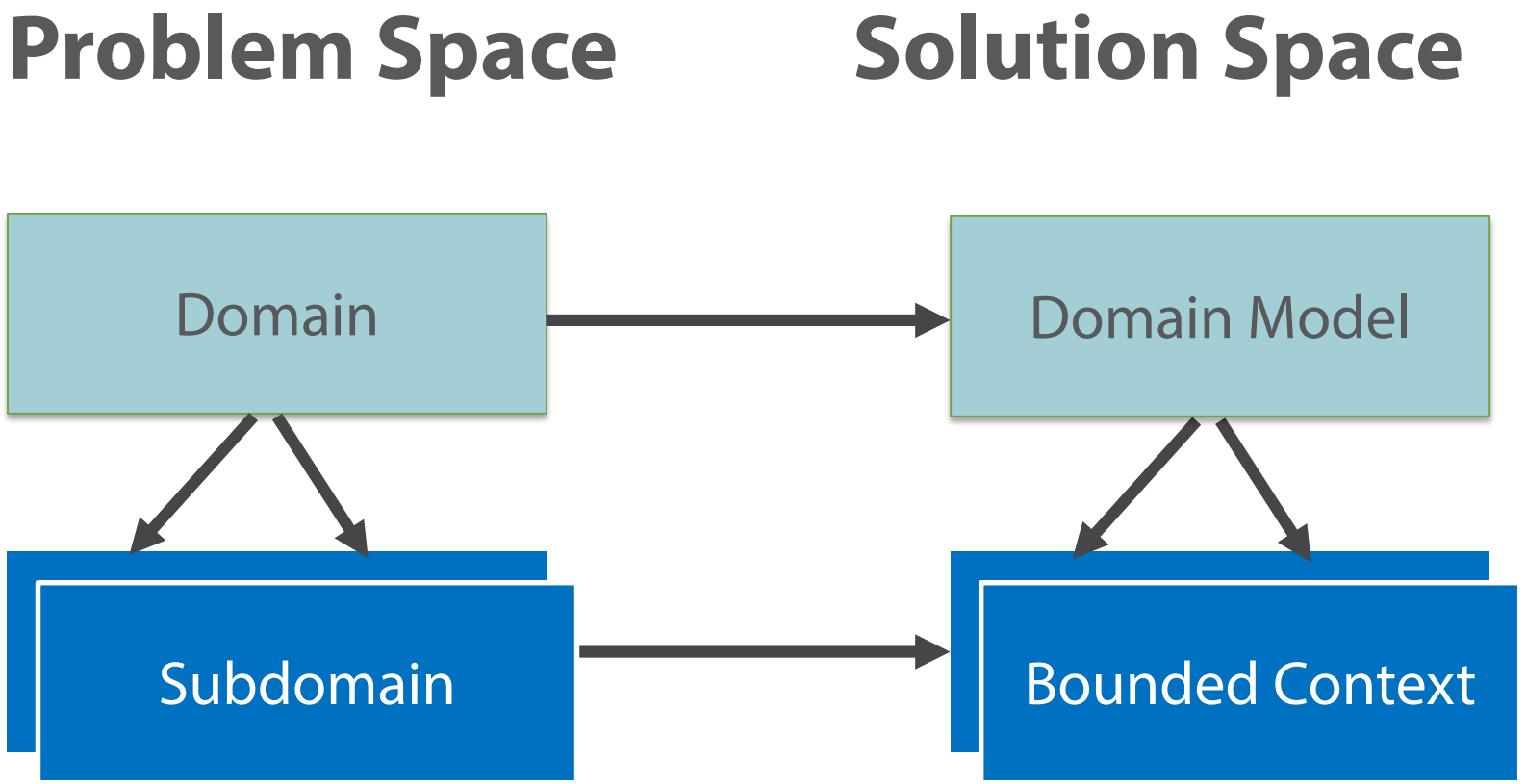
Bounded Context—**What's That**?

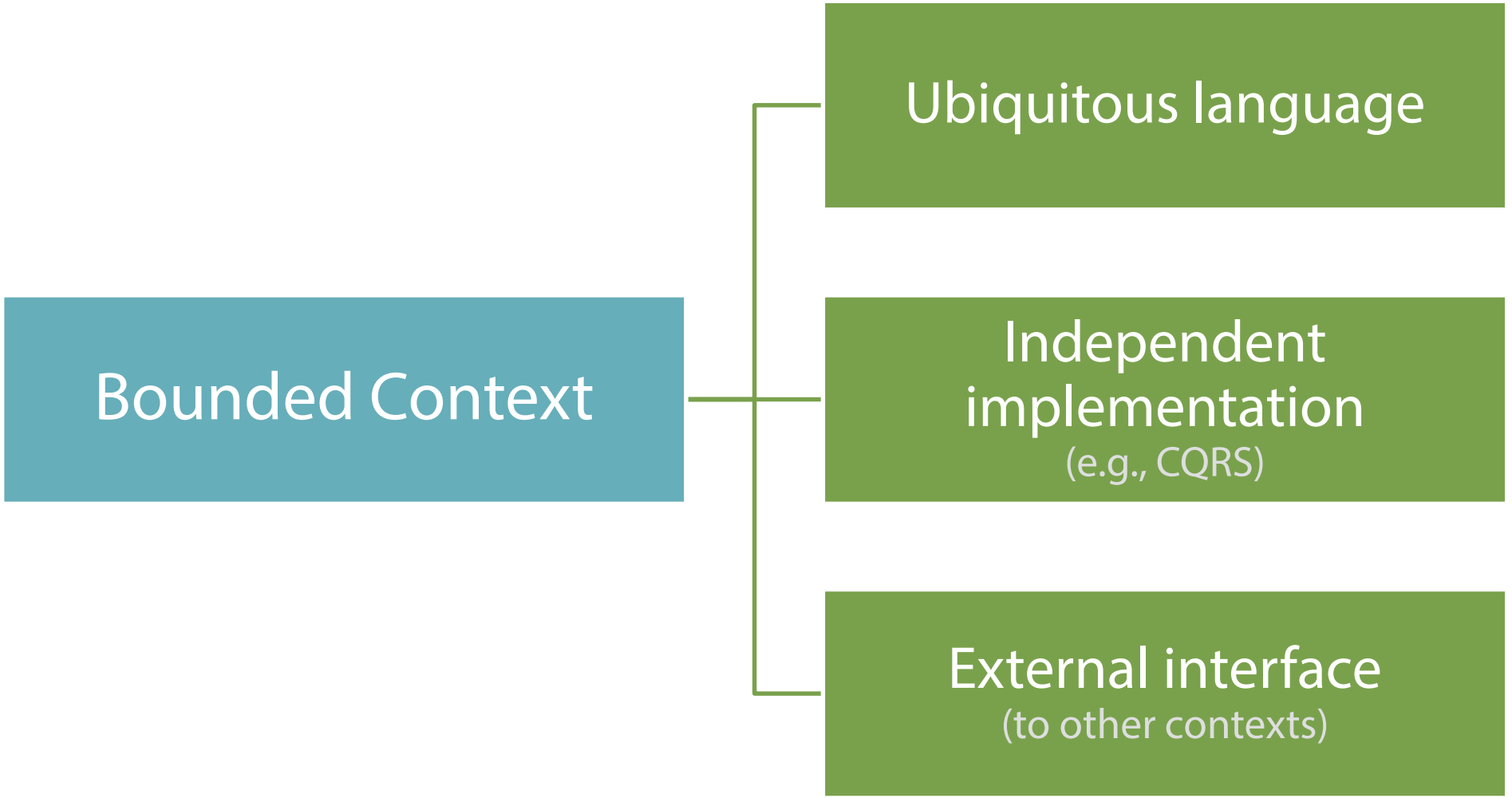
- **Delimited space where an element has a well-defined meaning**
  - Any elements of the ubiquitous language
- **Beyond the boundaries of the context, the language changes**
  - Each bounded context has its own ubiquitous language
- **Business domain split in a web of interconnected contexts**
  - Each context has its own architecture and implementation

Motivation

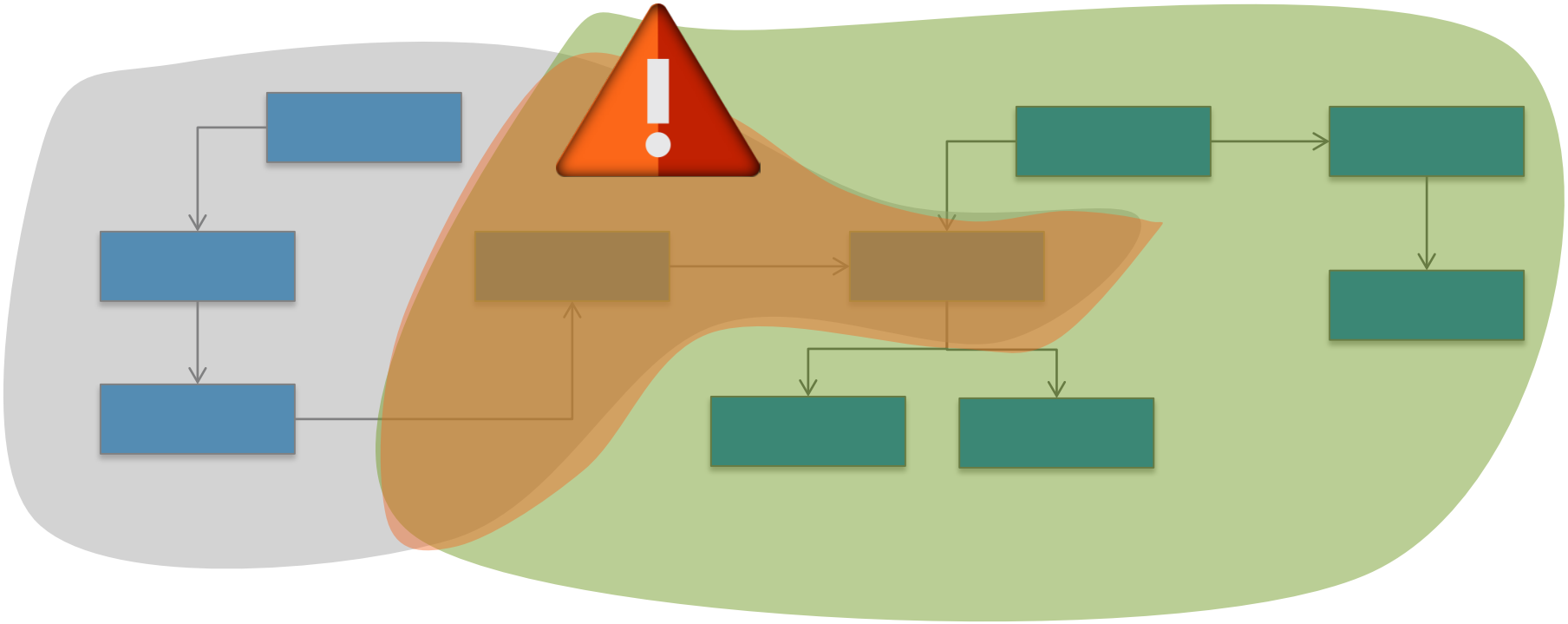
Domain and Contexts







Integrity of the model at risk



Integrity at Risk

- Same term that means differently to different people
- Same term to indicate different elements
- Dependency on external subsystems
- Dependency on legacy code
- Functional areas of the application that are better treated separately

Booking application for a sporting club

LOG IN

REPORTING

CLUB SITE

BACKOFFICE

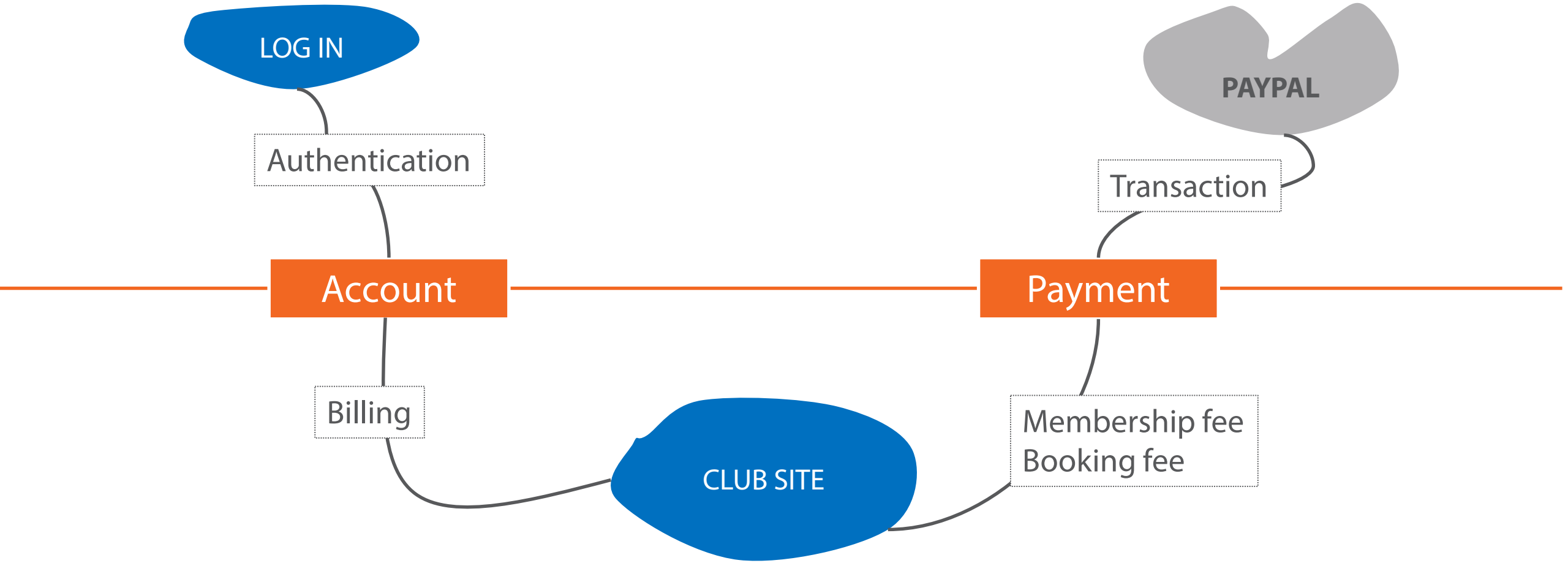
WEATHER

SMS
EMAIL

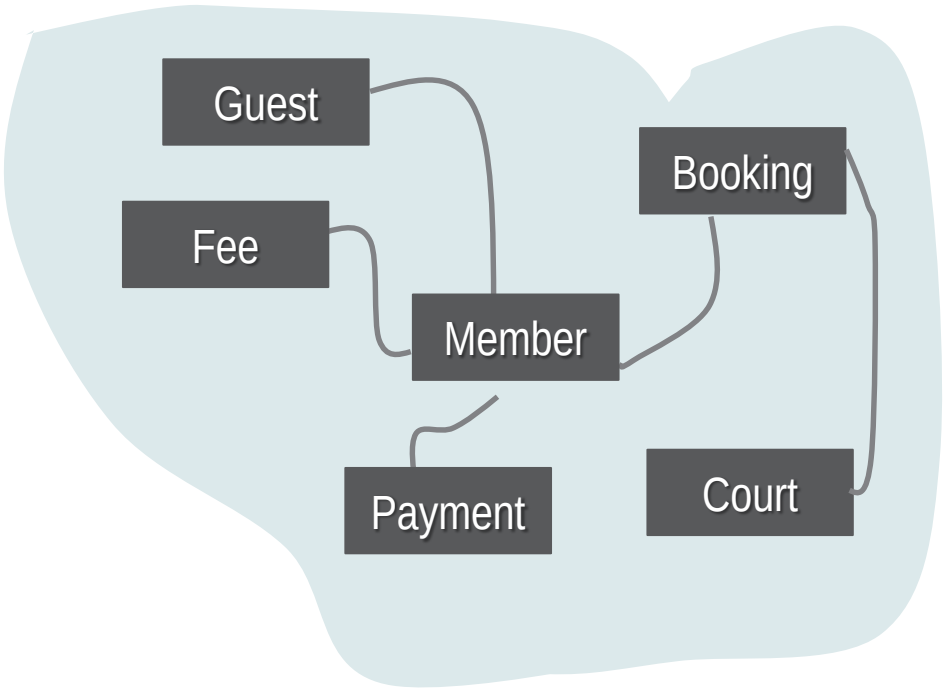
PAYPAL

Same term that is used to indicate different things

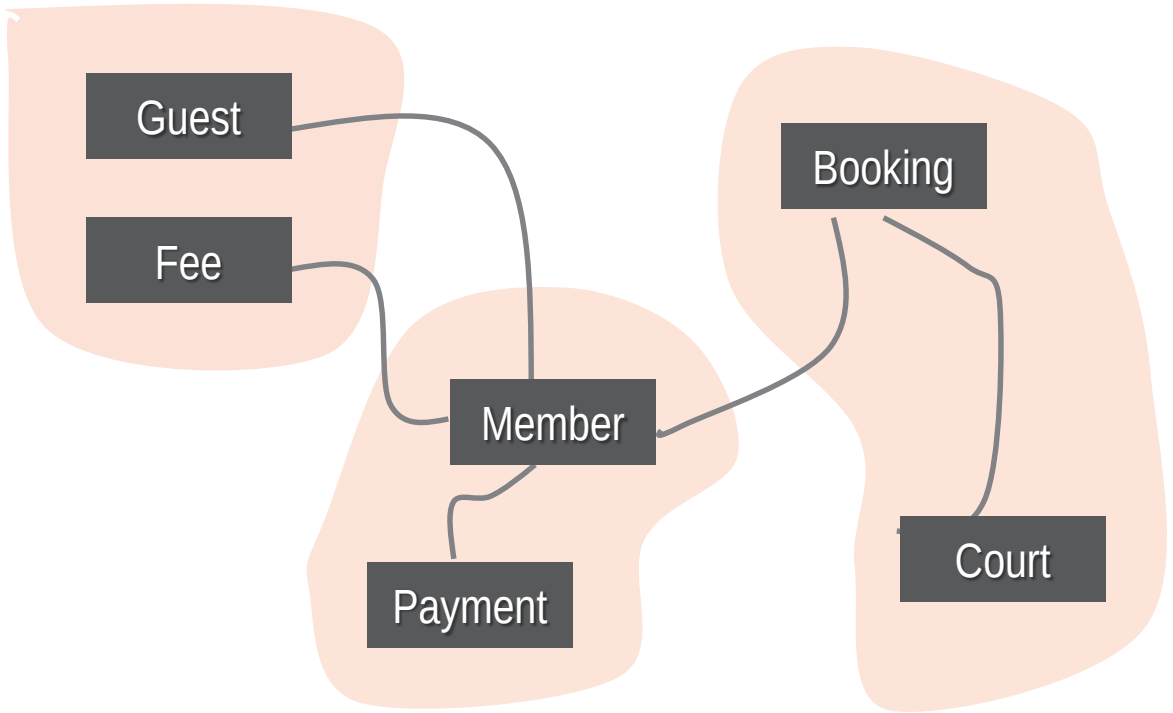
Same term that indicates different things to different people



Contours of the Bounded Context

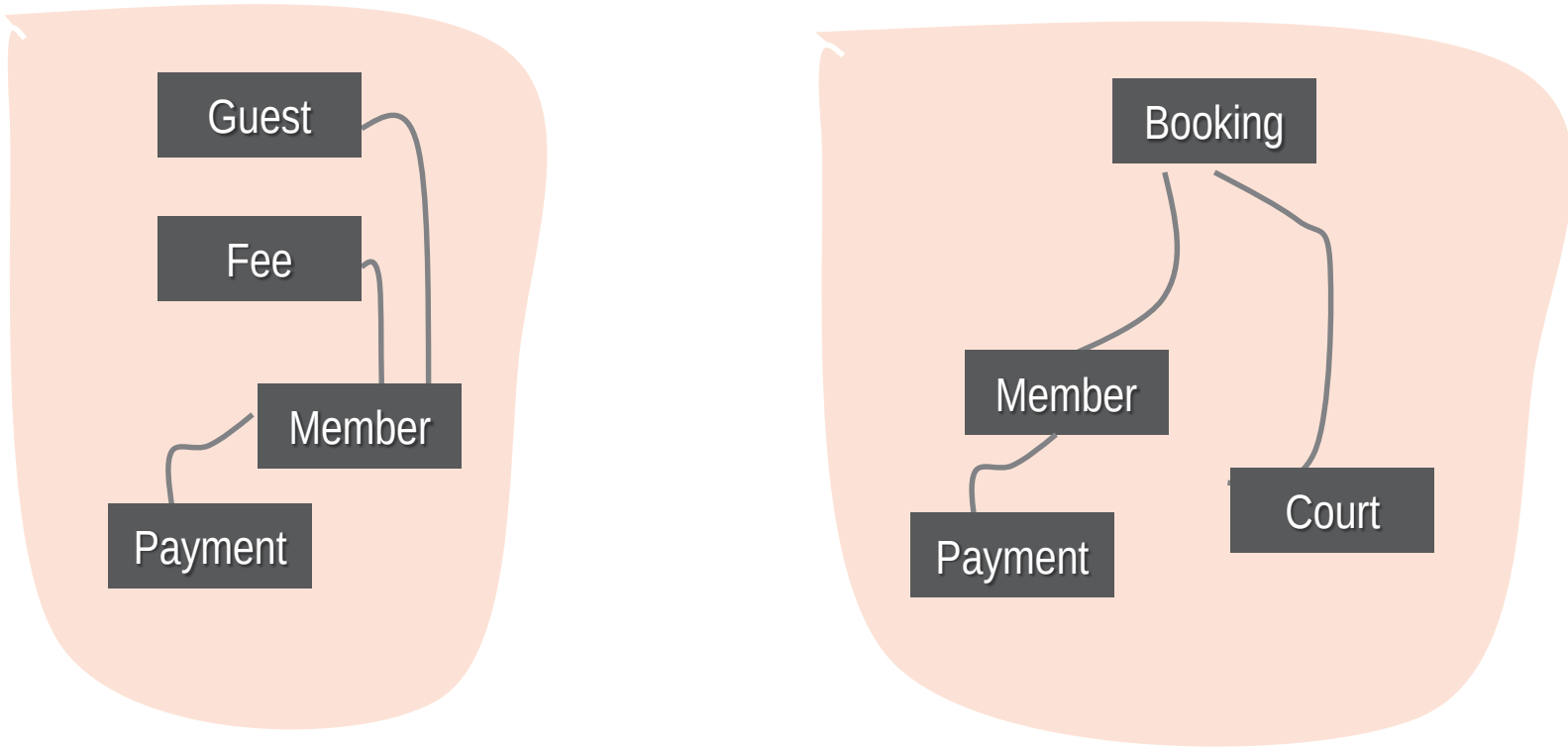


Single Model



Bounded Context with Shared Kernel

Contours of the Bounded Context



Self-contained bounded contexts

Web of Bounded Contexts

Systems may result from the composition of multiple contexts

Example:

Web store

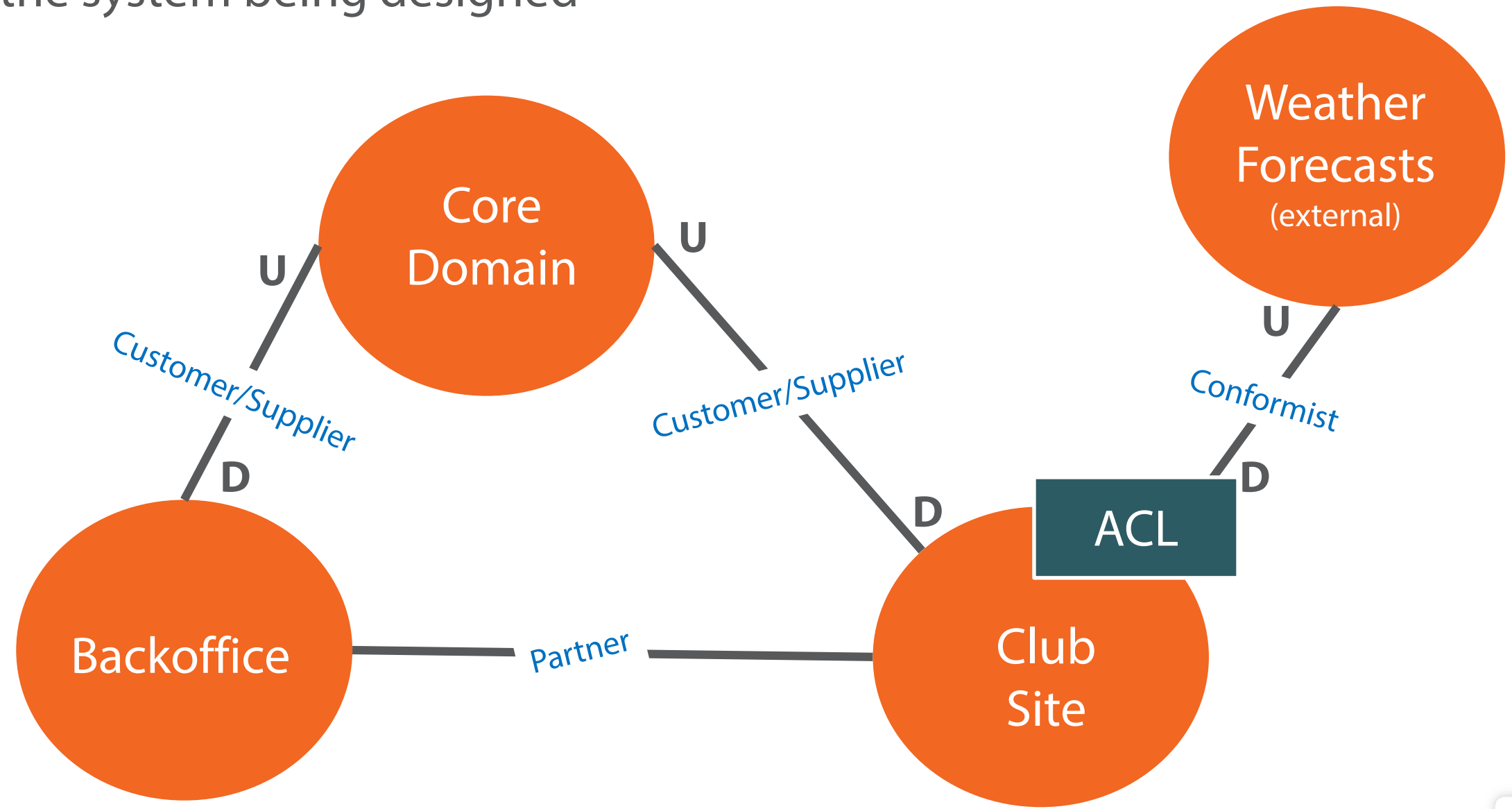
Accountability

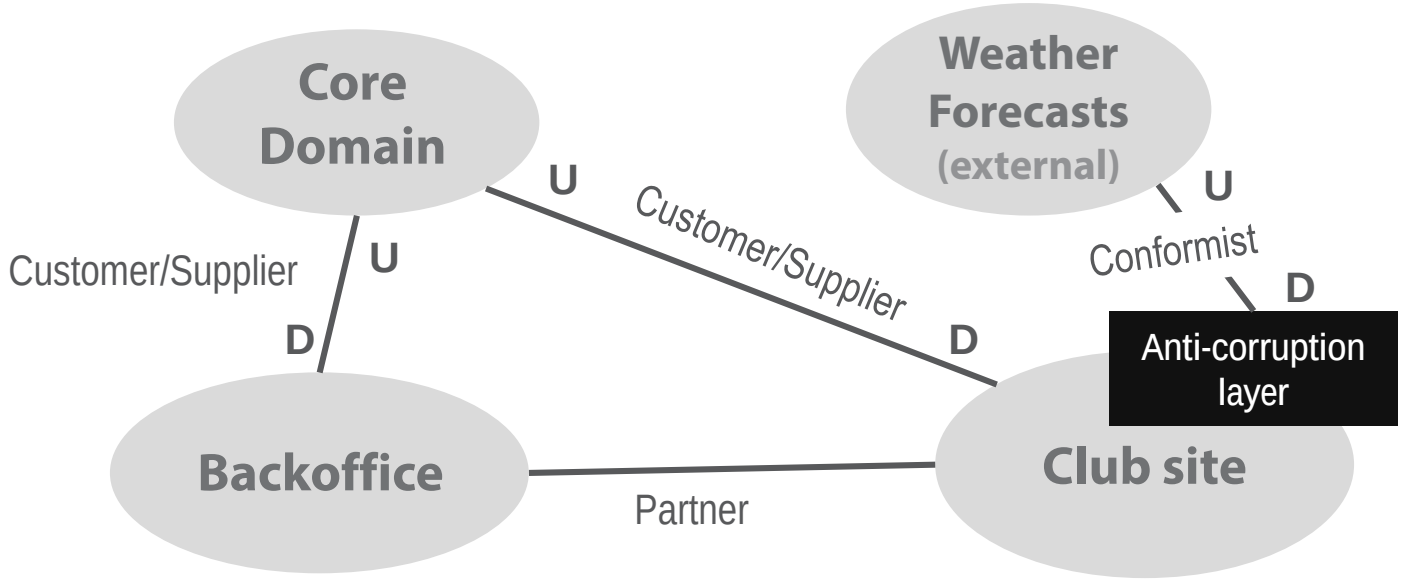
Delivery & shipment

Number of bounded contexts often reflects physical organization

One bounded context for each business department

Context map is the diagram that provides a comprehensive view of the system being designed





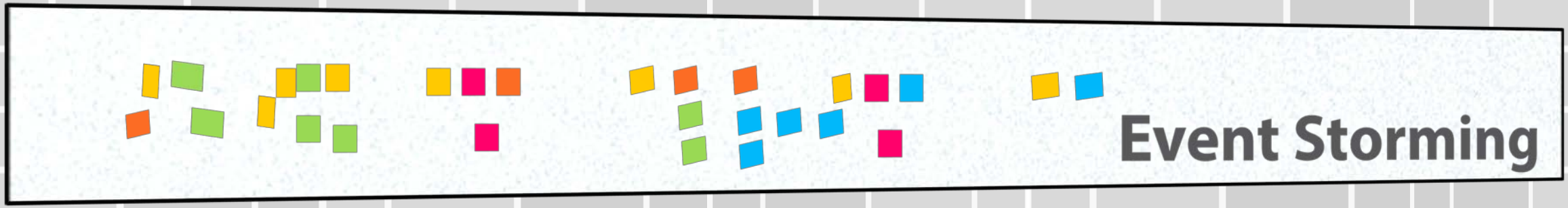
Direction of relationship

Upstream context influences **downstream** context

Aspects being influenced: binaries, schedule, request-for-changes

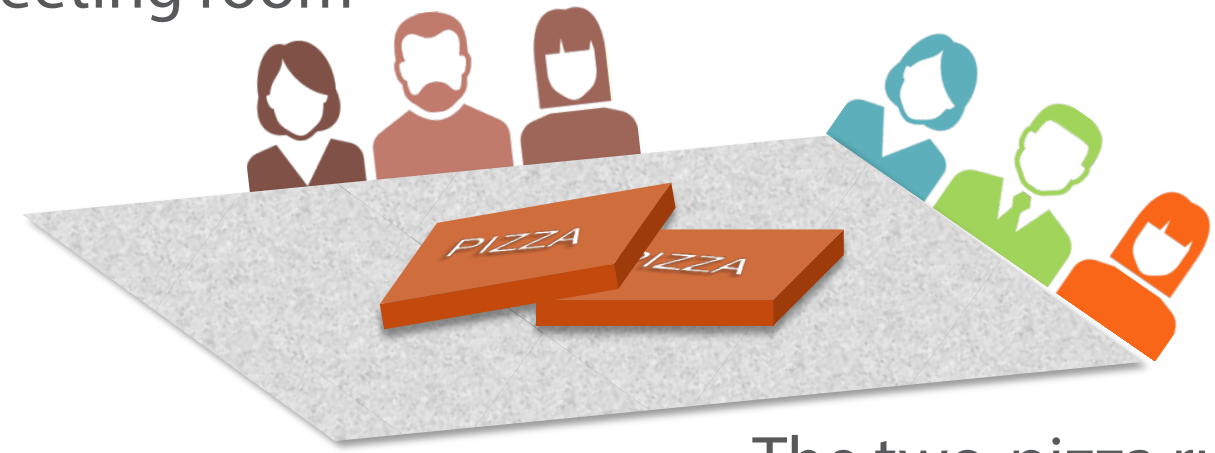
Relationships

Conformist	• Downstream context depends on upstream context • No negotiation possible
Customer/Supplier	• Customer context depends on supplier context • Chance to raise concerns and have them addressed in some way
Partner	• Mutual dependency between the two contexts
Shared Kernel	• Shared model that can't be changed without consulting teams in charge of contexts that depend on it.
Anti-corruption Layer	• Additional layer giving the downstream context a fixed interface no matter what happens in the upstream context



Exploring a business domain starting from observable domain events

Developers and domain experts
together in a meeting room

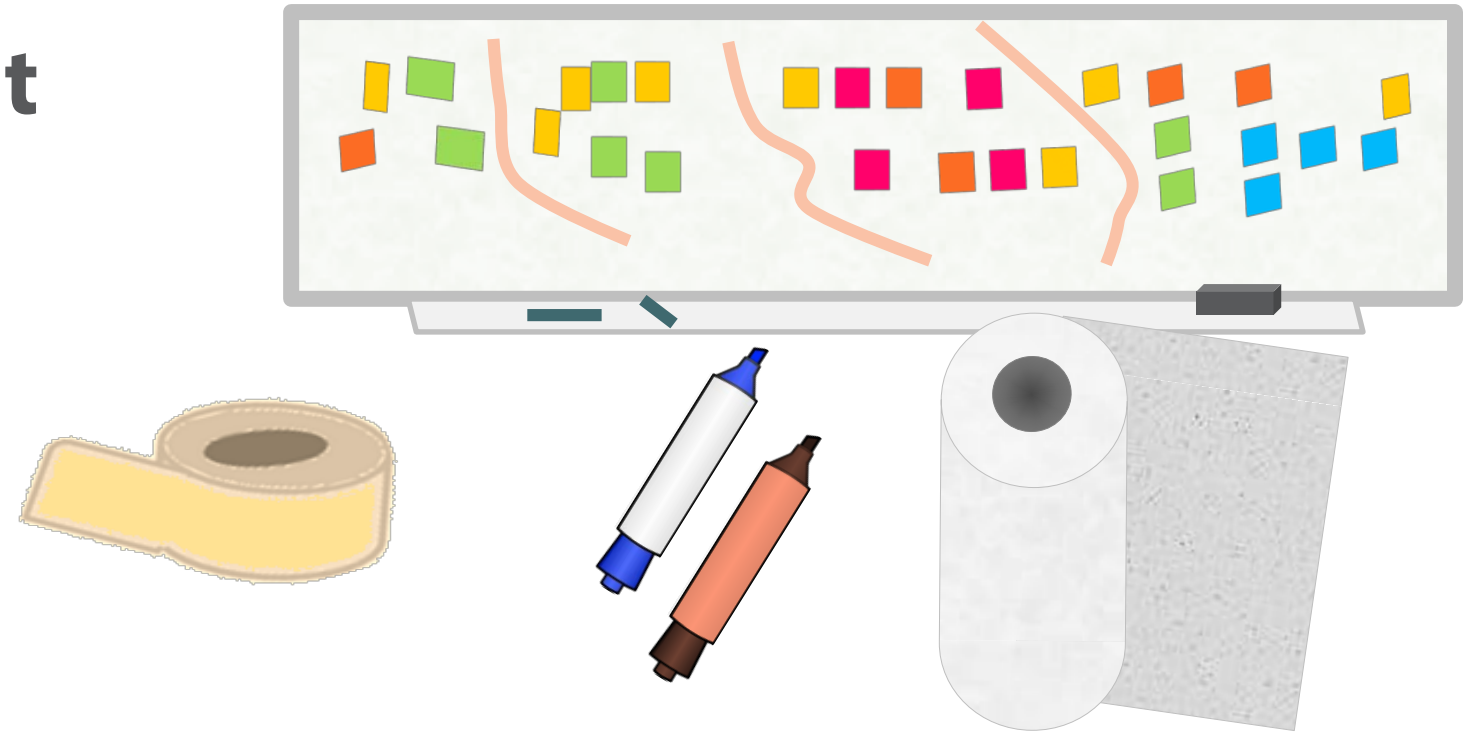


The two-pizza rule sets the right
number of invited people

Event Storming

Exploring a business domain starting from observable domain events

Necessary equipment



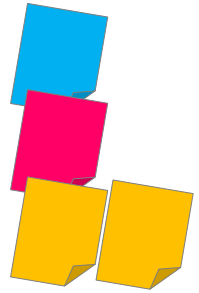
How It Works

Identify relevant domain events

- Use a sticky note of a given color to put events on the wall

Find what causes the event

- **User action**? Add a sticky note of a different color
- **Asynchronous event**? Add a sticky note of a different color
- **Another event**? Add another sticky of same color on top



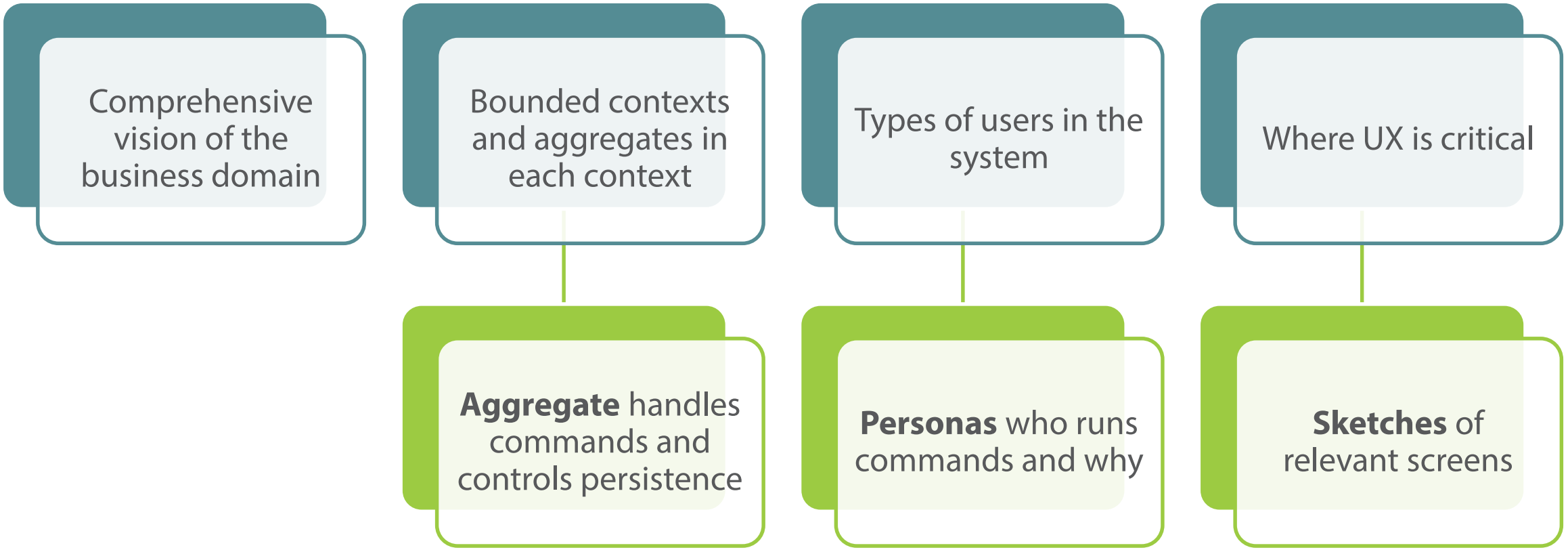
Look at the modeling surface as a timeline

- Add notes with markers

Facilitator

- **Leads the meeting**
  - Starts the meeting asking questions
  - Sticks first notes on the wall to show the way
- **Guides the modeling effort**
  - Asks question to better understand the emerging model
  - Ensures ideas are represented accurately
  - Keep focused and moves ahead

Benefits



More Information

Just search for **Event Storming**