微服务中的领域驱动设计

技术创新　变革未来

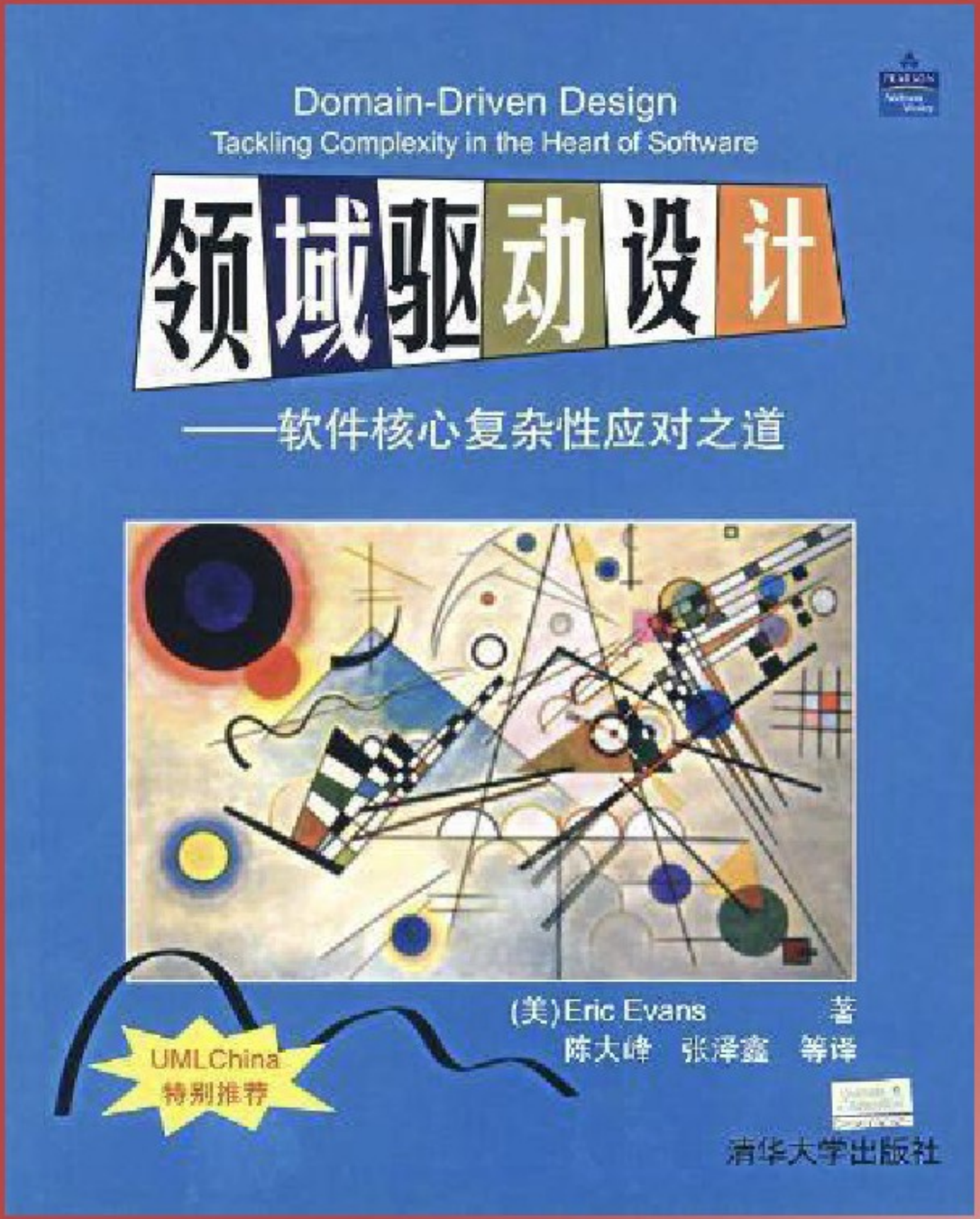
1 领域驱动设计

2 当DDD遇上微服务

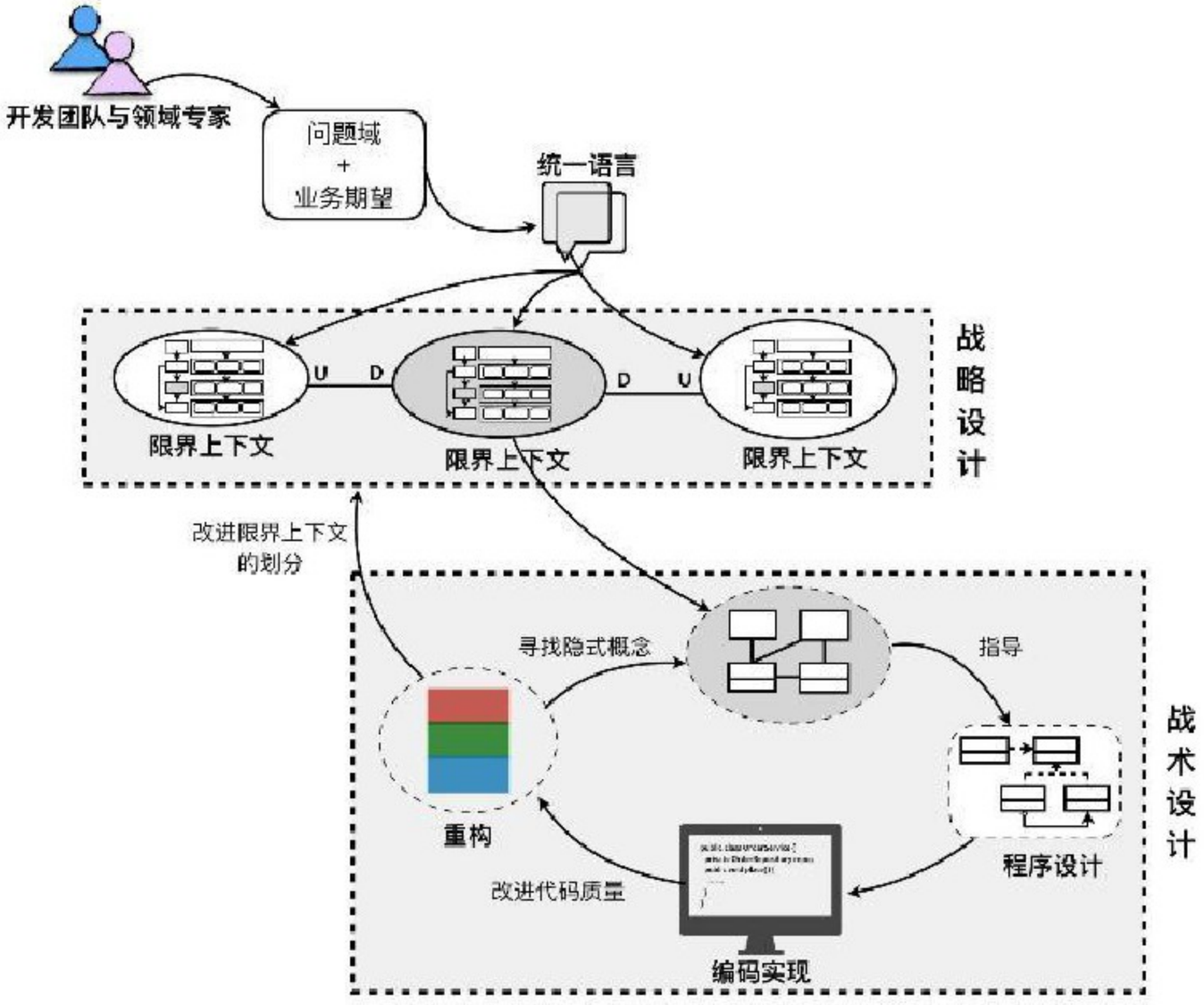
3 案例：电商系统的订单处理

领域驱动设计

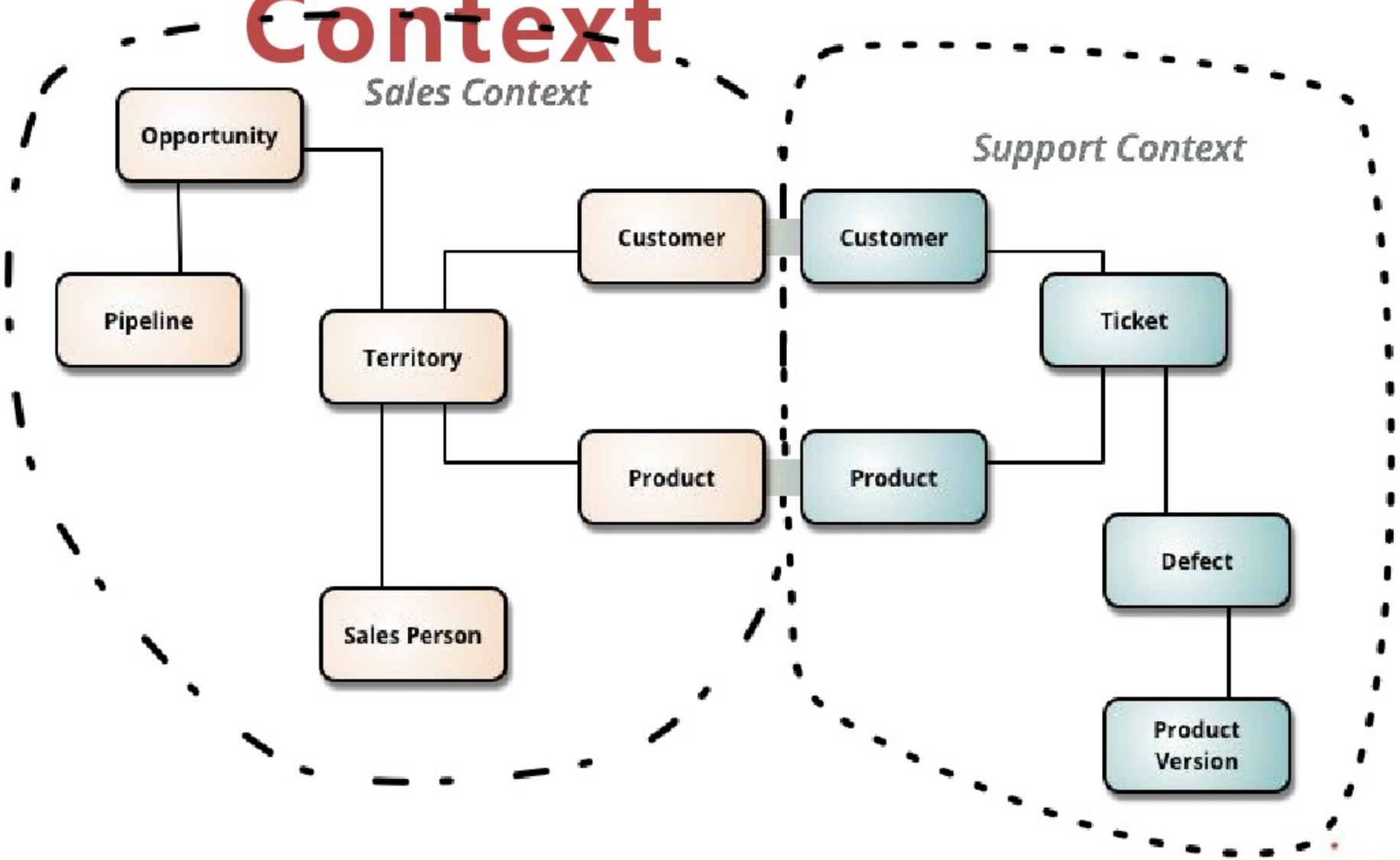
CHINA DEVOPS DAYS



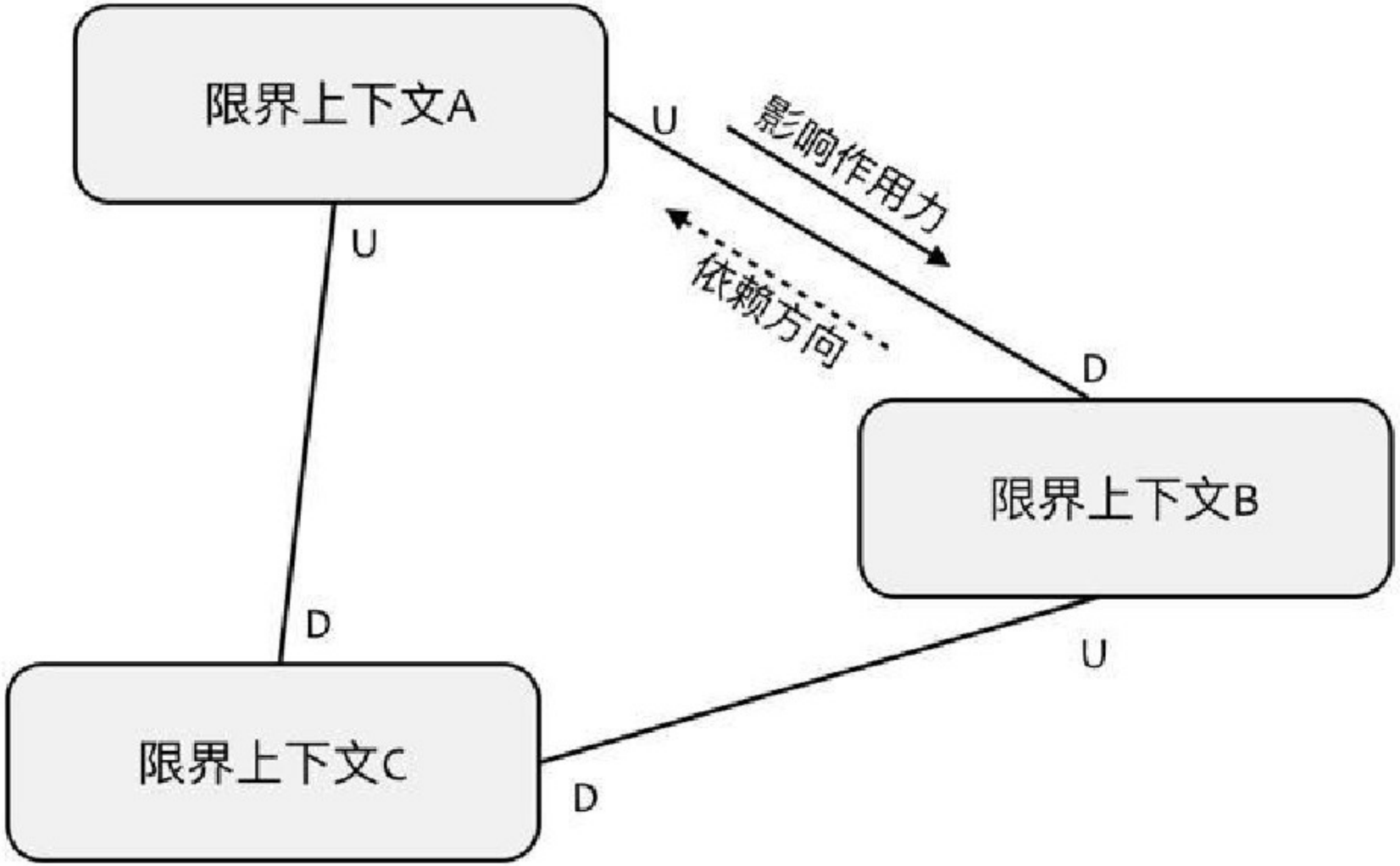
领域驱动设计过程


开发团队与领域专家
问题域
+
业务期望
统一语言
U
D
D
U
限界上下文
限界上下文
限界上下文
战略设计
改进限界上下文的划分
寻找隐式概念
指导
重构
程序设计
改进代码质量
编码实现
战术设计

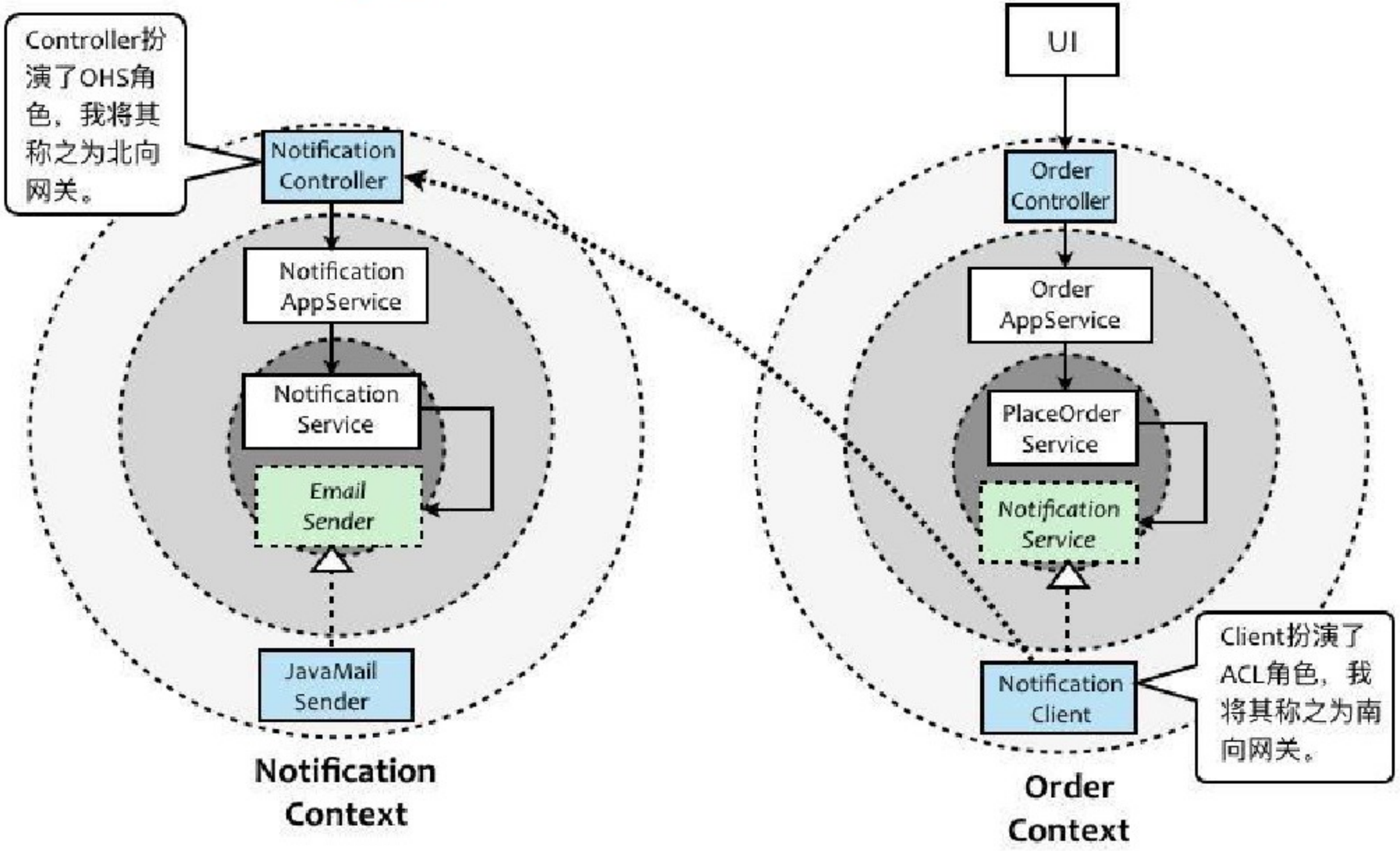
Bounded Context



Context Map

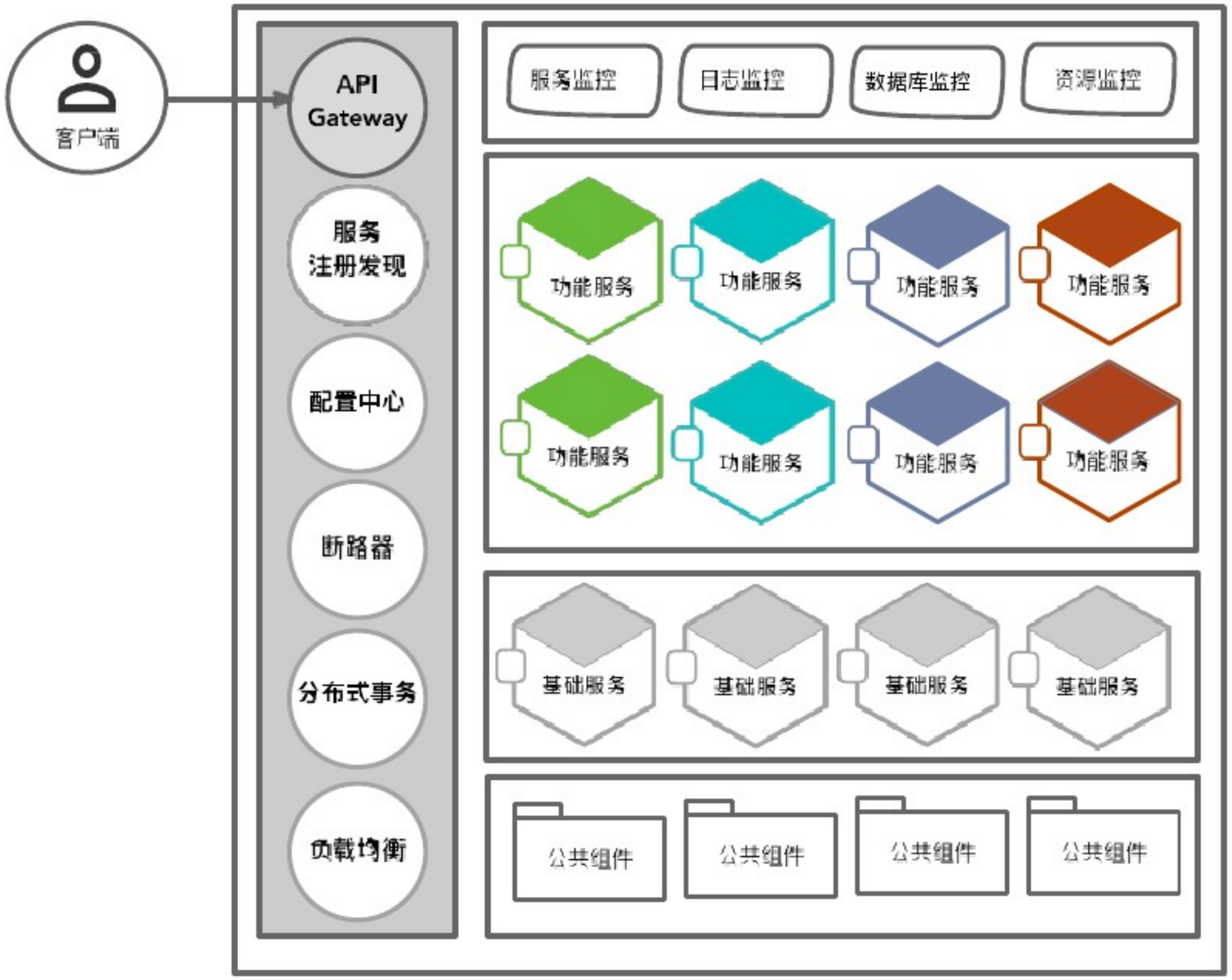


Context

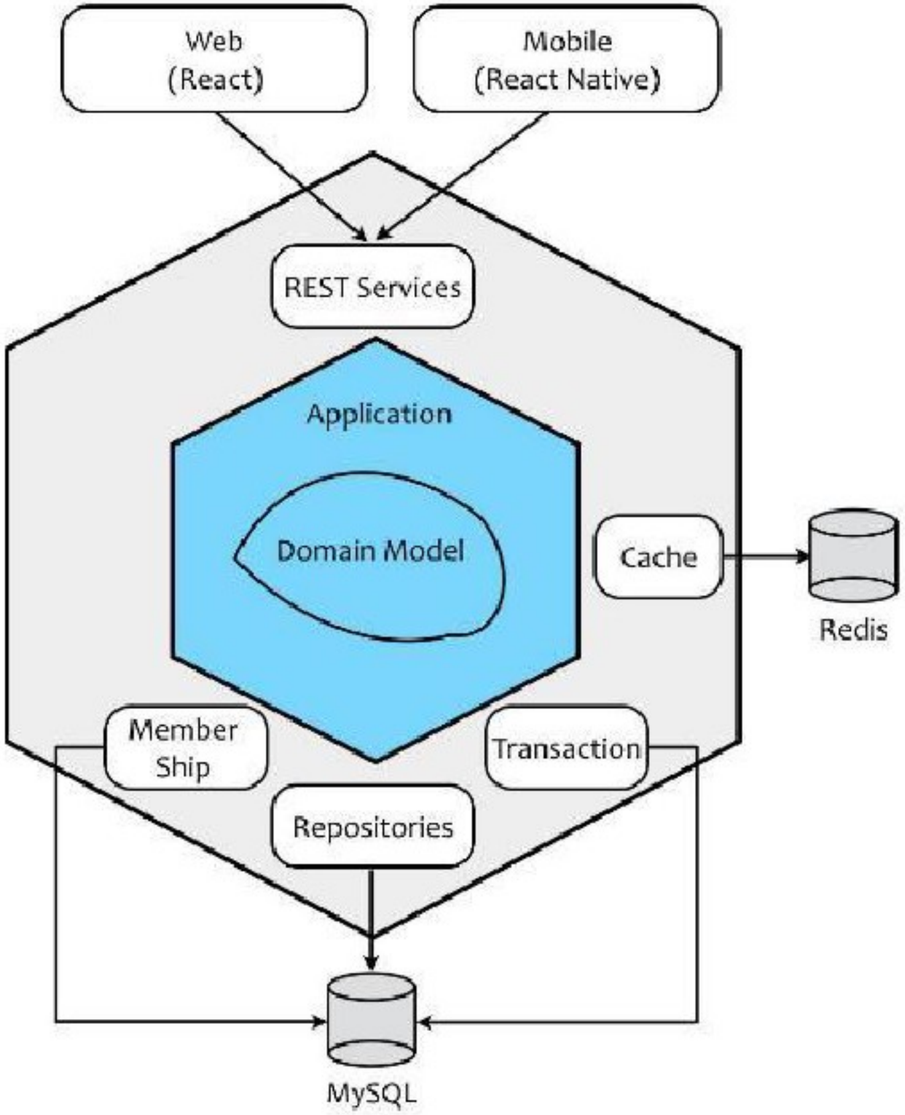

Controller扮演了OHS角色，我将其称之为北向网关。
Notification Controller
Notification AppService
Notification Service
Email Sender
JavaMail Sender
Notification Context
UI
Order Controller
Order AppService
PlaceOrder Service
Notification Service
Notification Client
Client扮演了ACL角色，我将其称之为南向网关。
Order Context

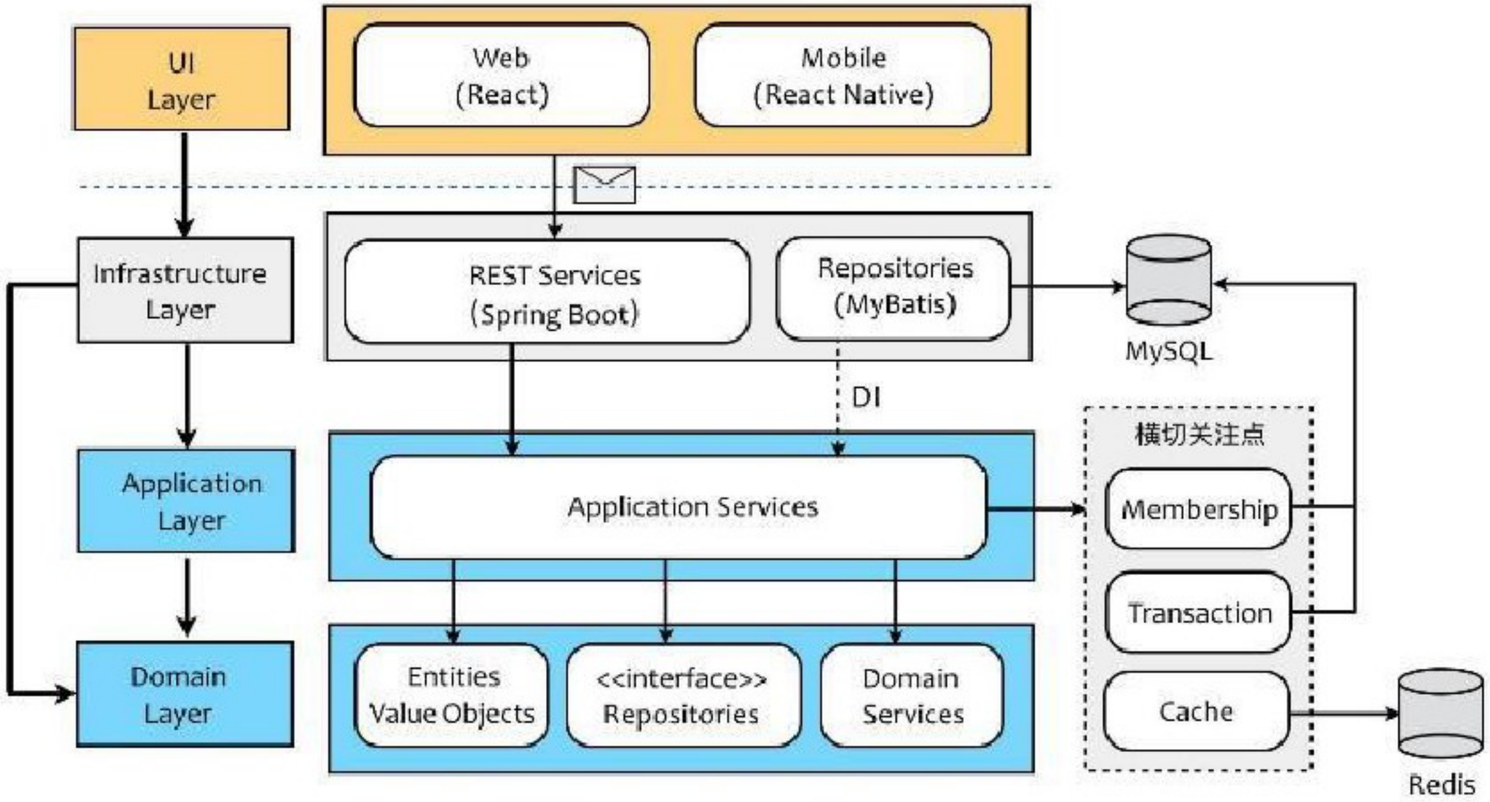
当DDD遇上微服务

微服务架构风格

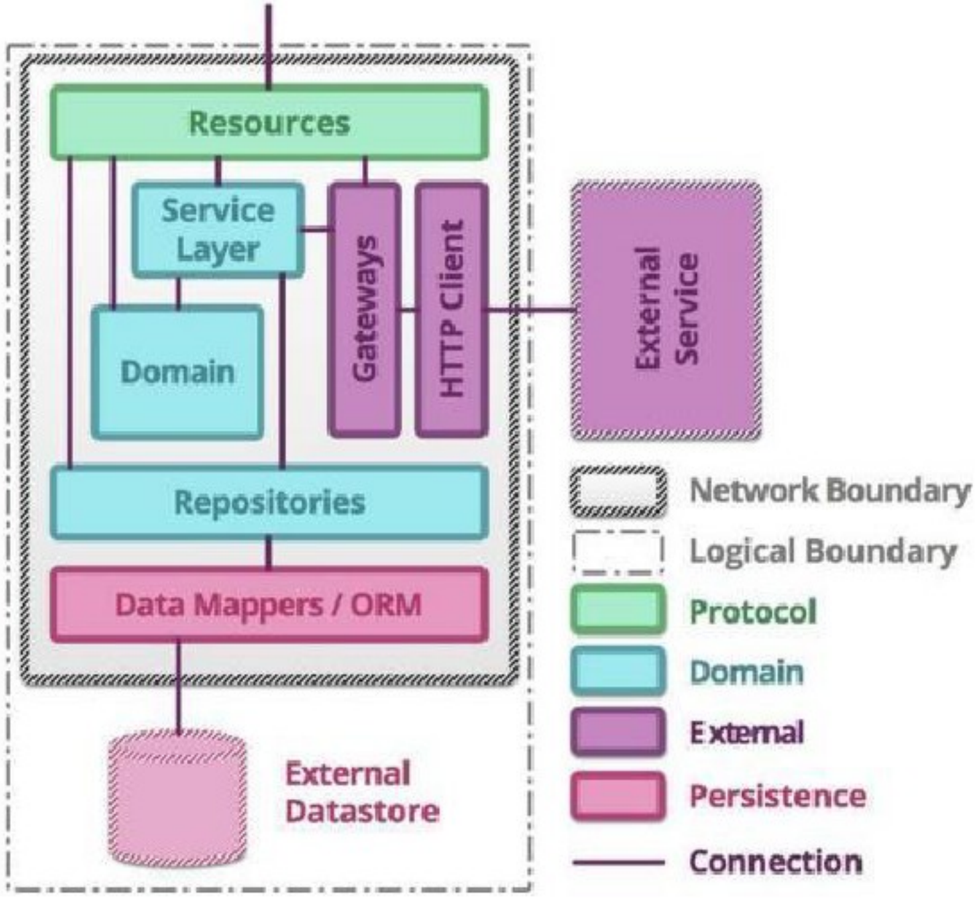

客户端
API Gateway
服务注册发现
配置中心
断路器
分布式事务
负载均衡
服务监控
日志监控
数据库监控
资源监控
功能服务
功能服务
功能服务
功能服务
功能服务
功能服务
功能服务
功能服务
基础服务
基础服务
基础服务
基础服务
公共组件
公共组件
公共组件
公共组件

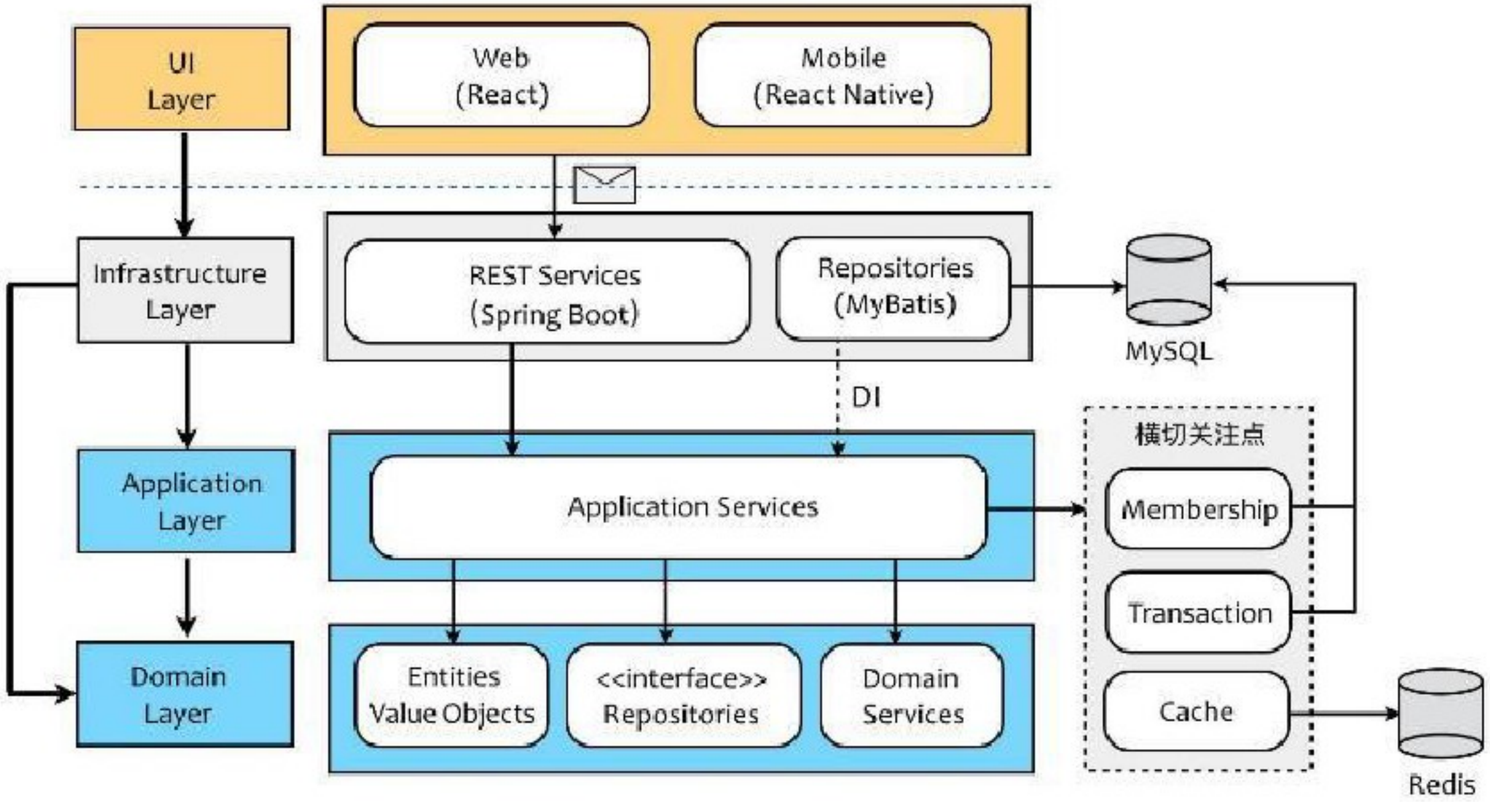
六边形架构与DDD分层架构

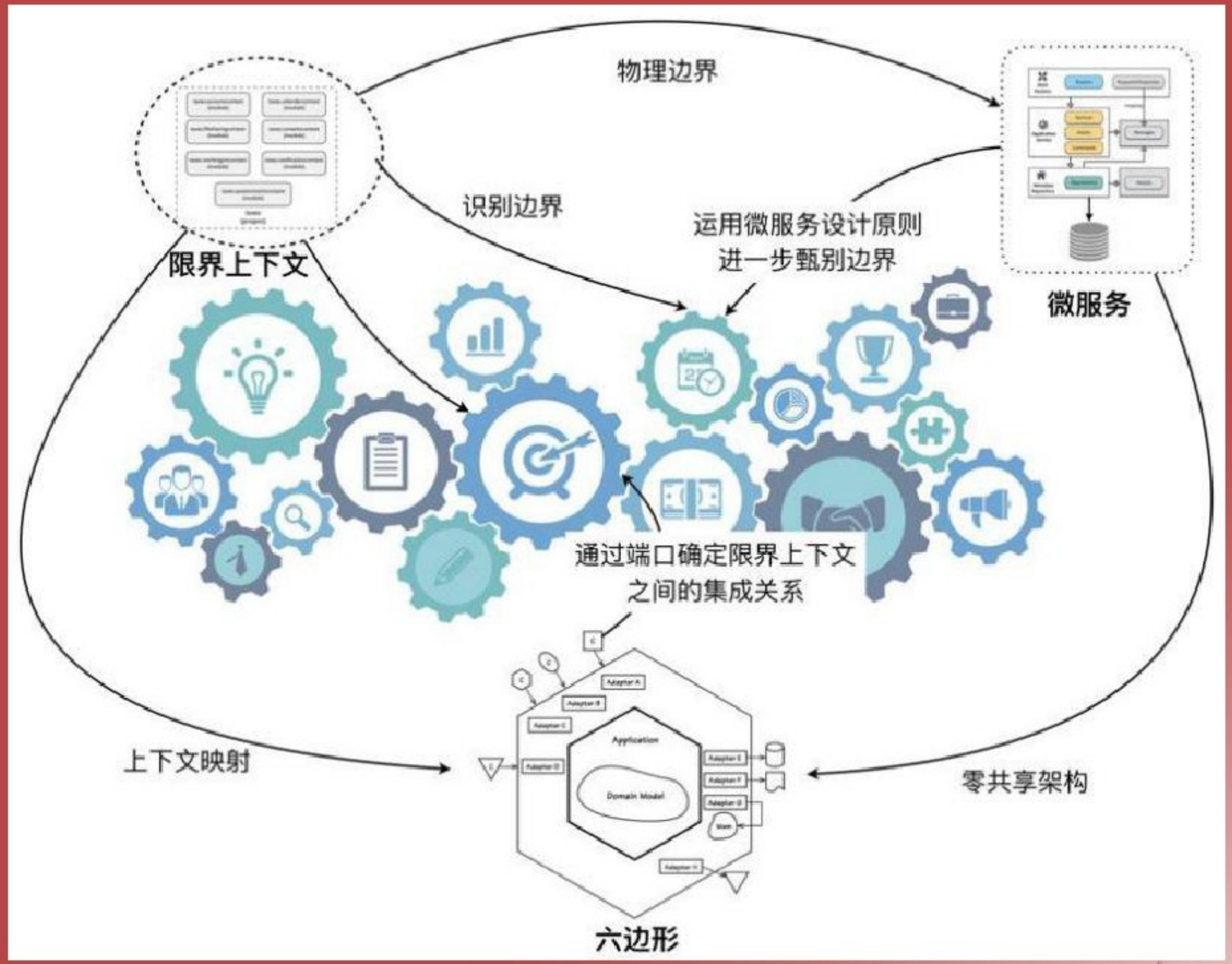




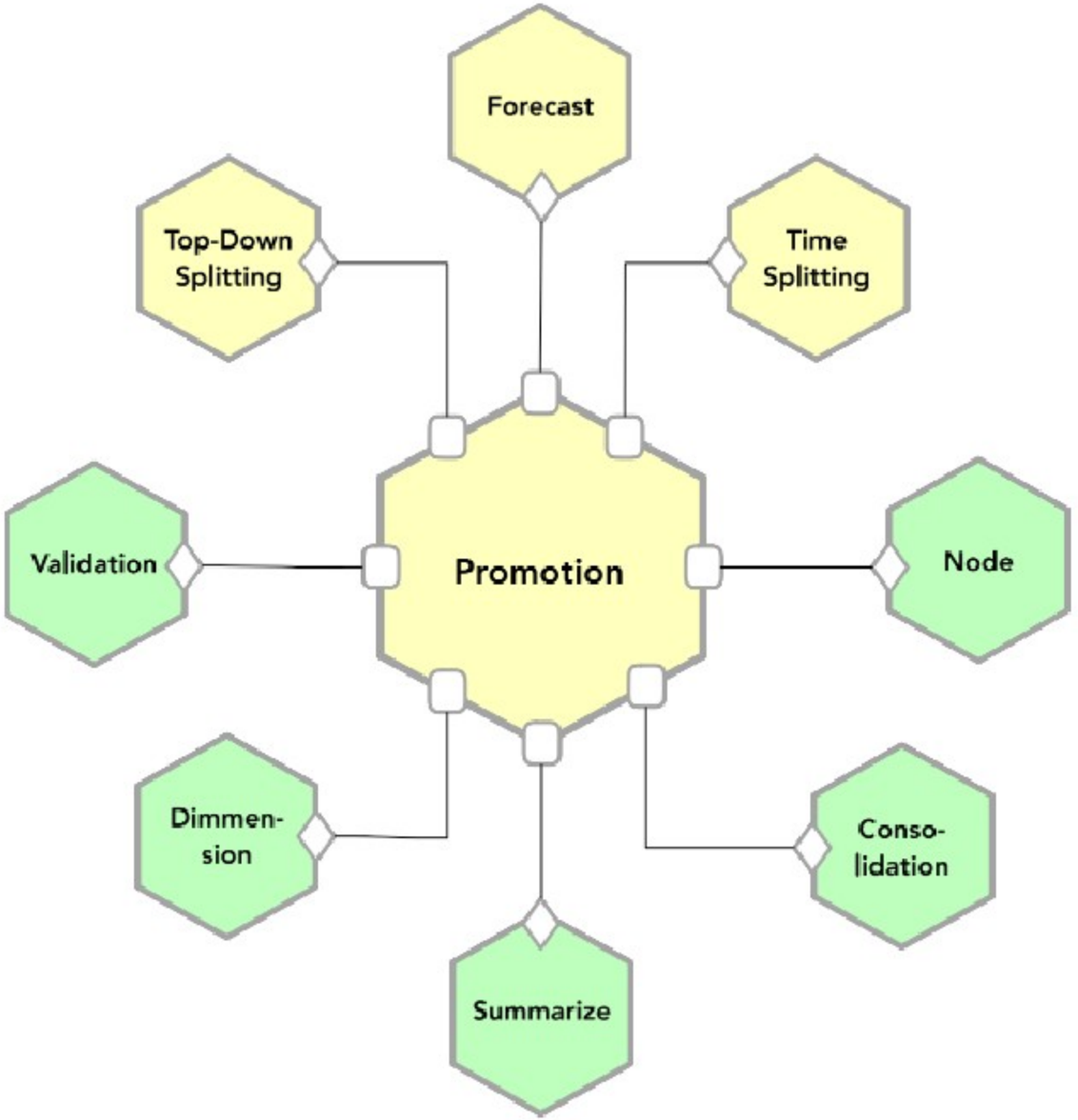
微服务架构与DDD分层架构



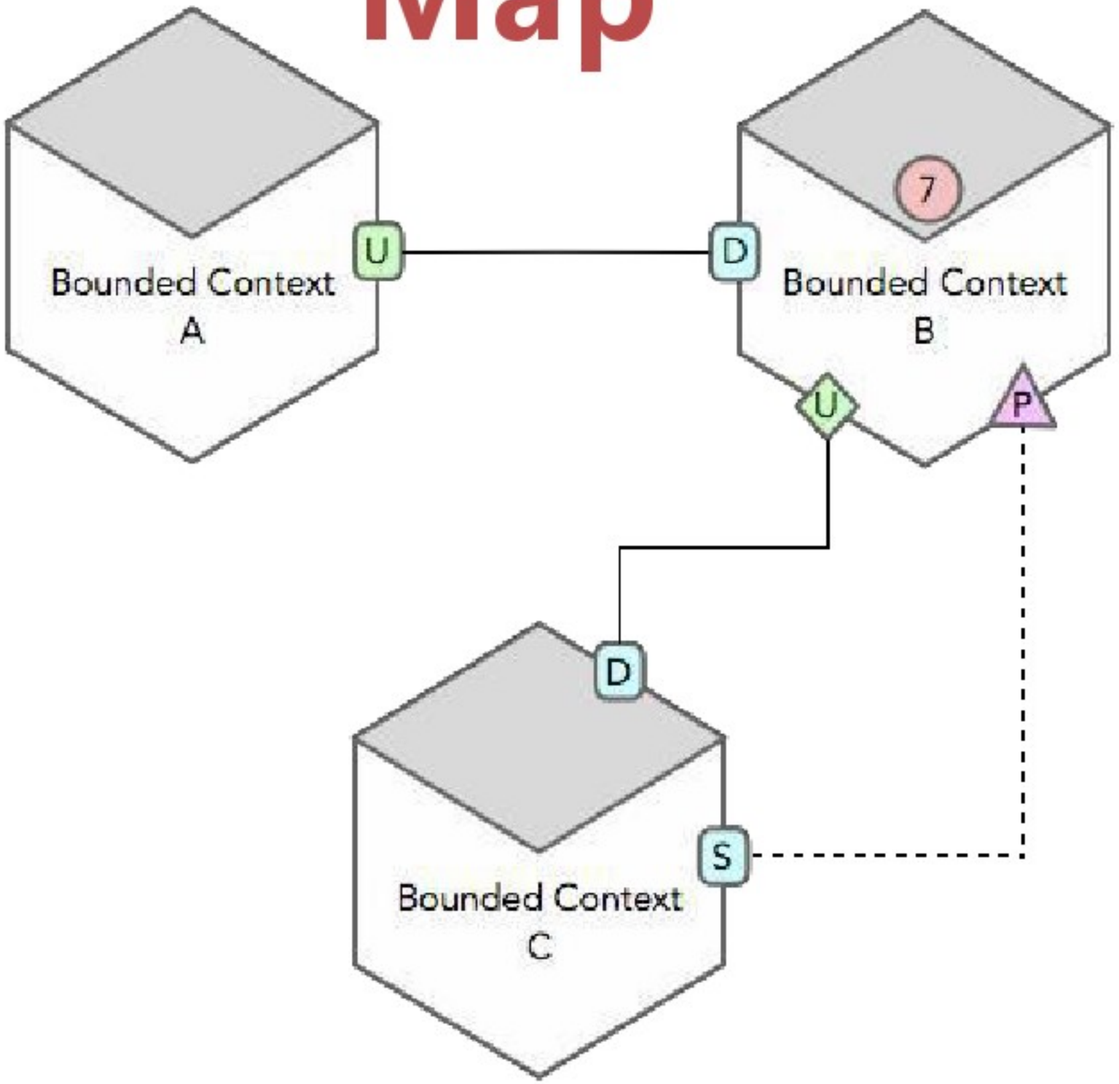



物理边界
限界上下文
识别边界
运用微服务设计原则
进一步甄别边界
微服务
通过端口确定限界上下文
之间的集成关系
上下文映射
零共享架构
六边形

BC=六边形=微服务


Forecast
Top-Down Splitting
Time Splitting
Validation
Promotion
Node
Dimmen-sion
Conso-lidation
Summarize

微服务的协作=Context Map



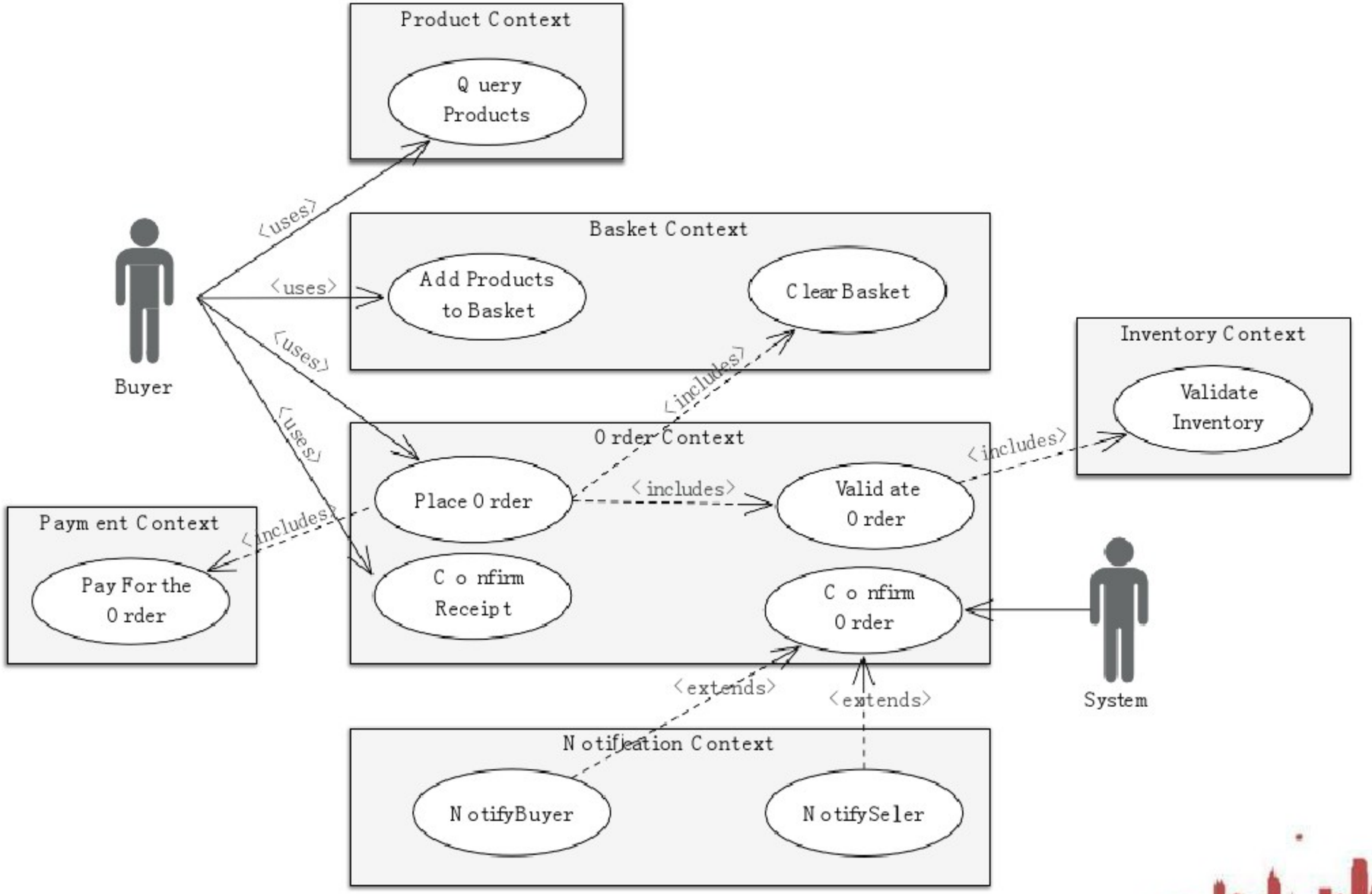
命令：一个动作，是一个要求其它服务完成某些操作的请求，它会改变系统的状态。命令会要求响应。

查询：一个请求，查看是否发生了什么事。重要的是，查询操作没有副作用，它们不会改变系统的状态。

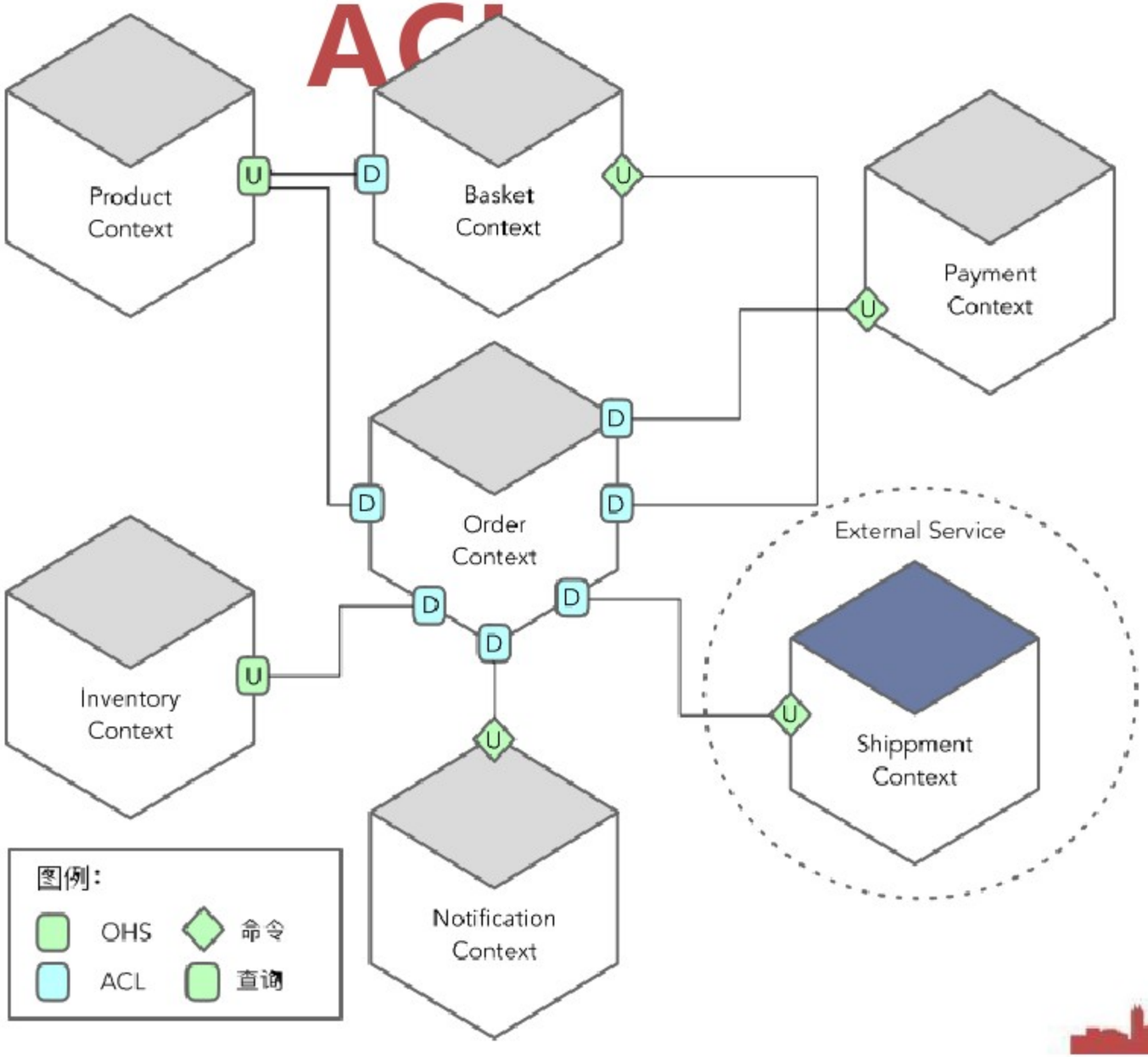
事件：既是事实又是触发器，用通知的方式向外部表明发生了某些事。

案例：电商系统的订单处理

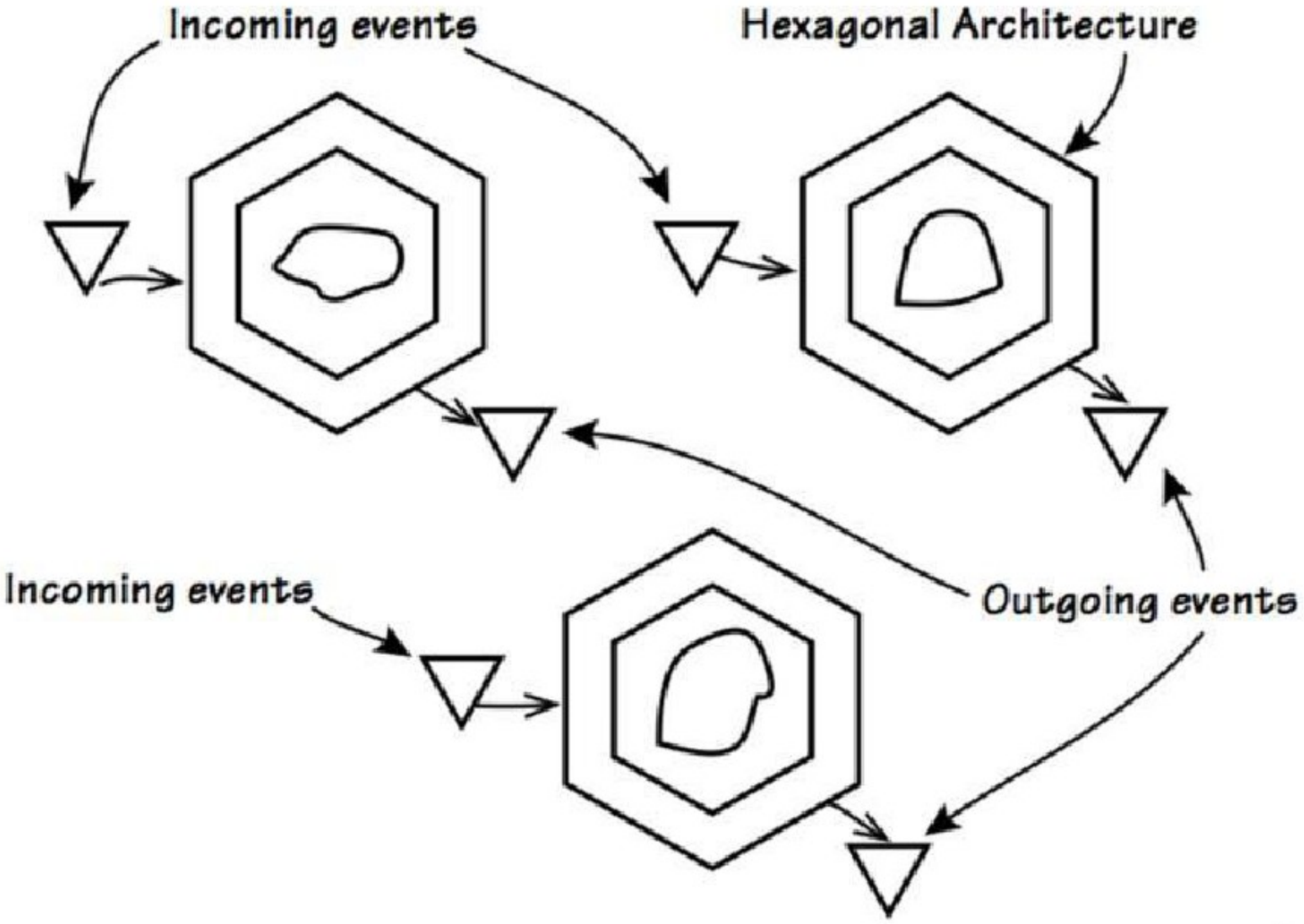
订单的领域场景分析


Product Context
Query Products
Basket Context
Add Products to Basket
Clear Basket
Inventory Context
Validate Inventory
Order Context
Place Order
Validate Order
Confirm Receipt
Confirm Order
Payment Context
Pay For the Order
Notification Context
NotifyBuyer
NotifySeler
Buyer
System
〈uses〉
〈uses〉
〈uses〉
〈uses〉
〈includes〉
〈includes〉
〈includes〉
〈includes〉
〈extends〉
〈extends〉

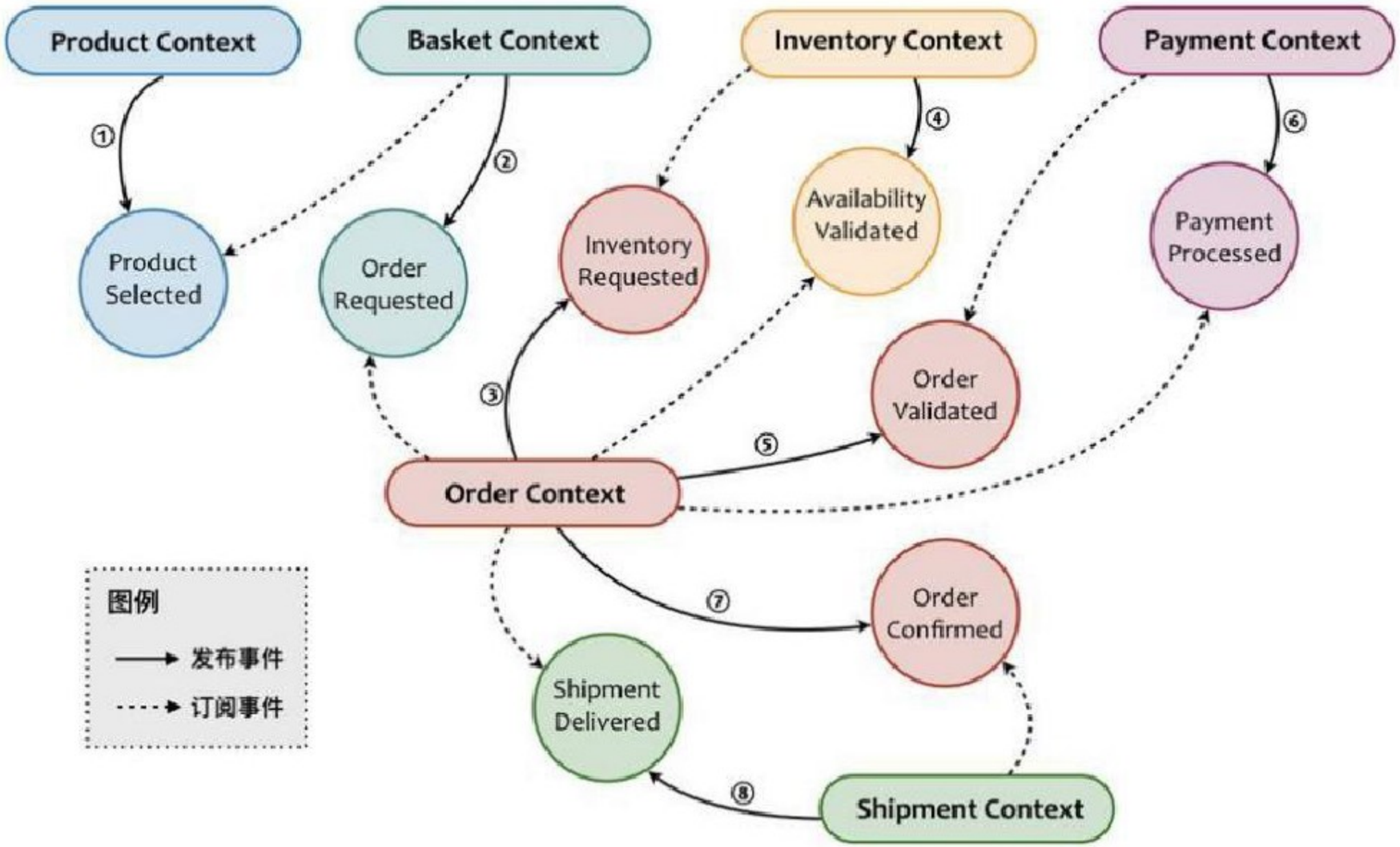
OHS与ACL


Product Context
Basket Context
Payment Context
Order Context
External Service
Inventory Context
Shippment Context
Notification Context
U
D
图例:
OHS
命令
ACL
查询

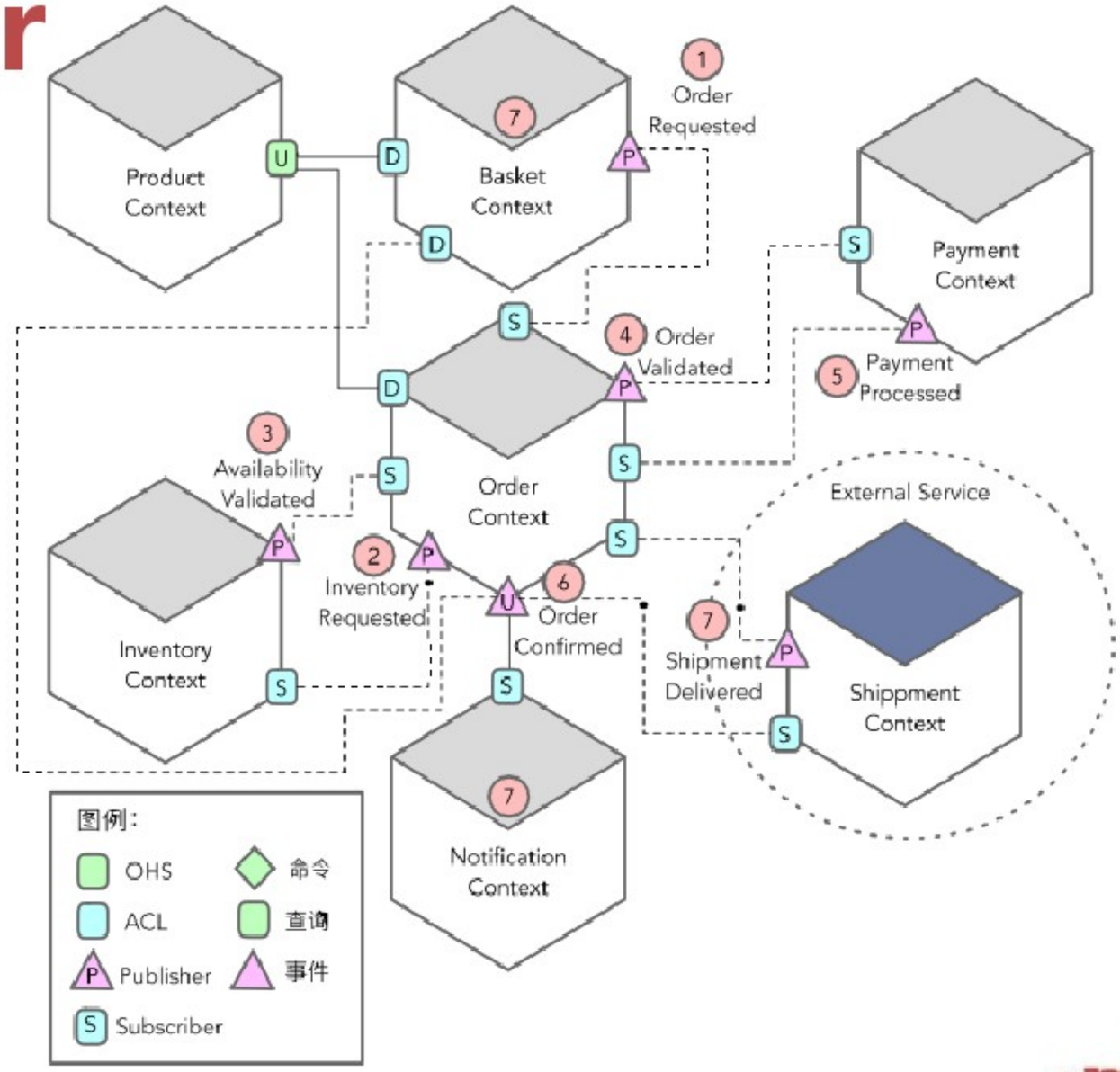
Event Driven Architecture



事件机制


Product Context
Basket Context
Inventory Context
Payment Context
①
②
④
⑥
Product Selected
Order Requested
Inventory Requested
Availability Validated
Payment Processed
③
⑤
Order Validated
Order Context
⑦
Order Confirmed
Shipment Delivered
⑧
Shipment Context
图例
发布事件
订阅事件

Publisher/Subscriber



THANKS