

Managing Complex Domains and Data Models



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MOST TRUSTED AUTHORITY ON ENTITY FRAMEWORK

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Overview



What is Domain Driven Design?

What is a Bounded Context?

Walk Through Refactored Solution

**Building Focused Data Models From
an Existing Database**

**Challenges and Solutions with
Multiple DbContexts**

Mapping the Multiple DbContexts

Code First Migrations



Domain-Driven

DESIGN

Tackling Complexity in the Heart of Software



Eric Evans

Foreword by Martin Fowler

History of success

Large, complex problems

Architecture & coding patterns

Emphasis on communication



Language that Both User & Dev Understand



Client

So, when a person clicks "Buy This", that's when we first know that we need a cart?

Right. There's no need to ~~instantiate~~ create a new cart object. If we have no items to ~~persist~~ keep track of, so that's when we should build up the ~~aggregate~~ cart and put that selected product into it at the same time.



Dev Team



If that person leaves the web page, how do we show them that cart when they return?

We can put a cookie on their computer and at the same time, ~~persist that into the data store~~ store it on our end along with any critical ~~properties of the aggregate we built~~ info. Then when they return, we read the cookie and ~~execute a query to~~ use it to retrieve that data and populate the cart ~~in memory~~.



Language that Both User & Dev Understand



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Define Boundaries Around Problems



Bounded Context

Delimits the applicability of a particular model.

BOUNDING CONTEXTS gives team members a clear and shared understanding of what has to be consistent and what can develop independently

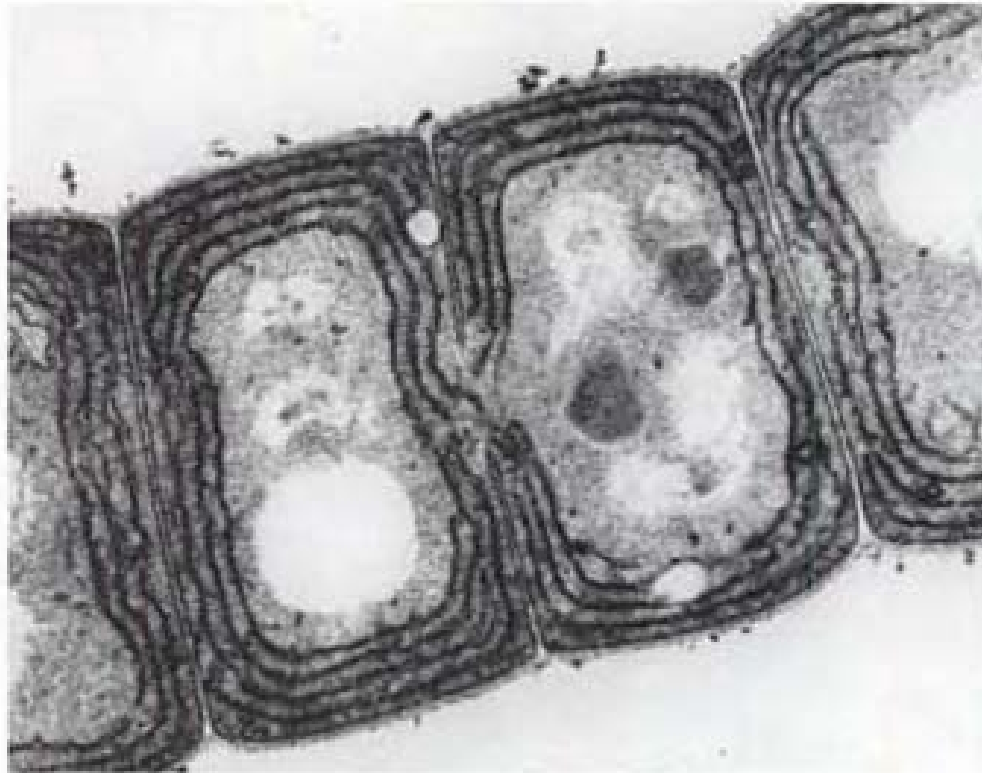
- Domain Driven Design, Eric Evans 2003



Charge	
_____	_____



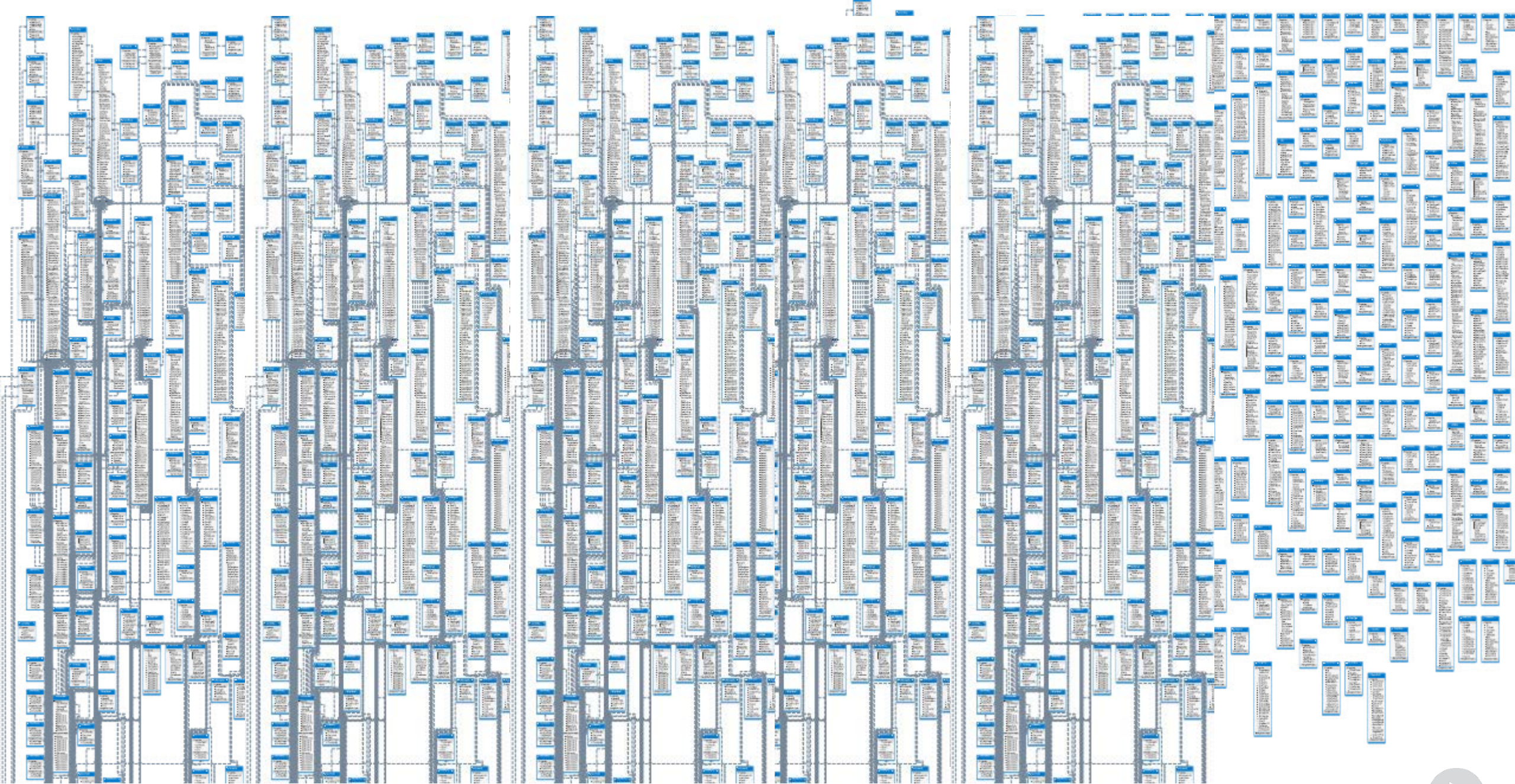
BOUNDED CONTEXT



Cells can exist because their membranes define what is in and out and determine what can pass.

- Domain Driven Design, Eric Evans 2003

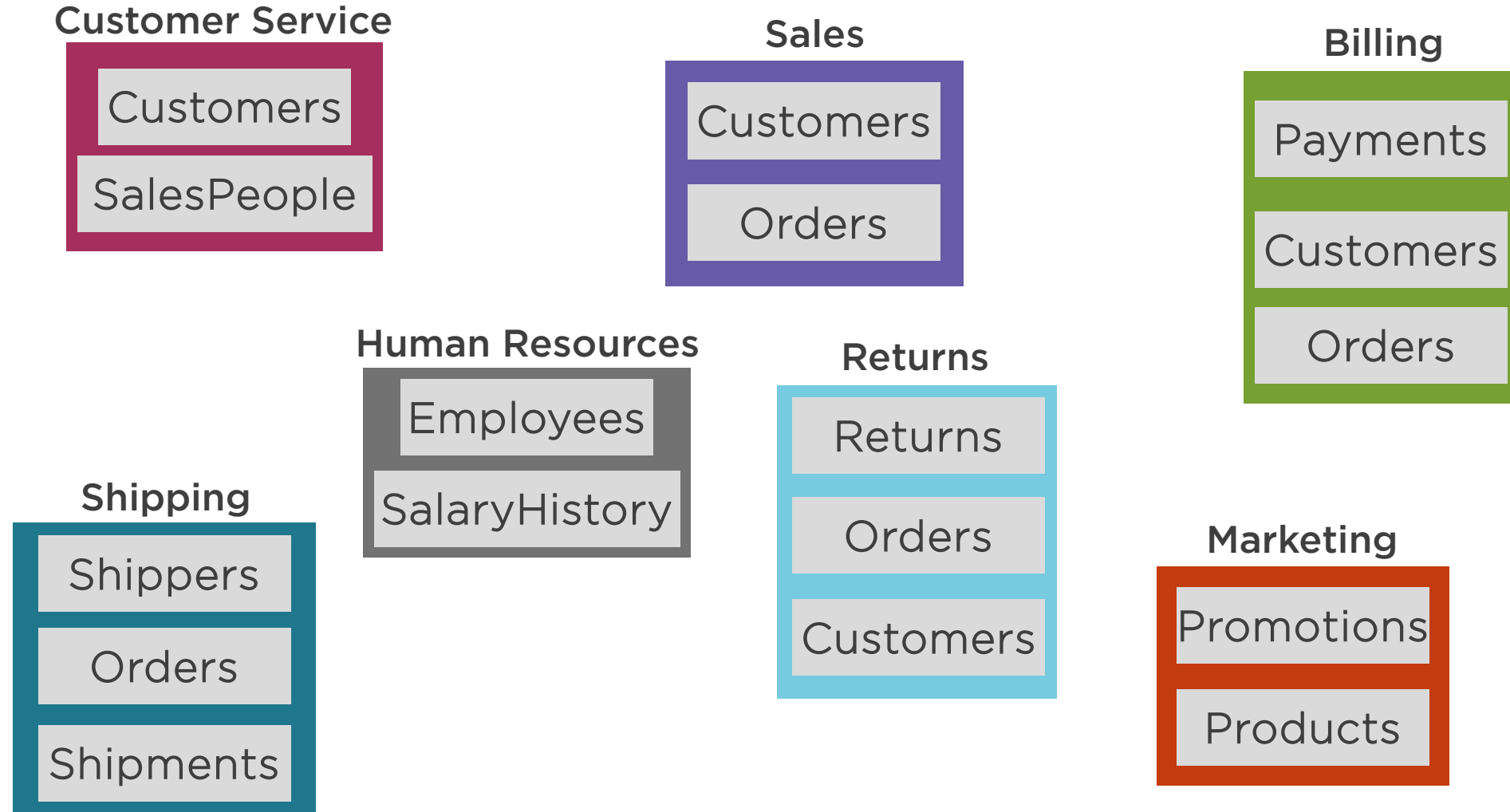




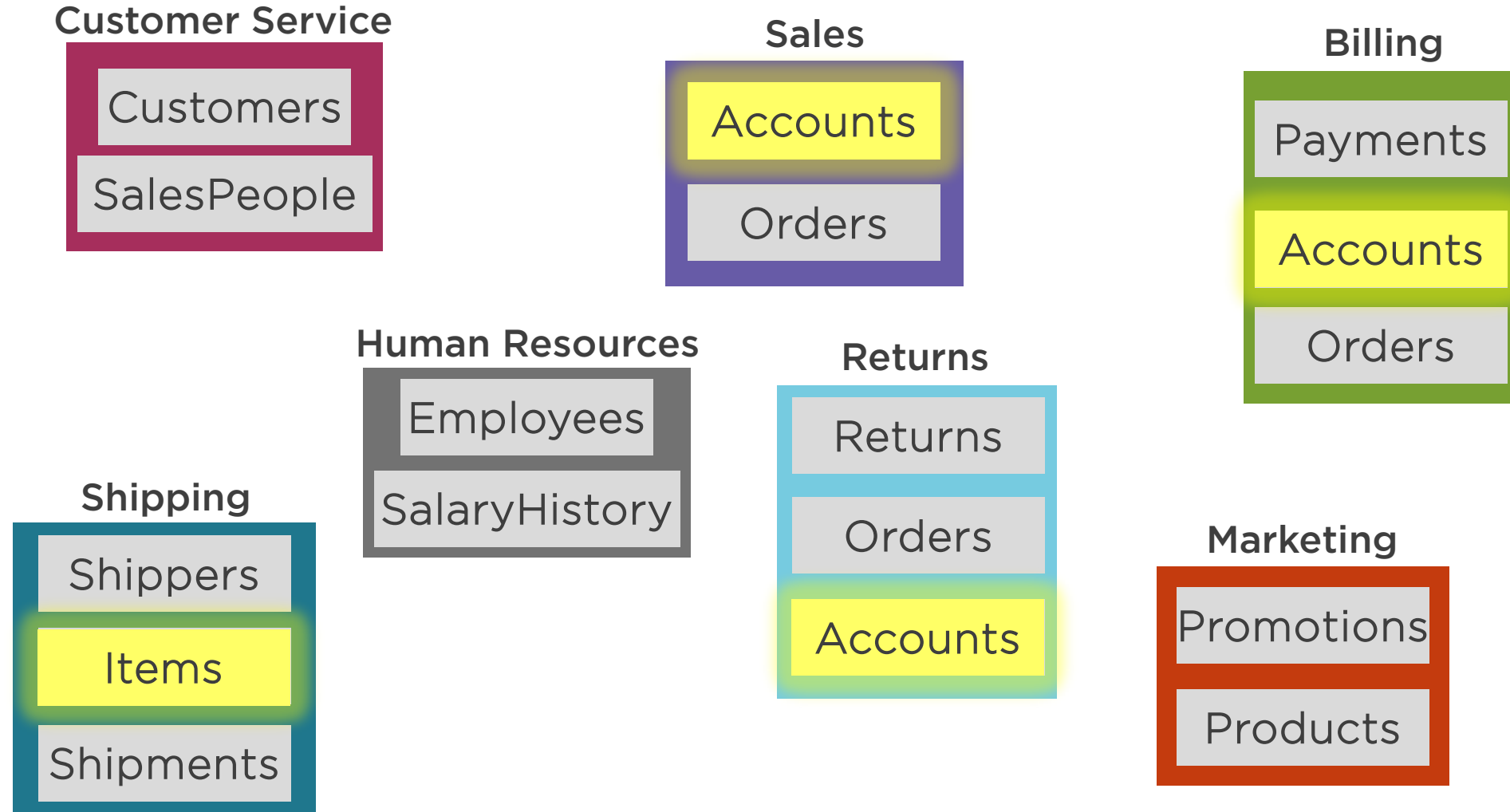
The Universe



Domain-Driven Design: “Bounded Contexts”



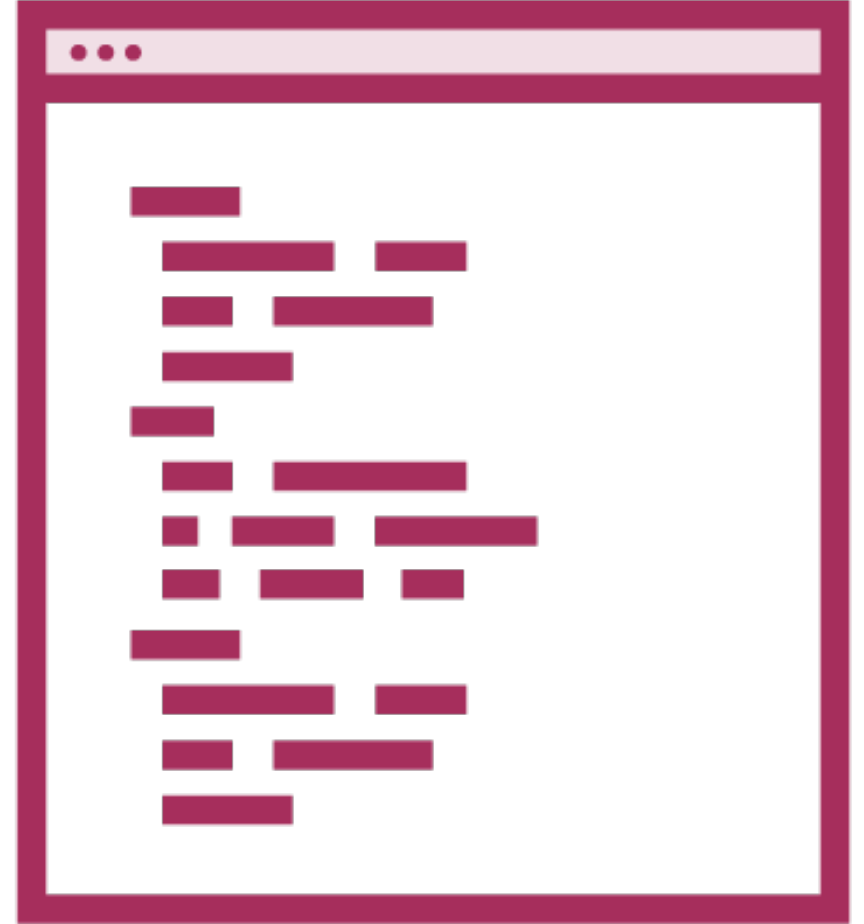
Domain-Driven Design: “Bounded Contexts”



Bounded Context

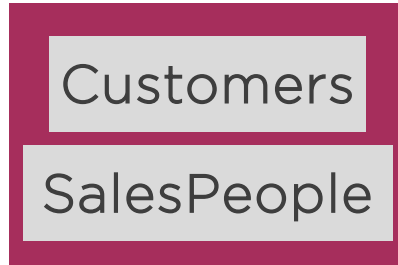


EF DbContext

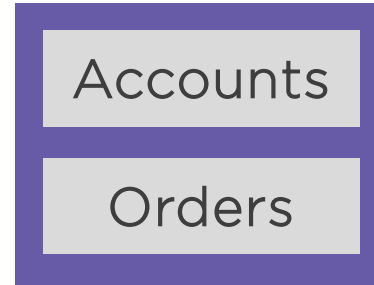


Focused DbContexts

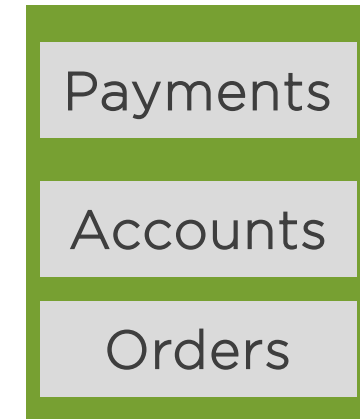
Customer Service



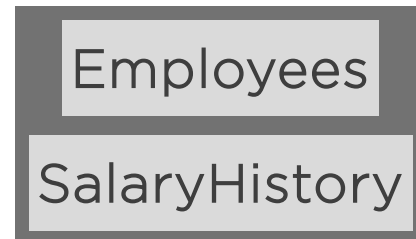
Sales



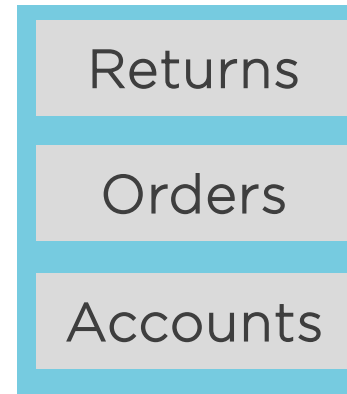
Billing



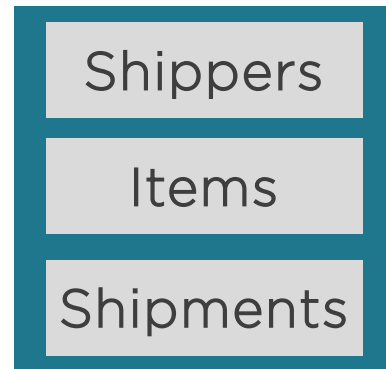
Human Resources



Returns



Shipping



Marketing



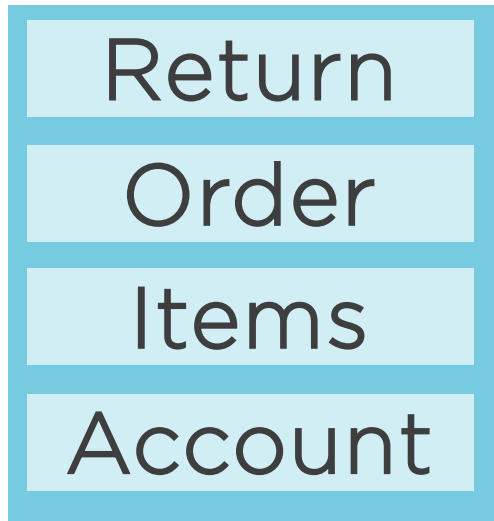
Design your data model for the sake of your domain model, not your domain model for the sake of your data model.

Vaughn Vernon, Implementing Domain Driven Design

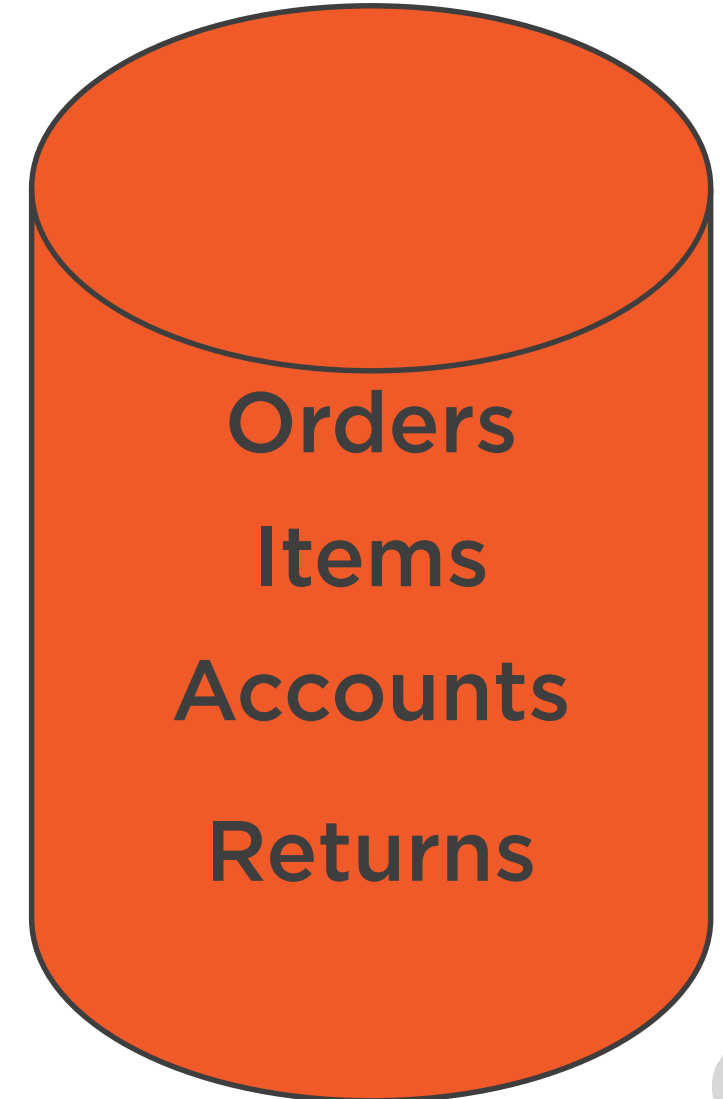


Mapping Domain Objects to DB via EF

Returns
Bounded
Context

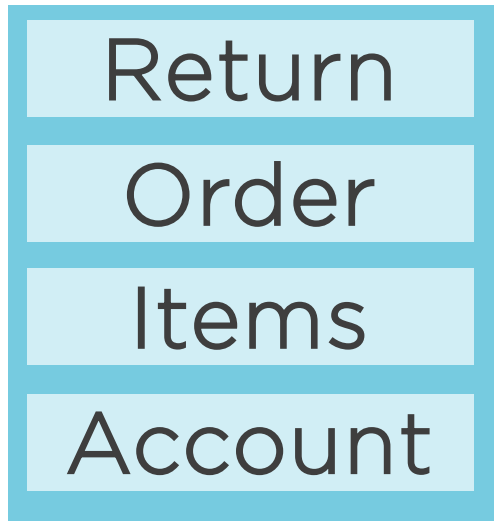


DbContext



When Mapping Is Just Too Hard!

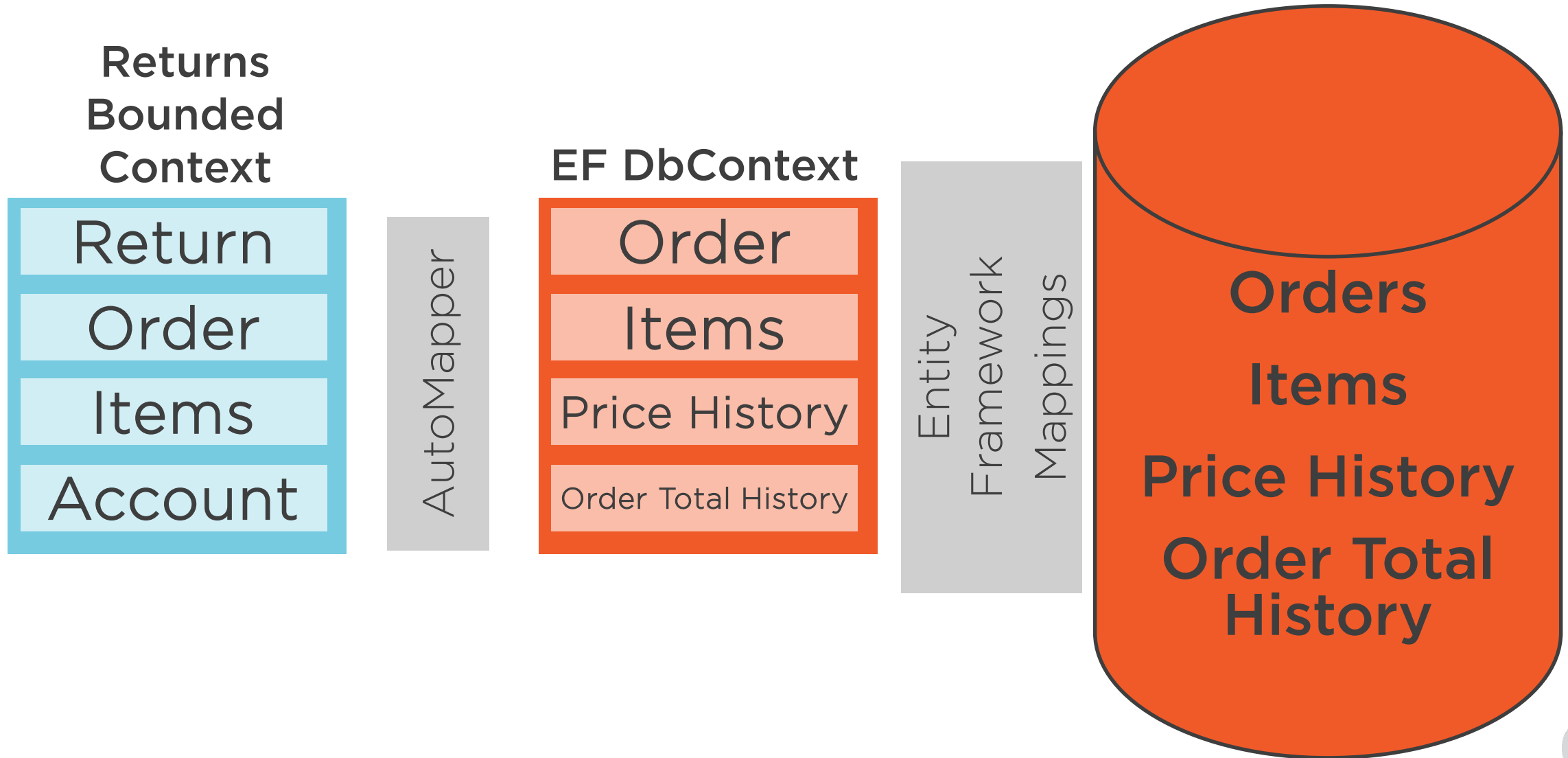
Returns
Bounded
Context



Entity
Framework
Mappings

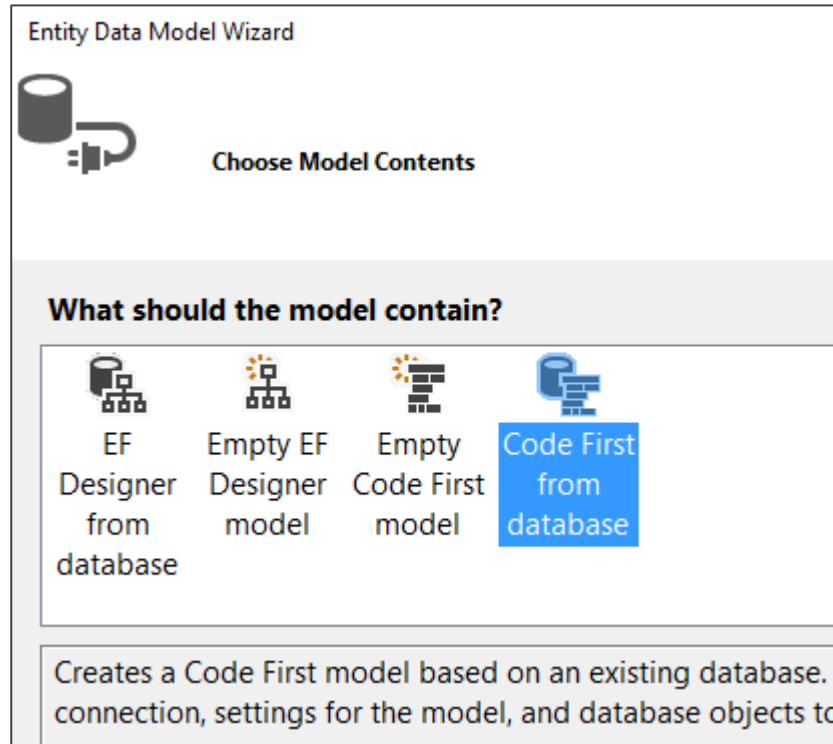


When Mapping Is Just Too Hard!




Pros & Cons of Reverse Engineering from an Existing Database





EntityFramework Reverse POCO Generator

 Free

Reverse engineers an existing database and generates EntityFramework Code First POCO classes, Configuration mappings and DbContext.

CREATED BY	Simon Hughes	UPDATED	6/2/2016
REVIEWS	★★★★★ (83) Review	VERSION	2.20.0
SUPPORTS	Visual Studio 2015, 2013, 2012, 15	LICENSE	View
DOWNLOADS	Download (218,291)	SHARE	✉ t b g+ f
		FAVORITES	Add to favorites
TAGS	Data , Entity Framework , Code Generator , Database , reverse engineering , C# , SQL Server , VSIX , POCO , Code First , CodeFirst , reverse poco		

Note: EF Core has the Migrations Scaffold command



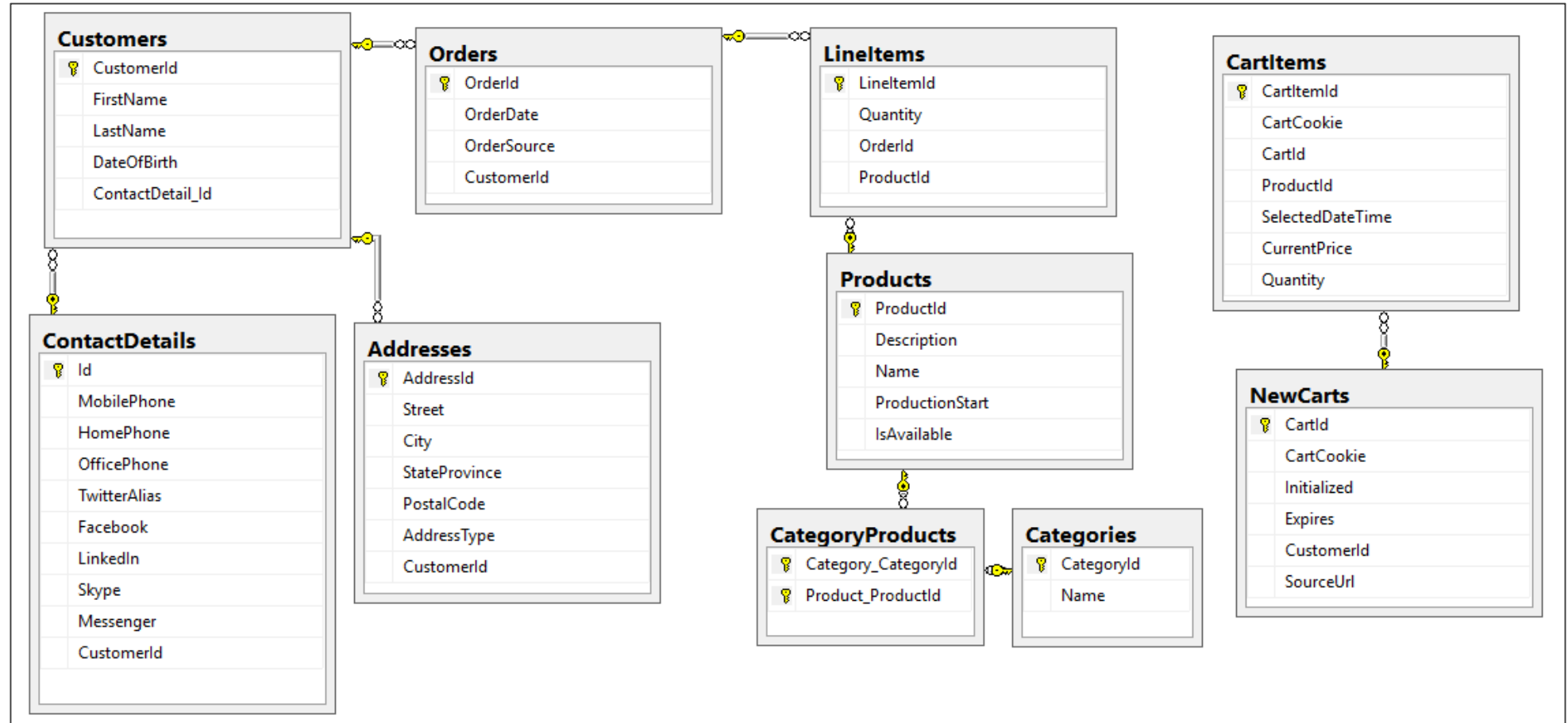
Building Migrations for Multiple DbContexts



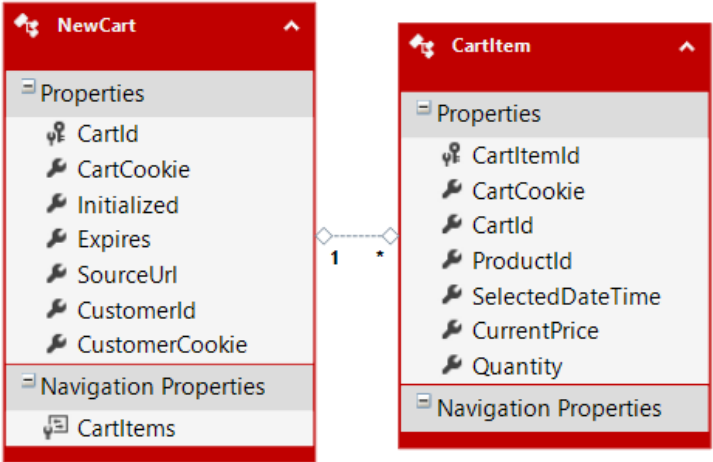
Tables

- System Tables
- dbo.__MigrationHistory
- dbo.Addresses
- dbo.CartItems
- dbo.Categories
- dbo.CategoryProducts
- dbo.ContactDetails
- dbo.Customers
- dbo.LineItems
- dbo.NewCarts
- dbo.Orders
- dbo.Products

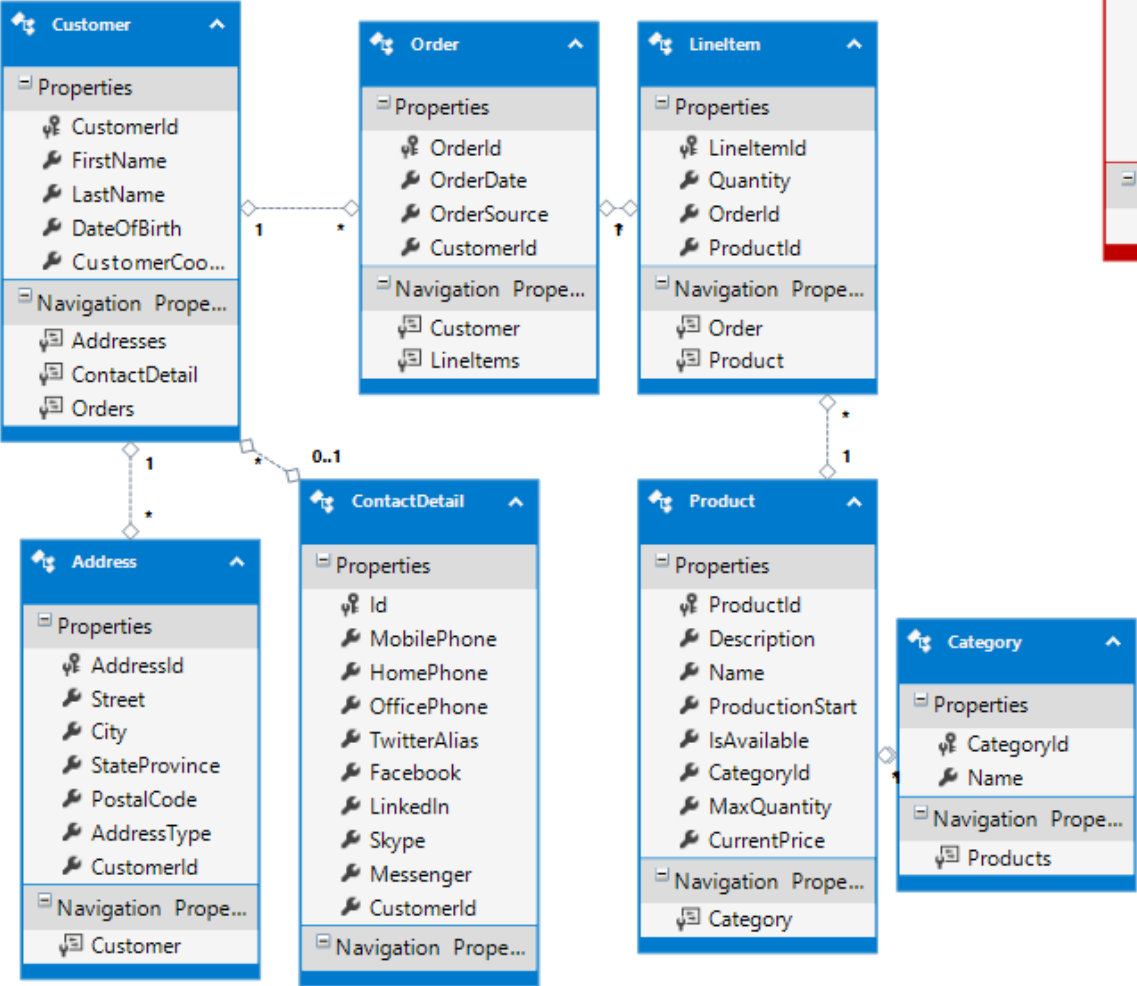
Original Database



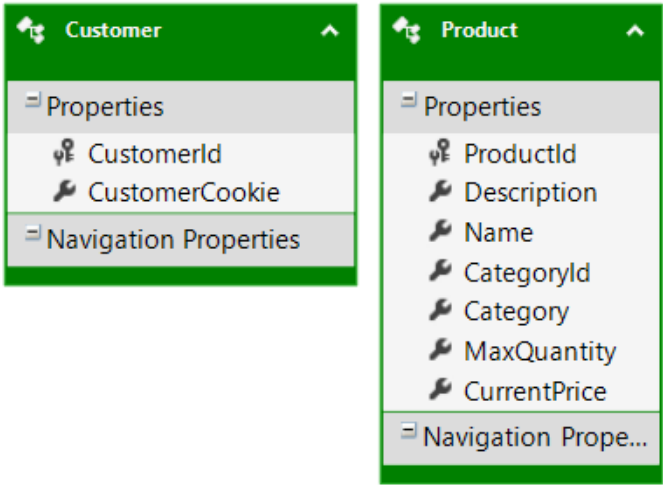
ShoppingCart DbContext



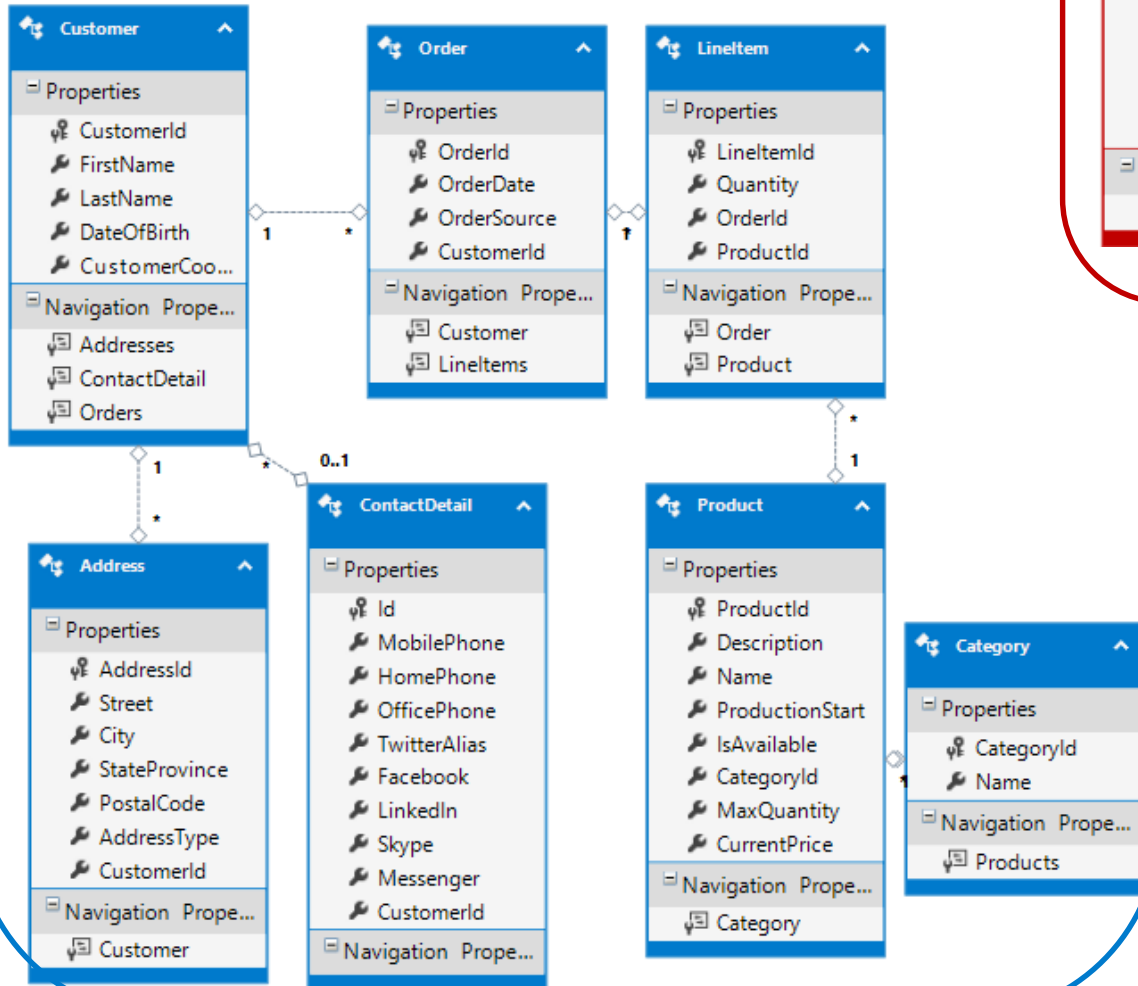
Maintenance DbContext



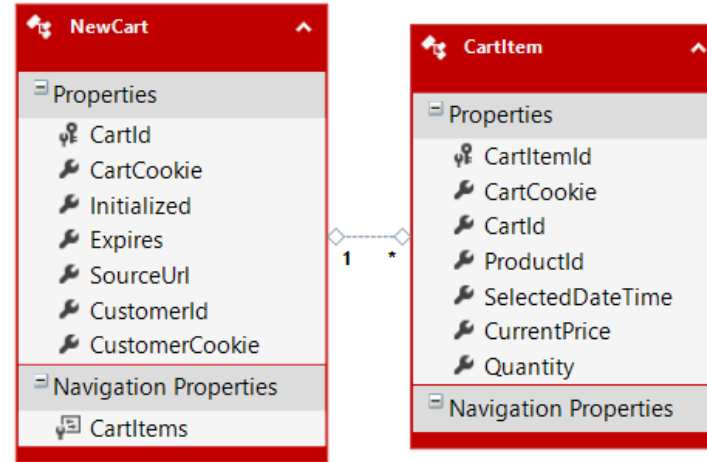
Reference DbContext



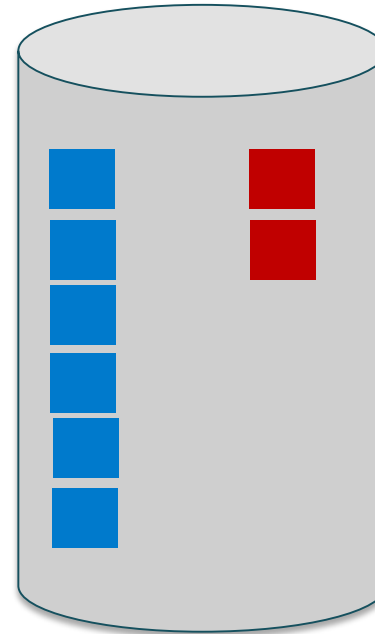
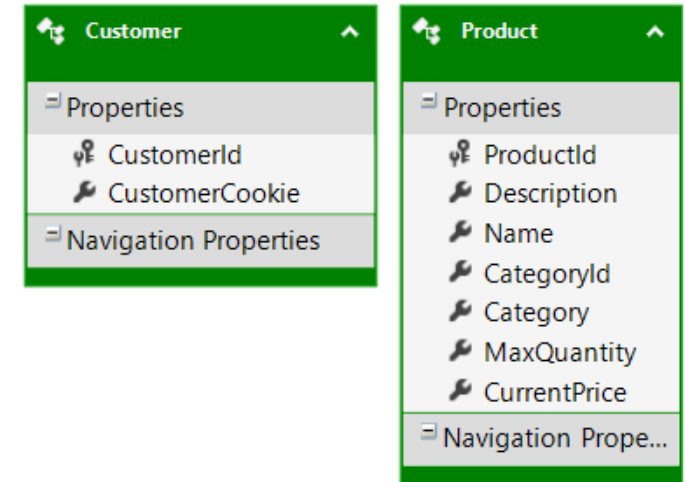
Maintenance DbContext



ShoppingCart DbContext



Reference DbContext



Code First Migrations for DbContext #1



Migrations, Compiling & Connection Strings

- Migrations will attempt to build the *Target* project and *Startup* project
- Migrations wants to find a connection string
 - ❑ Looks in *Startup* project
 - ❑ Will not look in *Target* project
 - ❑ You could use *-StartupProjectName* parameter to specify project containing app/web.config
 - ❑ `enable-migrations StartupProjectName MvcSalesApp.Web`
 - ❑ Specified project must build
- Tricking Migrations with a “Fake” Startup Project
 - ❑ Design-Time project with single app.config
- Shared Database == Shared Connection String



More DbContext Migrations & a View into the Same Database



Module Review



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Migrations for Multiple DbContexts



Resources

Helpful Pluralsight Courses

- EF6 Ninja Edition: What's New in EF6 bit.ly/PS-EF6
- Domain-Driven Design Fundamentals bit.ly/PS-DDD

Domain-Driven Design: Tackling Complexity in the Heart of Software
Eric Evans, 2003, Addison-Wesley Press

Implementing Domain-Driven Design
Vaughn Vernon, 2013, Addison-Wesley Press



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