Getting Started with Entity Framework 6

OVERVIEW OF ENTITY FRAMEWORK 6

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MOST TRUSTED AUTHORITY ON ENTITY FRAMEWORK

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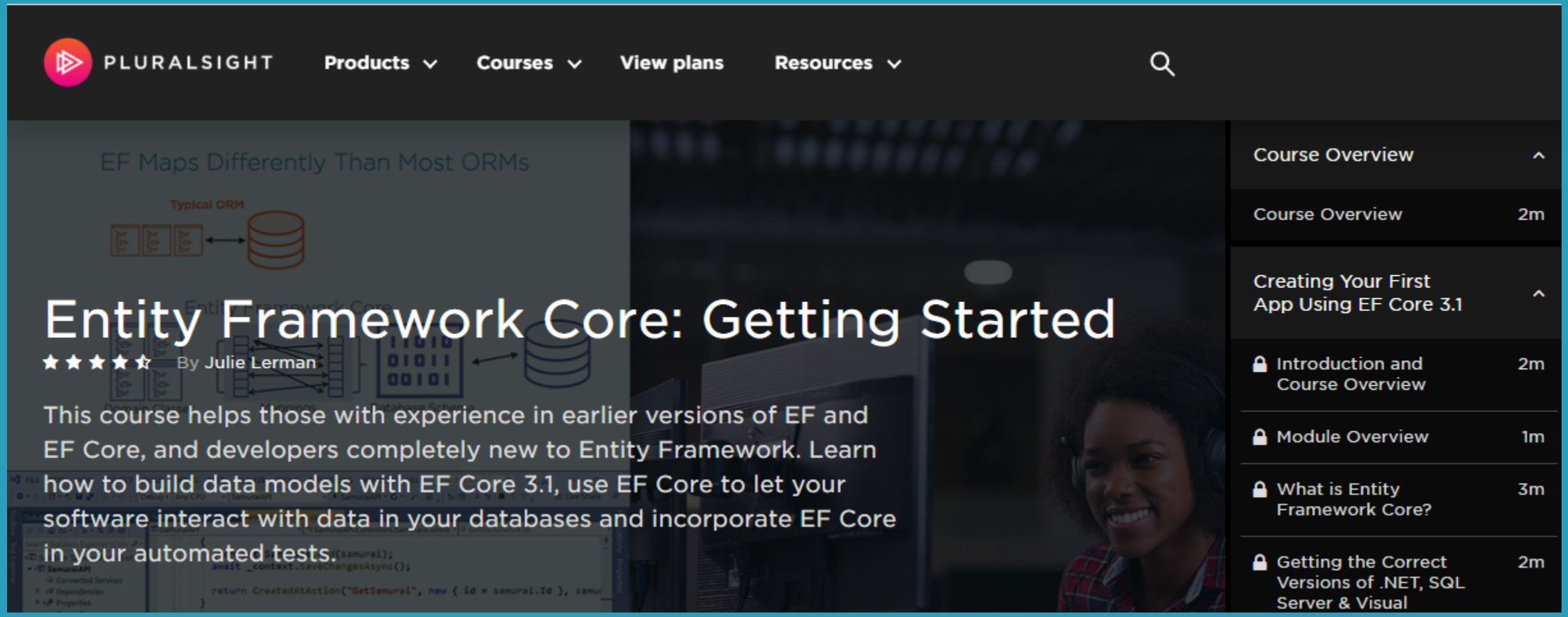
This course is to help you maintain applications that use EF6.

For new applications, please use EF Core and watch the course:

EF Core: Getting Started



bit.ly/EFCore31

State of EF6 in 2020

Minor updates since EF6 release in 2013. 6.4 released in Dec 2019

See the “What’s New” page for EF6 in MS docs
docs.microsoft.com/en-us/ef/ef6/what-is-new/past-releases

Everything continues to work in Visual Studio 2019

Most interesting change was that EF6 was ported to .NET Core 3
I wrote an article about it in 2019: bit.ly/EF6NetCore3

This Course

High level view of EF6

Creating a model with code

Use EF's DbContext between model & DB

Your model & EF in client & server apps

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This Module

What is Entity Framework?

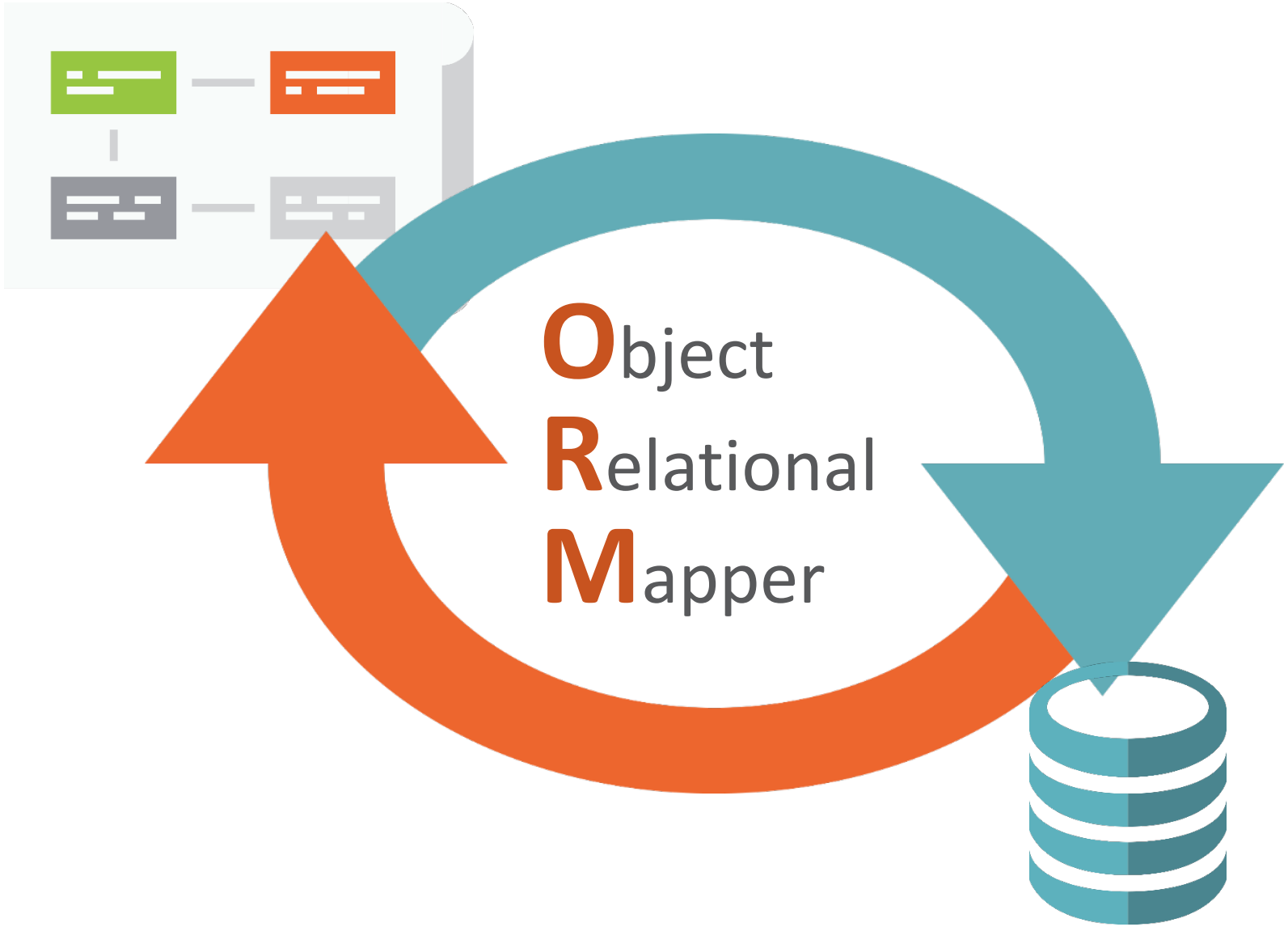
Why use Entity Framework?

A brief history in EF time

Where EF fits in your architecture

Should you use EF6 or EF Core?

What is Entity Framework?



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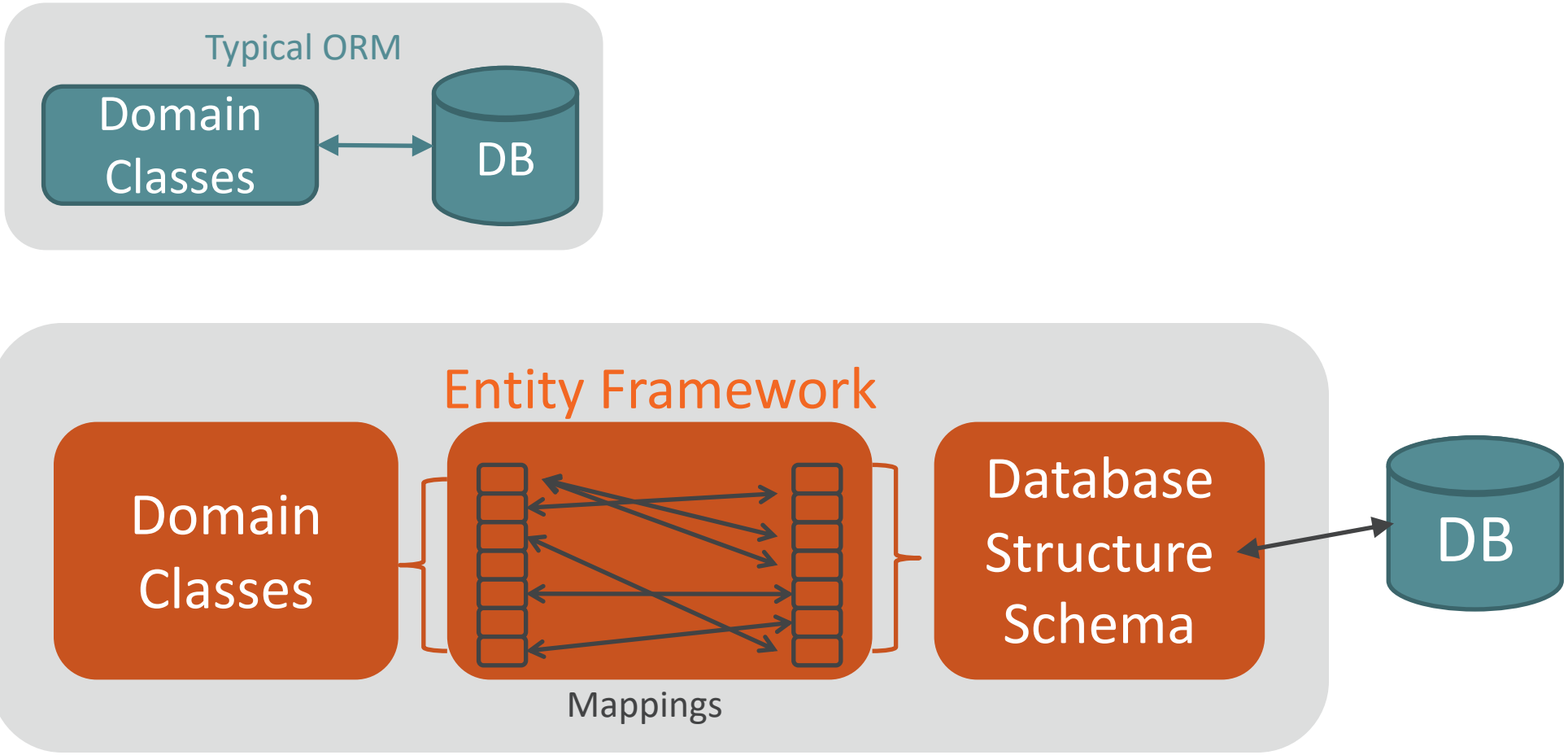
EF vs Other ORMs



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Why Entity Framework?

Developer Productivity

First Class Member of Microsoft .NET Stack

Consistent query syntax with LINQ to Entities

Focus on domain. Not on DB, connections, commands, etc.

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Where to Use Entity Framework 6

.NET 4, .NET 4.5, .NET 4.51, .NET 4.6

WPF
Windows Forms
Console Application

Client Side

ASP.NET MVC Controller
ASP.NET Web API
ASP.NET Web Forms
WCF Services
WCF Data Services
Windows Services

Server Side

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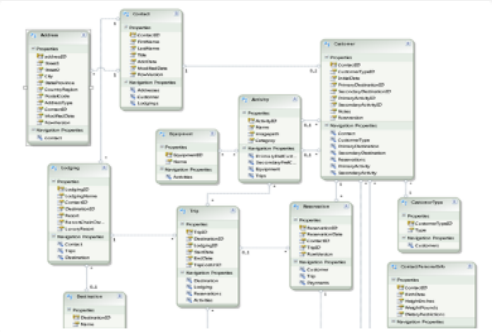
How EF Works

Your Classes

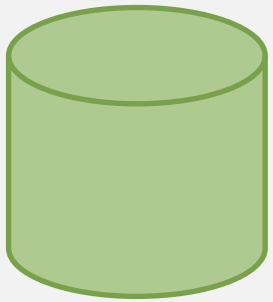


(via *Designer + Code Gen* or *Your Code*)

Entity Framework API

- Map Classes to Database Schema
- Translate & Execute Queries
- Track Changes
- Infer & Execute Updates

Relational DB



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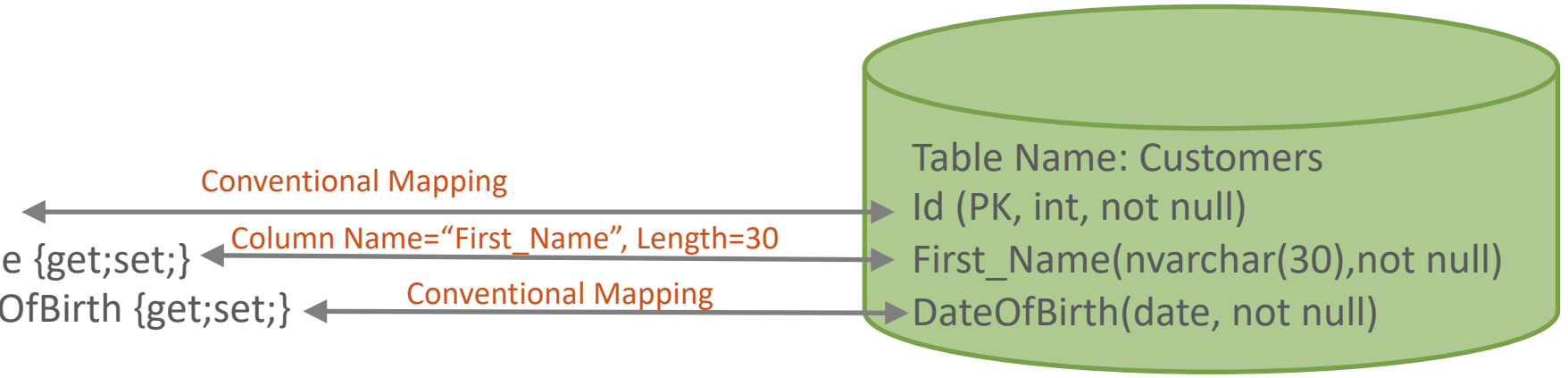
Code First Mappings

```
public class Customer
{
  public int Id {get;set;}
  public string FirstName {get;set;}
  public DateTime DateOfBirth {get;set;}
}
```



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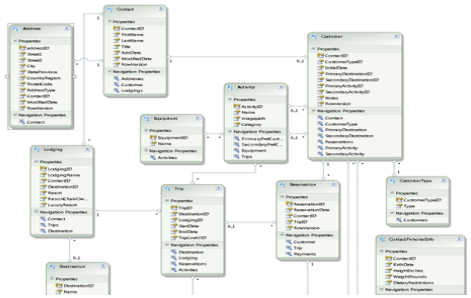
Basic Workflow

Define model



Express & execute query

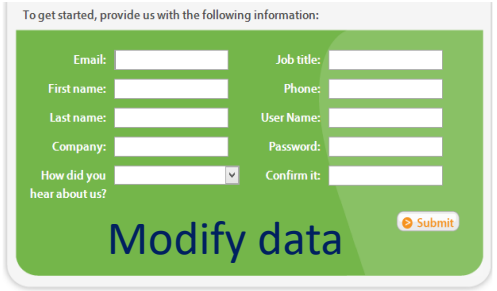
```
(from p in people select p).ToList()
```

EF determines & executes SQL

```
Select * from people
```

EF transforms results into your types

3	Ms.	Donnie	F.	Carreras
4	Ms.	Janet	M.	Gates
5	Mr.	Lucy	*NULL*	Harrington
6	Mr.	Joop	X.	Carroll
7	Mr.	Dominic	P.	Gash
10	Ms.	Kathleen	M.	Garza
11	Ms.	Kathleen	*NULL*	Harding
12	Mr.	Johnny	A.	Caprio
16	Mr.	Christopher	R.	Beck
18	Mr.	David	J.	Liu
19	Mr.	John	A.	Beaver



EF SaveChanges

EF determines & executes SQL

```
UPDATE people
SET Firstname='Julie'
WHERE id=3
```

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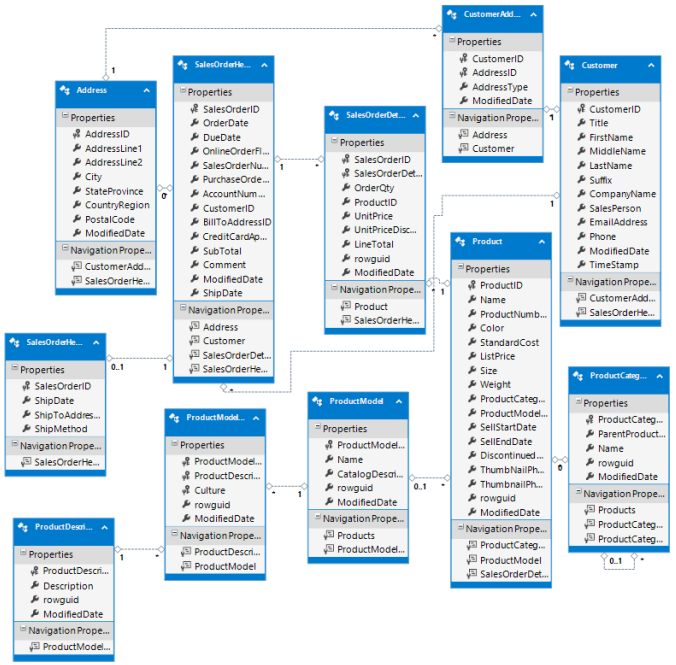
Model Options




```
public partial class Customer
{
    public Customer()
    {
        this.CustomerAddresses = new HashSet<CustomerAddress>();
        this.SalesOrderHeaders = new HashSet<SalesOrderHeader>();
    }

    public int CustomerID { get; set; }
    public string Title { get; set; }
    public string FirstName { get; set; }
    public string MiddleName { get; set; }
    public string LastName { get; set; }
    public string Suffix { get; set; }
    public string CompanyName { get; set; }
    public string SalesPerson { get; set; }
    public string EmailAddress { get; set; }
    public string Phone { get; set; }
    public System.DateTime ModifiedDate { get; set; }
    public byte[] TimeStamp { get; set; }

    public virtual ICollection<CustomerAddress> CustomerAddresses { get; set; }
    public virtual ICollection<SalesOrderHeader> SalesOrderHeaders { get; set; }
}
```

Model.EntityType="Customer"
Property.Name="Title"
Key.Name="First_Name"

Storage.EntityType="Customer"
Property.Name="Title"
Key.Name="First_Name"

Mapping:
[Model.Entity("Customer"),
Storage.Entity("Customers")]
[Model.Property("FirstName"),
Storage.Property("First_Name")]

```
public class Customer : Contact
{
  public Customer(string firstName,string lastName, string email)
  {
    FullName = new FullName(firstName,lastName);
    EmailAddress = email;
    Status = CustomerStatus.Silver;
  }
  public Customer()    {    }
  public string SalesPersonId { get; private set; }
  public CustomerStatus Status { get; private set; }
  public Address ShippingAddress { get; private set; }
  public Address BillingAddress { get; private set; }
  public CustomerCreditCard CreditCard { get; private set; }
  public void SetShippingAddressBillingAddress()
  {
    ShippingAddress = new Address
                      {
                        Street1 = BillingAddress.Street1,
                        City = BillingAddress.City,
                        PostalCode = BillingAddress.PostalCode
                      };
  }
    public void CreateNewShippingAddress(string street, string city, string zip)
  {
   BillingAddress = new Address
                    {
                      Street1 = street,
                      City = city,
                      PostalCode = zip
                    };
  }
```

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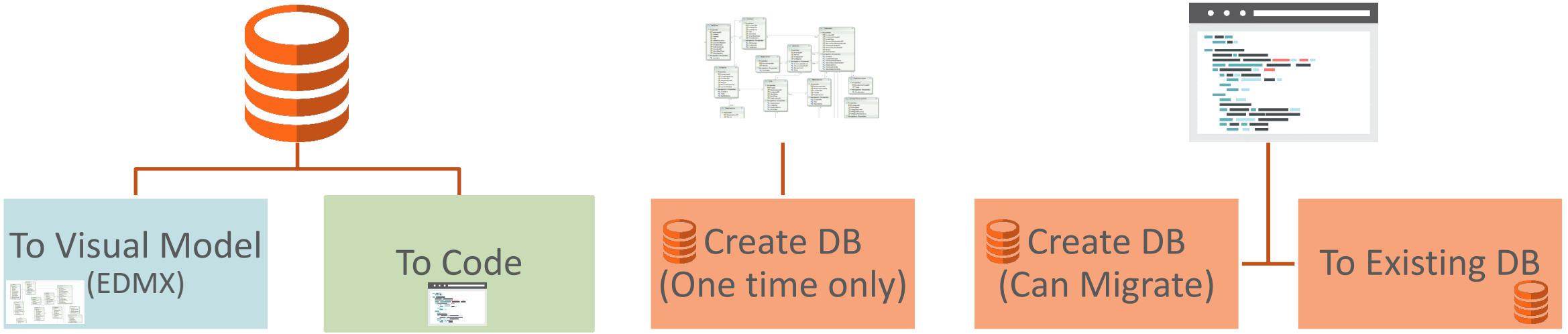
Model Creation Options



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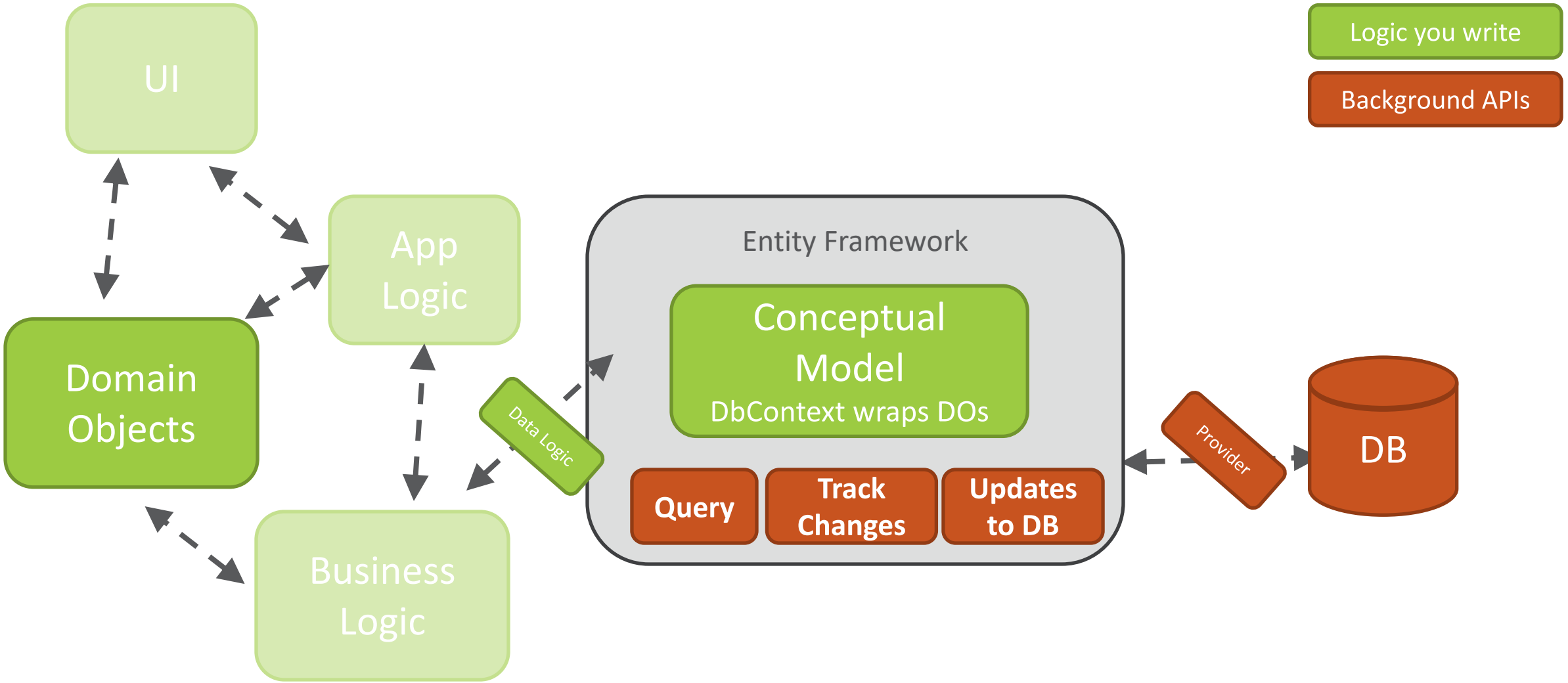
EF in Your Software Architecture



A Brief History in EF Time

2008
2010
2011
2012
2013

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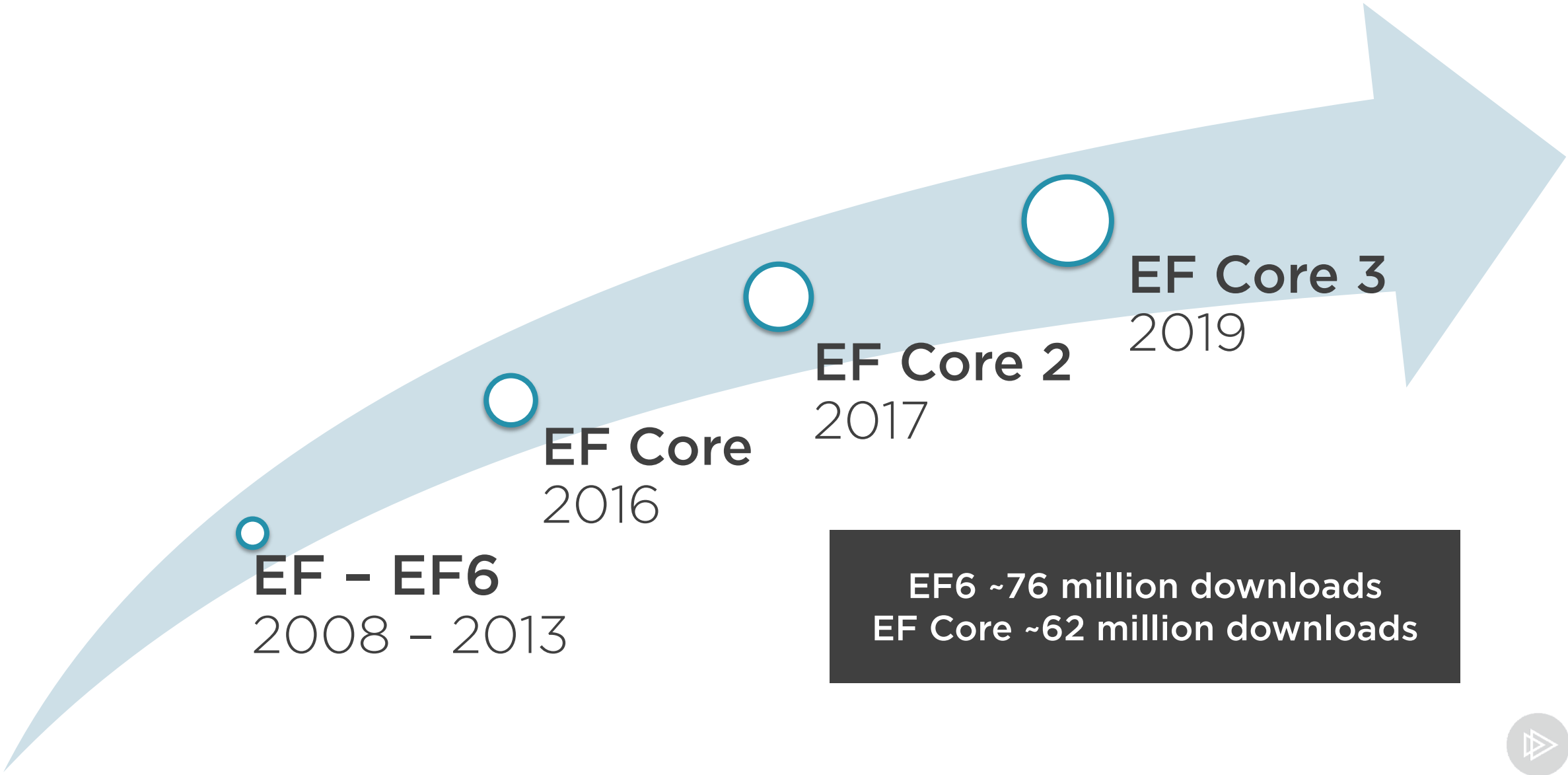
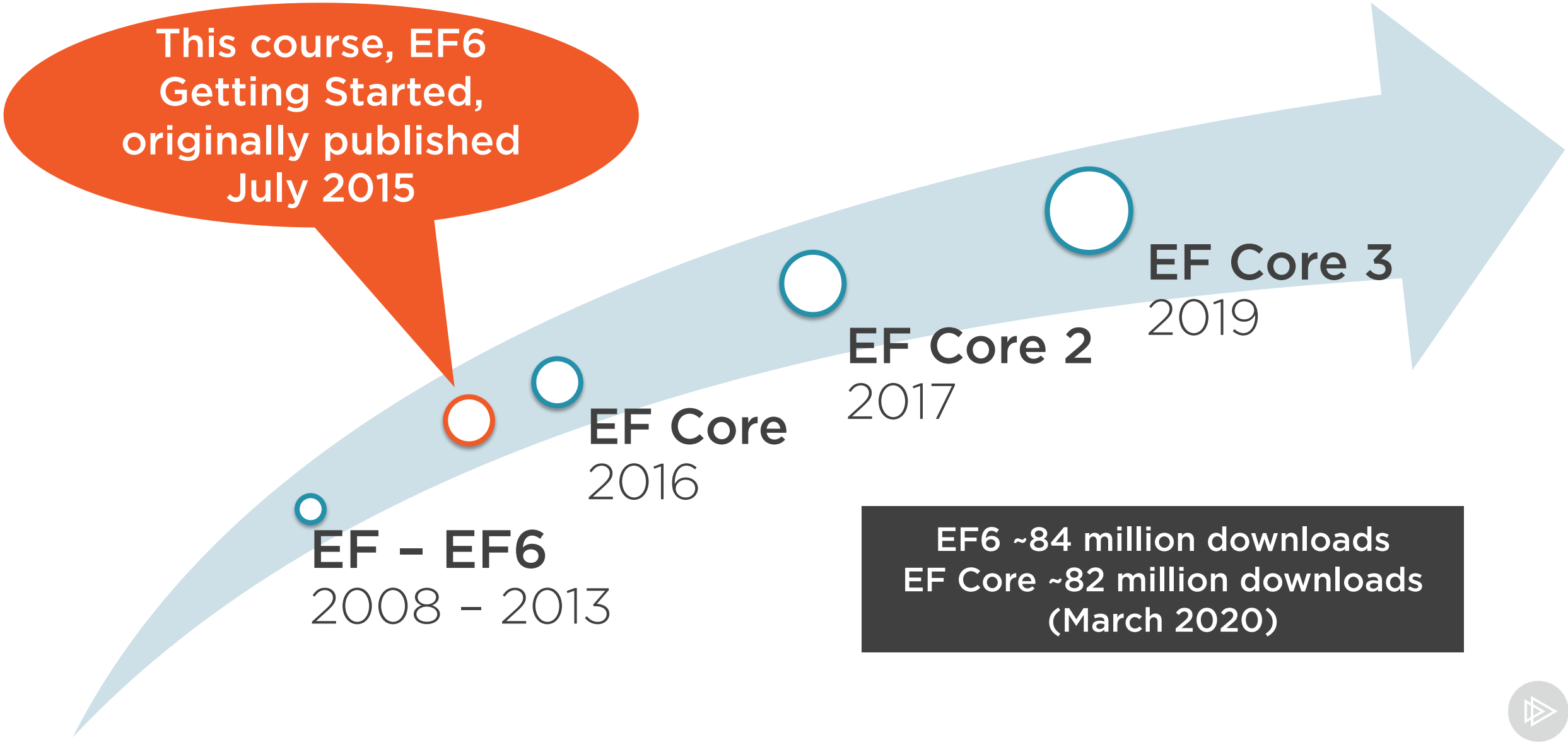
Should I Using EF6 or EF Core?

...and on to EF Core



EF6 ~76 million downloads
EF Core ~62 million downloads

...and on to EF Core



Senior Engineer on the EF/EFCore team

Arthur Vickers
@ajcvickers

Replying to @julielerman and @pluralsight

EF6 usage in .NET Framework apps is significant. That's why we ported it to .NET Core. 😀

8:11 PM · Mar 7, 2020 · Twitter for Android

Use
EF Core
when
starting
new
projects

Maintain
EF6 in
existing
software

dotnet/ef6: This is the codebase

github.com/dotnet/ef6

Search or jump to... / Pull requests Issues M

dotnet / ef6

Use

Code Issues 107 Pull requests 8 Actions Projects 0

This is the codebase for Entity Framework 6 (previously maintained at https
aintained at https://github.com/dotnet/efcore. https://docs.microsoft.co

ntity-framework dotnet-framework orm database ef6 entity-framework-6

2,900 commits 28 branches 0 packages

Branch: master New pull request

dotnet-maestro Update dependencies from https://github.com/dotnet/arcade build 20200..

.github	Create ISSUE_TEMPLATE.md
.nuget	Cleanup build system
eng	Update dependencies from https://githu
src	Remove designer code from master
test	Remove designer code from master

dotnet/efcore: EF Core is a mode

github.com/dotnet/efcore

Search or jump to... / Pull requests Issues Marketplace Explore

dotnet / efcore

Watch

Code Issues 1,376 Pull requests 24 Actions Projects 0 Wiki Security

EF Core is a modern object-database mapper for .NET. It supports LINQ queries, change tracking, up
https://docs.microsoft.com/ef/core/

entity-framework database c-sharp dotnet-core dotnet-standard dotnet-framework orm aspnet-pr

9,535 commits 26 branches 0 packages 82 releases 1

Branch: master New pull request Create new file

lajones Partial Fix for 6674. Allow inline configuration of Navigations as th...

.github	Update links for repo moves/renames
benchmark	Bump BenchmarkDotNet version to 0.12.0
docs	Update links for repo moves/renames
eng	Bump BenchmarkDotNet version to 0.12.0
src	Partial Fix for 6674. Allow inline configuration of Navigations as th...

Octotree

Upgrading From EF6 to EF Core?

This is not just an in-place update! It's a new product.

Why This Course? Why This Module?

Demonstrate long term commitment to EF6

Get started using the current APIs and tools

Provide high level basics of EF for decision makers

Assure you understand that EF6 is here to stay

Help to see how EF6 and EF Core align with your plans

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Resources

EF6 and EF Core Official Docs: docs.Microsoft.com/ef

EF6 Development Site: github.com/dotnet/ef6

EF6 Ninja Edition: What's New in EF6 (Pluralsight): bit.ly/PS-EF6

EF7 Development Site: github.com/dotnet/efcore

My Blog: thedatafarm.com/blog

Announcing Entity Framework Core 3.1 and Entity Framework 6.4
bit.ly/336yGGl

Mikael Elliason EF6 to EF Core post:
mikee.se/posts/migrating_from_ef6_to_ef_core

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OVERVIEW OF ENTITY FRAMEWORK 6

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