

# Overview of Querying Options in Entity Framework

Using & Choosing LINQ to Entities (Operators or Methods)  
and Entity SQL (Expressions or Methods)



# Objectives

- High Level View of Query Options
- LINQ to Entities
- Using LINQ Query Methods instead of Operators
- Entity SQL
- Using Query Builder Methods instead of ESQL Strings
- Understanding When and Why to Choose a Query Strategy
- A Quick Look at the Generated Database SQL

# Language **IN**tegrated **Q**uery

## LINQ

- Visual Basic
- C#
- F# (via F# PowerPack on Codeplex)

## Core

- LINQ to Objects

## Microsoft Implementations

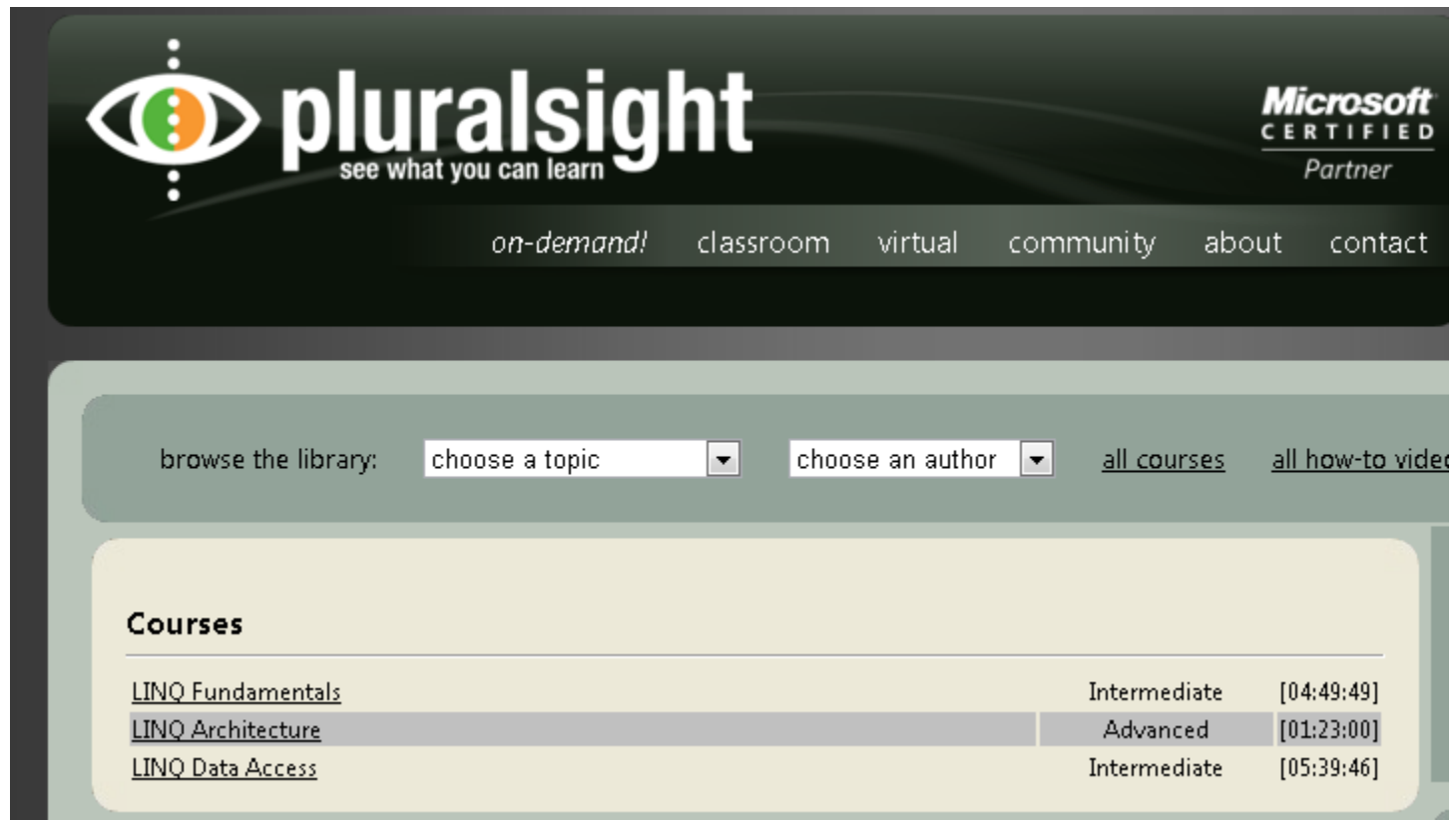
- LINQ to SQL
- LINQ to Entities
- LINQ to XML
- LINQ to Dataset
- LINQ to REST (OData)

## COMMUNITY Implementations

- LINQ to Sharepoint
- LINQ to Twitter
- LINQ to Google

[more...](#)

# Pluralsight On-Demand LINQ Course



The image shows a screenshot of the Pluralsight website. The header features the Pluralsight logo (an eye icon with a green and orange iris) and the tagline "see what you can learn". To the right of the logo is the "Microsoft CERTIFIED Partner" badge. Below the header is a navigation bar with links: "on-demand!", "classroom", "virtual", "community", "about", and "contact".

Below the navigation bar is a search section with the text "browse the library:" followed by two dropdown menus labeled "choose a topic" and "choose an author". To the right of these are links for "all courses" and "all how-to videos".

Below the search section is a "Courses" section. It contains a table with three rows of course information:

Courses		
<a href="#">LINQ Fundamentals</a>	Intermediate	[04:49:49]
<a href="#">LINQ Architecture</a>	Advanced	[01:23:00]
<a href="#">LINQ Data Access</a>	Intermediate	[05:39:46]

# LINQ to Entities

C#

from p in context.People select p

from [variable representing single type] in [group of types to query] select [variable]

from p in context.People select p  $\longrightarrow$  IQueryable<Person>

from foo in context.PartySupplies select foo  $\longrightarrow$  IQueryable<PartySupply>

VB

From p In context.People Select p

From [variable] In [group of types] Select [variable]

From p In context.People Select p  $\longrightarrow$  IQueryable(Of Person)

From foo In context.PartySupplies Select foo  $\longrightarrow$  IQueryable(Of PartySupply)

## Execute a Query in your code using:

- `query.ToList()`
- `foreach(var x in query)`
- `query.First()`
- ...

## EF Performs in the Background:

- Transform to store query
- Execute store query against database
- Grab results
- Materialize entity objects from results

# Beware Inadvertent Query Execution

```
IQueryable myCusts=  
    from c in contacts select c
```

```
myCusts.ToList();
```

```
myCusts.Count();
```

```
foreach (var c in myCusts) {}
```

```
myDataGrid.DataSource=myCusts;
```



# So Many Query Operators

## Set

- Any
- Contains
- Distinct
- Union
- More...

## Where OrderBy

## Aggregate

- Max
- Min
- Count
- Sum
- Average

## Group

- GroupBy

## Paging

- Skip
- Take
- TakeWhile

## Type

- OfType



# LINQ Methods With Lambdas

C#

```
Context.Customers.Where(c=>c.FirstName=="Robert")  
                .OrderBy(foo=>foo.LastName)
```

VB

```
Context.Customers.Where(Function(c) c.FirstName="Robert")  
                .OrderBy(Function(foo) foo.LastName)
```

# Entity SQL

"SELECT VALUE **c** FROM SalesEntities.Customers AS **c**"

*SELECT [VALUE if single type returned] [variable] FROM [group of types to query] AS [variable]*

## Combine with ObjectQuery

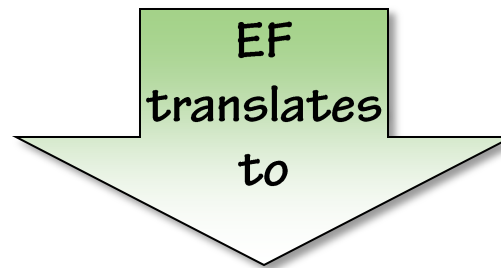
```
string eSql= ("SELECT VALUE c FROM SalesEntities.Customers AS c");  
ObjectQuery<Customer> query = context.CreateQuery(esql);
```

## Execute

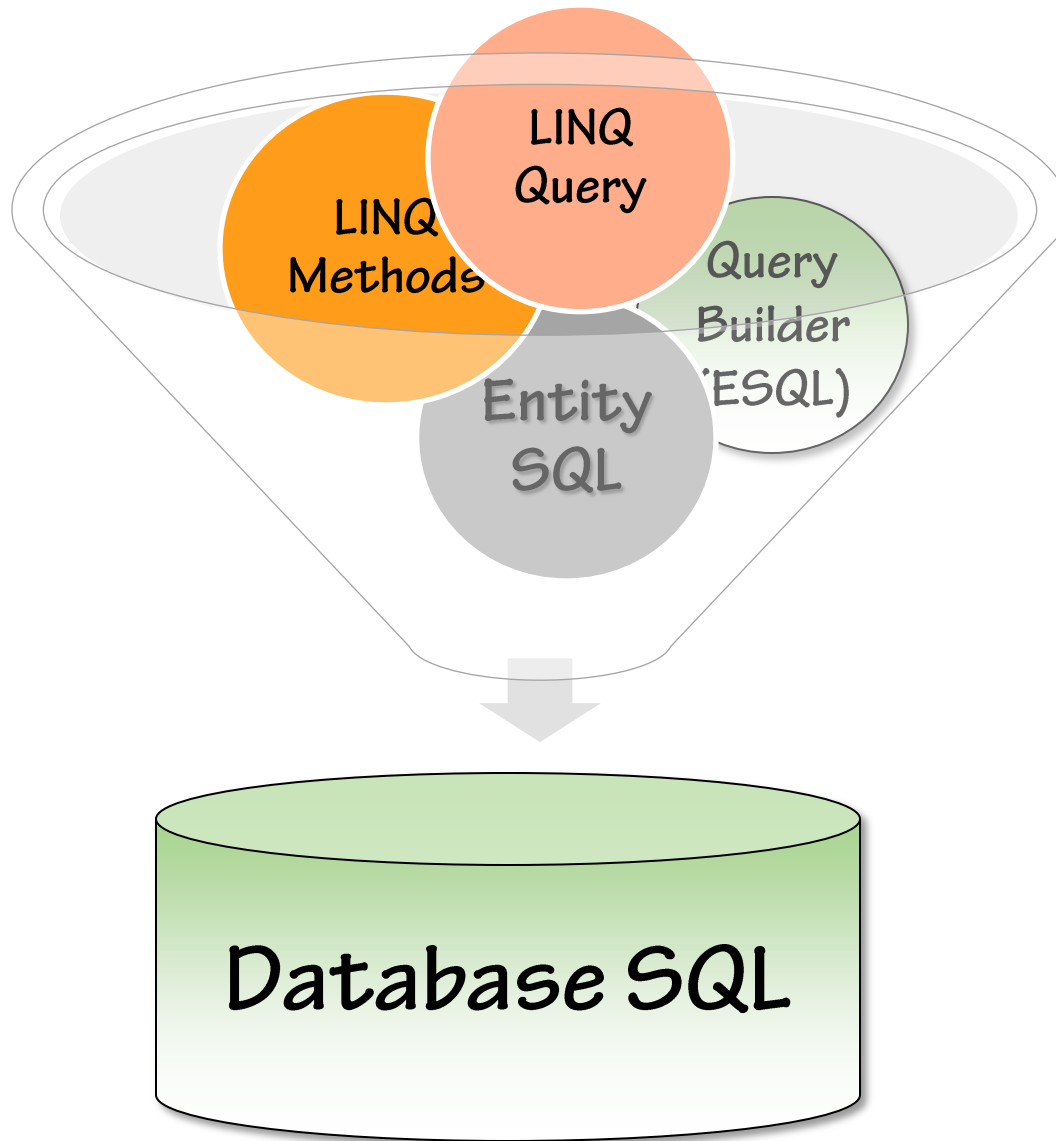
```
List<Customer> custs = query.ToList();
```

# ObjectQuery Query Builder Methods

```
Context.Customers.Where("it.FirstName='Robert'")  
                .OrderBy("it.LastName");
```



```
ObjectQuery<Customer>("SELECT it FROM SalesEntities.Customers  
                        AS it  
                        WHERE it.FirstName='Robert'  
                        ORDER BY it.LastName");
```



# Resources

- **Pluralsight On Demand**
  - <http://www.pluralsight.com>
- **Programming Entity Framework, 2<sup>nd</sup> Edition, Julie Lerman**
  - O'Reilly Media, August 2010
  - <http://www.learnentityframework.com>
- **Query Profiling Options for Entity Framework**
  - December 2010 MSDN Magazine Data Points Column
    - [msdn.com/magazine](http://msdn.com/magazine)
- **Microsoft Data Developer Center**
  - <http://msdn.com/data>