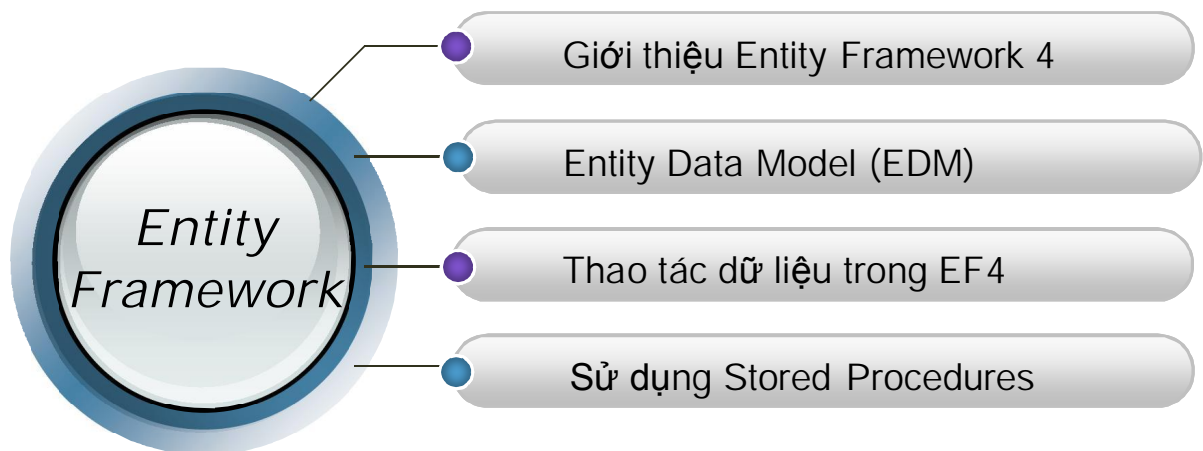


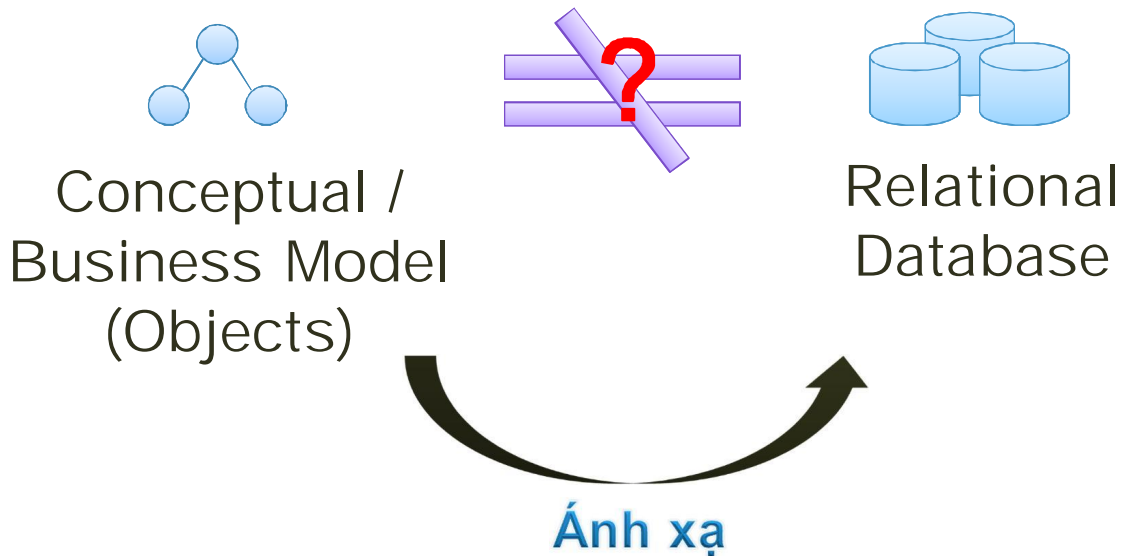
Entity Framework

Hoàng Anh Tú

Nội dung



Rational Data Model vs Class Model



Hoàng Anh Tú

3

Entity Framework

- ❖ Framework hỗ trợ truy xuất cơ sở dữ liệu
- ❖ Môi trường: .NET Framework 4
- ❖ IDE: Visual Studio 2008 & 2010
- ❖ Phiên bản mới nhất: 4
- ❖ Chức năng:
 - Độc lập với hệ quản trị cơ sở dữ liệu
 - Phát triển nhanh ứng dụng
 - Thao tác trên mô hình đối tượng ở client
 - Hỗ trợ tạo mô hình từ cơ sở dữ liệu
 - ...

Hoàng Anh Tú

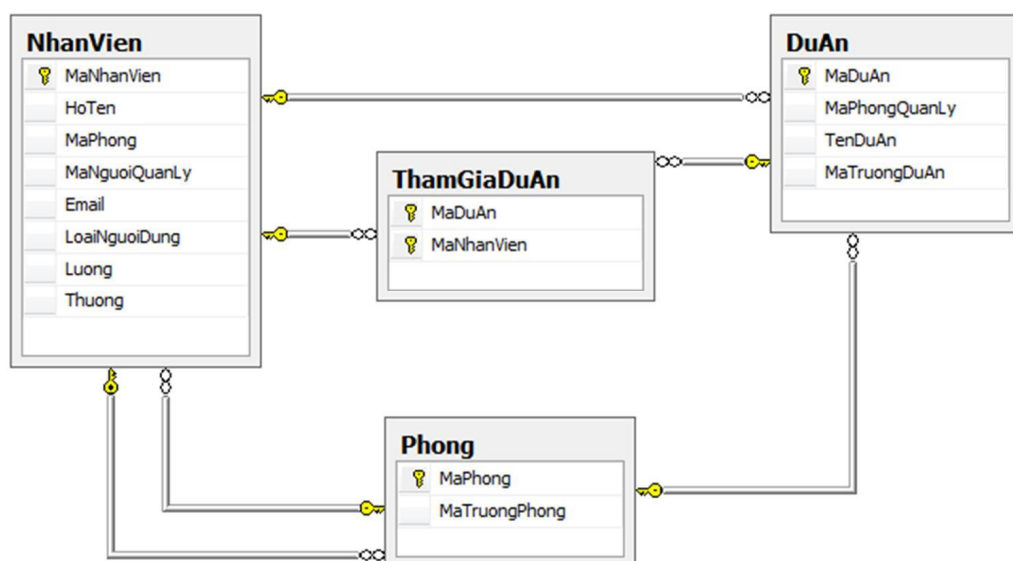
4

ENTITY DATA MODEL

Hoàng Anh Tú

5

Entities & Relationships

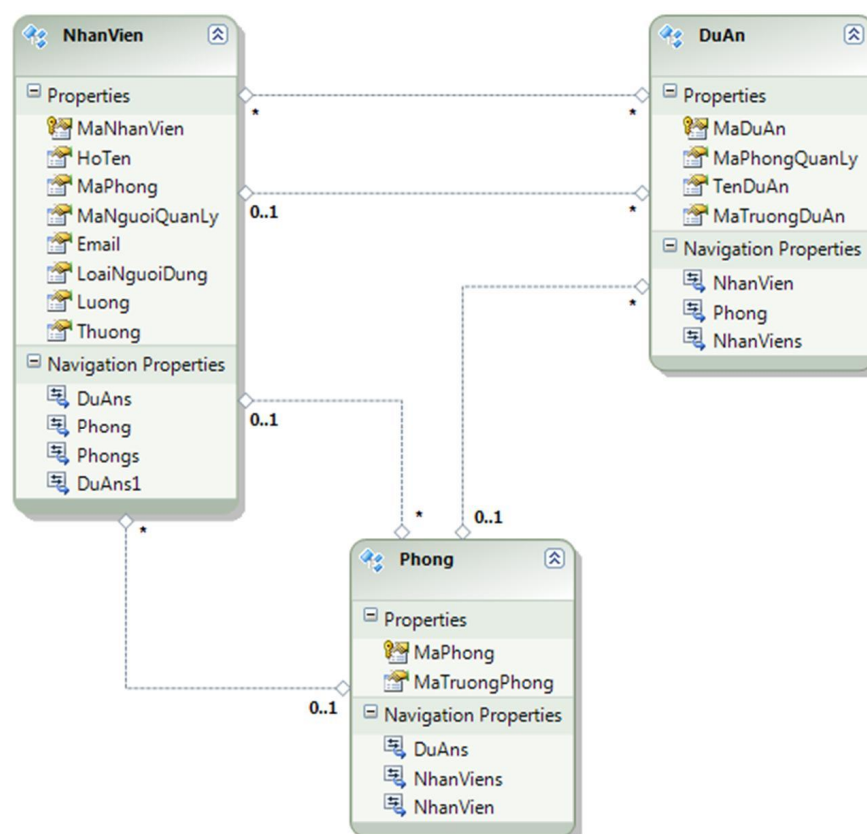


Hoàng Anh Tú

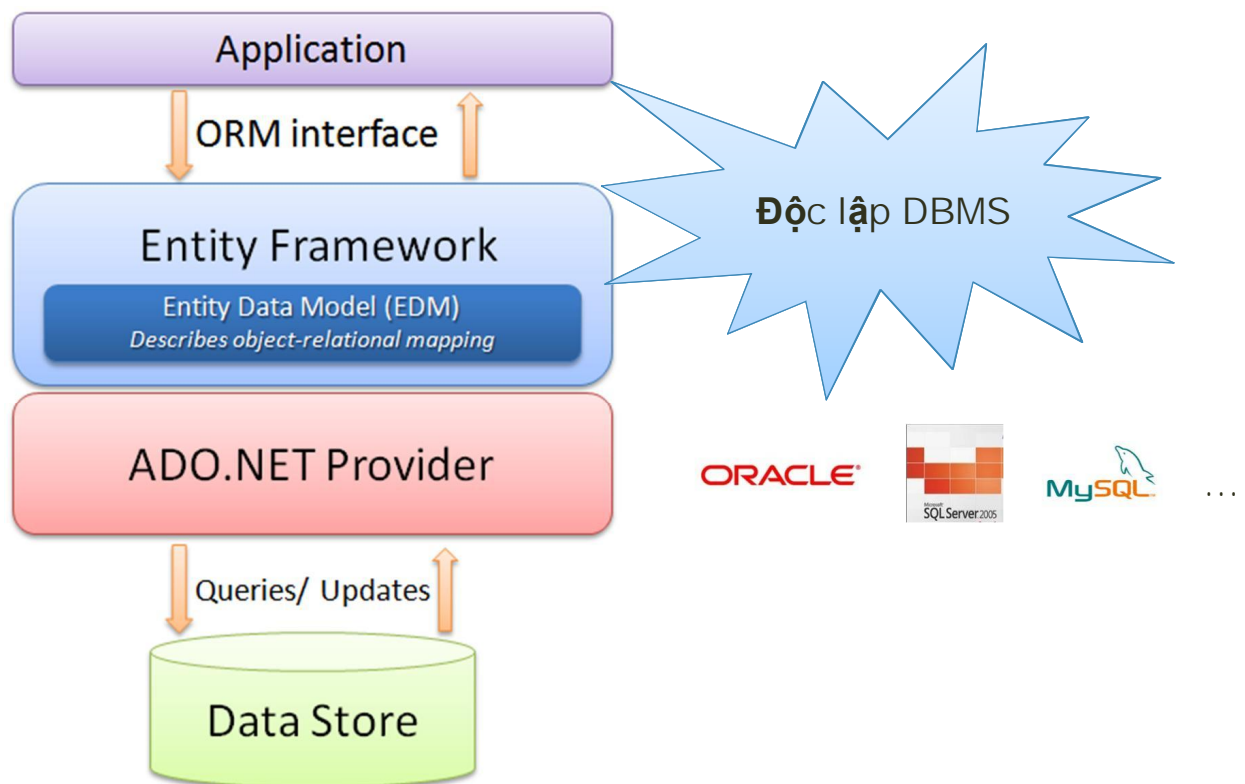
6

Phát sinh EDM

Entities & Relationships



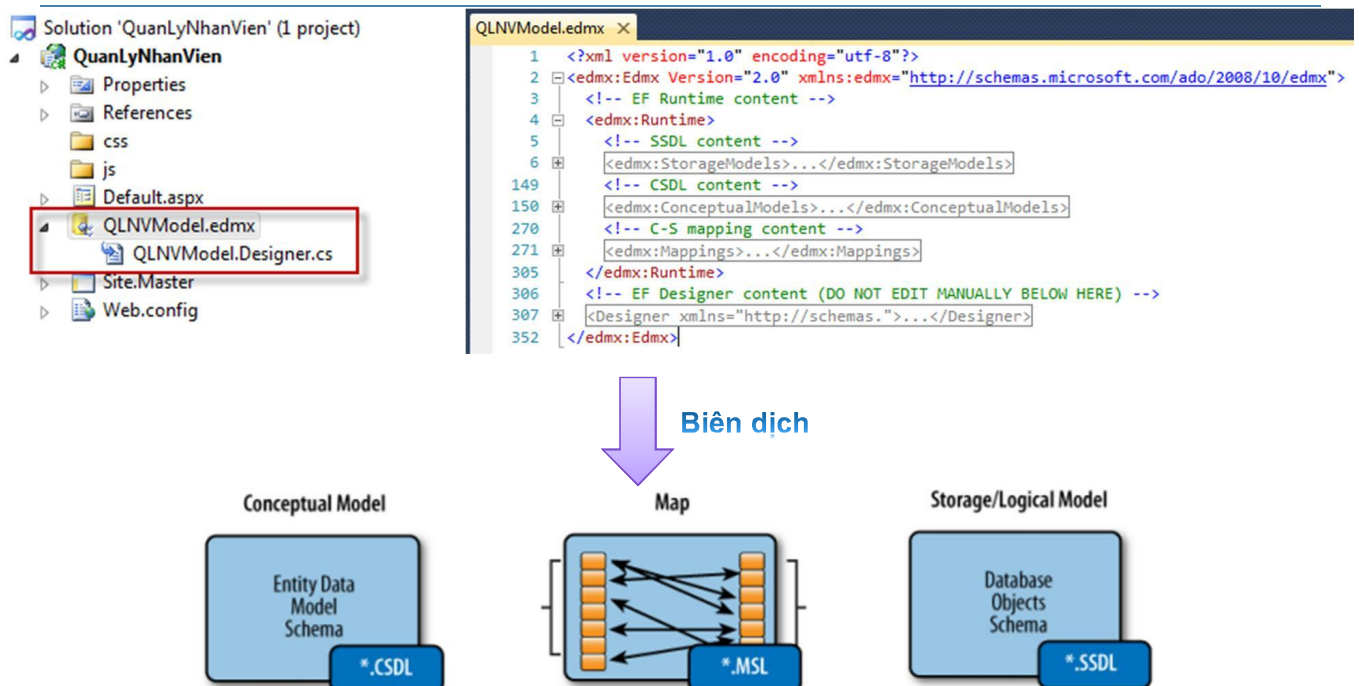
Backend



Hoàng Anh Tú

9

EDM Metadata



Hoàng Anh Tú

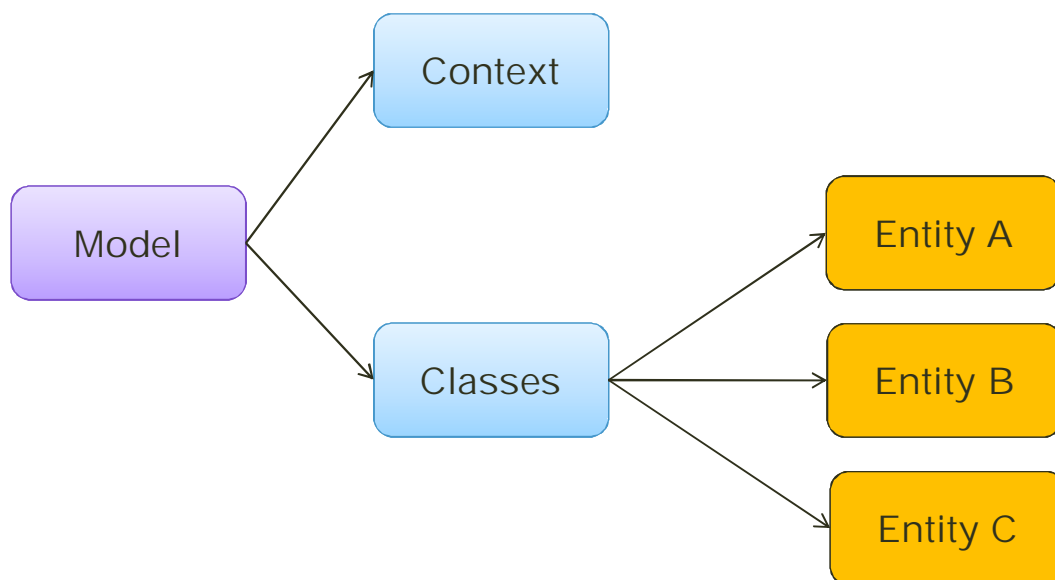
10

THAO TÁC VỚI DỮ LIỆU TRONG EF4

Hoàng Anh Tú

11

Data Context & Entities



Hoàng Anh Tú

12

Truy xuất dữ liệu

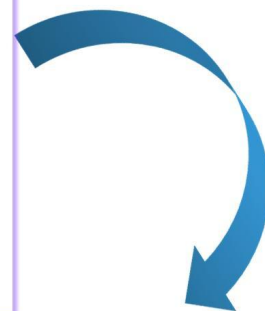
❖ 3 phương thức truy xuất dữ liệu:

- LINQ to Entities
- Object Services & Entity SQL
- Methods
 - Sử dụng LINQ Methods
 - Sử dụng Query Builder Methods & Entity SQL

Hello LINQ to Entities

```
using (var context = new QLNVEntities())
{
    var kq = from n in context.NhanViens
              where n.MaPhong == "P01"
              select n;

    grdKq.DataSource = kq;
    grdKq.DataBind();
}
```



MaNhanVien	HoTen	MaPhong	MaNguoiQuanLy	LoaiNguoiDung	Luong	Thuong
NV01	A	P01		1	200,0000	10
NV02	B	P02		1	200,0000	20
NV03	C	P01	NV01	2	100,0000	0
NV04	D	P02	NV02	2	100,0000	0
NV05	E	P01	NV01	2	100,0000	0

Hello LINQ Methods

biên dịch
LINQ queries  Chuỗi các phương thức

Lambdas Expression

```
var kq = context.NhanViens
    .Where(n => n.MaPhong == "P01")
    .OrderBy(c=>c.Luong);

grdKq.DataSource = kq;
grdKq.DataBind();
```

Tham khảo Lambdas Expression:

<http://msdn.microsoft.com/en-us/library/bb397687.aspx>

Hoàng Anh Tú

15

Hello Object Service & Entity SQL

Trả về
đối tượng

```
using (var context = new QLNVEntities())
{
    var sQuery = "select value n "
        + "from QLNVEntities.NhanViens as n "
        + "where n.MaPhong = @maPhong";

    ObjectQuery<NhanVien> kq = context.CreateQuery<NhanVien>(sQuery);
    kq.Parameters.Add(new ObjectParameter("maPhong", "P01"));

    grdKq.DataSource = kq;
    grdKq.DataBind();
}
```

Hoàng Anh Tú

16

Hello Query Builder Methods & ESQL

```
var kq = context.NhanViens
    .Where("it.MaPhong = 'P01'")
    .OrderBy("it.Luong");

grdKq.DataSource = kq;
grdKq.DataBind();
```

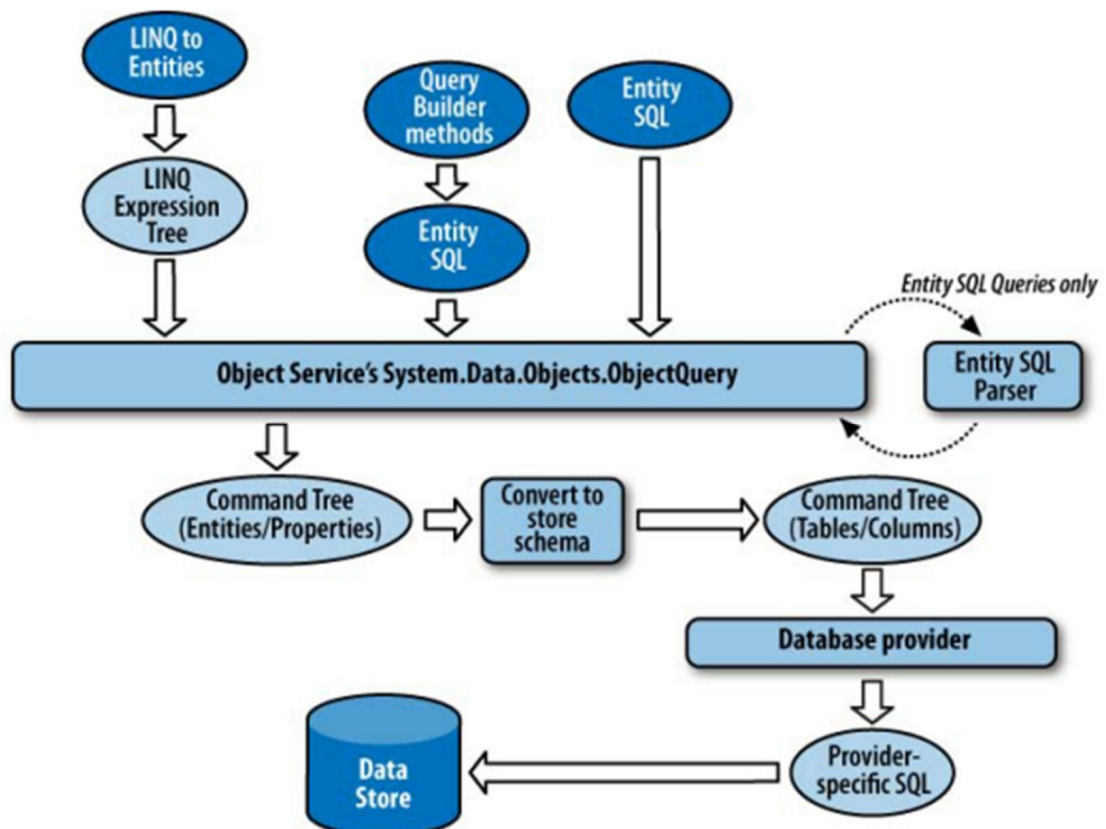
Biên dịch

```
SELECT VALUE it
FROM (SELECT VALUE it
      FROM ([QLNVEntities].[NhanViens]) AS it
      WHERE it.MaPhong = 'P01') AS it
ORDER BY it.Luong
```

Hoàng Anh Tú

17

Mô hình xử lý truy vấn



Hoàng Anh Tú

18

Nạp những dữ liệu liên quan

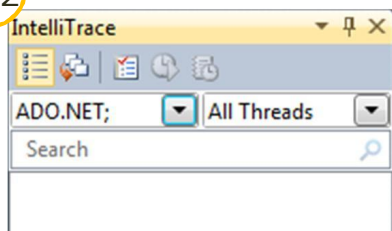
❖ Lazy Loading

- Tự động nạp những dữ liệu liên quan khi người dùng truy xuất đến
- Ngoài ra có thể tắt chế độ nạp tự động để tự thao tác

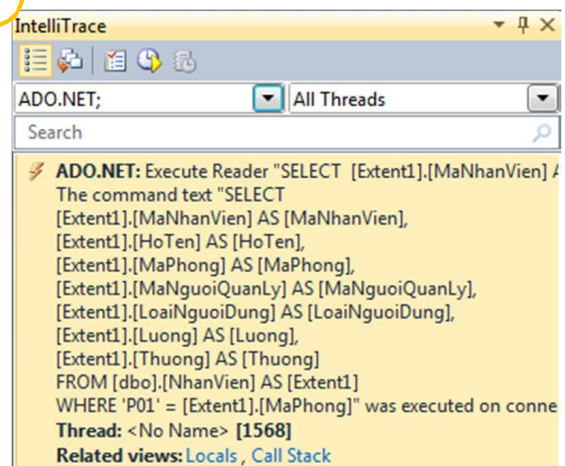
Khi nào EF kết nối database?

```
using (var context = new QLNVEntities())  
{  
    1 var kq = (from n in context.NhanViens  
                where n.MaPhong == "P01"  
                select n);  
  
    2 grdKq.DataSource = kq;  
    3 grdKq.DataBind();  
}
```

1&2



3



Lazy Loading

```

1 var kq = (from n in context.NhanViens
            where n.MaPhong == "P01"
            select n);

2 foreach (NhanVien nv in kq)
{
    3 string maTP = nv.Phong.MaTruongPhong;
}

grdKq.DataSource = kq;
4 grdKq.DataBind();

```

EventClass	TextData	SELECT
RPC:Completed	exec sp_reset_connection	[Extent1].[MaNhanVien] AS [MaNhanVien], [Extent1].[HoTen] AS [HoTen], [Extent1].[MaPhong] AS [MaPhong], [Extent1].[MaNguoiQuanLy] AS [MaNguoiQuanLy], [Extent1].[LoaiNguoiDung] AS [LoaiNguoiDung], [Extent1].[Luong] AS [Luong], [Extent1].[Thuong] AS [Thuong] FROM [dbo].[NhanVien] AS [Extent1] WHERE 'P01' = [Extent1].[MaPhong]
SQL:BatchStarting	SELECT [Extent1].[MaNhanVien] AS ...	
SQL:BatchCompleted	SELECT [Extent1].[MaNhanVien] AS ...	

Lazy Loading

```

1 var kq = (from n in context.NhanViens
            where n.MaPhong == "P01"
            select n);

2 foreach (NhanVien nv in kq)
{
    3 string maTP = nv.Phong.MaTruongPhong;
}

grdKq.DataSource = kq;
4 grdKq.DataBind();

```

EventClass	TextData
RPC:Completed	exec sp_reset_connection
SQL:BatchStarting	SELECT [Extent1].[MaNhanVien] AS ...
SQL:BatchCompleted	SELECT [Extent1].[MaNhanVien] AS ...
RPC:Completed	exec sp_executesql N'SELECT [Exte...

```

exec sp_executesql N'SELECT
[Extent1].[MaPhong] AS [MaPhong],
[Extent1].[MaTruongPhong] AS [MaTruongPhong]
FROM [dbo].[Phong] AS [Extent1]
WHERE [Extent1].[MaPhong] = @EntityKeyValue1',N'@EntityKeyValue1 char(10)',@EntityKeyValue1='P01

```

Lazy Loading

```
context.ContextOptions.LazyLoadingEnabled = false;

var kq = (from n in context.NhanViens
         where n.MaPhong == "P01"
         select n);

foreach (NhanVien nv in kq)
{
    string maTP = nv.Phong.MaTruongPhong;
}
```



Null Reference
Exception

Lazy Loading

```
context.ContextOptions.LazyLoadingEnabled = false;

var kq = (from n in context.NhanViens
         where n.MaPhong == "P01"
         select n);

foreach (NhanVien nv in kq)
{
    nv.PhongReference.Load();
    string maTP = nv.Phong.MaTruongPhong;
}
```


Phép chiếu(LINQ to Entities)

```
var contacts = from c in context.Contacts
                where c.FirstName == "Robert"
                let foo = new{
                    ContactName = new { c.Title, c.LastName, c.FirstName },
                    c.Addresses
                }
orderby foo.ContactName.LastName
select foo;

foreach (var contact in contacts)
{
    var name = contact.ContactName;
    Console.WriteLine("{0} {1} {2}: # Addresses {3}",
        name.Title.Trim(), name.FirstName.Trim(),
        name.LastName.Trim(), contact.Addresses.Count());
}
```

foo
(Anonymous Type)

ContactName
(Anonymous Type)

- Title
- FirstName
- LastName

EntityCollection<address>

- Address Entity
- Address Entity
- Address Entity

25

Phép chiếu(Entity SQL)

```
String query = "SELECT c, c.DuAns1 " +
                "FROM QLNVEntities.NhanVien as c ";
ObjectQuery<DbDataRecord> kq = context.CreateQuery<DbDataRecord>(query);
foreach (DbDataRecord c in kq)
{
    var contact = c[0] as NhanVien;
    Console.WriteLine("{0} {1}",
        contact.MaNhanVien.Trim(),
        contact.HoTen.Trim());

    foreach(var a in contact.DuAns1)
    {
        Console.WriteLine("{0}, {1}", a.MaDuAn, a.MaPhongQuanLy);
    }
}
```

Lazy
Loading

Watch 1	
Name	Value
c	{System.Data.Objects.MaterializedDataRecord}
[System.Data.Objects.MaterializedData	{System.Data.Objects.MaterializedDataRecord}
FieldCount	2
c[0]	{QuanLyNhanVien.NhanVien}
c[1]	Count = 1
[0]	{QuanLyNhanVien.DuAn}
Raw View	

26

Phép chiếu(Entity SQL)

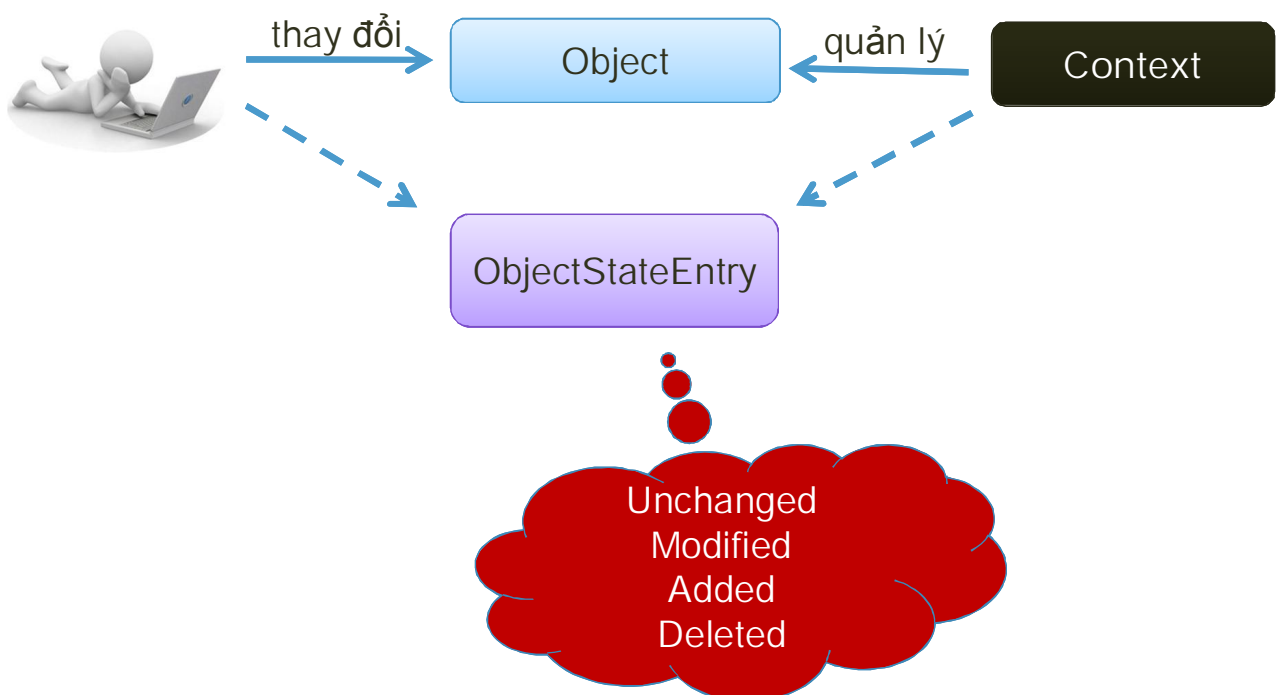
```
String query = "SELECT c, c.DuAns1 " +  
               "FROM QLNVEntities.NhanViens as c ";  
ObjectQuery<DbDataRecord> kq = context.CreateQuery<DbDataRecord>(query);  
foreach (DbDataRecord c in kq)  
{  
    var contact = c[0] as NhanVien;  
    Console.WriteLine("{0} {1}",  
                      contact.MaNhanVien.Trim(),  
                      contact.HoTen.Trim());  
  
    var d = c[1] as List<DuAn>;  
    foreach(var a in d)  
    {  
        Console.WriteLine("{0}, {1}", a.MaDuAn, a.MaPhongQuanLy);  
    }  
}
```

Không cần
truy xuất dữ liệu

Hoàng Anh Tú

27

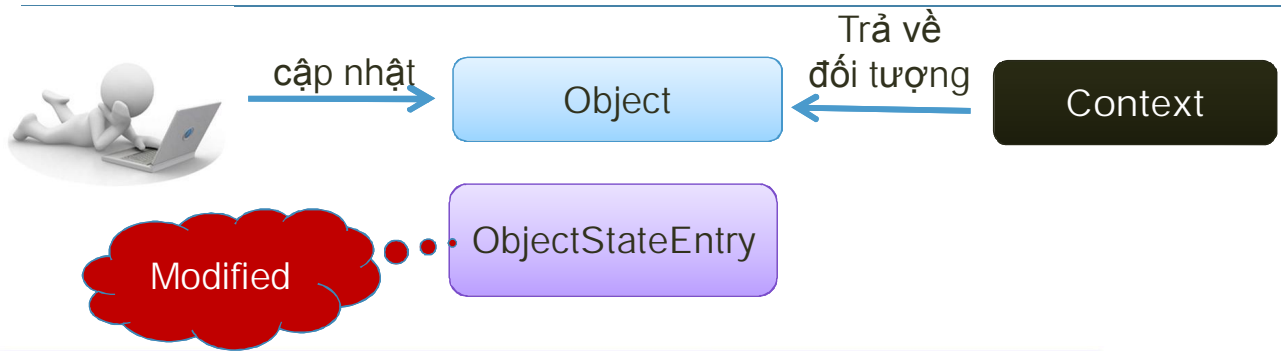
Quản lý thay đổi của đối tượng



Hoàng Anh Tú

28

Cập nhật dữ liệu



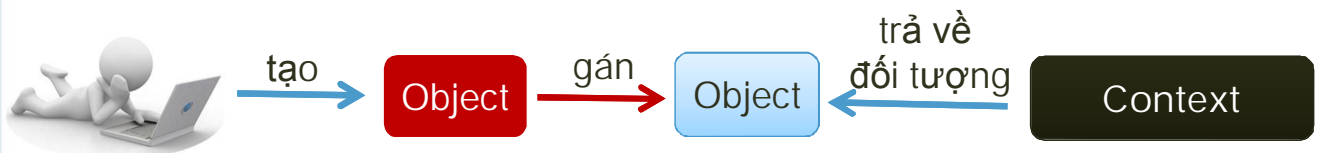
```
using (PEF context = new PEF())
{
    var contact = context.Contacts.First();
    contact.FirstName = "Julia";
    contact.ModifiedDate = DateTime.Now;
    context.SaveChanges();
}
```

```
exec sp_executesql N'update [dbo].[Contact]
set [FirstName] = @0, [ModifiedDate] = @1
where ([ContactID] = @2)
',N'@0 nvarchar(50),@1 datetime2(7),@2 int',@0=N'Julia',
@1='2009-11-30 09:27:20.3335098',@2=1
```

Hoàng Anh Tú

29

Thêm đối tượng

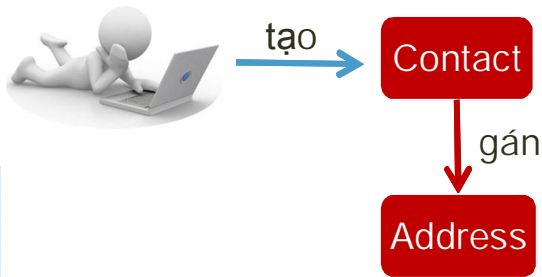


```
var contact = context.Contacts.Where(c => c.FirstName == "Robert").First();
var address = new Address();
address.Street1 = "One Main Street";
address.City = "Burlington";
address.StateProvince = "VT";
address.AddressType = "Business";
address.ModifiedDate = DateTime.Now;
//join the new address to the contact
address.Contact = contact;
context.SaveChanges();
```

Hoàng Anh Tú

30

Thêm đối tượng

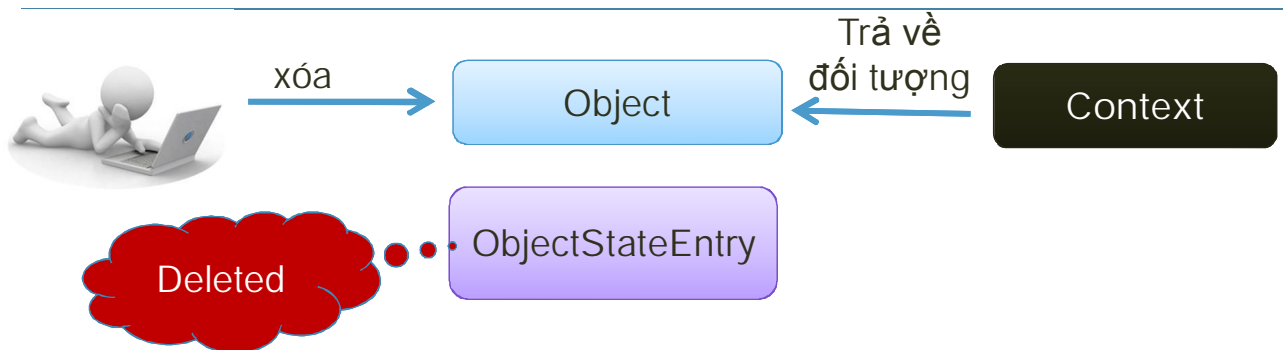


```
var contact = Contact.CreateContact  
    (0, "Camey", "Combs", DateTime.Now, DateTime.Now);  
var address = new Address();  
address.Street1 = "One Main Street";  
address.City = "Olympia";  
address.StateProvince = "WA";  
address.AddressType = "Business";  
address.ModifiedDate = DateTime.Now;  
//join the new address to the contact  
address.Contact = contact;  
//add the new graph to the context  
context.Contacts.AddObject(contact);  
context.SaveChanges();
```

Hoàng Anh Tú

31

Xóa đối tượng



```
EntityKey contactKey =  
    new EntityKey("PEF.Contacts", "ContactID", 438);  
var contact = context.GetObjectByKey(contactKey);  
context.DeleteObject(contact);  
context.SaveChanges();
```

Lấy đối tượng
bằng khóa chính

Hoàng Anh Tú

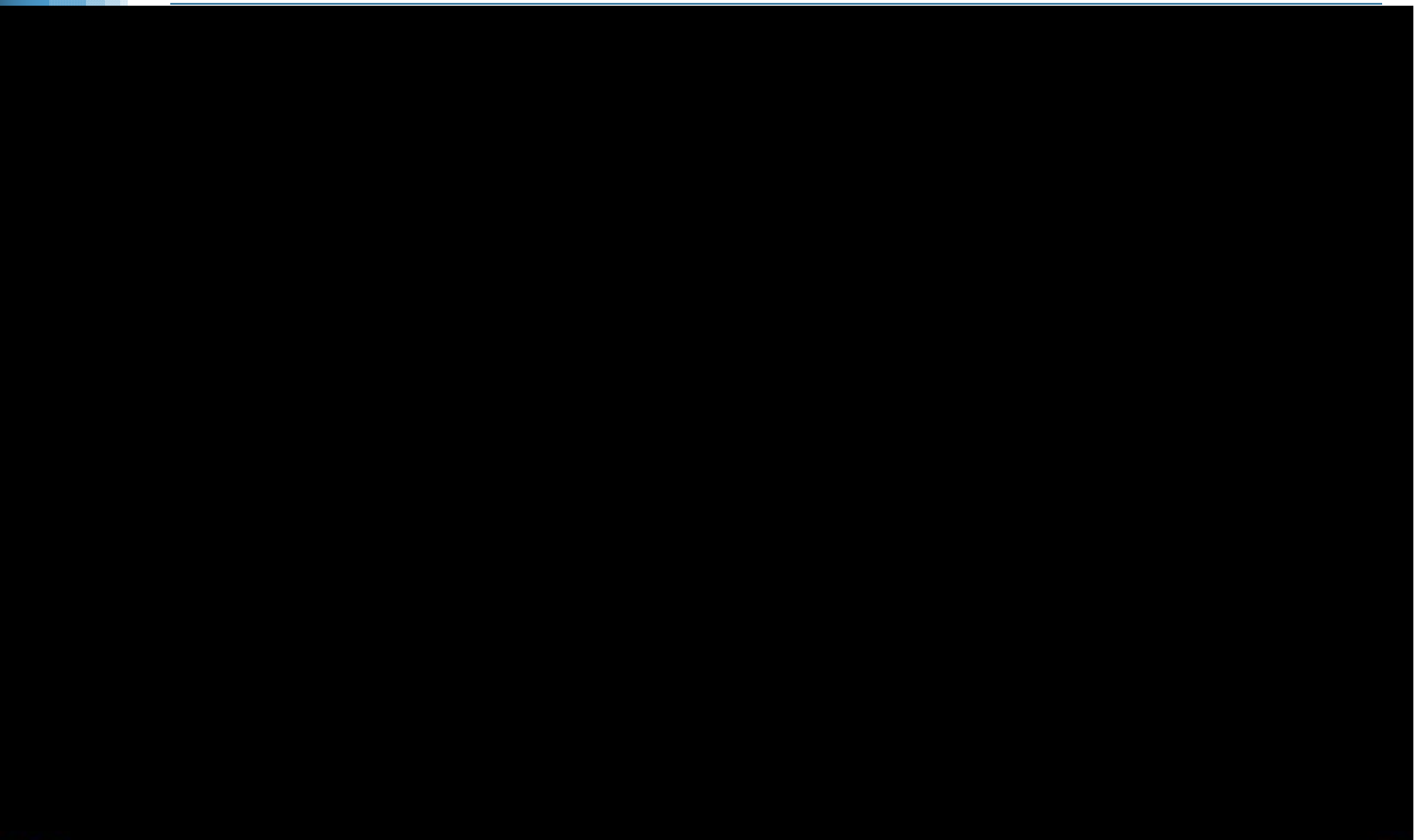
32

STORED PROCEDURES

Hoàng Anh Tú

33

Cập nhật mô hình



Ánh xạ SP vào Entity

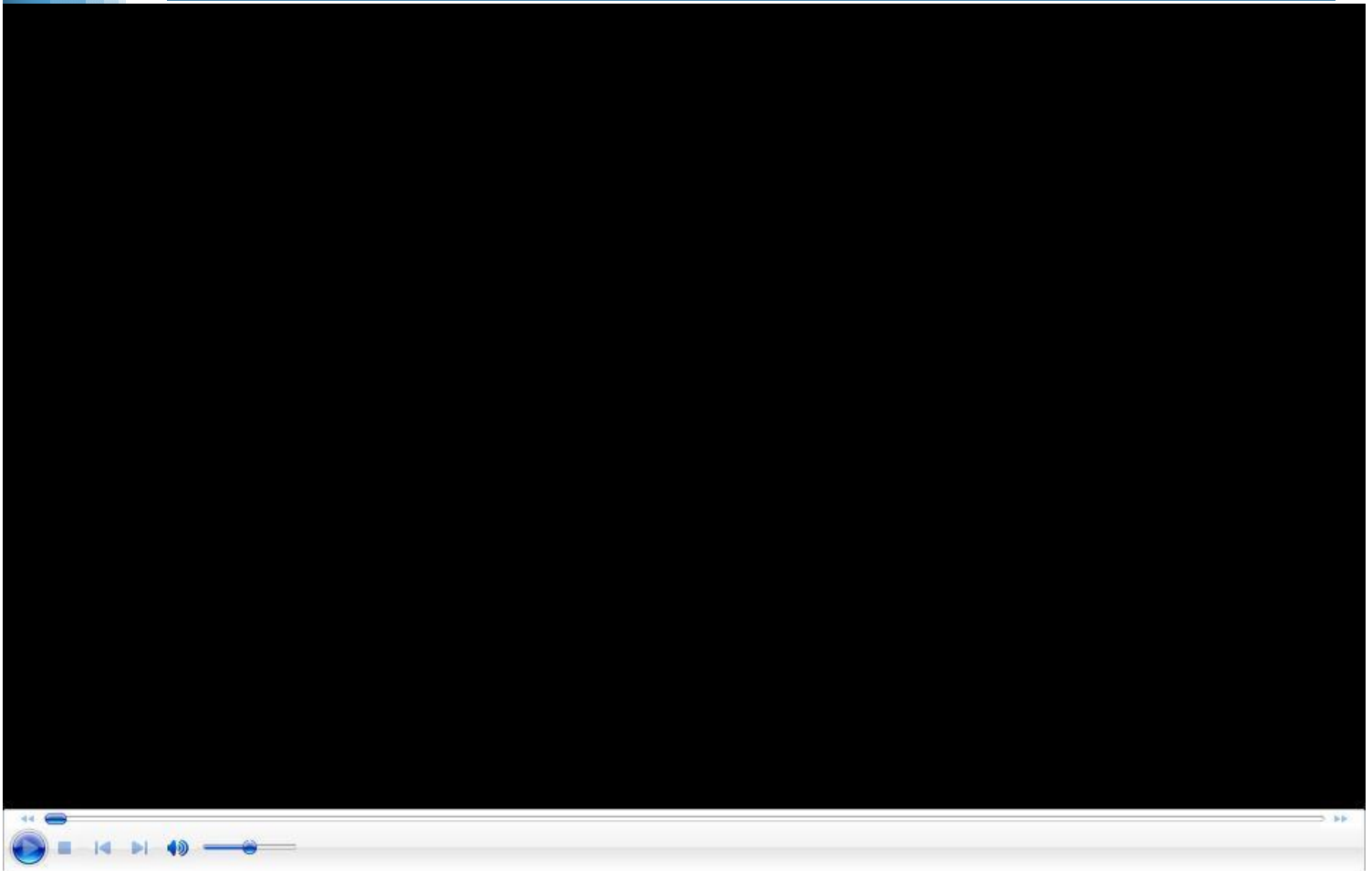
```
var contact = context.Contacts.Include("Addresses")  
    .Where(c => c.Addresses.Any()).First();  
//make a change to contact  
contact.LastName = contact.LastName.Trim() + "-Jones";  
//make a change to the address  
var address = contact.Addresses.First();  
address.Street2 = "Apartment 42";  
//call SaveChanges  
context.SaveChanges();
```

```
exec [dbo].[UpdateContact]  
@contactid=3,  
@firstname=N'Donna  
@lastname=N'Carreras-Jones',  
@title=N'Ms.
```

```
exec sp_executesql N'update [dbo].[Address]  
set [Street2] = @0  
where ([addressID] = @1)',  
N'@0 nvarchar(50),@1 int',@0=N'Apartment 42',@1=226
```

Ánh xạ update SP vào Entity

Ảnh xạ read SP vào Entity



Tài liệu tham khảo

- ❖ Julia Lerman, *Programming Entity Framework*, O'Reilly (2010)
- ❖ Larry Tenny and Zeeshan Hirani, *Entity Framework 4.0 Recipes A Problem-Solution Approach*, Apress (2010)

Thank You!