

INSTITUTO POLITECNICO NACIONAL

Unidad Profesional Interdisciplinaria En Ingeniería Y
Tecnologías Avanzadas



FRAGMENTACIÓN

Grupo: 3TM3

Bases de Datos Distribuidas

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FRAGMENTACION

Instrucciones

1. Entregar en un documento PDF:

1.1 Consultas que generen los fragmentos de customer a partir del conjunto M

1.2 Consultas semi-join que generen los fragmentos de SalesOrderHeader y SalesOrderDetail a partir de la fragmentación horizontal o primaria de Customer

1.3 Análisis de los enunciados 5,7, y 8 para determinar posible fragmentación de esquema Production

2. Enviar archivo PDF de la tarea al correo cdelacruzupiita@gmail.com

ASIGNACION DE FRAGMENTOS:

1. Servidor para la region 1 (F1.Customer, F1.SOH, F1.SOD)
2. Servidor para la region 2 y 3 (BD1(F2.Customer , F2.SOH , F2.SOD)) y BD2(F3.Customer , F3.SOH, F3.SOD) BD3 (En su momento se debe generar el fragmento para las regiones no consideradas)

¿En que servidor alojar las tablas no fragmentadas?

ALTERNATIVA 1: Replicar en cada servidor las tablas no fragmentadas.

ALTERNATIVA 2: Seleccionar un servidor en las que se almacenen las BD no fragmentadas.

TALBAS NO FRAGMENTADAS que se requieren almacenar en el proyecto:

SpecialOffer, SpecialOfferProduct, SalesPerson, Productcategory, Productsubcategory, product

Solución

1.1 Primero se buscaron las tablas en las cuales la PK de Customer, se propaga como Foreign Key hacia otras tablas, las cuales son las siguiente:

- Sales.Store
- Sales.StoreContact
- Sales.Individual
- SalesOrderHeader
- Sales.CustomerAddress

Para el predicado

MCustomer = {

M1: $P1 \wedge P2 \wedge P3 \wedge P4 \wedge P5 \wedge P6 \wedge \text{not}(P7) \wedge \text{not}(P8) \wedge \text{not}(P9) \wedge \text{not}(P10)$ ----- sel(M1)

M2: $\text{not}(P1) \wedge \text{not}(P2) \wedge \text{not}(P3) \wedge \text{not}(P4) \wedge \text{not}(P5) \wedge \text{not}(P6) \wedge P7 \wedge P8 \wedge P9 \wedge \text{not}(P10)$

M3: $\text{not}(P1) \wedge \text{not}(P2) \wedge \text{not}(P3) \wedge \text{not}(P4) \wedge \text{not}(P5) \wedge \text{not}(P6) \wedge \text{not}(P7) \wedge \text{not}(P8) \wedge \text{not}(P9) \wedge P10$

M4: $\text{not}(P1) \wedge \text{not}(P2) \wedge \text{not}(P3) \wedge \text{not}(P4) \wedge \text{not}(P5) \wedge \text{not}(P6) \wedge \text{not}(P7) \wedge \text{not}(P8) \wedge \text{not}(P9) \wedge \text{not}(P10)$

...

}

M = F -- F representa el conjunto de fragmentos a partir de M

Consulta para fragmento M1:

```
Select * from Sales.Customer where TerritoryID between 1 and 6;
```

Consulta para fragmento M2:

```
Select * from Sales.Customer where TerritoryID between 7 and 9;
```

Consulta para fragmento M3:

```
Select * from Sales.Customer where TerritoryID = 10;
```

Consulta para fragmento M4:

```
Select * from Sales.Customer where TerritoryID > 10;
```

1.2

FRAGMENTACION PARA SALES ORDER HEADER DERIVADA DE CUSTOMER

Fragmento 1 de SalesOrderHeader con las tuplas de M1:

```
select * from Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C
where TerritoryID between 1 and 6 and SOH.CustomerID = C.CustomerID);

-- SELECCIONA TODO LO DE SALESORDERHEADER SI SE CUMPLE  $M1^{SOH.CustomerId = C.CustomerID}$ 
```

Fragmento 2 de SalesOrderHeader con las tuplas de M2:

```
select * from Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C
where TerritoryID between 7 and 9 and SOH.CustomerID = C.CustomerID);
```

Fragmento 3 de SalesOrderHeader con las tuplas de M3:

```
select * from Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C
where TerritoryID = 10 and SOH.CustomerID = C.CustomerID);
```

Fragmento 4 de SalesOrderHeader con las tuplas de M4:

```
select * from Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C
where TerritoryID > 10 and SOH.CustomerID = C.CustomerID);
```

FRAGMENTACION PARA SALES ORDER DETAILED DERIVADA DE CUSTOMER

Fragmento 1 de SalesOrderDetail con las tuplas de M1:

```
select * from Sales.SalesOrderDetail SOD inner join (Select * from
Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C where
C.TerritoryID between 1 and 6 and SOH.CustomerID = C.CustomerID)) M1
on SOD.SalesOrderID = M1.SalesOrderID; -- M1 ES EL FRAGMENTO DERIVADO DE SOH
```

Fragmento 2 de SalesOrderDetail con las tuplas de M2:

```
select * from Sales.SalesOrderDetail SOD inner join (Select * from
Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C where
C.TerritoryID between 7 and 9 and SOH.CustomerID = C.CustomerID)) M2
on SOD.SalesOrderID = M2.SalesOrderID; -- M2 ES EL FRAGMENTO DERIVADO DE SOH
```

Fragmento 3 de SalesOrderDetail con las tuplas de M3:

```
select * from Sales.SalesOrderDetail SOD inner join (Select * from
Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C where
C.TerritoryID = 10 and SOH.CustomerID = C.CustomerID)) M3
on SOD.SalesOrderID = M3.SalesOrderID; -- M3 ES EL FRAGMENTO DERIVADO DE SOH
```

Fragmento 4 de SalesOrderDetail con las tuplas de M4:

```
select * from Sales.SalesOrderDetail SOD inner join (Select * from
Sales.SalesOrderHeader SOH where exists(Select * from Sales.Customer C where
C.TerritoryID > 10 and SOH.CustomerID = C.CustomerID)) M4
on SOD.SalesOrderID = M4.SalesOrderID; -- M4 ES EL FRAGMENTO DERIVADO DE SOH
```

ASIGNACION DE FRAGMENTOS

Instancia 1, Fragmento 1, SQL SERVER

```
create database BD1;
use BD1;
create schema F1;

-- F1.CUSTOMER REGION 1
select * into BD1.F1.Customer from AdventureWorks2019.Sales.Customer C where
TerritoryID between 1 and 6;

-- F1.SalesOrderHeader REGION 1
select * into BD1.F1.SalesOrderHeader from
AdventureWorks2019.Sales.SalesOrderHeader SOH where exists(Select * from
AdventureWorks2019.Sales.Customer C where TerritoryID between 1 and 6 and SOH.CustomerID
= C.CustomerID);

-- F1.SalesOrderDetail REGION 1
select * into BD1.F1.SalesOrderDetail2 from (
select * from AdventureWorks2019.Sales.SalesOrderDetail SOD where exists(
Select * from AdventureWorks2019.Sales.SalesOrderHeader SOH where exists(
Select * from AdventureWorks2019.Sales.Customer C where TerritoryID
between 1 and 6 and SOH.CustomerID = C.CustomerID
and SOD.SalesOrderID = SOH.SalesOrderID))) as M1;
```

Instancia 2, Fragmento 2, SQL SERVER

```
-- FAGREGACION DE REGION 2 A BD1

create database DB1;
use DB1;
create schema F2;

-- F2.Customer REGION 2
SELECT * INTO DB1.F2.Customer from (SELECT * FROM
LINK2A1.AdventureWorks2019.Sales.Customer C where TerritoryID between 7 and 9) as S;
-- S es el alias de la subconsulta con linked Server

-- F2.SalesOrderHeader REGION 2
SELECT * INTO DB1.F2.SalesOrderHeader FROM (select * from
LINK2A1.AdventureWorks2019.Sales.SalesOrderHeader SOH where exists(Select * from
LINK2A1.AdventureWorks2019.Sales.Customer C where C.TerritoryID between 7 and 9 and
SOH.CustomerID = C.CustomerID)) AS S;

-- F2.SalesOrderDetail REGION 2
SELECT * INTO DB1.F2.SalesOrderDetail FROM (select * from
LINK2A1.AdventureWorks2019.Sales.SalesOrderDetail SOD where exists(
Select * from LINK2A1.AdventureWorks2019.Sales.SalesOrderHeader SOH where
exists(
Select * from LINK2A1.AdventureWorks2019.Sales.Customer C where
C.TerritoryID between 7 and 9 and SOH.CustomerID = C.CustomerID
and SOD.SalesOrderID = SOH.SalesOrderID)
)) AS S;
```


Instancia 2, Fragmento 3, SQL SERVER

```
create database DB2;
use DB2;
create schema F3;

-- F3.Customer
SELECT * INTO DB2.F3.Customer from (SELECT * FROM
LINK2A1.AdventureWorks2019.Sales.Customer C where TerritoryID = 10) as S;

-- F3.SalesOrderHeader
SELECT * INTO DB2.F3.SalesOrderHeader FROM (select * from
LINK2A1.AdventureWorks2019.Sales.SalesOrderHeader SOH where exists(Select * from
LINK2A1.AdventureWorks2019.Sales.Customer C where C.TerritoryID = 10 and SOH.CustomerID =
C.CustomerID)) AS S;

-- F3.SalesOrderDetail
SELECT * INTO DB2.F3.SalesOrderDetail FROM (select * from
LINK2A1.AdventureWorks2019.Sales.SalesOrderDetail SOD where exists(
Select * from LINK2A1.AdventureWorks2019.Sales.SalesOrderHeader SOH where
exists(
Select * from LINK2A1.AdventureWorks2019.Sales.Customer C where
C.TerritoryID = 10 and SOH.CustomerID = C.CustomerID
and SOD.SalesOrderID = SOH.SalesOrderID)
)) AS S;
```

Instancia 2, TABLAS NO FRAGMENTADAS, SQL SERVER

```
use master
create database DB_NOF; -- CONTIENE LAS TABLAS NO FRAGMENTADAS
use DB_NOF;

select * INTO SpecialOffer from LINK2A1.AdventureWorks2019.Sales.SpecialOffer;
select * INTO SpecialOfferProduct from
LINK2A1.AdventureWorks2019.Sales.SpecialOfferProduct;
select * INTO SalesPerson from LINK2A1.AdventureWorks2019.Sales.SalesPerson;
select * INTO ProductCategory from
LINK2A1.AdventureWorks2019.Production.ProductCategory;
select * INTO ProductSubcategory from
LINK2A1.AdventureWorks2019.Production.ProductSubcategory;
select * INTO Product from LINK2A1.AdventureWorks2019.Production.Product;
```