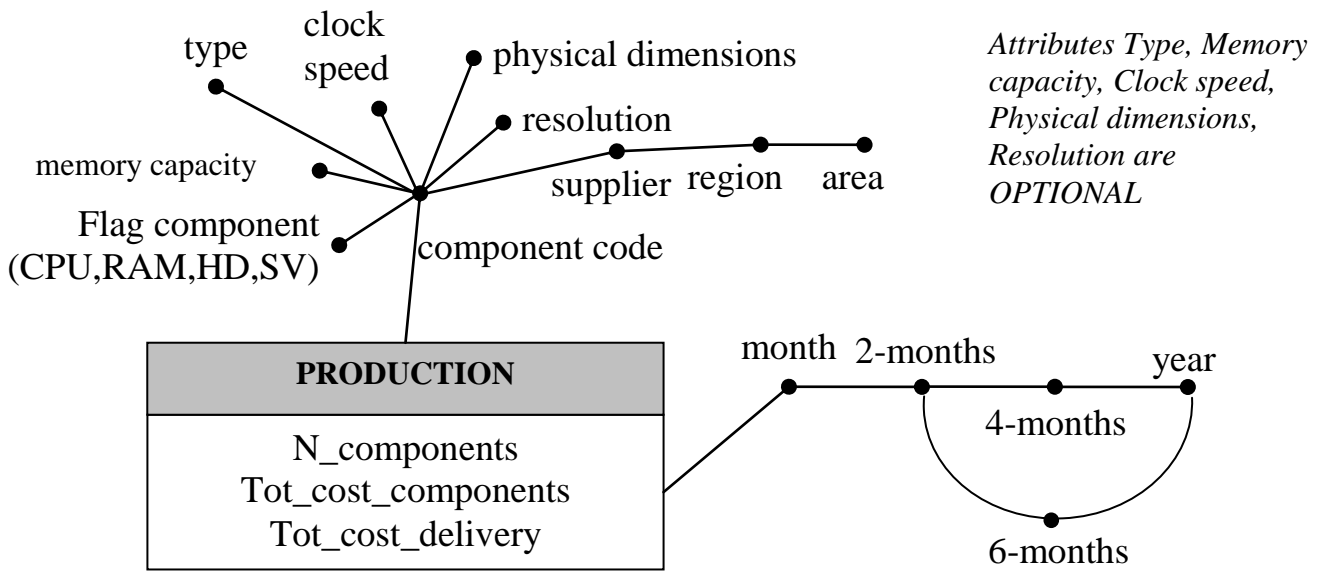
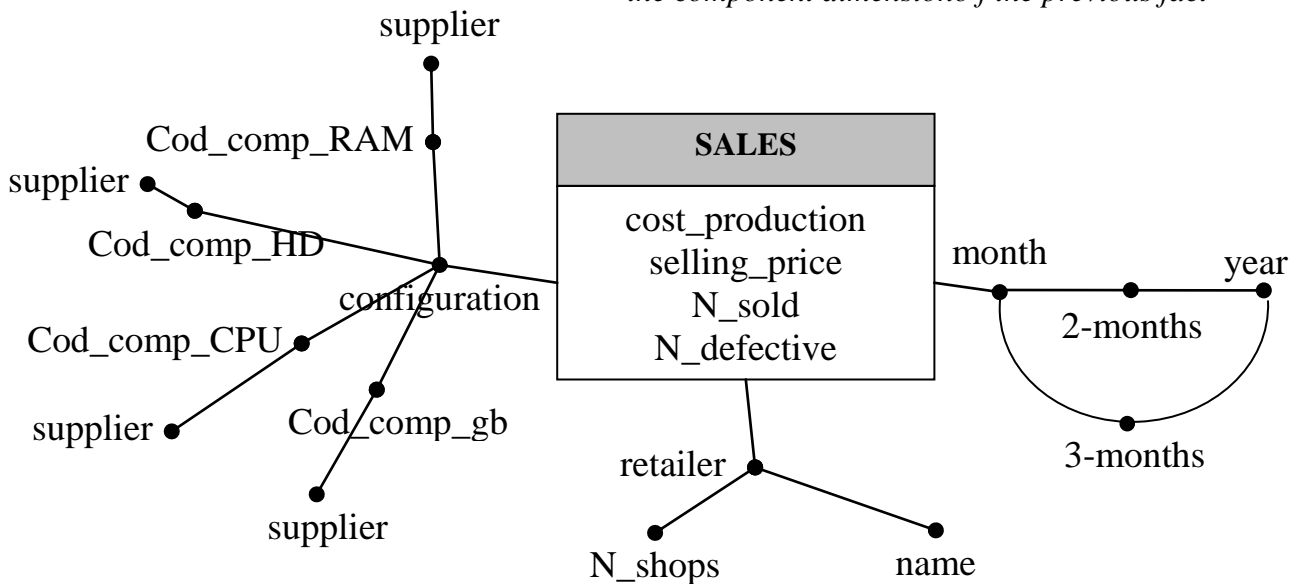


Logical Design



The supplier of each component can be omitted here and retrieved by means of a code linked to the component dimension of the previous fact



Facts:

PRODUCTION

COMPONENT (CodC, cod_component, flag_component, type, memory_capacity, clock_speed, physical_dimension, resolution, supplier, region, area)

TIME_PROD (CodT1, month, 2-months, 4-months, 6-months, year)

PRODUCTION (CodC, CodT1, n_components, Tot_cost_component, Tot_cost_delivery)

Cardinality:

10x12 months X 1000 components = ~ 120k tuples

(in the real case data are more scattered)

SALES

TIME_SALES (CodT2, month, 2_months, 3-months, year)

CONFIGURATION (CodCO, configuration, cod_comp_gb, supplier_gb, cod_comp_CPU, supplier_CPU, cod_comp_HD, supplier_HD, cod_comp_RAM, supplier_RAM)

RETAILER (CodR,retailer, name, n_shops)

SALES (CodT2, CodCO, CodR, cost_production, selling_price, n_sold, n_defective)

Cardinality:

10x12 months X 15 retailers X 30 configurations = ~ 54k tuples

(in the real case data are more scattered)

Redefinition of dimensions

The TIME dimension is shared by both facts

Dimensions:

TIME (CodT, mese, bimestre, trimestre, quadrimestre, semestre, anno)

COMPONENT (CodC, cod_component, flag_component, type, memory_capacity, clock_speed, physical_dimension, resolution, supplier, region, area)

CONFIGURATION (CodCO, configuration, cod_comp_gb, supplier_gb, cod_comp_CPU, supplier_CPU, cod_comp_HD, supplier_HD, cod_comp_RAM, supplier_RAM)

RETAILER (CodR,retailer, name, n_shops)

Facts:

PRODUCTION (CodC, CodT, n_components, Tot_cost_component, Tot_cost_delivery)

SALES (CodT, CodCO, CodR, cost_production, selling_price, n_sold, n_defective)

Query

d)

```
SELECT configuration, SUM(n_defective)/SUM(n_sold) * 100
FROM CONFIGURATION C, SALES S, TIME T
WHERE S.CodCO=C.CodCO AND S.CodT=T.CodT
AND year=2002
AND supplier_RAM="IntelligenceDevice"
GROUP by configuration
```

e)

```
SELECT 4-months,area,type, SUM(Tot_cost_component)+SUM(Tot_cost_delivery),
      SUM(SUM(Tot_cost_component)+SUM(Tot_cost_delivery)) OVER (partition BY
      area,type ORDER BY 4-months ROWS UNBOUNDED PRECEDING)
FROM COMPONENT C, PRODUCTION P, TIME T
WHERE P.CodC=C.CodC AND P.CodT=T.CodT
AND T.year=2007
AND flag_component="RAM"
GROUP BY 4-months,area,type
```

h)

```
SELECT supplier, flag_component, SUM(n_components), SUM(Tot_cost_component)
FROM COMPONENT C, PRODUCTION P, TIME T
WHERE P.CodC=C.CodC AND P.CodT=T.CodT
AND T.2-months="II 2003"
AND supplier IN
(
SELECT supplier
FROM COMPONENT C, PRODUCTION P, TIME T
WHERE P.CodC=C.CodC AND P.CodT=T.CodT
AND T.year=2003
GROUP BY supplier
HAVING SUM(n_components)>100000
)
GROUP BY supplier, flag_component
```

MATERIALIZED VIEWS

Cardinality PRODUCTION: 10x12 months X 1000 components = ~ 120k tuples

Cardinality SALES: 10x12 months X 15 retailers X 30 configurations = ~ 54k tuples

Query	Group By	Where clauses
A	4-months, area, type	year, flag_component
B	year, configuration	supplier_Ram, supplier_CPU
C	Cod_component	month, year
D	Configuration	year, supplier_RAM
E	4-months, area, type	year, flag_component
F	Retailer, month, configuration	
G	area, year	
H	supplier, flag_component	2-months, year

MATERIALIZED VIEW 1 A-E-G

MATERIALIZED VIEW 2 D-B