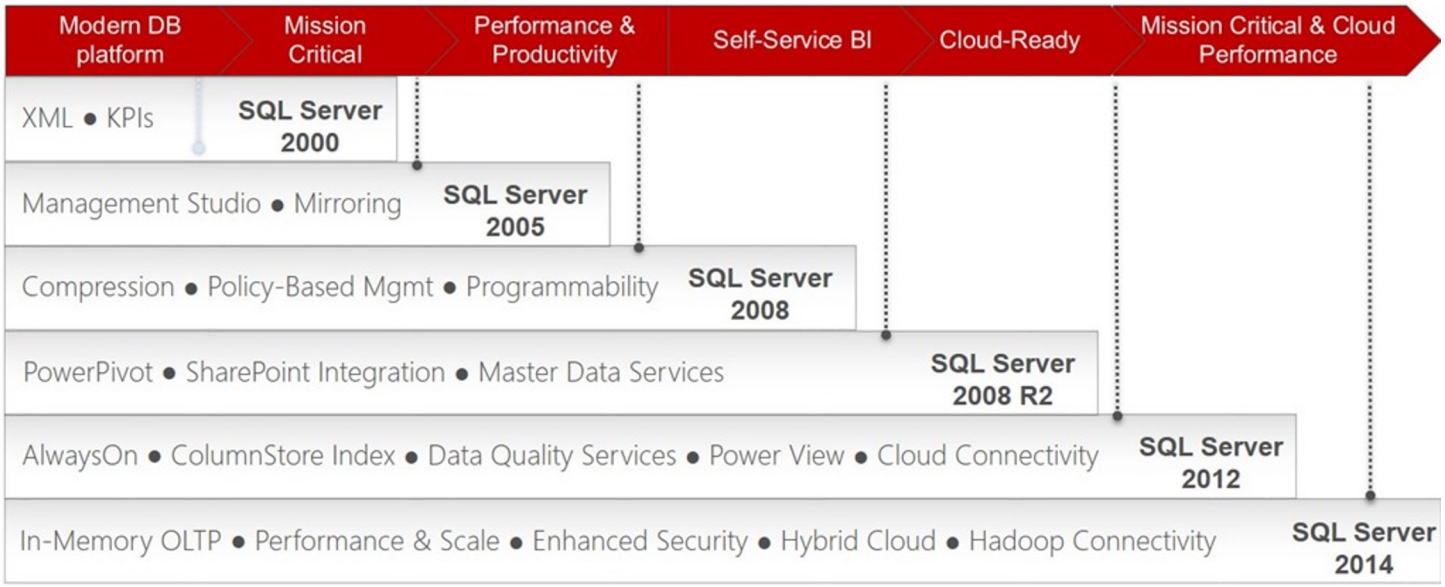
LABORATORY OF DATA SCIENCE

Microsoft SQL Server

SQL Server versions and editions

The Evolution of SQL Server



Enterprise

Comprehensive, mission-critical in-memory performance with unparalleled security, an end-to-end enterprise business intelligence solution with mobile BI built-in, and in-database advanced analytics at scale. Enterprise edition provides the highest service and performance for Tier-1 workloads.

Learn more >

Standard

Core data management and business intelligence capabilities with minimal IT resources.

Learn more >

Express

Entry-level, free database that is ideal for deploying small databases in production environments. Build desktop and small server, data-driven applications up to 10 GB of disk size.

Learn more >

Download >

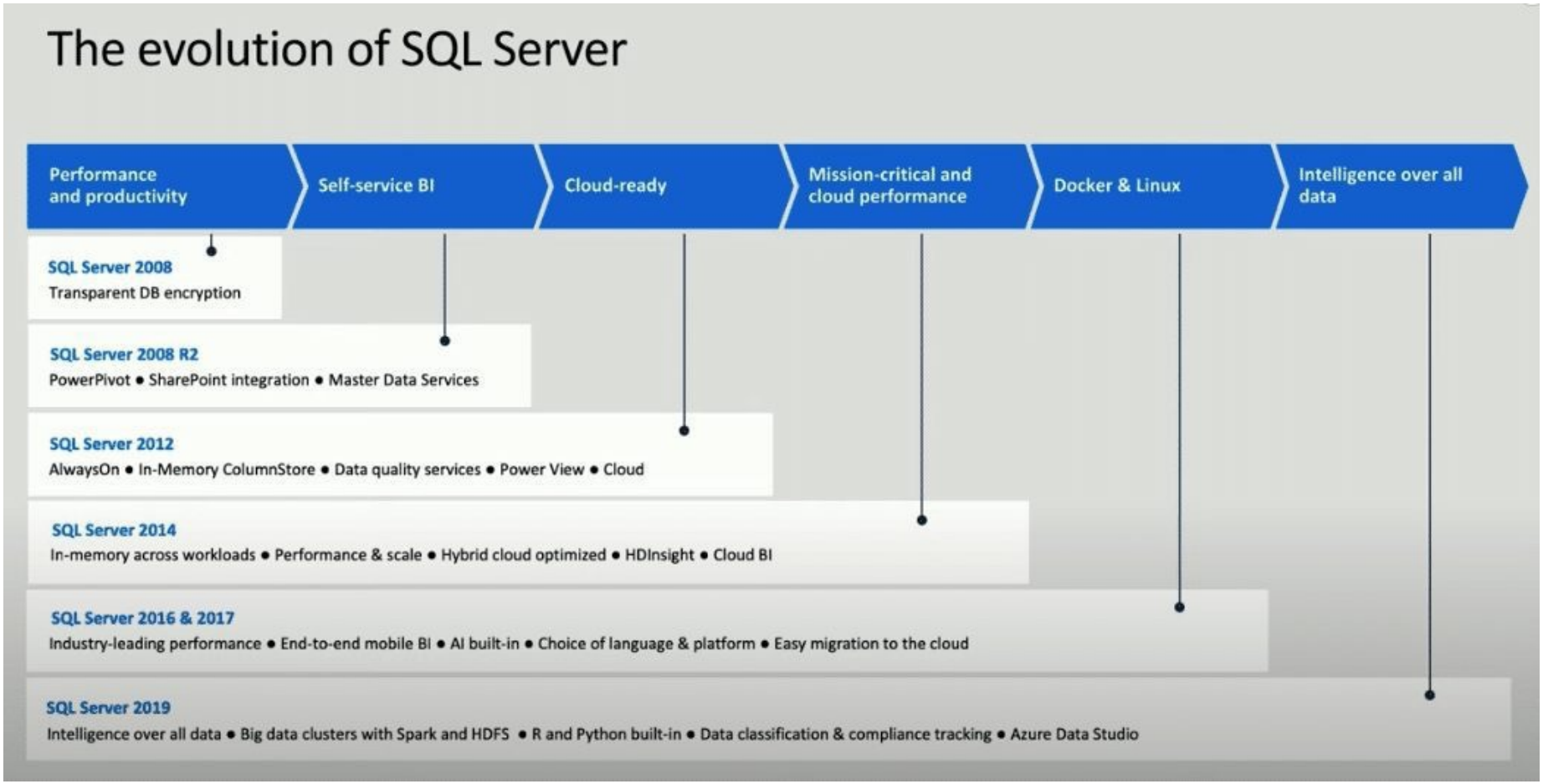
Developer

Free, full-featured set of SQL Server 2016 Enterprise edition software that allows developers to build, test, and demonstrate applications in a non-production environment.

Learn more >

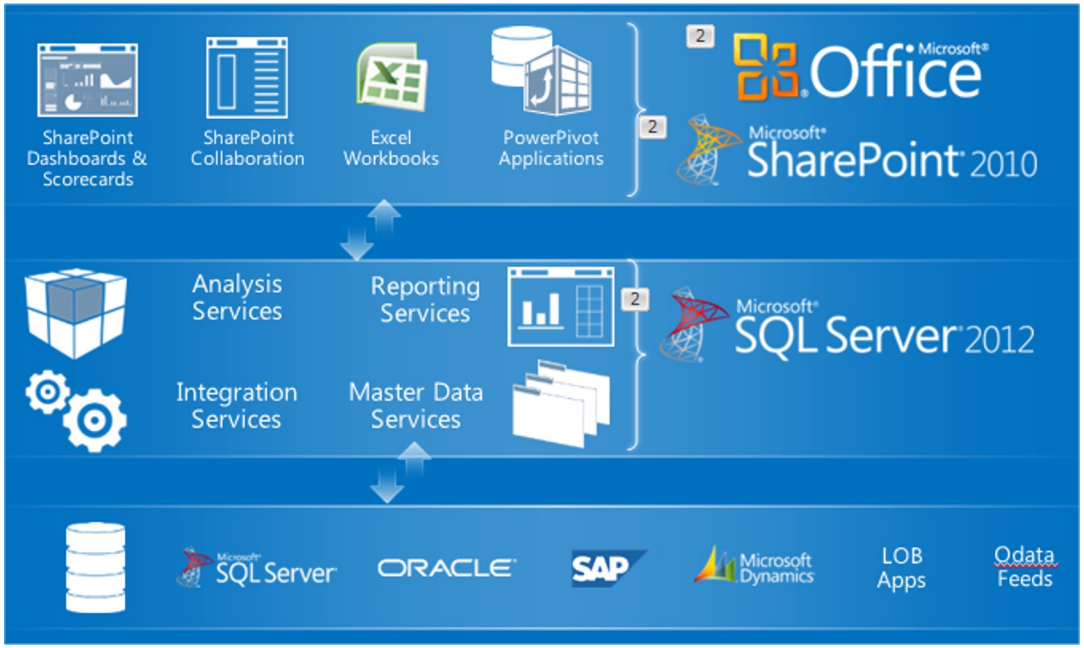
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SQL Server versions and editions



SQL Server Suite

	On-premises	Cloud
DB/DW	SQL Server	Azure
Data integration	SQL Server Integration Services (SSIS)	Power Query for Excel
OLAP	SQL Server Analysis Services (SSAS)	Power Pivot for Excel
Reporting	SQL Server Reporting Services (SSRS)	Power BI



SQL Server DB/DW

Documentation

- Technical docs and tutorials

Administration

- Management studio

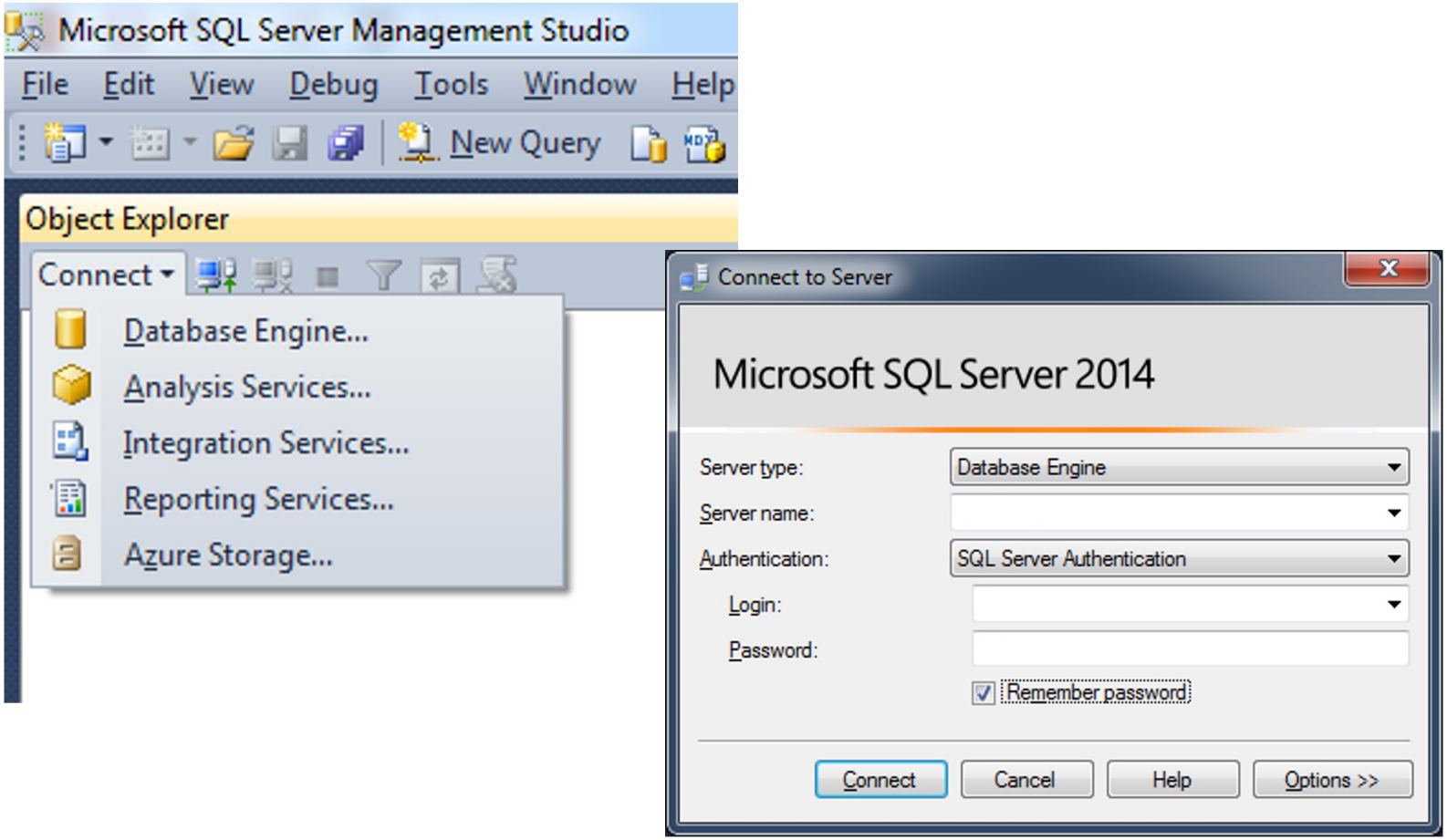
Development

- SQL Server Data Tools / Business Intelligence Development Studio

Web resources

- Developer center http://msdn.microsoft.com/en-us/sqlserver
- Data developer center http://msdn.microsoft.com/en-us/data
- SQL Team http://www.sqlteam.com
- Microsoft BI http://www.microsoft.com/en-us/bi

Management Studio: Demo Session



FoodMart

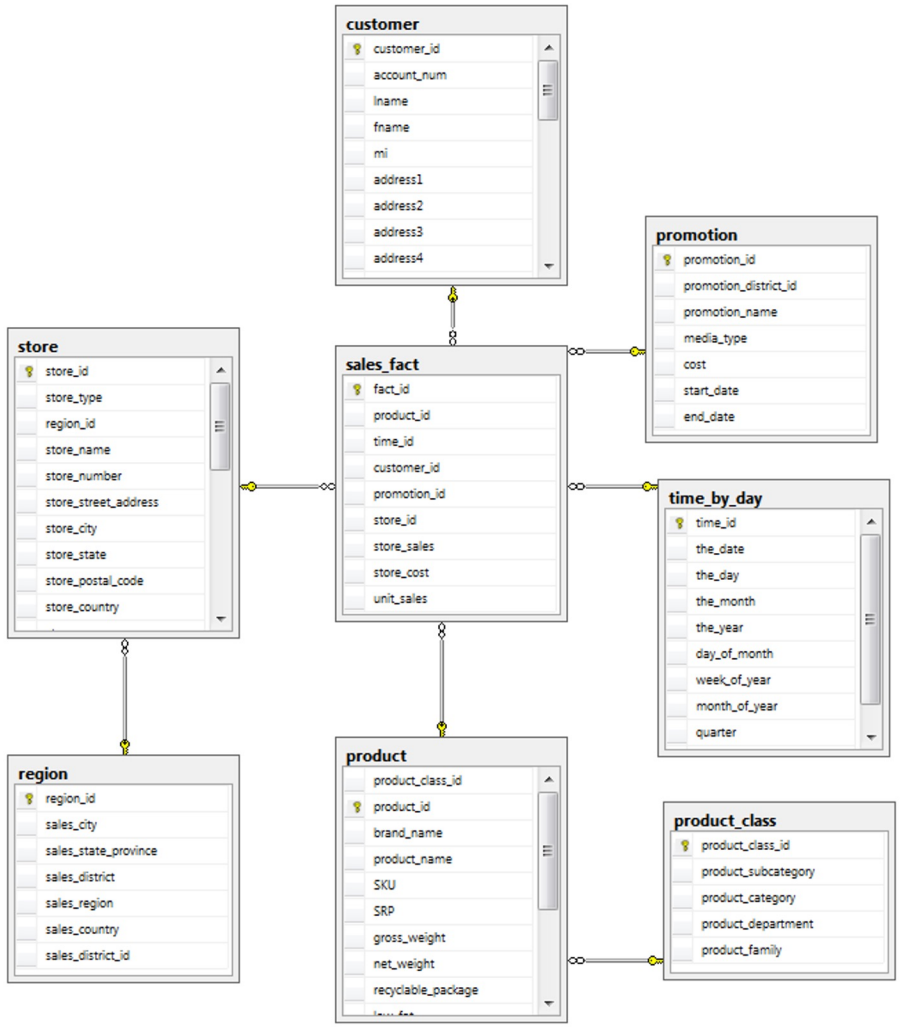
Snowflake schema

sales_fact

- store_sales
  - total amount sold
- store_cost
- unit_sales
  - number of units sold
  - unitary price is: store_sales/unit_sales

dimension tables

- store, customer, time_by_day,product, promotion



Notice

By default, SQL Server Management Studio poses some restrictions to the modification of table schema, returning an error after modifications.

To remove such restrictions de-select Tools → Options → Designers → "Prevent Saving changes that require table re-creation".

Import-export

Management Studio >> Database

- Right-click >> Tasks >> Import / Export Data
  - Import/export from/to
    - text files, ODBC, OLE DB

XML

- SELECT … FOR XML RAW

```
SELECT fname, lname FROM employee FOR XML RAW
```

  - XML in ROW format (without the root tag)

```
<row fname ="Luigi" lname="Rossi"/>
<row fname ="Mario" lname="Bianchi"/>
```

  - XML in SQL Server details

Namespaces

Users are assigned

- a default database in a server
- a default schema in each database
- syntax of objects names (tables, views, …): [dbname.][schema.]object

SELECT * FROM census

- census table on the default schema of the user

SELECT * FROM dbo.census

- census table on the schema dbo

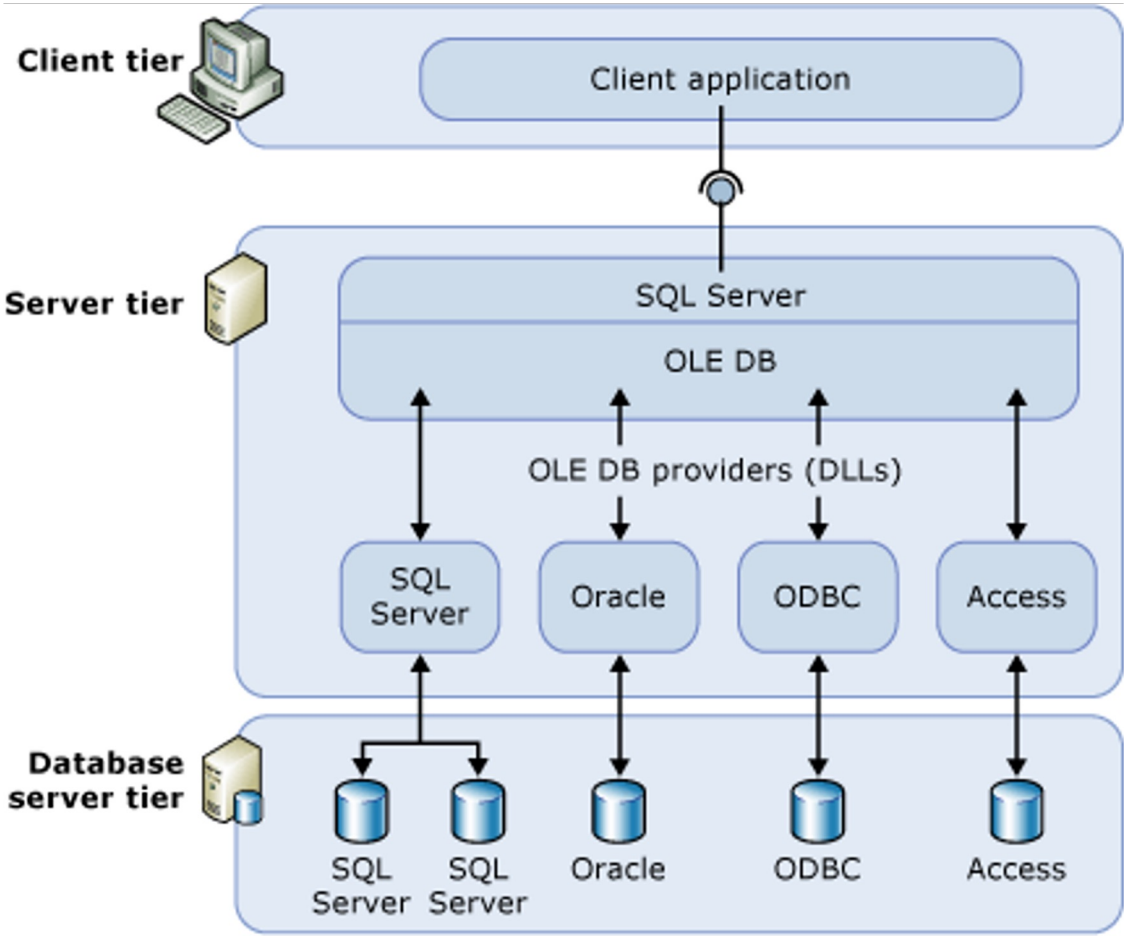
SELECT * FROM lbi.census

- census table on the default schema of the user in the lbi database

SELECT * FROM lbi.dbo.census

- census table on the schema dbo of the database apa

Linked servers



Linked servers

Linked Server

- Name that refers to connection to OLE DB data sources
- Ex., patterns refers to a DBMS server on Oracle/DB2/MySQL etc.
  - `patterns.pubs.dbo.authors` is the table `authors` of schema `dbo` on the database `pubs` of the linked server `patterns`

Distributed queries and transactions

```
select *
from patterns.pubs.dbo.authors as A, pubs.dbo.authors B
where A.au_id = B.au_id and A.address <> B.address
```