Database and RDBMS Options

Databases are all about structuring data

- As you've seen, databases are all about structuring data

- Organizations structure the information they work with:
  - So that critical company information is stored for long periods of time
  - So that data can be persisted and worked with easily
  - So that they can find what they need, when they need it quickly and efficiently
  - To facilitate evaluation, comparison, and analysis

- How data is structured is important and since that's the case, choosing the right database is critical to an organization's data-scalability needs

Database and RDBMS Options

The database structure you select generally influences…

- The kinds of information you collect
- How it’s possible to interrogate your data
- The extent to which you can take advantage of your computer’s data-handling abilities
- How easy it is to share data with others

Database and RDBMS Options

Database options

Tabular Data

Spreadsheets like Microsoft Excel, Google Sheets, Apache OpenOffice Calc, etc.

Traditional Relational Databases

Microsoft Access, Microsoft SQL Server, FileMaker Pro, MySQL, PostgreSQL, Oracle, IBM DB2, Sybase, SQLite, etc.

Non-Tabular Data

Document-orientated databases (MongoDB, CouchDB, Couchbase, Terrastore, RavenDB, OrientDB, ThruDB, SisoDB, RaptorDB, CloudKit, Jackrabbit, etc.), RDF Triplestores (linked data on the Web), qualitative data analysis packages (NVivo and ATLAS.ti), etc.

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When to use a relational database

Some data is inherently better suited to a relational database which can host several databases on one server. Other advantages include:

- **Ease of Use:** The use of tables to store data in columns and rows makes it easy to access and manage data.
- **Data Security:** With an RDBMS you can hide sensitive tables and give them their authorization codes, providing a layer of protection for your data
- **SQL Standard:** SQL is a standardized language well understood by many applications, and many of the alternative database options provide SQL interfaces.
- **Data Integrity:** The structure of the relational database preserves the integrity of the data and makes it easier to meet compliance regulations.
- **Performance:** An RDBMS uses indexes to sort data and speed up performance, and supports both desktop and web applications.
- **Development and Support:** The large players like Oracle, Microsoft, SAP, etc. all have a vested interest

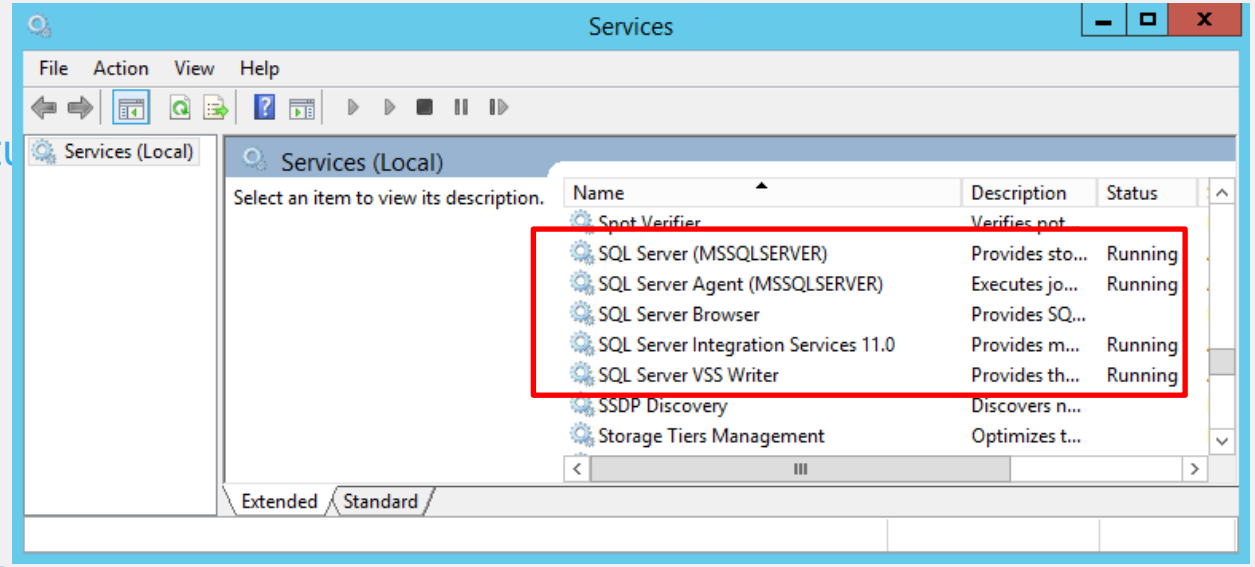
Database and RDBMS Options

The parts of a relational database system

Most large-scale database solutions are complex systems that can require dedicated resources (hardware, software, and manpower) in order maintain properly. Enterprise solutions like Microsoft's SQL Server exist in large ecosystems and are typically broken down into the following tiers:

The Database

The actual database and its attendant storage structu



The Engine

Interprets requests between the database and the application. On a Windows server, the engine typically runs silently in the background as a service.

The Application