

Databases Beyond SQL

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The logo for ipSpace, featuring the text "ipSpace" in a white, cursive script font. The logo is positioned on a background of diagonal stripes in shades of orange, yellow, and brown.

ipSpace

Major Database Families

SQL databases

No-SQL databases

- Document stores: document-oriented databases, XML databases
- Graph databases
- Key-value stores
- Multi-value databases
- Object databases
- Tabular (BigTable) and tuple stores

You Can't Have the Pie and Eat It

SQL databases:

- Transactions
- ACID (Atomicity, Consistency, Isolation, Durability)
- CAP (Consistency, Availability, Partitioning) theorem

NoSQL databases:

- Horizontal scale-out
- Tradeoffs: eventual consistency, no transactions

Document Store

- Apache CouchDB
- MongoDB
- Lotus Notes
- Amazon SimpleDB

Key-Value Store

Generic technologies

- Distributed Hash Tables (DHT)

RAM key-value cache

- Memcached
- Redis
- Zookeeper

Eventually consistent databases

- Cassandra

Disk key-value cache

- MongoDB
- MemcacheDB
- Berkeley DB
- DBM and NDBM
- Amazon DynamoDB

A young child stands in the center of a large-scale floor installation. The floor is covered with a large, light-colored map of Europe, with several major cities labeled in black text: 'Paris', 'London', 'Brussel', and 'Kobe'. Three black network devices, likely routers or switches, are placed on the floor. They are interconnected by a complex network of colorful cables (red, blue, yellow, green, black) that snake across the map. The child is wearing a white t-shirt with red sleeves and dark pants. The floor is made of grey tiles.

Questions?

Send them to ip@ipSpace.net or [@ioshints](https://twitter.com/ioshints)