

Spectrum Ends: Strong Consistency Models

- **Linearizability:** Each operation by a client is visible (or available) instantaneously to all other clients
 - Instantaneously in real time
- **Sequential Consistency** [Lamport]:
 - *"... the result of any execution is the same as if the operations of all the processors were executed in some sequential order, and the operations of each individual processor appear in this sequence in the order specified by its program.*
 - After the fact, find a “reasonable” ordering of the operations (can re-order operations) that obeys sanity (consistency) at all clients, and across clients.
- Transaction ACID properties, e.g., newer key-value/NoSQL stores (sometimes called “NewSQL”)
 - Hyperdex [Cornell]
 - Spanner [Google]
 - Yesquel [Microsoft Research], Tapir [UW], Callas [UT], Rifl [Stanford], ...