Graph Type Decision Guide

This decision guide helps you choose between the different **named graph types** in ArangoDB based on your scale, performance, and complexity requirements.

Overview of Graph Types

- General Graphs — basic graph structure, easy to set up
- SmartGraphs — optimized for high performance and large clusters
- EnterpriseGraphs — enterprise-level graph with automated sharding
- SatelliteGraphs — fully replicated graph for maximum locality

Decision Guide

Graph Type	When to Use	Best For	Trade-offs
General Graphs	Use when you need a simple graph with no special sharding or performance concerns.	✔ Small datasets	**Pros**: Easiest to set up, no special config. **Cons**: Random data distribution can hurt query performance at scale.
SmartGraphs	Use when your graph is large or highly interconnected and you have an attribute that groups nodes naturally.	✔ Large datasets ✔ Cluster deployments	**Pros**: Value-based sharding improves data locality and reduces network hops for traversals. **Cons**: Requires a `smartGraphAttribute` — not ideal if no clustering property exists.
EnterpriseGraphs	Use when you need enterprise-grade scalability without manually choosing a sharding attribute.	✔ Large cluster workloads	**Pros**: Randomized sharding that co-locates adjacent edges and nodes, reducing network hops without a `smartGraphAttribute`. **Cons**: Slightly more complex setup than SmartGraphs; still not replicated like SatelliteGraphs.
SatelliteGraphs	Use when your graph can fit on each server and you need maximum local performance for traversals.	✔ Large and read-heavy workloads	**Pros**: Full replication to all DB-Servers eliminates network hops for traversals. **Cons**: The graph data must fit on each node, therefore it will typically be a small to medium sized graph. Writes are slower due to replication.