It's finally time for the long-awaited post about the new multiplayer replication system that is being developed for Godot 4.0. Below, we will introduce the concepts around which it was designed, the currently implemented prototype, and planned changes to make it more powerful and user-friendly.

Design goals

Making multiplayer games has historically been a complex task, requiring ad-hoc optimizations and game-specific solutions. Still, two main concepts are almost ubiquitous in multiplayer games: some form of messaging, and some form of state replication (synchronization and reconciliation).

While Godot does provide a system for messaging (i.e. RPC), it does not provide a common system for replication. In this sense, we had quite a few #networking meetings in August 2021 to design a replication API that could be used
for the common cases, while being extensible via plugins or custom code.

[3]

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