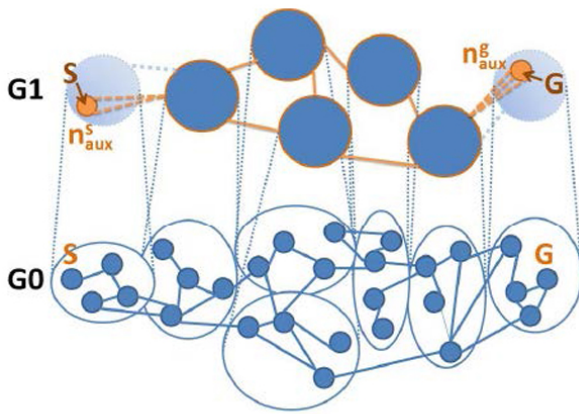


# Improvements to hierarchical pathfinding for navigation meshes

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The challenge of path-finding in video games is to compute optimal or near optimal paths as efficiently as possible. As both the size of the environments and the number of autonomous agents increase, this computation has to be done under hard constraints of memory and CPU resources. Hierarchical approaches, such as HNA\* can compute paths more efficiently, although only for certain configurations of the hierarchy. For other configurations, performance can drop drastically when inserting the start and goal position into the hierarchy. In this paper we present improvements to HNA\* to eliminate

bottlenecks. We propose different methods that rely on further memory storage or parallelism on both CPU and GPU, and carry out a comparative evaluation. Results show an important speed-up for all tested configurations and scenarios.