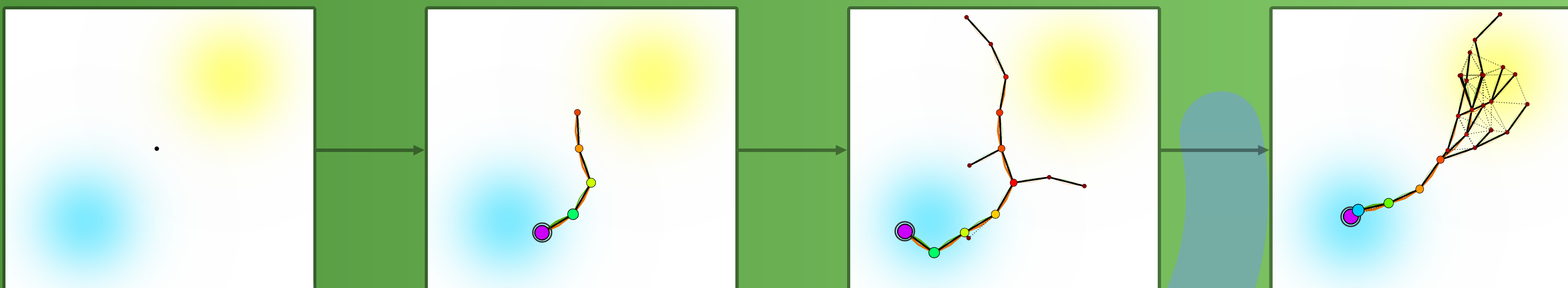


# Engineered Self-Organizing Structures Through Aggregate Computing

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## Approach

## Limitations



VMC assumes the organization is structured as a tree, meaning it's strictly hierarchical. This neglects the possibility of merging disjoint organizations or allowing communication between sibling sub-organizations.



VMC assumes strict synchronous operations, requiring sequential node evaluation and atomic tree updates.



The assumptions made by VMC restricts the model usefulness and might not accurately represent real-world systems, leading to abstraction gaps.

## Vascular Morphogenesis Controller

VMC is a model for the growth of artificial structures over time, it draws inspiration from plant's morphogenesis. It captures the dynamics of resource distribution in tree-shaped structures, where branches compete to grow.

In VMC, nodes in a tree structure collect and transmit success from the environment or child nodes to their parent. This success influences the thickness of vascular pathways, regulating the distribution of resources from root to leaves.