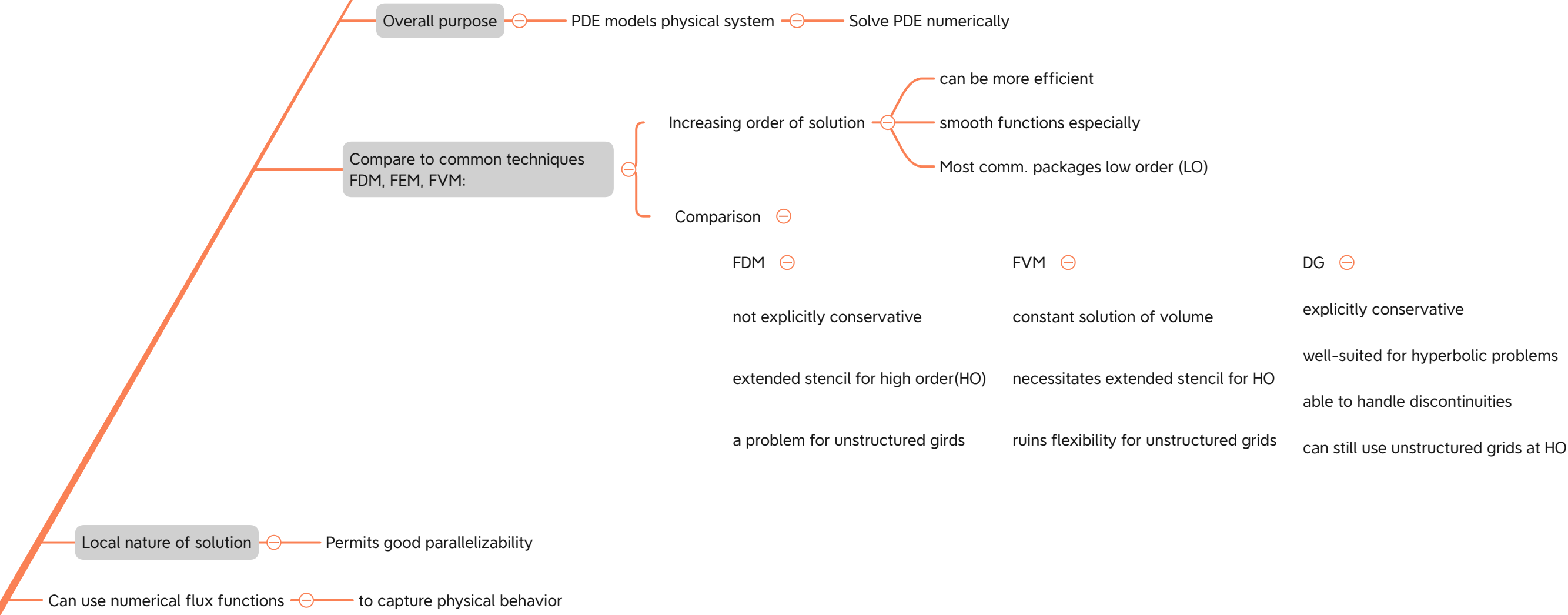
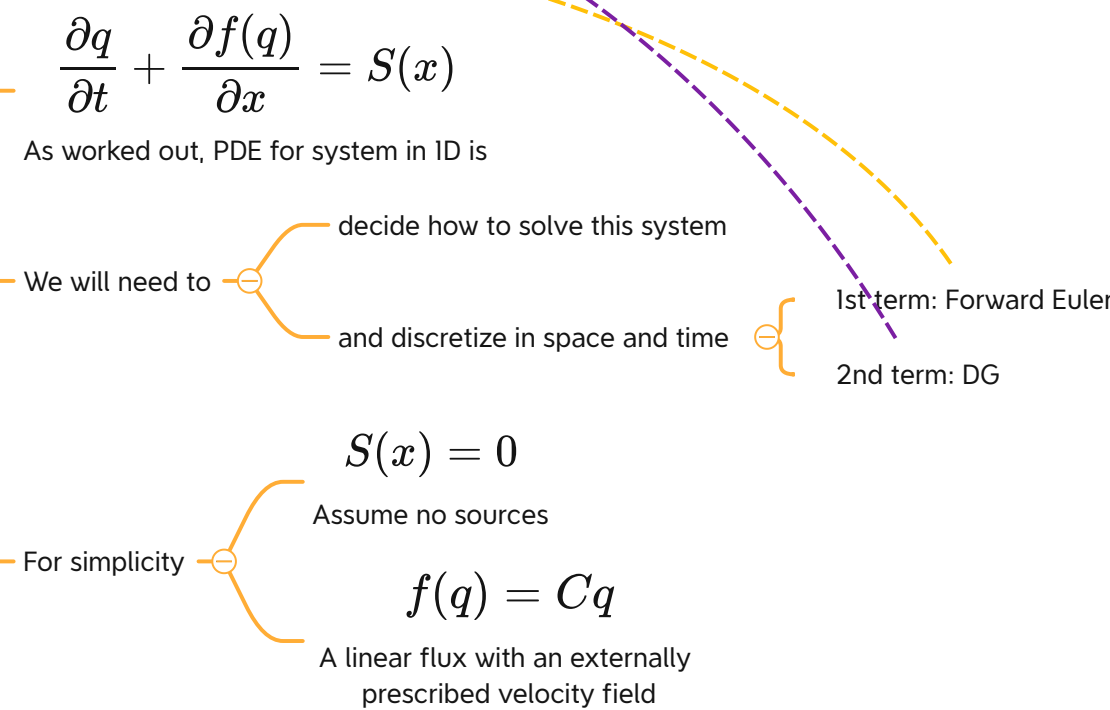


Module 1: What is DG?

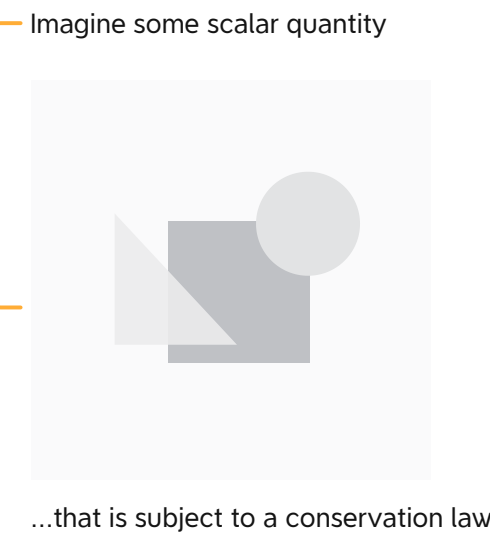
DG Motivation: Why DG?



General Approach

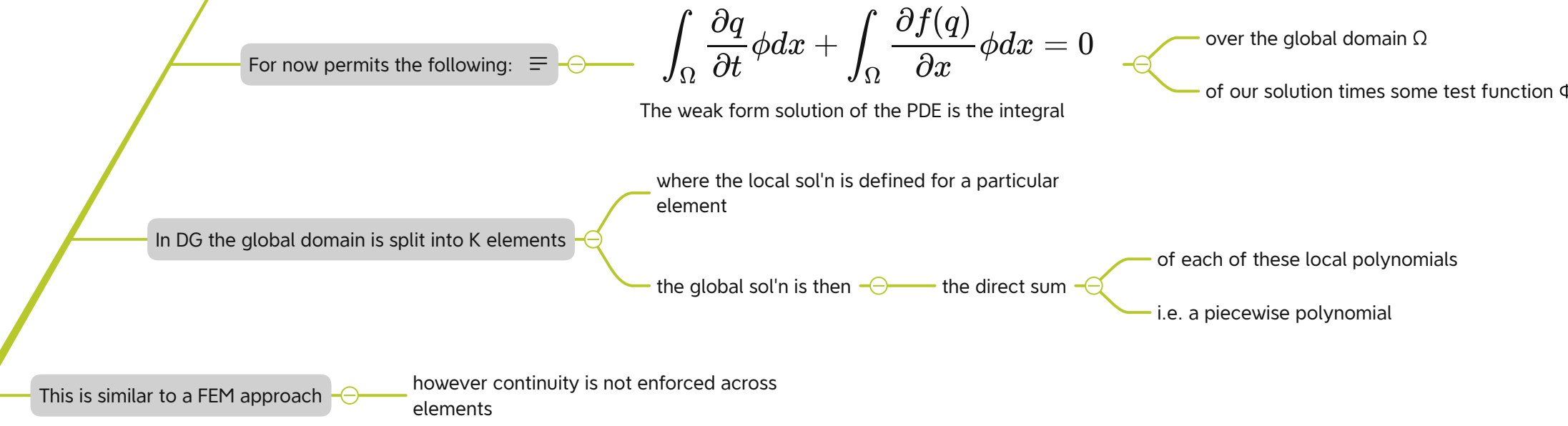


A brief motivating example

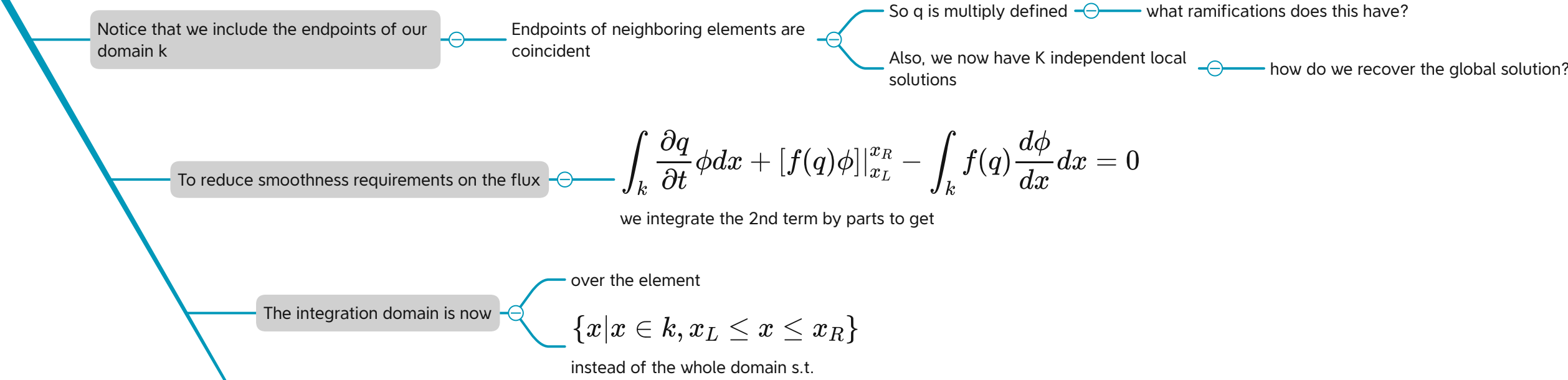


Example PDE: Scalar Conservation Law

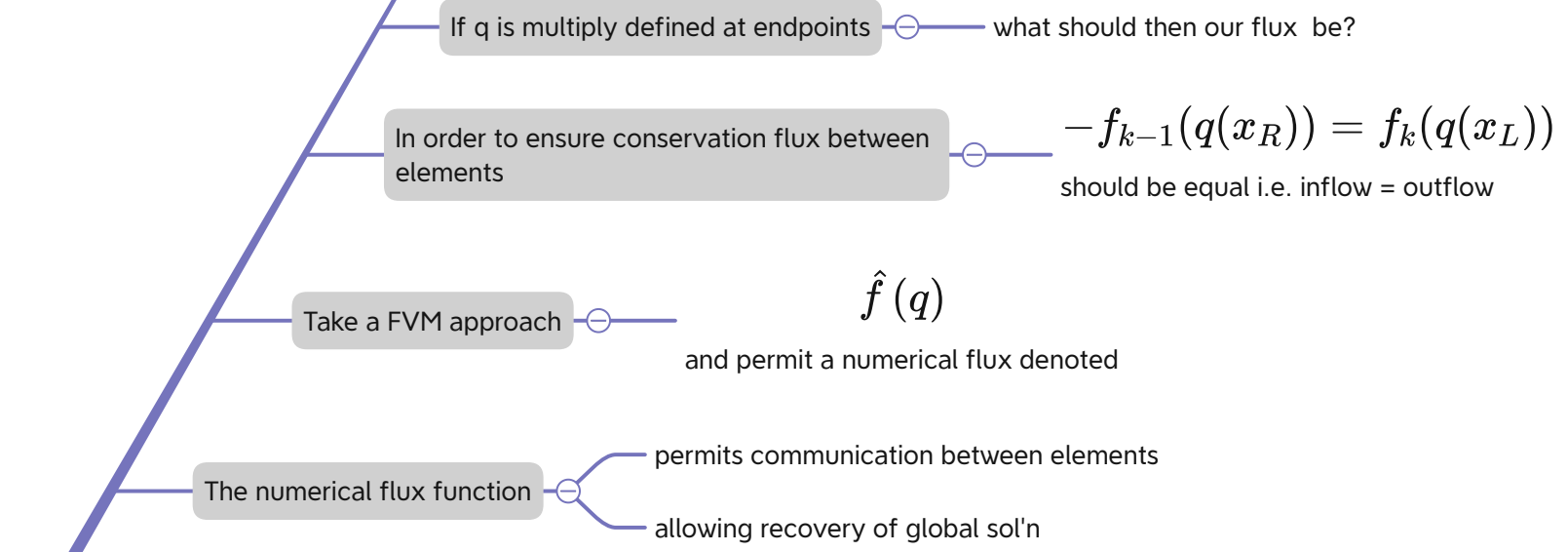
The Weak Form of the PDE



Domain Decomposition: Global vs Local



Element Boundaries: Multiply Defined?



$\hat{f}(q^+, q^-) = \begin{cases} cq^-, c > 0 \\ cq^+, c < 0 \end{cases}$

For simplicity we will use the upwind flux where

Many choices

- Lax-Friedrichs
- Richtmyer
- Godunov
- Osher
- Roe

Permits insertion of problem specific knowledge → into an otherwise agnostic PDE

Flux functions describe the "flow" → of some quantity depending on

- the quantity itself
- and other factors (possibly)

[Recall] Flux Functions