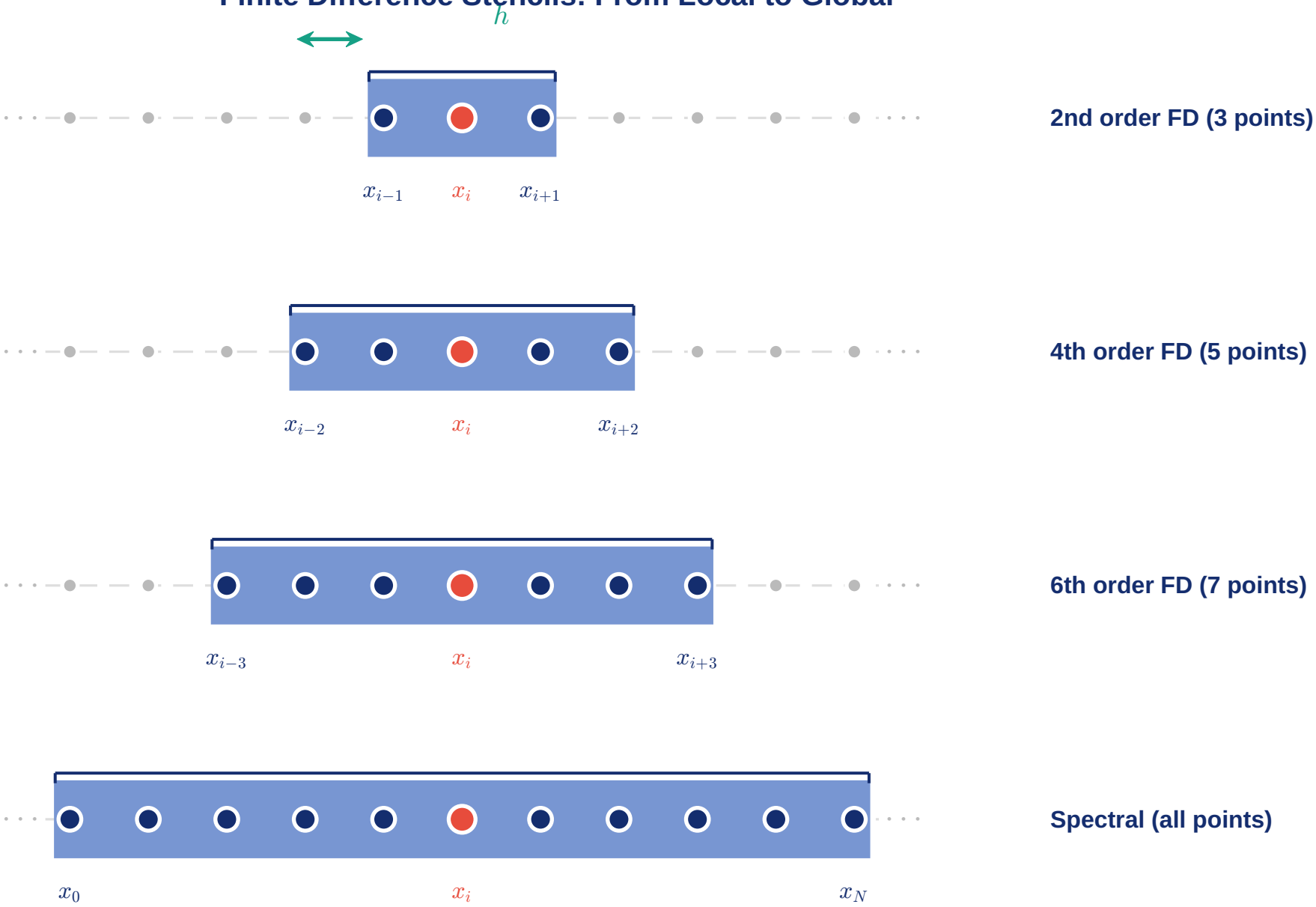
Finite Difference Stencils: From Local to Global



As stencil width increases, accuracy improves. The spectral method is the limit: all nodes contribute to $u'(x_i)$.