Voronoi Diagram

Hardness

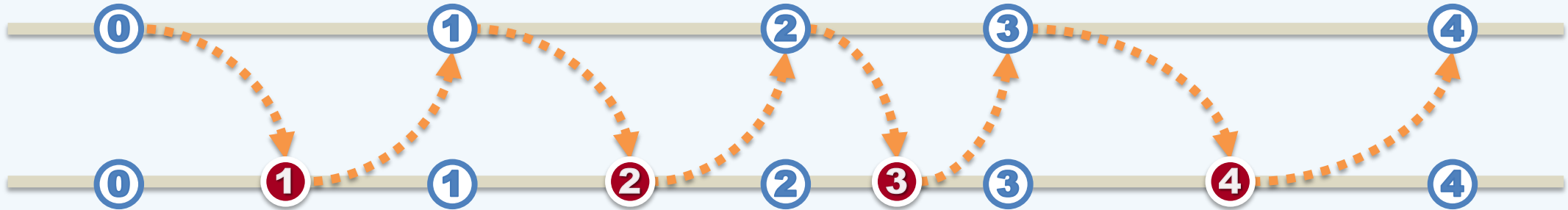## - 1D Voronoi Diagram

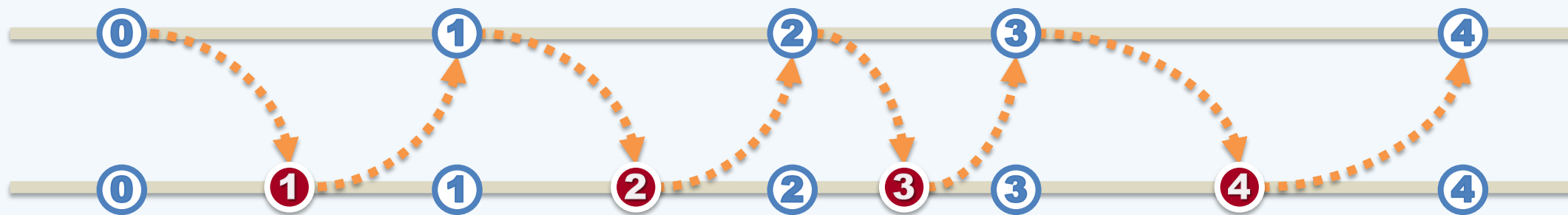Junhui DENG

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❖ How fast can we hope to construct a (planar) VD of n sites?

❖ Sorting is linear-time reducible to 1-dimensional VD

Sorting $\leq_N$ 1D-VD $\leq_N$ 2D-VD

❖ **Since each 1D-VD can be embedded in the plane,**

constructing the VD of n sites in the plane requires $\boxed{\Omega(n\log n)}$ **time**

❖ **In fact, it's possible to establish directly**

a reduction from Sorting to 2D-VD ...