# Advantages of fat-tree

▸ In traditional hierarchical networks, switches in aggregation and core layers need to be more powerful, and have more ports per device. High-end high port density switches are extremely expensive.

▸ Scale out vs. scale up

▸ Fat-tree: $(5k^2/4)$ k-port switches support $k^3/4$ hosts

▸ 48-port 1GigE switches: 27,648 hosts using 2,880 switches.