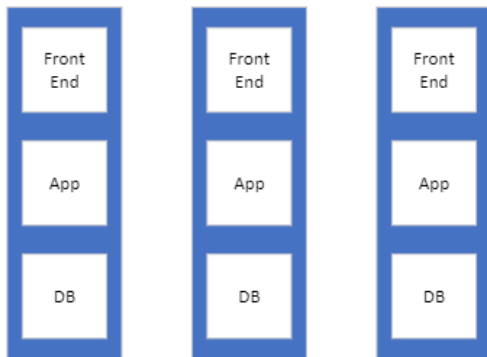


SRE: Puzzle – The Three Tier App

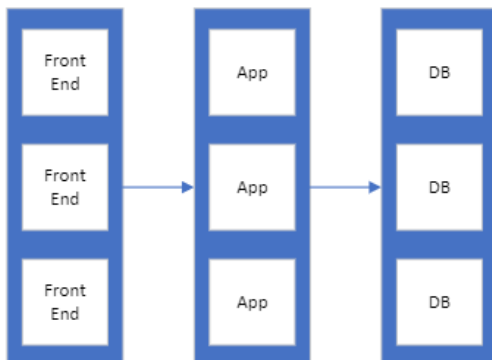


Which of the below 3 designs has more availability? All components have 99% availability and there is a front-end service (3 nodes), app service (3 nodes) and backend DB service (3 nodes).

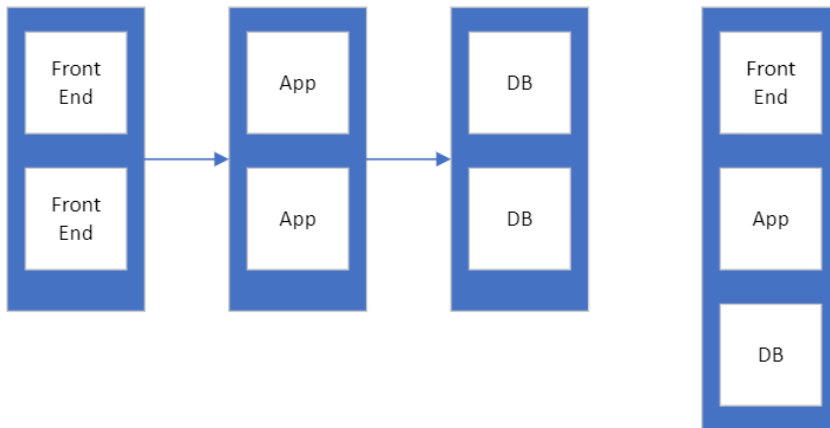
A. Tiers are shared into singular sets of components.



B. Tiers are sharded individually.



C. Mixed - Paired shards with a singular split off.



- A. $1 - (1 - (.99^3))^3 = .99997379928$ - - - 13.7 mins downtime
- B. $(1 - (.01^3))^3 = 0.999997$ - - - 1.5 mins of downtime
- C. $1 - (1 - ((1 - (.01^2))^3)) * (1 - (.99^3)) = 0.99999109059$ - - - 4.68 mins of downtime