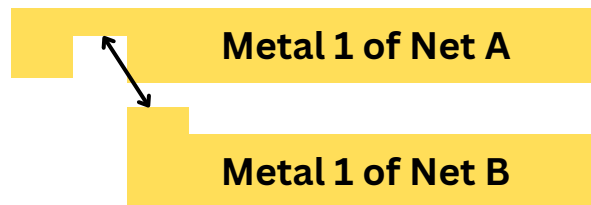




Electromigration

- The major challenge in IC Layout is Electromigration.
- Electromigration is the phenomenon of transportation of metal atoms when the free electrons collide with them. It might result in a open (if the metal atoms are removed from a particular position) or a short (if the dispersed metal atoms got deposited over the nearby metal line of a different net) as shown in the figure below:



- This is a reliability issue and it won't happen in overnight. This is a slow process and it will affect the circuit functionality maybe after a year. But the minimum period of reliability guaranteed by the foundry is 10 years and it is the responsibility of the Layout Engineer to ensure their layout is free from Electromigration violations.
- There are several ways to fix Electromigration violations. We will cover about them in the next post.