Dual Loop cooling systems are typically used where the main pump cannot handle the back-pressure from the long pipe run back and forth to a remote radiator.

In the cooling system depicted below, engine coolant flows to a shell and tube heat exchanger (usually located in close proximity to the engine), the other side of the shell and tube is connected to an auxiliary pump which can overcome the restriction imposed by long pipe run.

Because of the close temperatures in the two loops, a much larger radiator will be required in comparison to a redundant cooling system.