

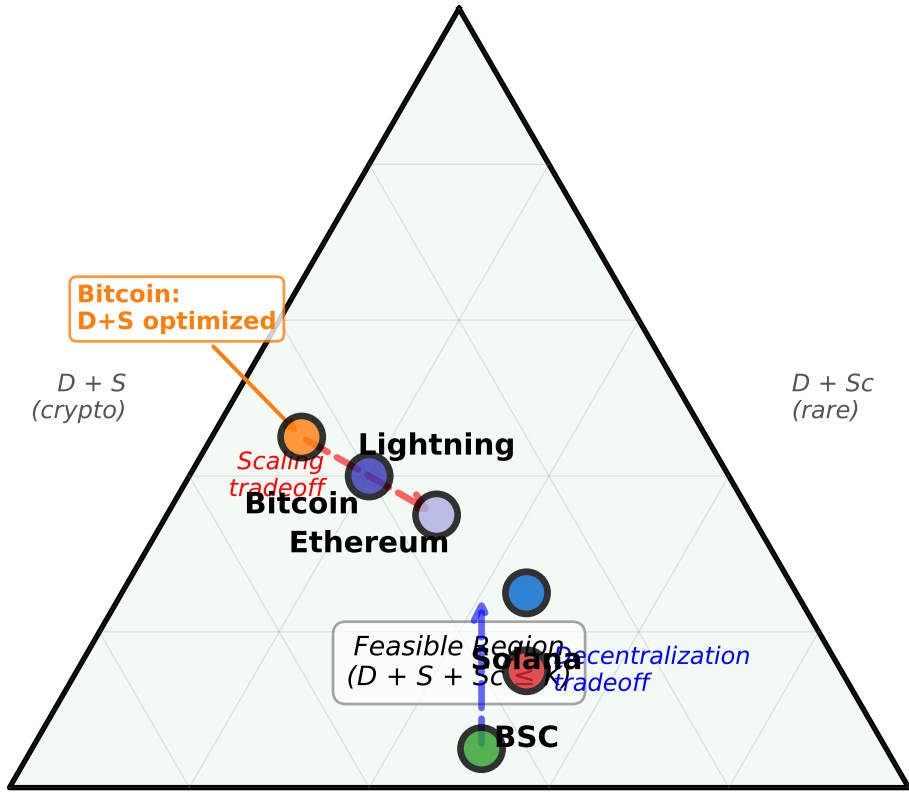
# Blockchain Trilemma: Constraint Optimization in Digital Finance

Decentralization

Trade-off Dimension (normalized)

Security

Scalability



Trilemma Constraint:  
Systems can optimize at most 2 of 3 properties.

- Bitcoin/Ethereum: D+S, sacrifice Sc
- Visa/BSC: S+Sc, sacrifice D
- Solana: Balanced compromise

Trilemma: Choose 2 of 3  
 $D + S + Sc \leq K$  (constraint)

Trilemma Space (normalized)