(FYI) Feistel Network

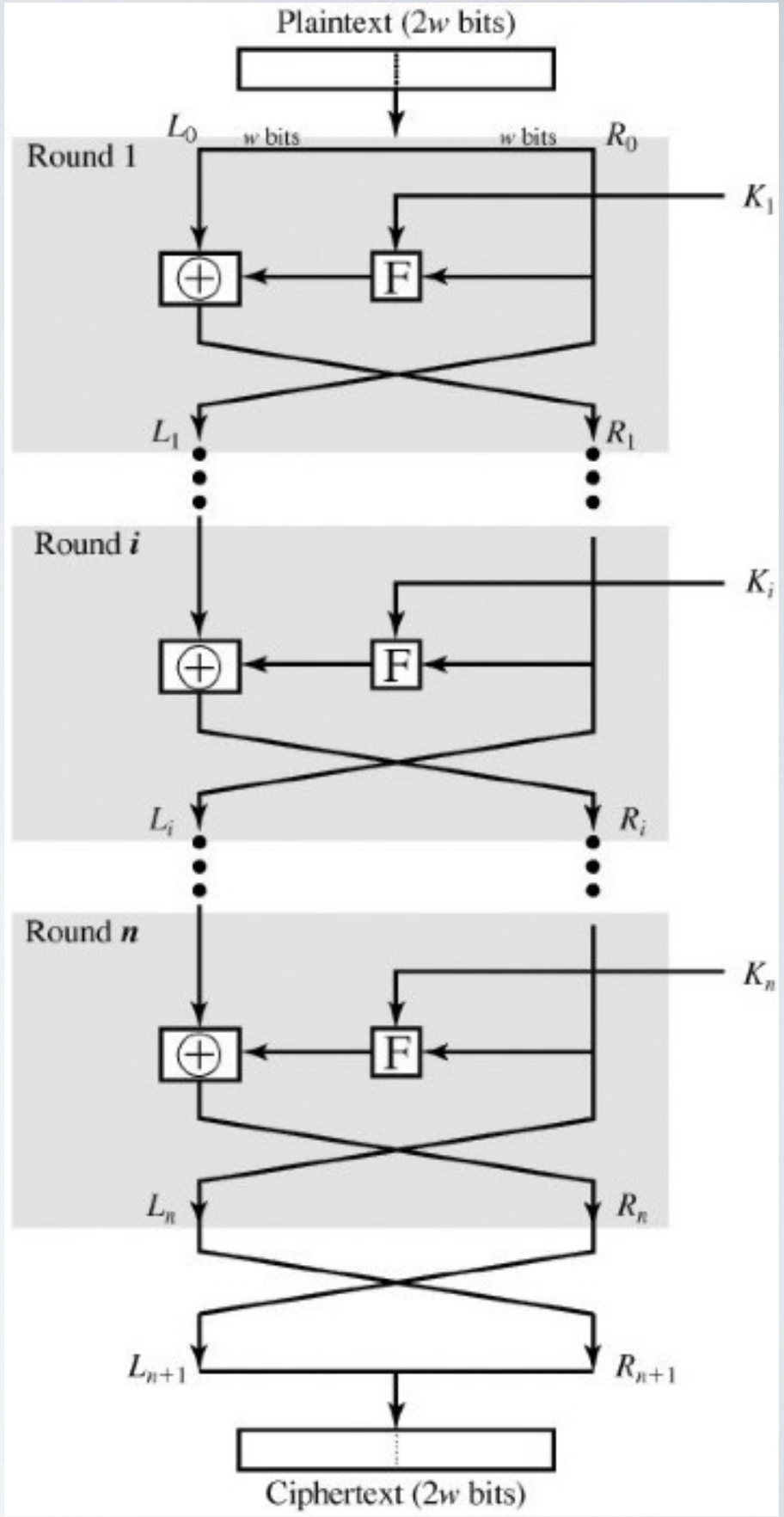
$L_i = R_{i-1}$

$R_i = L_{i-1} \oplus F_i(R_{i-1}, k_i)$

Properties:

- F is an arbitrary function that scrambles the input based on a key
- F is not necessary invertible
- A Feistel Network is invertible

➡ Achieves confusion and diffusion



"Cryptography and Network Security" by *William Stalllings*

Security of DES - DES Challenges (brute force contests)

1998 *Deep Crack*, the EFF's DES cracking machine used 1,856 custom chips

- Speed : matter of days
- Cost : $250,000

2006 *COPACOBANA, the* Cost-optimized Parallel CodeBreaker used 120 FPGAs

- Speed : less than 24h
- Cost : $10,000