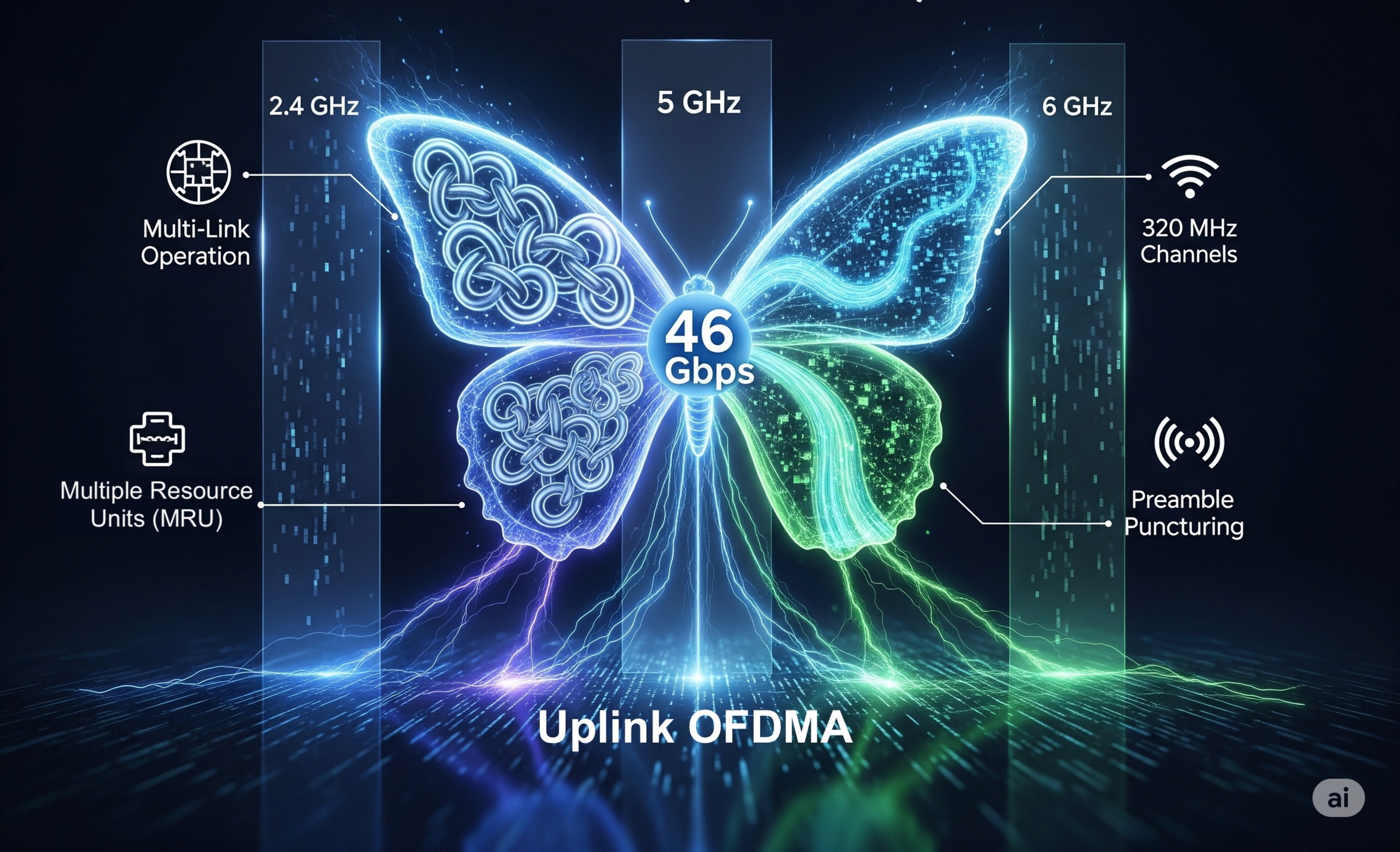
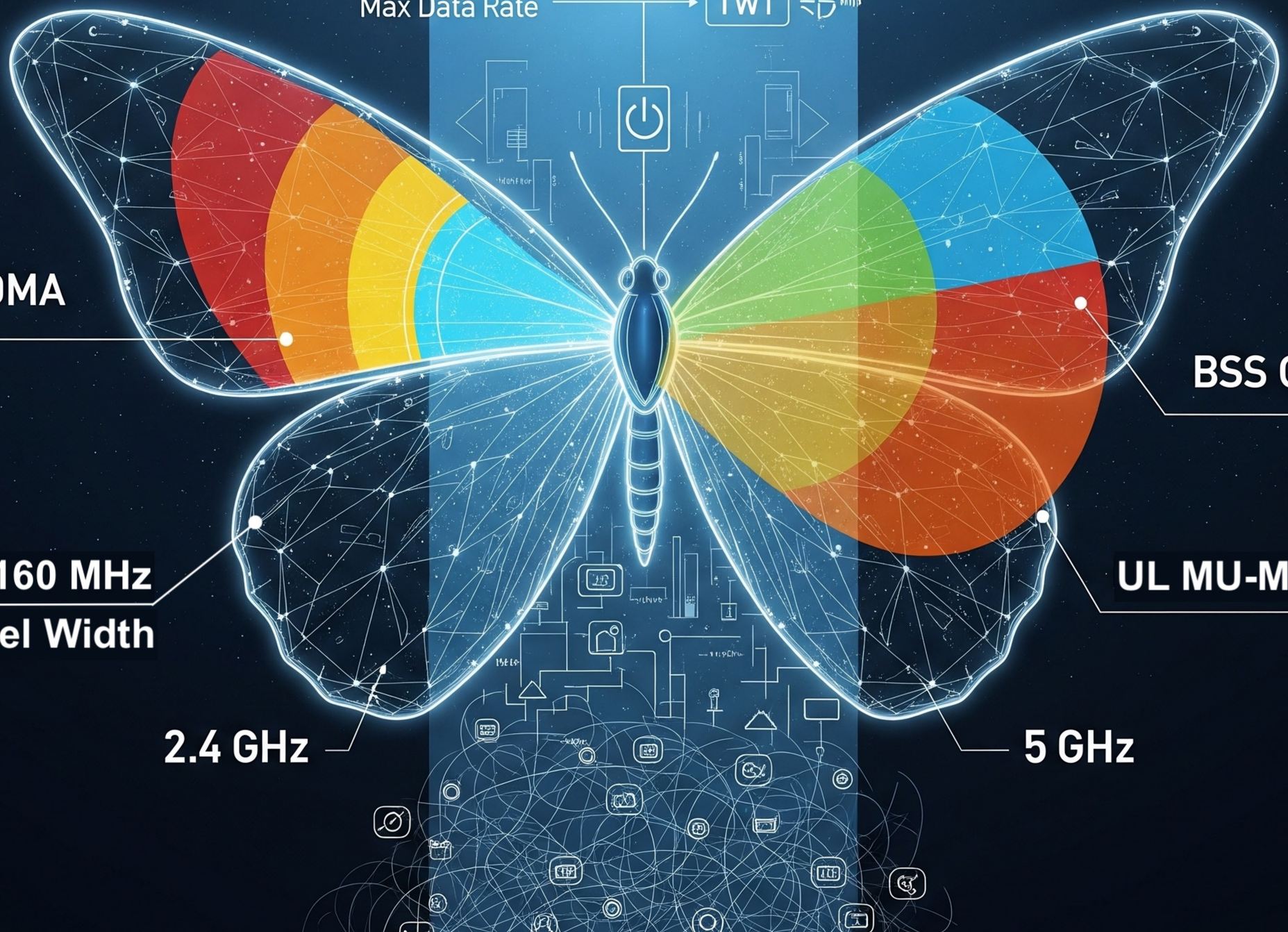
Wi-Fi 7 (802.11be)



Efficiency Race:
Wi-Fi 6 & 6E



Wi-Fi 5
(802.11ac)

5 GHz only

256-QAM

Max 6.93 Gbps

Wider Channels
(up to 160 MHz)

MU-MIMO
(early flaws)

ai

802.11n Wi-Fi 4

(2009)

Max 600 Mbps

MIMO

2.4 GHz

Channel Bonding

5 GHz

Frame Aggregation

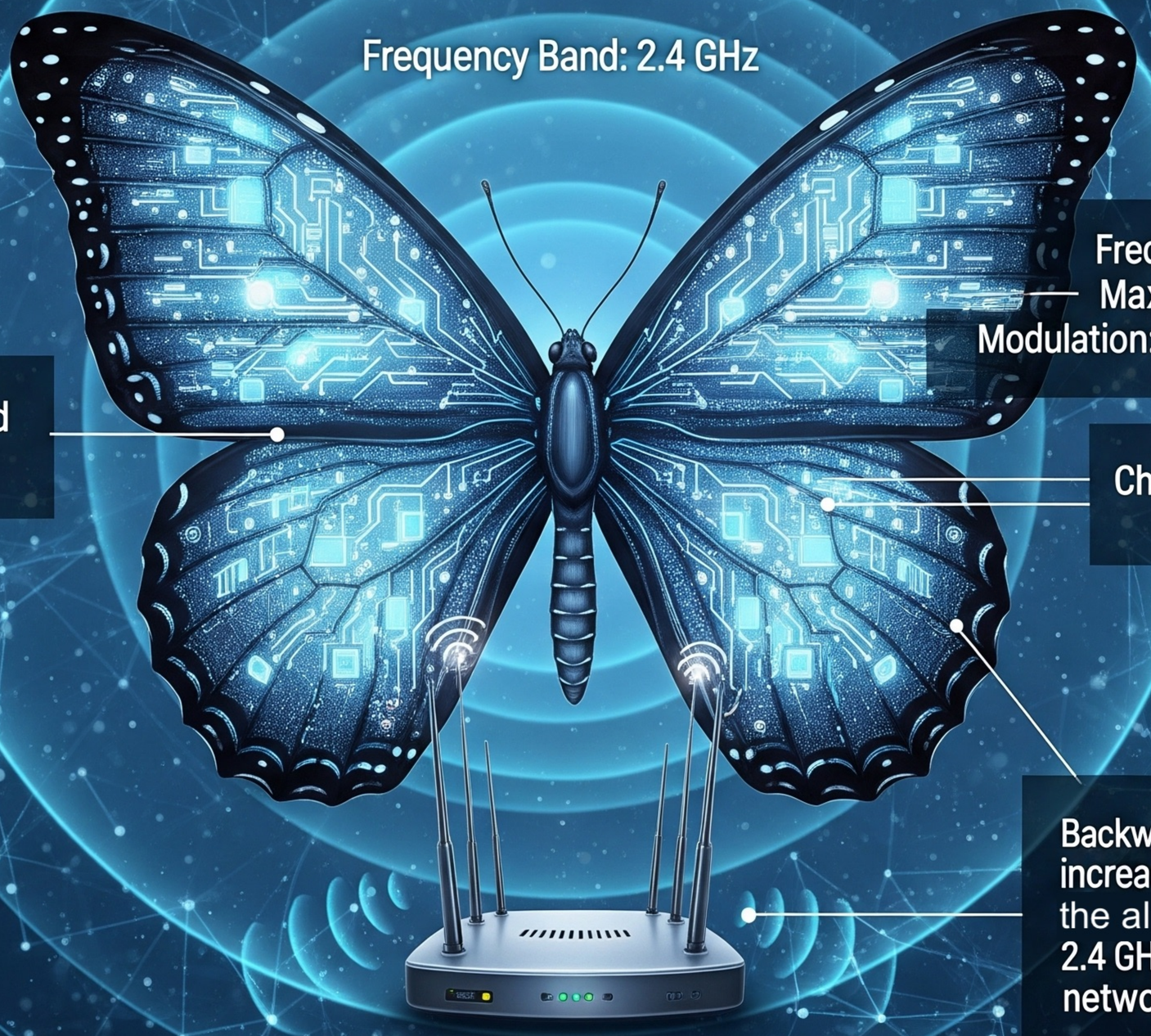
Congested 2.4 GHz

40 MHz

802.11g

STANDARD

Frequency Band: 2.4 GHz



Brought 802.11a speed to the 2.4 GHz band!

Frequency Band: 2.4 GHz
Max Data Rate: 54 Mbps
Modulation: OFDM (fallback to CCK, DSSS)

Channel Wideth
20 MHz

Backward compatibiity with 802.11b increased network congession in the already crowded 2.4 GHz band,slowing overall network performance.

802.11a

Frequency Band: 5 GHz
Max Data Rate: 54 Mbps

Modulation:
Orthogonal Frequency-Division Multiplexing (OFDM)

Channel Width:
20 MHz

Technically superior standard

The true pioneer of modern Wi-Fi

Higher cost and shorter range limited its its use to specialized enterprise applications

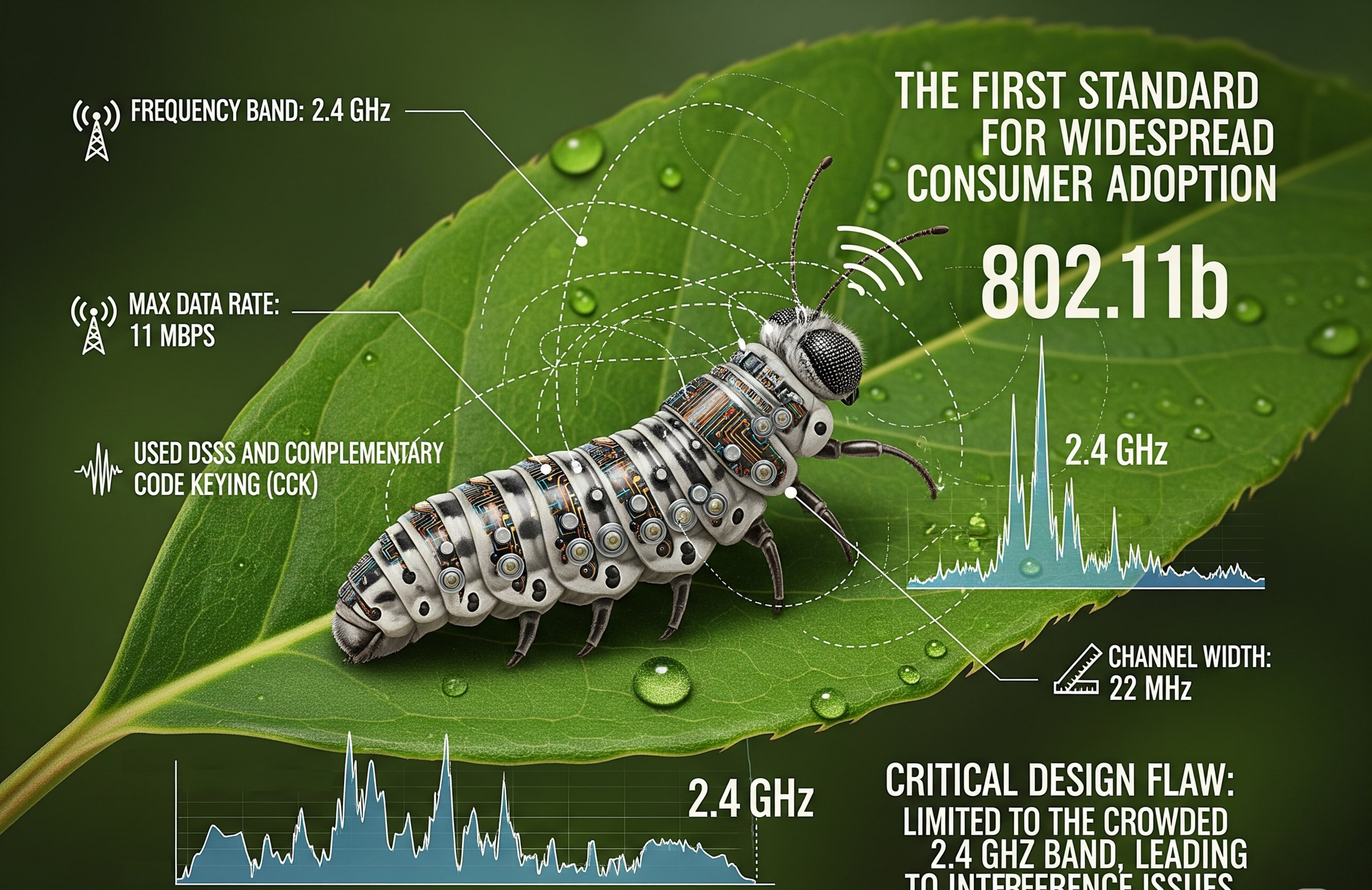
THE FIRST STANDARD FOR WIDESPREAD CONSUMER ADOPTION

802.11b

FREQUENCY BAND: 2.4 GHz

MAX DATA RATE:
11 MBPS

USED DSSS AND COMPLEMENTARY CODE KEYING (CCK)

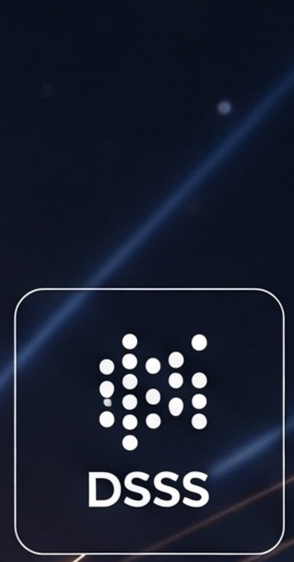


CHANNEL WIDTH:
22 MHz

CRITICAL DESIGN FLAW:

LIMITED TO THE CROWDED 2.4 GHZ BAND, LEADING TO INTERFERENCE ISSUES

802.11: The Birth of Wi-Fi (1997)



THE METAMORPHOSIS OF Wi-Fi STANDARDS