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| ARQ (Automatic Repeat reQuest) | HARQ (Hybrid Automatic Repeat reQuest) |
| Basic Functionality:  ARQ: In traditional ARQ, when a receiver detects errors in received data, it sends a request (ACK/NACK) to the transmitter to retransmit the corrupted data. | Basic Functionality:  HARQ: HARQ combines ARQ with error correction coding. It allows the receiver to combine multiple transmissions of the same data to improve reliability. If the initial transmission contains errors, the receiver can attempt to decode it using previous transmissions or additional parity bits before requesting a retransmission. |
| Efficiency:  ARQ: Pure ARQ systems typically rely solely on retransmissions upon receiving NACK (Negative ACKnowledgment). | Efficiency:  HARQ: HARQ improves efficiency by allowing for incremental redundancy. It can send additional parity bits or combine previous transmissions to correct errors without waiting for a full retransmission request cycle. |
| Latency:  ARQ: ARQ may introduce additional latency, as it requires waiting for a response from the receiver before retransmitting data. | Latency:  HARQ: HARQ reduces latency because it allows the receiver to immediately attempt to decode the data with the help of previously received data or parity bits. |
| Implementation in 5G:  ARQ: While pure ARQ is simpler to implement, it may not be as efficient in terms of spectral efficiency and latency compared to HARQ. | Implementation in 5G:  HARQ: 5G typically uses HARQ due to its ability to efficiently utilize the available spectrum and reduce latency, which are crucial for high-speed data transmission and low-latency applications like real-time gaming and autonomous vehicles.  In summary, while both ARQ and HARQ aim to ensure reliable data transmission, HARQ enhances efficiency by incorporating error correction techniques and allowing for faster recovery from errors, making it well-suited for the demands of 5G networks. |