**Overall Summary:**

* **Total Flights Analyzed:** 100,000
* **Cancelled Flights:** 2,389 (~2.4%)
* **Diverted Flights:** 224
* **Average Delay:** **17.86 minutes**

**🔟 Top 10 Delayed Airlines (by Avg. Arrival Delay):**

* **Most Delayed:**
  + **MQ (Envoy Air):** 35.06 mins
  + **F9 (Frontier):** 34.21 mins
  + **NK (Spirit):** 27.67 mins
* **Least Delayed (within Top 10):**
  + **HA (Hawaiian):** 12.16 mins
  + **WN (Southwest):** 17.93 mins

**Insight:**  
Legacy or low-cost carriers like MQ, F9, and NK have higher average arrival delays, possibly due to operational constraints or route complexities.

**📍 Delay Hotspots by Airport:**

* **Heavily impacted regions:** Concentrated around **North America**.
* Airports with **Delay Category 10 (Severe Delays)** show up as red markers.
* This highlights specific **airports with recurring operational or weather issues**.

**🥧 Distribution by Delay Reason:**

* **Top Contributors to Delay:**
  + **Air System Delays (orange)**
  + **Late Aircraft Arrivals (blue)**
* Other categories include weather, security, and airline-caused delays.

**Insight:**  
Late-arriving aircraft and system-wide inefficiencies are the **main delay drivers**, pointing to a cascading operational issue.

**📈 Delay Trends:**

* **Departure delays decrease** as average airline delay increases.
* This indicates that some airlines may **recover time mid-air** or optimize later stages of the flight.

**📊 Delay Reasons per Airline:**

* **Airlines heavily affected by late aircraft delays:**
  + **NK (Spirit):** ~44.71%
  + **F9 (Frontier):** ~43.99%
* **Air system delay major contributor for:**
  + **WN (Southwest):** ~33.41%
* **Weather delay highest for:**
  + **OO (SkyWest):** ~19.50%

**Insight:**  
Each airline has a unique delay profile. Operational bottlenecks vary—some face internal delays while others are impacted more by external systems or infrastructure.

**✅ Actionable Takeaways:**

1. **Improve turnaround efficiency** for airlines with high late aircraft delays.
2. **Coordinate better with ATC and FAA** to reduce air system delays.
3. **Monitor and manage high-delay airports**, especially hotspots in North America.
4. **Build contingency strategies** for airlines frequently impacted by weather or system-wide disruptions.