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(54) APPARATUS, SYSTEMS, AND METHODS FOR BATCH AND REALTIME DATA PROCESSING

(57) A traditional data processing system is configured to process input data either in batch or in real-time. On one hand, a batch data processing system is limiting because the batch data processing often cannot take into account any data received during the batch data processing. On the other hand, a real-time data processing system is limiting because the real-time system often cannot scale. The real-time data processing system is often limited to dealing with primitive data types and/or a small amount of data. Therefore, it is desirable to address the limitations of the batch data processing system and the real-time data processing system by combining the benefits of the batch data processing system and the real-time data processing system into a single data processing system.

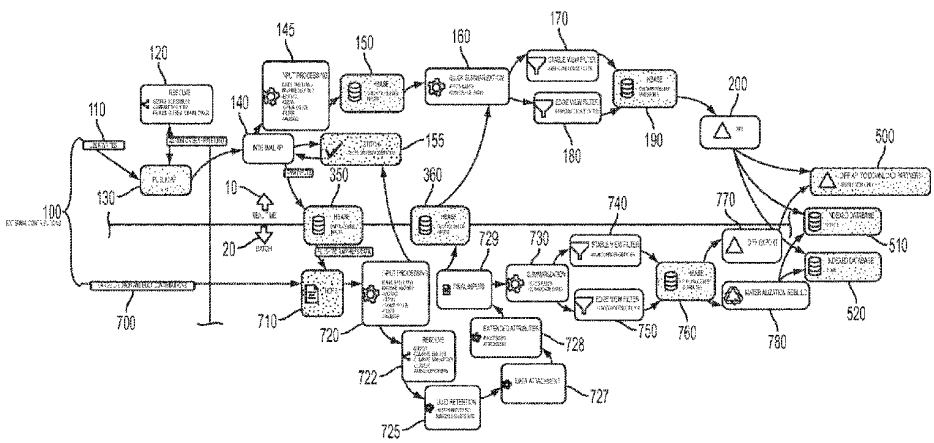

FIG. 1

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