***MEDIA STREAMING USING IBM CLOUD***

***Submitted By***

*V. NAVIN*

*Dept. of Electronics and Communication Engineering*

*Anna University Regional Campus Coimbatore*

*PROBLEM DEFINITION*

*Organizations in every industry have data streaming available from applications, social media, sensors, devices, websites, and more. Analyzing this data in real-time, rather than storing it and analyzing it later, can provide critical, actionable insights in many operational and functional areas. Essentially, streaming analytics is all about extracting business value from data in motion in the same way traditional analytics tools make use of data at rest.*

*Real-time streaming analytics helps companies of all sizes by issuing alerts instantly when a customer’s experience is degraded, or fraud is detected. Additionally, information derived from real-time analytics can be used to identify anomalies and business changes (a sudden spike in demand for a product or service, or a defect in manufacturing) as they occur. Such information allows companies to take instant action and seize an opportunity that they otherwise might miss.*

***THE CHALLENGE***

*At both ends of the spectrum, — broadcast quality ingest and remote play out, as well as consumer web streaming — the media enterprise and, indirectly, the consumer pay a heavy premium in infrastructure costs to minimize the network factors that degrade the playout experience, such as network round-trip time and packet loss. This cost is burdensome in any media application or service but is especially impractical in live and second-screen experiences for events that occur only once.*

*One-time events, such as sports events, movie premieres, concerts, operas, etc., cannot as easily justify the investment associated in erecting dedicated infrastructure for direct distribution, or amortize the CDN costs over long periods of viewing. Additionally, there exist practical constraints that make it difficult to employ CDNs for direct distribution in many second screen applications; media needs to flow through distant cloud services where scale out properties of the cloud computing platform are necessary for concurrent transcoding of the live stream for several formats. Thus, more often than not, content providers are left* to *over-provision infrastructure for such live events as a precaution, and pay higher costs.*

*The need to ingest and distribute live media over low-cost, wide-area IP networks, and with the option to go through distant cloud-based transcoding platforms has created a significant technology void. This is not just an opportunity for small incremental advantage solvable through adaptive bit rate “downsampling”, or clever buffering schema – instead, this calls for a fundamental solution.*

*FACTORS TO CONSIDER WHEN IMPLEMENTING STREAMING ANALYTICS*

*Every day, consumers and businesses generate data at unprecedented speeds. The following statistics put the magnitude of this data tsunami into perspective: ·*

*1. Every minute, 456,000 tweets are posted on Twitter, along with 510,000 comments and 293,000 status updates on Facebook. During that one-minute timespan, 156 million emails are sent.*

*2 · The Intensive Care Unit (ICU) at one leading hospital reported that it generates 100,000 streaming data points per second.*

*3 · Taking all sources of data generation together, there are 2.5 quintillion bytes of data created each day.3*

***IBM AS OUR STREAMING ANALYTICS CLOUD PROVIDER***

*Selecting and deploying the right streaming analytics solution for your company is a complicated and time-consuming task. To get the most out of their deployment, many companies turn to a technology partner that offers both streaming analytics expertise and in-depth, real-world experience. This is an area in which IBM has the expertise to provide extensive assistance.*

IBM Streaming Analytics solves the challenges of setting up and using streaming analytics by providing an easy-to-use cloud-based stream processing service. The solution connects to the streaming data source and target systems and is configured to perform any analytics or data processing operations needed while the data is in transit. Specifically, companies can perform real-time analysis on data-in-motion as part of an IBM Cloud application.

***THE SOLUTION:***

1*. IBM Aspera’s FASP transport technology is a* *bulk data transport widely utilized in digital media for achieving highly efficient, high-speed bulk media transfer over IP networks, with efficiency independent of distance and quality (round-trip latency and packet loss).*

*2. However, the Aspera FASP architecture originally had no suitable application interface for transporting live data. In contrast with bulk file-structured data (e.g. VoD), live stream data needs to be delivered to the playout application in the same order it was passed to the transport tier. This ordered delivery constraint required Aspera to innovate a new byte streamlining capability in its transport platform on top of the FASP datagram delivery protocol.*

*3. The resulting protocol is a fully reliable bulk data streaming protocol that delivers data and video streams over Internet WANs including minimal buffering or glitches, and with negligible start-up delay patented*

***IBM Streams offers some key differentiators.***

*Using IBM Watson speech-to-text capabilities, Streams converts spoken words to text in near real-time.*

*This enables data to be searchable and analyzed for further insights.*

*The speech-to-text service can be used in nearly any scenario in which voice interactivity is needed. It is ideal for mobile experiences, transcribing media files, call center transcriptions, voice control of embedded systems, and converting sounds to text.*

*Because the IoT is increasingly important to business, Streams also integrates Apache Edgent for IoT analytics at the edge.*

*This allows Streams developers to create federated applications to optimize computing for IoT applications, with Edgent at the edge and Streams for central analytics.*

*Developers performing analytics on the edge can use the Streams integration with Edgent to help manage and control analytics through the Streams console.*

***SUMMARY***

*Stream processing is becoming increasingly important for companies. In response to this growing demand, many solutions have been developed—both by traditional enterprise technology vendors and by the open-source community.*

*IBM Streaming Analytics, a front-runner in the marketplace, provides many benefits and differentiators, including the following:*

*· Provides an analysis of the broadest range of streaming data · Allows companies to make decisions while events are happening*

*· Offers cost-effective pricing*

*· Is highly scalable*

*· Makes use of IBM Watson services The bottom line is that IBM Streaming Analytics on IBM Cloud can be used to improve a company’s operational efficiencies, reduce infrastructure costs, and provide faster time to both insights and actions.*