

D&A TRANSFORMATION TALES

Streaming Real-time Data Made Seamless with a **Unified Data Architecture**



BACKGROUND

Our client is a pioneering subscription television distribution network in Lebanon, renowned for delivering an unmatched user experience 24/7. As a leading communication and cable television services provider, the company prides itself on setting the benchmark in the home entertainment industry. Subscribers are offered exceptional picture and sound quality from a host of leading channel bouquets at the most affordable rates.

Given that our client owns and manages an extensive physical network communication infrastructure, including Wi-Fi networks, the generation of massive amounts of data every day from customers and the infrastructure itself has been on an all-time high level. This created a negative impact on the client's productivity, efficiency, security and other crucial business areas. Here are some major challenges that posed a great hindrance to the client on multiple levels:



BACKGROUND

- Overtaxed existing infrastructure that lacked graceful scalability.
- The need to upgrade existing warehouse systems to a more sustainable, economically viable, and horizontally scalable platform.
- Managing data flow from disparate systems, including:
 - Set-top box data (primary source, streaming)
 - Network systems such as routers, switches, boosters, splitters, etc. (batch)
- Customer-facing websites (streaming)
- IVR call system calls (streaming)
- External feeds (batch)
- Ticketing systems (streaming)
- Multiple tools, layers, and technologies on the existing system, typically grown through an evolutionary architecture.



THE SOLUTION

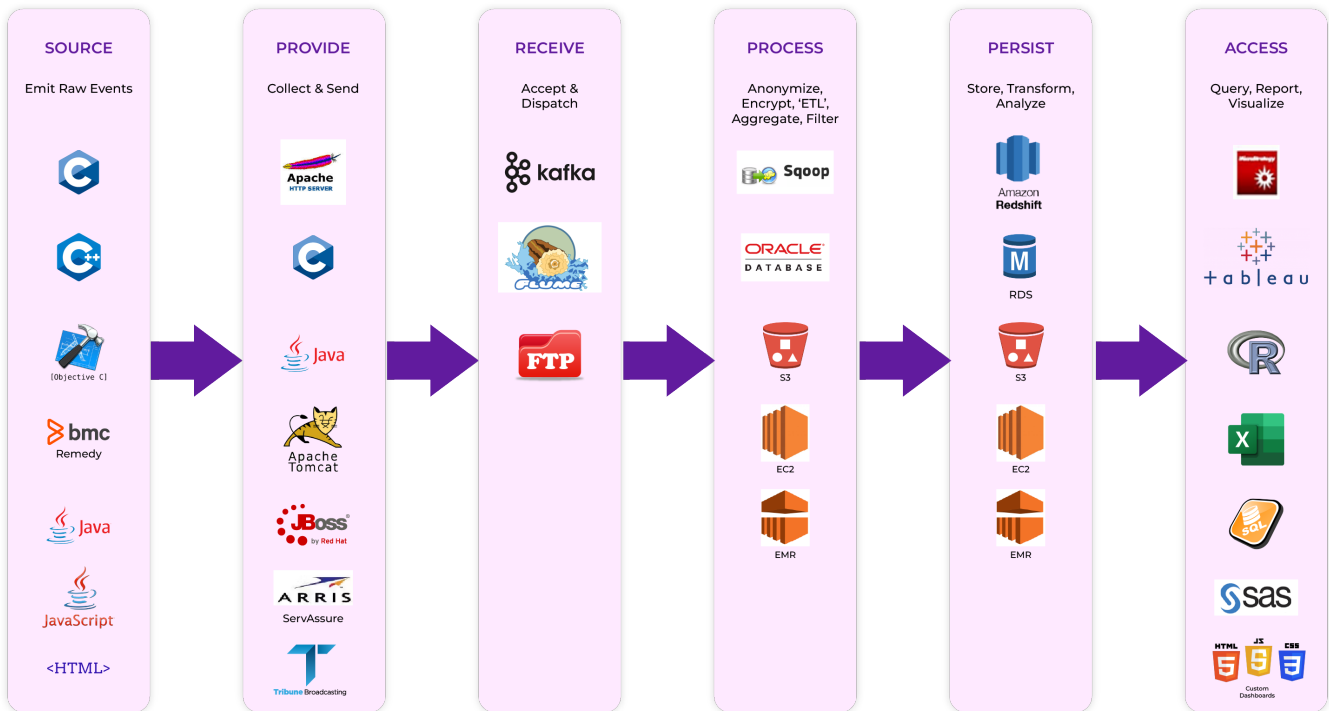
The project commenced with a thorough assessment of the client's existing infrastructure, data flows, and future scalability requirements. A cross-functional team was assembled, with a peak size of 15 members from various domains including cloud engineering, data architecture, and compliance.

The proposed solution leveraged advanced data ingestion and processing techniques to handle the massive volume of 20 million transactions per day generated from disparate sources like set-top box data, network systems, customer websites, IVR calls, external feeds and ticketing systems.

The solution was developed using agile methodologies, with iterative testing and client feedback loops. After a 9-month development cycle and 3-month parallel run, the cloud ingest ecosystem was deployed into production, retiring legacy systems like Oracle and Informatica. A lean post-production team of 5 members continues managing operations.

Our solution aimed to address the challenges hindering the client's digital transformation and operational efficiency efforts. We conceptualized, designed, and built a cloud ingest ecosystem that supports the following:

- Distributed messaging layer for event-based data ingestion and processing
- Real-time streaming capture mechanisms
- Distributed complex event processing system
- Bulk capture and load capabilities
- Hybrid cloud solution that helps rapid expansion of system capabilities on demand
- Secure customer data and maintain industry compliance such as SOX and Media compliance



TECHNOLOGY SNAPSHOT

- Hortonworks Hadoop Platform
- Kafka, Lume & Storm
- AWS S3, AWS Redshift, HBASE
- Java, R Language, Python & SQL



BUSINESS BENEFITS

- Streamlined and unified lambda architecture platform to manage both streaming real-time data and batched data
- Linearly scalable systems architecture with proactive monitoring and alerts
- Major cost savings by retiring multiple disparate systems and licenses
- Shared storage across different business divisions
- Secure data storage and role-based access



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