Glassbeam Edge Analytics

By 2020 more than 50 billion IoT-connected devices will be generating a tsunami of data that could be analyzed effectively to yield invaluable business insights. Importantly, more than 40% of the data in IoT deployments by 2018 is going to have strong business case to be analyzed and acted upon at the edge. This is particularly true in industries where IoT devices reside in far-flung areas like smart grids, oil/gas rigs, extraction mines, and offshore drilling.

The biggest challenge with the current computing environment is the inability to connect and transmit large quantities of data over wireless networks from remote devices. These sparse, limited bandwidth wireless networks need to carry instructions from a central computer back and forth, thereby limiting the capacity of the entire infrastructure to make timely decisions on remote devices. In addition, not having inference capabilities right where the device resides makes it extremely inefficient to take real-time decisions on these devices, for instance, when a malfunction occurs.

A lot of business value will be generated by rigorous analytics at the edge in the coming years. For many of these use cases, the time it would take to transmit data to the central server from the network edge to ingest and send analytical results back is not practical. The quality of the last mile network infrastructure and its proximity to the edge of the network varies greatly. Glassbeam Edge™ Analytics (GB Edge) circumvents these challenges.

GB Edge Analytics overcomes the physics of distance, the size of the data pipe, shared bandwidth, CPU contention with simultaneous users, and the number of hops to reach a parent host. Computing analytics at the Edge takes local ownership of the processing and filtering required for sophisticated big data analytics, and passes computed results on to its parent host as compared to the traditional way of passing the entire volume of data directly to the parent host for full compute processing.

Some specific GB Edge Analytics use cases include:

1. Processing sensors data in Oil and Gas industry generating Terabytes of data per day

2. Pro-active Health monitoring of hundreds of WiFi access points at critical remote locations

3. Predictive maintenance of dispersed Smart Grid assets like EV charging stations

> " Analysis of the intelligence at the Grid edge with Glassbeam is both efficient and cheaper as you save unnecessary round-trips to the server, bringing immense benefits to smart grid operators. "
>
> **Vipul Gore**, CEO of Gridscape

Key Benefits

1. Process critical decisions close to the physical device and thereby conduct predictive maintenance

2. Seamlessly transfer data between the edge and the core in a secure fashion

3. Create refined predictive algorithms at the core and execute at the edge as Complex Event Processing models

4. Facilitate intelligent decisions via predictive analytics and the capability to discard irrelevant data, rank the relative importance of variables, and make informed business decisions

5. Enable near-real and real time analytics locally with the source data rather than moving the data to the analytics in the cloud. Unlock the true value of instrumented infrastructure
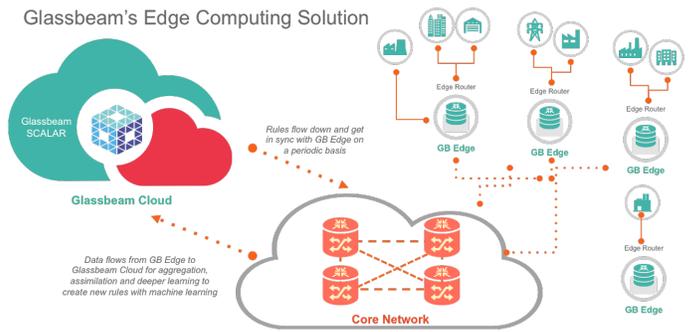
Glassbeam Fit

The volume of machine data created and to be created by IoT is not the greatest worry for business leaders. The more worrisome problem business leaders need to solve is how to best "wrangle" this IoT data to harness the value locked inside these machine log files.

Effecting efficient machine data analytics requires coping with the challenge of ingesting huge volumes of compressed data, uncompressing the data into individual files, eliminating file boundaries, and parsing each file into a structured Big Data store. None of this ingestion and transformation of data is easy – particularly for traditional approaches to data transformation.

SCALAR is the central analytics-processing engine of Glassbeam's machine data analytics platform. It was designed by Glassbeam to make ingesting and transforming large volumes of data easy, removing the burden of these tasks from the programmer whose time is much better invested in accessing and manipulating the newly transformed and structured data to mine valuable, analytical information. SCALAR's domain specific focus on solving the data volume challenges makes it the most suitable end-to-end machine data analytics platform for industrial IoT analytics.

Glassbeam has now enhanced SCALAR to enable a single computing framework for supporting seamless communication between edge device deployments and core (cloud) compute process. GB Edge is a must-have for aggregating and transforming the huge volume of IoT data at the network edge for creating human-consumable analytics. Edge includes the key capabilities of SCALAR for performing data transformation for near-real time and real time analytics use cases. Thus, with Edge having the same key data transformational capabilities as SCALAR, Glassbeam is able to support actionable analytics at the network edge as opposed to taking action by first shipping the entire volume of IoT data across the network to a central analytics compute center.

Glassbeam's Edge Computing Solution

" The new lightweight Edge offering should enable Glassbeam to target more IoT use cases - especially as vast amounts of data from sensors and smart devices can saturate networks. **"**

Jason Stamper, Analyst, 451 Research

Key features of GB Edge Analytics:

1. A programmable parsing engine

2. A distributed and modularized architecture capable of running on almost any computing platform

3. A resilient, fault tolerant architecture based on message bus and asynchronous processing

4. Concurrent analytics applications make full use of multicore CPUs

5. The ability to change context, parse, and apply event-based rules on-the-fly (no shutdowns or restarts)

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