Telecoms Case Study: How Reliance Jio Addressed CX and Operations Efficiency Using AI and Big Data Analytics

Publication Date: 29 Apr 2020 | Product code: SPT001-000077

Adaora Okeleke

Summary

Catalyst

Omdia forecasts that by 2023, total data traffic from cellular and consumer fixed broadband networks will grow at a 29% compound annual growth rate (CAGR) from 940,000 petabytes (PB) in 2017 to over 4.3 million PB of data in 2023. This trend reveals both a challenge and opportunity for communications service providers (CSPs) – how to properly analyze this vast amount of data in real-time and use it to provide an improved customer experience and reduce network operations costs.

CSPs are keen to understand how their peers are successfully mining their volumes of data using artificial intelligence (AI) and big data analytics. This case study provides insight into how Reliance Jio (Jio), the largest mobile data network service provider and fastest-growing operator in the world, is using AI and analytics to provide superior service to its customers while addressing critical service operations with intelligent automation.

Omdia view

Data-driven technologies like big data analytics and AI will form the core of CSPs' future networks and operations. They can address both current and future business challenges, such as improving customer experience, identifying and marketing new service opportunities, reducing costs, and achieving operational efficiency. However, the speed at which these challenges can be addressed is dependent on how well the barriers to adopting big data, analytics, AI, and associated technologies can be addressed. Access to required data sets, the heterogeneity of the data sets, de-duplication, complexity of creating synchronized data lake, and access to data science skills are top challenges to deploy analytics related solutions. It is therefore critical that CSPs prioritize investment in technology that enables them to transform analytics use cases into useful applications quickly to solve business issues.

Utilizing a solution that provides well-defined access data sets (with defined permissions) and reduces the level of data science expertise required to develop these applications will be useful. Big data analytics solutions like those provided by Guavus (a Thales company) to support Jio's big data and analytics strategy meet these requirements. Guavus' AI-driven analytics solutions enable CSP business users to use agile analytics application development methodologies to turn use cases into applications quickly.

The successful implementation of such solutions will rely heavily on multiple factors which the CSP needs to fulfill. These include having a robust data pipeline which ensures that the data sets required to develop applications are easily accessible and are of high quality. Having a program management team that interfaces well with business and solution deployment teams is important. Most importantly, having the company's leadership team involved in delivering the project facilitates fast delivery of the final solution.

Key messages

- Jio deployed Guavus' AI-enabled analytics solutions to measure real-time customer experience and predictive analytics to automate troubleshooting of the network and

generate subscriber insights for use in marketing. In addition, it is taking advantage of Guavus' analytics platform and expertise to develop custom analytics applications quickly on their own for their key business group stakeholders.

- Key lessons learned emphasize the role that leadership, partnership between vendor and client, and strong data infrastructure and pipeline can play in accelerating AI and big data analytics projects.

Recommendations for the telecoms industry

Recommendations for CSPs

Get C-level support for your AI and analytics projects

Having C-level management to oversee an enterprise-wide AI and analytics project is critical. They are relevant in addressing potential obstacles like insufficient resourcing and budget to support the next phases of the projects. The CEO, or the chief data officer (CDO), can take on this role and should have the responsibility and rights to make the necessary approvals required to drive the project to completion. They also need to commit time to meeting with big data and analytics groups or teams to discuss progress of the projects and next steps. They also need to address potential data silo issues and take the lead on establishing data governance principles within the organization.

Develop a robust data pipeline, managed by a dedicated big data team

It's absolutely critical that CSPs create a well-defined and documented data pipeline which covers the collection, cleansing and storage of data sitting across the business. A dedicated big data team or group to coordinate these functions across all operating units within the CSP is also important. This big data team will also be required to liaise with internal or external analytics development teams to ensure the smooth delivery of all projects. They can address potential roadblocks associated with getting access to data such as opening firewalls etc. Overall, they will ensure that the CSP has a good big data infrastructure to ensure good turnaround time for analytics projects

Have a vision that empowers employees to utilize analytics to improve operations

CSP employees are best placed to identify analytics use cases. To fast-track the realization of these use cases, employees should be equipped with the capabilities to develop these analytics use cases into applications. CSPs must therefore provide employees with the tools such as self-service analytics to turn identified analytics use cases into useful applications.

Recommendations for vendors

Position yourselves as trusted partners

AI and analytics will be strategic to CSPs future network and operations. Therefore, analytics vendors must position themselves not just as suppliers of technology but as partners that can provide strategic guidance on how CSPs can evolve their use of these technologies. Work with your customers closely, share your CSP customer experience and best practices with them, whether good or bad, with a view to help them build capabilities critical to the future of their businesses.

Be prepared

Deploying big data analytics solutions to a telco environment can be truncated by changes occurring within the network – rollout of new network technology or tools like deep packet inspection (DPI) nodes. These changes can impact the quality of the data being collected to develop applications. Vendors therefore must prepare themselves for these changes. Provide for yourselves buffers by way of extra time or extra resources. In addition, provide open and flexible development platforms that are network technology vendor agnostic, able to leverage existing data lakes and support on-premises or cloud deployment, to cater for these changes when they occur.

Using AI-based analytics to solve CSPs' customer experience, network management and cost issues

Setting the business context

Addressing revenue growth and operational challenges

Remaining profitable is a challenge for today's CSPs. Omdia's Communications Provider Revenue and Capex Tracker 4Q19 highlights that CSP revenue growth rate in recent years has been slow compared to previous years. In fact, revenues in the first three quarters of 2019 declined by an average rate of 3%, compared to the 2.4% growth rate recorded over similar period in 2018. Increased competition from peers and OTT players impacted mobile service revenues while the slow uptake of fixed broadband services led to revenue decline for fixed services. The consumption of substitute communications services, and industry regulation continue to impact performance of key metrics such as churn rate, customer retention rates and ARPU. Consequently, being profitable has been difficult. On the other hand, the consumption of OTT services has increased the amount of traffic generated within the network.

The new telco players that have been successful at attracting customers from the incumbent players are beginning to face similar challenges, particularly with respect to declining ARPU performance and increasing data traffic. CSPs are therefore investing heavily in deploying new network infrastructure and technologies to support the rollout and consumption of services within the network the rollout of more fiber networks and the small cells, improve customer retention and customer experience. However, these investments must be carried out in a way that does not have a negative impact on CSP profitability.

Jio aims at increasing revenue growth by providing a superior customer experience to its over 340 million subscriber base

Jio's entrance into the market disrupted the status quo in the Indian telecommunications market. Jio commenced operations in 2016, offering voice calls and data services to Jio customers on 4G networks at cheap rates, across India. This strategy saw the operator attract 160 million 4G subscribers in a record time of 18 months. This massive scale in customer acquisition was driven in part by the reduced tariffs on mobile services and the quick SIM activation process – known as Jio eKYC SIM activation – which leverages India's Aadhaar systems (12-digit unique identification number that can be obtained by residents of India, based on their biometric and demographic data)

to validate customer's identity. Jio also tapped into the feature phone market via its Jio Phone offering which could do voice activated calling and provide access to Jio's broad spectrum of digital services including JioTV, JioCinema, JioMusic and JioMoney. The only cost for using the phone was 4 rupees for data consumption.

Jio currently has more than 340 million subscribers, of which approximately 65 million are Jio Phone users. The company has continued with its aggressive customer acquisition strategy and has added 24.5 million subscribers over the last three months and 116 million during the last year; making it India's largest operator and the fastest growing mobile data service provider in the world.

The challenges of massive subscriber and network growth

There are however several challenges that come with achieving such massive growth in subscriber numbers over a short period (of three years). From an operations perspective, growth in customer base implies massive growth in the amount of traffic handled by the network. Mukesh Ambani, managing director of Reliance Industries, Jio's parent company, reported that "in less than two years of commercial operations, Jio network carried almost 11 exabytes of data traffic during the recently concluded fiscal quarter." The Indian consumer apparently has a strong appetite for data as average consumption of data is now up to 11.4 GB a month, placing them in the 11th position of operators in the world with highest mobile data usage, according to tefficient (a provider of analysis on mobile data usage by operator). As data consumption increases, the cost to manage the network increases as well.

Increasing operational costs could impact on future profitability of India's latest telco player. The operator must therefore seek ways to increase profits by continuously growing and retaining subscribers for its mobility services whilst maintaining prices at affordable rates, launch new services, target new customer types with its new range of offerings and manage its costs efficiently.

Improving customer experience and operations efficiency

Jio sees providing the right experience to customers as being critical to reaching its target subscriber base of 400 million subscribers by 2020. Ambani reports that "Jio management is focused on giving unmatched digital experience at most affordable price to every citizen of the country, and accordingly expanding the network capacity and coverage to keep pace with demand." Achieving these objectives will require gaining deep insights into the health of the network and services consumed by customers. Network infrastructure and supporting operations will also need to be optimized to meet the increasing demand as more customers are added to the network.

Being able to achieve these objectives of improving customer experience and operations efficiency is dependent on addressing employees' ability to perform the associated tasks. Therefore, providing employees with the tools that are required to achieve their business objectives was also core to Jio's business strategy.

The role of AI and analytics in solving key telecoms operations challenges

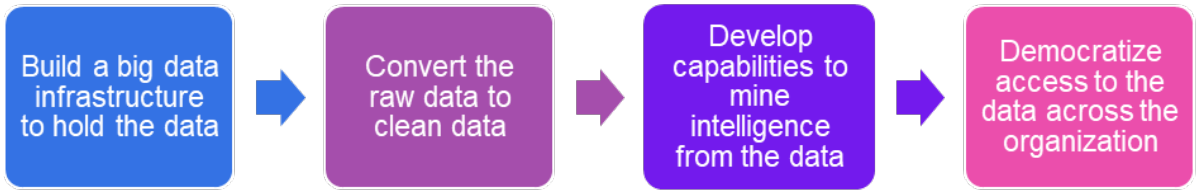
Existing landscape and solution selection

Jio sees the analysis of data traffic coming to its network as presenting opportunities to better serve their customers and meet the network optimization requirements for improved network capacity

and speed. They understand that while the budget to increase the network infrastructure may be available, they can also ensure it is optimally utilized by using insights from the mining of the network data, deployment and use of. Business users being able to perform these analyses on their own will enable them to scale analytics use cases quickly and meet their vision – to roll out one analytics use case per day. Realizing this vision would require pulling and storing data sets from the business, providing employees the expertise to mine the data, extract meaningful insights and implement them to production quickly.

Jio therefore set up a big data and analytics strategy (as summarized in Figure 1) that focuses on taking the four to five PB of data generated per day and build the required capabilities to mine insights from the data.

Figure 1: Jio's AI and analytics strategy



Source: Omdia and Jio

These priorities will enable the CSP to optimize the network and provide optimal experiences to customers. Training employees to develop the requisite skills and providing them with access to the data and the tools required to analyze the data was also crucial to this strategy.

To execute on this strategy, Jio set up a big data group including two Centers of Excellence (CoE); the Big Data CoE (led by Jio's VP of Big Data and Analytics) and the AI CoE (led by the Jio's chief data scientist). The Big Data CoE focused on building a centralized data infrastructure to collect and store the data from across the business. Jio partnered with Hortonworks to build a data lake (considered to be the largest in India) with the capacity to hold more than 60 PB of data. Additional functionalities were added to enhance the standard Hadoop distribution using tools like ELK and other open source tools.

The next priority was to build an analytics platform on which teams can develop applications on their own (without being dependent on external parties like data scientists and IT or managerial teams) to quickly meet their analytics needs. Given the limited expertise within the business, Jio's big data group sought out a partner that could fast track the development of a big data analytics platform and applications. Requirements for the partner included enabling the operator to quickly build analytics applications compared to building from scratch using tools, such as Python or SCALA. Other selection criteria included requiring the partner to demonstrate return on investment of its customers and the solution's ability to handle the large volume and speed of data coming from Jio's network, as well as generate insights quickly to support its operations.

Guavus' Reflex analytics solutions and ability to develop custom apps meet Jio's requirements

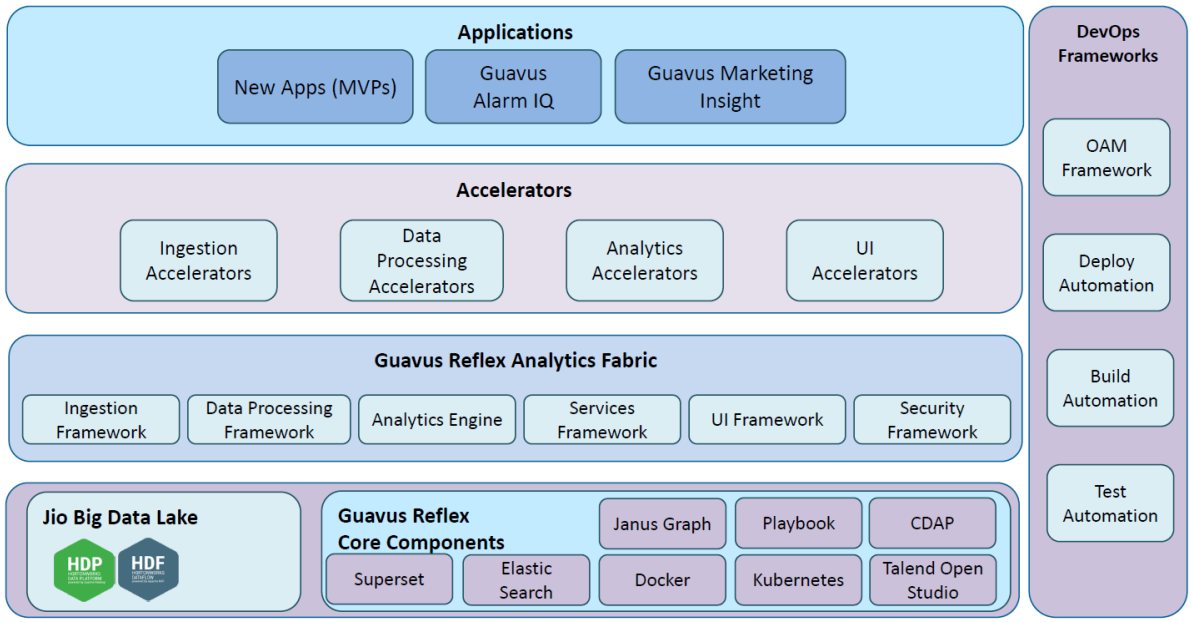
Jio considered several vendors as well as using its internal teams of data scientists and IT experts. However, the rate of development from these parties didn't meet the organization's requirements. Following discussions with Guavus about its Reflex analytics products and customer co-innovation and development approach, Jio decided to work with the vendor. Guavus' solutions and its more than 13-year track record working within the telco environment were vital to Jio deciding to work with the vendor. The vendor had successfully deployed its solutions in more than 10 of the top-tier CSPs in the world, including six of the top mobile operators and the top three cable operators, in the US, Europe, and Asia-Pacific. Its portfolio of products includes a combination of the Guavus Reflex analytics platform and pre-packaged analytics applications developed specifically to meet the requirements of the telco industry. Guavus' portfolio also includes customizable self-service analytics for advanced network planning and operations, mobile traffic analytics, marketing, customer care, security, and IoT.

The Guavus Reflex platform is a real-time streaming big data analytics platform that consists of the:

- **Reflex Base Processing Layer (Reflex BPL).** The big data BPL ingests and stores real-time and historic data sets. Customers can utilize Guavus Reflex BPL (which comes pre-integrated with the Reflex platform) or use pre-existing Hadoop-based big data infrastructure.
- **Reflex Analytics Fabric (RAF).** The RAF sits on top of the Reflex BPL. It includes several components developed to provide CSPs with agile analytics application development capabilities, enabling them to turn their analytics use cases into applications quickly without requiring the expertise of data scientists. The RAF creates a bridge between big data platforms and data-science platforms, mapping the analytical algorithms and data models created offline in data-science platforms into production big data platforms, making the integration between these easier and quicker.
- **SQLstream.** This is Guavus' edge data collector for both localized analytics and intelligent edge filtering and aggregation to reduce data transport/migration to the core, where data storage is optimized, and broader analytics is performed. SQLstream provides for expanded network coverage and use cases, including IoT, emergency services, and smart cities. SQLstream's features include granular configurability, high performance, low latency, small hardware footprint/low cost, automatic drag-and-drop code generation, and plug-and-play implementation on-premises or in-the-cloud.

Other components of the Guavus solution deployed to Jio included the accelerators which arereusable, discrete functions that speed up complex app development, analytics engine, and the pre-packaged applications (as shown in Figure 2).

Figure 2: Jio-Guavus Component Architecture



Source: Jio and Guavus

Bringing the strategy to life

Deployment of the Guavus analytics solutions involved multiple tracks to accelerate the implementation phase

The implementation of Guavus' solutions for Jio started with the deployment of the Reflex platform to Jio's big data lake to analyze data and build custom applications for the business. Four training sessions were also organized to train the Jio employees on how to deploy and manage the platform and build analytics use cases on it.

The second track involved the implementation of the Guavus AlarmIQ and Guavus Marketing Insight (MRX) application products. These products were developed based on the work that Guavus had carried out with other CSPs.

The third track involved the development of custom applications to determine the customer experience of key services from a network perspective. This custom development was to serve as the foundation for achieving Jio's vision to provide employees with capabilities to develop analytics applications of their own. The timeline for the delivery of the different tracks are summarized in Table 1.

Table 1: Timeline for the deployment of Guavus big data analytics solution

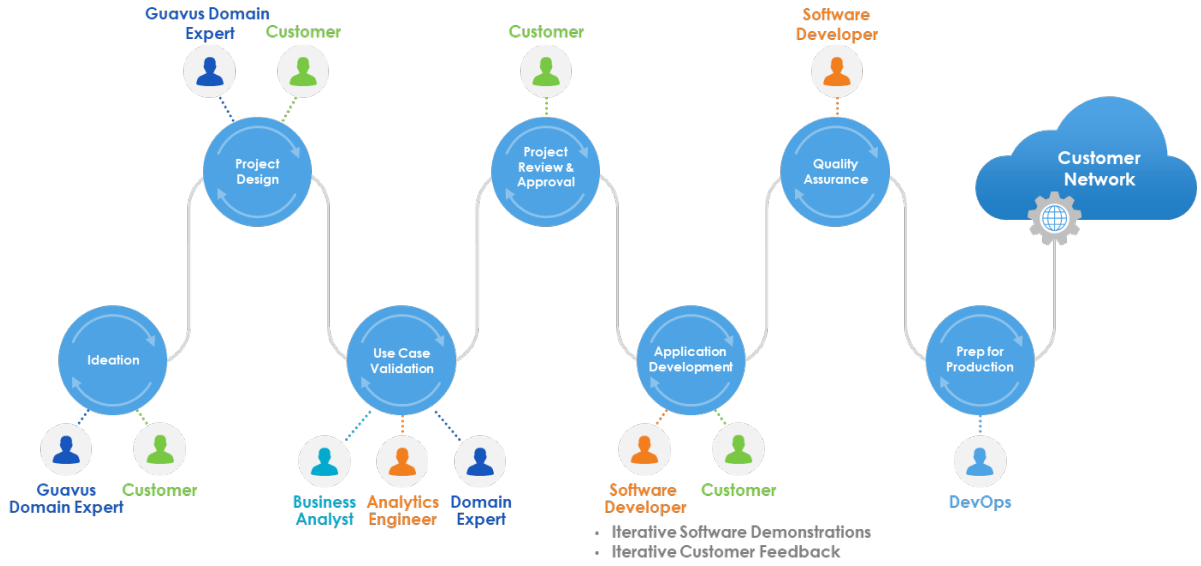
Track number	Products	Functionalities of products
1	Guavus Reflex platform	Collects and analyzes streaming and batch data from networks, customers and applications to support multiple analytics use cases.
2	Deployment of Guavus' application products	**Guavus Marketing Insight (MRX):**profiles customers based on behavioral patterns, such as services consumed, location, and devices used. MRX ingests and analyses DPI data to provide summary of customers' behaviour based on their video and eCommerce related data usage. The insights obtained help with cross-sell and upsell of relevant Jio products and services to the right customers. **Guavus AlarmIQ:** utilizes AI to reduce the number of alarms to be addressed to a set of alarms predicted with high probability to lead to a negative event. Data sets ingested by this application include data from OSS systems such as fault management systems. AlarmIQ helps to increase productivity for the NOC staff by allowing them to focus their time on addressing real and service impacting network issues.
3	Co-developed custom analytics application	**CX-360:** for services such as VoLTE and High-Speed Internet Services. The focus was to identify customers experience based on bad network experience, identify the root cause and identify the key fix for the root cause utilizing machine learning to support these analyses.

Source: Jio and Guavus

Development of custom analytics applications followed Guavus' customer co-innovation model

Jio and Guavus followed a co-innovation model for developing custom analytics applications. The co-innovation model is a go-to-market methodology that Guavus follows to create AI-based analytics solutions for customers that can address real-world business problems. It focuses on developing use cases as a collection of Minimum Viable Products (MVPs) which deliver immediate business value to the customer. The co-innovation model (which follows the process summarized in Figure 3) was applied in two-week, agile, sprints involving Guavus and with active participation from Jio's business teams.

Figure 3: Jio-Guavus co-innovation model for MVPs



Source: Jio and Guavus

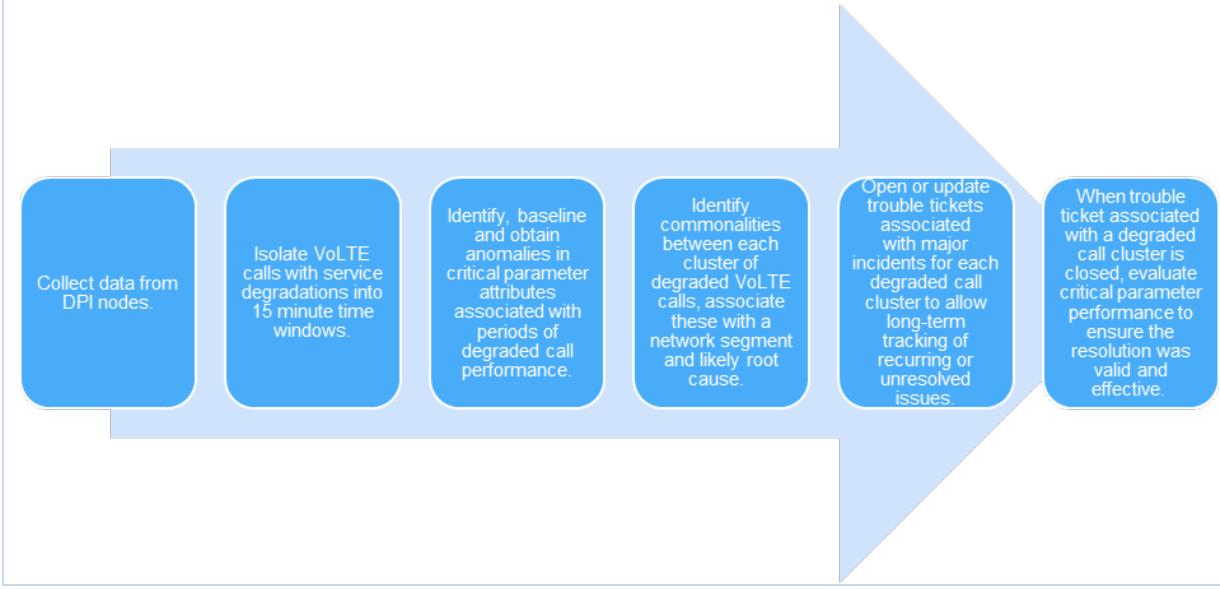
Using the development of Jio's CX-360 application as an example, the process started with the data preparation stages where network, customer and application data sets are collected and cleaned to ensure they were ready to be used for analytics workflows. Jio was responsible for the data preparation stage.

Identifying and defining the use case is the next stage. The use case is associated with business or operations problems within a domain and the business users/domain experts initiate this phase. For Jio's CX-360 application for example, the network operations center (NOC) team identified the use case. It involved identifying how the quality of experience delivered to the customer can be obtained from analyzing network data. The key focus for this use case was to provide operational insight to quickly isolate and diagnose the common attributes of customers impacted by identified service degradations. The use case also determined the network segment degrading the network along with pointers to remediate network faults.

Data scientists and business analysts (from both Guavus and Jio) validate the use case. The validation process determines if the use case aligns with the CSP's core business objectives, what value the use case adds, how this value would be measured, and if the key building blocks – data, tools and skills – are available. Carrying out this assessment helped to build the momentum around the value that data-driven processes can add and gets the business community ready to implement the changes resulting from the implementation of the use case.

Following the use case validation stage, the program management team (consisting of software designer, developer, etc.) moved on to create a prototype of the MVP to simulate key aspects of the final product, test and receive feedback on the prototype. Figure 4 highlights the steps followed to develop the prototype.

Figure 4: Steps to creating the prototype for Jio's CX-360



Source: Jio and Guavus

The prototype was designed to replicate the process that a human operator takes to troubleshoot and isolate the network segment and fault type likely causing the service degradation.

The prototype application was tested and applied to a section of Jio's customer base. The program management team received feedback on the prototype and revisions were made to the prototype. The final prototype was then assessed to ensure it met business requirements, and the full development of the final product commenced.

Jio and Guavus worked together to develop the staging environment (which is as close as possible to the production environment) to perform further tests. Jio was quick to provide the infrastructure required to create the staging environment, which facilitated the quick transition of the use case from the pre-production environment to the main production environment. Once all necessary tests were carried out, the application was deployed to the production environment and scaled accordingly.

Delivering a big data analytics solution that met Jio's requirements was challenging

Dealing with the massive scale of data

The Jio network and indeed any India based operator's subscriber numbers are multiple times bigger than those of other CSP networks (four to five times bigger). Consequently, dealing with such a massive network is a challenge. More time and resources – such as servers – are needed to deliver a solution to meet the requirements of such a large network. Guavus had to put in place effective planning and project management procedures to address any potential challenges with the project to meet the timelines defined for the project, and not derail from the key focus of the project.

Meeting the training requirements of Jio employees

To carry out the successful deployment of big data analytics and develop additional new apps on its own in the future, Jio needed to upskill its staff on analytics. Though the Jio team were technically

knowledgeable, Jio wanted to be sure their staff could take full advantage of the new analytics capabilities and match the depth of expertise of the vendor's tool set. Guavus provided in-depth training through organized workshops, ongoing consulting, and supporting documentation.

Results

Using Guavus' AI-based analytics solutions, Jio has been able to offer a stronger customer experience and significantly reduce operating costs with intelligent automation. Since the project began in July 2018, Jio has been able to demonstrate the following results using the Guavus solutions:

- Guavus has successfully deployed the Reflex platform to Jio's data lake infrastructure.
- Jio and Guavus have demonstrated the ability to address the call muting problems on VoLTE, actively identifying call muting issues and potential call drop behavior in real-time, enabling resolution of network issues at up to five times faster than the time it took their network operations team. This capability enables Jio to align with recent regulations from India's Telecom Regulatory Authority (TRAI) which requires operators to measure the call quality provided by service providers to help tackle the "call muting" problems on VoLTE networks. This new capability has also enabled Jio to reduce the likelihood of poor QoE for VoLTE subscribers by 50%.
- The CSP can now attribute a quality of experience (QoE) score to an individual subscriber, allowing them to identify factors such as mobile subscriber devices that have a higher propensity to mute calls. In one case, it was discovered that a handset model was 41% more likely to mute calls. Such insights helped Jio's customer care organization to accurately identify problematic devices as the root cause of the call muting issues 100% of the time.
- The operator has been able to identify the exact population of subscribers experiencing call muting issues, which improved the mean time to repair (MTTR) by50%.
- With the Guavus Reflex analytics platform, RJio has been able to identify missing data feeds that were critical to their analytics needs. This discovery capability helped the CSP improve the completeness and accuracy of data analysis and their data ingestion architecture for our big data lake.
- Utilizing the Guavus solution (including products and support services), Jio's data engineering and data science teams are now able to create new analytics use cases and accelerate the delivery of analytics-powered applications to the business.

Kiran Thomas, president of Reliance Industries, summed up the key impact of the Guavus solutions on Jio's operations, stating: "Guavus provides us data analytics technology and out-of-the-box analytics solutions for intelligent operations and marketing – but they're not just fishing for us, they're giving us the ability to fish."

"Our teams will be able to take advantage of a 'self-service' platform to build custom analytics applications that are tied very closely to their areas of the business and to deliver quality new products much faster."

Following the successful deployment of the Reflex platform and products and the delivery of the first MVP for the custom application – CX-360 for VoLTE, Guavus, and Jio will be moving on to developing

the next MVP which is targeted at addressing customer experience issues related to high speed internet (HSI) services

Lessons learned

Vision, commitment and support are all critical

Clarity with respect to the CEO's vision for AI and big data analytics is very critical to directing the implementation of the technology across the business. This vision ensures that both internal and external parties within the organization fully understand the objectives that are to be fulfilled and provides a basis for evaluating and validating use cases. Jio's CEO set out a clear vision for the organization's deployment of analytics and AI. He holds regular status meetings with the heads of his big data and AI CoEs and is therefore aware of the development activities going on within the business.

Acting quickly to meet project requirements

Jio has been quick to respond to the needs of the project. When required to provide infrastructure (such as servers) to support the project, the business was quick to approve the budget. Most times approvals came in within 24 hours of raising the request. Jio was also quick to provide the data pipeline required to develop the applications. Any delay in providing these resources would have impacted on the delivery date for the project.

Be knowledgeable but also willing to learn

Implementation of big data analytics projects differ depending on the applications that are to be delivered. Consequently, there are nuances associated with delivering these projects to different environments and these nuances aren't apparent to all IT staff. Thus, being knowledgeable about AI, big data platforms and analytics tools is helpful. It is also important to have internal IT teams being open to receiving new concepts that are specific to the telco environment to ensure quick and smooth deployment of the tool. Jio, while having a highly competent IT team with big data capabilities, were open to learning best practices from Guavus and its long track record of working successfully with CSPs deploying analytics – a key factor in the success of the project.

Providing business users with tools to transform analytics ideas into applications on their own

Analytics and AI will be critical to the operations of the next-generation network. Therefore, it is important that the core analytics tools and data can be accessed by all within the organization. Jio understood this need and prioritized the deployment of a big data and analytics environment that included tools that could be used by business users to meet their analytics needs. The operator ensured that the deployment of the Guavus solutions provided learning opportunities for its employees with data science background to further develop these skills.

Having a dedicated team to provide data

Data is the lifeblood of every analytics and AI project. It is therefore important to build a team with the sole responsibility of managing the data assets sitting across the business. This team also needs to be backed by a robust and well-structured data pipeline supported by a well-equipped big data lake. In line with this requirement, Jio set up its big data CoE which includes Product Data Managers (PDMs). They have strong knowledge of the business operations, big data related technologies and the operations data. They are the custodians of the operations data sets and oversee the operator's big data lake which holds up to 60 PB of data and has 80,000 cores of processing power.

Taking stepwise approach to developing analytics products

Guavus and Jio were focused on achieving quick wins to prove the value of the engagement. Taking the approach to break up the development exercise into MVPs enabled both parties to achieve this objective. Each MVP was structured to help the operator start generating value from the solution early on within the development stages and provided the key capabilities and experience required to develop subsequent MVPs.

Openness and visibility between vendor and client

According to Guavus, dealing with Jio was exceptional. With Jio, Guavus saw a client that was keen to learn as much as possible. Guavus consequently made provision to meet these needs. They provided ongoing consulting, training sessions and in-depth documentation to provide insights on all the processes they were carrying out. This level of openness is critical bearing in mind that future CSP networks will be reliant on analytics and AI and having staff members having the requisite skills to meet use cases as they occur are highly critical.

About Guavus (a Thales company)

Guavus is focused on delivering innovative solutions using AI-based big data analytics and machine learning solutions to CSPs. The vendor currently engages with six of the seven largest communications service providers in the world, driving digital transformation at these companies. Using Guavus analytics solutions, customers can analyze big data in real time and take decisive actions to lower costs, increase efficiencies, and improve the end-to-end customer experience, all with the scale and security required by next-gen 5G and IoT networks. Guavus also enables CSPs to leverage AI-driven analytics products for advanced network planning and operations, mobile traffic analytics, marketing, customer care, security, and IoT.

Appendix

Methodology

This Omdia Enterprise Case Study leveraged in-depth interviews with key stakeholders at Reliance Jio and Guavus as well as a review of relevant documentation

Further reading

Guavus Alarm IQ exploits pretrained ML models for network alarm optimization, SPT001-000054 (January 2019)

Ovum Decision Matrix: Selecting a Network Analytics Solution for a Telco 2018-19, SPT001-000046 (December 2018)

On the Radar: Guavus' Reflex platform brings big data streaming analytics to CSPs and IoT, SPT001-000034 (October 2018)

Author

Adaora Okeleke, Senior Analyst, Telecoms Operations and IT

adaora.okeleke@omdia.com

Citation Policy

Request external citation and usage of Omdia research and data via citations@omdia.com.

Omdia Consulting

We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Omdia's consulting team may be able to help you. For more information about Omdia's consulting capabilities, please contact us directly at consulting@omdia.com.

Copyright notice and disclaimer

CONTACT US

omdia.com

askananalyst@omdia.com