daffodil

Developing a data analytics solution for Nokia that enables strategic data interpretation and decision-making.

Customer	Country	Industry
Nokia	Finland	Telecommunications

About The Client

Nokia Corp (Nokia) is a communications and information technology company that operates in the areas of network infrastructure and advanced technologies. It offers fixed networks, mobile phones, BSS/OSS, IP routing, optical networks, private networks, data centers, radio controllers, network implementation, IoT, and 5G services. Nokia also offers network management, managed, analytics, network security, and application services.

Technology Stack

python™	Apache Airflow	MySQL®
mongoDB®	Laravel	React Native

Services Used

Business Intelligence

Software Product Engineering

Business Situation

In order to boost the sales of its router devices, Nokia had signed an MoU with a leading telecom services provider in India which enabled widespread market penetration of routers across India, with thousands of loyal customers using their routers for internet access. They were looking to capitalize on the router data aggregated due to their existing reach to zero in on the performance metrics. They wanted to drive holistic business decision-making to ensure continued success in the Indian telecom sector by leveraging these metrics.

However, due to their dependency on manual methods, their ongoing data interpretation process suffered from delays, errors, and redundancies. They required a seasoned data interpretation technology partner with experience in the telecommunications landscape of India. Daffodil Software has proven its capability to achieve the scale and precision of this requirement via its Data Analytics team's powerful and cost-effective Data Visualization tool implementations.

As the chosen Data Interpretation and Analytics technology partner, Daffodil's team identified the focus areas from which the department-specific data points were to be captured and analyzed. As per the client's requirements, a mobile and web-based data visualization solution was to be developed integrating the following features and functionalities:

- ✅ Build a centralized module for user management and implement modifications in the metrics.

- ✅ Provide a large variety of dashboards and multiple visualization and filtration capabilities.

- ✅ Ensure that the application can scale automatically to accommodate increasingly complex and voluminous datasets.

- ✅ Facilitate detailed error reporting as well as the generation of reports of all the aggregated performance and user metrics.

The Solution

From the clients' end, Daffodil was provided a download of their raw data as flat files, which were then parsed by our team, and the schemas were defined to extract, modify and transform the data. The mobile and web applications were built with React Native and ReactJS respectively, using Python for data engineering. Users on these applications can comprehensively analyze the data around router performance and customer metrics. The prominent features of the desktop and mobile applications were as follows:

Multiple Data Visualizations

The data interpretation and analytics of this application allow users to gain valuable insights through the use of over 42 comprehensive dashboards, including:

- ✅ Microwave Utilization, which records the signals in the appropriate band to gauge performance.

- ✅ Utilization Trends, help users observe the CPU utilization, which is another useful metric to measure the router's performance.

- ✅ DWDM Topology offers a measurement of aggregate traffic over select wavelengths and a single fiber.

- ✅ Circle-Wise Fault Report, which neatly segregates the data about router downtime and uptime into circle-specific tables and graphs.

- ✅ Cyclic Redundancy Check Report, gives users an idea of the frequency of when files get corrupted, to ensure accuracy.

A combination of these highly crucial metrics helps the clients zero in on the specifics of how their business is functioning in the Indian marketplace in granular detail.

Auto-Scaling

The application can automatically adjust its computing resources and capacity to handle increased data processing requirements, without any manual intervention or downtime. Additionally, the web and mobile interfaces provide the user with various filters based on the customer Circle/State, the Router Brand, Initial Service Impact, and Router Technology for clear segregation of this data.

Centralized and Secure Administration

The Admin module enables the respective authorized central administrator to create new user profiles, track their activity on the application, remove users, and modify user profiles. Additionally, the administrator takes care of mapping routers to circles and making modifications related to circle-based analytics.

Concise Reporting

The tool allows for detailed error listing and reporting. While uploading the data files to the system's secure file transfer protocol, or SFTP, the uploaded file may be corrupt or the file upload may fail. Every such error is reported and utilized to ensure that the capturing of data becomes a more seamless and efficient process, without causing any delays or downtime between data updates.

Reports of router circle-based data, router brand, type of router technology, and how these routers perform in terms of uptime, downtime, device ID, tickets raised, and resolutions for issues are all aggregated precisely.

The Impact

With Daffodil's Data Interpretation and Analytics implementation, Nokia was able to cement their presence in the Indian market through holistic decision-making driven by deep insights from their user data. The Daffodil team has also developed a number of versatile data visualization patterns that would be deployed as and when required by the clients to help them view the data from innovative perspectives. Nokia has commended Daffodil's cutting-edge implementation of the data interpretation application and quick turnarounds for each of the required enhancements and changes.