indium

Make Technology Work

Streamlining Workflow through Data Visualization for a Consultancy Firm

Digital Services

Success Story

Client

The client, a boutique consultancy focused on IT audit and IP protection, needed to streamline its operations and improve workflow efficiency by consolidating several independent software programs.

Overview

Client relied on 3 independent tools namely Asana , Harvest and Float for tracking their business activities. However, the 3 independent tools weren't integrated properly and there was a serious miscommunication between these 3 applications causing client's process to hold back. Business workflow was stuck in between the 3 application and its integration issues.

The end goal was to consolidate data from all 3 tools into a rich visualization dashboard, to precise client specifications, on one centralized platform - Power BI.

Status Quo

Prior workflow relied on 3 legacy tools- Asana, Harvest & Float- which due to a lack of compatibility, ran in total isolation from one another causing discrepancies, miscommunication and the fracturing of a unified view of the business into pieces. Asana is a project management tool for allocating jobs and tracking progress. Harvest is a recourse allocation & budgeting tool and Float is a productivity management tool.

The ultimate goal was to integrate all 3 tools in to a single visual page to view as dashboards that are enabled with precise client's specifications by using Power BI.

Business Challenge

- Data from Asana, Harvest & Float for similar projects bore inconsistencies and contradictions. Furthermore, there are no connecting keys between the 3 tools.

- Power BI, the preferred visualization platform, was neither compatible with Harvest nor Float.
- Inconsistent or incorrect usage of the 3 tools over time led to a mismatch of critical project metrics.
- Project data, which was updated in each of the underlying programs rapidly and unpredictably throughout a day, needed to be reflected in the consolidated platform in near real time.

Solution

- Given the incompatibility, Indium developed an indirect approach to consolidate the legacy tools into Power BI.
- The team first inserted a middle layer on PostgreSQL, an open-source RDBMS, using UUID (unique IDs for each project) mapping across the 3 tools. This created a unified, structured & centralized database hosted on Microsoft's Azure cloud.

Business
Data Visualization

Domain
Consulting Services

Tools
Power BI, Apache NiFi, PostgreSQL & AngularJS

Key Highlights

- Increase in resource allocation optimization across audits **from 70% to 90%**
- Critical project management metrics automation lead to tremendous decrease in workload of the business operations head - **from 40+ hrs a week to 10 hrs**
- Highly comprehensive dashboards with real-time data refresh, tailored to the client's analytical and business needs
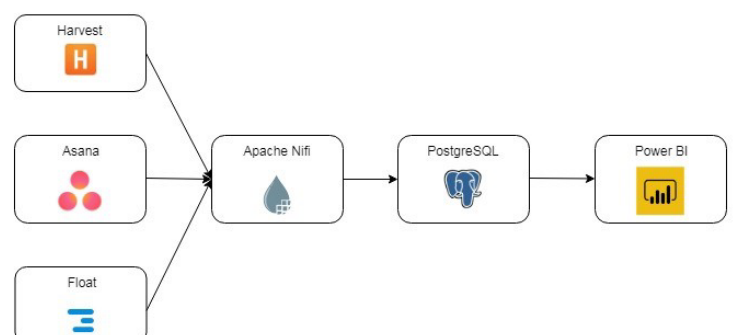
- A mapping file was developed to on-board existing projects and the process was automated for future projects. If there was a mismatch across the 3 tools, the admin would get an email.
- In order to extract data from the 3 legacy tools in an automated real-time fashion, Apache NiFi (also open-source) was used for ETL (Extract, Transform & Load). NiFi 'calls' pre-existing APIs for Asana, Harvest and Float and injects the data into the Apache flow.
- Apache NiFi was directly connected to the PostgreSQL database and mapped individual data records to specific columns in the data table. It also assisted with CDC (Change Data Capture) which enabled the database to 'fetch' only new or changed data.
- The database was then queried into Power BI and detailed. Finally, the data merging required for inter-tool calculations was performed in Power BI and visualisations were created to the client's exact specifications.
- 4 Power BI dashboards were developed containing around 20+ elements (tables, charts, metrics etc.) each. These 4 dashboards catered to different stakeholders: team members, clients & business owners.
- In order to future-proof the unified visualisation platform, all the dashboards were embedded into a separate User Interface built on AngularJS. This will serve as a one-stop place for all the current dashboards as-well-as other project management dashboards planned in future.

Business Impact

- Significant increase in resource allocation optimization across audits from 70% to 90%.
- Tremendous decrease in business operations head's work load from 40+ hrs a week to 10 by automating all the critical project management metrics.

- Several (10+) project/ audit extensions due to management's eliminating efficiencies and freeing up space capacity, both of which were possible due to the insightful dashboards.
- Better self-performance assessment and monitoring for auditors resulting from the team member level view.
- Significant improvements in leave, travel for work and fieldwork planning.
- Developed 4 new highly comprehensive dashboards which would refresh in real time and were perfectly tailored to the client's analytical needs.
- Combining the 3 legacy tool's data on a singular platform created a unified full-picture of the business which revealed several opportunities for substantial cost saving and improved interdepartmental cooperation.
- The entire workflow- including project management, work allocation, progress tracking, productivity management, recourse allocation and managerial accounting- was drastically streamlined and made transparent.
- The client was protected from any new tools/ apps/ sources in the future not being compatible with its new unified visualization platform.
- Using open source tools for development enabled a very high level of customizability and flexibility which helped deliver the client's exact needs at a much lower price point.

Data Flow Chart

Sample Dashboard View

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