XTGLOBAL

PRODUCTIVITY MONITORING SYSTEM IN OIL AND GAS CONSTRUCTION INDUSTRY

OVERVIEW

Tracking productivity of the construction activities, particularly when multiple subcontractors are working at multiple locations, can be quite challenging.

XTGlobal provided an Asia-based Oil and Petrochemical industry client with a Cloud-based Productivity Monitoring System using Amazon Web Services (AWS) to enable them to capture real-time data for easy planning and monitoring.

This case study demonstrates how XTGlobal used the software engineering best practices in a domain that is traditionally dependent on very basic productivity monitoring systems.

BACKGROUND

Digital and Cloud-based capabilities go a long way in improving the management and monitoring of routine activities in the oil and gas sector. Digitizing processes, adopting agile frameworks, and using advanced analytics can help construction companies of this sector boost capital-project productivity.

The client is a construction company that specializes in the oil and gas industry. They were tracking construction activities and calculating productivity index using a set of Google Sheets, which was getting cumbersome and erroneous due to increasing number of projects. They were using a desktop-based application to enter the information, but this data could not be accessed by everyone because most of the activity happens in the field, and in multiple locations. The ability to track productivity of various groups in a project in terms of lost time, rework time, and work time, has become important to win future projects.

The client wanted a web-based application that can be accessed from anywhere by all those involved in the project. XTGlobal proposed an AWS Cloud-based Productivity Monitoring System based on a simple MVP (Minimum Viable Product) model so that the application can be developed quickly. It was also proposed to transfer the Google Sheet data into AWS Aurora database for better access.

PROJECT SPECIFICATIONS

Here are some of the goals that XTGlobal and the client agreed upon to get the best solution in a short period of time:
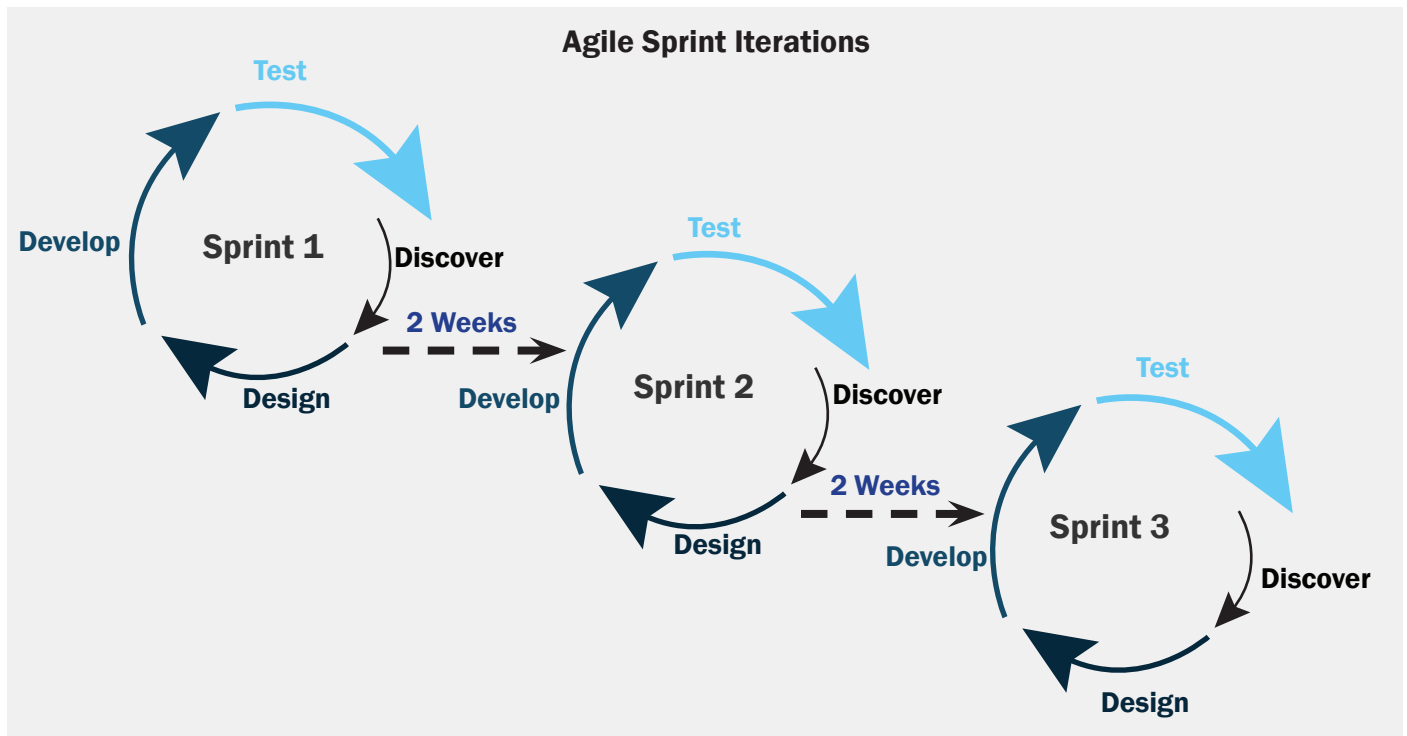
- To design and deploy an application that is easy to use and requires a minimum amount of training for using the system.

- To implement the solution within 6 months so that some incentives provided by local government can be gained.

- To create a multi-tenant system measuring the productivity of all sub-contracting companies so that the prime contractor can execute the construction projects in time and under budget.

- To develop an architecture that is highly scalable and available to be used by thousands of users in the oil refineries and petrochemical plants located in Asia.

- To give the solution the ability to upload data collected off-line and sync it with online data as soon as an internet connection is available.

APPROACH AND METHODOLOGY

A thorough analysis of the existing system was conducted by interviewing end users. As the interviews were being conducted, a quick prototype was created to bring clarity into the finer details of the proposed system.

All stakeholders were given the prototype system as part of requirements gathering process and each individual input was taken to address the concerns expressed. Once the scope of the project was signed off by the client, a 2-week sprint planning was incorporated to push the user stories into production. To achieve 2-week sprints to production, XTGlobal created a CI/CD pipeline using AWS Code Commit, Code Deploy and Code Pipelines. An MVP (Minimum Viable Product) was created by converting the existing Google sheet data into AWS Aurora database.

Agile Sprint Iterations

Test
Develop
Sprint 1
Discover
Design
2 Weeks
Develop
Test
Sprint 2
Discover
Design
2 Weeks
Develop
Test
Sprint 3
Discover
Design

RESULTS

The implementation of the PMS system has enabled the client's planning team to re-plan daily activities much more effectively as they could access real-time data about the lost time hours, re-work hours and actual work done. The HQ team got the overall status of the project in real-time. This helped the management to compare projects and incorporate processes which improved the productivity of teams across the organization.

About XTGlobal:

XTGlobal is a proven IT consulting and software solutions provider adept at designing, developing, and executing enterprise-level cloud-based solutions. Our expertise in advanced software technologies and cloud computing helps companies add greater value to their products and services at reduced cost.

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