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Digital Resource Board

Sanjel Energy Services

July 28, 2022

Sanjel Energy Services

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Project Overview

Sanjel is an industry-leading energy services company headquartered in Calgary. The company offers primary and remedial cementing solutions throughout northern BC, Alberta, and southern Saskatchewan.

Sanjel is seeking to create a Digital Resource Board (DRB) that consolidates the functionality from several existing spreadsheets and integrates data from existing business systems like AX and ADP. Currently, a number of spreadsheets used for job forecasting, resource availability tracking, and KPI monitoring are updated manually, a tedious and sometimes error-prone process. The end goal of the Digital Resource Board project is to consolidate and streamline the planning, monitoring, and delivery process at Sanjel.

Proposed Approach

Scope of Work

Sanjel and Arcurve have agreed to a phased approach, with the first release planned for October 2022. Subsequent release dates have not yet been planned. The following sections list the proposed tasks and deliverables for each phase.

Phase 1

- Initial developer environment and project solution setup
- Set up environments (development, test, user acceptance, production)
- Set up continuous integration and deployment pipelines
- Basic Rig Activity Forecasting
    - Add a Job – rig name, start and end date/time, client, job type, complexity score
    - Add a Program – link to eService, show complexity matrix value and colour, job times, client, show job information from eService, ability to adjust job start and end date/time in 15-minute intervals
- Interactive map
    - Static view of current day and latest available data
    - Rig location – hovering to show current and next job
    - District location – location indicated by a single point for the district area
    - Truck location – integrate with Inthinc (Orbcomm) for current location
- BA/UX for phase 2

- Documentation

Phase 2

- Update Rig Activity Forecasting
    - Add people availability to existing and/or new interfaces
    - Add equipment availability to existing and/or new interfaces
- Update interactive map
    - Draw district area on the interactive map
- BA/UX for phase 3
- Documentation

Phase 3

- Forecasting User Interface
- Interface to visualize and update upcoming work and resource usage
- Interface to assign crews to jobs
- Updates to existing interfaces or new interfaces to display daily resource counts and usage
- BA/UX for Phase 4
- Documentation

Phase 4

- Hover notes on map interface
- Complexity Matrix interface
- Product and Revenue Forecasting
- Update to existing interfaces and/or new interfaces for people and equipment details
- As-built documentation
- Project off-boarding

Approach

	Purpose	Key Deliverables
Inception	Kick-off, confirm objectives, define project scope Identify detailed requirements, users, key features, how features relate to the end-users	• Project Objectives • Define Key features • Project Workplan
Execution	Iterations/springs are completed every two weeks that result in demonstrated outcomes. Quality assurance and business analysis are conducted as part of each iteration.	• Weekly Status Updates • Risks, Decisions and Issue Log • Iterative Demonstrations
Testing	Final user acceptance testing and review of the final product with the client.	• Final Product Testing • Deployment Plan
Deployment	Deployment of the final product and transition to client ownership	• Deployment • Training • Documentation

Risks

- Required data is not captured within the Sanjel Data Model and it is not readily available either through an API or direct access to a database.
- The Sanjel Data Service Libraries do not support data consistency across multiple concurrent data transactions.

Assumptions

- Any new integrations or expansion upon current Sanjel Data Libraries or the Sanjel Domain Model will require consultation on design and implementation with Sanjel technical resources.
- Persisting data through the Sanjel Domain Model will be mandatory unless implementation is found to be not feasible.
- The DRB will integrate with the current eService Online application to provide a consistent experience for users. This integration will be at the page level as new tabs in the eService Online application. For the first phase, any changes required to the eService Online application to support this integration will be completed by Sanjel.
- All Data Service Libraries can be compiled to at least .NET Standard 2.0 libraries.
- Any modifications to existing Sanjel APIs will be made by the Sanjel team.

Estimates

	Phase	1	2	3	4	
Activity	**Resources**	**Hours**	**Hours**	**Hours**	**Hours**	**Estimate**
Project Management	PM	100	120	140	120	$72,000
Analysis and Design	Architect, BA, PM	160	120	160	120	$84,000
Development	Developer (2)	640	960	1,300	960	$579,000
Testing	BA, QA, Developer (2)	100	300	400	300	$165,000
	Total Hours:	1,000	1,500	2,000	1,500	$900,000
	Total Estimate:	$150,000	$225,000	$300,000	$225,000	
	Estimated Duration:	2 months	3 months	4 months	3 months	

This proposal is an estimate, and the proposed work will be conducted on a time and material basis at $150/hour CAD. Prices quoted are valid for 30 days from the date stated on the proposal.

Technical Architecture

Microsoft .NET with Blazor will be used for implementation of the DRB. .NET/C# is the primary software development language at Sanjel. Blazor uses C# for frontend (UI) web application development. This aligns well with current Sanjel resources as new development languages will not need to be learned to support the DRB. There are a lot of shared patterns and frameworks between Blazor and .NET MVC, which is already used in various applications at Sanjel, further enhancing the ability for internal IT resources to support the DRB.

The hosting model for Blazor will be server-side, which allows the DRB to integrate directly with Sanjel's existing Data Service Libraries. This will reduce development effort and enhance security by removing the requirement for a traditional web API to serve data to the application client.

- .NET 6 (Long-term Support)
- C# 10
- Blazor with Server-Side Hosting
- Syncfusion Blazor Components
- Azure App Service
- Azure Storage Account

- Sanjel Azure Active Directory
- Sanjel Data Service Libraries
- Sanjel Data Model
- Sanjel Data Warehouse

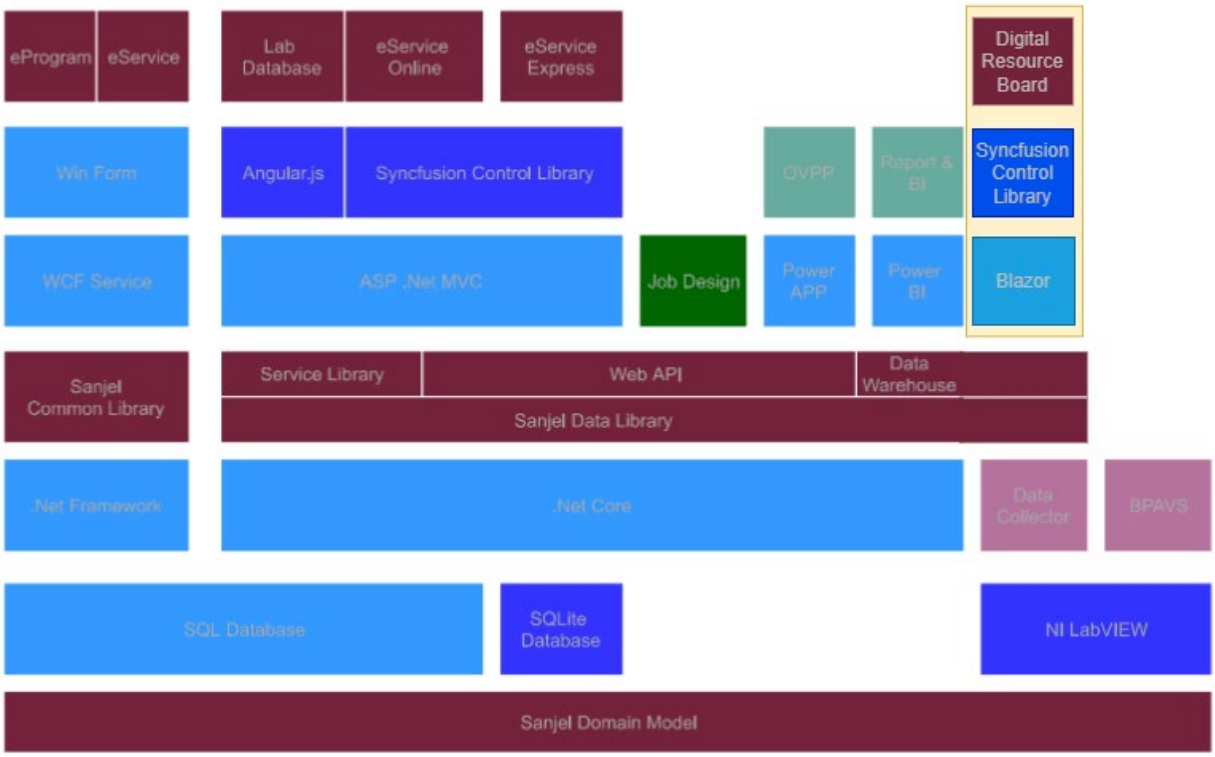

Figure 1: Sanjel Technology Stack

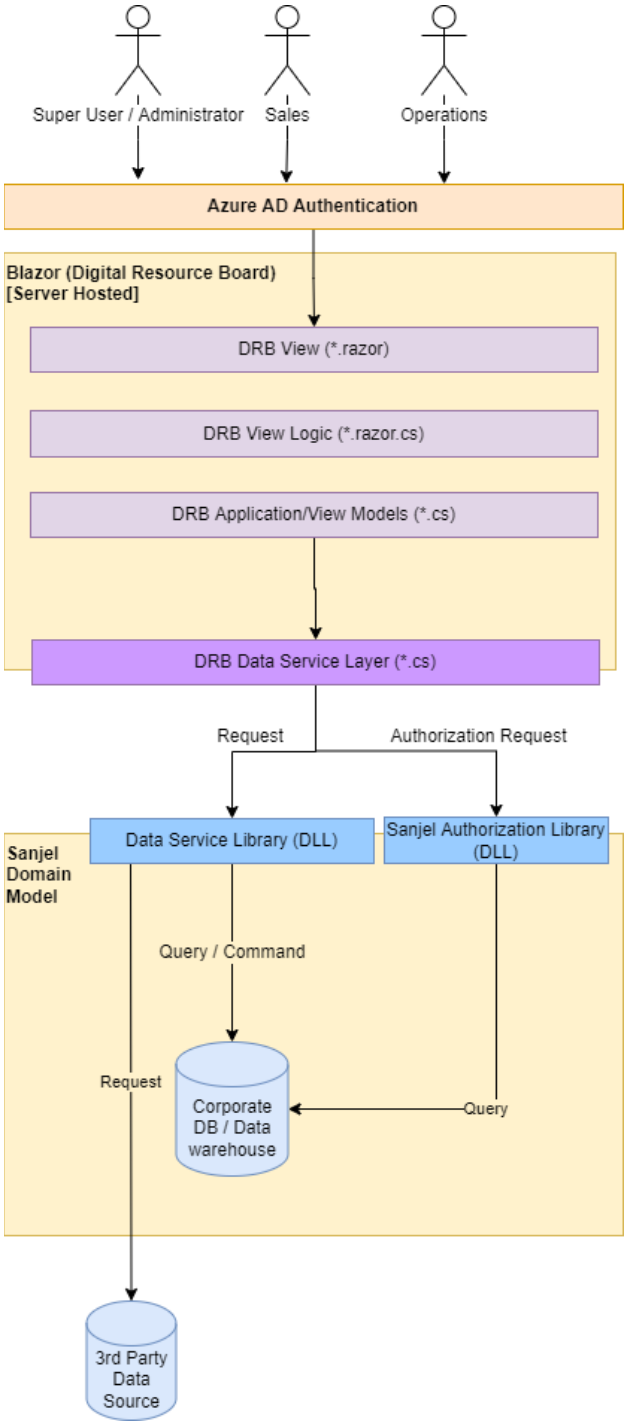

Figure 2: Resource Management Board Application Architecture

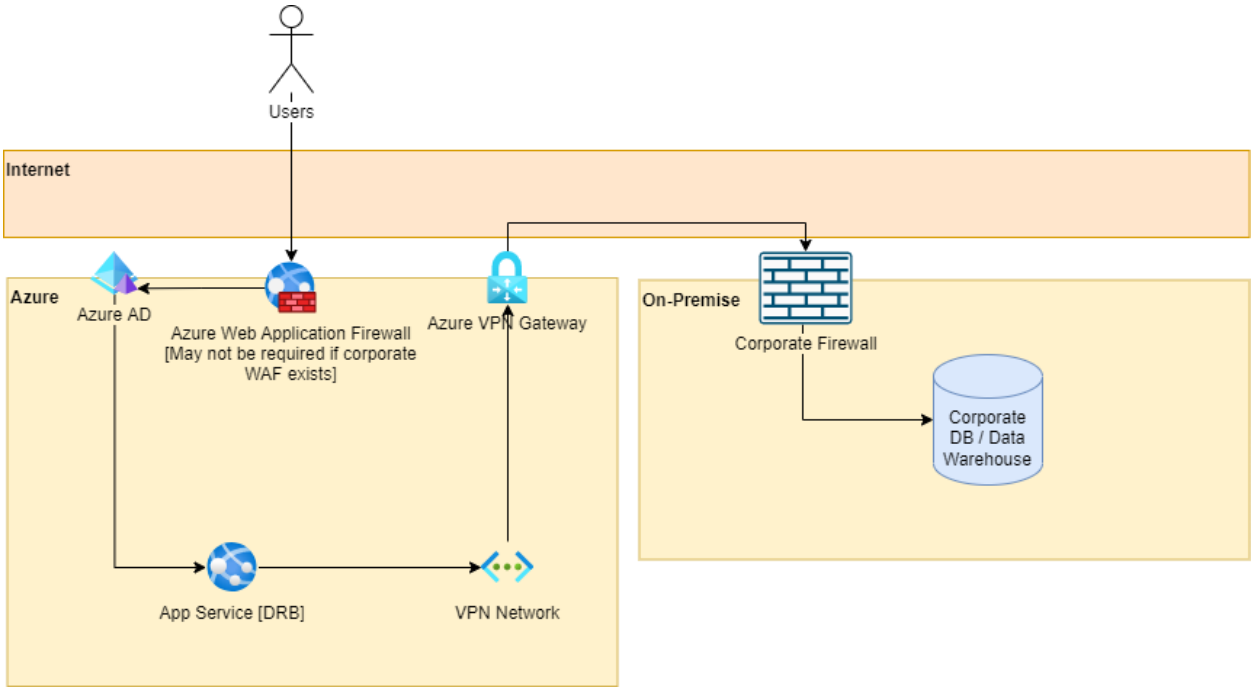

Figure 3: Resource Management Board Infrastructure Dependencies

Possible Future Enhancements / Out-of-Scope

- Enhanced interoperability between DRB and eService Online
- Azure resource governance