CASE STUDY

About Purcell

Purcell Systems Inc. is a leading global company based in the US, with an International counterpart based in Stockholm, Sweden, and has been servicing the telecom market since 2000. The company designs and manufactures innovative, industry-leading, thermally managed, modular outdoor electronic equipment enclosure solutions and provides system-level solutions to a variety of global customers in Telecom, Cable/MSO, Energy/Utility, Land Mobile Radio, Transportation and U.S. Government/Military.

Their outdoor equipment enclosure solutions allow customers to save substantial time, labor, space, capital and operational expense as compared to prefabricated buildings and shelters. Purcell Systems provides quality products and services with unmatched speed, flexibility and 24/7/365 Fanatical Service®.
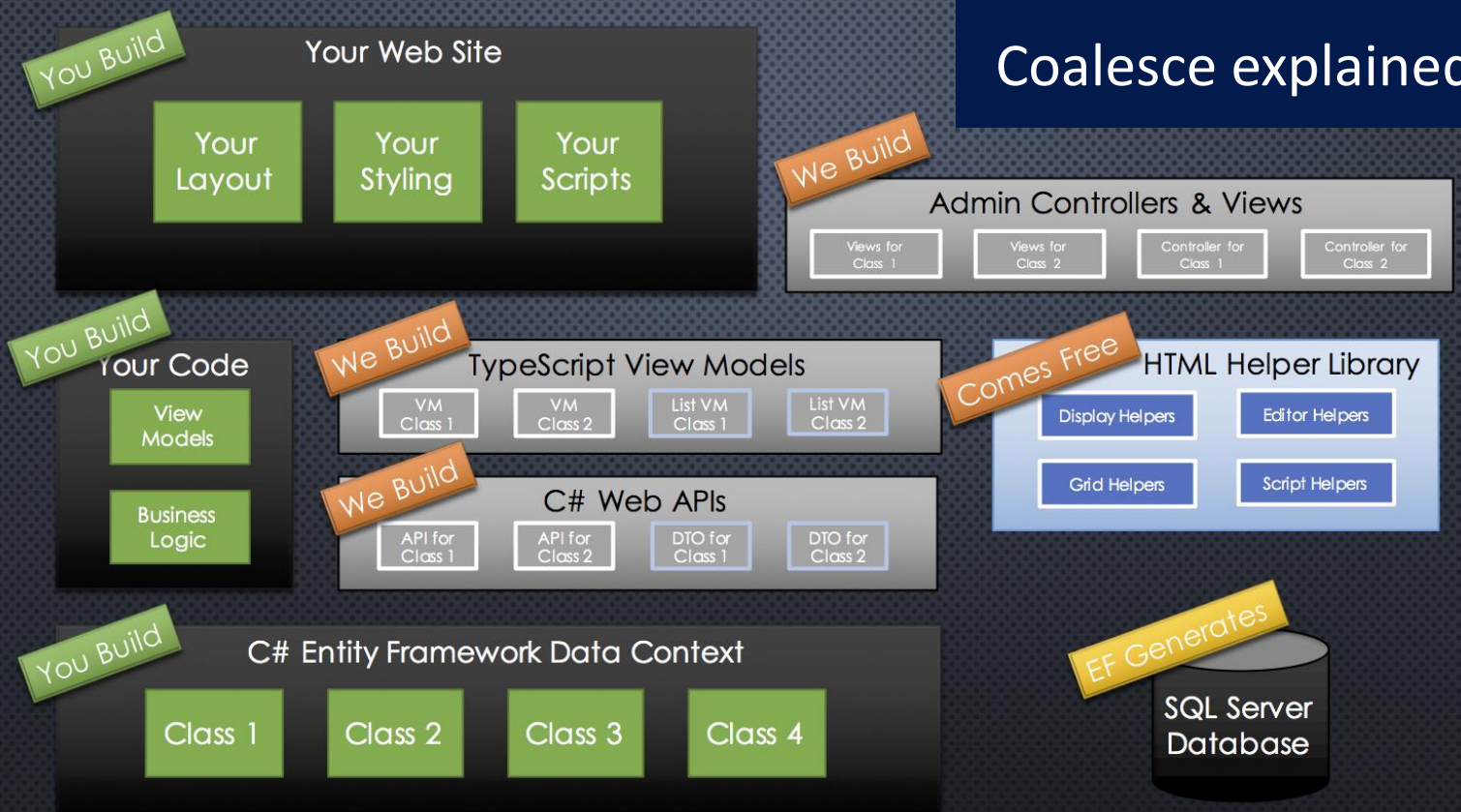For more information, visit Purcellsystems.com.

Challenge

Purcell manufactures custom outdoor equipment enclosure solutions (cabinets). The details of the configuration vary depending on each customer's requirements. Cabinets can be the size of a car with hundreds of components inside while others may be the size of a breadbox and only house one component.

Purcell is so confident in their system that they warranty every cabinet and all equipment they place into it – be it theirs or their customer's. To track the cabinets, Purcell puts a unique serial number on each cabinet they manufacture. They also track all the serial numbers of third-party components within the cabinet. These serial numbers can be referenced by customers for warranty repairs as needed.

Cabinet construction is done via an assembly line, much like a car. Cabinet builders were using a legacy system to create each unique cabinet and scan each barcode before going to the next step. New features were required and bugs needed to be fixed, but the technology wasn't keeping up. IntelliTect was initially brought on to the project to fix bugs and add features.

Coalesce explained

Solution

One of IntelliTect's senior engineers, Chris Finlayson, spent two years improving the existing technology, but bugs continued to compound as the application's technology grew older. The system was written on enterprise technology that was over ten years old – almost twice the recommended lifespan for technology of this type. The functionality of the system was sufficient, but given the age of the system, it was difficult for Purcell to innovate and implement new processes, and, a simple bug fix might take days.

Purcell would save money and frustration if the application were rewritten with newer technology that would allow for quicker implementation of feature requests. Rather than redo what had already been created, Finlayson sat down with Purcell and looked at the workflow of the existing app streamlining it from several pages to one page.

IntelliTect's application framework, Coalesce, was used to reduce the time required to rebuild the application. Coalesce is a web framework designed by IntelliTect engineers and used on many projects. Coalesce automates laborious tasks such as API plumbing, security, callback, data binding, view models, controls, enumeration mapping, saving and serialization. Rather than spending half of the project creating the framework for the application, Finlayson was able to spend most of his time providing value to Purcell in the way of data modeling, business logic, page layout, form customizations and custom functionality.

Coalesce is built using the following cutting-edge technologies: ASP.NET Core, MVC Core and Entity Framework core. Based on the lifecycle of the last version of ASP.net, Purcell's redesigned application will be stable for years to come.

Coalesce simplified the rebuilding of Purcell's application and reduced the time required to create the framework of the project by one third. As a result, Finlayson only took four months to re-build an app that took over seven years to develop.

Results

IntelliTect created the new program on time and within budget. Now, new features requests can be implemented in hours, rather than days.

The revamped program also provides a straightforward process to manage statistics. All serial numbers are now categorized electronically and the most minute detail is searchable. If there's a defective part from a particular manufacturer, Purcell can now research which cabinets may have been affected. If a worker made an error on one cabinet, information could be cross-referenced to see if other cabinets might be affected or if the worker may need further training. Also, if something breaks in-house, then Purcell will know why because it is categorized and double checked by QA.

In the old system, defect data was entered in a complicated and error-prone excel sheet. The new system has streamlined the reporting process and reduces human error.

New features are continually being added to the app, and it was recently migrated to the cloud so that subcontractors in other countries could access it. With previous systems and processes, it was possible for Purcell's subcontractors to enter duplicate serial numbers. Now the numbers can be verified in real time eliminated duplicates and further streamlining the data management process.

Purcell is free to focus on make an exceptional product while using a simplified, bug-free program. As a result of the improved efficiency, Purcell has cut costs more than they had believed possible.

IntelliTect

IntelliTect provides high-end architecture consulting, full life-cycle software development, and training that enables our clients to solve their most challenging problems. Our expert principal and senior engineers specialize in the latest technologies, including Cloud Computing (both AWS and Azure), Big Data, Machine Learning, and Artificial Intelligence (AI), .NET Development, Azure DevOps, Office365/SharePoint, and Enterprise Application Integration. For more info, go to intellitect.com.

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Skills and Services

ASP.NET Core/C#
SQL Server
TypeScript
Coalesce – Coalesce.readthedocs.io

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We had our parent company, Enersys, do an audit of the MES application that Chris and Andrew developed and they were blown away. It was, in fact, exemplary of how they would like to see their own teams do development.
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Dan Woods,
Senior Manufacturing
Engineer, Purcell