Case Study



Building Control System Licence Management

/ Building Control Drawings

Building Control Drawings offers an engineering service for Trend building control systems to some of the largest construction companies and commercial landlords in the UK. With an impressive track record spanning over three decades, the company's elite team of engineers and designers are masters in the realm of controls and design. They have earned a reputation for excellence by developing the graphical "helm" for two of Europe's largest Trend Building Management Systems, offering a unique perspective as both the architects and the operators of these intricate systems. Their operational expertise is further emphasised by their role in steering these platforms toward optimal energy management and facility maintenance.

> " With NewRedo technical help and software delivery we have been able to create an entirely new revenue stream "
>
> Gideon Groome - CEO

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Project Introduction

Engineering and delivery of a secure, scalable licensing management platform for Building Control Drawings, enabling a new revenue stream by safeguarding intellectual property with a robust JWT-based licence management system. This project involved developing a standard-based, cost-effective solution that integrated seamlessly with existing financial systems and payment gateways. The platform's flexible design also supports adaptability to evolving market needs and business objectives, using skills in project management, software architecture, and agile delivery methodologies.

Project Challenge

The development of a secure platform for Building Control Drawings presented a series of discrete challenges that required the NewRedo team to innovate in several areas. The project's primary goal was to generate highly secure licence keys on demand, necessitating the creation of a cryptographic system capable of producing unique, tamper-proof keys efficiently. Additionally, these keys needed to be validated both through an API for automatic checks and manually via email for flexibility, adding complexity to the system's design. A significant requirement was the enforcement of key affinity, which involved securely binding licence keys to specific control units or other hardware to prevent unauthorised use and ensure compliance with licensing terms. The platform also had to allow offline functionality, enabling components to operate without internet connectivity. Managing and tracking thousands of key subscriptions posed a substantial logistical and technical challenge, requiring robust data handling and real-time management capabilities. Finally, ensuring the platform was scalable and adaptable to future needs was essential, leading to the adoption of a modular architecture that could accommodate growth and integrate new functionalities as market demands evolved.

Project Solution

The platform developed was implemented as a series of web application components, designed with the flexibility to be encapsulated within a desktop wrapper, such as Electron, should on-premise deployment become necessary. This approach allowed for both web-based and potentially standalone desktop applications, catering to diverse deployment needs. The licensing

system at the core of the platform utilised JSON Web Tokens (JWT) for the licence keys. This standard was chosen to leverage existing tooling and components, ensuring cryptographic integrity without sacrificing the availability of development resources. The JWT-based licence key design also supported the embedding of additional information, providing the flexibility to include more data as client or regulatory requirements evolved. To guarantee the platform's reliability and performance, extensive automated testing was implemented. This rigorous testing regime ensured that each component of the platform operated robustly under various scenarios and could handle high-performance demands efficiently. Additionally, the platform was designed with extensibility and ease of integration in mind. It seamlessly connected with back-office finance systems and payment gateways, facilitating an e-commerce style licence purchase process. This integration capability enabled efficient transaction management and streamlined the overall financial operation.

Customer Value Proposition

NewRedo developed a platform for Building Control Drawings that provided significant value by introducing a new revenue stream through secure licence management. The platform effectively protected the company's internally developed intellectual property in a cost-effective manner, leveraging standard-based designs to ensure low maintenance costs. Additionally, its flexible architecture allowed it to adapt seamlessly to evolving business goals and market demands, enhancing its long-term utility and scalability.

Project Skills

Cryptography, IP Management, Performance Testing, Software Development, Business Analysis, Agile Delivery Management, Cloud Infrastructure, UX Design, Software Archtecture, Cyber Security, Product Management, Web Programming