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Case Study

Gamification Platform

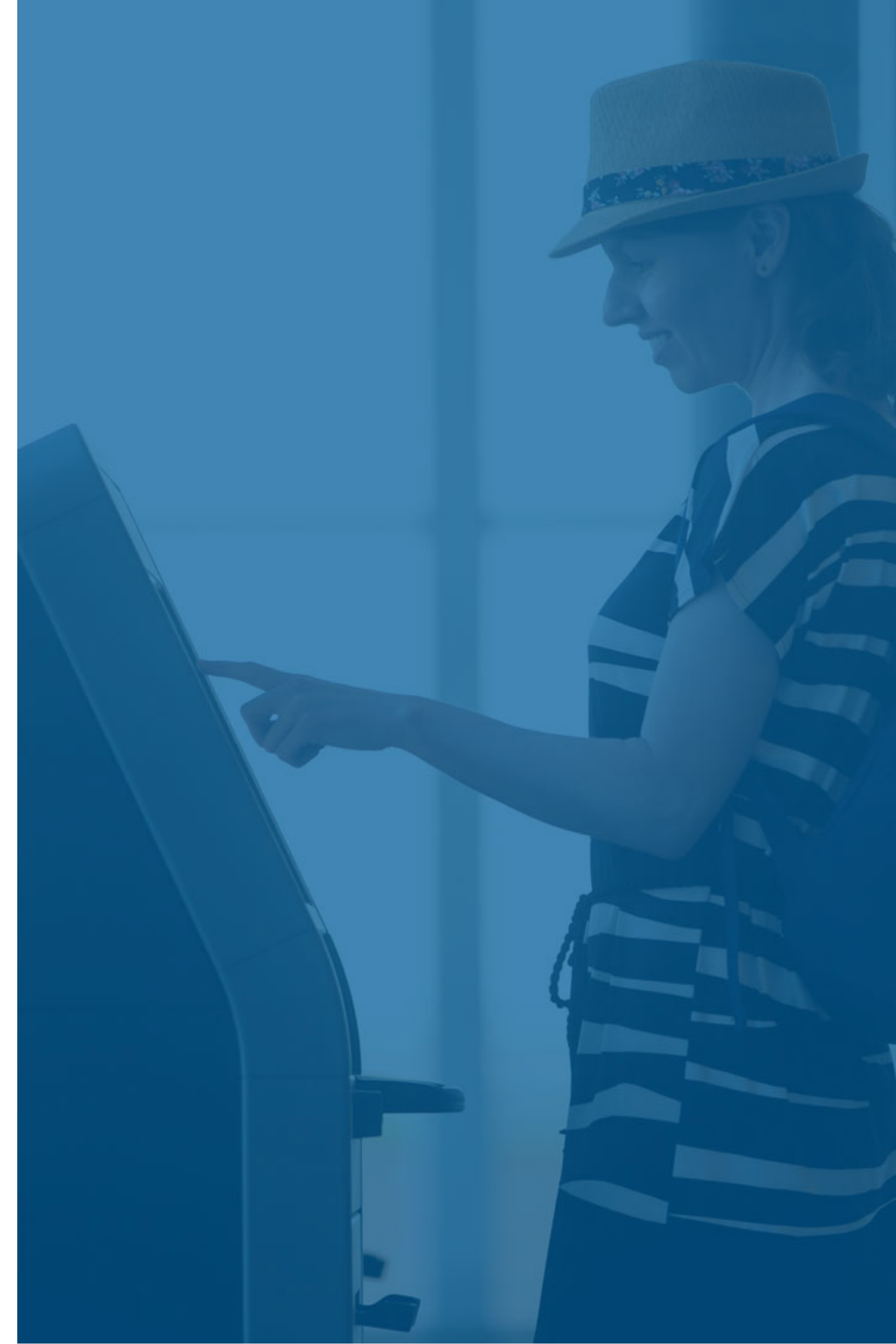
AltexSoft co-builds customer engagement cloud platform with gamification marketing startup

.NET, ASP.NET, Microsoft Azure Cloud

Background

The client, a US startup, initiated the partnership with AltexSoft with the idea of building a gamification cloud platform. It was intended to provide engagement solutions for a broad range of businesses, from retail to healthcare, and address the problem of low customer engagement in discount and rewards campaigns by using game theory. The hoped-for outcome was that customers would be more engaged if these campaigns were accompanied by gaming experiences.

The project's main goal was to introduce an operationally simple platform, reachable from a browser, and flexible. Each client company would be able to customize the games and better tailor them to specific customers and existing discount campaigns.



Challenges

The concept of the SaaS platform entailed designing a powerful management environment where companies could choose games or surveys, customize their graphics and content without changing core mechanics, tweak the campaigns, define the rules of rewarding customers, and eventually assess the effectiveness of their campaigns via comprehensive reports.

All games are web-based to let companies run them on any digital device, from a smartphone to a kiosk in a grocery store. So, the spectrum of engineering challenges is broad and requires a versatile development expertise.

1.

Research the opportunities of both relational and nonrelational database schemes to implement the server-side architecture on the Microsoft Azure Cloud.

2.

Build a cloud-based architecture that can sustain high loads with smooth performance and gathering a large amount of customer interaction data.

3.

Provide deep customization of gaming campaigns, rewards tweaking, and access control settings.

4.

Develop a management framework that would allow developers to continuously analyze and integrate new games into the system.

Value Delivered

The core business value of the platform is to provide custom gamification services. Unlike most competitor's solutions, the platform was intended to support each client with a functionality to tailor games and surveys based on the specific operational needs. AltexSoft met this demand by introducing a sustainable architecture and delivering continuous support by integrating new gaming experience.:

1. Database access layer research and elaboration phase that prevented an unstable launch.

On the research stages, we had to choose the database type that would be fast and allowed for generating complex reports. The team was challenged to build an architecture to endure up to 20,000 operations per minute to cover data exchange with hundreds of endpoint devices. The initial assumption implied that the nonrelational database could handle this workload with maximum performance. The team started testing the NoSQL architecture with the new DocumentDB service from Microsoft. As a result, the engineers uncovered many pitfalls in using this database. First of all, as DocumentDB was recently released, it still had a number of technical issues.

Another drawback of DocumentDB was that it couldn't process complex cross-document and deep-graph queries with expected performance. This didn't allow for fast report generation based on the acquired user data. So, the approach was rejected, and the team decided to design a custom-data architecture that combined both relational and nonrelational schemes without the use of DocumentDB. This new hybrid scheme prevented the architecture from being unstable. It also shortened the development course as engineers didn't have to constantly adapt to the flawed system, and were instead able to focus on business tasks.

Value Delivered

2. Development of a scalable cloud architecture to handle high loads.

The developers took a hybrid approach to building server-side architecture and data processing. As consumers play games, take surveys and get rewards, the system has to track all activities, ranging from gaming scores to the details about redeeming the awards. This requires a large number of simultaneous database operations and can eventually disrupt gaming experiences for customers. The solution was to utilize Microsoft Azure Cloud to build the architecture that would store denormalized data along with the normalized, then transfer denormalized data to a relational Azure SQL database in the form of a sole object graph. After that, the data is normalized in the Microsoft SQL database in background mode. All commands and queries are performed by using the Service Bus pattern built on top of the Azure Message Queues. As a result, the architecture bears the workload of up to 20,000 queries per minute without performance loss on the customer side. In the meantime, normalized data is seamlessly interpreted and used for generating reports.

3. Delivering a client portal with sophisticated business logics.

The client portal is an environment where users operate their gamification campaigns.

- Campaign management: Clients pick games, choose their graphics using available assets, set campaigns, and apply various types of rewarding rules.
- Access control: If some players aren't welcome to participate, the access control can be set to define the categories of preferred users.
- Reporting system: As all interaction data is gathered, the system suggests analyzing the success of campaigns via reports.

Value Delivered

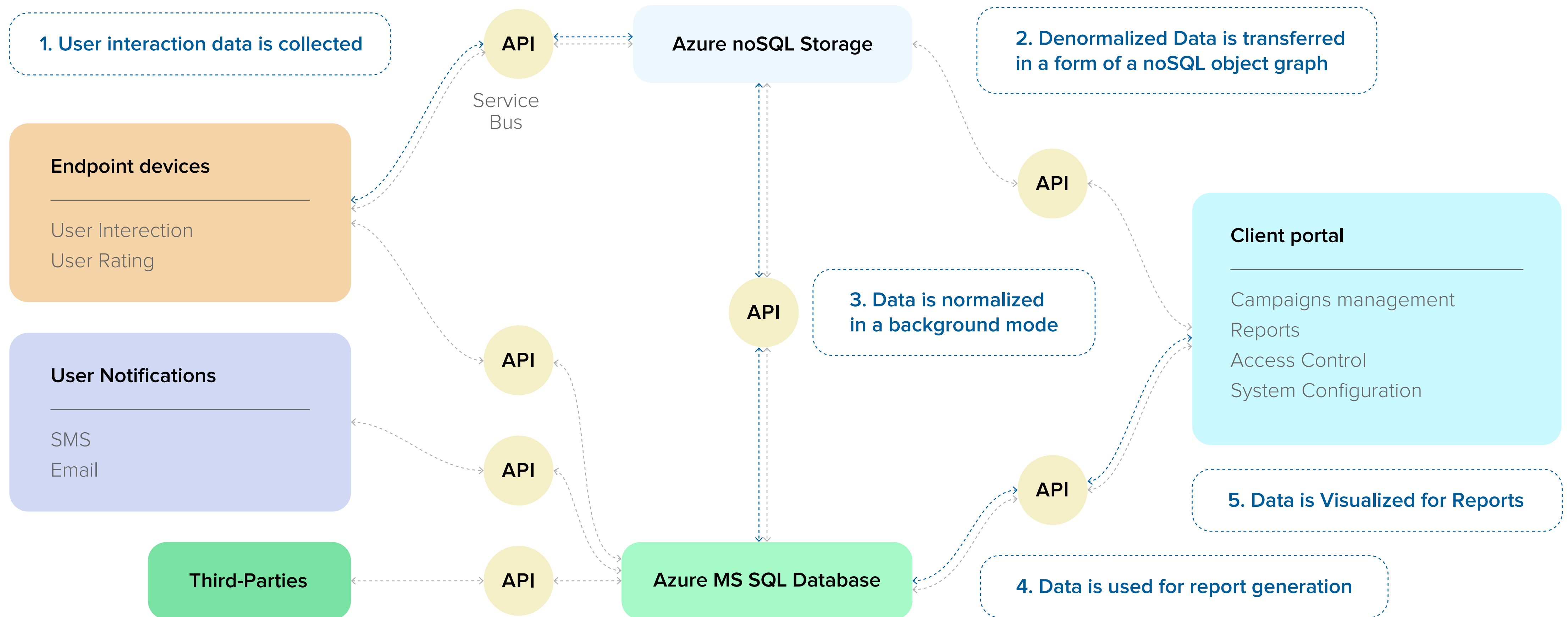
4. Integration of a new game or survey every 2-3 weeks.

Every business that committed to using the platform requires an individual approach to games and their mechanics. While the service contains a set of out-of-the-box games, that isn't enough to meet the demands of every business. That's why our partner frequently introduces new games with different mechanics. This approach challenged our JavaScript developer, who developed a platform with reusable core-game mechanics with graphics that are customizable. Along with games integration, the platform itself undergoes constant upgrades.

5. Responsive team management and communication to meet on-stream updates.

The dedicated team of four AltexSoft experts established a sustainable cooperation framework with a partner team consisting of a designer and a local solution architect. Working as a solid development unit, the team not only managed to launch early after 10 months of research and development but can also handle the integration of a new game or feature every 2-3 weeks.

Product Architecture



Approach and Technical Info

The dedicated team consisted of a front-end developer, two .net engineers, and a quality assurance specialist. The platform was built with **.NET, ASP.NET**, and **Microsoft Azure Cloud**. The entire project took 10 months.

Testimonial

“ We had a product that needed to be delivered and very strict timelines. To meet those timelines we had to increase our capacity by about 40 percent. The ease with which you could do that, the flexibility, and the fact that you introduce the brand new people to the project, and it doesn't take a big learning curve for them to jump in and be productive nearly the next day was really important. ”

– Chief Solution Architect

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