Salesforce Certified Technical Architect

Mock Scenario

Constructus Temporary Buildings

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Scenario

Instructions

For the hypothetical scenario described below, the candidate will have 180 minutes to read, evaluate, and document a high-level architectural solution. The solution should:

- Address where the Force.com platform will and will not be used.

- Describe how the Force.com platform portion of the solution will interact with the other systems needed to complete the solution

- Identify any potential key risk areas.

The candidate should target the presentation to a technical IT architecture audience. In cases where requirements are not explicitly stated for the scenario, the candidate should user his or her best judgement and make appropriate assumptions based on the information provided. The candidate should indicate to the review board any assumptions that were made when designing the proposed solution. The candidate will not have an opportunity to ask clarifying questions related to the hypothetical scenario.

The candidate will be evaluated on his or her ability to assess the scenario requirements, design a solution, communicate the proposed architecture, and justify the design decisions. The candidate will not be evaluated on the tools used for the presentation.

Project Overview

Constructus Temporary Buildings (CTB) provides marquees and semi-permanent structures for hire across Europe, mostly to other businesses. Their buildings are used at concerts, sporting events, corporate functions, university events and the occasional private party or event. Most buildings are in place for a few weeks (or less) but there are some longer terms projects where structures can be in place for months.

As well as the buildings, the provide lighting, generators, bar and kitchen fixtures and fittings, gas supplies for the kitchen, electrical fittings as well as tables, chairs and some decorations.

They operate out of 3 offices: a UK office in Northampton where all invoicing and collections takes place; a regional office in Geneva that handles operations for France, Italy, Germany and Switzerland and a headquarters in Tilburg, Netherlands that manages operations for the Lowlands and Scandinavia as well as service for the whole of Europe. There are approximately 100 employees in the UK office, 50 in Switzerland and 250 in the Netherlands.

Each office also has a depot attached, and there are a further 7 depots across Europe. Each of the 10 depots employees roughly 50 staff broken down to 10 team leaders and 40 labourers.

The Users break down as follows:

- 100 Service Agents – these handle customer queries, complaints or any other contact that a customer requires throughout the contract.

- 150 Operations Specialists – these handle the equipment allocation and assign the build to a Team Leader who will complete the construction with his small team. They are also responsible for maintenance of all equipment, cleaning and other elements of asset management.

- 100 Sales Reps – these are mostly mobile and operate at customers or conferences. They will visit sites when work is underway to ensure that it's being delivered to plan

- 30 Team Leaders – these are responsible for the build, working closely with the Sales Reps to ensure that was is delivered is correct, and that was is built is accurate to the quote. It is the team leaders who carry out inspections on site.

- 400 Labourers – it is not anticipated that these will require system access.

CTB is looking to grow significantly in the next 5 years, both within their current markets and into new countries. They want advice on how to move from very manual processes to a more automated way of working. They consider themselves a 'high-tech' company but are aware their current systems to not reflect this.

Current Systems

CTB has a mixture of custom-built applications and COTS packages, all hosted in their own data centre in Tilburg. A new CIO has been appointed to completely overhaul the IT infrastructure as CTB looks to grow its business by double in the next two years and she has chosen Salesforce as the backbone of a new solution.

The current systems are:

1. Custom built CRM with a .NET front end and a SQL Server backend. CTB are looking to sunset their current CRM solution and migrate all relevant data to Salesforce.

2. There is a very simple telephony solution in place in Tilburg – this is not integrated to the CRM and needs to be replaced.

3. IMS – The Inventory and Maintenance system, it contains all asset information, including scheduling for each piece of equipment (and a history of where it has been used for the lifetime of the equipment). CTB want to retire this system and move the functionality to Salesforce

4. SAP ERP (on premise). Billing and Invoicing is carried out by SAP. This system is viewed as fit for purpose so is not looking to be replaced at the moment. CTB would like approved users to be able to access the SAP system directly from Salesforce without additional authentication steps.

5. Drupal based Website. The content of the site is mostly static, and although content is changed occasionally there is no integration from the web to any other system. CTB are open to replacing this website.

6. Safety First – Safety First is used for auditing safety inspections once buildings are assembled. It contains a list of rules of what checks need to be completed based on a number of complex criteria (location, type of buildings, utilities provided, country, etc.). CTB would like to keep this system purely for specifying inspections that are required but store all inspection data within Salesforce. A SOAP based interface is available.

7. CTB use an internal Active Directory. Their MS Sales Exec has been pushing them to try some Azure products – they are happy to consider this as part of this project but would like advice on use cases.

8. Planning. Some buildings in some countries require planning permission or a permit to be granted before a temporary building can be assembled. This is currently manually completed by Operations but if there is an automated way, CTB would like to explore this.

There is currently no marketing systems – this is outsourced to an agency – but CTB would like to consider making email campaigns an internal function.

There is no mobile solution for employees or customers and CTB would like to provide both sets of users with a mobile solution.

All CTB Employees are issued iPhone devices.

CTB would like the customer facing app to be media rich and heavily branded. They would like logins to be persisted, and for authorised users to be able to raise support cases (with supporting photos and GPS information) from the mobile device.

Business Process Requirements

Sales (and Marketing)

As mentioned, Marketing is currently outsourced. CTB run several campaigns a year which result in leads. Sometimes enquiries inbound will also lead to successful deals. CTB want to be able to track enquires via all channels in a single place. These are all from a mix of new and existing customers.

1. Sales Reps will visit a prospect and meet with them to fully understand their needs.

2. When it is a new customer, the Sales Rep will co-ordinate with Operations to ensure the account is viable (see Operations).

3. Reps will evaluate the location and make a discretionary decision if planning or a permit is required. Mistakes with this judgement has led to fines in the past, CTB would like a more robust process in place.

4. The Reps will also take pictures of the construction area on their iPhones and will email these to Operations.

5. The Reps will often work with the same Team Leaders (as they are regionally organised) so will often discuss and share information with them throughout the Sales Cycle.

6. Structures (marquees and modular, solid buildings) vary in size but can only be constructed in a single way.

7. There are some bundles of products (tables and chairs, for instance) as well as product dependencies that are currently managed and manually tracked by the Sales Reps (stoves require gas, for instance, a generator requires fuel and access, etc.). All of this needs to be considered when pricing takes place as sometimes dependencies are missed and have to be provided free of charge.

8. The Sales Rep will generally sketch the layout and then email a picture to the Team Leader but would like a proposal for a more sophisticated method.

9. Sales Rep can apply discretionary discounts – the maximum they can apply is determined by the Account. Anything more than that needs to go to the Area Operations Manager, but can also be approved by the Regional OM.

10. Note that assembly and construction are the most expensive components of any booking, though there is also a 'daily' rate: Each asset has both prices listed (Assembly and Removal, Day Rate)

11. Once a customer and the Rep have agreed a price, CTB want to be able to capture a signature immediately so that they have the longest lead time for construction they possibly can.

At this point the order is handed to Operations, who will find and reserve the equipment required in IMS.

Operations

1. Operations will carry out credit checks on new customers as part of the initial sign up. This is currently a manual process working with external suppliers to get a credit rating. There are number of ratings agencies used across Europe.

2. Operations will query IMS to find the equipment that is listed on the opportunity, and make sure it is available at the dates requested. If available at a local depot, they will reserve it. They currently create a 'Booking' and want advice on how to manage this reservation mechanism in Salesforce.

3. Where equipment is not available locally, Ops will check if it's available at another location and then consider the costs of shipping. If viable, they will reserve it and organise shipping.

4. Where not viable, or unavailable, a procurement order will be raised to purchase new equipment 'locally.

5. Ops then assign the job to a Team Leader.

Operations also handle maintenance of assets

1. Each asset has a separate maintenance schedule by product type (there are roughly 20 types of products)

2. The maintenance required will vary in terms of skillsets, so different skills are required for different assets. CTB would like to track the required skills for ease of scheduling.

3. All maintenance is carried out by external employees: contract engineers. CTB would like to be able to show data from the system directly to these engineers – currently information is emailed.

4. Maintenance is carried out at depots. Assets will not be made available for hire if they maintenance is due. Any exceptions to this do not need to be considered at this time.

Construction / Assembly & Inspection

1. The allocated Team Leader needs to have full visibility of what was sold.

2. They will double check the inventory in IMS and confirm delivery dates/times with Ops

3. They will carry out a site inspection and also take photos to be emailed in.

4. They will check off the inventory as it's delivered and ring Ops if there is any issue (missing or damaged assets most typically)

5. They will document the build through photos.

6. After assembly, they will complete all inspections and tests as determined by Safety First.

7. When complete, they will perform a 'readiness review' with the Sales Rep and the customer. At this point, there may be a 'snag list' of issues to be resolved.

8. Once all issues are closed, the customer needs to sign off of the building.

For disassembly, the process is the same but in reverse. The customer will sign off when the site has been cleared, but will also be made aware of any damages that have been incurred through use. These will be passed to Operations who will work to raise invoices for the damages costs.

If a customer incurs significant damage, future opportunities will require further approvals and possibly a deposit. This is currently managed through the Sales Rep, by CTB want this automated.

There are some consumable products that are also charged after use (gas, fuel, etc.). Although this will be estimated in the initial quote, a final invoice (or refund) will be raised once the booking is complete.

Service / In-Life Care

Customers can purchase different levels of customer service as part of their package. All customers get Bronze service, but Silver and Gold are available that increase response times and reduce SLAs.

Currently customers will either email or phone the Service Centre to report issues.

Most cases are technical or related to the equipment or building, but there are also sensitive payment queries and complaints. Complaints are handled by a small subset of the Service Agents, and only they should be able to see them. Operations will get involved in payment queries, and will require access to activities and tasks on the case that might be assigned to them.

Data Migration Requirements

Data Quality in the .NET system is OK, but as there is no mobile or remote access CTB know that a lot of the Sales Reps work in Outlook or Excel and don't always update the central system when they return to the office. All customer data needs to be migrated, but given the disparate sources CTB would like advice on how to consolidate this data.

IMS contains approximately 40,000 inventory items. Each item is used 15 times a year (on average) and the life of an asset is an average of 10 years. All historic information needs to be migrated to Salesforce.

Image Folder. All photos taken are currently in an Exchange folder and CTB want these accessible from Salesforce. There are approximately 200,000 files at the moment, each roughly 2MB in size. The emails contain the customer and booking reference in the subject – the amount of pictures taken each time varies, but can be as high as 100.

Visibility and Security

1. Service agents require the ability to see all Customers, with one exception:

    a) There are "VIP" customers (typically high net-worth individuals) who are handled by a small central team only. These records, and orders and cases, should only be visible to these few users

2. Sales Reps can only view their own opportunities. They may share them with Team Leaders.

3. Operations require visibility of an Opportunity within their country only, but only once it has closed.

4. Only Operations can see assets and inventory and maintenance schedules.

5. Team Leaders should be able to see booking information, including all asset details.

6. Payment details, including PO numbers, should be limited to just the Operations team.

7. Sales Reps and Team Leaders require the ability to upload photos.

Currently customers cannot see any information, but CTB would like to make it possible for their customers to see booking history and be able to raises cases through the website.

Reporting

Sales Reps require the following reports

1. Account Summary, including details of all open/recent Cases, Bookings and Opportunities

2. Operations required a maintenance schedule – to see:

    a. All assets that required maintenance in the next 3 months

    b. A list of all assets over 5 years old

3. Operations Require a list of all 'high risk' customers (though who have damaged equipment in the last 6 months)

4. Operations require an easily accessible archive of all pictures to be presented "in context"

Project and Development Requirements

CTB have usually run projects in-house, and so do not follow any particular methodology. They would like advice on the following areas:

1. How to minimise code errors and ensure code quality throughout the delivery

2. How to engage users to ensure adoption of the new system

3. A clear understanding of what their responsibilities would be during the project

They have a quarterly leadership strategy meeting and would like to be able to show progress within the first 6 months (the second meeting after the project begins)

They would like to be self-sufficient for new releases and application maintenance within 12 months and would like advice on how to enable this.

As they move into new markets, they would like to be able to rapidly enable the system to operate in these markets which will involve different languages and currencies, but which should be a common way of working.