

330.02 - Santa Corp

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Description: Digital transformation involving automation and multiple complex integrations.

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Table of Contents

Scenario	1
Business Requirements	2
Enrollment & Wish Intake	2
Wish Fulfilment	3
Assignment	4
"4 Weeks - 4 Scenarios" Challenge	5

Scenario

The spirit of "Digital Transformation" and "Customer Experience" has reached the North Pole. Santa is pumped after Marc Benioff himself gave her a product demo during last year's Dreamforce. As the CEO, Mrs. Santa Claus is on a mission to make Santa Corp. ("SC") the most child-centric Santa operation in the entire universe.

Incredibly impressed by the only organization that can get remotely close to her operations' size, Amazon, she is heavily invested in automating the entire Child Christmas Experience (CCX) from wish-intake to drone-enabled wish-delivery. Instead of riding in the cold night delivering gifts herself and freezing off her bare cheeks, she envisions 25 airborne fulfillment hubs, aka airships, from which 2,000 drones deliver the gifts - giving the term "drop shipping" an entirely new meaning.

Rudolph, the one with the red nose, is in charge of the program's execution called "RoboSanta." For the pilot, SC has selected a district with 2,000,000 children. No child has to enroll in the program but will be

encouraged to benefit from the new CCX. The new solutions must be accessible from mobile devices and the web browser.

- **Outcomes-Optimization-Elfs (DOE)** - 1,000 elves support and guide children on how to improve their overall “Deeds Score.”
- **Fulfilment Elfs (FE)** - 2,500 FEs coordinate the shipping of the gifts onboard the airships.
- **Drone-Repair-Elfs (DRE)** - 75 DREs are responsible for repairing and replacing the 10,000 delivery drones. When a drone is out for delivery and needs repair, one of the 3 DREs will be dispatched on his reindeer to fix it.
- **Children** - The district SC has selected for the pilot of RoboSanta 2,000,000 eligible children.

Santa Corp uses the following systems:

- **“Child Deeds Tracker” (DTE)** - a custom built in-house system to keep track of everything each child (2.2 billion) has done over the year. It is crucial in determining each child’s eligibility to have their wishes fulfilled. With approximately 60 deeds per hour, the amount of data the underlying SOL database holds is gigantic. It supports a neuro-API that is directly integrated with Santa.
- **“Wish Matching Engine” (WME)** - an in-house JAVA application used to match items (wish) on a child’s wish list against Santa Corp’s product and service catalog. It provides a native REST API and webhooks. It is highly integrated with the different supplier systems, the product master database, and is manually curated by Admin-Elfs through a rich santaOS client.
- **“Drone Tracking App” (DTS)** - the manufacturer of the drone’s provides a tracking application. It is a Python application; customers can host and deploy it themselves. DTS is used to interact with the drones, receive GPS location updates every 10 seconds, and receive drone status alerts. SC is looking for a recommendation for hosting this application.

Business Process Requirements

Enrollment & Wish Intake

1. Research has shown that children start curating their wish-lists for the next Christmas as early as the previous Christmas day. Rudolph knows about the importance of user adoption and has decided that each child should receive a personal letter together with their gift, informing them about the program.
 - a. Letters are to be generated automatically from within Salesforce to ensure long-term scalability.
 - b. All children’s data is mastered in Santa’s mind. Being the perfect being she is, there are no duplicates. And something as mundane as a unique machine-readable identifier for each

child is foreign to her. No middleware known to humanity, not even Mulesoft, provides support for Neuro APIs yet.

- c. Whenever a new child is born, Santa becomes aware of it. Moving forward, new children should automatically be replicated into Salesforce. SC is asking for recommendations on how to synchronize frequent updates.
2. Children can register through the web or their mobile device by simply entering their email or cell phone number. If a matching user account already exists, the system should automatically redirect them to the login. Otherwise, they should receive a unique link via email or SMS to complete the registration.
3. The child should see a dashboard with it's "Deed Score" (DS) calculated from the total deeds since last Xmas. A list of monthly summaries for the previous 12 months, including each, should be accessible to them (naught, neutral, right).
4. Children can maintain their digital wish-list from the portal. Alternatively, they can upload a handwritten wish-list, which should automatically be converted. Each wish-list can contain up to 5 wishes.
5. For each wish, the WME proposes three gift options, depending on the children's DS. The list of gift options for each wish should be shown to the child. In case of a low score, the system should automatically provide a set of recommendations on how to improve the score.
6. If needed, the child can reach out to their designated ODE, helping them with personal guidance to optimize their Xmas outcomes. ODEs are often dealing with extraordinarily stubborn or entitled kids who do not accept options proposed by WME, which is incredibly draining. SC are looking for a way to reduce the number of interactions while still providing guidance.

Wish Fulfilment

1. Starting September, the system should automatically calculate the probability of each gift option being fulfilled, based on the child's DS. SC Workshop leadership team needs to forecast demand and plan production. They are open to recommendations for making this available but made clear CSV or Excel were not an option.
 - a. If a child's DS has changed and they are now eligible for a better option, they should receive a notification either via email or WhatsApp on the same day.
2. On Christmas eve and with a supernatural process not describable in human language, not even mathematics, all the gifts are produced and loaded into airships. Some rumors say Santa bends time with sheer willpower; in any case, Salesforce is part of it and generates the QR code labels printed on each gift.
 - a. When loaded onto the ship, the Fes scan the gift's QR code with their mobile device scanner, and the status in Salesforce should be set to "In Transport."

3. Drones automatically pick up gifts and scan the QR code. Not only should this update the status to “Out For Delivery, but” it also links the gifts to the drone. So that in case of a crash, SantaCorp and replace them without interruption.
4. The drones have to retrieve coordinates and delivery instructions for each gift from Salesforce.
5. When a drone requires repair while in flight mode, it sends an alert with diagnostics data and its current GPS location before descending, the drone’s status in Salesforce should be set to “Maintenance Mode.”
6. The system must automatically notify an available DRE of the drone’s Airship on their mobile phone.
 - a. From their phone, they should be able to access alert details along with a map view of the drone’s location.
 - b. After reviewing the diagnostics, the elf has to decide whether it is safe for the drone to return to the airship on its own or it has to jump on its reindeer and recover it. With a simple button click, the elf can send the command to the drone.
7. Once the drone has dropped the gifts, it takes a picture as proof, uploads it into Salesforce, and changes the gift to “Delivered.”
8. SC wants to keep track of all the gifts the children have received from them for reporting and warranty purposes.
 - a. If a gift breaks, children should be able to reach out to SantaCorp to receive support.
 - b. Different SLAs apply according to the child’s DeedScore.

Assignment

1. List all the user and feature licenses required.
2. Design and draw the data model.
3. Calculate the data volume for each object.
4. Draw the System Architecture diagram.
5. Propose a migration strategy for the children’s data.
6. Propose an integrated approach for the deeds data.
7. List all integrations and evaluate integrations options and impacts.
8. For each requirement list:
 1. Considerations
 2. Assumptions
 3. Solution Options
9. How long would you suggest to store the gift options?
10. How would you model the delivered gift assuming the future implications?