Case Study

ATM Auxiliary Services

Background

An ATM is a sophisticated machine that provides essential services such as cash withdrawal, balance inquiry, PIN changes, and mini statements, among others. Since ATMs are geographically distributed across various locations, companies aiming to ensure smooth ATM operations must maintain back-office and field teams.

Given the usability of ATMs, several stakeholders are involved in various services. These services are mostly associated with the smooth functioning of ATM. But there are some other services which play a key role too like -

- **Housekeeping:** ATMs cleanliness is a very important aspect so a service request for housekeeping needs to be taken care of by a dedicated team.
- **Scheduled Resource Maintenance (SRM):** Each ATM has some other resources like VSAT, AC, Power system, Lights etc. and these resources are subject to scheduled maintenance.
- **Asset Audit:** ATM and their associated resources are expensive ones and need to be taken care of and schedule audit them so that organization can be aware about which asset is located at which place and their current condition.

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Challenges

- Involvement of various stakeholders like HSK, SRM and Asset vendors etc.
- Separation of data for different sets of stakeholders are eligible to access only their designated ATMs.
- Every stakeholder must see real-time status of their ATMs health and incident status if any.
- A user-friendly admin system specially for the operation's team to keep control of every open incident.
- Complete details of an incident and their status must be provided to higher level authorities to ensure the quality of work in a timely fashion.
- Asset audit questionnaire requires a fluid structure so that any kind of question can be created and organize them in a structured way so that auditors can perform audit with ease.
- It is difficult to generate reports on fluid questionnaires because nothing is predefined.
- Audit questions have an option to upload images as proof of work and handling bulk image upload may cause performance issues
- Assets are identified by their respective QR code so mobile clients must fetch the respective data by QR code scan and pre-populate it in a noneditable way.

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Solutions

- Developed a comprehensive role-based permission management from the admin system and a SaaS based separation of ATM access.
- Developed a very complex incident listing based on almost all possible filter and sort option.
- Developed a sophisticated tracking system which collects every detail and activity performed on any incident by any stakeholder user.
- Developed a complex reporting engine which fulfils all reporting requirements for all stakeholder users and delivers reports in different formats.
- Developed a backend system which creates an audit template in such a way that the user can define - ○ Audit template so that many audits can follow it. ○ A template can have multiple pages to organize different questions.
    - Each page can have multiple questions with their order of appearance while audit is happening.
    - Many questions can be created like -
        - Input text
        - Dropdown
        - Ratio button
        - Image mandatory for question
        - Calculated question
        - Child question
- Complex reporting framework developed to accommodate fluid response.
- Added QR Scan feature to get basic detail of the asset.

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Technology Used:

- Backend
  - Microservices: Developed in Java Spring-Boot framework.
  - Database:
    - Asset Audit: MySQL for transactional data and master data
    - Ticketing: MS SQL Service
- Frontend
  - Web: Angular for a web admin system.
  - Mobile: Kotlin based native application for Android.
- Deployment
  - Web: EC2 of AWS.
  - Database: RDS of AWS

Benefits

- Able to track housing keeping ticket and report submission to respective team
- Able to track SRM tickets and report submission to respective teams
- Able to provide a solution which enables Auditor to perform audit onsite and submit responses real-time and shown to managers
- Able to develop a solution which can be used with any kind of asset and their audit can be performed in a similar fashion along with comprehensive reporting.

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