Rent-A-Center Kiosks Case Study

INDUSTRY
Merchandise rental services.

CHALLENGE
Rent-a-Center's ability to scale to 10000+ unmanned kiosks in retail outlets was impacted as the success rate of iOS based VAN application deployment to the kiosk's success rate was just about 50% and required manual/tedious remediation process.

SOLUTION
Analysis resulted in Process Enhancements and Implementing of AWS IoT based "Kill Application" solution to improve the success rate to 99% has been implemented successfully.

RENT-A-CENTER

Rent-A-Center is a furniture and electronics rent-to-own company that offers new and used brand-name furniture, appliances, computers, and other electronics to customers.

Rent-A-Center (RAC) is a Fortune 1000 company operating more than 3000 stores in the United States, Canada, Puerto Rico, and Mexico.

RAC provides ease of use and an enhanced experience to its customers using Kiosks at approximately 2000 store locations across the country and has ambitious plans to increase the number of unmanned kiosks to greater than 10,000. All the kiosks are based on Apple iPad technology and are updated with new features on a regular basis.

Increasing the reliability and performance of the deployment the VAN application to kiosks is key to meeting the service levels required by the company.

CHALLENGE
Rent-A-Center's plans to increase unmanned kiosks running the VAN application were challenged due to the error-prone MDM based application deployment process. The current process only achieved a deployment success rate of about 50% and the rest of the devices required manual intervention. BizCloud Experts was engaged to perform root-cause analysis and recommend a solution that would increase the reliability of process to a 99% success rate.

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Rent-A-Center's kiosks are managed by an MDM solution running on a shared platform. The application itself is configured to run on Single App Mode (SAM) for security reasons. The deployment process includes dropping the kiosks out of SAM, killing the application, and pushing the update from MDM. Analysis of data identified the following issues:

- Majority of the kiosks do not drop out of the SAM Profile
- Apple restarts the application on kill, when in SAM
- MDM does not provide the accurate real-time visibility to track the devices which haven't dropped the profile
- No access to the device logs in production

Application deployment failure occurs when the app is still running or restarting in SAM. This resulted in success rates being sometimes as low as 50% on the first attempt, requiring manual remedial and re-planning process.

SOLUTION

Based on analysis, it was clear that the solution had to reliably take the application out of SAM, have a better visibility to device status, ensure that the application was killed gracefully, and deploy the application.

To reliably take the application out of single app mode, a new profile was created that would cause the MDM tool to push the profile that removes the Kiosk out of SAM. This would allow the deployment team to clearly track the number of kiosks using the SAM Profile vs. the Non-SAM Profile.

To kill the application, BizCloud Experts enabled the VAN application to act like an IoT Endpoint using AWS IoT SDK. All app instances are now subscribed to a "Kill" topic. When the kill command is issued, the application gracefully exits. Additional functionality to "Kill" devices based on UUID was created to kill specific application instances or groups of application instances instantaneously based on message payload. The kill process was secured end to end using certificate based authentication.

To ensure and measure the success rate, CloudWatch monitoring has been enabled, and it provides the statistics of the connected devices. Application level logging was enabled to record when the application starts, refreshes, or crashes. When it does so, a log message is sent to Kibana. These logs were used measure the success rate of deployment.

The final step was to restore the app to SAM. This was done by pushing the SAM Profile by MDM.

RESULTS

Early release results indicated that Rent-A-Center has achieved a near 100% VAN application deployment success rate. Now, RAC has additional flexibility to push the update to specific kiosk or kiosk groups and full visibility to the status of every VAN application instance.