



SUCCESS STORY.

API Performance Testing For IoT Enabled Thermostat

About the Client

The client is the consumer and home products division of a Fortune 100 company. With more than 127,000 employees worldwide they manufacture products and technology for a wide range of industrial, commercial and consumer applications in industries ranging from Aerospace, Energy, Healthcare to Transportation systems, Building and Construction as well as Consumer home products.

The client's latest range of internet enabled Thermostats enabled remote control from a computer, smart phone or tablet through a portal or mobile app provided by the client – with ability to control heating / cooling, system settings, and various other features

Once a customer account has been activated and linked to his home HVAC system, the service would allow customers access and control their HVAC systems from anywhere.

Business Challenge

- The client was gearing up a for a high profile US launch, and wanted to ensure performance to the highest standards through **rigorous testing**
- **Key concern areas** were response time and communication reliability across multiple devices and platforms

Communication between thermostats and the remote server was facilitated by in-house developed API plugins. API's enabled consumers to connect to the portal for Account management, location management, Thermostat configuration and remote programming of the thermostat.

The client approached Infogain for ensuring the **API's were thoroughly tested for response time and communication integrity**, across mobile and web platforms.

Infogain Solution

AUTOMATED TESTING

- **Automated QA** to ensure each API adheres to less than 5 milliseconds response time
- **Jmeter** : Automated test scripts for web and mobile platforms were written and executed on Jmeter
- **Dashboard** : API management software product

Integration of the testing platform (Jmeter) with the server was implemented using the API certificate to connect to the thermostats. The client wanted Infogain to First demonstrate the proof of concept by developing test scripts that worked with the technology. After developing and checking these test scripts, the team deployed them in the client's testing environment to execute the QA testing project.

The test scripts were developed to automate the testing for different functions that would be performed on the thermostat. Different test environments were created on the testing platform for the various OS versions as well as the mobile app versions of the test server.

The following services were tested for performance:

WEB APIS

- Account Management: APIs to allow Account creation, activation, modification
- Location Setup: Create and modify location service which allows user to create multiple locations
- Thermostat Programming: APIs to change heating setpoints, getting settings for humidifiers etc

MOBILE APP APIS

- APIs to view and modify settings such as Thermostat humidification settings, fan settings, Weather forecasts, Programming schedule

MANUAL TESTING

Manual testing was performed in over 130 desktop, mobiles, tablet devices across different web and mobile operating systems in order to ensure compliance and quality across devices and OS platforms.

Technologies Used



TESTING
Jmeter



THIRD PARTY TOOLS
Stashboard for API management



DEPLOYMENT
Google app engine



CI
Jenkins

Client Benefits

AUTOMATED TESTING EFFICIENCY

Infogain automated a significant part of the QA process, leading to greater speed and efficiency in completing the project. The QA test scripts performed the task properly allowing for efficient and speedy execution of the performance testing plan.