Demo: An IoT & Big Data System for Understanding-based Real-time Pet Care

Karpjoo Jeong (jeongk@konkuk.ac.kr)

Yongnan Wen (yongnan0809@hotmail.com)

Department of Software, Konkuk University

Background

- **Pet care** is one of the most fast-growing business s ectors in Korea
  - One of five households live with dogs or cats
- The **PetBuddy** Project (Sep. 2016 ~ Aug. 2017)
  - The **Halla Group** and **Mando-Hella Electronics** (the auto parts and control system manufacturers) proposed **an pi lot project to explore possibilities to apply their sensor technologies to the other IoT sectors**
- The **interdisciplinary research** project
  - School of Software, Konkuk University
  - College of Veterinary Medicine, Konkuk University
  - Sensor Group, Mando-Hella Electronics

Marie I adopted during this project

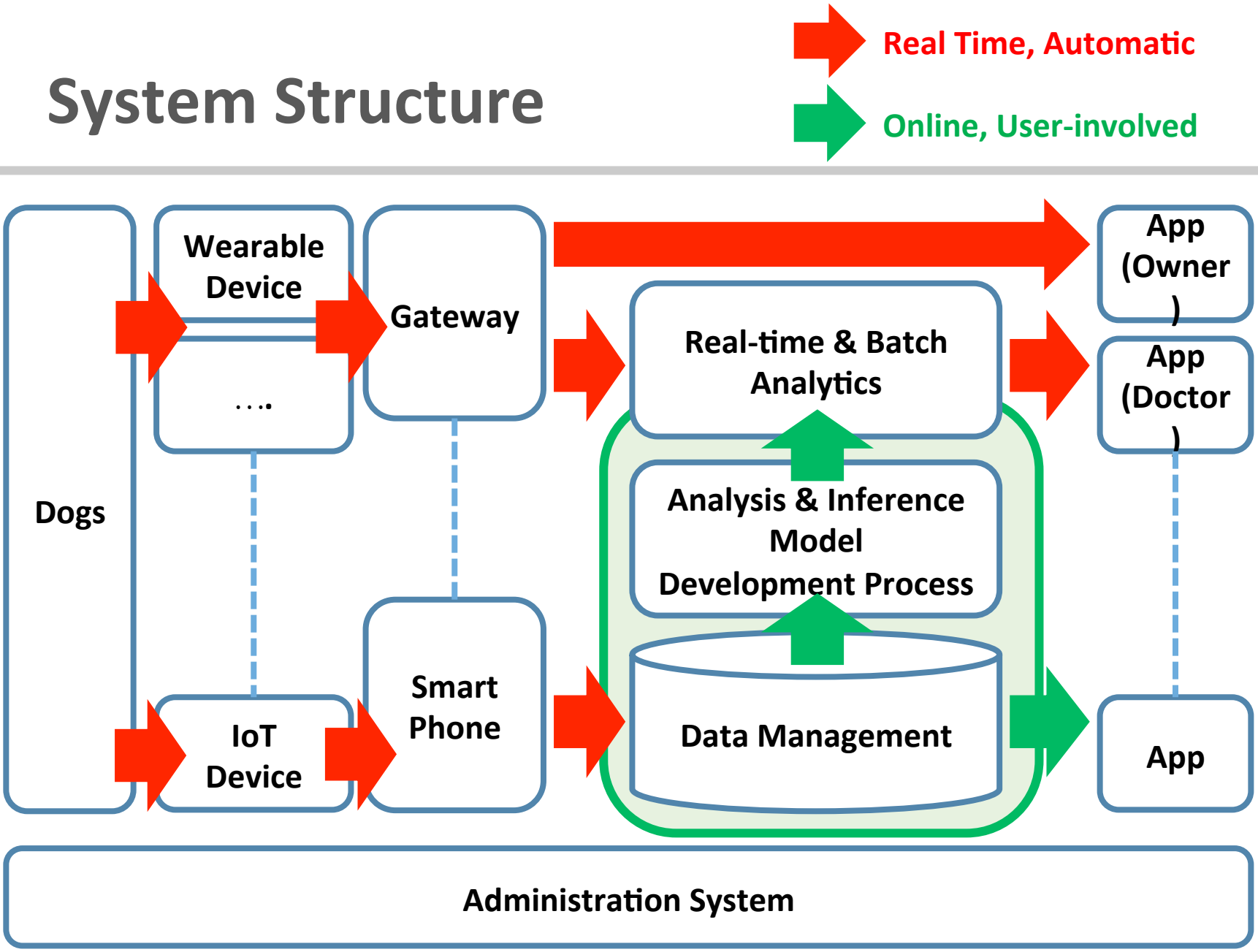
Motivation for Our Project

- (**Love**) Many people think of **their dogs as their imp ortant companions** and want to take a good care of them
- (**Communication**) Sadly, dogs can't, however, spea k in human languages but **express their feeling as b arking and actions**
  - It is difficult for most humans except dog specialists to u nderstand dogs' expressions
- (**Sufferings**) These, many urban dogs are **left alone home during day time** if their owners are working c ouples or single person families. Those dogs often **s uffer from various anxiety problems**

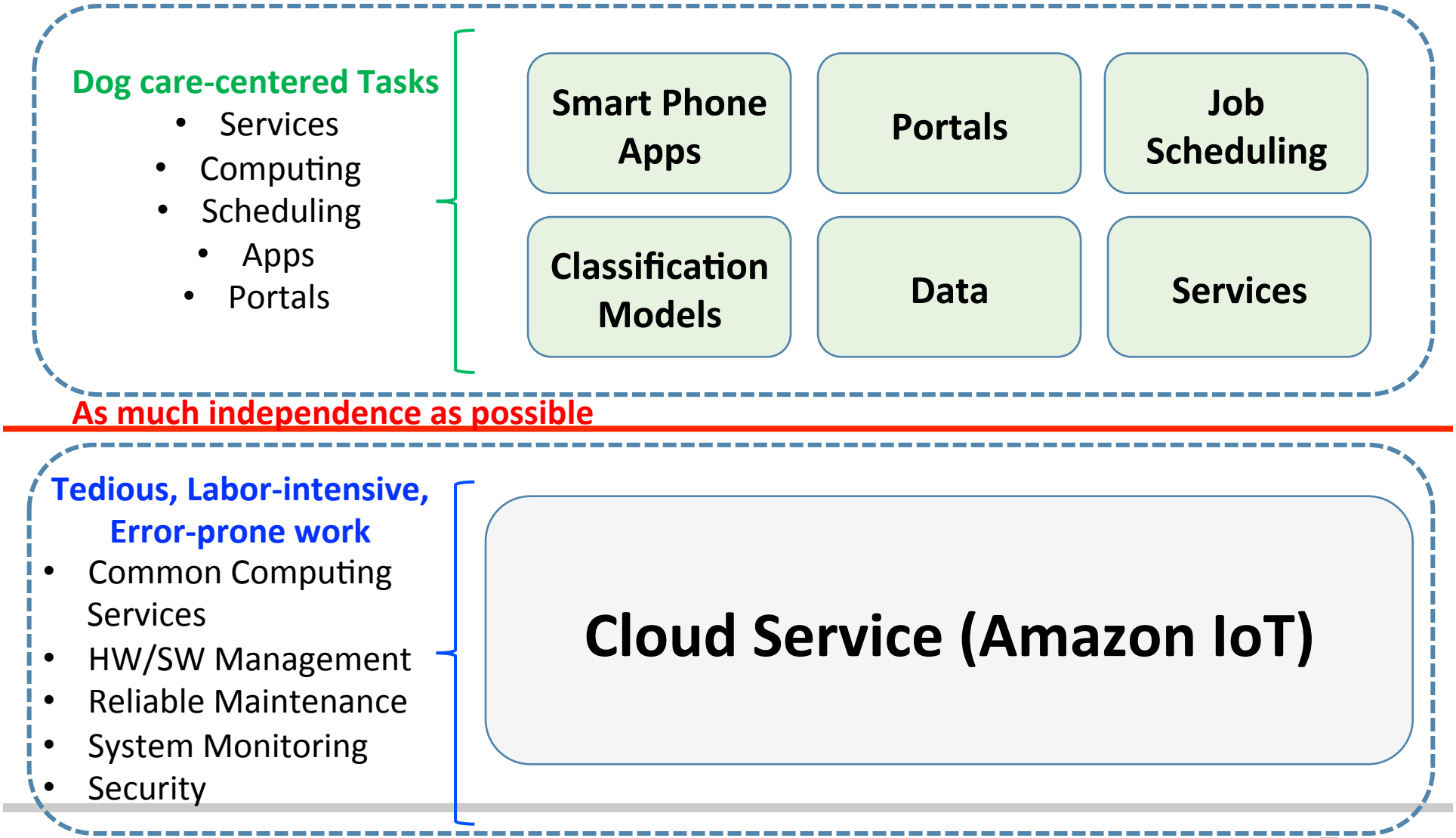
Our Approach

- (**Activity Monitoring**) Use **IoT technologies to monitor** dogs' actions as much as possible
  - Humans can't monitor dogs for 24/7
- (**Activity Pattern Recognition**) Use **big data technologies to discover patterns between dogs' actions and their metal or physical states**
- (**Real Time Understanding of Dogs' State**) **Integrate real time activity monitoring and activity pattern analysis** for understanding dogs' states in a real time manner
- (**Understanding-based Dog Care**) Find what make dogs happier, based on such understandings

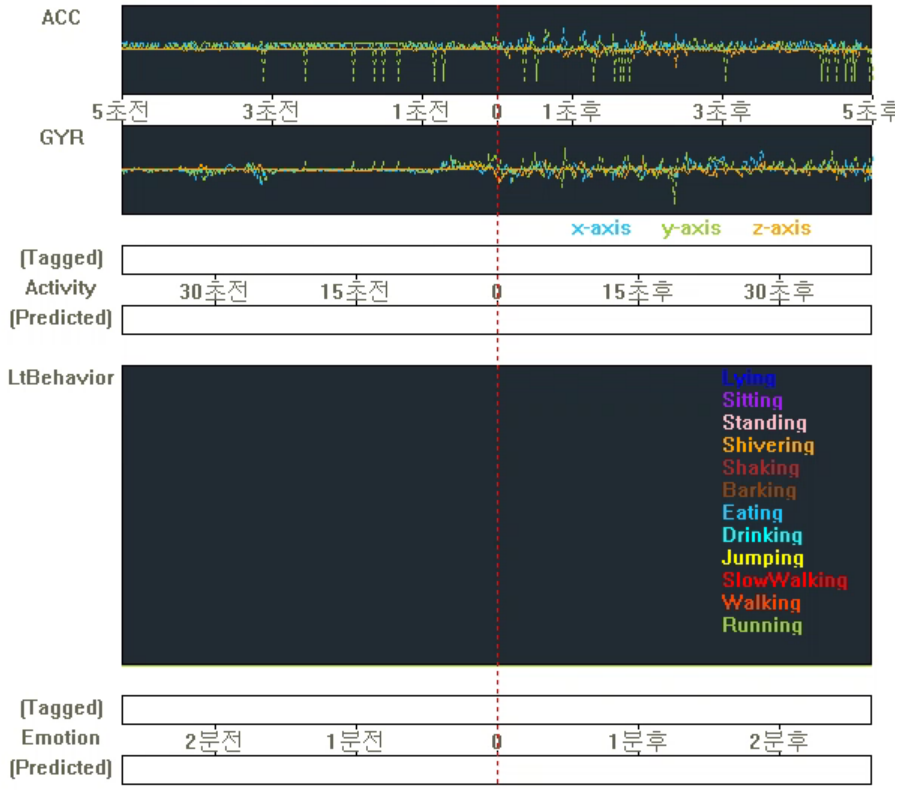
System Structure



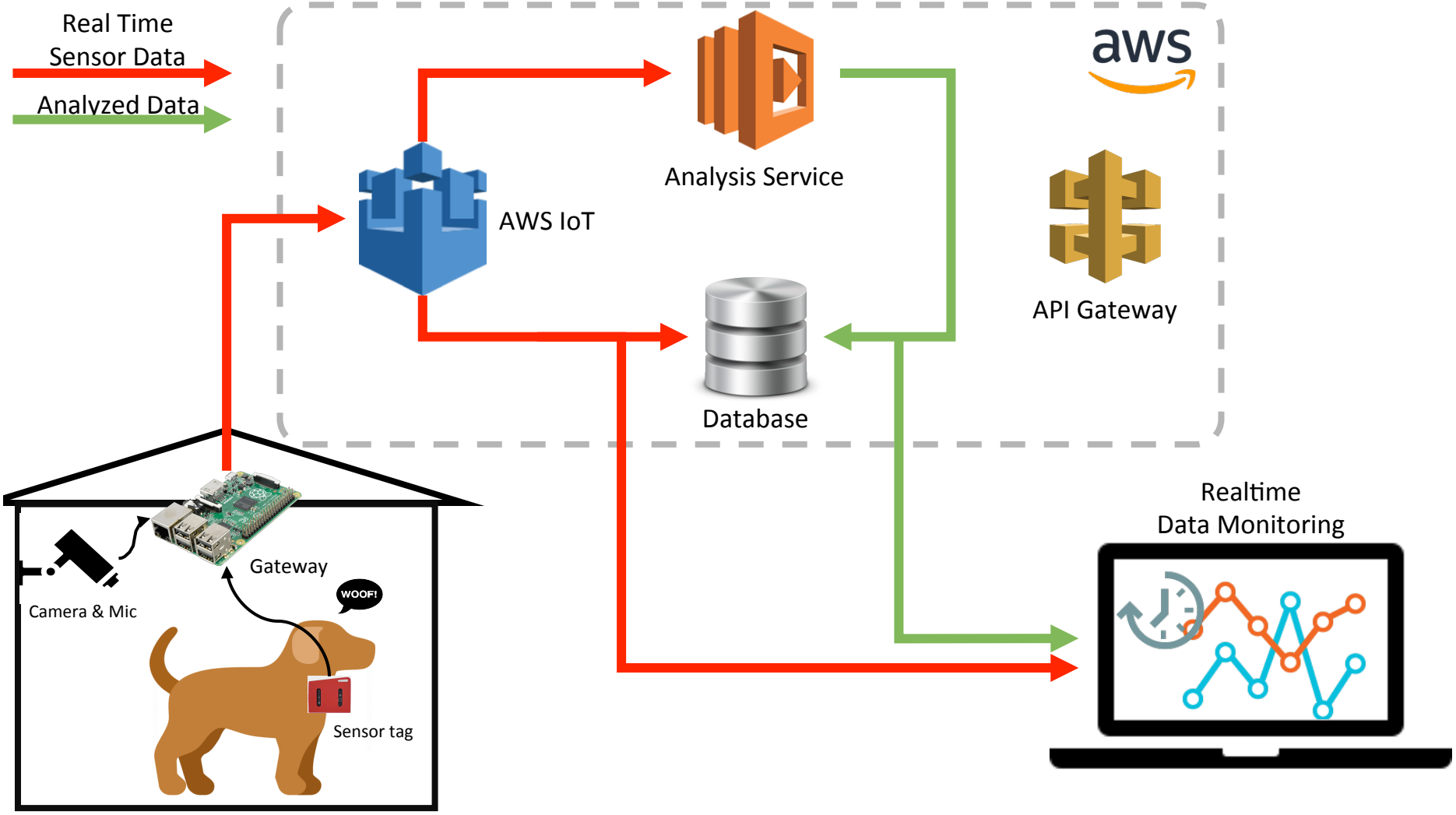
Cloud-based Implementation: Two-Tier Desig n



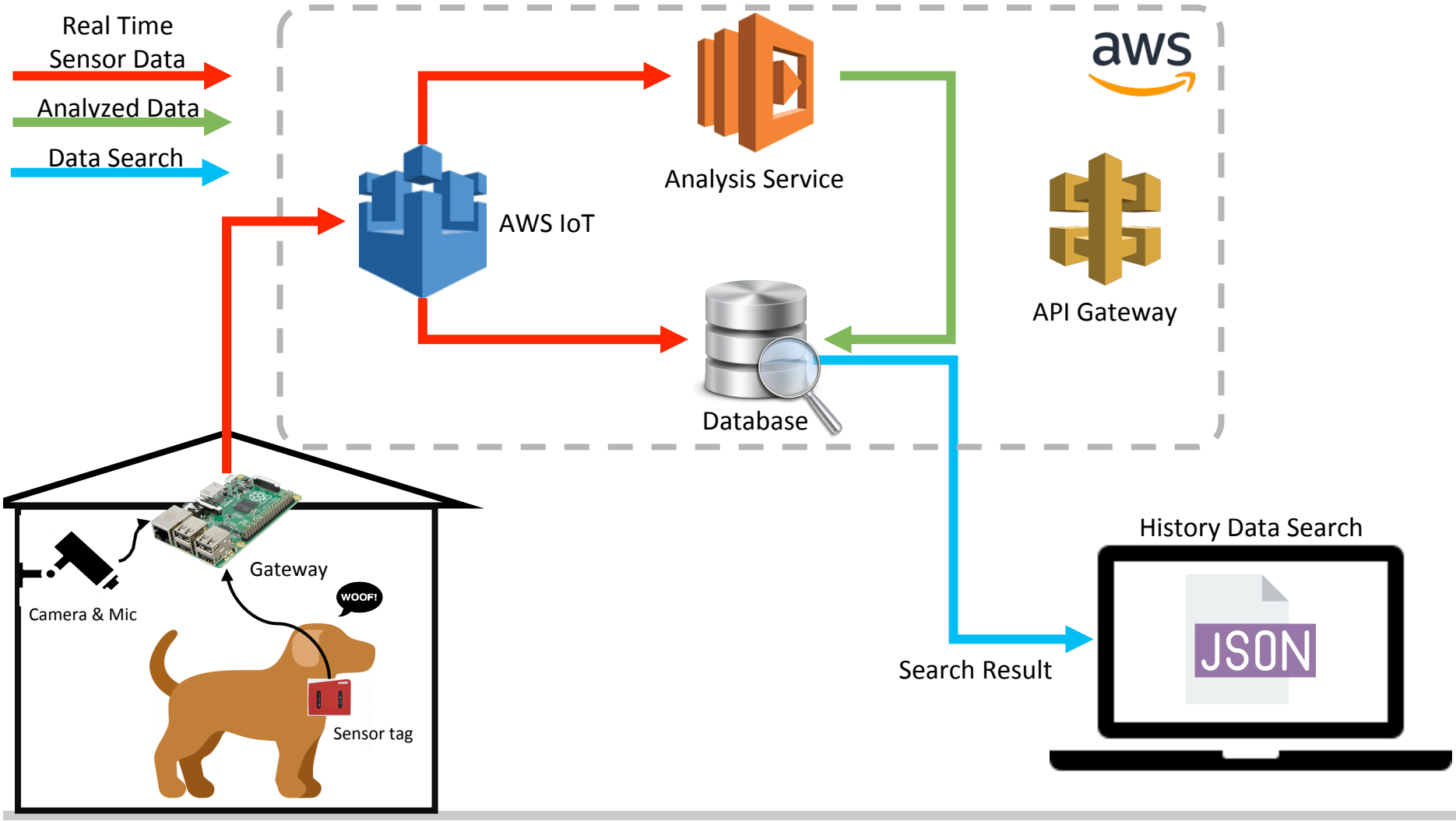
Demo: Data Collection



Demo: Real Time Monitoring & Analysis



Demo: Data Management & Search



Demo: Environment Monitoring & Remote C ontrol