Open Retail Reference Architecture

Project Information

Digital transformation in the retail industry is accelerating. It's no longer enough for retailers to have an on-line presence. Retail's next wave is powering innovative in-store experiences. New ways of enabling store safety, facilities and equipment maintenance, custom and personalized services, inventory management and replenishment, digital signage and electronic pricing labels, and advanced forms of self- and automated-checkout all require increasing digital capabilities.

And, more often, these capabilities need to be created and performed in the store and at the edge. In-store AI, analytics, or process automation becomes increasingly important. Local processing is critical to ensure consistent and real-time interactions, reduce the overhead of transmitting large amounts of contextual data to the cloud, including removing potentially sensitive and private information from that data; and enable business continuity in the event of network outages. All these capabilities require in-store (and within device) compute resources to deliver a modern store experience. Whether powering POS terminals, information kiosks, digital signs, intelligent cameras and other sensors, automated refrigeration, stock handling, and even intelligent shopping carts, innovation will continue to grow in the years ahead.

These innovations reveal a critical gap in existing retail store infrastructure. What's needed is a platform for retail industry vendors to work together and deliver solutions with unique value that share a common infrastructure. To respect the limited footprint and cost constraints of a typical retail outlet, solutions must be easy to integrate, leverage common security practices, and offer a consistent approach to support and service. In short, the industry needs a framework that supports a collective and coherent ecosystem.

This vision is what inspired the creation of an open source framework within the EdgeX Foundry umbrella to enable collaboration within retail industry ecosystem, as visioned by the Open Retail Initiative.

Goals

The goal of this project is to create:

1. A base foundation of retail-centric APIs at cloud and edge for building best-in-class retail experiences (that allow multiple vendors, suppliers and projects to both utilize and implement the APIs)
2. A common application deployment platform for edge-native deployments (to minimize validation and integration testing required)
3. Consistent integration methods, drawing on cloud-native development practices (so that integrating applications and data at the edge uses the same technology as at the cloud)
4. A comprehensive set of connectors for retail IOT devices
5. A community based on OSS principles to enable higher velocity of innovation

Further Information

For an introduction to the purpose and goals of ORRA by representatives from IBM, Intel, HP see the recording of the February 23rd, 2021 meeting.

ORRA Deliverables

- ORRA Reference Architecture 20210806.pdf
- ORRA Reference Architecture Diagram 20221027.png
- ORRA Simple Demo
- ORRA Overview presentation

Blog Posts

- Introducing the Open Retail Reference Architecture

Key Project Facts

Project Approval Date: 1/12/2021

Project Chair: Arnaud Le Hors (IBM)

Project Co-chair: Jesús Centeno (Tibco)

Project Secretary: Susan Jefferson (IBM)

Initial Maintainers: Joe Pearson (IBM), Brad Corrion (Intel), Henry Lau (HP Inc)

Participating Companies: Age@Home, Beechwoods, Canonical, HP Inc, IBM, Intel, IOTech Systems, Tibco

How to Get Involved

We welcome your participation and contribution. We welcome all roles and players in the retail ecosystem, as we recognize that deploying a cloud to edge retail deployment is made up of many companies and products. A primary concern of the architecture is making it easy to integrate multi-party solutions, adopt APIs, and share data, at all points from the edge to the cloud. Your input, opinion and advice is necessary and your participation is requested.

What to do:

Join ORRA at https://lists.edgexfoundry.org/g/EdgeX-ORRA, which may require the creation of a Linux Foundation ID (LF ID). When you join, please send a brief introductory email introducing yourself and your organization. If you have specific material contributions you would like to make to the creation, maintenance, and enhancement of this project, please describe those as well.

To send messages to the project, use the ORRA mail alias: EdgeX-ORRA@lists.edgexfoundry.org

You can visit your group, start reading messages and posting them here: https://lists.edgexfoundry.org/g/EdgeX-ORRA

You can set your subscription settings here: https://lists.edgexfoundry.org/g/EdgeX-ORRA/editsub. You can opt to receive: all messages in individual emails, collections of messages in a digest, a daily summary, or only special notices.

If you do not wish to belong to this group, you may unsubscribe by sending an email to: EdgeX-ORRA+unsubscribe@lists.edgexfoundry.org

Github Repository: https://github.com/edgexfoundry-holding/orra

Slack: We use the #vertical-solutions channel of the EdgeX Foundry slack server https://edgexfoundry.slack.com/archives/CE48X1N2V

Google Drive: https://drive.google.com/drive/folders/1Oi8s52o4Fe6cSllhjWuQp32mbh5f7Bnm

ORRA Work Items

- Reference Architecture Working Draft
  - ORRA-Arch.vsdx (Visio)
- Platform
- Demos
  - Requirements and Use Case/Scenario
  - Code
- Draft Blog post

Project Meetings

As of January 2023, no regular meeting is scheduled anymore. If you'd like to have one, please, reach out to the group by sending an email to the mailing list or giving a shout on the slack channel.

- 2022-01-20 Meeting Record
- 2022-02-03 Meeting Record
- 2022-02-17 Meeting Record
- 2022-03-03 Meeting record
- 2022-03-17 Meeting notes
- 2022-03-31 Meeting notes
- 2022-04-14 Meeting notes
- 2022-04-28 Meeting notes
- 2022-05-12 Meeting notes
- 2022-05-26 Meeting notes
- 2022-06-09 Meeting notes
- 2022-08-04 Meeting notes
- 2022-09-01 Meeting notes
- 2022-09-15 Meeting notes
- 2022-09-29 Meeting notes
- 2022-10-27 Meeting notes

Older records:

- 2021-02-23 Meeting Record
- 2021-03-18 Meeting Record
- 2021-04-01 Meeting Record
- 2021-04-08 Meeting Record
- 2021-04-15 Meeting Record
- 2021-04-22 Meeting Record
- 2021-04-29 Meeting Record
- 2021-05-06 Meeting Record
- 2021-05-13 Meeting Record
- 2021-05-20 Meeting Record
- 2021-05-27 Meeting Record
- 2021-06-03 Meeting Record
- 2021-06-10 Meeting Record
- 2021-06-17 Meeting Record
- 2021-06-24 Meeting Record

- 2021-07-01 Meeting Record
- 2021-07-15 Meeting Record
- 2021-07-22 Meeting Record
- 2021-07-29 Meeting Record
- 2021-08-05 Meeting Record
- 2021-08-12 Meeting Record
- 2021-08-19 Meeting Record
- 2021-08-26 Meeting Record
- 2021-09-02 Meeting Record
- 2021-09-09 Meeting Record
- 2021-09-23 Meeting Record
- 2021-10-07 Meeting Record
- 2021-10-21 Meeting Record
- 2021-11-04 Meeting Record
- 2021-11-18 Meeting Record
- 2021-12-02 Meeting Record
- 2021-12-16 Meeting Record