Zebra
DevCon 2023

# Embracing API First – Reflexis Task Management APIs

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Engineering Manager, API Management

Software-as-a-Service Platforms

## Agenda

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1. Background
   - Code-First to API-First
2. Data Modeling for Zebra Software
3. Reflexis Task Management
4. API Information
5. Demo
6. Closing

# SaaS Solutions at Software Solutions BU

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| Zebra **Timekeeping**™ Zebra **Scheduling**™ | Zebra **Task Management**™ | ZEBRA \| antuit.ai | Zebra **Workforce Communication**™ | Zebra **Inventory Visibility**™ | Zebra **Actionable Intelligence**™ |
|---|---|---|---|---|---|
| • Optimizes labor spend and maximizes efficiency<br>• Employee Self Service<br>• AI-powered labor budgeting, forecasting and scheduling | • Intelligent workload optimization<br>• Streamlines communication, improves task execution, tracks compliance<br>• Analytics and reporting | • AI-powered demand planning and execution<br>• Forecasts and optimizes omnichannel inventory and merchandising<br>• Enhances assortment planning | • Seamlessly connecting associates consumers, assets, analytics and corporate employees<br>• Voice communications for employee productivity<br>• Increase efficiency, productivity, and associate engagements | • Maximizes productivity and ensure associates are fully utilized<br>• Minimize out of stocks<br>• Identify theft & shrink and prevent loss | • SaaS offering enables full store physical invent self-scanory audits<br>• Improves in-stock visibility<br>• Identify and manage shrink |

Solutions for Front Line Workers in retail, retail banking, hospitals, travel and leisure and consumer goods

# What is API-first?

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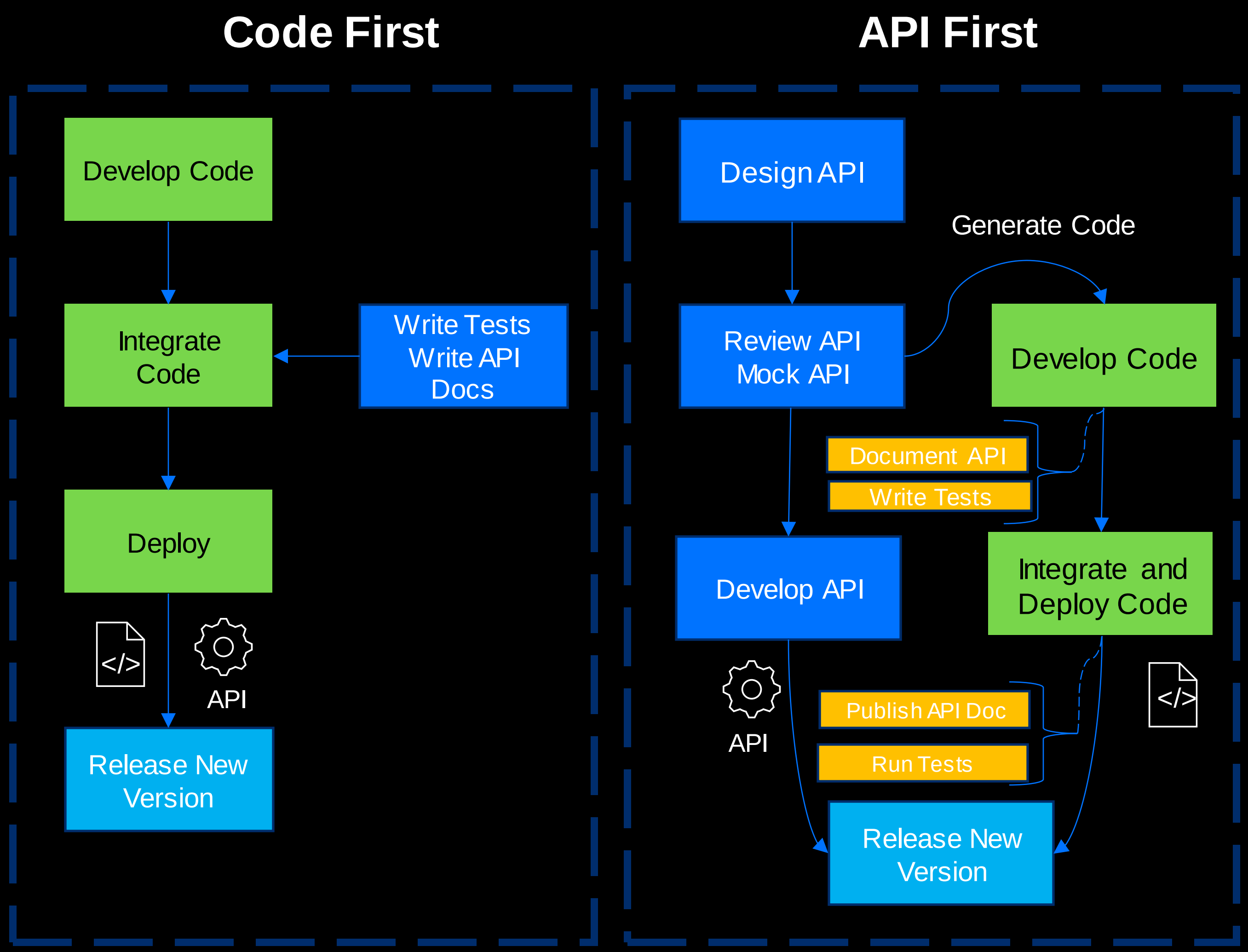
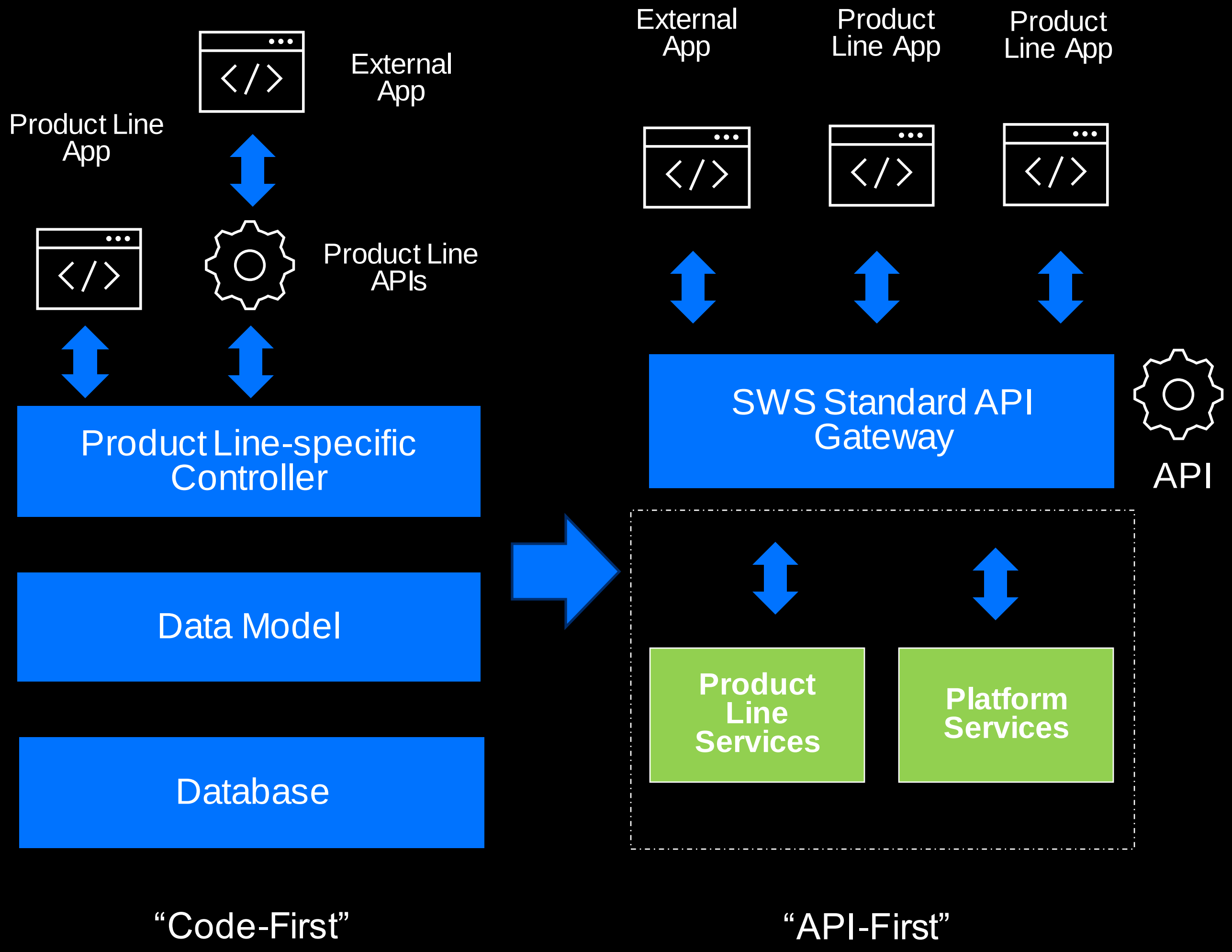
- The API is designed and documented before any code is written.
- Separate out workstreams and personas
  - The production of APIs
  - The consumption of APIs
- Benefits include
  - Apps that share the APIs can more easily interoperate
  - Third-party developers can leverage the APIs to build their own solutions



# Internal Challenge – From Code-First to API-First

- Challenge – Many Product Lines have their own tech stack, built on Code First and API Second, making it hard to share logic and slowing down innovation
- As a BU, we need to
  - Drive efficiency by combining common efforts across product lines
  - Want to release more often and decrease build time
  - Reduce blast radius of errors
  - Scale better under load
  - Internal Consumers of APIs - Accelerating and orchestrating next gen efforts within the BU



## Using Internal API Program to Drive Technology transformation

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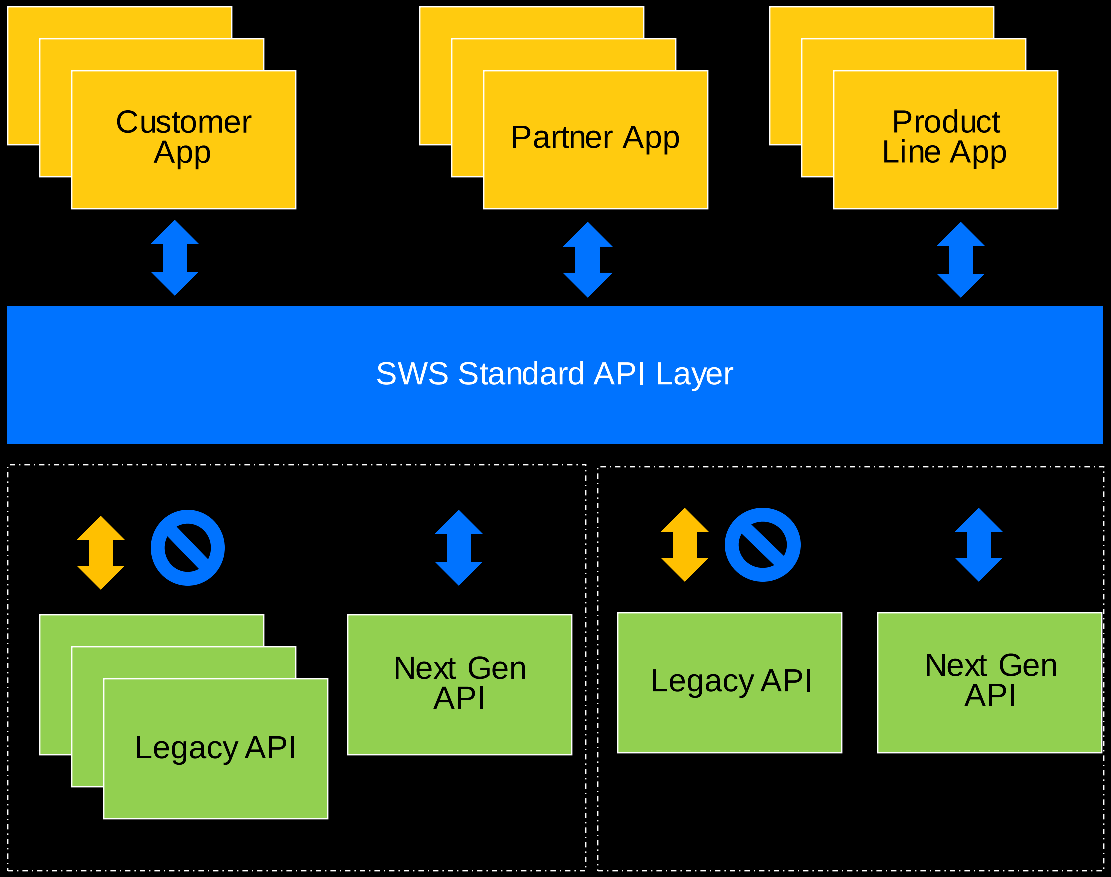
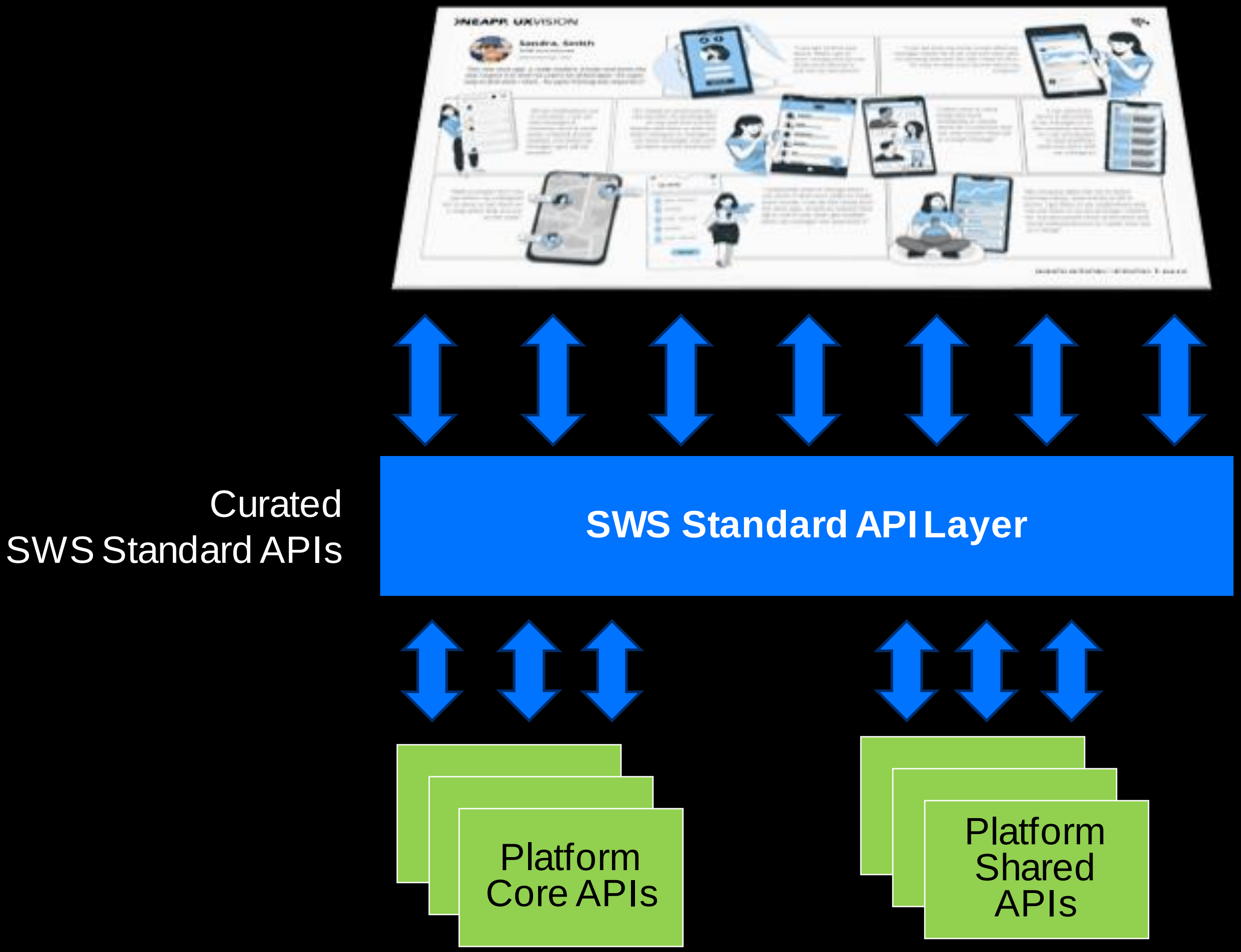
- Publish APIs using Pan-Zebra Standards. Refactor where needed.
- Continue to support legacy APIs while migrating customers to the Standard API Layer
- Swap Legacy APIs out, for Next Gen (internal) APIs over time
- Deprecate Legacy APIs per business needs and priorities



# Driving external APIs for use cases in our customer's industries

- Focus on Retail, Banking, and Healthcare
- Identify Key Personas and Jobs-to-be-done
- From the Jobs-to-be-done, develop Customer Journeys and User Story Maps
- Establish roadmap based on priority



# User Journey for Each Persona

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| | | | | | |
|---|---|---|---|---|---|
| API Consumer | Discover | Evaluate | Integrate | Monitor | |
| API Admin | Set Standards | Review APIs | Observe Governance | | |
| API Builder | Design | Build and Deploy | Test and Monitor | Publish and Monetize | Analyze |

# Journey to Headless API for External Consumers

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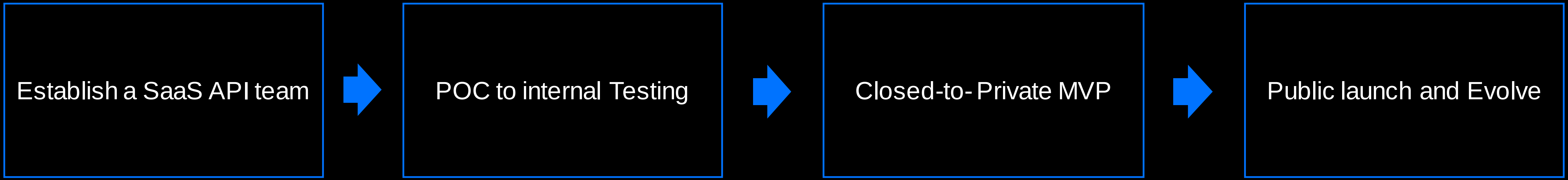


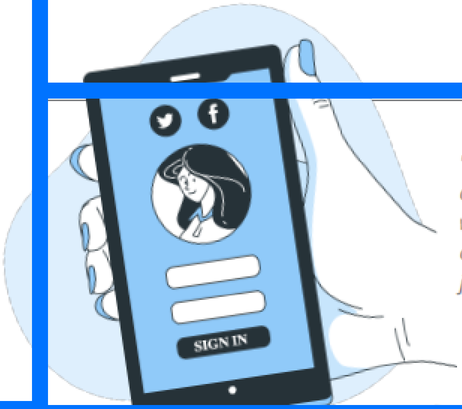
# ONEAPP. UXVISION

## Sandra, Smith

ACME Store Associate

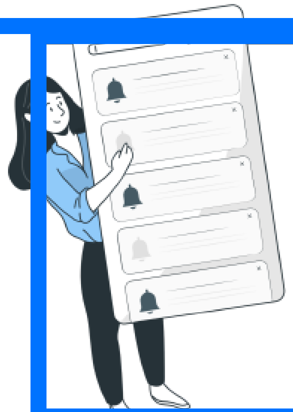
Zebra One App. User

*"Our new store app. is really modern, it looks and works the way I expect it to 'and I've used a lot of bad apps.' It's super easy to find what I need... No (epic) training was required :)"*



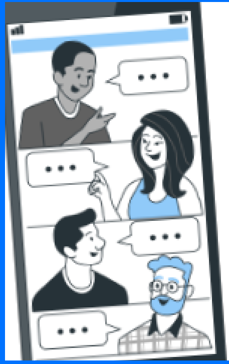
*"I can sign in from any device. When I get to work I simply pick up one of the store devices or just use my own phone"*

*"I can see from my home screen what my manager needs me to do now and next, who I'm working with and the info I need to do it. It's easy to keep track of and report my progress"*



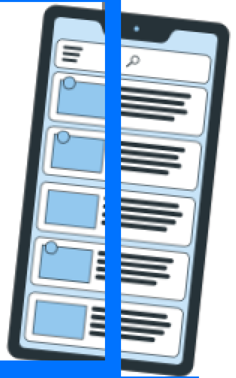
*"All my notifications are in one place, I can see new messages & reactions, work & social posts, schedule & task updates, and when my manager signs off my vacation"*

*"It's simple to communicate, I can see who I'm working with on any task and connect directly with them or with any other colleague or manager. I can send messages now and set them up and send later"*

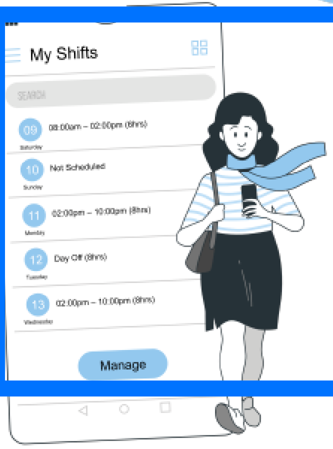


*"I often need to check things like stock availability in nearby stores for a customer and can now contact them all in a single message"*

*"I can search for forms & documents in my messages or on the company servers, so I can quickly find & view anything I need and share with my colleagues"*



*"With a simple click I can see where my colleagues are in store or see them on a map when they are out on the road"*



My Shifts

SEARCH

09 08:00am – 02:00pm (8hrs)
Saturday

10 Not Scheduled
Sunday

11 02:00pm – 10:00pm (8hrs)
Monday

12 Day Off (8hrs)
Tuesday

13 02:00pm – 10:00pm (8hrs)
Wednesday

Manage

*"I frequently need to change when I can work or find more shifts to make extra money. I can do this easily from the store app. as well as request time off or call in sick, and I get notified when my manager has approved it"*

*"My company often ask me to watch training videos, read articles or fill in forms. I get these in my notifications and can see them in my list of things I need to do. I've also joined many of the work and social network forums so I never miss out on a thing!"*

Phil Starr, UX Design 05.09.23

INNOVATIONDESIGN | DMO

## Best Practices for data modeling

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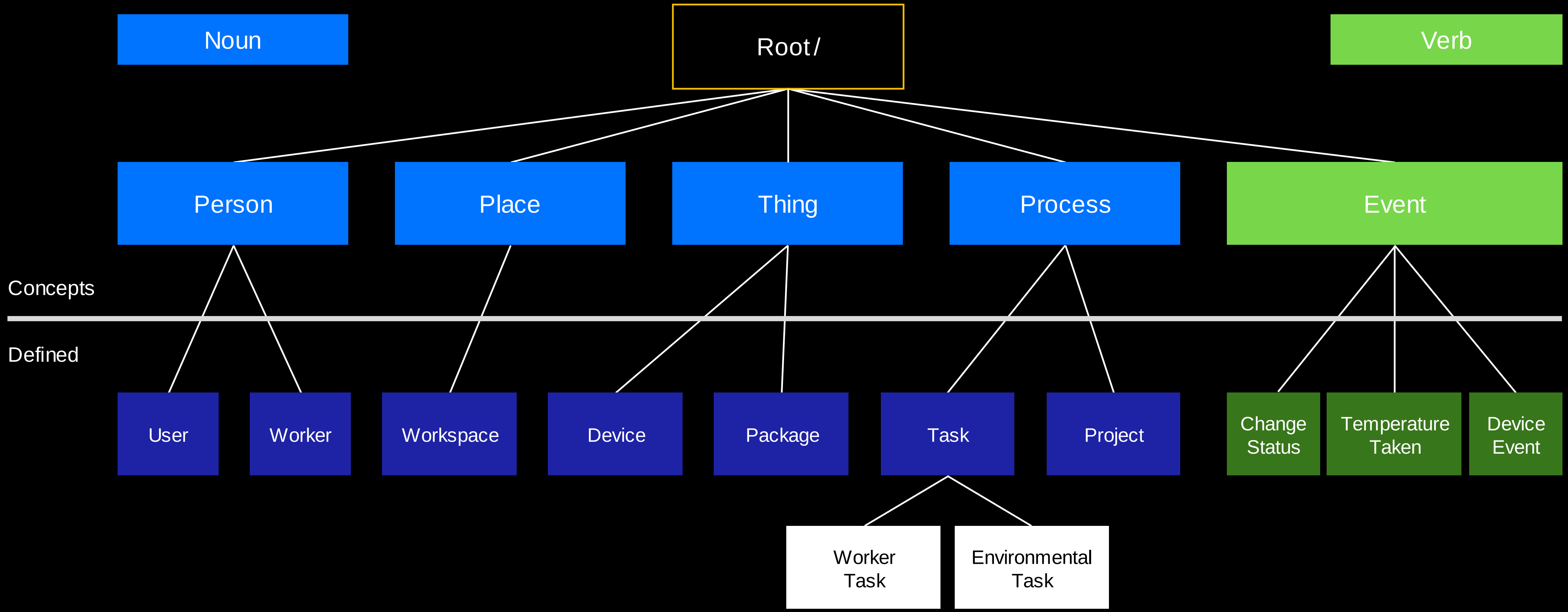
- **Adaptability** — creating schemas that withstand enhancement or correction
- **Expandability** — creating schemas that grow beyond expectations
- **Fundamentality** — creating schemas that deliver on features and functionality
- **Portability** — creating schemas that can be hosted on disparate systems
- **Exploitation** — creating schemas that maximize a host technology
- **Efficient Storage** — creating optimized schema disk footprint
- **High Performance** — creating optimized schemas that excel
- The resource shouldn't be more than 3 levels deep
- Resources should be defined in one clear word – two at most
- Actions can be treated as resource queues

## How to define the Zebra World

- A PERSON takes an ACTION in a PROCESS on a THING at a PLACE
- A THING at a PLACE takes an ACTION on a THING at a PLACE
- As part of a PROCESS, an EVENT triggers to ACTION a THING to a THING
- A THING ACTIONS an EVENT as part of a PROCESS

**Definitions**

- PROCESS: is a set of ACTIONS usually performed by a PERSON or a THING, such as tasks, projects, SoP, walkthroughs, customer service, etc
- PERSON: A human or group of humans that may or may not be a system user. An independent agent.
- PLACE: A physical or digital location such as stores, regions, departments, workspaces, shelves, or databases
- THING: Inanimate objects being used or acted upon such as devices, readers, printers, packages, or pallets
- ACTION: a verb. Resources can be queued to trigger an EVENT with an ACTION and ACTION can generate EVENTS or act on resources. Actions can be generic such as create, add, delete, update, or specific like print, login, enroll, trigger
- EVENT: The resource associated directly with an ACTION. Includes logs


Noun
Root/
Verb
Person
Place
Thing
Process
Event
Concepts
Defined
User
Worker
Workspace
Device
Package
Task
Project
Change Status
Temperature Taken
Device Event
Worker Task
Environmental Task

# RTM Task

## Model

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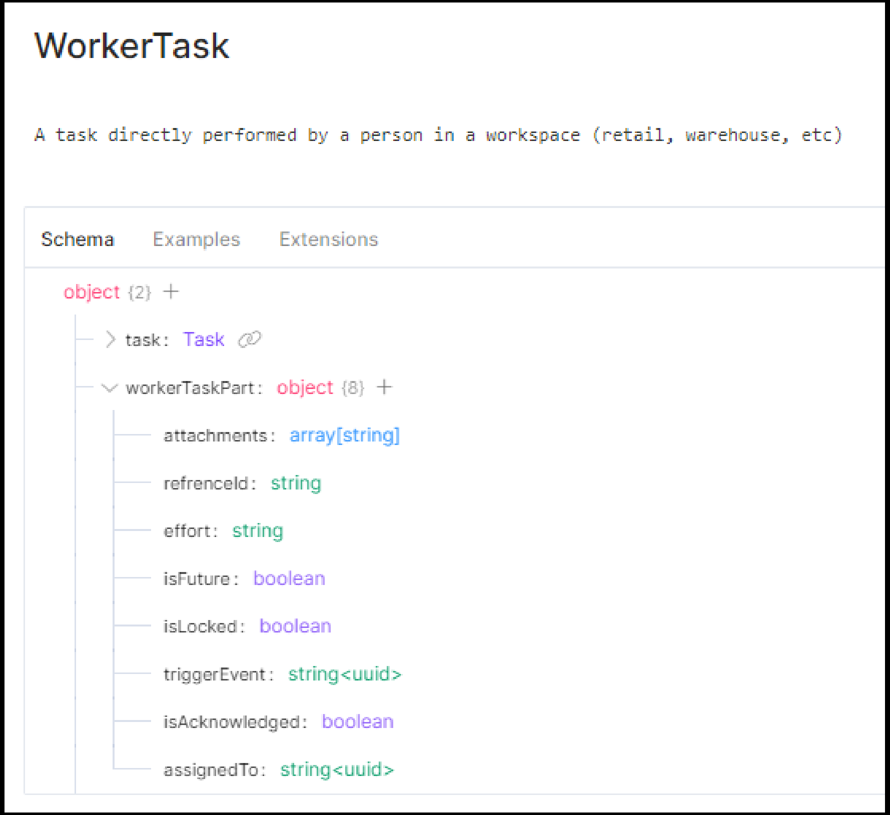
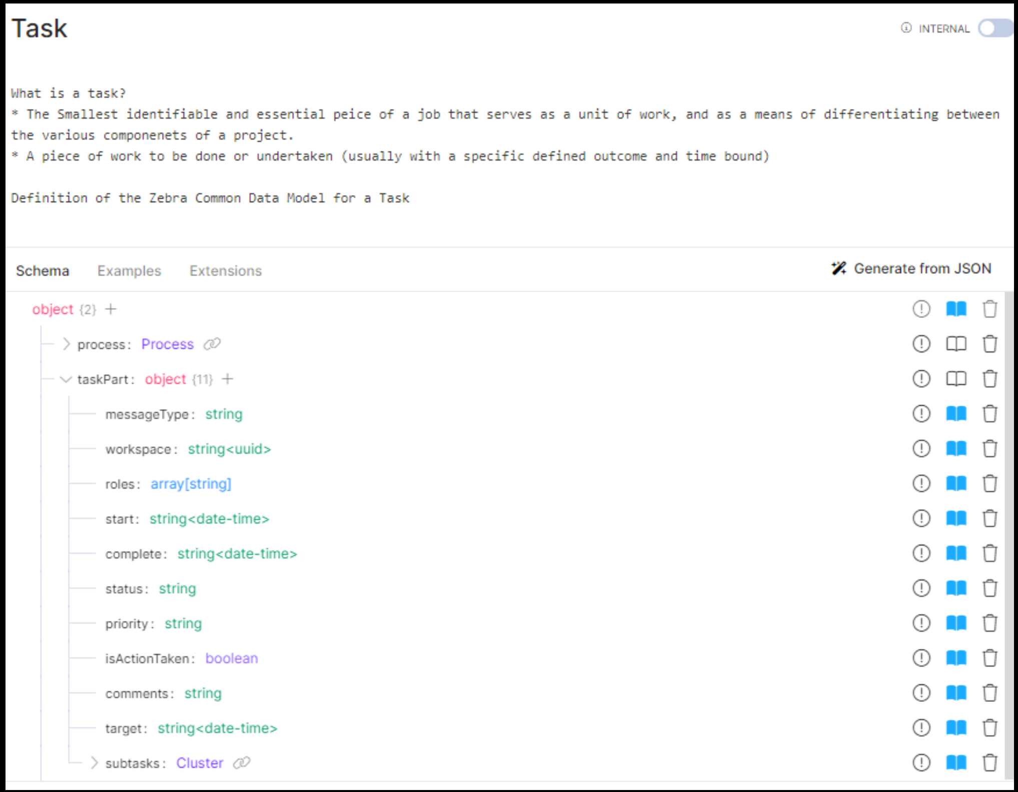


WorkerTask

```
A task directly performed by a person in a workspace (retail, warehouse, etc)
```

Schema | Examples | Extensions

```
object {2} +
  > task: Task
  v workerTaskPart: object {8} +
      attachments: array[string]
      refrenceId: string
      effort: string
      isFuture: boolean
      isLocked: boolean
      triggerEvent: string<uuid>
      isAcknowledged: boolean
      assignedTo: string<uuid>
```



Task

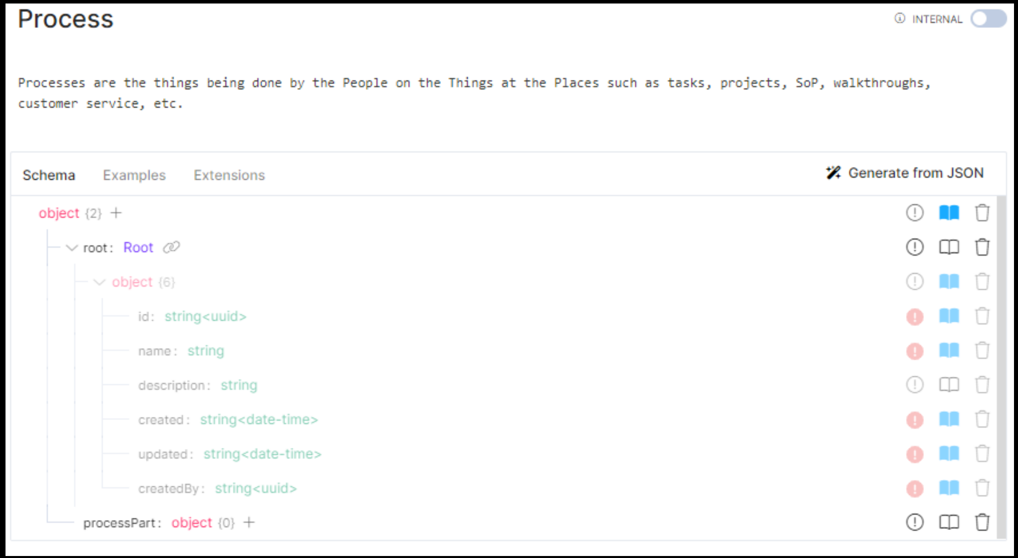
INTERNAL

```
What is a task?
* The Smallest identifiable and essential peice of a job that serves as a unit of work, and as a means of differentiating between the various componenets of a project.
* A piece of work to be done or undertaken (usually with a specific defined outcome and time bound)

Definition of the Zebra Common Data Model for a Task
```

Schema | Examples | Extensions | Generate from JSON

```
object (2) +
  > process: Process
  v taskPart: object {11} +
      messageType: string
      workspace: string<uuid>
      roles: array[string]
      start: string<date-time>
      complete: string<date-time>
      status: string
      priority: string
      isActionTaken: boolean
      comments: string
      target: string<date-time>
    > subtasks: Cluster
```



Process

INTERNAL

```
Processes are the things being done by the People on the Things at the Places such as tasks, projects, SoP, walkthroughs, customer service, etc.
```

Schema | Examples | Extensions | Generate from JSON

```
object (2) +
  v root: Root
    v object (6)
        id: string<uuid>
        name: string
        description: string
        created: string<date-time>
        updated: string<date-time>
        createdBy: string<uuid>
  processPart: object {0} +
```

# RTM Taskv

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This makes it so that anything is extensible if you start from the Root and Concept (Person, Place, Thing, Process)

Process

```
{
 "task": {
   "process": {
     "root": {
         "id": "497f6eca-6276-4993-bfeb-53cbbbba6f08",
         "name": "string",
         "description": "string",
         "created": "2022-10-28T05:41:43.006Z",
         "updated": "2019-08-24T14:15:22Z",
         "createdBy": "25a02396-1048-48f9-bf93-102d2fb7895e"
       },
```

Task

```
     "processPart": {}
   },
 "taskPart": {
     "messageType": "string",
     "workspace": "3f216741-15dd-4e46-b5ac-0077a2640e89",
     "roles": [
       null
     ],
     "start": "2019-08-24T14:15:22Z",
     "complete": "2019-08-24T14:15:22Z",
     "status": "string",
     "priority": "string",
     "isActionTaken": false,
     "comments": "string",
     "target": "2019-08-24T14:15:22Z",
     "subtasks": {
       "root": {},
       "children": []
     }
   }
```

Worker Task

```
 },
 "workerTaskPart": {
   "attachments": [
     "string"
   ],
   "refrenceId": "string",
   "effort": "string",
   "isFuture": false,
   "isLocked": true,
   "triggerEvent": "e1fef5be-147d-407a-abb7-a5db68781d53",
   "isAcknowledged": false,
   "assignedTo": "7869c1a9-a680-4086-b6f5-9e78a651f6f2"
 }
}
```

# Reflexis Task Management

## For Retail, Healthcare, and Banking

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- Improve Workload Distribution
  - Automate task assignment with equitable distribution to keep workloads fair and reduce overtime spend
- Automate Role-Based Assignments
  - Automatically push the right assignment to the right associate, aligning skills, availability and preference
- Simplify Task Prioritization and Completion Tracking
  - Front-line staff can quickly scan the day's activities, so they know what to tackle first. Managers have immediate insight into what tasks are completed, when and by whom
- Optimize Store Operations
  - Enable management by exception with actionable insights that provide best next steps

## Prioritize. Manage. Confirm.

## Reflexis Real-Time Task Manager™

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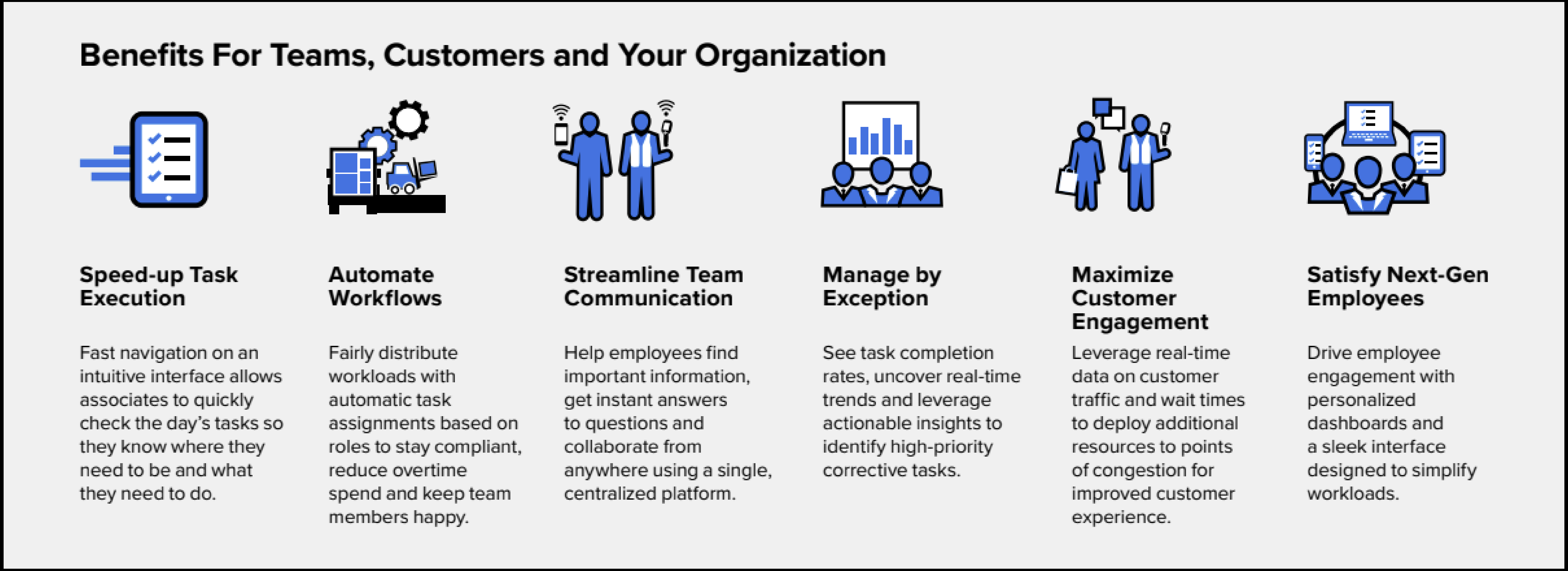

### Benefits For Teams, Customers and Your Organization

**Speed-up Task Execution**

Fast navigation on an intuitive interface allows associates to quickly check the day's tasks so they know where they need to be and what they need to do.

**Automate Workflows**

Fairly distribute workloads with automatic task assignments based on roles to stay compliant, reduce overtime spend and keep team members happy.

**Streamline Team Communication**

Help employees find important information, get instant answers to questions and collaborate from anywhere using a single, centralized platform.

**Manage by Exception**

See task completion rates, uncover real-time trends and leverage actionable insights to identify high-priority corrective tasks.

**Maximize Customer Engagement**

Leverage real-time data on customer traffic and wait times to deploy additional resources to points of congestion for improved customer experience.

**Satisfy Next-Gen Employees**

Drive employee engagement with personalized dashboards and a sleek interface designed to simplify workloads.

## Reflexis Task Management APIs

### Early Access

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- Provide worker access to basic projects
- Allow execution of basic projects
- Must use Reflexis Creator to create tasks and assign them
- Integratable into in-store apps

## Reflexis Task Managemnt

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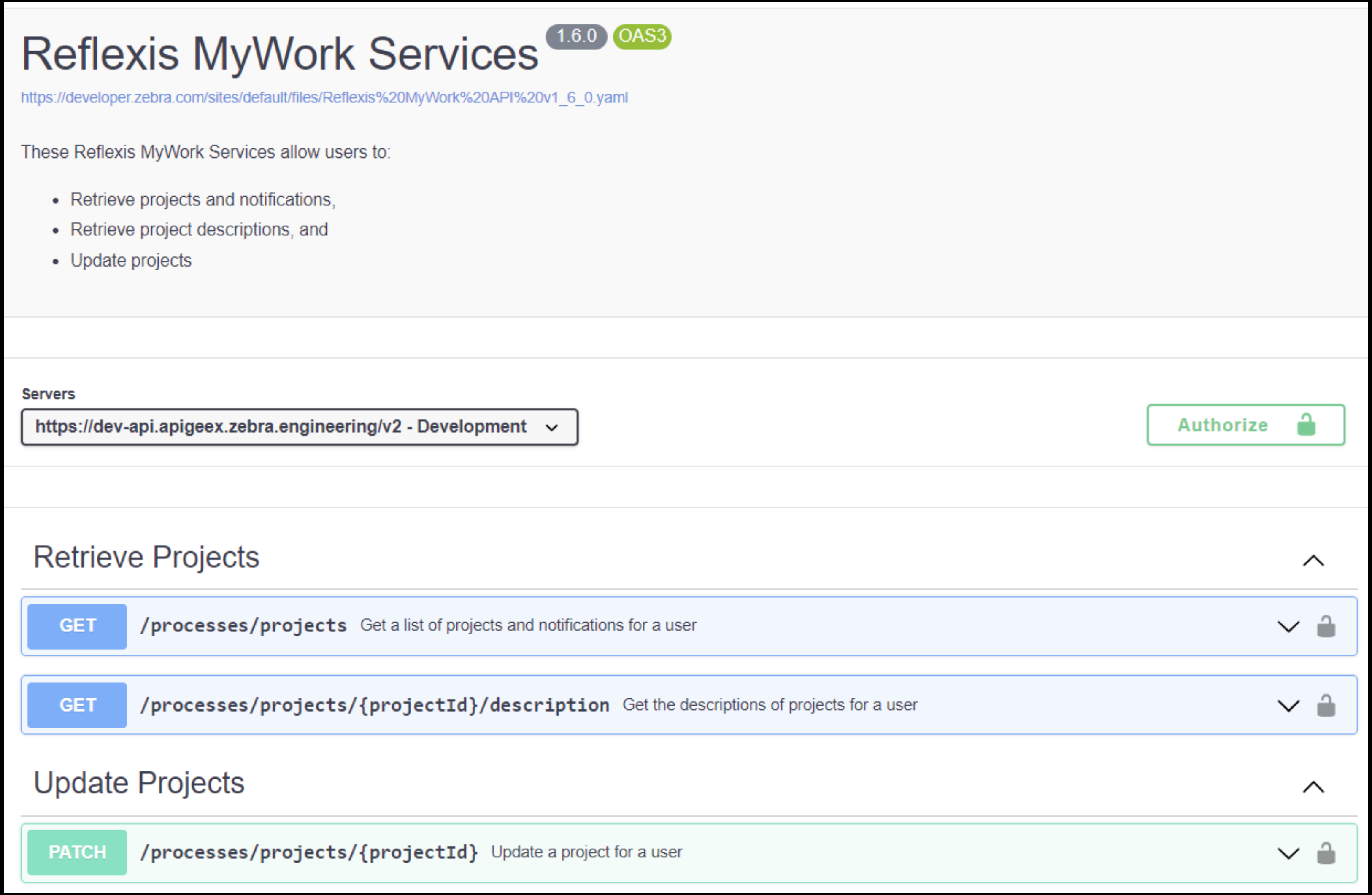

Reflexis MyWork Services 1.6.0 OAS3

https://developer.zebra.com/sites/default/files/Reflexis%20MyWork%20API%20v1_6_0.yaml

These Reflexis MyWork Services allow users to:

- Retrieve projects and notifications,
- Retrieve project descriptions, and
- Update projects

Servers

https://dev-api.apigeex.zebra.engineering/v2 - Development

Retrieve Projects

GET /processes/projects Get a list of projects and notifications for a user

GET /processes/projects/{projectId}/description Get the descriptions of projects for a user

Update Projects

PATCH /processes/projects/{projectId} Update a project for a user

# Reflexis Task Managemnt

## V1 Roadmap

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- MyWork in-store service API
- Full Task execution
- Access to subtasks and notifications
- Attachments, feedback, etc
- Assignment, Execution, Prioritization

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## Demo

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# Thank You