Architecture

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Agenda

- Global Architecture Definition
- Functional Specification
- Technical Specification
- Holistic Security and Privacy Concept
Global Architecture Definition

- Service Oriented Architecture
- REST Interfaces
- Event Driven SOA features
- TOGAF oriented
High Level Architecture
Architecture Building Blocks

- **Environment Block**
  - vf-OS Platform as a Container

- **Application Development Block**
  - vf-OS design time components

- **Application Services & Middleware Block**
  - vf-OS runtime components

- **Application Deployment Block**
  - vf-OS Microservices (Docker)
vf-OS Assets

- Generic Enablers (FIWARE)
- Specific Enablers (FITMAN)
- vApps
- External Services
- I/O Connectors
  - Software
  - Hardware
Functional Specification

- User requirement evaluation
- Convert requirements to functionalities
- Prioritize functionalities
- Analyse functionality behaviour
- Story maps
  - User workflow (left to right)
  - Priority (top to bottom)

- UML Sequence Diagrams
  - Depict interactions between components
  - Developing workflows in UI mock-ups

- UML Class Diagrams
  - Focus on component interactions
API endpoint definitions
- RESTful interfaces

Data model definitions
- That are relevant for communication between components

Living online documentation (Slate)
- Inclusive Code Repository and Continuous Integration
API Endpoint composition

- Endpoint Description
- Request Information
  - how to use this endpoint
  - URL: POST /v1/paymentnotifications (example)
  - Table of required and non-required parameters
- Response Information
  - Return value
  - http status code
Holistic Security and Privacy Concept

- Cyber Attack Protection

- vf-OS considers
  - IT Standards (mainly ISA-62443)
  - General Data Protection Regulations (GDPR)
  - Recommendations of top-class security institutions (e.g. NIST, NSA)
5 Simple Rules

- Security component acts as a proxy
- Each new asset will be examined
- Access Permission Policies (User Management)
- Sandboxing by default
- Authorisation Policies
  - RABAC
Security Architecture

- **Primary Security Component**
  - Security Command Centre
  - Installer Broker Service
  - Identity Service
  - Monitoring

- **External Security Subcomponents**
  - Marketplace Identity Manager and PKI
  - OAK Studio/Toolkit
  - Engagement Hub
Questions?