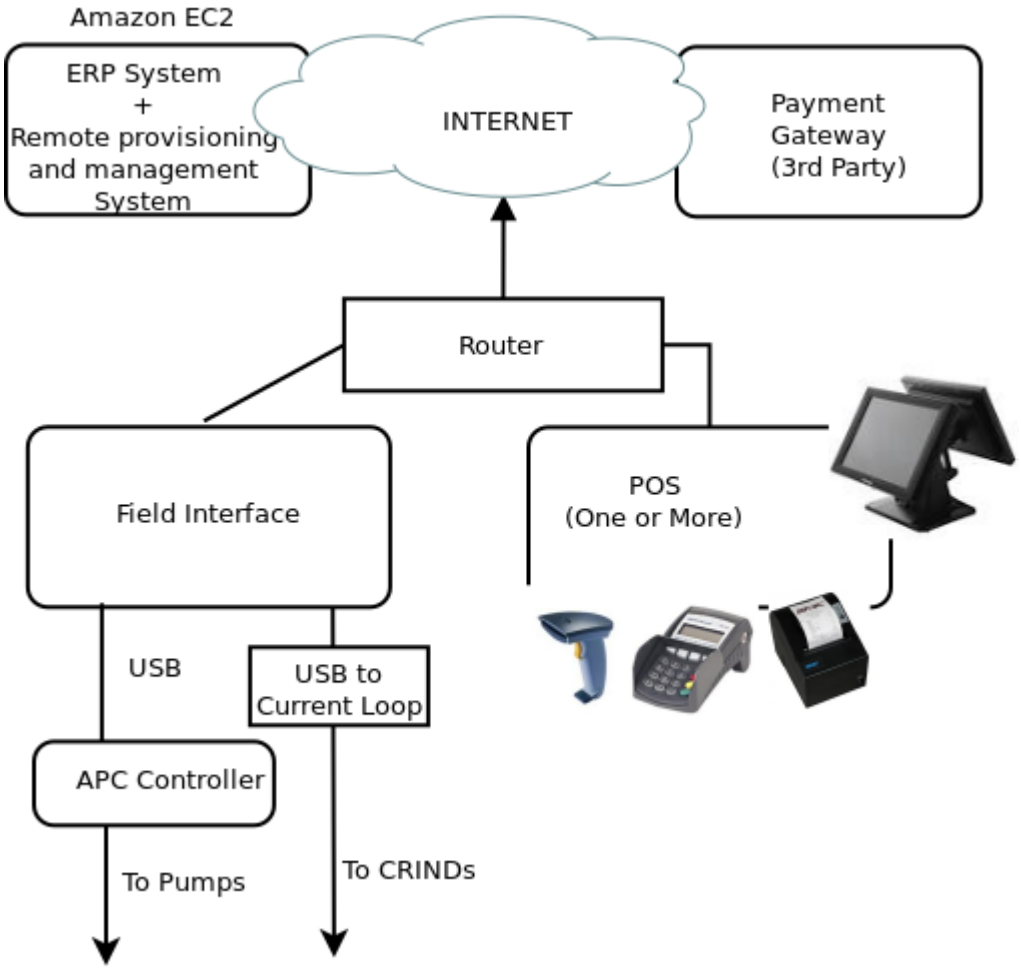
EON POS

Design Overview

High Level View



EON POS - Hardware

Field Interface:

- Intel ComputeStick (Atom based “stick” computer)
  (An ARM based SBC as replacement is under consideration)
- Pump controller board from APC., USA
- Current Loop interfaces

POS Stations

- POS PC with touch screen and secondary screen (customer facing)
- USB Interface to peripherals:
  - Receipt Printer
  - Barcode scanner
  - Encrypted card swiper

- ***No*** Keyboard or Mouse

Field Interface: Functions

Field Interface: A headless embedded system, that interfaces the field (Dispensers and CRINDs) to the POS systems. Main Functions:

- Monitor the dispenser states, and provide an abstract view to POS
- Provision CRIND (display strings etc)
- Manage CRIND states (Card swipes, keypad entries, display states etc.)
- Manage authorization sequence of Dispensers (Pay-outside, Pay-inside)
- Handle fault conditions (break in communication with dispensers, power loss of MPDs)

POS Functions – Fuel related

POS Functions: Fueling related

- Establish connection with the FI and get periodic update of field status
- Display real-time view of all pumps and allow cashier to interfere (e.g: emergency stop of pumps)
- Prepay for fuel: If a sale contains fuel, authorize the selected pump
- On partial fueling after pre-pay (if prepaid amount is fully utilized), issue refund
- At the request of FI (typically, when it detects failure of MPD, or Crind printer), print a receipt for a Pay-outside fuel transaction
- “Rest-in-gas” feature
- Allow cashier to move authorization between pumps

POS Functions – Merchandise

POS Functions: General Merchandise related

- Role based authentication of user functions (Cashier, Manager)
- Touchscreen interface for sale use cases.
- Minimalist UI design for short learning curve
- Reprint old receipts
- Accept cash, check or credit card. Allow mixing cash/credit/check on a single transaction.
- Age check for tobacco and alcohol sales
- Shift management

POS Functions – ERP Interface

RESTFUL interface to ERP

- Pull incremental product database from ERP on notification of update on product list (new product, price update, etc..)
- Pull user authentication list on its update
- Post sale invoice to ERP for each sale
- Post pay-outside gas transactions to ERP
- Pull old receipts when needed

POS Functions – Payment Module

Payment module of EON POS:

- Handles card data from both CRIND and POS Stations
- Contacts payment gateway directly
- 2 stage transaction in case of CRIND initiated fueling.

EON POS – Design Philosophy

Few of the general design guidelines used in the system design:

- All functions other then “Sales use cases” are handled by ERP (e.g: User management, report generation, management dashboard)
- There can be multiple POS stations in a store. Each POS station shall have all functions (only exception to this is the payment module. A single instance is hosted on one of the POS syste
- No persistent data on POS station. All transaction and databases to be owned by ERP.
- Lazy synchronization between POS and ERP.
    - Sale invoices are cached in POS, until safely transferred to ERP
    - Updates in ERP are synced to POS whenever communication channel is available.

  This allows continuity of POS operation in the event of loss of communication with ERP.
- The POS is a locked-down system (no access to OS for user, even for the onsite technician). All maintenance and provisioning are done remotely.

eon CONTROLS