Agenda

• Introduction
• Problem Statement
• Our Solution
• Use Case 1: Verifying Meter During Shipment & After Installation
• Use Case 2: Easy User Read-Out
• Other applications and Outlook
• Summary
Introduction

• **NFC is – Near Field Communication**
  - A good example is your credit card with NFC logo.
    - Speed and ease of Transaction (Tap & Go)
    - The same benefit can apply with reading Utility Metering Gas, Water & Electricity and other devices.
  - **Key Point** - One transceiver is powerless.
    - Tap and Go – the transaction is powered from the payment terminal that energizes the NFC transceiver on the card in the payment process.
Problem Statement!

- Currently all interactions with meters need power at the meter -
  - This limits accessibility of meter data during shipment, commissioning, storage, power outage, asset monitoring, etc.

- Currently German market regulations drive smart meters into a high-end product for functionality and cost -
  - e.g. separated GW
  - security constraints
  - …: up to 250EUR minimum investment per house.

- Currently AMR is asking for grid communication, e.g., PLC, GPRS, … to communicate with Head-End-Systems.

- Currently utilities need to provide and sometimes operate the complete communication network infrastructure
Our solution

Connexo Server
Meter Data Collection
@utility

Azure Server
Collection and routing of data.
Pushing data to Connexo

AS2018 Meter
Meter collects energy usage information

E2E Encrypted Meter Data
Can be read by Connexo only.
Pass-through data only

Usage Data to Utility
Data for billing and analytics

Customer’s Phone Application
Displays info for the customer to see their historical energy usage

Usage Data to Display
Plain data (e.g. historical data, events, FW-rev, …).
Phone must pass authentication.

Phone must pass authentication.
Introduction of Near Field Communication (NFC)

- NFC is widely-used industry standard (https://nfc-forum.org)
- Near Field Communication (NFC) is a contactless and short-distance (5cm) interface to read/write kBytes of data
- Unique property is that energy the energy of the transceiver is sent by the transmitter over the air
- Almost all smart phones can read NFC tags, incl. Android and iOS
- Widely used technology for mobile applications, smart cards, payment, manufacturing, …
- Numerous applications are attractive and innovative in grids to make components smart and connected to the cloud easily
What is in for YOU?

• Replaces walk-by and post card processing to collect billing data
• Provides end2end encrypted data transfer to billing system
• Prevents human error during meter reading
• Reduces customer billing queries
• Provides tamper alarms for Non-Technical-Loss detection
• No need to install/operate/maintain communication network
• Simple alternative to complex smart grid
• Benefit from widely used high volume technology: very little investment in meter
• Opening the path for other customer communication by mobile apps
• Encourage adoption through incentives/discounts
Using NFC for meter installation process by utility

Technician goes to the warehouse and picks up the meter

He taps the meter with his phone to check it is in good state

He puts the meter in the car and drives to the location

He installs the meter like a typical meter

Once installed he taps it and meter status is uploaded to Connexo
EndUser meter reading via NFC

The EndUser taps his meter to read register

The register and meter status information is transferred encrypted end2end to Connexo

The consumption data is validated and used for billing

The utility analyst receives tampering alerts and other data for further action
NFC Demo

by

Razvan Trif
Other applications and Outlook

• Use NFC as contactless and personal interface for pre-payment solutions.
  - Successful POC completed in South Africa with Eskom and Municipalities delivering credit tokens via users mobile phones.

• Use NFC as contactless interface to read-out non-powered devices, e.g. gas/water meters with mechanical index

• Use NFC for asset management of powerless devices, e.g. meters, regulators, valves and any others
Summary

• Using Near Field Communication (NFC) enables read access to meters without power
• Using NFC connects the meter to the mobile internet and Connexo in a secure manner
• Apps running on almost all newer smart phones
• Communication network will be provided by the End-user’s mobile network service
• No separated network infrastructure needed
• Meter readings, events and geo-data can be directly transferred to Connexo

... visit the demo room – Booth 3b
Thank You