

# Fare Collection 102

Craig Roberts

Utah Transit Authority



2011 Fare Collection Workshop

# Why UTA Electronic Fare Collection?

- Customer convenience
- Collection efficiency and effectiveness
- Data, data, data



# Electronic Fare Collection System Launch – January 1, 2009

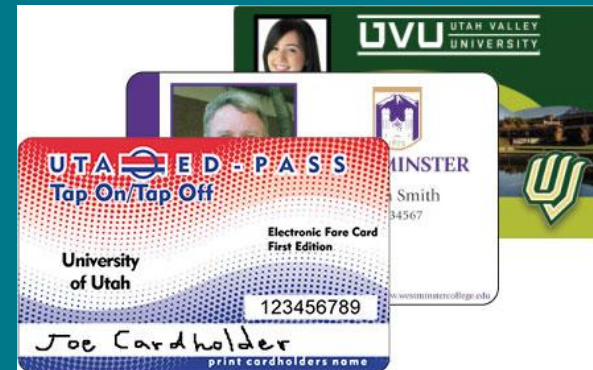


- Infrastructure Deployment
  - Readers at all doors of 520 fixed route buses
  - 170 validators installed on 35 TRAX and FrontRunner platforms
  - Communications
    - Wireless gateways on buses that support WIFI in four depots and 3G continuous mobile throughout service area
    - Fiber communication to all platforms
    - Link to hosted back office operated by ERG in Concord California via internet



# Initial Products

- Third party paid passes – ECO, Ed, Ski



- Contactless credit acceptance for full single adult fares



# The Appeal of Contactless Credit and Debit

- Others issue payment media
- Integration with payment mainstream: payment at the fare box, gate or platform as a merchant POS transaction
- Automatic interagency interoperability
- Customer service with issuers
- Security standard
- Architecture provides flexibility in product development
- Robustness of open payments ecosystem
- Commoditization of devices
- Potential for pathway to elimination of cash
- Speed of deployment
- Cost
- Co-promotion

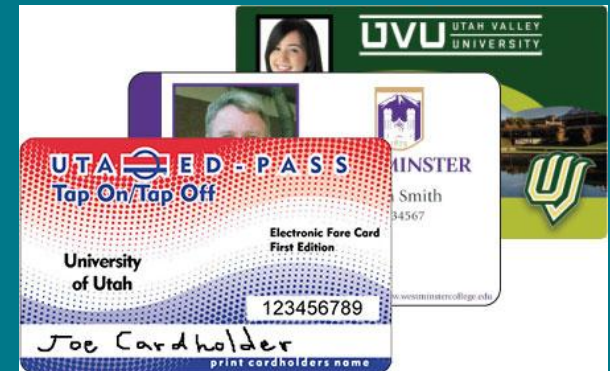






# Other Third Party Issued Media

- Third party paid passes
  - ECO, Ed, Ski
  - Cards as tokens using unique identification number (UID)
  - Track usage to inform negotiations with third party payers
  - Preference for partner issued ID cards
- Security handshake needed as used for decrementing stored value accounts and as NFC is deployed
  - OPACITY
  - Mifare Ultralight C
  - Bank card spec
  - Contactless EMV



# UTA EFC Development and Deployment Going Forward

## Launch new fare products within the account based architecture

- Prepaid accounts with all fare products to be accessed via contactless credit or debit cards
  - Stored value
  - Period passes
  - Guaranteed best fare
- Special fares for seniors and disabled
- Gift card issuance programs
- Contactless co-branded card
- Government benefits distribution card
- Federal PIV use for administering employee transportation benefit; PIV-I, PIV-C
- Access and identity media for stored value trip payment

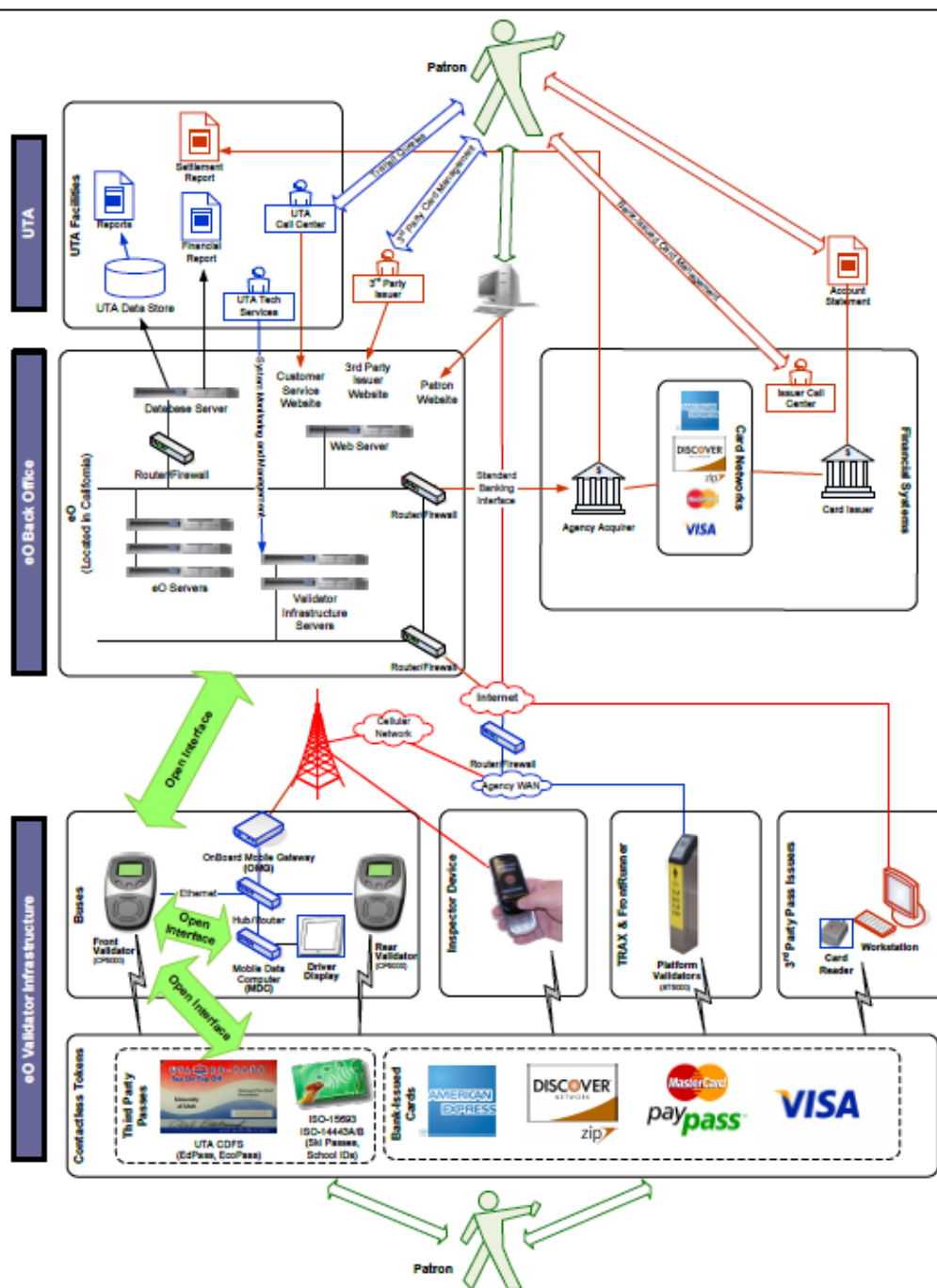




# Characteristics of Account Based Systems

- Card as token
- Creation of record at tap
  - Authenticated card ID
  - Bus number, block number, operator number
  - Service type – local, express, BRT, etc.
  - Time stamp
  - Location – GPS coordinates and/or stop location designator
  - Encrypted track II and hash (if bank card)
- Application of business rules in back office
  - Analogous to toll collection systems
  - Taps to trips if check-in/check-out
  - Linked trips for transfers
  - Application of appropriate fares
- Fare changes made in by changing a configuration table in back office
- New product programming and application development takes place in back office; does not require changes to cards and validators





A photograph of a train station platform. In the foreground, there are several fare collection machines (validators) and black bollards. A double-decker train with a white, red, and blue livery is stopped at the platform. The train has "FRONT RUNNER" and "UTAH TRANSIT AUTHORITY" written on it. There are benches and a green trash can on the platform. In the background, there are signs for "TRAIL" and "PERFORMANCE".

Thank you.

Craig Roberts  
[croberts@rideuta.com](mailto:croberts@rideuta.com)

