



# Implementing EMV<sup>®</sup> in the U.S.:

How the U.S. Common Debit AIDs Facilitate Debit Transaction Routing and Ensure Durbin Compliance

27 June 2015

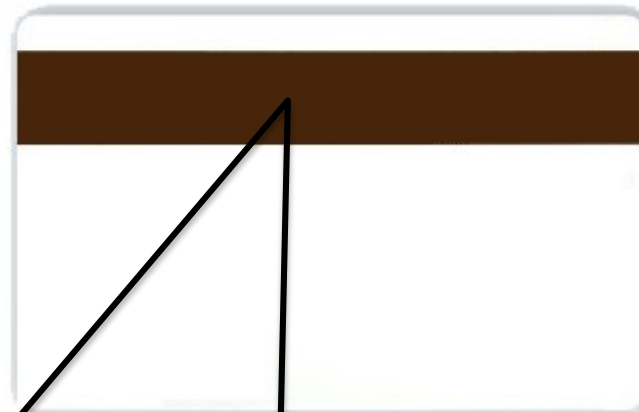
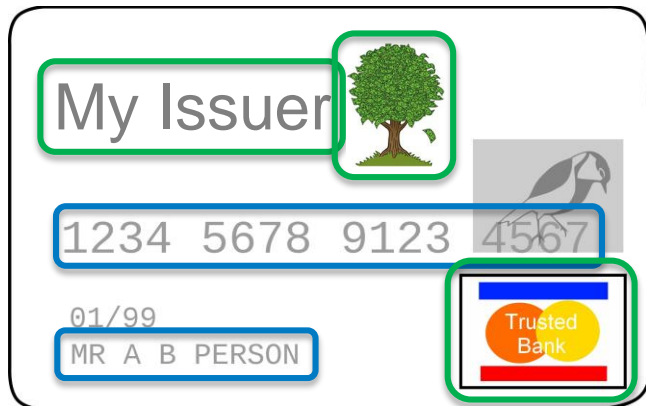
# Background

- Dodd-Frank Wall Street Reform and Consumer Protection Act, Section 1075, a.k.a. “Durbin Amendment” (paraphrased)

...all debit cards will need to participate in at least two unaffiliated networks so that transactions initiated using those debit cards will have at least two independent routing channels. The two unaffiliated networks could be one PIN network and one signature network (the most common configuration), two signature networks or two PIN networks (in each case so long as the two networks are not affiliated).

- Impacts POS debit transactions
- Read more about it starting on page 697 of:  
<http://www.sec.gov/about/laws/wallstreetreform-cpa.pdf>
- With the introduction of EMV®
  - Durbin compliance is still required
  - Routing choice must be preserved
- Durbin amendment
  - Applies to POS transactions initiated by U.S.-issued debit cards at U.S. terminals
  - Doesn't mention credit transactions
  - Doesn't mention ATM transactions

# What's on a Magnetic Stripe Card?



Track 1: maximum of 79 characters

%B	Primary Account Number	^	Name	^	Expiration Date	Service Code	Discretionary Data
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Track 2: maximum of 40 characters

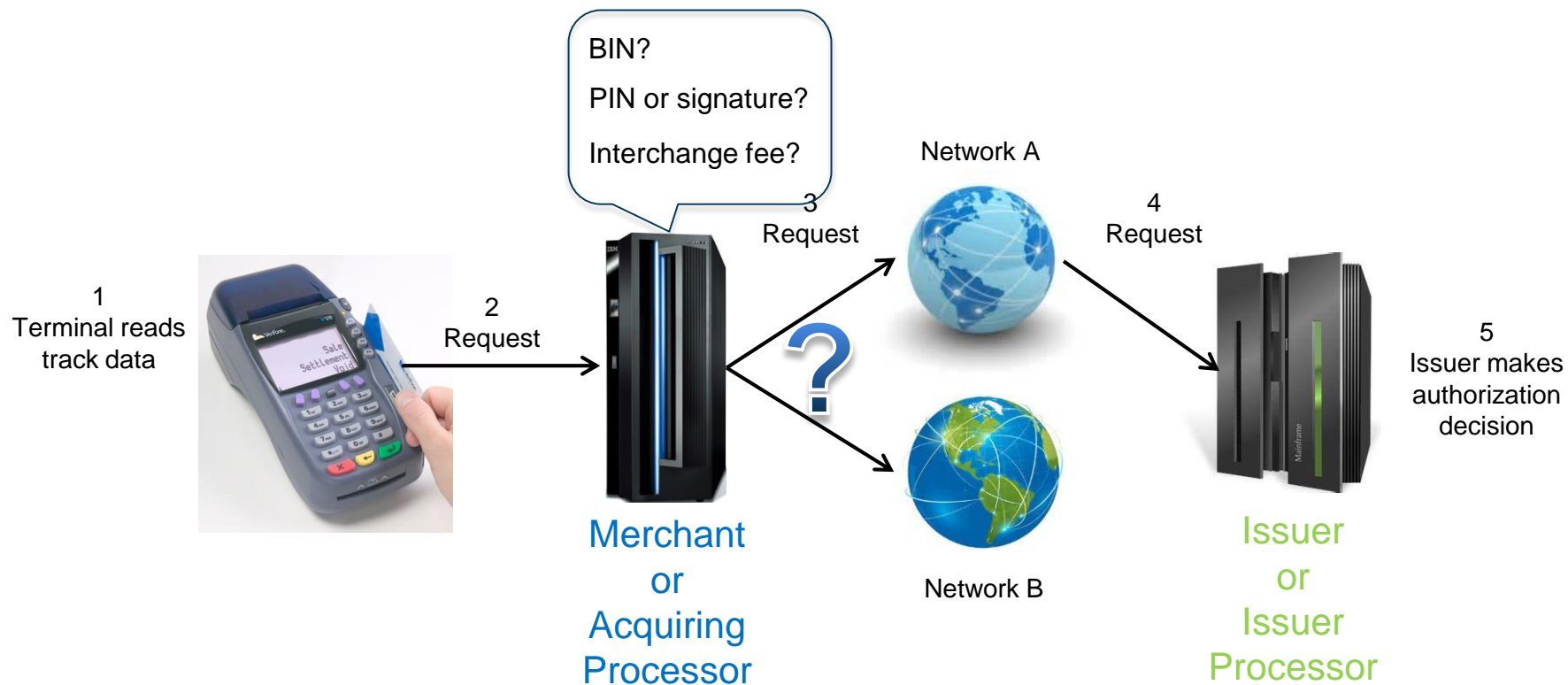
;	Primary Account Number	=	Expiration Date	Service Code	Discretionary Data
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Track 3: maximum of 107 characters

Not used in most financial applications							
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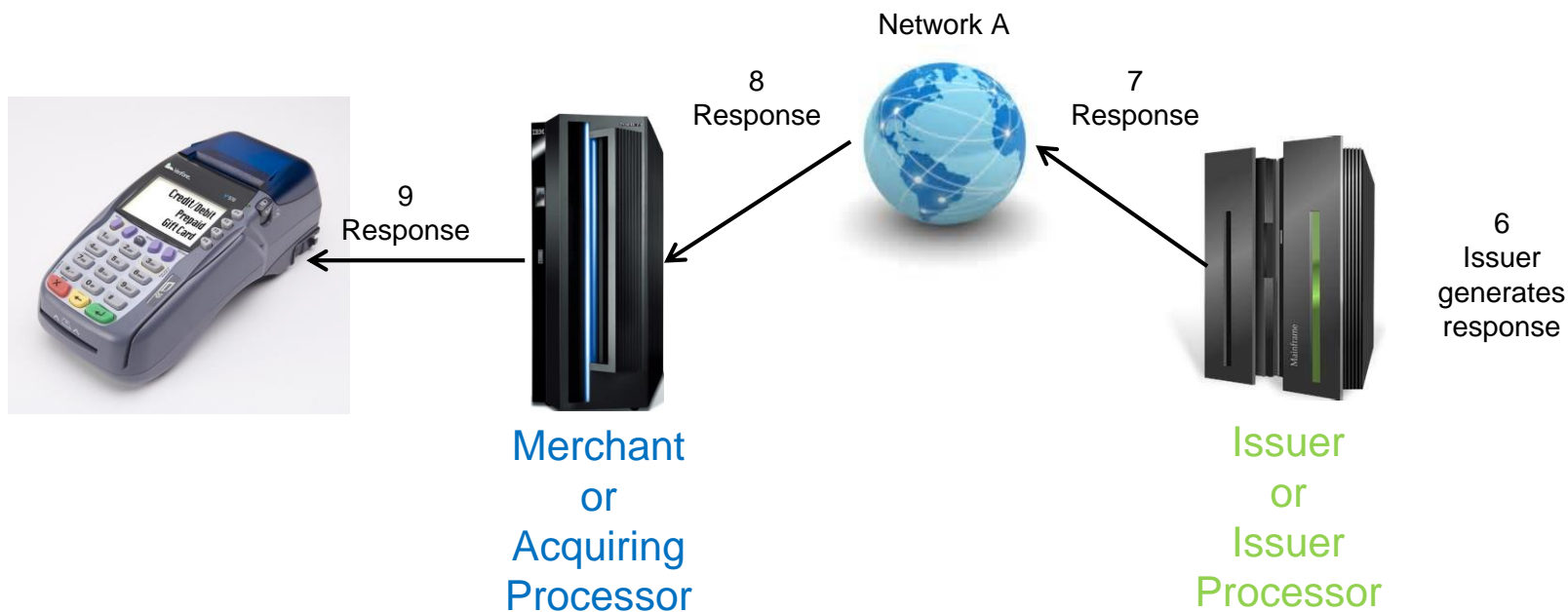
# Magnetic Stripe Transaction: Authorization Request

- Magnetic stripe card at magnetic stripe terminal

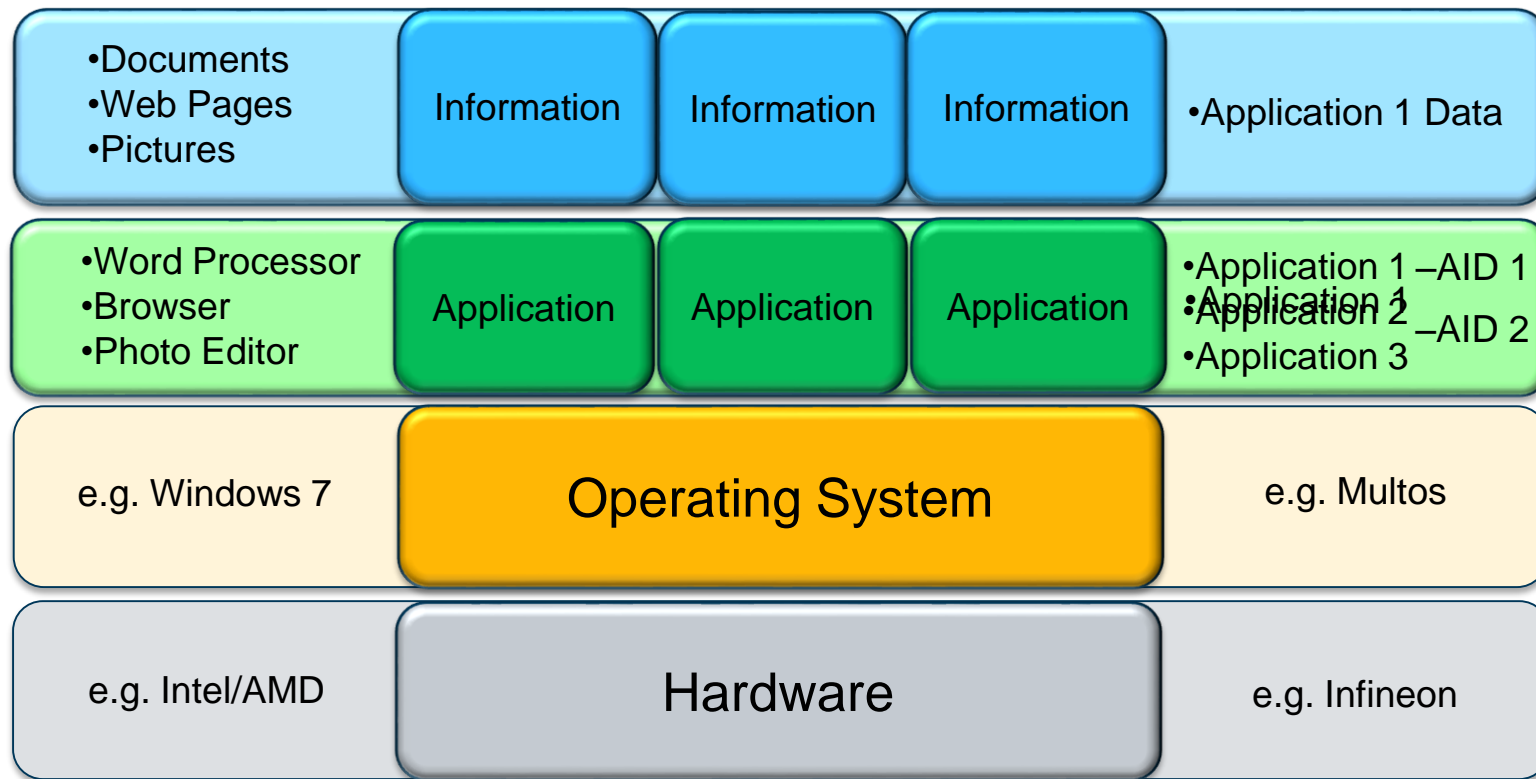


# Magnetic Stripe Transaction: Authorization Response

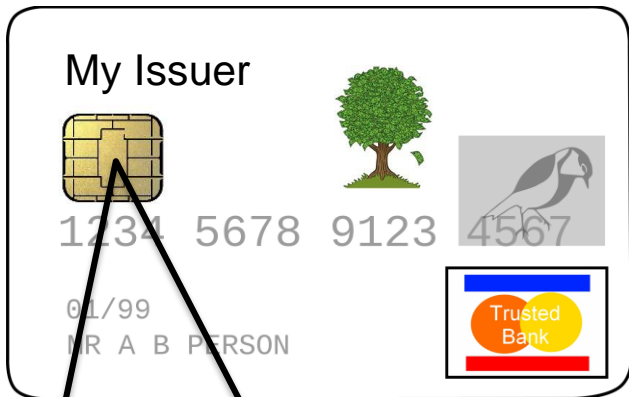
- Magnetic stripe card at magnetic stripe terminal



# Chip Card Technology



# What's on a Chip Card?



Data Required for  
***Each Application***  
on a Contact Chip Card:

- Keys for Authentication
- Risk Management Parameters
- Application-Specific Data
- Cardholder Data



Track 1: maximum of 79 characters

%B	Primary Account Number	^	Name	^	Expiration Date	Service Code	Discretionary Data
----	------------------------	---	------	---	-----------------	--------------	--------------------

Track 2: maximum of 40 characters

;	Primary Account Number	=	Expiration Date	Service Code	Discretionary Data
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Track 3: maximum of 107 characters

Not used in most financial applications
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# Global Payment Networks and Global AIDs

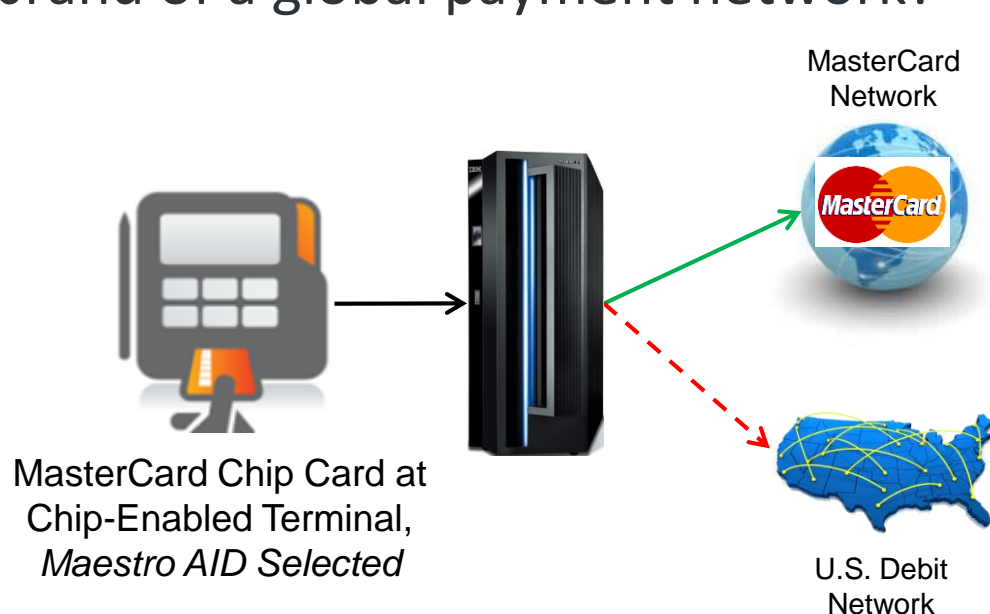
- “Global AID”: an AID that is owned by the global/international payment network whose logo is on the card
- When a global AID is selected, generally the transaction must be routed to the associated global payment network





# Introducing EMV Brings Challenges

- When a “global” AID is selected, generally the transaction must be routed to the associated global payment network
- How can we preserve the routing choices we have today, and comply with Durbin?
- What AIDs can be used on cards that do not carry the brand of a global payment network?



# EMV Migration Forum Debit Working Committee

- Solution: U.S. Common Debit AIDs
  - <http://www.emv-connection.com/u-s-debit-emv-technical-proposal/>
- U.S. contact debit chip cards will typically contain
  - A payment network-specific (“global”) AID
  - A U.S. Common Debit AID



## Debit Technical Working Group

### U.S. Debit EMV Technical Proposal

Version 1.3

Version History:

- Version 1.3, April 2015 – U.S. Common Debit Contactless Addendum added
- Version 1.2, April 2014 – Initial publication

NOTES AND INFORMATION DISCLOSURE:

This document has been prepared by the EMV Migration Forum Debit Technical Working Group. The purpose of the document is for Forum members to review and consider the viability of the proposal herein from a technical perspective, business arrangements notwithstanding. The proposal sets forth a functional description of a possible approach for a technical solution when the U.S. common debit AID is selected for online PIN, No CVM and Signature, which should not be considered the only approach. The document provides only a high-level description of the technical solution, and stakeholders interested in implementing an actual solution consistent with the proposal in their own environments will therefore need to develop their own detailed specifications. Accordingly, consideration or validation of this proposal from a technical perspective does not and cannot be construed to obligate or commit any EMV Migration Forum member or the Forum to adopt the proposal or any particular solution or approach described herein. To the best of the knowledge of the authors, this document does not contain any confidential and proprietary technology or information. The proposal described in this document is based on input from the participants in the Working Group and is intended to be consistent with publicly available and royalty free EMV specifications published on [www.emvco.com](http://www.emvco.com). All attempts have been made to present the approach and any market details described herein from an independent and neutral point of view.



# EMV Migration Forum Debit Working Committee

- Solution: U.S. Common Debit AIDs
  - Discover
  - MasterCard
  - Visa
  - Shared Debit AID from Debit Network Alliance (DNA)
    - [www.debitnetworkalliance.com](http://www.debitnetworkalliance.com)



# Impact to U.S. Issuers: Debit Chip Cards that Support Global Payment Networks

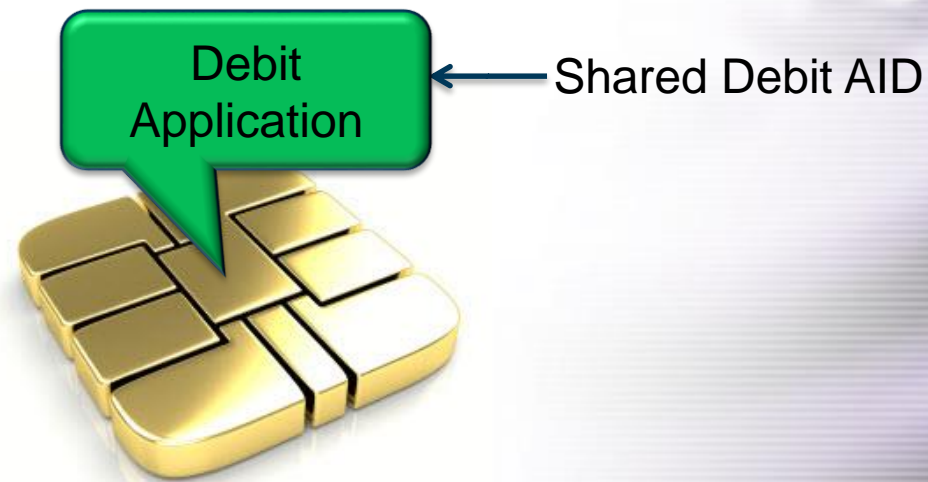
- These debit chip cards will typically contain
  - A debit application from a global payment network
    - e.g. Discover, MasterCard, Visa
  - A global AID from that global payment network
    - Needed for use outside of the U.S.
  - The U.S. Common Debit AID from that global payment network
    - For use in the U.S.
- Both AIDs will point to the same funding account
  - For example, a single debit account



# Impact to U.S. Issuers:

## Debit Chip Cards that do not Support a Global Payment Network

- These debit chip cards
  - May use the Shared Debit AID from the DNA
  - Will contain
    - A debit application that meets the criteria specified by the DNA
    - The DNA Shared Debit AID (for use in the U.S.)
  - No other AID will be on chip cards that support the Shared Debit AID



# Problem Solved?

- Application Selection
  - Terminal must determine what AIDs are mutually supported between the chip card and the terminal, and select one
- When there is more than one mutually-supported AID, the AID to use for the transaction may be selected by either
  - The cardholder or
  - The terminal



Card Supports (Example):

A000000041010

A000000042203



Terminal Supports (Example):

A000000031010

A0000000980840

A000000041010

A000000042203

A0000006200620

And others...



# Application Selection

- Cardholder selection
  - Terminal presents short description of AIDs on screen, cardholder selects one
- Terminal selection by application priority
  - Terminal selects AID with highest priority on the card, as indicated by the issuer
- Custom (or country-specific) logic
  - Terminal selects AID based on business needs
  - Needed to support U.S. Common Debit AIDs

Please select one of the following:

- Visa Debit
- US Debit

## AIDs Supported by Terminal (Example)

Visa Debit (Global) AID    A0000000031010

Visa U.S. Common Debit AID    A0000000980840

## AIDs Supported by Chip Card (Example)

Visa Debit (Global) AID    A0000000031010

Visa U.S. Common Debit AID    A0000000980840



# Impact to U.S. Terminal Owners and Acquirers

- U.S. terminals (ATM and POS) will need to support
  - Global AIDs
    - For the global payment networks the terminal owner participates in
  - U.S. Common Debit AIDs
    - For those same global payment networks and U.S. debit networks (if routing to unaffiliated debit networks is desired)
  - Shared Debit AID from the DNA
    - If the terminal owner participates in any of the DNA member networks



## Debit AIDs Supported by a U.S. Chip-Enabled Terminal (Example)

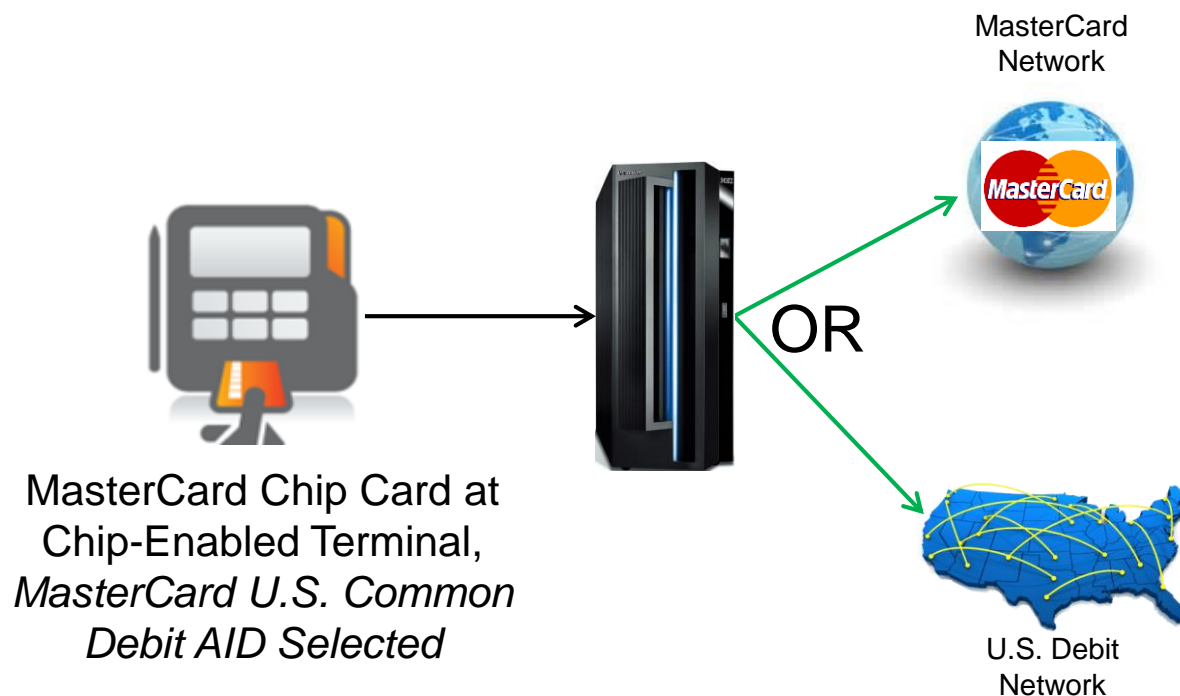
Diner's Club/Discover (Global) AID	A0000001523010
Discover U.S. Common Debit AID	A0000001524010
MasterCard Debit (Global) AID	A0000000041010
MasterCard U.S. Common Debit AID	A0000000042203
Visa Debit (Global) AID	A0000000031010
Visa U.S. Common Debit AID	A0000000980840
DNA Shared Debit AID	A0000006200620





# Routing Options When Using a U.S. Common Debit AID

- When a U.S. Common Debit AID is selected, the transaction can be routed to any network the issuer has enabled for that card, that supports that AID; this could be either
  - The associated global payment network, or
  - A U.S. debit network that supports this AID



## Selecting the Shared Debit AID

- The Shared Debit AID will be the only AID on a debit network chip card that does not support a global payment network
- During a transaction, the U.S. ATM or POS terminal should select the Shared Debit AID (using standard EMV Application Selection logic) when it is supported by the chip card and the terminal
- No conflict between the U.S. Common Debit AIDs offered by the global payment networks and the Shared Debit AID from the DNA



DNA Shared Debit AID A0000006200620

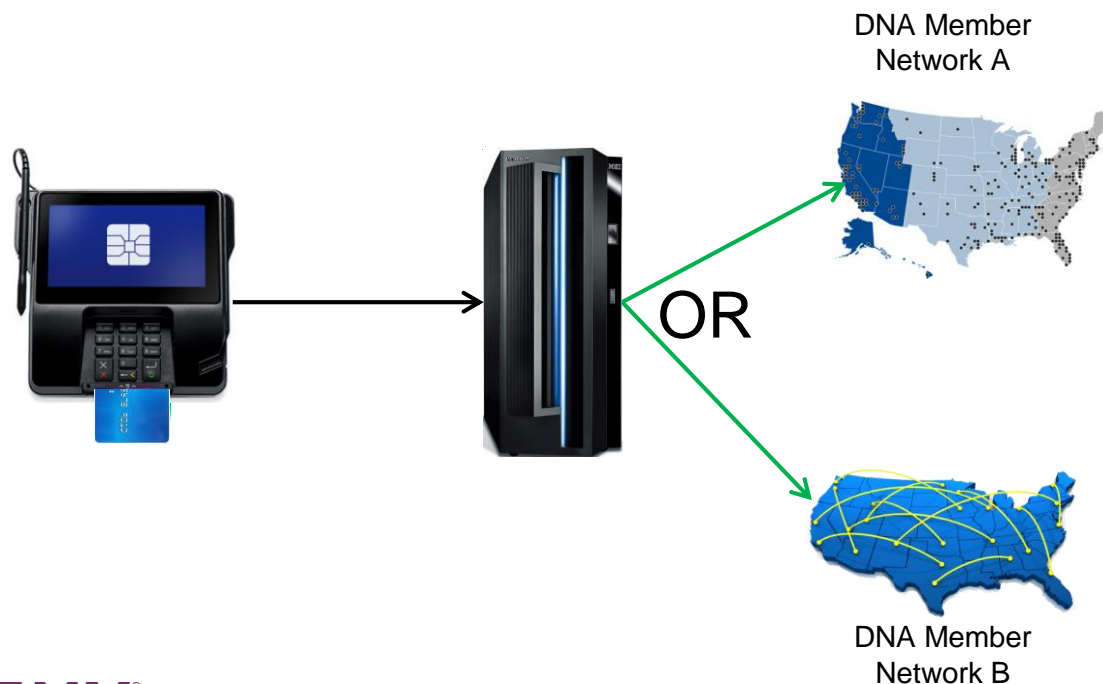
**Card Does not Support a  
Global Payment Network**



DNA Shared Debit AID A0000006200620

# Routing Options When Using the Shared Debit AID

- When the Shared Debit AID from the DNA is selected, the transaction can be routed to any debit network that has licensed the Shared Debit AID, and that the issuer has enabled for that card



# EMV/Chip Transaction using U.S. Common Debit AID

## AIDs Supported by Debit Chip Card (Example)

Visa Debit (Global) AID	A0000000031010
Visa U.S. Common Debit AID	A0000000980840



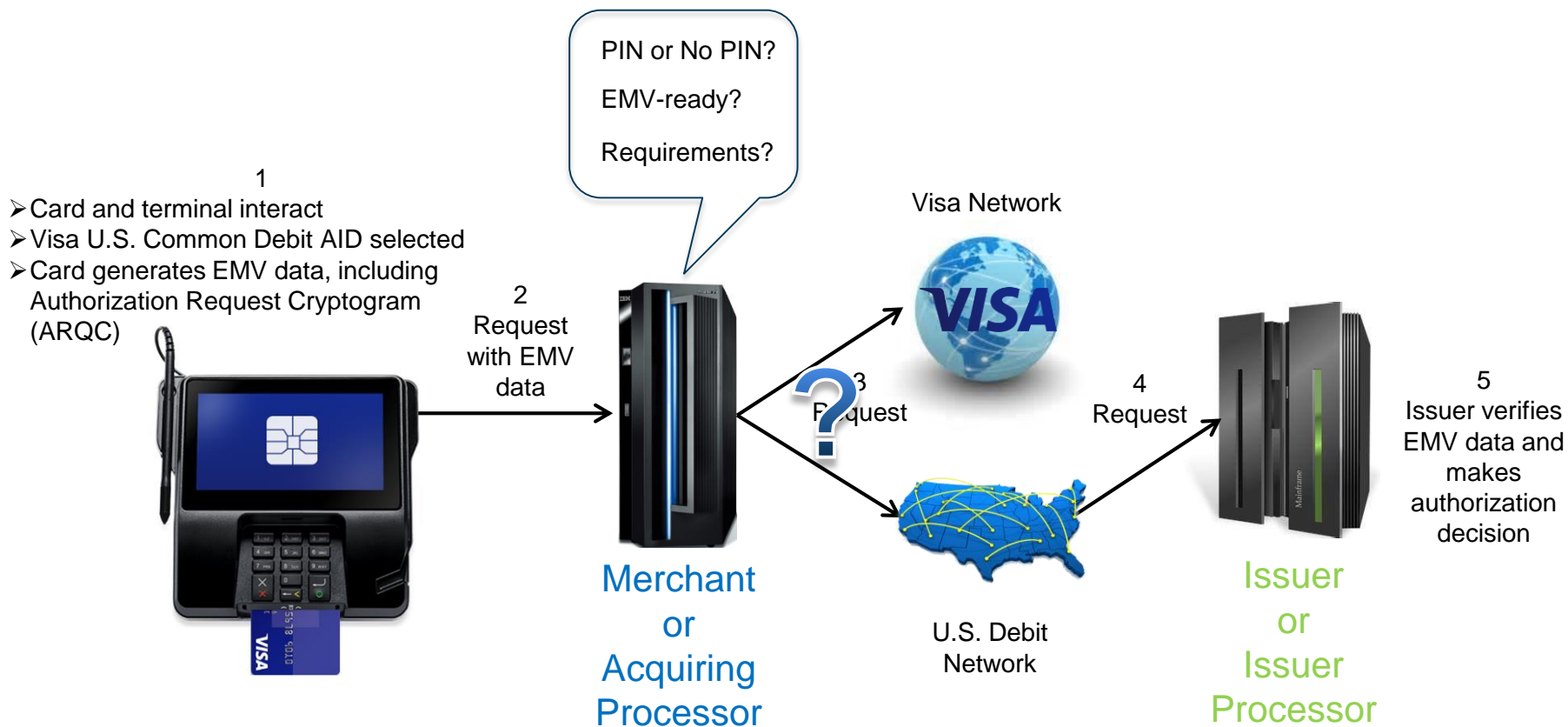
## Debit AIDs Supported by Chip-Enabled Terminal (Example)

Discover U.S. Common Debit AID	A0000001524010
MasterCard U.S. Common Debit AID	A0000000042203
Visa U.S. Common Debit AID	A0000000980840
DNA Shared Debit AID	A0000006200620
Diner's Club/Discover (Global) AID	A0000001523010
MasterCard Debit (Global) AID	A0000000041010
Visa Debit (Global) AID	A0000000031010

- Talk with your terminal vendor about U.S.-specific logic

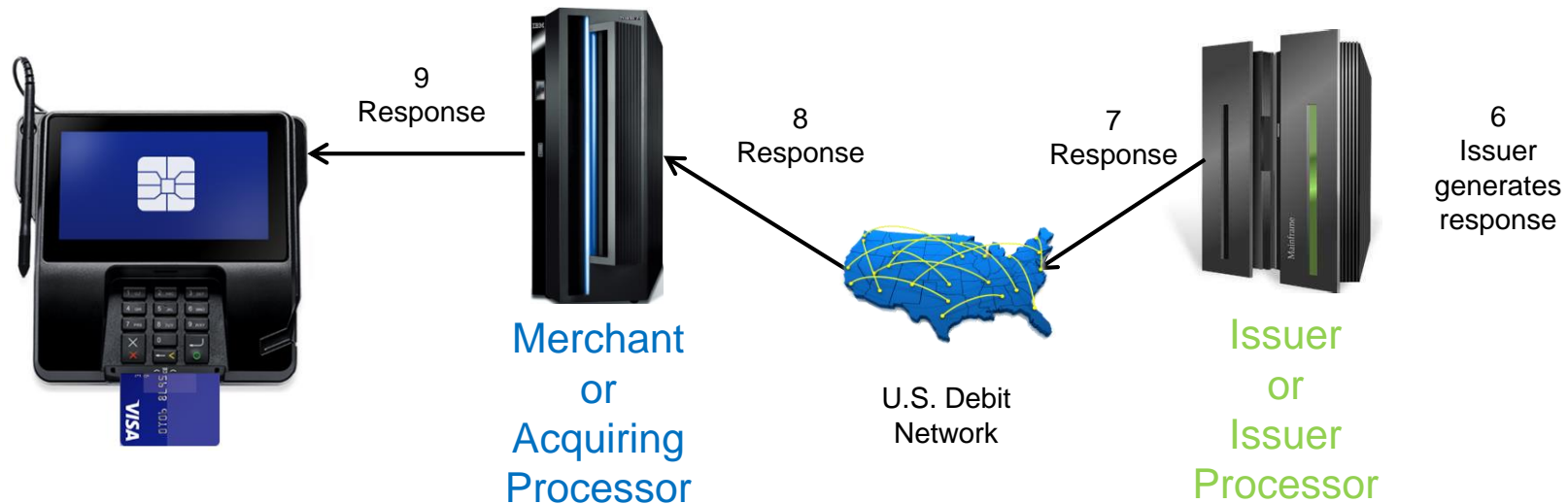
# EMV/Chip Transaction: Authorization Request

## ■ Chip card at chip-enabled terminal



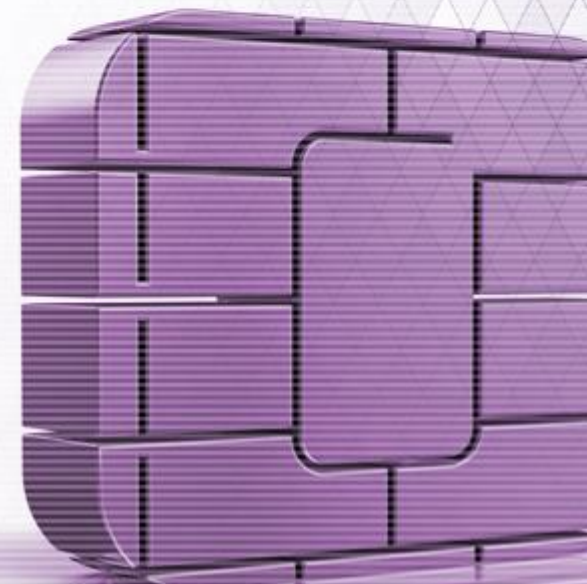
# EMV/Chip Transaction: Authorization Response

- Chip card at chip-enabled terminal



# Testing and Certification

- For U.S. Common Debit AID and DNA Shared Debit AID
- Issuers
- Terminal owners/acquirers
- Check with your payment network representatives to obtain their specific requirements and updated certification test plans





# Resources and References

- EMV Specifications
  - [www.emvco.com](http://www.emvco.com)
- Dodd-Frank Wall Street Reform and Consumer Protection Act and the Durbin Amendment
  - [www.sec.gov/about/laws/wallstreetreform-cpa.pdf](http://www.sec.gov/about/laws/wallstreetreform-cpa.pdf) (page 697)
- EMV Migration Forum
  - Debit Technical Proposal
    - [www.emv-connection.com/u-s-debit-emv-technical-proposal/](http://www.emv-connection.com/u-s-debit-emv-technical-proposal/)
  - [Minimum EMV Chip Card and Terminal Requirements – U.S.](http://www.emv-connection.com/minimum-emv-chip-card-and-terminal-requirements-u-s/)
    - [www.emv-connection.com/minimum-emv-chip-card-and-terminal-requirements-u-s/](http://www.emv-connection.com/minimum-emv-chip-card-and-terminal-requirements-u-s/)
  - Implementing EMV at the ATM, Appendix A  
(Transaction Scenarios involving U.S. Common Debit AIDs)
    - [www.emv-connection.com/implementing-emv-at-the-atm-requirements-and-recommendations-for-the-u-s-atm-community/](http://www.emv-connection.com/implementing-emv-at-the-atm-requirements-and-recommendations-for-the-u-s-atm-community/)
- Debit Network Alliance white papers
  - <http://debitnetworkalliance.com/Guidelines-for-POS-Acquirers.pdf>
  - <http://debitnetworkalliance.com/bp.pdf>

# Project Team

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# Thank you!



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