



Implementing EMV in the U.S.

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

August 7, 2017

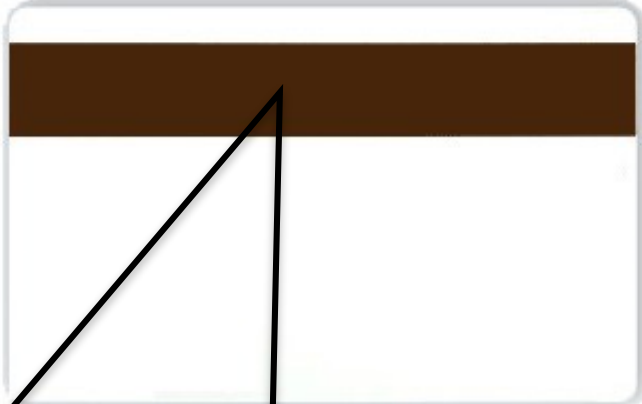
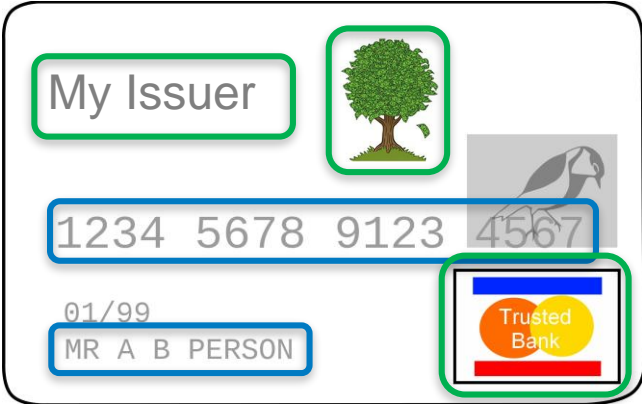
Background

- 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
 - Merchant 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

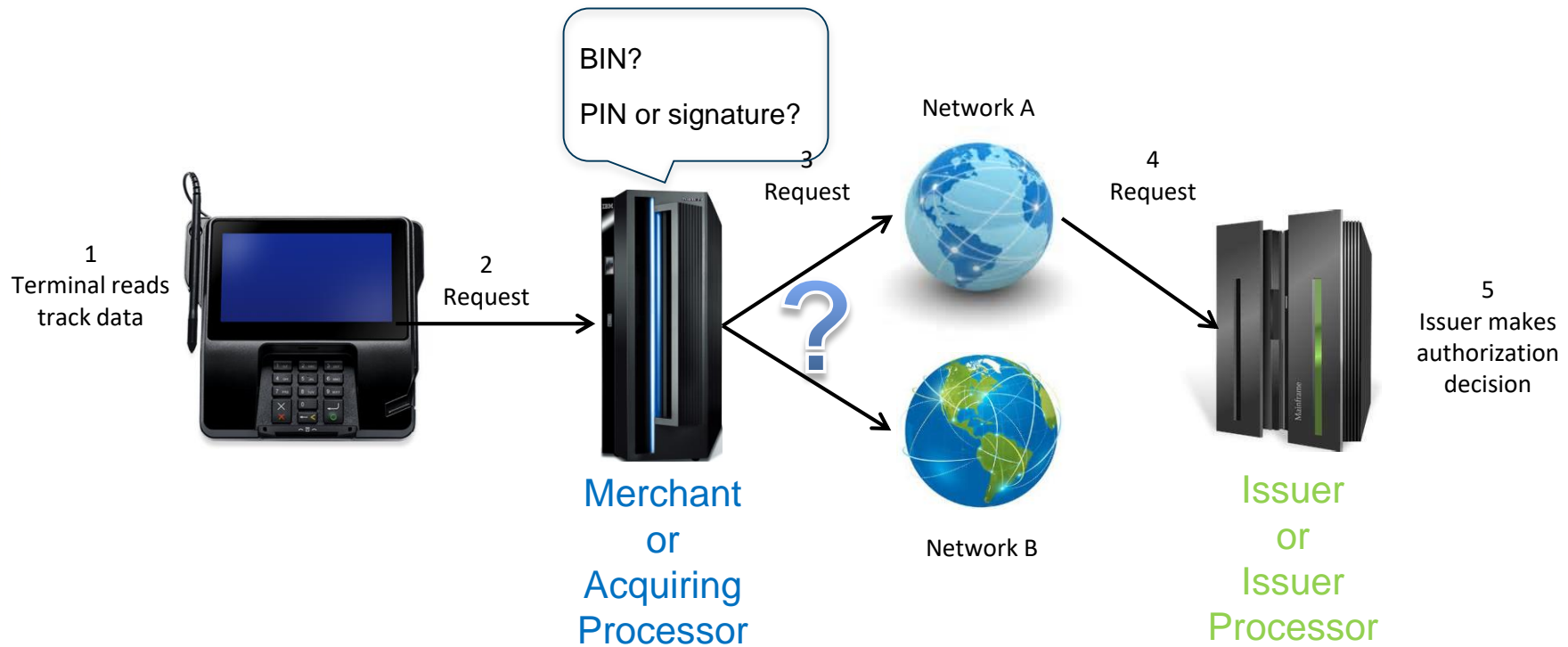
;	Primary Account Number	=	Expiration Date	Service Code	Discretionary Data
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Track 3: maximum of 107 characters

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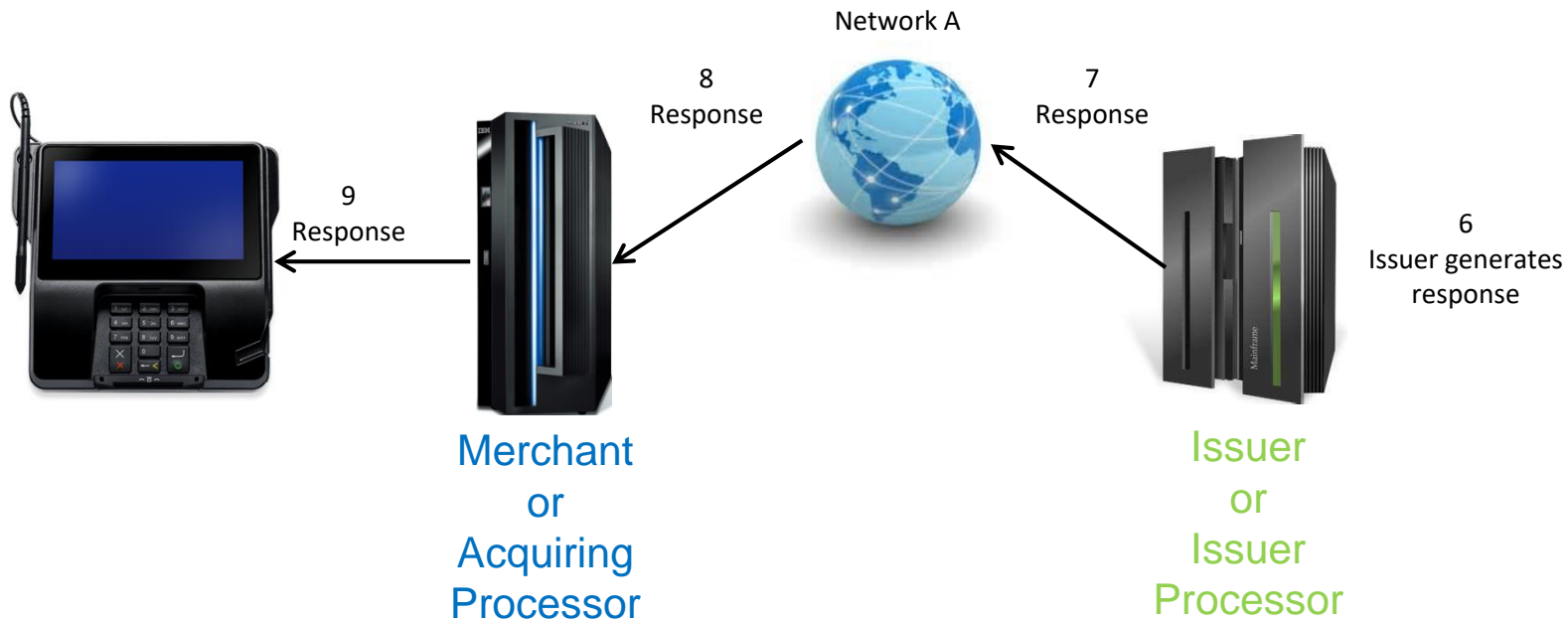
Magnetic Stripe Transaction: Authorization Request

- Magnetic stripe card at magnetic stripe terminal

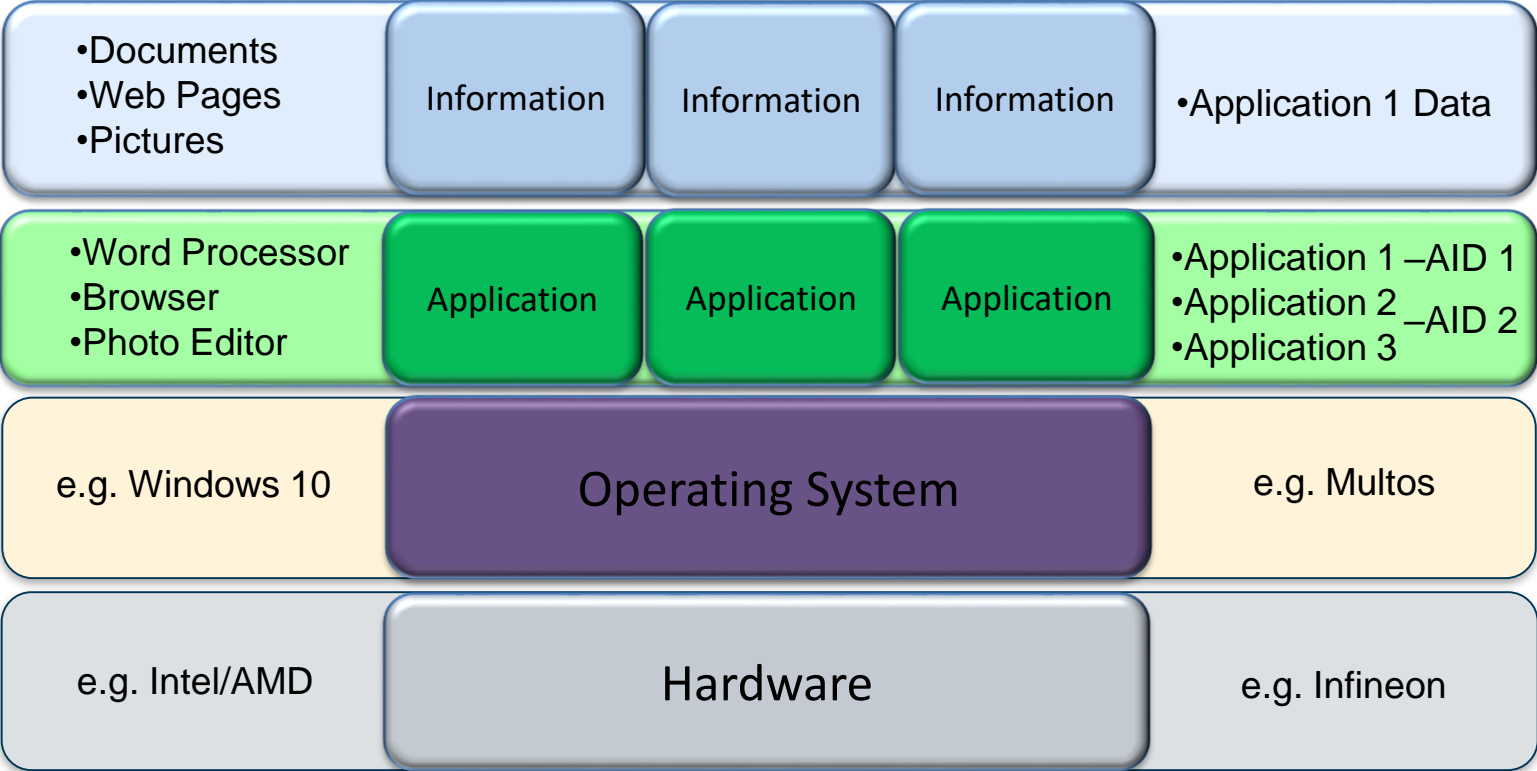


Magnetic Stripe Transaction: Authorization Response

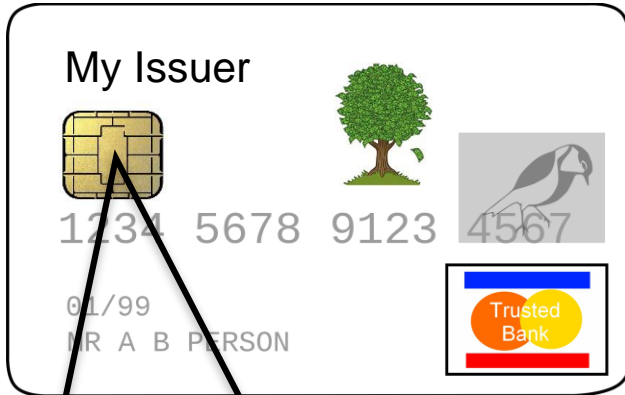
- Magnetic stripe card at magnetic stripe terminal



Chip Card Technology

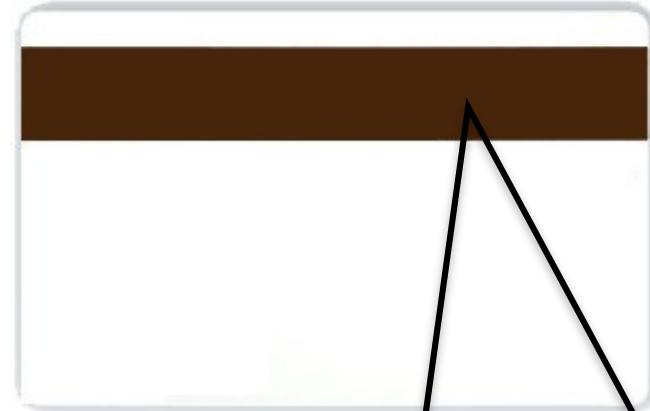


What's on a Chip Card?



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
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Track 2: maximum of 40 characters

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Not used in most financial applications

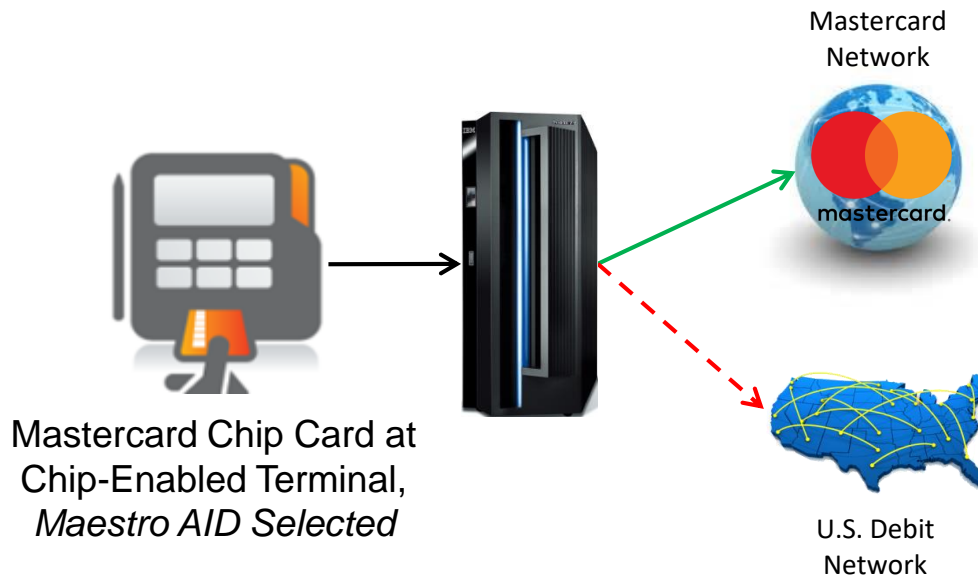
Global Payment Networks and Global AIDs

- “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, the transaction is routed to the associated global payment network



Introducing EMV Brings Challenges

- The transaction is 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 exclusively carry the brand of a global payment network?



EMV Migration Forum Debit Working Committee

- One solution: U.S. Common Debit AIDs
 - <http://www.emv-connection.com/u-s-debit-emv-technical-proposal/>
- U.S. 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. All attempts have been made to present the approach and any market details described herein from an independent and neutral point of view.



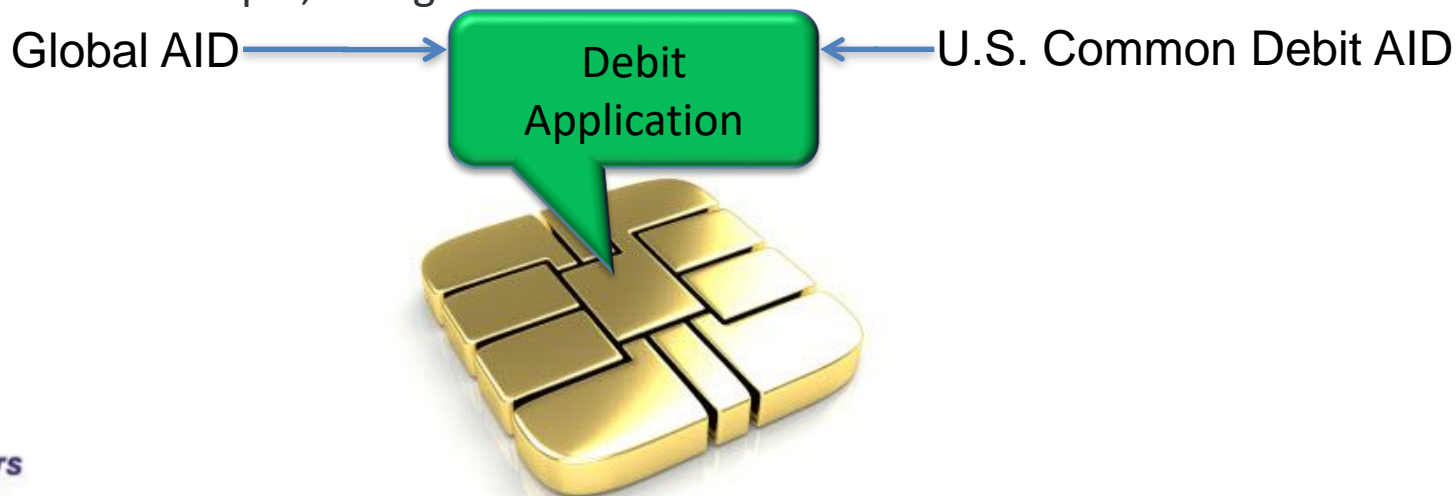
Available AIDs for Merchant Routing Choice

- U.S. Common Debit AID
 - Discover
 - Mastercard
 - Visa
 - UnionPay
 - Shared Debit AID from Debit Network Alliance (DNA)
 - www.debitnetworkalliance.com



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

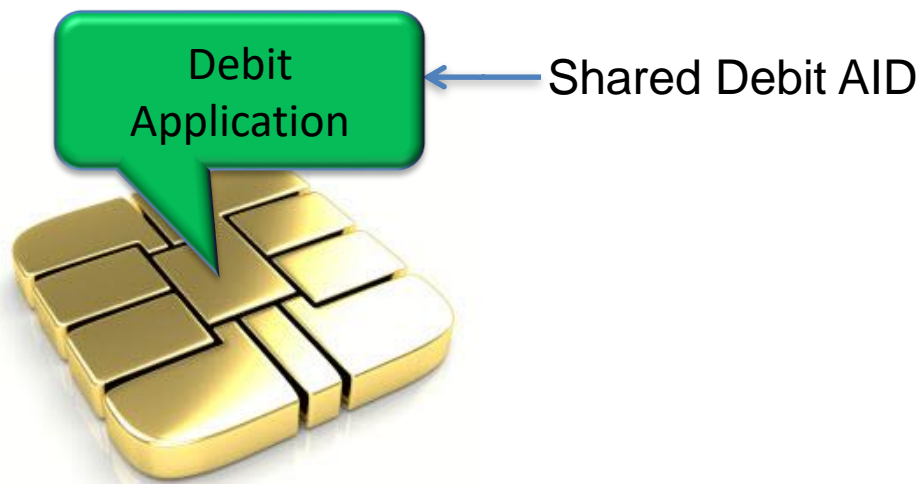
- These debit chip cards typically contain:
 - A debit application from a global payment network
 - e.g. Discover, Mastercard, Visa
 - A global AID from that global payment network
 - Needed for use outside of the U.S.
 - A U.S. Common Debit AID from that global payment network
 - For use in the U.S. for transaction routing to any available debit network, including the global payment network
- Both AIDs 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 typically 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 will determine what AIDs are mutually supported between the chip card and the terminal
 - When there is more than one mutually-supported AID, the AID to use for the transaction may be selected by either
 - » The merchant (via parameters setup in the terminal)
 - » The cardholder



Card Supports (Example):

A000000041010

A000000042203



Terminal Supports (Example):

A000000031010

A0000000980840

A000000041010

A000000042203

A0000006200620

And others...



Application Selection – Same Funding Account

- Terminal selects AID based on terminal parameters set by the merchant
 - Preserves merchant selection of routing
 - Needed to support U.S. Common Debit AIDs
 - Can allow cardholder choice if supported

AIDs Supported by Terminal (Example)	AIDs Supported by Chip Card (Example)
Visa Debit (Global) AID A0000000031010	Visa Debit (Global) AID A0000000031010
Visa U.S. Common Debit AID A0000000980840	Visa U.S. Common Debit AID A0000000980840



Terminal selects either:



- U.S. Common Debit AID for domestic payment network routing
- Global AID for global payment network routing

Application Selection – Different Funding Accounts

– Cardholder selection

- Terminal presents short description of AIDs on screen



Please select one of the following:

- Visa Debit
- Visa Credit

AIDs Supported by Terminal (Example)	
Visa Debit (Global) AID	A0000000031010
Visa Credit	A000000003101001

AIDs Supported by Chip Card (Example)	
Visa Debit (Global) AID	A0000000031010
Visa Credit	A000000003101001

Cardholder selects either:



- AID for debit
- AID for credit

Impact to U.S. Terminal Owners and Acquirers

- U.S. terminals (ATM and POS) will need to support multiple AIDs if they participate in multiple networks
 - Global AIDs
 - For the global payment networks
 - U.S. Common Debit AID
 - For those same global payment networks and U.S. domestic payment networks
 - Shared Debit AID from the DNA
 - » For U.S. domestic payment networks

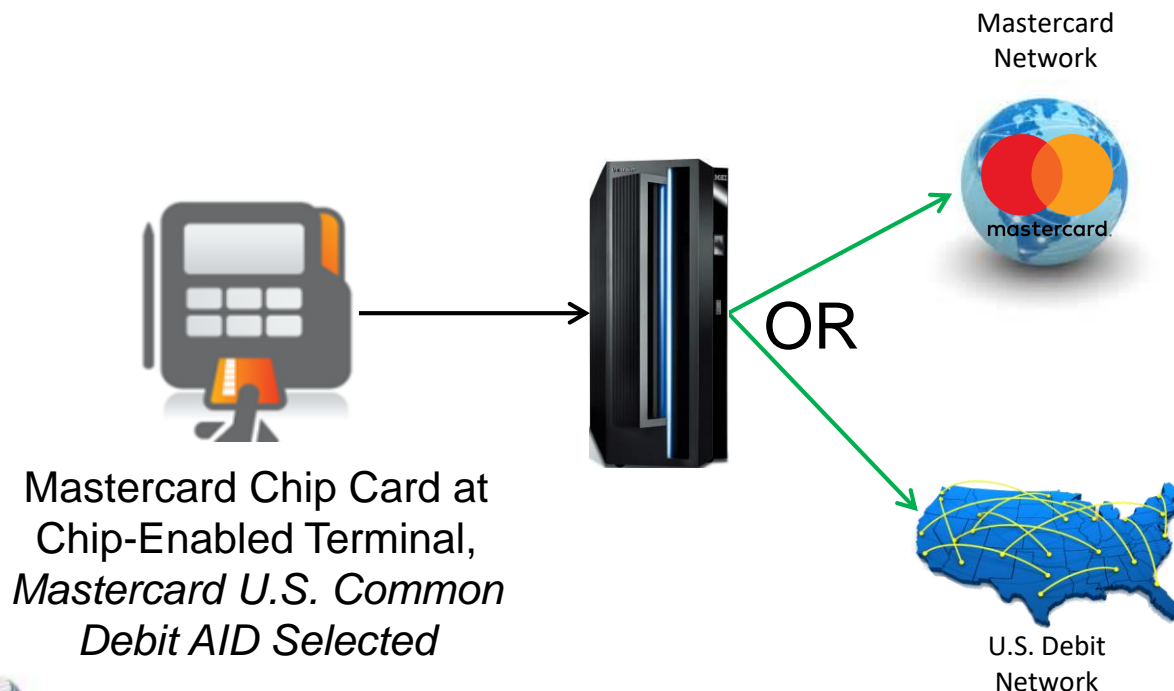


Debit AIDs Supported by a U.S. Chip-Enabled Terminal (Example)

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
Union Pay	A000000333010101
Union Pay Common Debit AID	A000000333010108

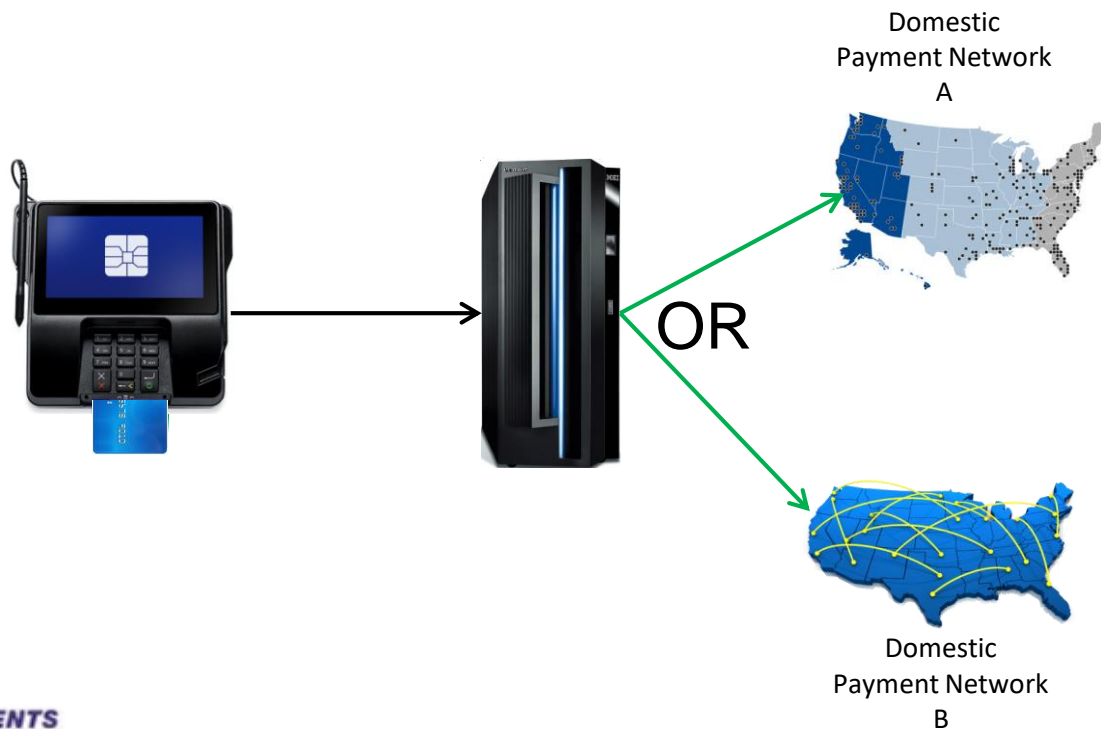
Routing Options When Using a U.S. Common Debit AID

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



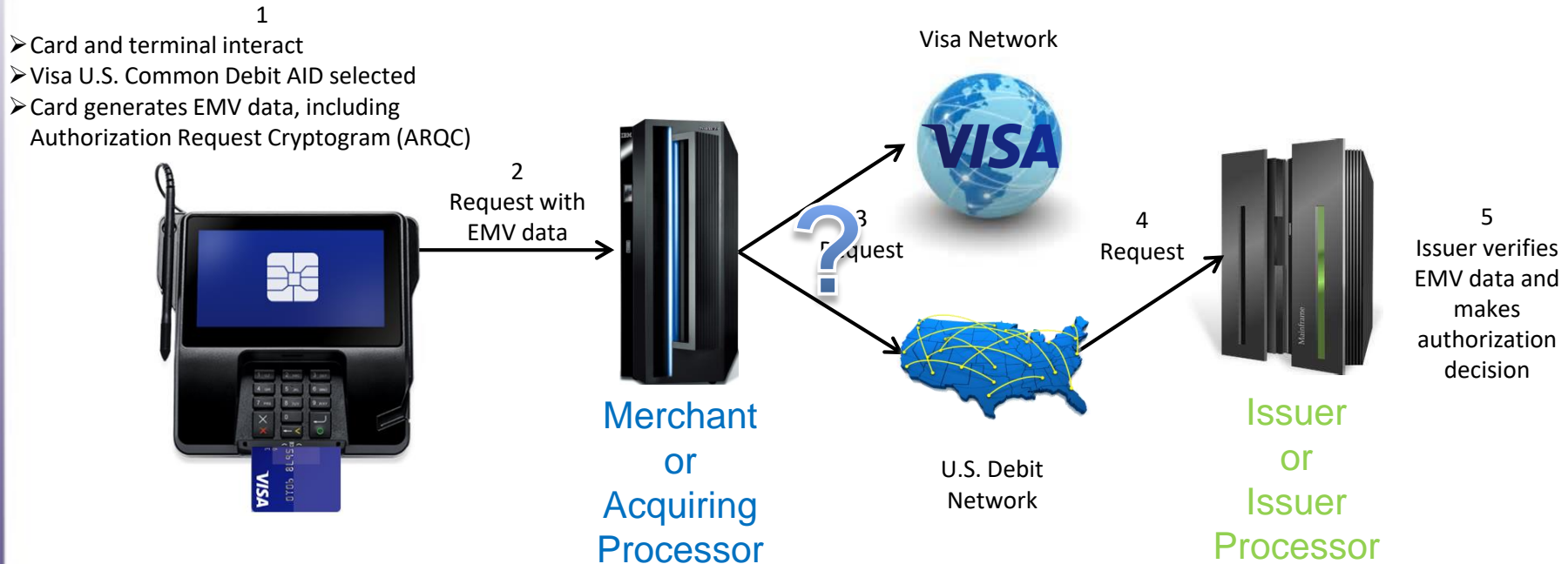
Routing Options When Using the DNA Shared Debit AID

- When the Shared Debit AID from the DNA is selected, the transaction can be routed to any domestic payment network with the DNA Shared Debit AID



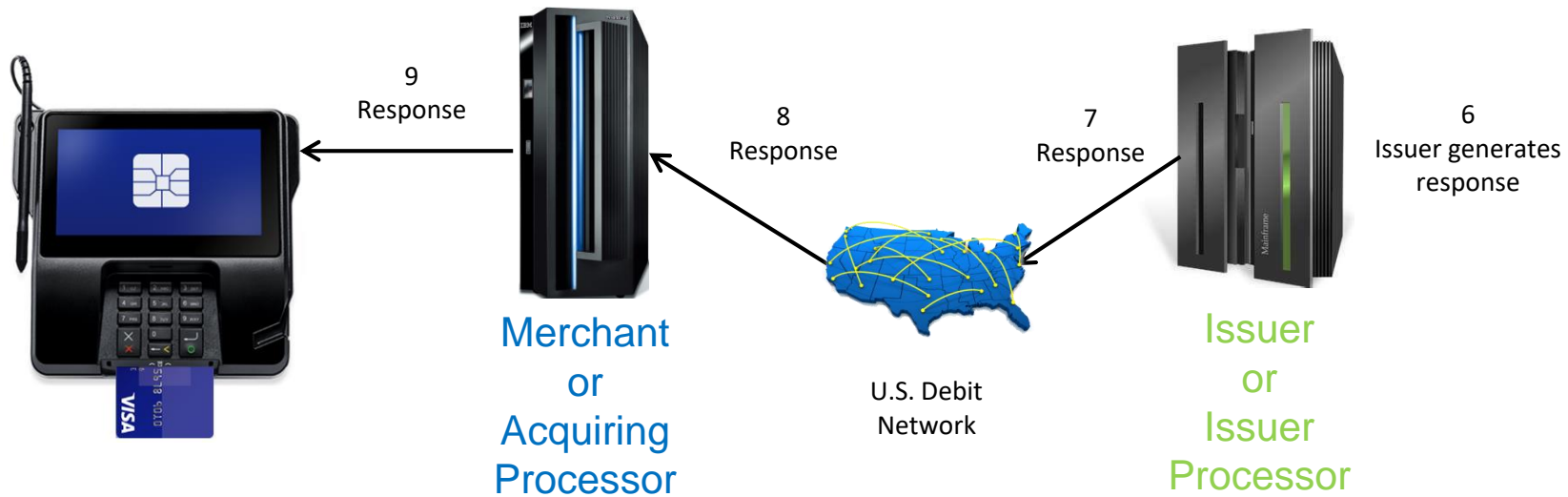
EMV Chip Transaction: Authorization Request

– Chip card at chip-enabled terminal



EMV Chip Transaction: Authorization Response

- Chip card at chip-enabled terminal



Testing and Certification

- 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
- Dodd-Frank Wall Street Reform and Consumer Protection Act and the Durbin Amendment
 - www.sec.gov/about/laws/wallstreetreform-cpa.pdf (page 697)
- U.S. Payments Forum
 - Debit Technical Proposal
 - www.emv-connection.com/u-s-debit-emv-technical-proposal/
 - Minimum EMV Chip Card and Terminal Requirements – U.S.
 - <http://www.uspaymentsforum.org/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/
- Debit Network Alliance white papers
 - <http://debitnetworkalliance.com/Guidelines-for-POS-Acquirers.pdf>
 - <http://debitnetworkalliance.com/bp.pdf>

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Thank you!



www.uspaymentsforum.org

