NIST Workshop on Storage and Processor Card-based Technologies Gaithersburg, MD

APTA Universal Transit Farecard Standards Program

Mr. Thomas Parker

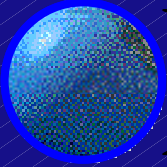*Chair, APTA Farecard Standards Task Force*

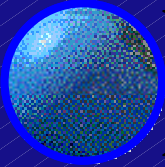**July 9, 2003**

Trivia

Question:

When was NIST established?

Agenda

- ‣ **Objectives**

- ‣ **Background**

- ‣ **Program Benefits**

- ‣ **Organization**
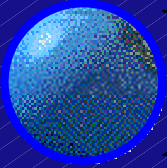
- ‣ **Program Status**

- ‣ **Moving Forward**

Objectives

▸ Provide information on the Universal Transit Farecard Standard Program's purpose, current status, and future plans

▸ Discuss the benefits that farecard standards development will bring to transit agencies

In September 2000, rail CEOs identified issues in relation to Electronic Fare Payment
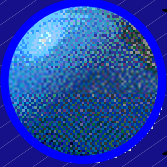
ISSUES

- Financial institutions/bank participation
- Card types
- Fare structure rules
- System operating rules
- System security issues/rules
- Allocation of settlement funds
- Clearinghouse operation
- Retail participation/point of sale devices
- Data warehouse/reporting issues

OBJECTIVES

- **Develop Universal Farecard Standard**
- Determine need for National Standard
- Outline Process for migrating revenue systems to new technologies
- Identify revenue systems hardware and software capabilities
- Define role and participation of financial institutions
- Help agencies understand and navigate the business issues affecting revenue systems
- Help agencies determine cash flow and revenue benefit

APTA

The Universal Transit Farecard Standard is the card to reader interface standard for the transit industry

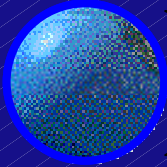**APTA Universal Transit Farecard Standards**

Card to Reader

Transaction Data Records to Host Processor
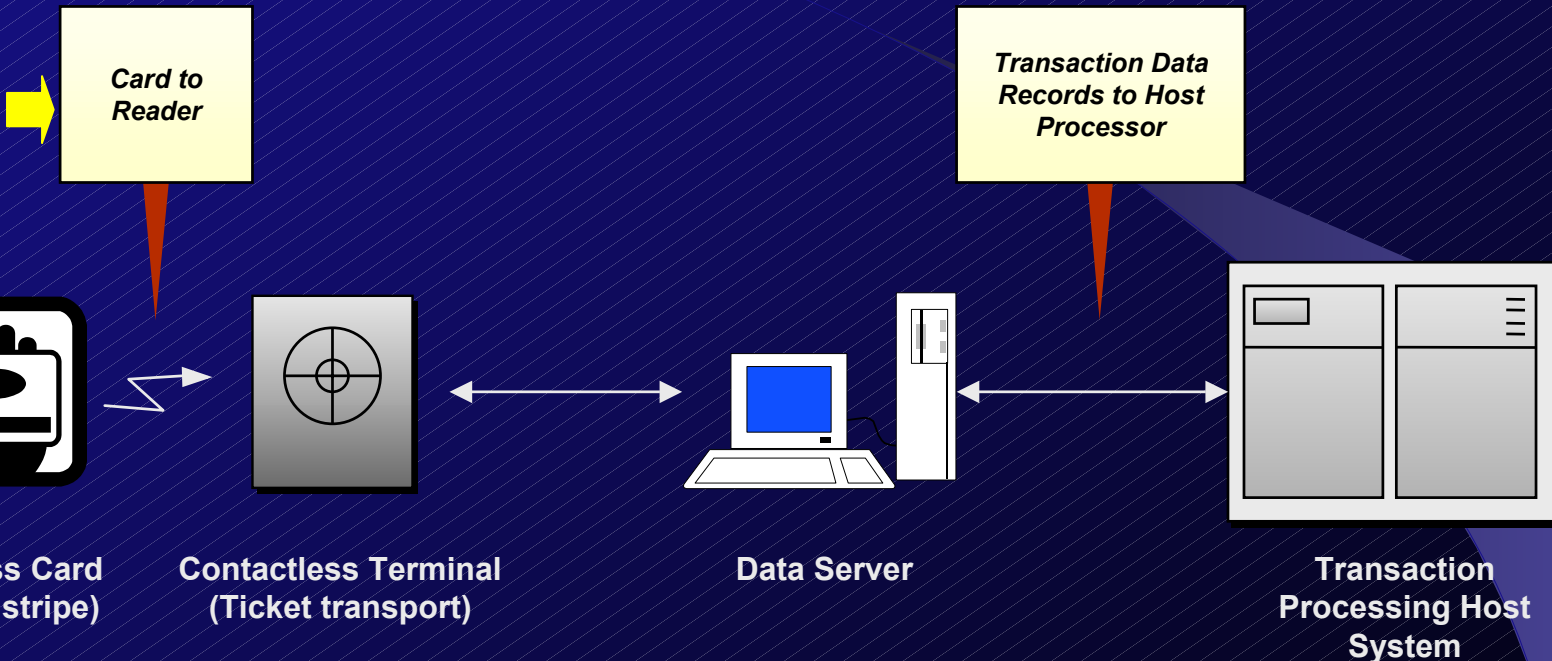
Contactless Card (Magnetic stripe)

Contactless Terminal (Ticket transport)

Data Server

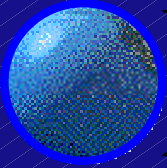**Transaction Processing Host System**

Case study: Standards Development in the Financial Services Industry – ATMs

- ‣ Magnetic stripe ticket standards
  - ISO 7810, 7811, 7813, and 8583
  - Allowed banks to roll out ATMs globally
  - ATM users can access cash anywhere in the world

- ‣ Smart card standards
  - ISO 7816 and Europay/MasterCard/Visa (EMV)
  - Since 1996 all ATMs rolled out are smart card ready
  - Will facilitate growth in industry and opportunity for additional revenue streams
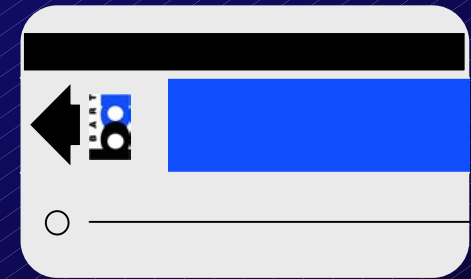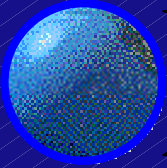
The Rail CEO Committee established goals for the standards program

Regional Interoperability

Develop guidance for procuring regional fare collection systems

Develop process diagram for entire fare collection system

Identify key business decision points and consequences of various decisions

Farecard standards are expected to yield significant benefits for all transit agencies

Technical → **Facilitates regional interoperability and simpler system upgrades**

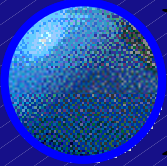**Economic** → **Allows for more open procurements and price competition**

Operational → **Reduces documentation and training requirements and allows agencies to maintain identities in regional system**

Business Opportunities → **Facilitates growth by opening the system to non-transit entities**

The standards program organization consists of three committees with oversight provided by a Task Force

UTFS Task Force

Chair: Tom Parker, BART
Members: Committee Chairs
APTA Program Mgrs
APTA RMC Rep

Fare Media Committee

Co-Chair: Henry Rosen, PATH
Co-Chair: Greg Garbach, WMATA
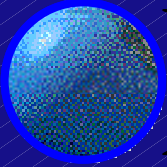**Vice-Chair: Joe Simonetti, Metavante**

Financial Management Committee

Chair: Chung-Chung Tam, CTA
Vice-Chair: Rick Barrett, Quattran Assoc.

Operations Committee

Chair: Carol Wise, COTA
Vice-Chair: Walter Allen, Accumen

Leadership and committee structure were established to develop different aspects of the standards
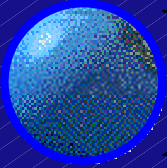
UTFS Task Force	Provides program leadership and committee oversight	
Fare Media Committee	Provides standards, guidelines, and education on fare media and revenue management security elements	▸ Identifies user requirements ▸ Qualifies vendors ▸ Evaluates fare media against requirements ▸ Evaluates security relative to cost, transaction speed, and threats to system
Financial Management Committee	Provides guidance documents that address the business and technical issues surrounding the use of a clearinghouse to facilitate shared payment processing between multiple agencies	▸ Evaluate existing CH models ▸ Identify business/governance issues ▸ Identify functional architectural and interoperability objectives for a CH specification ▸ Document high level architecture issues
Operations Committee	Aids development of regional, interoperable payment system	▸ Develops system allowing for single payment instrument on any transit system
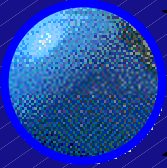
Both transit agencies and private industry play a vital role in standards development

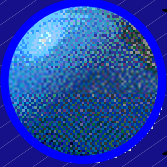|	Role	Program Participants
Transit Agencies	Provide first-hand operating experience so requirements are met	▶ BART, CTA, COTA, DRPA, FWTA, LACMTA, LIRR, MARTA, MetroNorth RR, Montebello Bus, NJT, NYCT, OCTA, PANYNJ, PATCO, PATH, Sac RTD, SF MTC, SamTrans, SEPTA, San Diego, Santa Monica BBB, Ventura Cty Transit, WMATA
Consultants	Provide high level strategic direction and translate transit agency requirements into detailed technical requirements	▶ ACS, Accumen, Booz Allen Hamilton, FC Consulting, HGB Int'l, LTK Consultants, Multisystems, PBS&J, Parsons, Quattran, Systra, Three Point Consulting
Vendors	Confirm the feasibility of building the system/standards and provide an assessment of cost impact	▶ ASCOM, Cubic, Maximus, Metavante, Scheidt & Bachmann, ERG, MasterCard, Philips

The Program has made considerable progress over the past year

Deliverable

▸ Final draft work plans

| Oct 2002 | Jan 2003 | Apr 2003 | Jul 2003 | Oct 2003 |

The Program has made considerable progress over the past year

Major Deliverables

- Fare media common data elements
- Smart card specifications needed beyond existing standards
- Fare media research document
- List of security elements, threats/risks, approaches, and migration issues
- Relative security of fare types
- Identify system goals and identify and evaluate existing models
- Analyze business issues for clearinghouse processing
- Financial management primer
- Program glossary

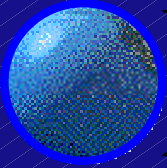**Oct 2002**   **Jan 2003**   **Apr 2003**   **Jul 2003**   **Oct 2003**
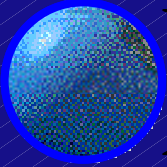
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Major Deliverables

- Define magnetic fare media specifications and testing procedures
- Define smart cardfare media testing procedures
- System security migration issues
- Define procedures for fare media business process
- Develop cost allocation principles/mode
- Identify an agency's requirements for use in developing system specificat...
- Examine various critical operational issues
- Examine operational impact of various fare media
- Define system interface requirements

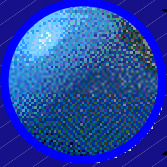| Oct 2002	Jan 2003	Apr 2003	Jul 2003	Oct 2003
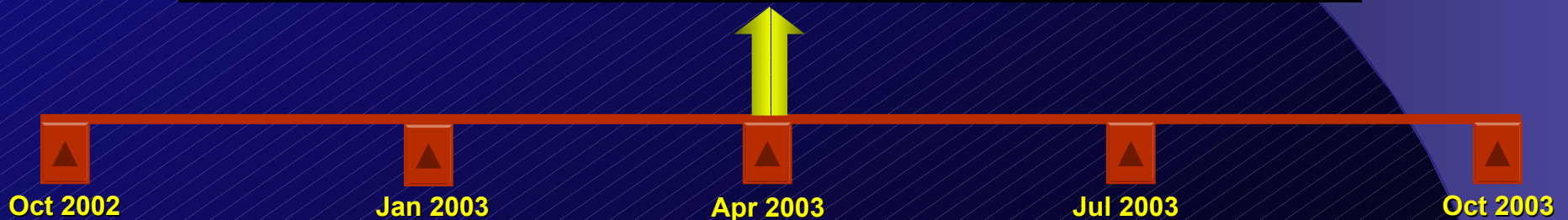
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Major Deliverables

- Identify issues associated with regional vs. local customer service centers
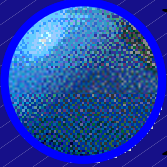- Analyze and evaluate principal business issues identified

Oct 2002   Jan 2003   Apr 2003   Jul 2003   Oct 2003

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Major Deliverables

- Requirements document for regional clearinghouse systems
- Identify and research prototype systems and models

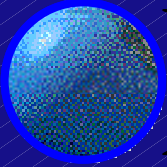Oct 2002   Jan 2003   Apr 2003   Jul 2003   Oct 2003

Moving forward with the Program involves public and private industry commitment

▸ Transit agency participation is absolutely critical

- Goal is to obtain active participation from a wide base of transit agencies so that agency-specific requirements are addressed throughout the process

▸ Program funding

- Financial commitment from public and private industries will allow standards development to proceed on schedule

Summary

> Transit agencies throughout the world are moving toward regional interoperable systems

> Technology solutions are enabling the transition to occur

> Standards development will facilitate regional systems implementation and provide opportunities for new business growth in the transit industry

Trivia

Question:

When was NIST established?

Trivia

Answer:

In 1901 as the federal government's first physical science laboratory.