GLOBALPLATFORM
THE STANDARD FOR SMART CARD INFRASTRUCTURE

GlobalPlatform

Mobey Forum 2005

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Introduction to the Organization

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THE STANDARD FOR SMART CARD INFRASTRUCTURE

What is GlobalPlatform ?

An organization that:

Defines

Requirements and technology standards for smart ***cards, devices*** and ***systems***

Creates

Foundation for future growth

Promotes

Smart card usage and adoption

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Mission Statement

“Establish, maintain and drive adoption of standards to enable an open and interoperable infrastructure for smart cards, devices and systems that simplifies and accelerates development, deployment and management of applications across industries “

51 Members Worldwide

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Strong Industry Adoption

Industries with significant momentum in adopting GlobalPlatform specifications:

- **Financial**

- **Mobile Telecom**

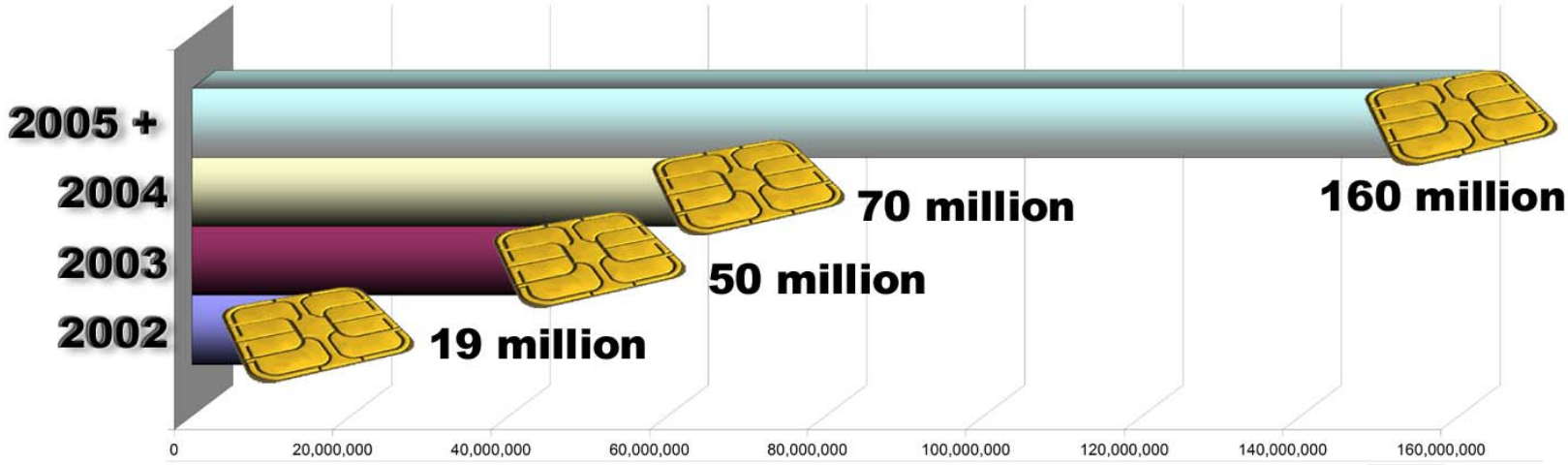
- **Government**

- **Security/ID/Authentication**
  - Suppliers and application developer

- **Healthcare**

Practical Applications of Technology

- Vision and standards are in practice
- Over 70 million cards deployed worldwide
  - Additional 450+ million GSM cards globally use GlobalPlatform technology for over-the-air (OTA) application download



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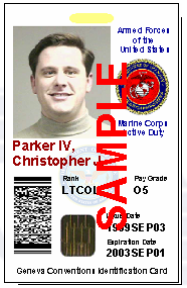
GlobalPlatform Implementations – Over 30!

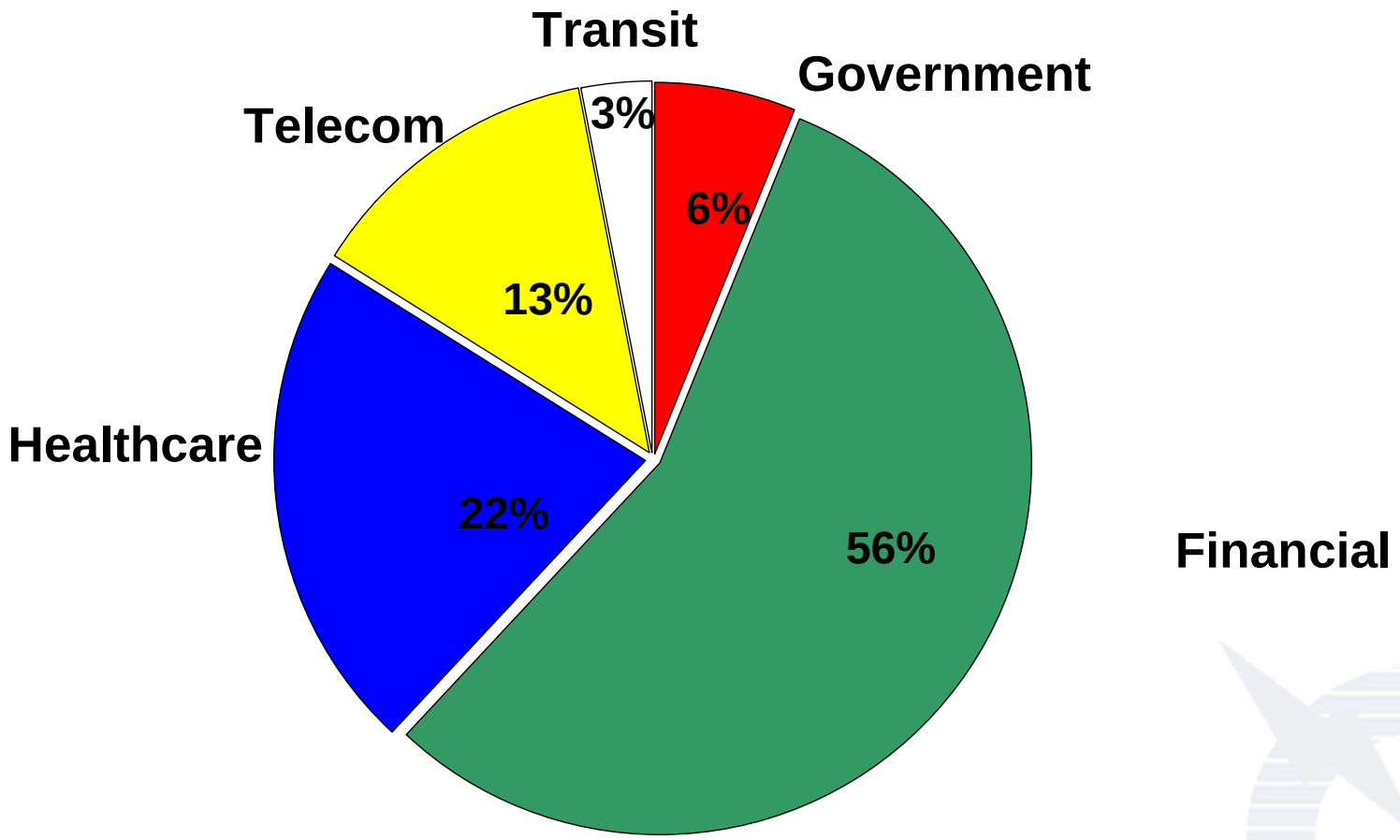
- ANZ Bank
- Bell ID ANDis Management System
- Cassis Mobile Matrix Solution
- Citibank Citismart
- Daejeon Project
- Finnish National Smart Card Payment Program
- First National Bank of Omaha
- GP Systems Specifications
- KT Corporation
- Macau SAR
- Mobile Banking
- Moscow Social Card
- RBC Royal Bank
- Scotiabank card
- SK Telecom
- Smart Card Management System – ACI Smart Chip Manager
- Sultanate of Oman National ID
- Sumitomo Mitsui Card Company Ltd.
- Taiwan National Health Insurance Card
- US Department of Defense
- US smart Visa
- Visa – Profile and Scripts
- Visa Wave
- ZERO-Mass Project

LUOTTOKUNTA



Implementations by Industry

GlobalPlatform technology is implemented in multiple industries



Note: FY05 Projections

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Strategic and Technology Partnerships

- AICF
- ETSI
- Eurosmart
- FINREAD
- INCITS
- JCF
- NICSS
- NIST
- SCA

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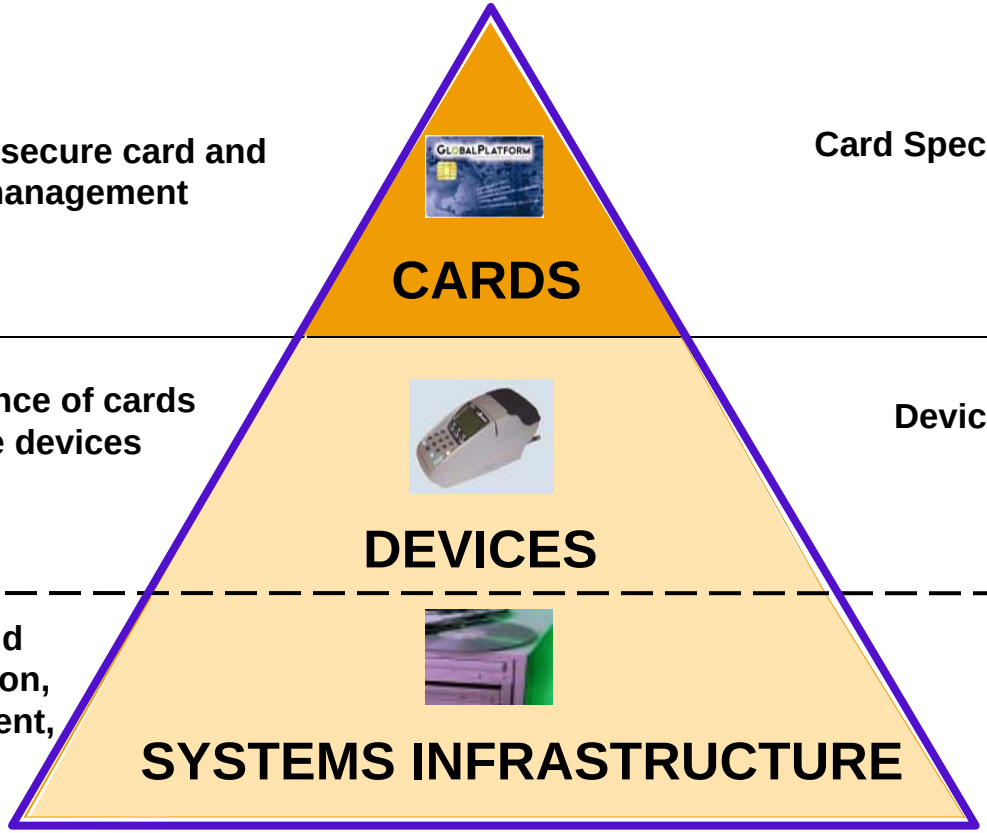
End-To-End Infrastructure



Compliance Program

GlobalPlatform delivers the complete set of smart card specifications for an end to end smart card infrastructure

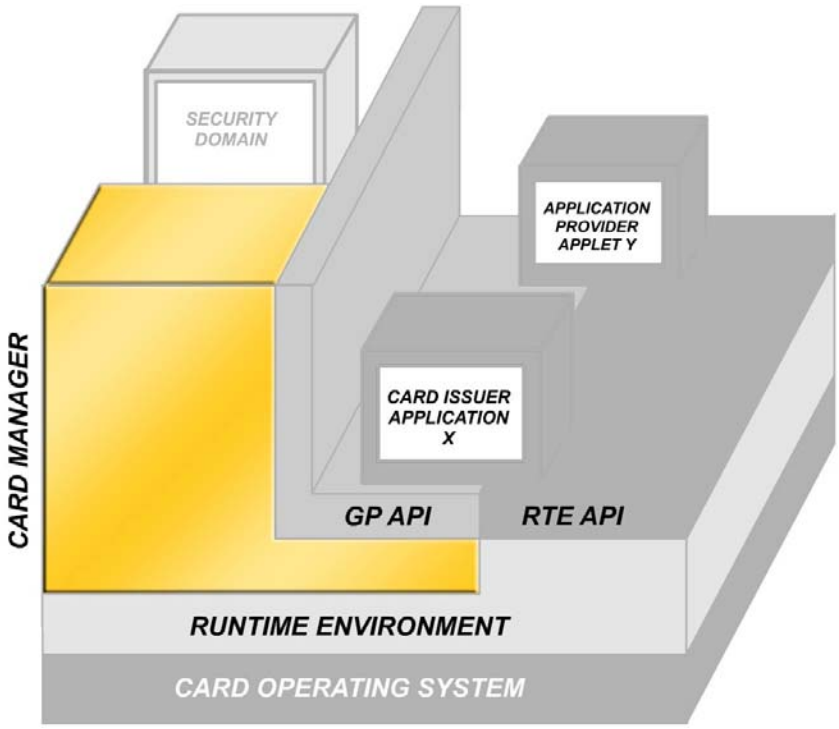
Card Specifications

Objectives

- Overview of smart card architecture
- Define and apply the Card Manager
- Discuss role of Security Domains
- Define the different business models and how they apply to creating a card architecture
- Discuss the service options offered by the GlobalPlatform API

Card Overview

Card Manager Responsibilities



- Managing application loading, installing and deleting
- Application life cycle management

  Independent of the card life cycle
- Security Services
- Issuer Security Domain

Issuer Centric Model

DAP Verification

Application Empowerment Model

Controlling Authority Model

Security Domains

The key to understanding security domains,

is understanding the concept of…

TRUST VS. CONTROL

Controlling Authority	Issuer Centric	DAP Verification	Application Provider Empowerment

GlobalPlatform API Overview

GlobalPlatform API acts as a link to Card Manager and Security Domains including:

- Secure off-card communication
- Card lockdown during security events
- Secure loading of keys on the card

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Secure Channel Protocol

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Card Specifications

- GlobalPlatform Card Specification v2.1.1 & Amendment A
- Formal Model of Card Specification v2.1.1
- GlobalPlatform Card Specification v2.2
  (under finalization)
- GlobalPlatform Card Compliance Program v2.1.1
- GlobalPlatform Card Security Requirements Specification
- GlobalPlatform Smart Card Security Target Guidelines
  (soon to be published)

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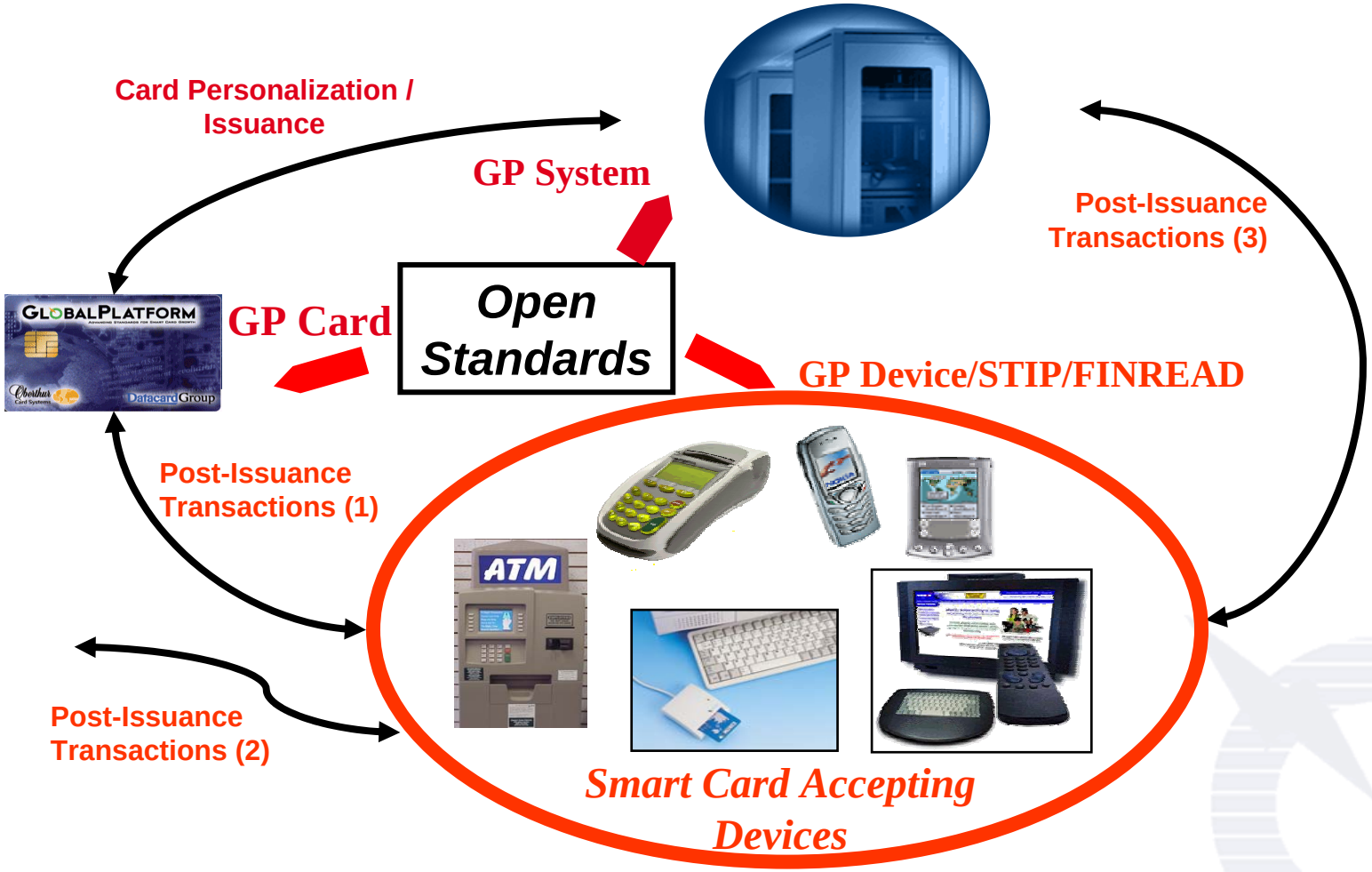
Card 2.2 brings additional PKI features

- PK card management
  - Generic card architecture applicable to both GP v2.1.1 (& v2.0.1) functionality and new PK card management
  - Re-engineering of Card Manager (Issuer Security Domain, OPEN)
- PK secure channel protocol
  - Initialization of secure channel protocol with PK certificates
  - Secure messaging with DES session keys
  - 2 models for DES session keys: real-time / push
  - Unique card interface: standardized APDUs
- Certificate contents & format
  - Minimum contents requirements
- PK services on-card API for applications

Device Specifications

Global View


Card Personalization / Issuance
GP System
Post-Issuance Transactions (3)
GP Card
Open Standards
GP Device/STIP/FINREAD
Post-Issuance Transactions (1)
ATM
Post-Issuance Transactions (2)
Smart Card Accepting Devices

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GlobalPlatform Device Mission

- Enable a multi-application environment on devices
- Enable coordinated development of card and device portions of smart card based applications
- Enable development of portable device applications

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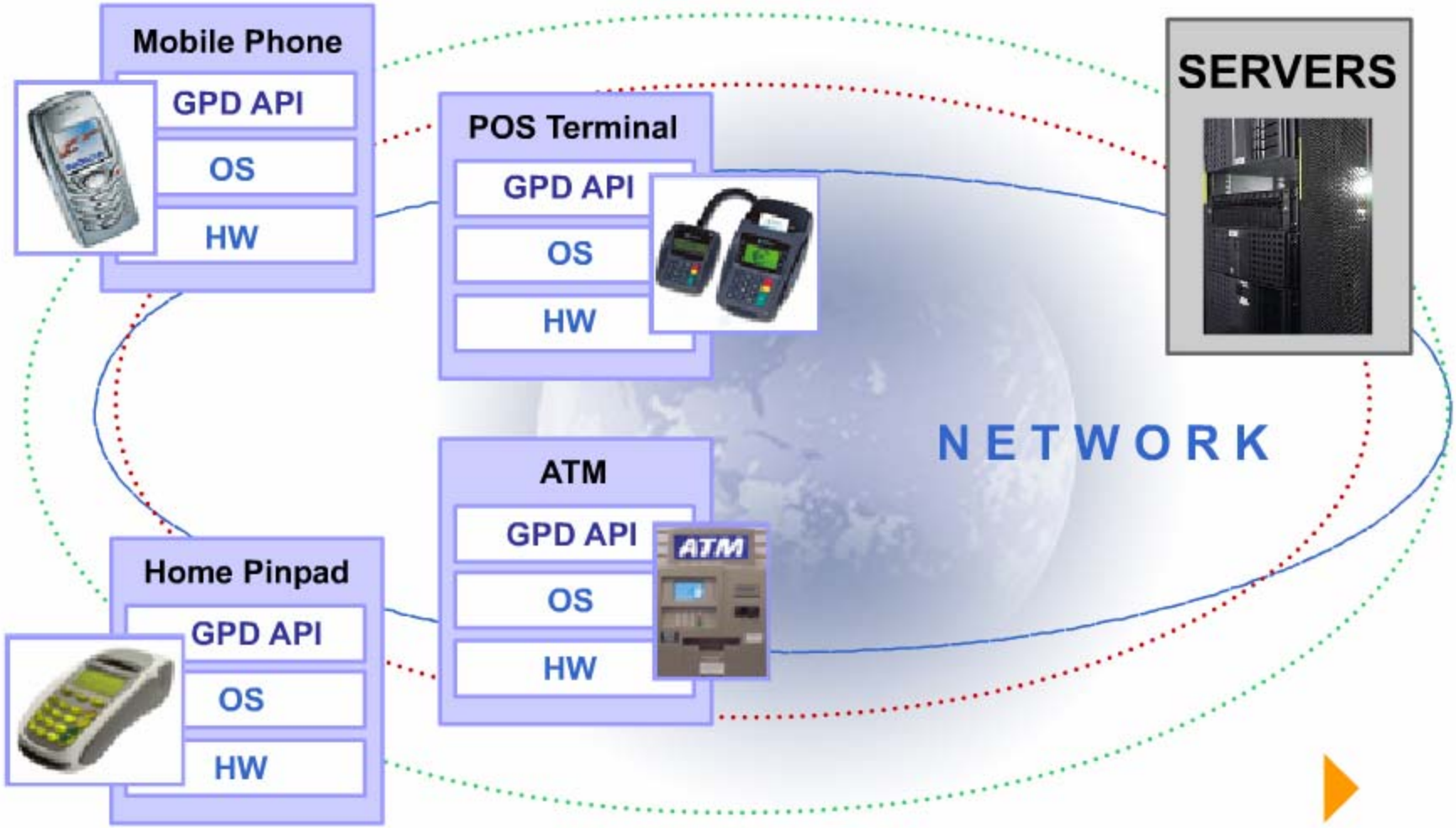
GlobalPlatform Ideal Vision



GlobalPlatform Device Framework Architecture

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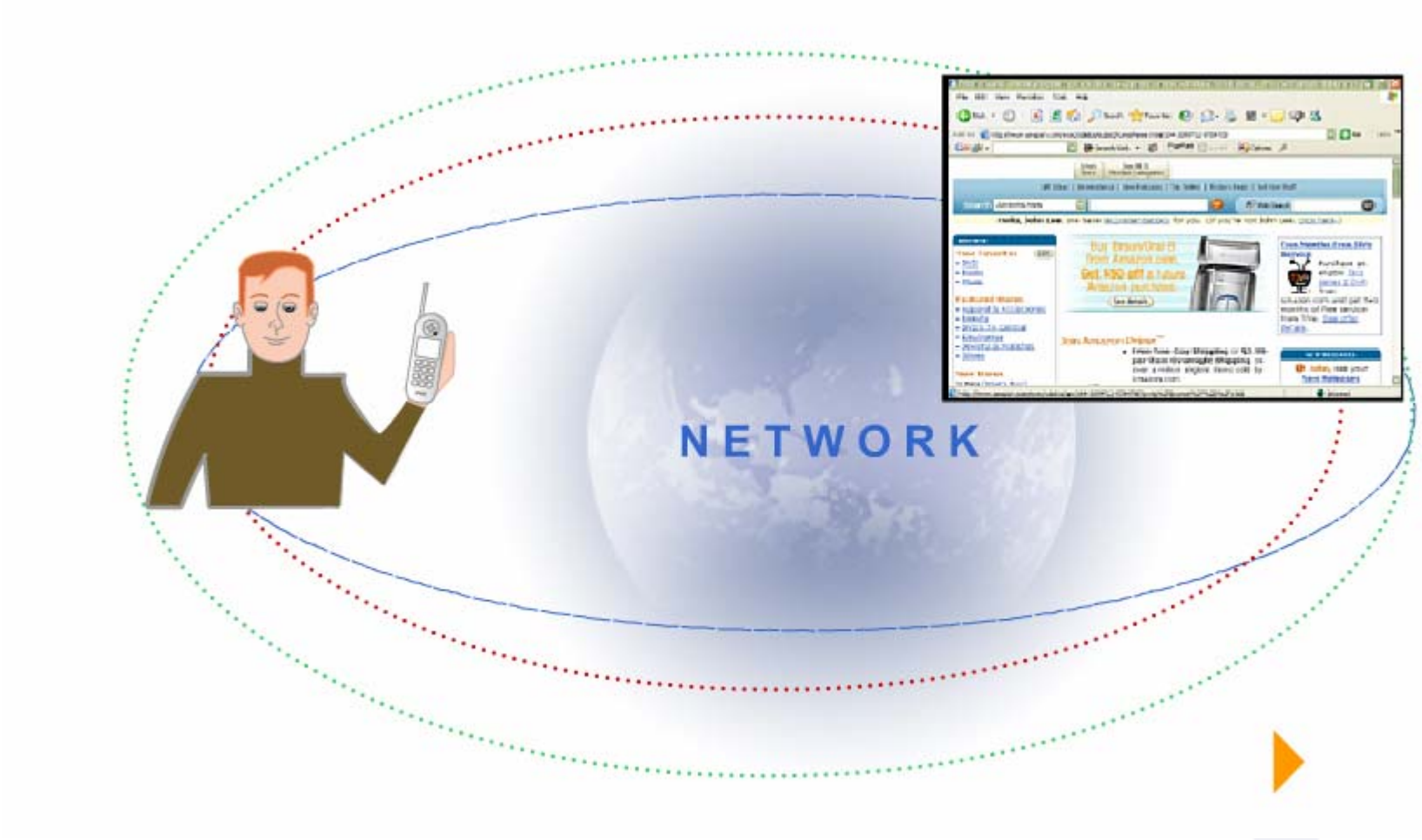
STIP Mobile Profiles



Minimum STIP Resources

- **256KB** of storage memory for the EFT/POS profile (the largest)
- Minimum of **100KB** storage memory for the STIP Common Core Framework Technology
- Processor speed of **1 MIPS** minimum
- **Single or multi-threaded virtual machine** (stiplet uses a single thread)
- Minimum of **16KB RAM** when using JEFF based VM. 32 KB is preferred

Target STIP Platforms

Traditional

(STIP EFT/POS Profile)

- EFT/POS terminals
- ATM
- Parking Meters
- Utility Meters
- Mass transit terminals
- Vending Machines
- Payphones

Emerging

- Mobile Phones *(STIP Mobile Profile)*
- PDAs
- Set top boxes
- Home/office banking terminals *(FINREAD)*
- PC connected Card Reader *(FINREAD)*
- *Next Card Generation? (profile TBD..)*

Stiplets According to Profiles

EFT/POS Profile:

Use **all** plus:

- Magnetic Stripe
- Card Transport

Mobile Device Profile:

Use **all** plus:

- Simple Secure UI
- Master Volume
- Speech
- Vibrator
- Media API

FINREAD Profile:

- STIP smart card
- Crypto
- Timer
- FINREAD UI

STIP Common Services

- Inter-Stiplet
- Smart card reader
- STIPML browser (display and keyboard, printers)
- Beeper, LEDs
- Cryptography
- Card Holder Verification
- Timer
- Date
- Persistent storage
- Power Management
- Communication means (modem, serial)
- Networking (Sockets/HTTP)
- Certificates

Summary of STIP Benefits

- Reduce Development and Certification Cost
- Preserve Application Software Investments for all Application Providers
- Independence from hardware providers
- Enable easy addition of new services to final customers
- Facilitate secure remote maintenance of multi-application environment
- Improved time to market

Device Specifications

- GlobalPlatform Device / STIP Specifications v2.2
  - Java and C# versions

- Abstract API Specification v2.2
  - Compliant with STIP v2.2 and FINREAD specifications
- Device Application Provisioning & Security Specification
  - Complements for different types of devices (e.g. mobile handset)
  - Public draft
- Device Compliance Program
  - Test Plan for GlobalPlatform Device / STIP platform v2.2

International Standardization

- Mobile Telecom Standards
  - ETSI: GSM 03.48, TS 23.048
  - ETSI & 3G Smart Card Platform (SCP): TS 102.225, 102.226
- Government Standards
  - US Federal Government: GSC-IS
- ISO: new part 13 of 7816 series
  - New Work Item from Japan: approved by ISO SC17
  - Work assigned to ISO SC17/WG4, editor: Japan
  - Scope: commands for application management in multi-application environment
  - Contribution: a subset of GlobalPlatform Card Specification, endorsed by ANSI
  - US official contribution to ISO

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Benefits of GlobalPlatform Standards

- **Lower costs to implement single and multi-application smart card programs**
  - Achieved through standardization
  - Economies of scale
- **Greatly simplified personalization environment**
  - Need for specialized knowledge and training reduced
  - Migration to post-issuance personalization greatly simplified
- **Standards promote accelerated growth of applications**
  - “Time to market” is reduced
  - Cardholder value proposition increases

For More Information

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- To download GlobalPlatform Specifications **'royalty free'** and for information about becoming a member of GlobalPlatform, visit our website at:
- www.globalplatform.org