



Trusted Logic

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New Perspectives for Java Card™

Cartes 2004 – Java Card™ Conference

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Outline

- **Where we are today: Market analysis**
- **Why Java Card™ ?**
- **Keys for Java Card™ success**
- **Java Card™ to suit all markets**
 - **Banking**
 - **GSM**
 - **ID**
 - **Transport**
- **Trend analysis for the years to come**



Where we are today

- **Java Card™ is the most widely used open system solution (96%)**
- **Java Card™ shipments in 2004: 300M units in an overall 1200M smart card market (25%)**
 - ❑ Preferred way for GSM (250M) and Banking (50M)
 - ❑ Inroads in other markets (E-passport pilots)
- **Value chain is changing**
 - ❑ Software houses are depending on the cases either:
 - ❑ Providing software masks or technology to card vendors to help them augment their product portfolio or reduce their costs,
 - ❑ Help by-passing the value chain.



Why Java Card™?

➤ High return on investment

- ❑ Develop application once, run on several platforms
- ❑ Modular security certification: certify platform once; certify applications separately.

➤ High degree of configurability/flexibility

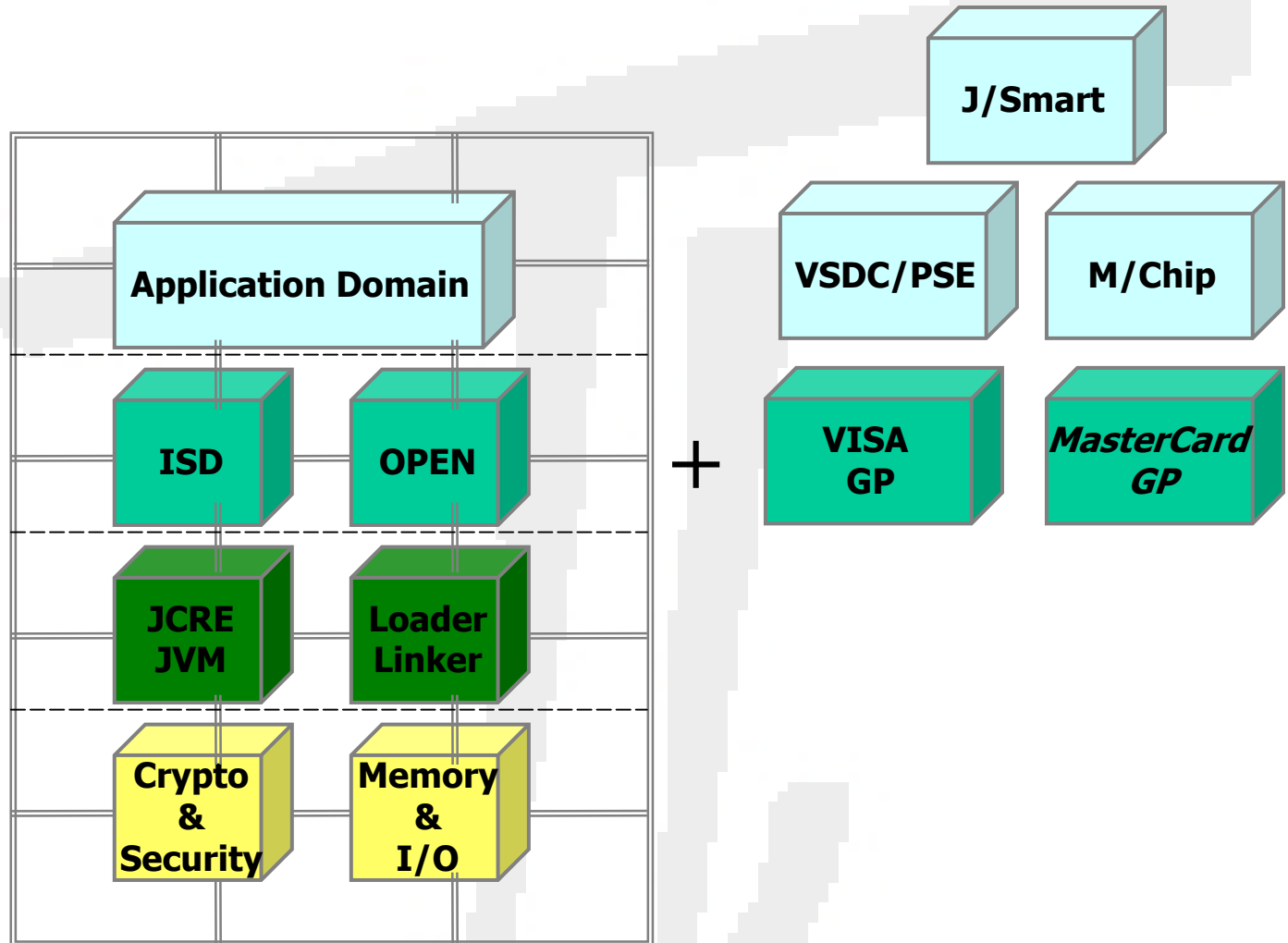
- ❑ True multi-application framework
- ❑ Add/delete/update applications even after deployment
- ❑ Easy adaptability for market segments (e.g. contact/contactless), if platform designed with modularity in mind



Keys for Success

- **Maturity of the technology**
 - ❑ JC 2.1.1 / GP 2.0.1' and JC 2.2.1 / GP 2.1.1
 - ❑ Standard development environment & testing tools
 - ❑ Industry approvals in place (Visa, MasterCard)
- **Interoperable multi-application environment**
- **Standard and approved applications are made available**
 - ❑ EMV (VSDC, M/Chip), ICAO (LDS)
- **Security maturity**
 - ❑ Common Criteria certifiable with Java Card System Protection Profile and GlobalPlatform Security Requirements
- **Market pull**

Banking Add-on





Banking Market

- **GlobalPlatform specification propelled Java Card™ in the banking segment**
 - ❑ Original Open Platform specification (designed by Visa)
 - ❑ Approval processes in place (Visa, MC)
- **As of today, smaller JC/GP penetration than expected due to slow EMV migration**
- **Penetration will be reinforced with Java Card S program**
 - ❑ Cost-effective alternative facing native solutions
 - ❑ Smooth migration to true multi-app
 - ❑ Endorsed by banking organizations

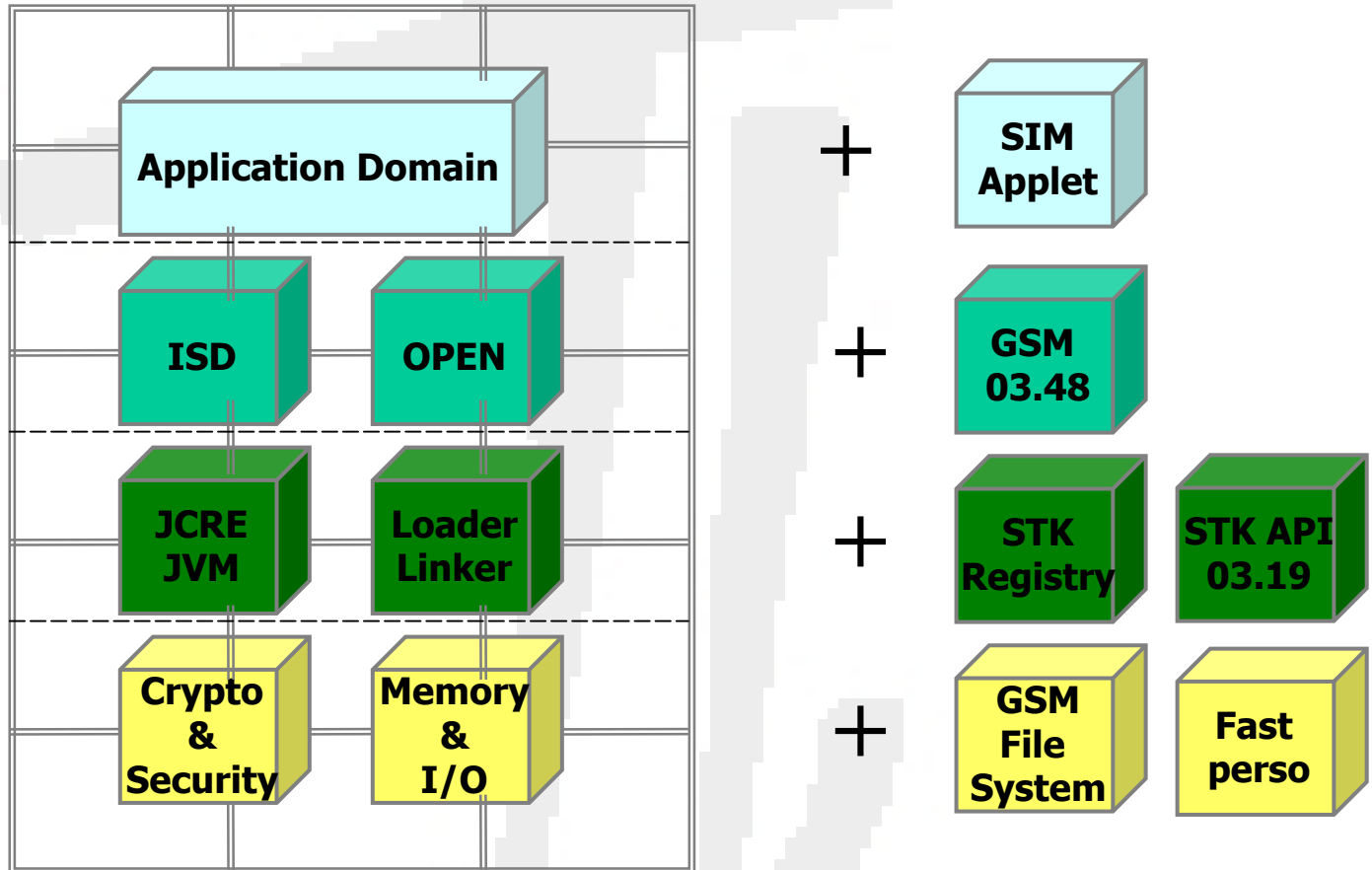


GSM Market

- **Java Card™ took the SIM market by storm in 1998 and ruled out its open systems competitors**
- **SIM cards represent the bulk of Java Card™ shipments today**
- **Steady growth for 3G holds great promise for Java Card**
 - ❑ **Telco operators in need of more memory (128k) to house differentiating value-added services (e.g. browsers, WIM applications).**
- **Telco operators looking to extend reach by offering new services through partnerships with banks (m-commerce)**



GSM Add-on



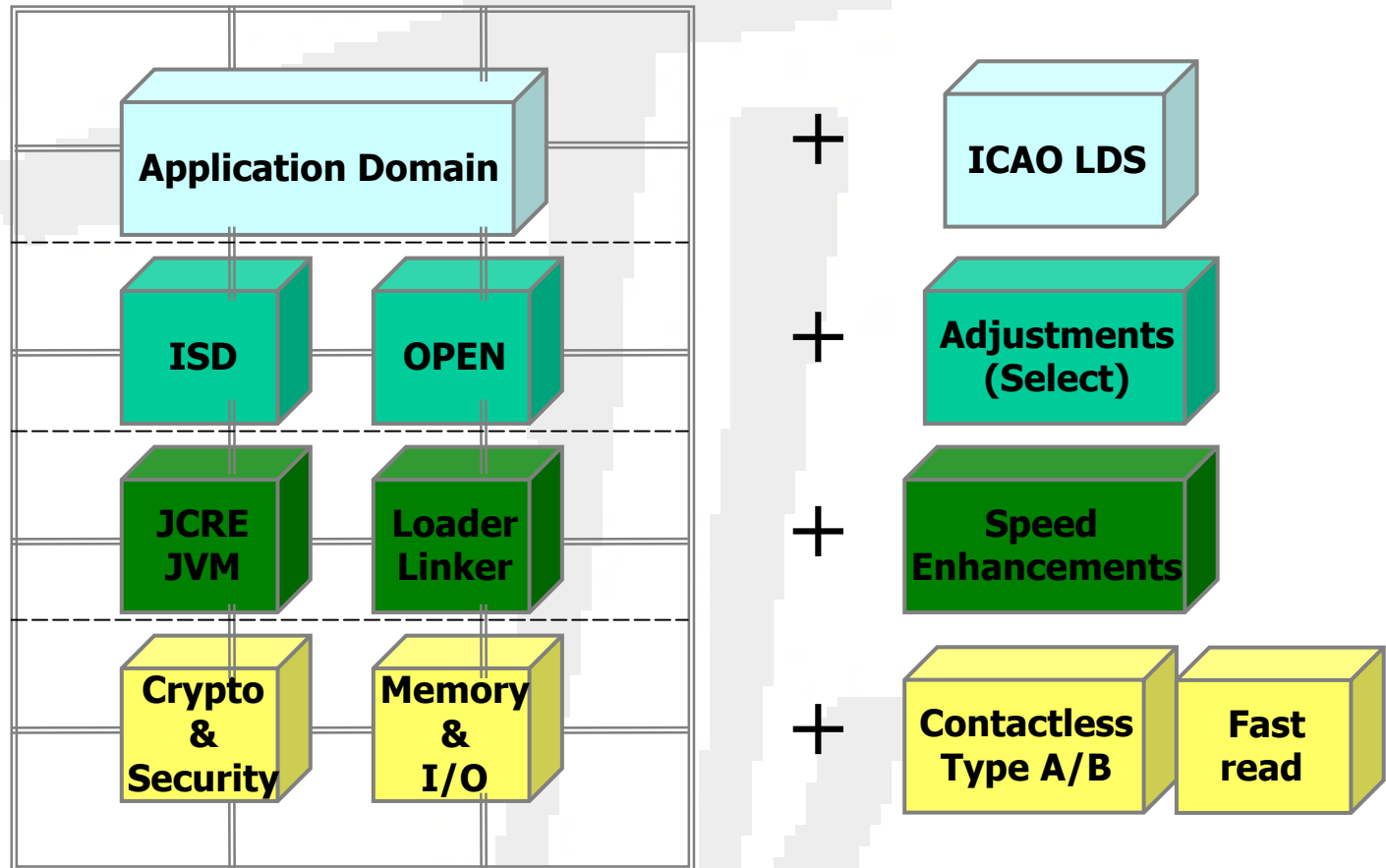


ID Market

- **Contactless approval processes now in place.**
- **ICAO specification is getting mature for E-passport**
- **National ID programs represent the next best opportunity for Java Card after GSM**
 - ❑ Many E-passport projects launched worldwide this year: 2005 will be a piloting year
 - ❑ Multi-application clearly is the key value driver for governments (national ID together with social security, drivers' license, etc.)
 - ❑ Strong demand for Common Criteria certification
- **Corporate ID (employee Ids) also offers opportunities**
 - ❑ US Department of Defense "Common Access Card"



ID Add-on



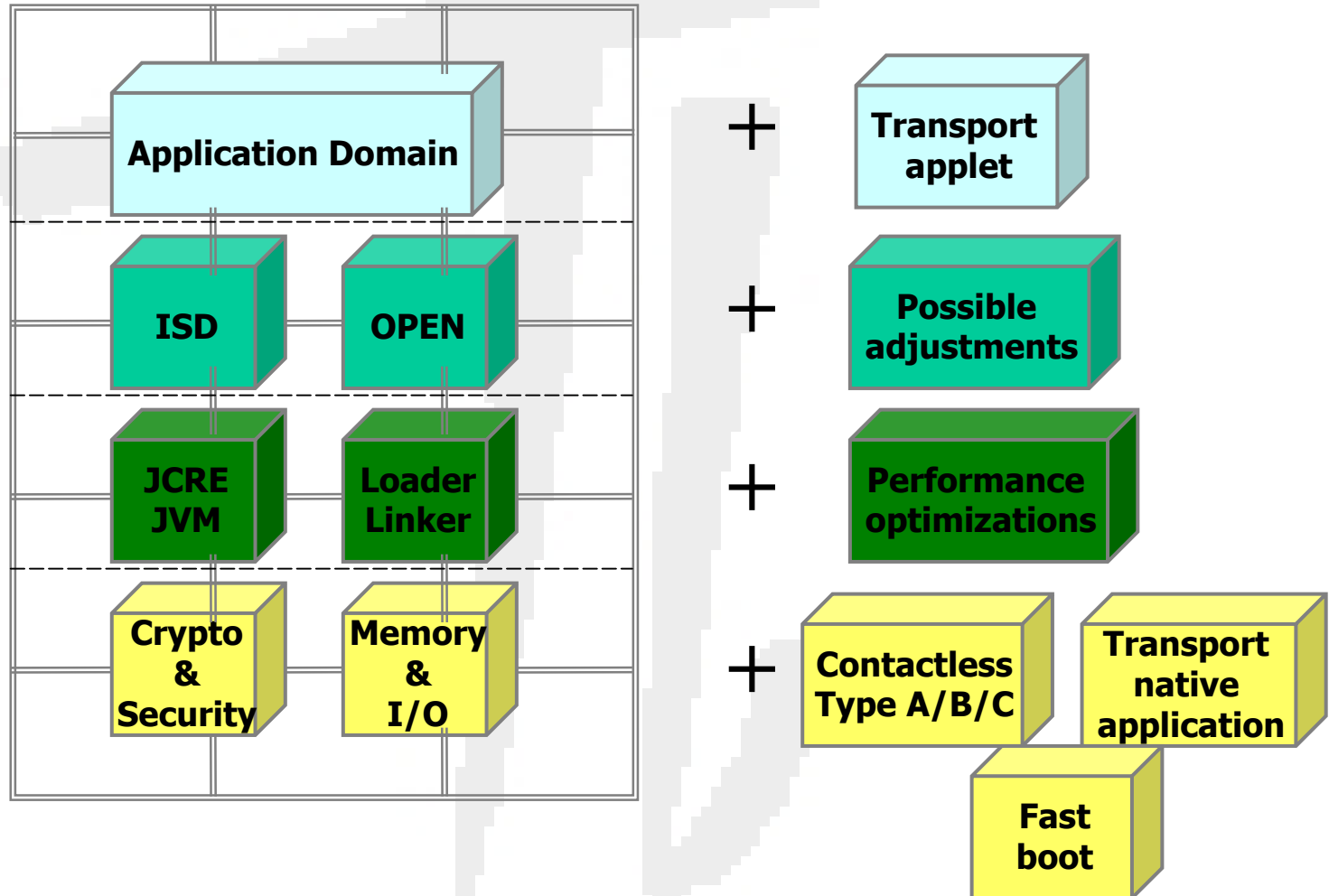


Transport Market

- **More than elsewhere, platform modularity is key**
- **Slow take-off due to technical difficulties with drastic timing constraints. These are now being overcome.**
 - ❑ Market interest in replacing existing native solutions with Java Card (e.g. Calypso, etc.).
- **Pilots include**
 - ❑ Single JC enhanced core with transport applet
 - ❑ Dual system (native + JC) with standalone transport application and cross-accesses
- **C/L ticketing applications often combined with C/L and C/B payment services (e-purse, debit/credit)**
 - ❑ VISTA project to be launched end 2004 in Asia Pacific region



Transport Add-on





Trend Analysis

- **Success factors are now brought together. Strong market pull:**
 - ❑ Increased share in EMV migration with Java Card S program
 - ❑ Steady growth in GSM with the advent of 3G and m-commerce
 - ❑ Very high potential in national ID market
 - ❑ Significant inroads in transport segment
- **Java Card market expected to grow by more than 30% each year**
- **Java Card market will continue to increase its share with respect to native solutions.**