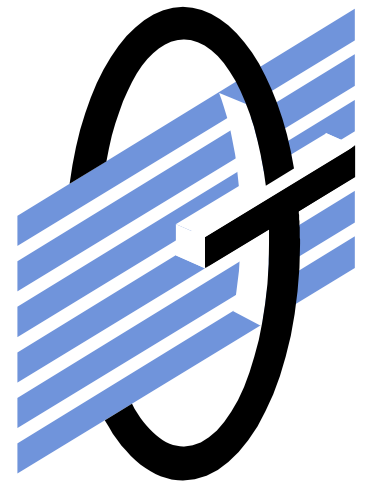




*Simpler, more secure and more enjoyable,
making the world a smarter place.*



GEMPLUS

At the Crossroad of Information Age

Communication

- ✓ Wireless
- ✓ Digital
- ✓ Interactive
- ✓ Multimedia



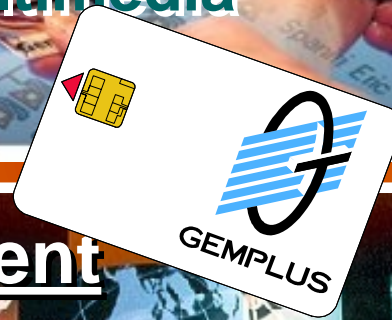
Commerce

- ✓ On Line
- ✓ At Home
- ✓ Customized
- ✓ Global



Content

- ✓ Digital
- ✓ Compressed
- ✓ Accessible
- ✓ Affordable



Computers

- ✓ Personal
- ✓ Light
- ✓ Easy-to-use
- ✓ Connected

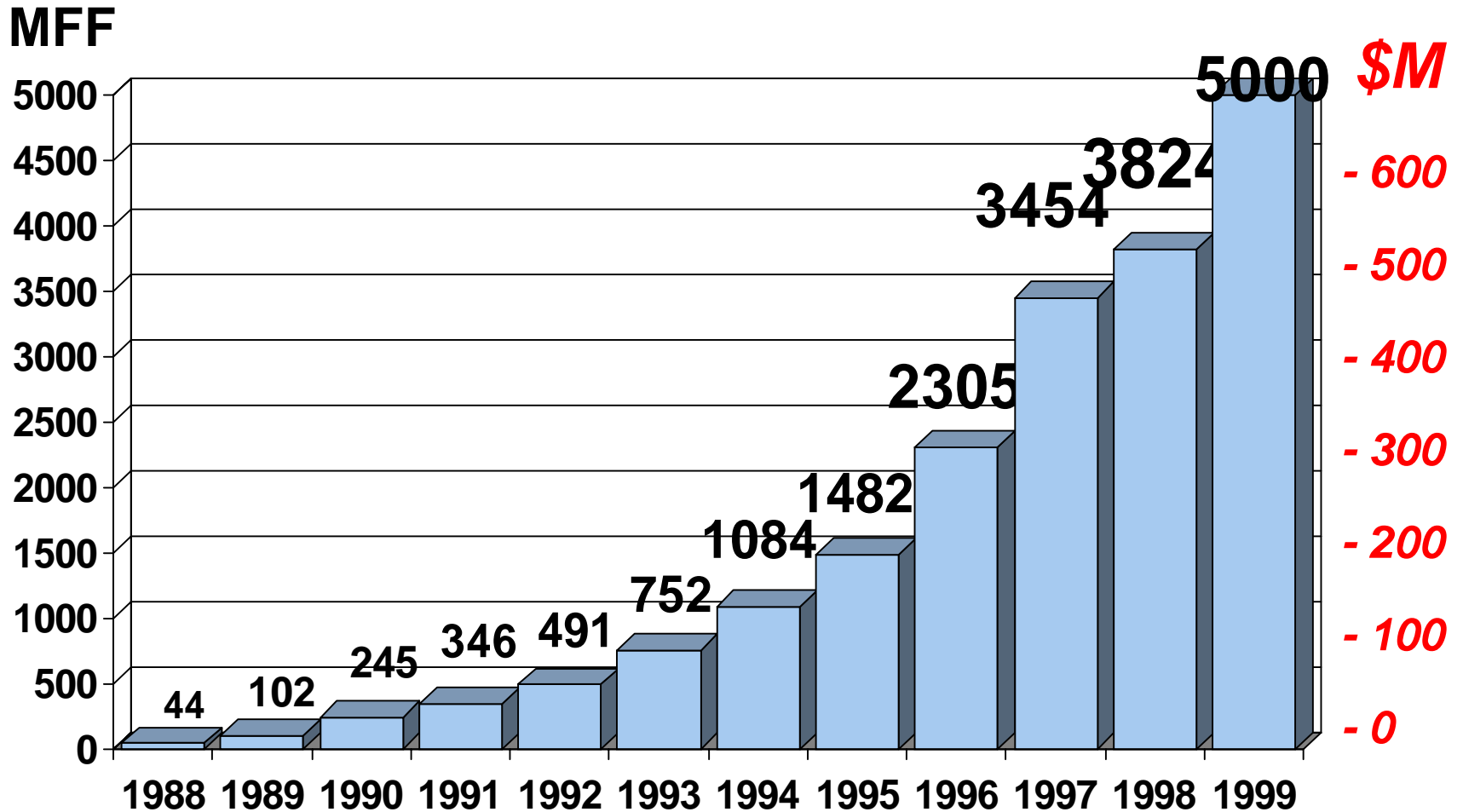


Mission

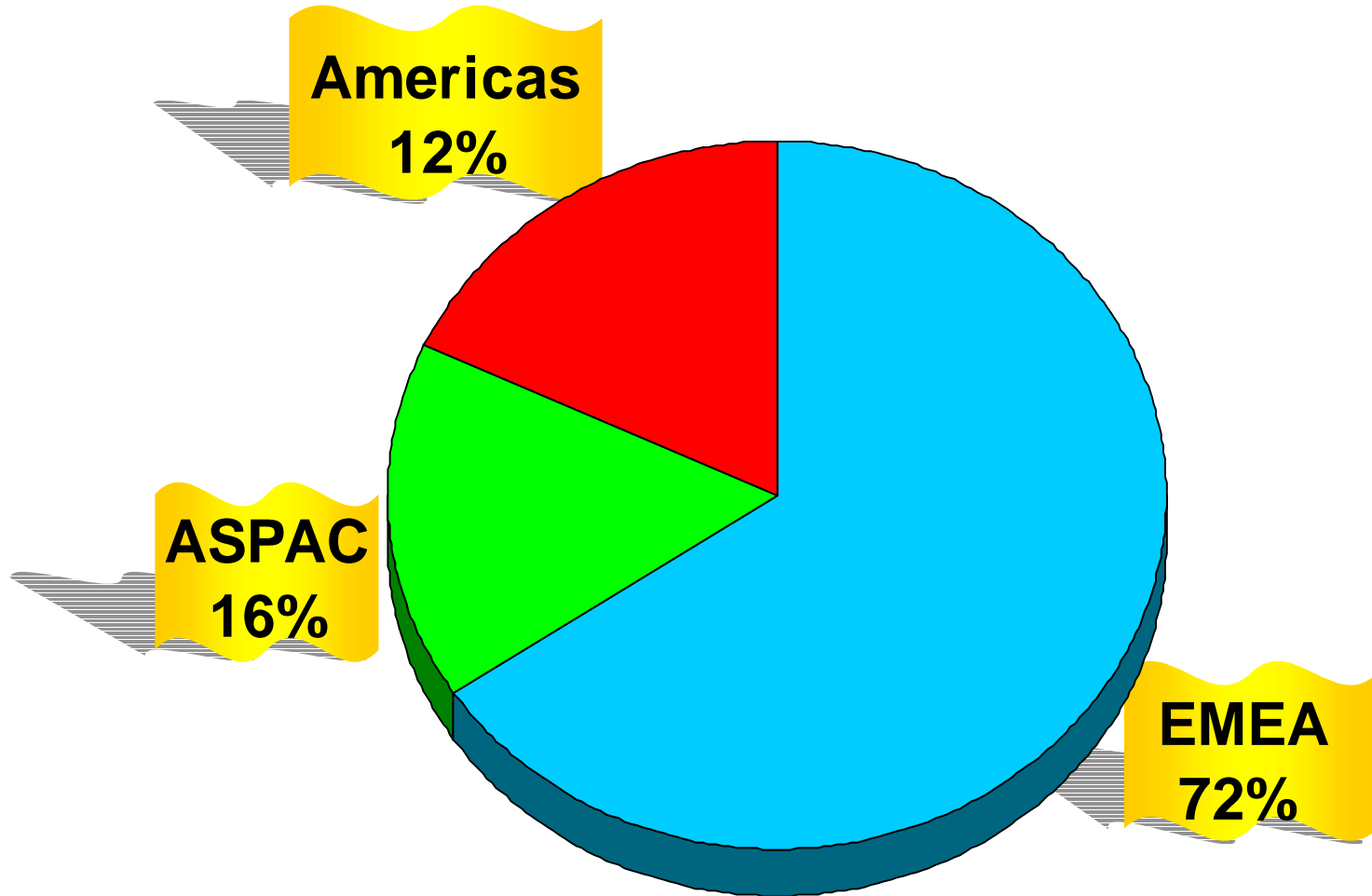


**To simplify and secure
electronic transactions
and access to information
by delivering
smart object-based
solutions.**

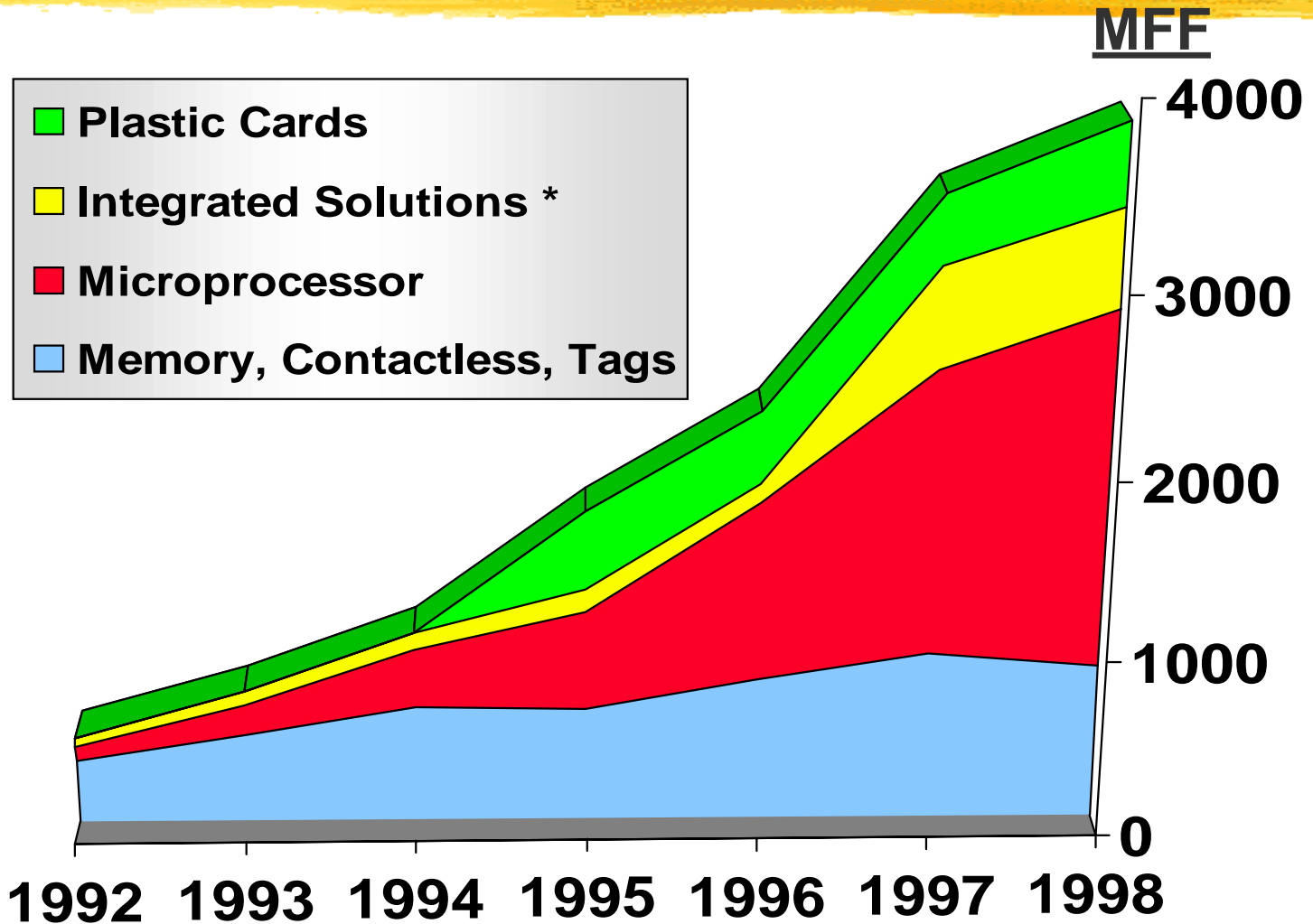
Gemplus : Total Revenue



1999 Revenue Split



Split of Gemplus Revenue

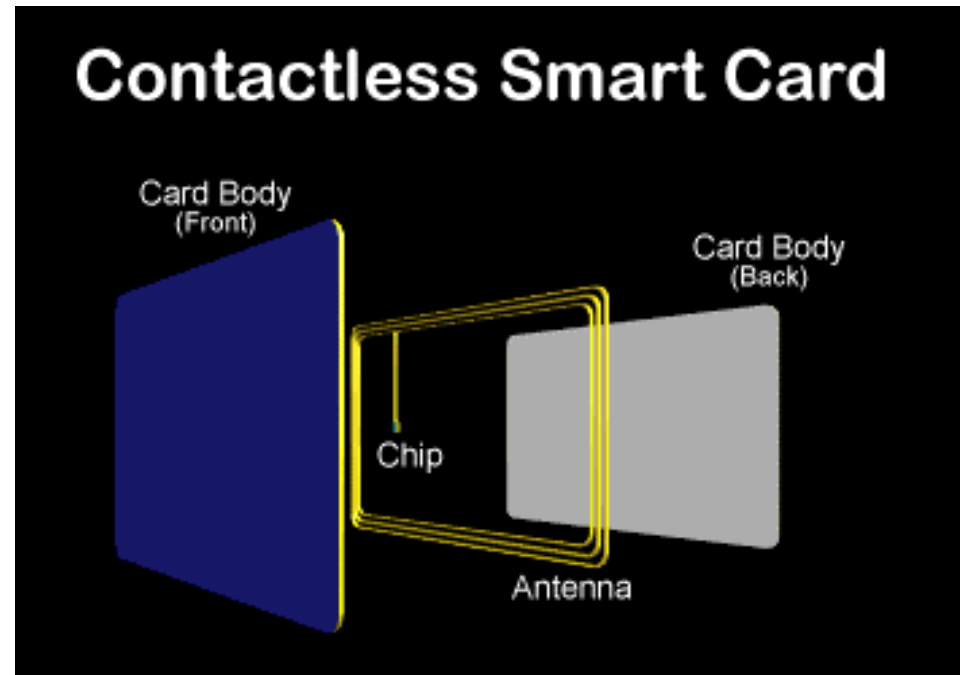
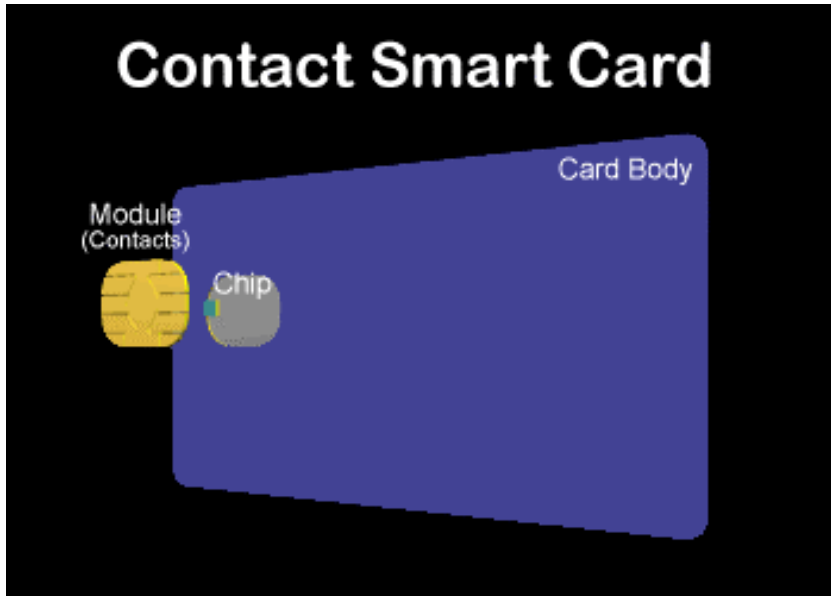


*includes Hardware, Services & SkiData

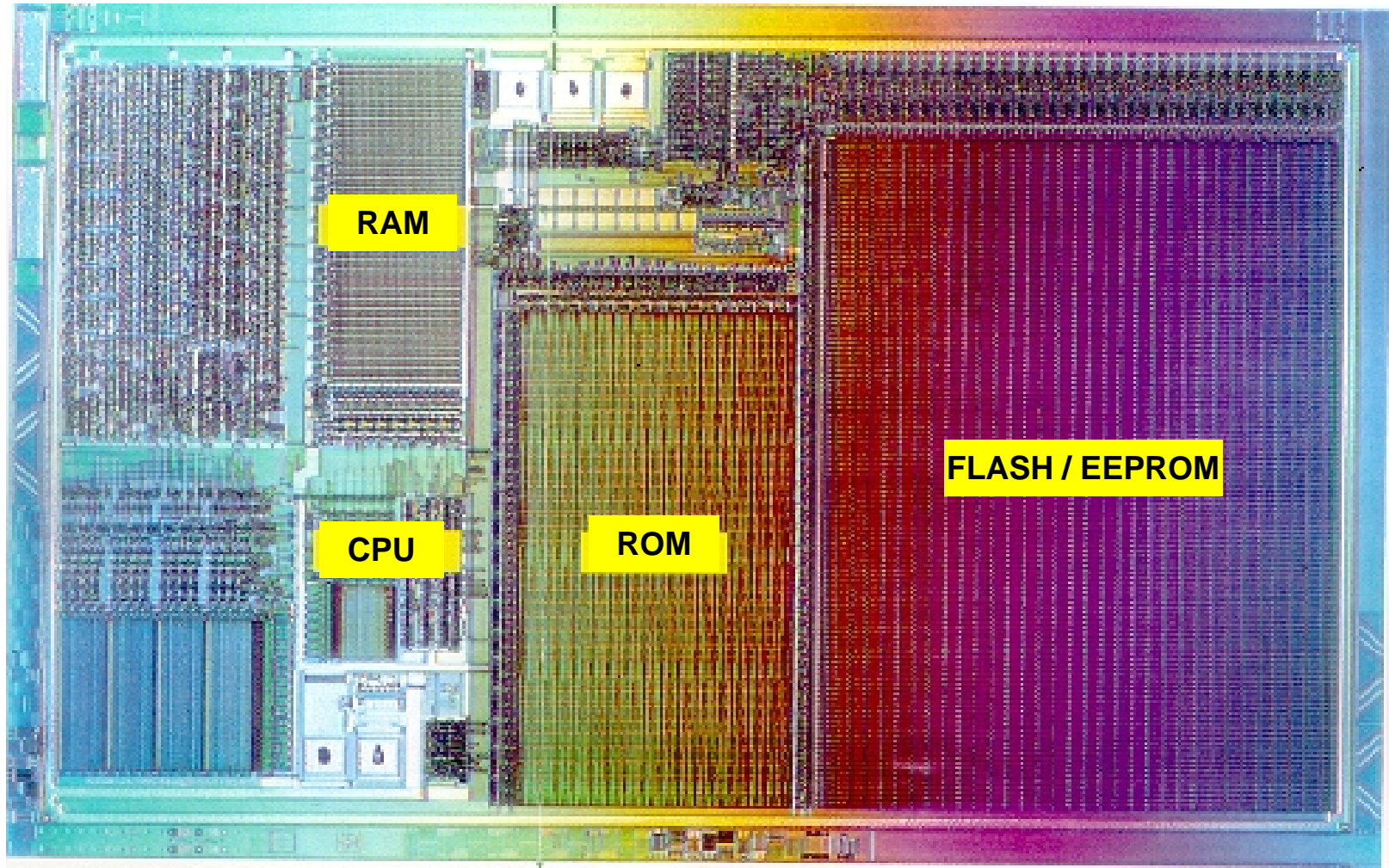


Des premiers SE aux nouvelles plate-formes ouvertes : Java Card & WSC pour cartes

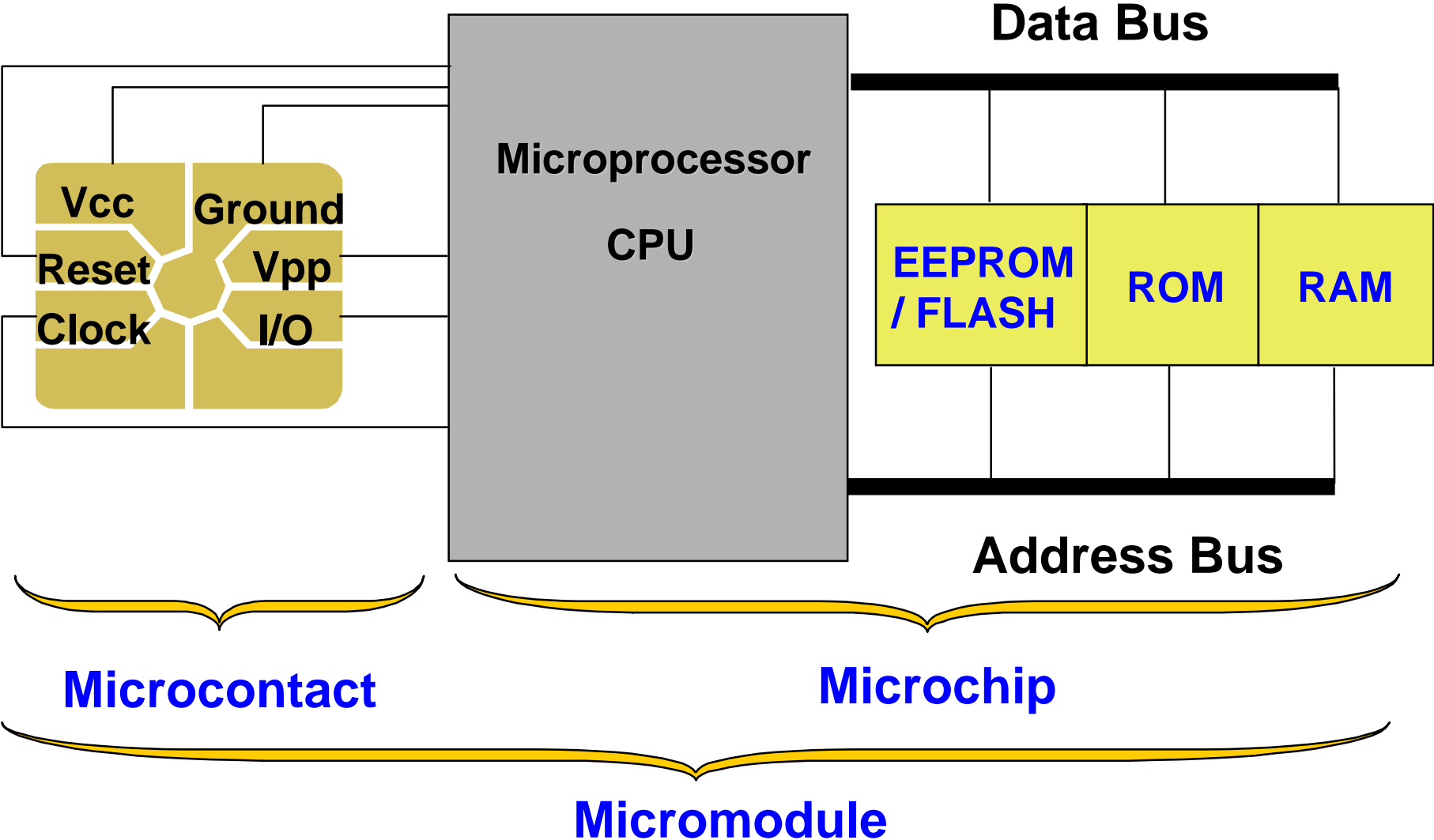
Contact / sans contact



La carte contient un microcontrôleur



La carte à contact



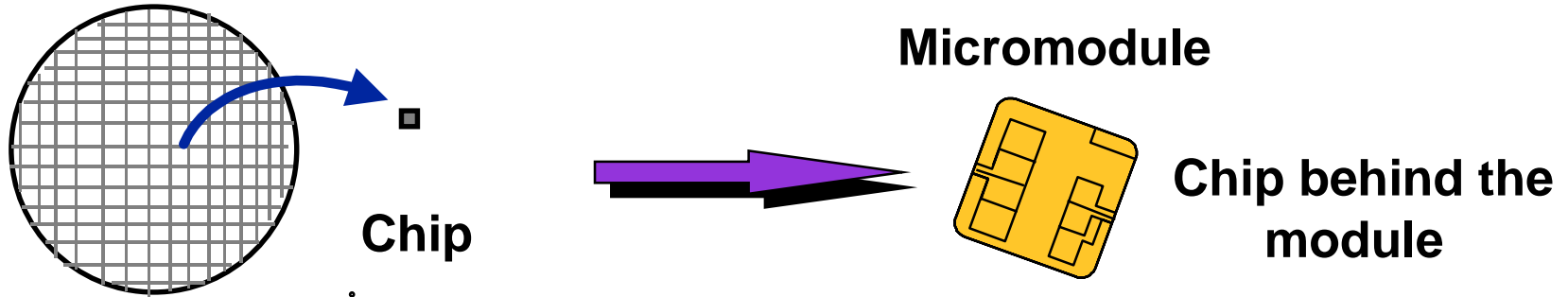
ISO/IEC 7816: Integrated Circuits Cards With Contacts

- ISO/IEC 7816-1 : Physical characteristics
- ISO/IEC 7816-2 : Dimension & location of contacts
- ISO/IEC 7816-3 : Electronic signals & transmission protocols
- ISO/IEC 7816-4 : Inter-industry commands
- ISO/IEC 7816-5 : Registration system for applications in IC card
- ISO/IEC 7816-6 : Inter-industry data elements
- ISO/IEC 7816-7 : Inter-industry commands for Structured Card Query Language (SCQL)
- ISO/IEC 7816-8 : Security architecture and related inter-industry commands

ISO/IEC 7816-4

- **Scope : interoperability insurance**
- **Specifies contents of messages**
 - ◆ **commands**
 - ◆ **responses**
- **Structure of files and data**
- **Access methods to files and data**
- **Security architecture**
- **Methods for secure messaging**

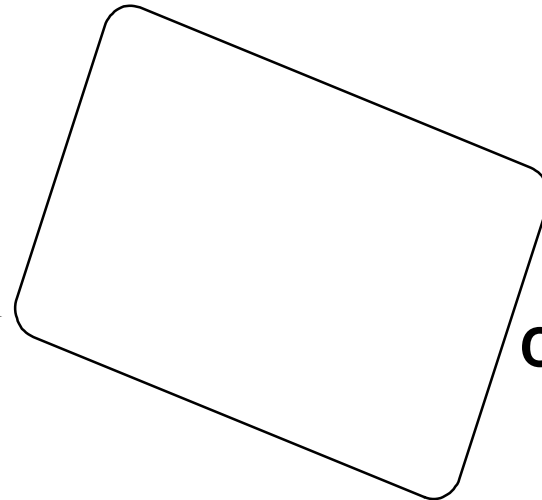
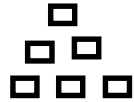
Cards Manufacturing Process



Silicon Wafer

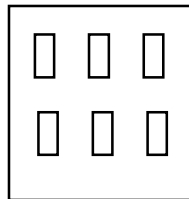


**Plastic granules
ABS / Heat resistant ABS**



Card body

PVC Sheets



Card Life Cycle (1)

■ Initialization

- ◆ Card associated with issuer
- ◆ Security features loaded



■ Personalization

- ◆ Card associated with issuer
- ◆ Electrical
 - ✓ Application profile loaded
 - ✓ Cardholder profile loaded
- ◆ Graphical

Card Life Cycle (2)

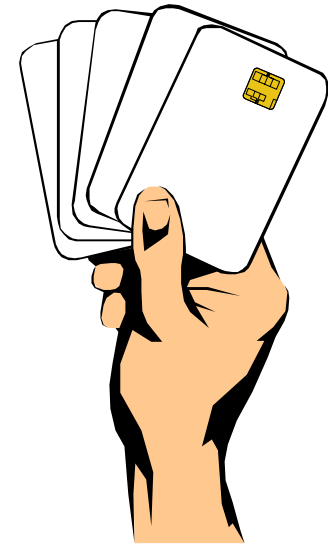
■ Card issuance

◆ Card in end-user stage

- ✓ The memory can be accessed according to the rules defined during personalization

■ Post-issuance modifications

■ Card destruction



Les débuts

■ 1980/85

- ◆ CPU 8bits/6805 ou 8051
- ◆ ROM = 1,6Ko, MNV = 1Ko & RAM = 40o
- ◆ Assembleur
- ◆ Caractéristiques figées à la fabrication
- ◆ Contraintes :
 - ✓ prix
 - ✓ sécurité

Le décollage du marché

■ 1985/1995

- ◆ CPU : identique
- ◆ ROM = 32Ko, MNV = 8Ko & RAM = 128/256o
- ◆ Assembleur et C
- ◆ Caractéristiques figées à la fabrication
- ◆ Standards (GSM, ISO,...)
- ◆ Contraintes :
 - ✓ prix
 - ✓ sécurité

Les nouveaux besoins



■ T2M

- ◆ le cycle de développements des applications 2 ans

■ Souplesse

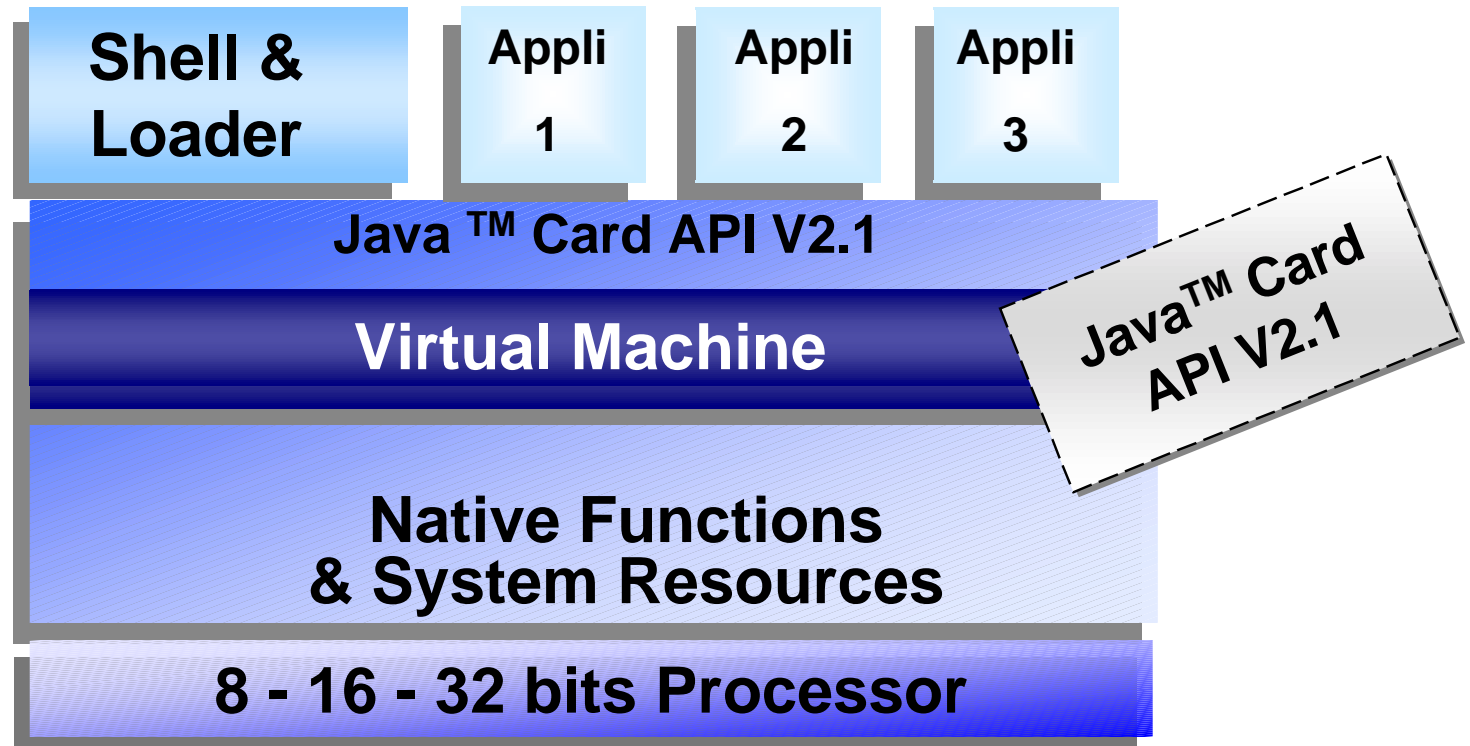
- ◆ les caractéristiques sont toujours fixées et ne peuvent évoluer dans le temps

La tendance actuelle

■ 2000

- ◆ **CPU 32 Bits Risc**
- ◆ **ROM = 128Ko, MNV = 32/64Ko & RAM = 2/4Ko**
 - ✓ Nouveau support Flash, FeRam,...
- ◆ **Java, VB,**
- ◆ **Séparation SE/Applications**
 - ✓ Chargement de Cardlet
- ◆ **Contraintes :**
 - ✓ prix
 - ✓ sécurité

Java Card Architecture & Applets



Les besoins en sécurité et sûreté :

■ Complexité

- ◆ Langage de haut niveau : C, VB, Java

■ ITSEC/CC

- ◆ Politique de sécurité
- ◆ Modules spécifiques (VM, FW,...)
 - ✓ Méthodes Formelles (B, Coq, ...)

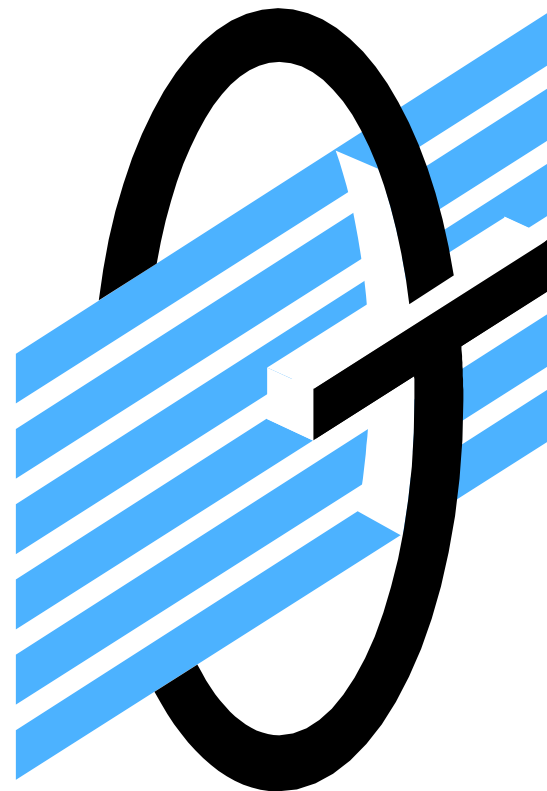
■ Challenge pour les MFs

- ◆ Génération code
- ◆ Utilisation dans tout le cycle de développement :
 - ✓ Spécification
 - ✓ Développement
 - ✓ Validation



[A small step for you.
A smart step for your business.]

A new industry involving billions of microchips is changing the face of society. Gemplus, already the world's premier smartcard supplier, is leading the move with products and services that put smart technology into travel, healthcare, payment, telephony, multimedia, transportation, ticketing -- the list goes on. It's about being different. It's about convenience. And ultimately, it's about the world as a smarter place, a better place. Ask Gemplus how.



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