

# A .NET platform for networked secure devices

**Antoine Requet**  
**Antoine Galland**  
**Lauren Del Giudice**

Gemplus Systems Research Labs

Cartes 2005 - November 15-17th, 2005

# Microsoft® .NET Overview



- **Introduced by Microsoft as the new platform for Web Services**
  - However, not restricted to web services
  - Core of all new products (VS 2005, SQL Server 2005...)
  
- **Defines an architecture similar to Java Sun Microsystems**
  - Uses a virtual machine: the CLI (Common Language Infrastructure)
  - Provides standard APIs
  - Introduces a dedicated Java-like language : C# (pronounce « *C Sharp* »)
    - Still supports other languages
  
- **CLI and C# standardized by ISO/ECMA**
  - Minimum set of APIs also standardized
  - Two simple defined profiles: Kernel and Compact
    - Aimed for handheld devices

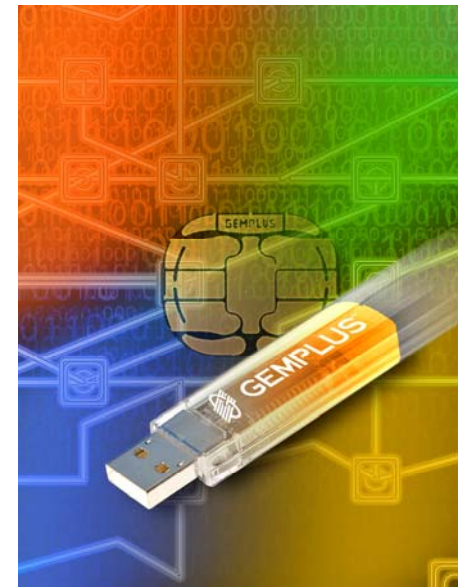
# Gemplus .NET platform

- **Our .NET Platform Vision:**

- A platform can be programmed using the .NET environment
- A platform connected to existing networks
- A platform that should scale to future hardware and application needs (USB dongle, smart card, secure MMC)

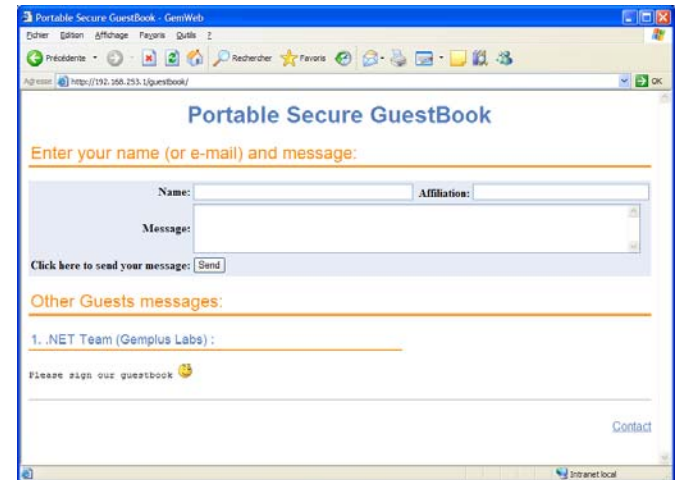
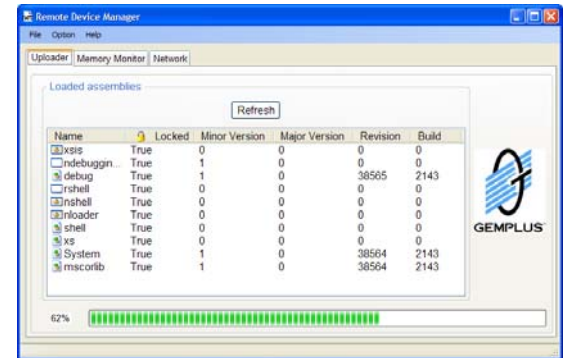
- **Features:**

- VM support for standard ECMA “Kernel profile”
- Uses the .Net standard file-format
- Multithreaded and multi-application
- TCP/IP communication stack
- Fully standard .NET programs loading
- Persistent memory model



# Applications

- **One Time Password (OTP)**
  - Application developed and debugged on PC
  - Loaded as it is on the card
  - Standard cryptographic API use
- **Dynamic Web Server**
  - HTTP protocol process
  - HTML page generation
  - Application : *"Please sign our guestbook !"*
- **On-card debugger**
  - Byte/source code command-line debugger
  - Loads and launches a program
  - Multiple execution controls



**Want more information?**



**Gemplus Research Labs**

[Antoine.galland@gemplus.com](mailto:Antoine.galland@gemplus.com)

[Antoine.requet@gemplus.com](mailto:Antoine.requet@gemplus.com)

[Lauren.del-giudice@gemplus.com](mailto:Lauren.del-giudice@gemplus.com)