



# SCWS application architecture

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# What is a Smart Card Web Server?



## **SIM based Web Server allows**

- ✦ Browsing sessions of SIM content through mobile WAP browser (Server Mode) accessible through the **http://127.0.0.1:3516/** address
- ✦ Remote file administration (Client mode)

## **Manage Multimedia Content**

- ✦ GIF, JPEG, MPEG, etc.

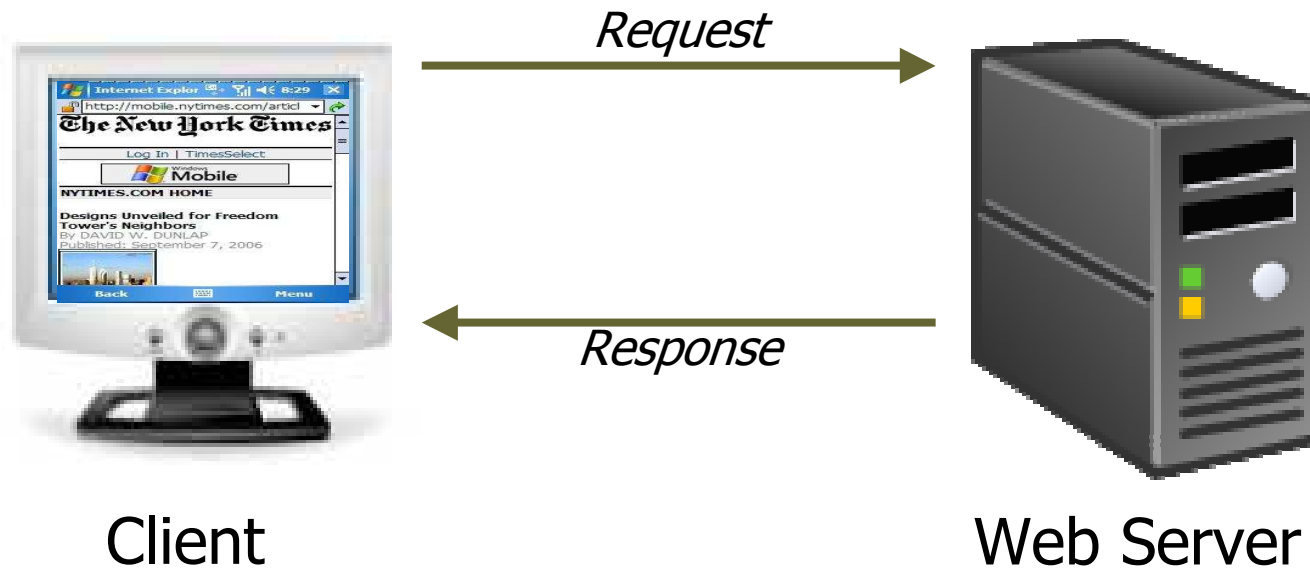
## **SmartCard Web Server standard**

- ✦ OMA-TS-SCWS-V1\_0-20060703-D

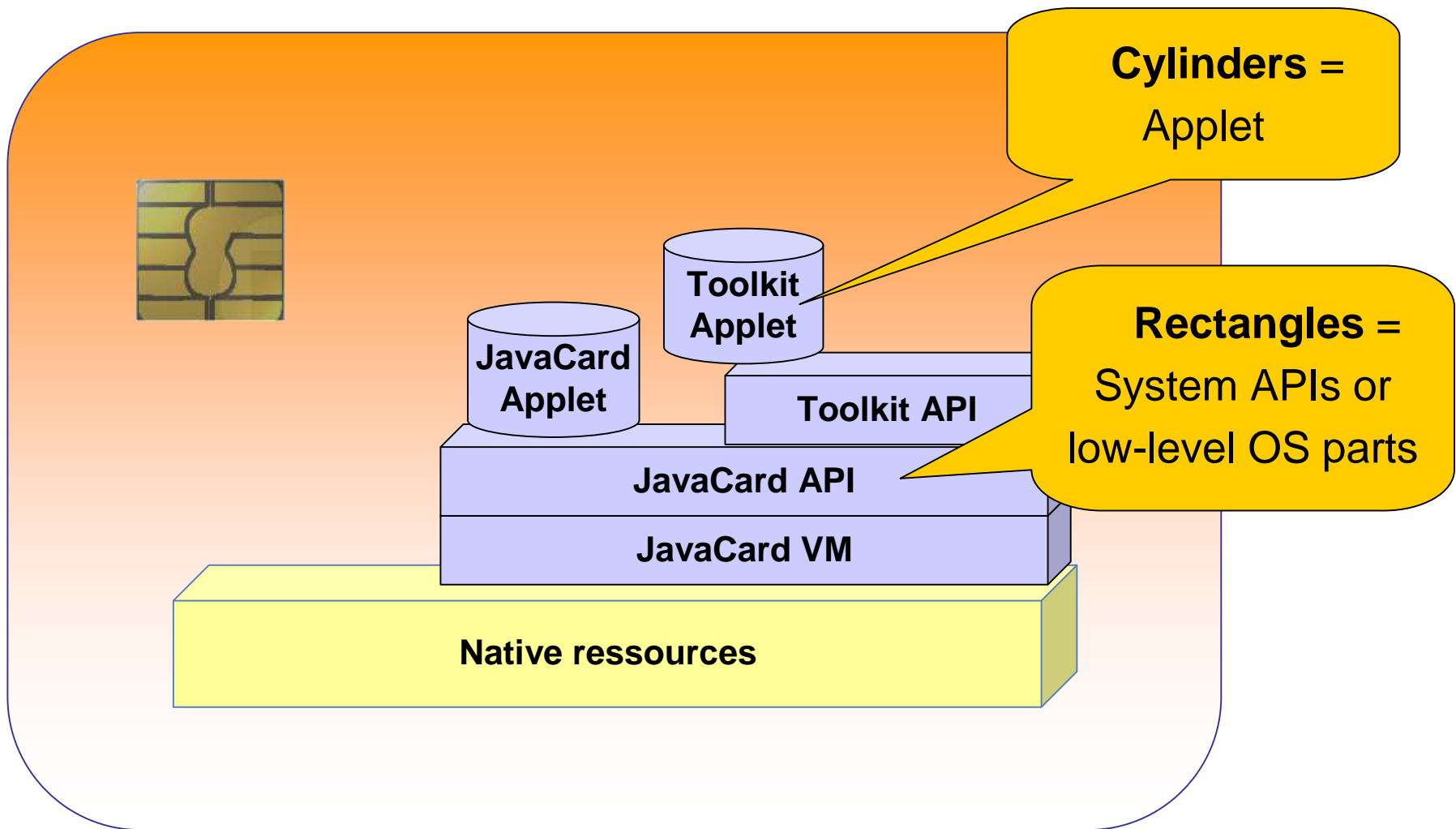
## **Based on GxOs Card**

# HTTP protocol

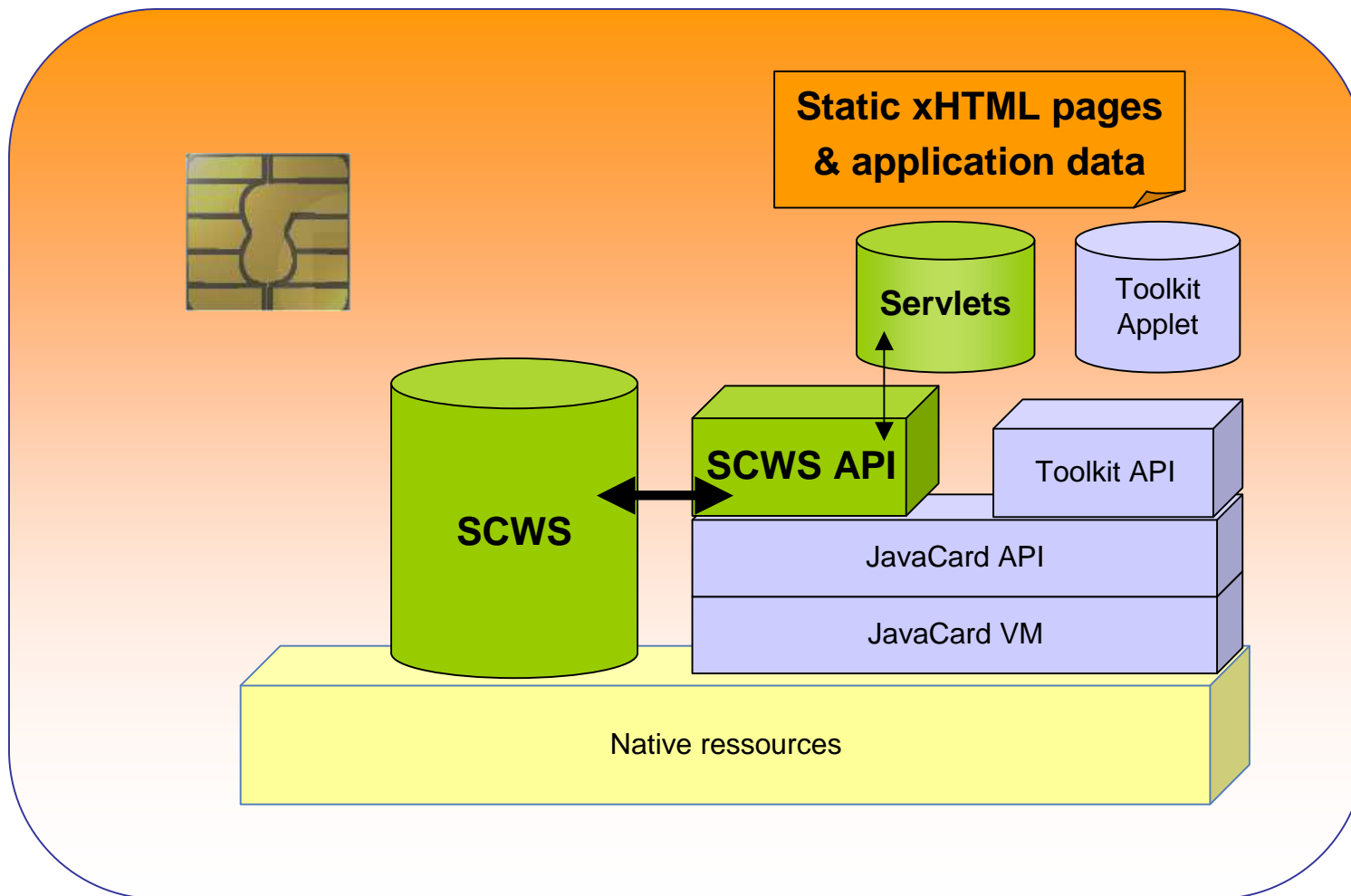
- ◆ Hypertext Transfer Protocol (HTTP) is the method used to transfer or convey information on the World Wide Web.
- ◆ Server / Client model :



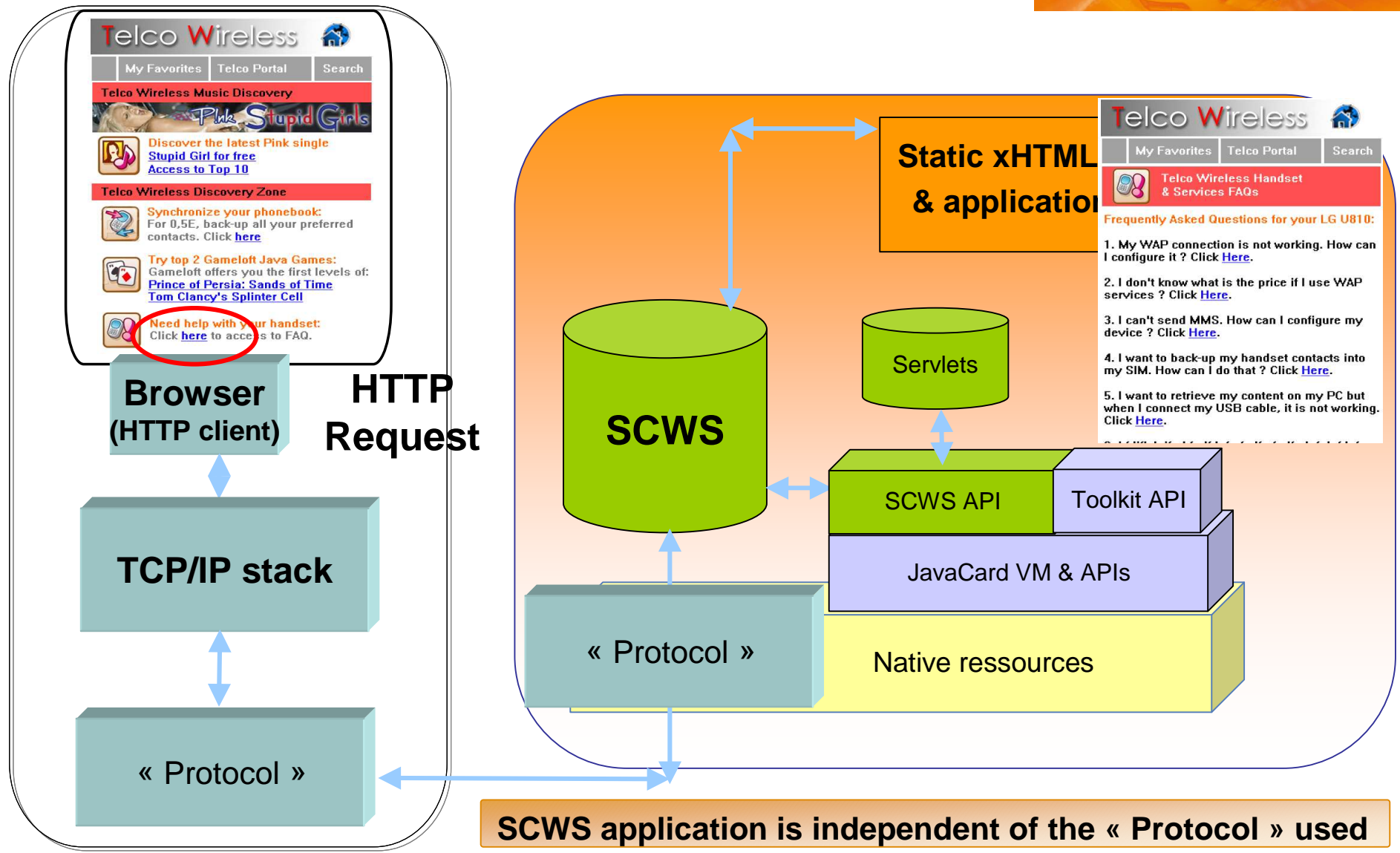
# Java Card Architecture



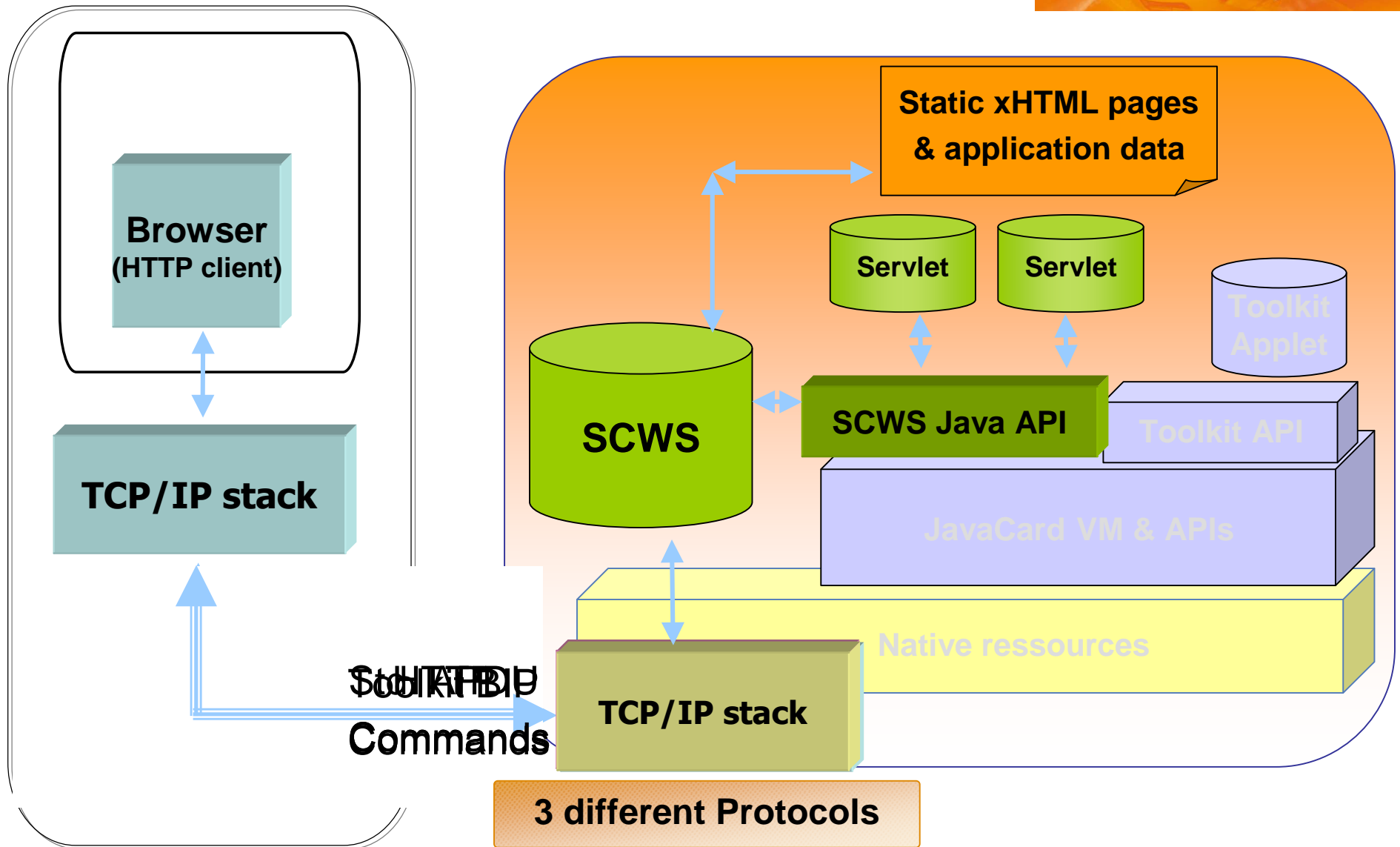
# SCWS in Java Card Architecture



# SCWS protocol independence

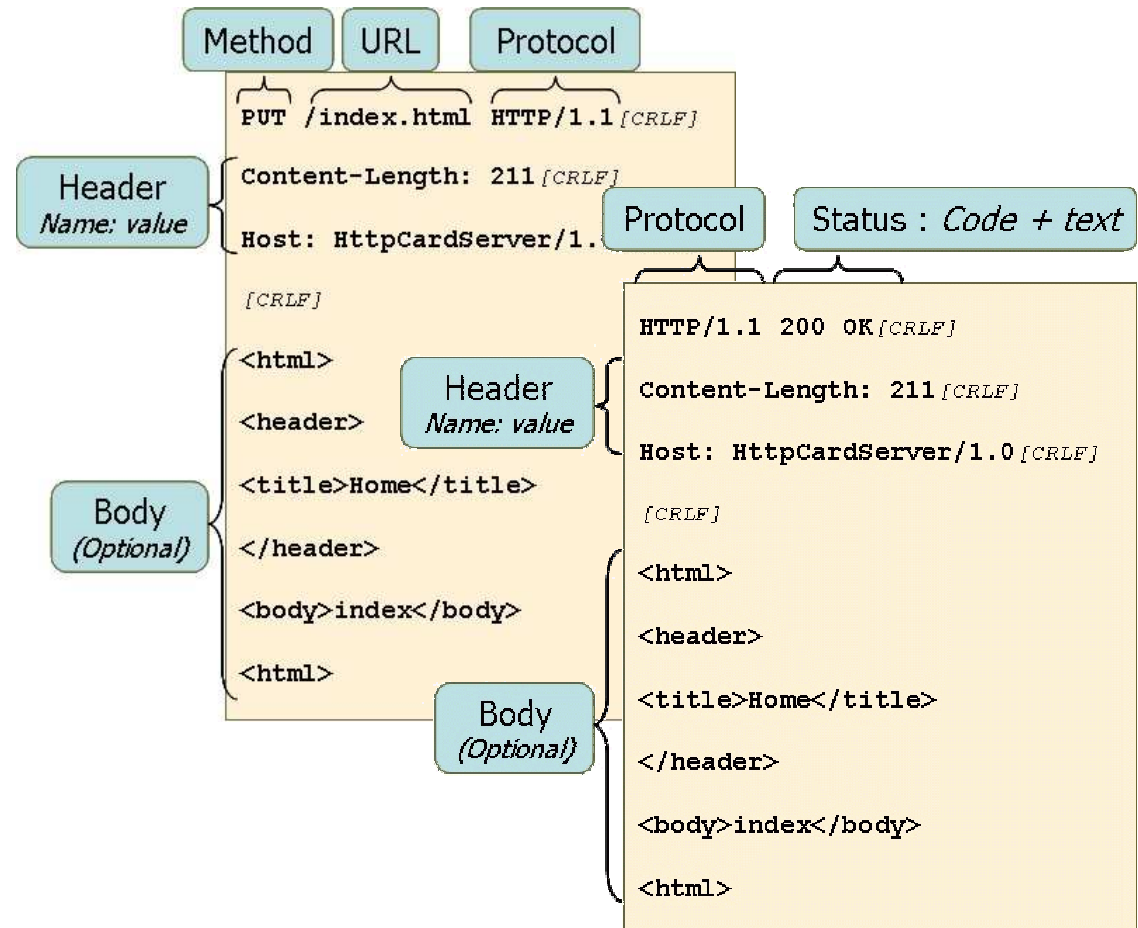


# SCWS communication protocols

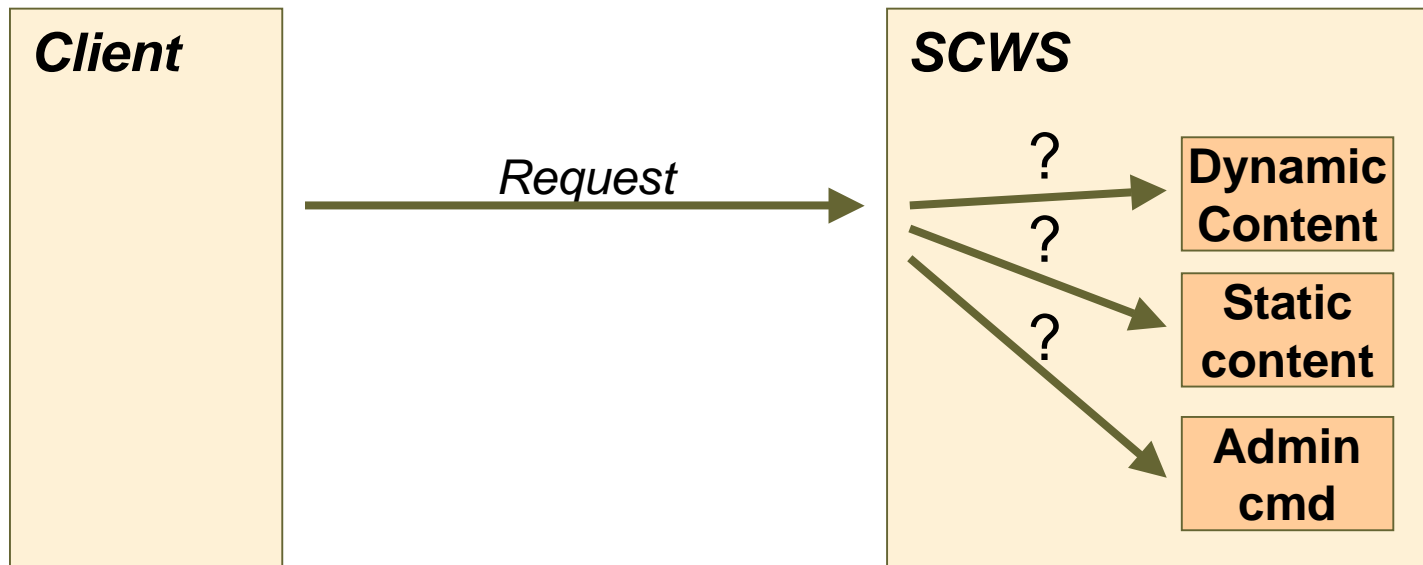


# SCWS advanced features

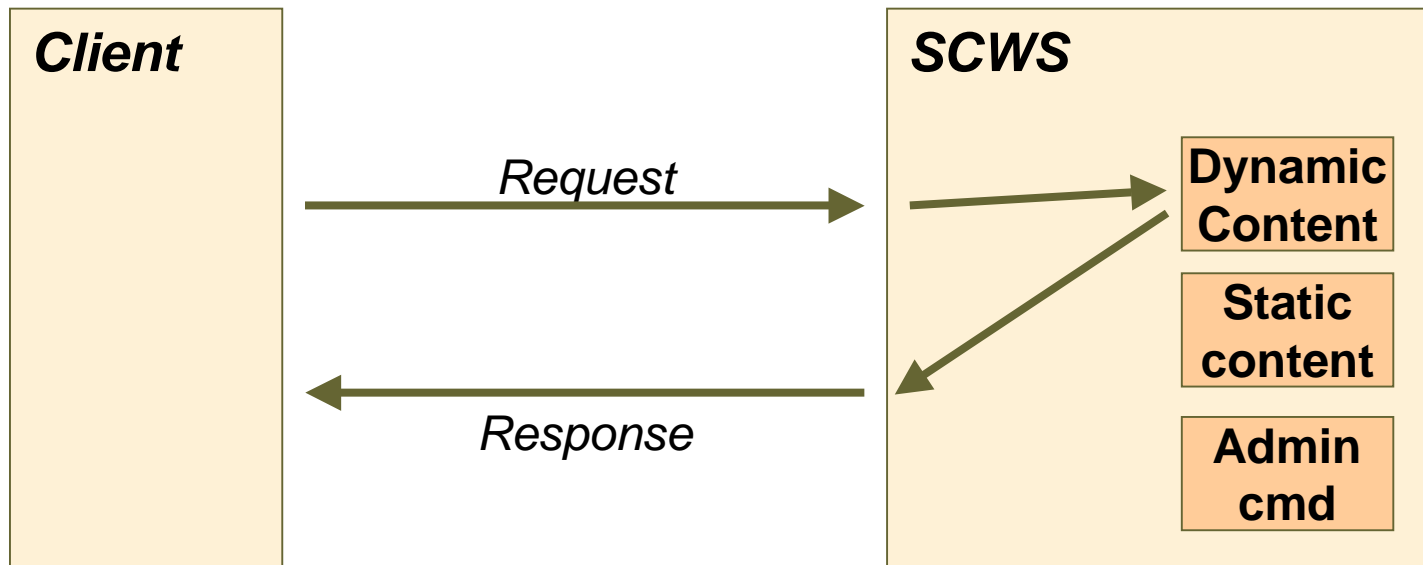
- ✦ Chunked encoding
- ✦ Keep alive connection
- ✦ Pipelining
- ✦ Cache control
- ✦ Basic authentication
- ✦ ...



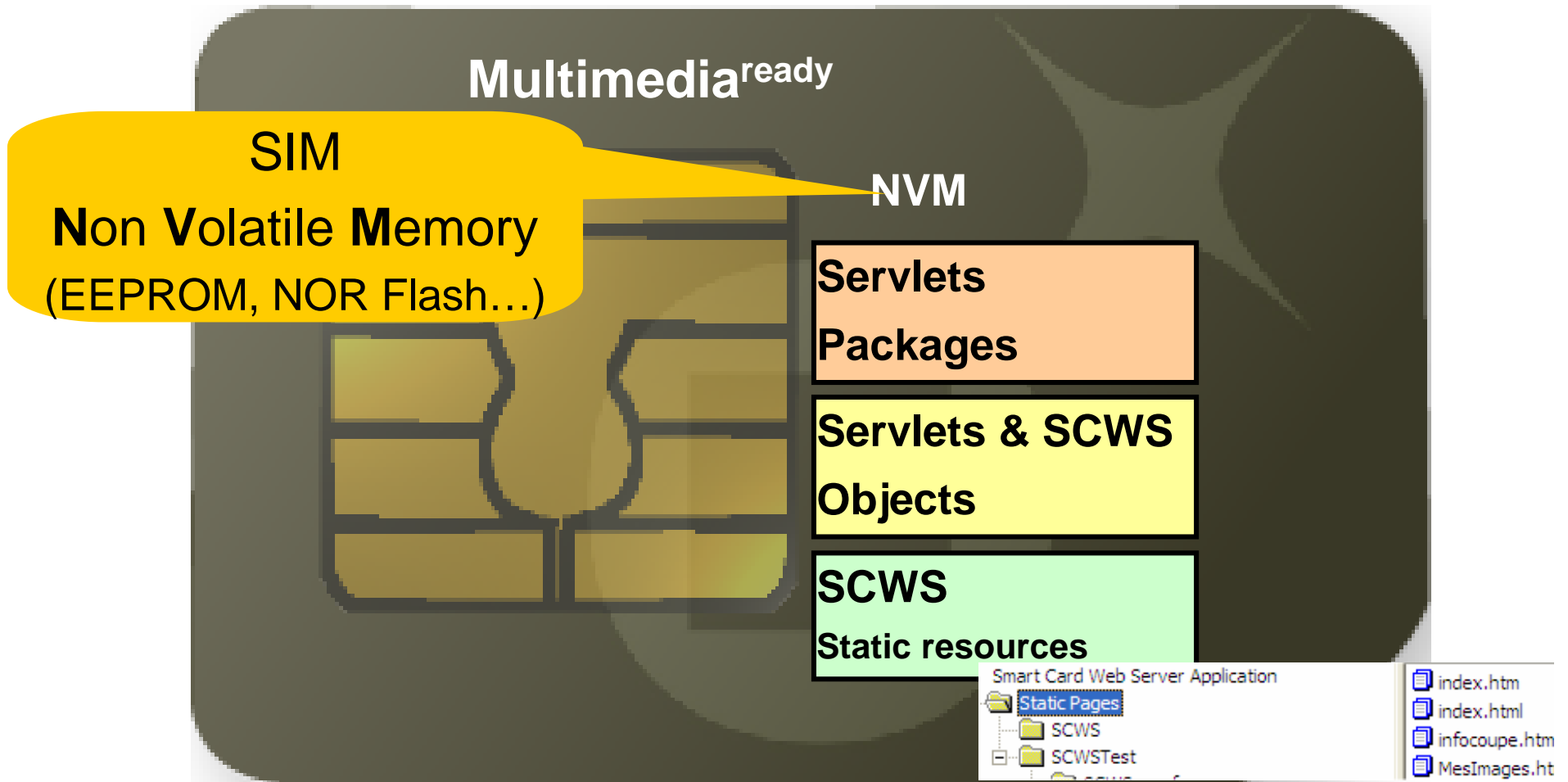
# SCWS possible resources



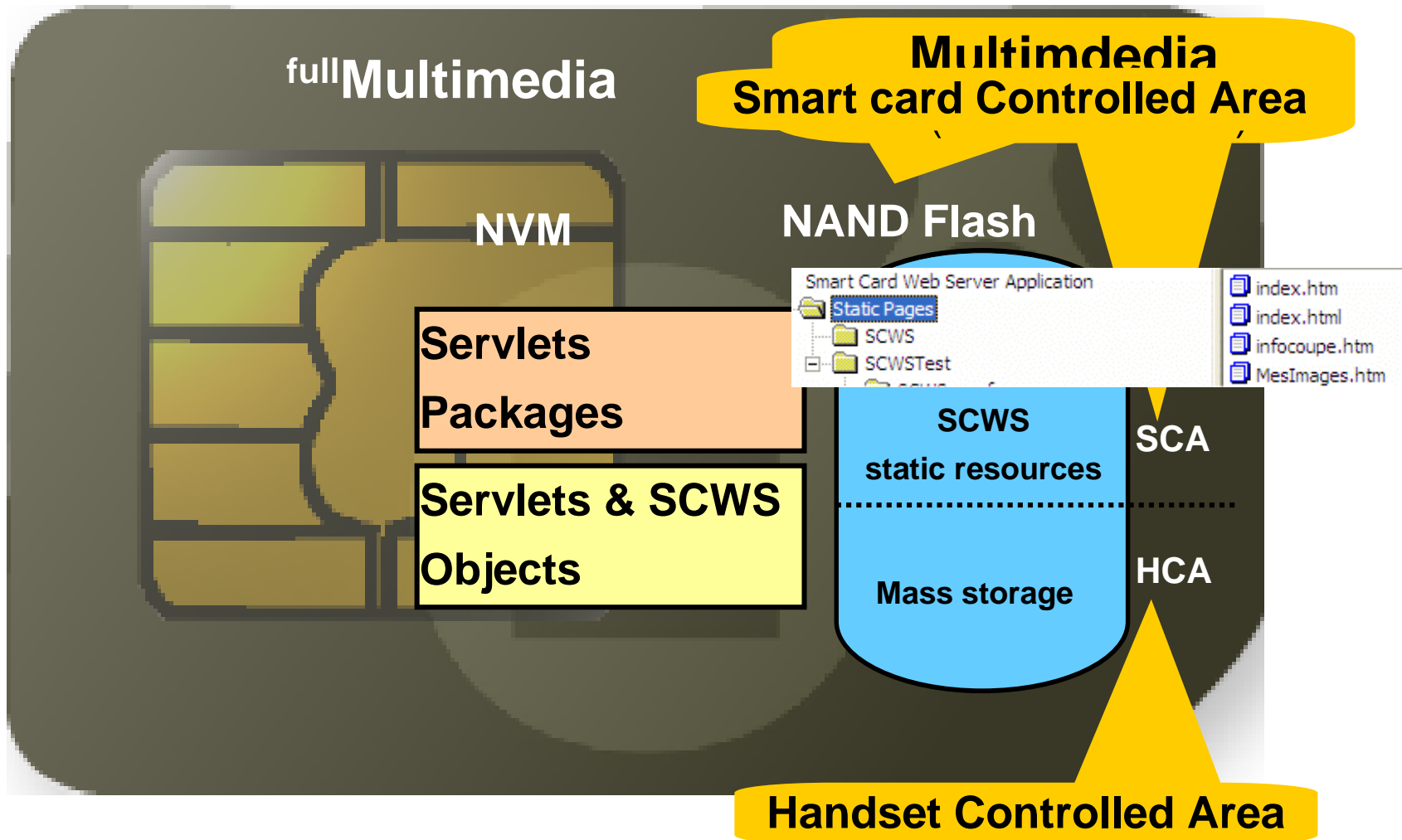
# SCWS servlets



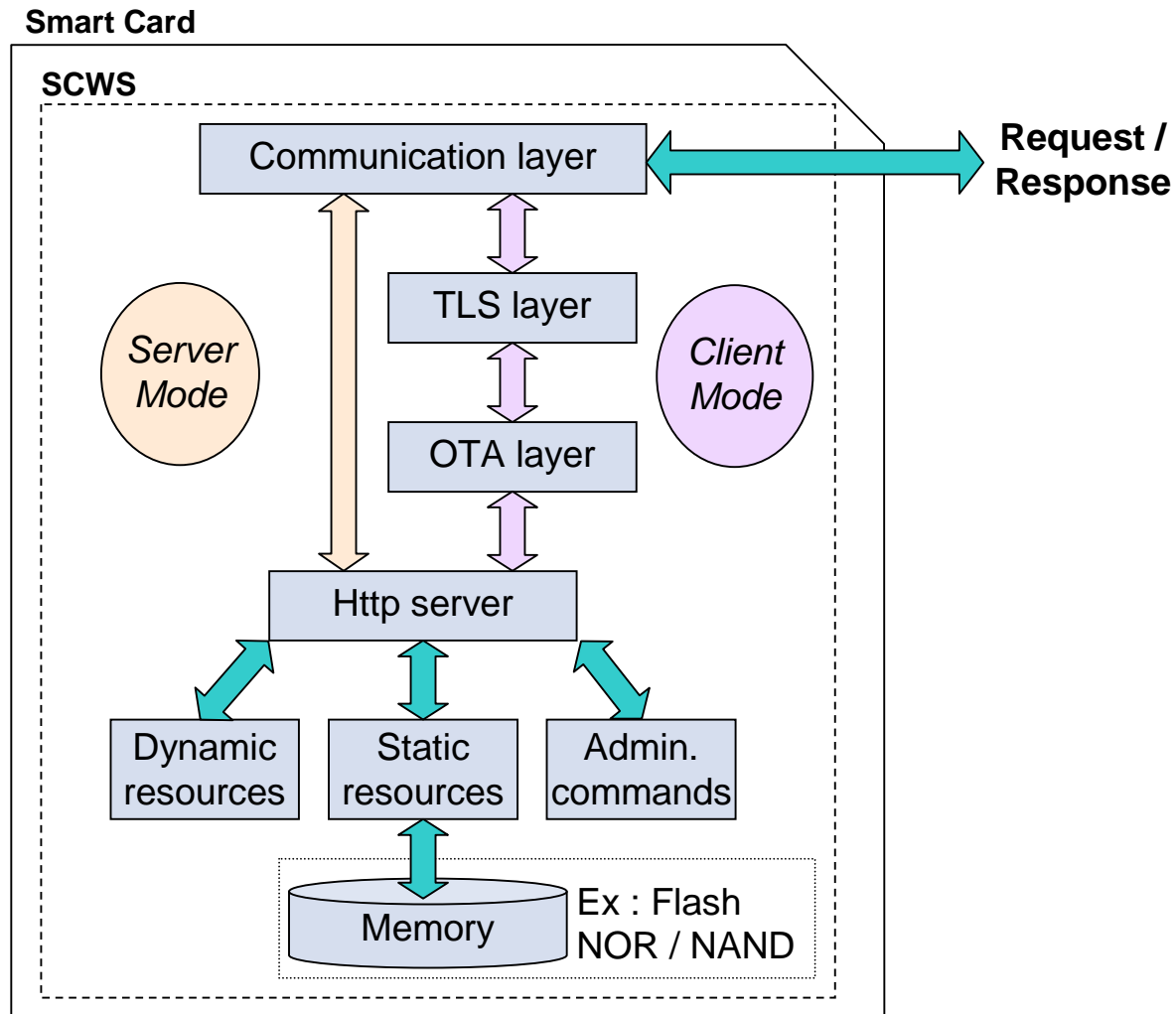
# SCWS resources



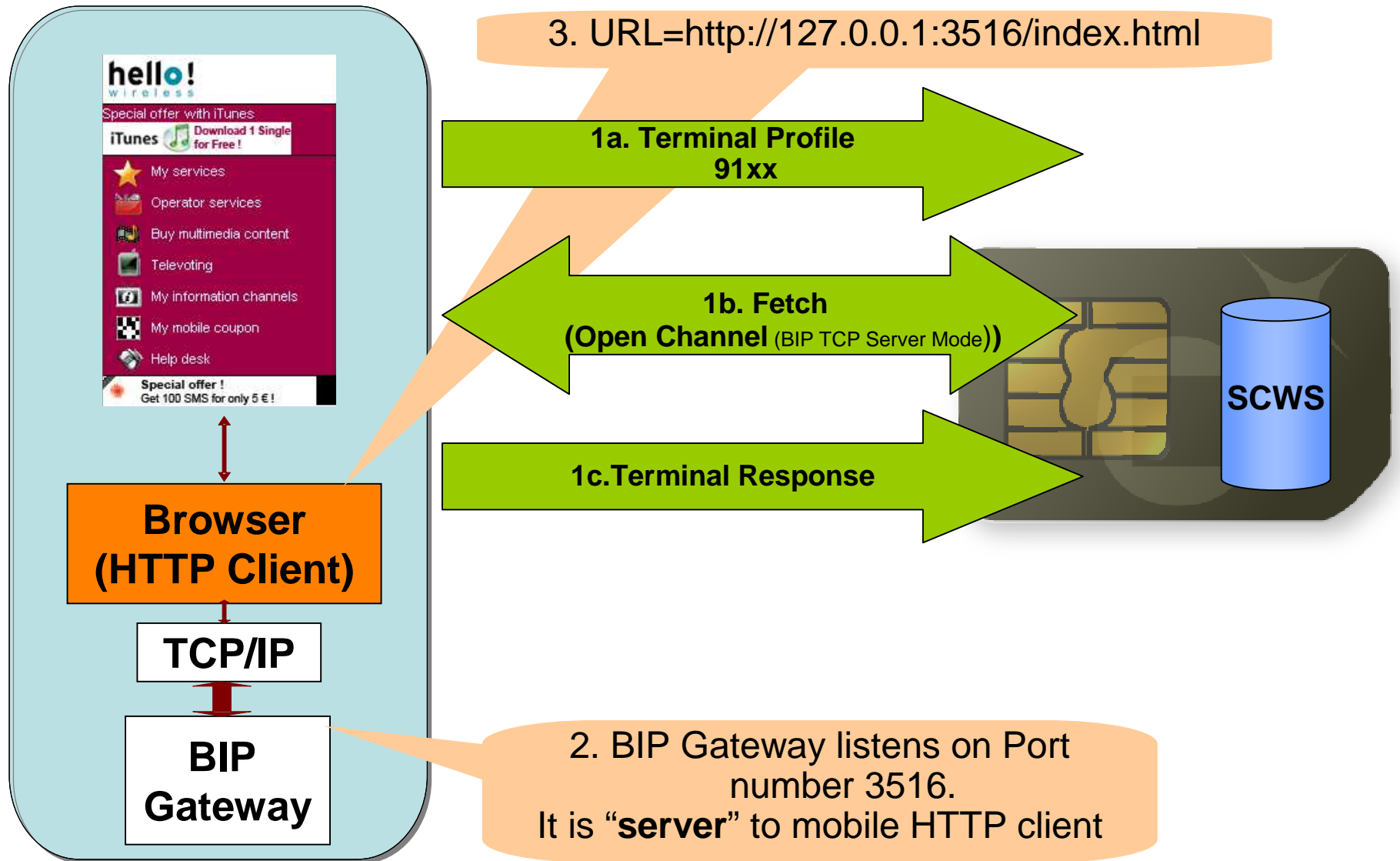
# SCWS resources



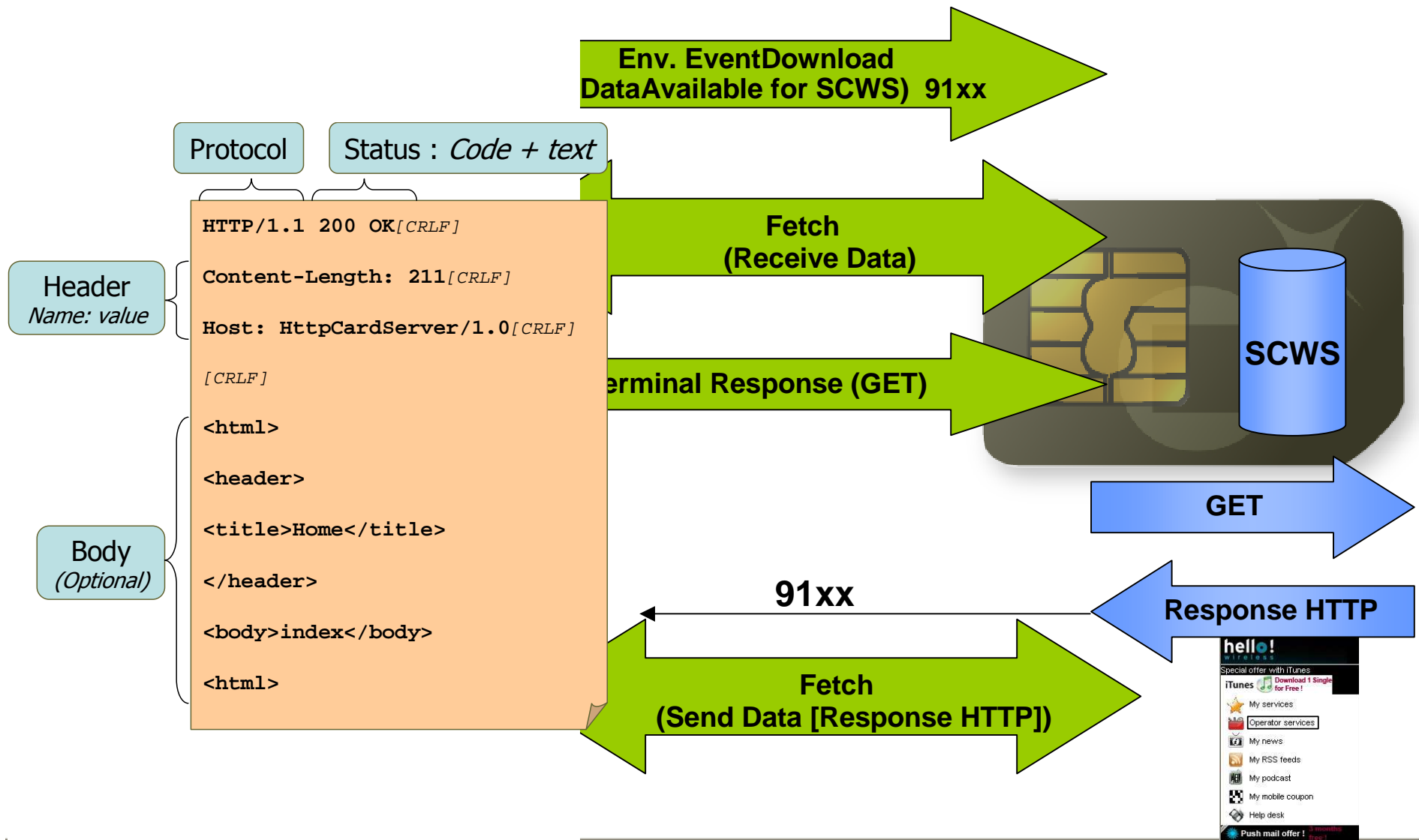
# SCWS architecture



# BIP TCP Server – Local Browsing



# BIP TCP Server – Local Browsing



# Servlets presentation



- ✦ A servlet are the way to handle dynamic content in the SCWS
- ✦ A servlet is Java Card applet registered to the SCWS and mapped on one or several URIs
- ✦ A **standardized JavaCard API** (*ETSI TS 102 588 Release 7 – SCWS API*) is available in our products
- ✦ Development environment is ready – Developer Suite 3.2
- ✦ Two kinds of servlets:
  - Content providing applications
  - Interception applications

# Servlet life cycle



- ★ **Register** to SCWS and **map** one (or several) URL
- ★ *[ Waiting for request ]*
- ★ Match a request with its URL (checked by SCWS)
- ★ Process the request
- ★ Respond to client
- ★ *[ Waiting for request ]*

# SCWS Servlet API – uicc.scws



- ★ interface **ScwsExtension** - to be implemented to handle HTTP methods
  - void doGet(HttpServletRequest request, HttpServletResponse response)
  - void doPost(HttpServletRequest request, HttpServletResponse response)
  
- ★ class **ScwsExtensionRegistry** - handles the (de)registration of servlets
  - void register(ScwsExtension, appld)
  - void deregister(ScwsExtension)
  
- ★ interface **HttpRequest** - handle the Http request
  - findAndCopyKeywordValue(keywordId, buffer)
  - int getContentLength()
  - short readContent(requestOffset,buffer, offset, len)
  
- ★ interface **HttpResponse** - handle the Http response
  - void appendHeaderVariable(...)
  - void setContentLength(short type)
  - void appendContent(...)

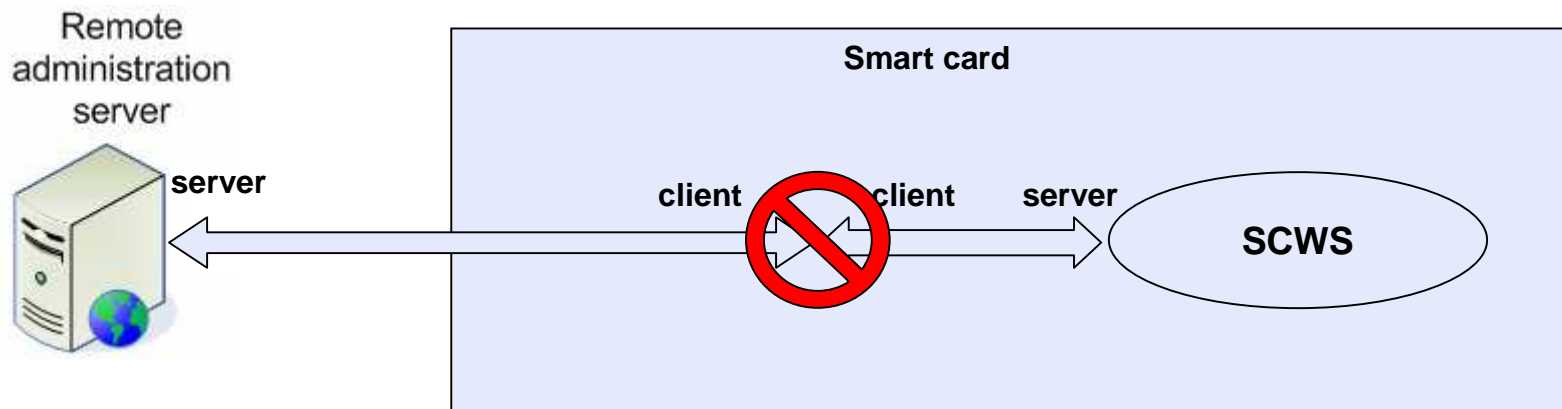
# OTA overview



- ★ This protocol has been defined to open a secure pipe between the SCWS in the card and the OTA platform to administrate SCWS
  
- ★ Main characteristics of this protocol:
  - Card is a client
  - OTA platform is a server
  - Card communicates with the OTA platform using Web protocols (HTTPS)
  - Security layer is “Transport Layer Security” in a “Pre-Shared Key” mode
  
- ★ Defined in OMA standard

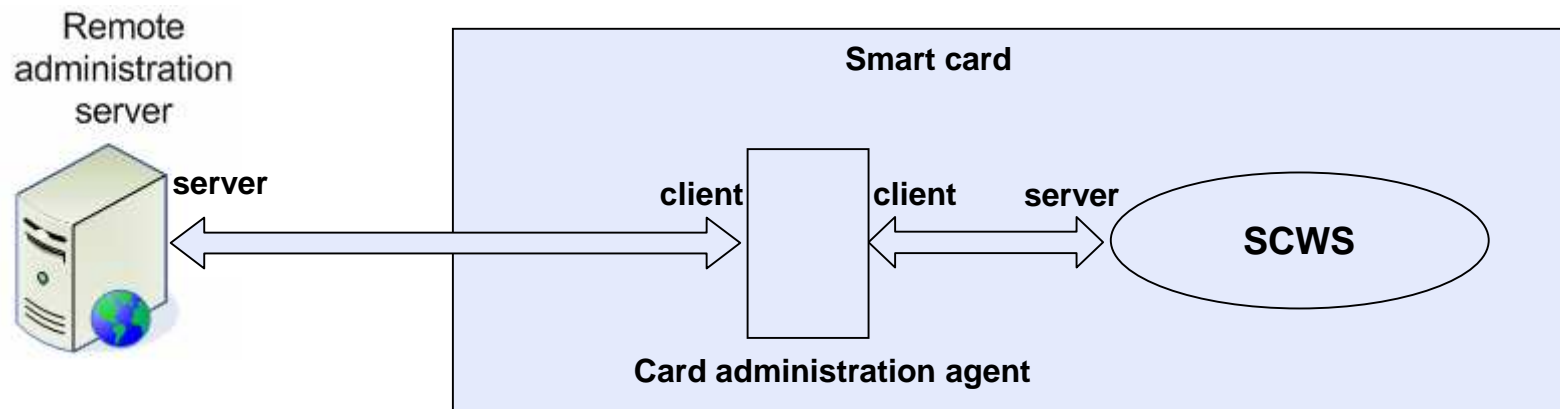
## OTA session description

- ✦ If the remote administration server directly connects to the SCWS: It does not work, both are server applications.

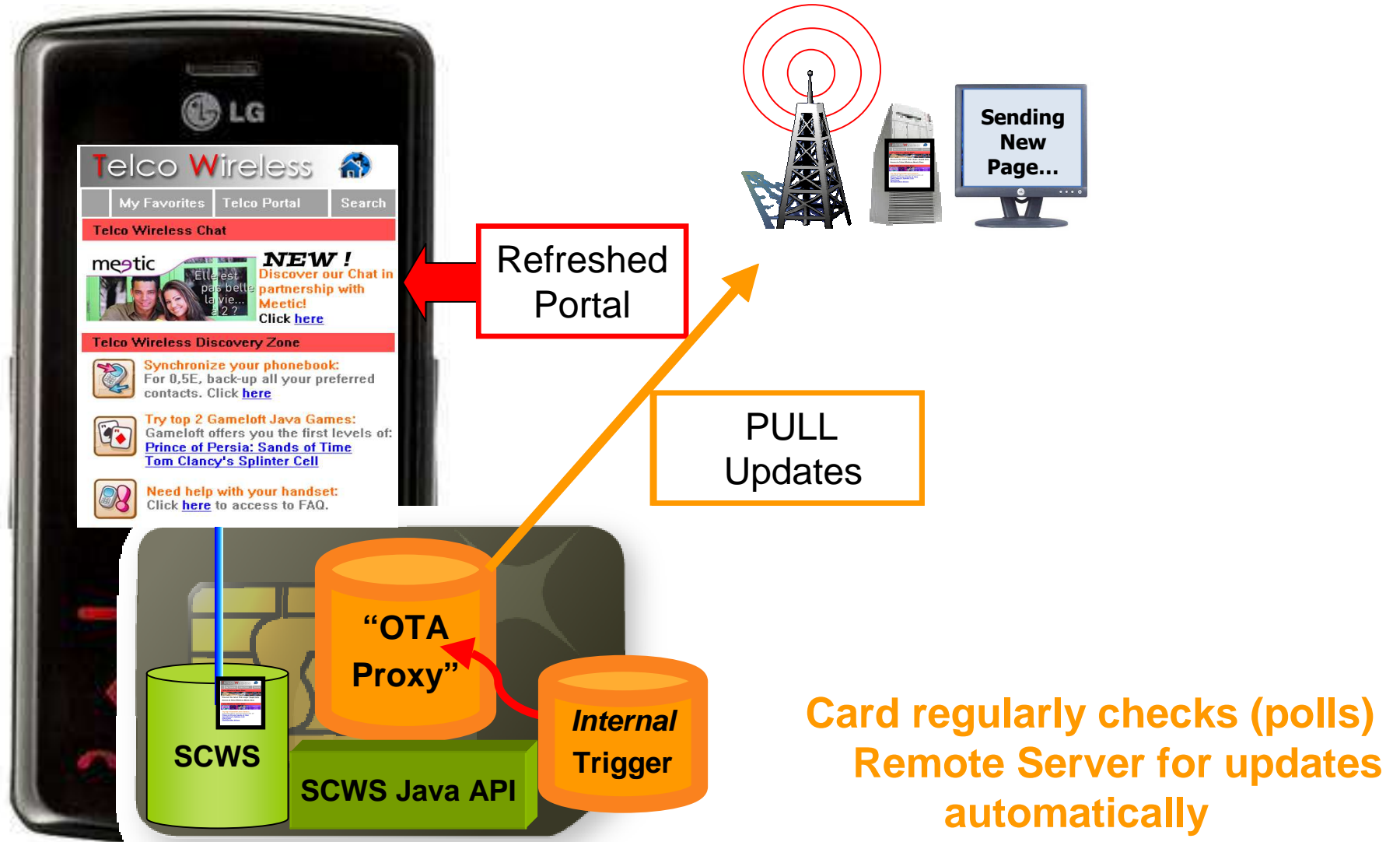


# OTA session description

- ✦ Add a card administration agent: It is in charge to manage connection establishment between the remote administration server and the SCWS.

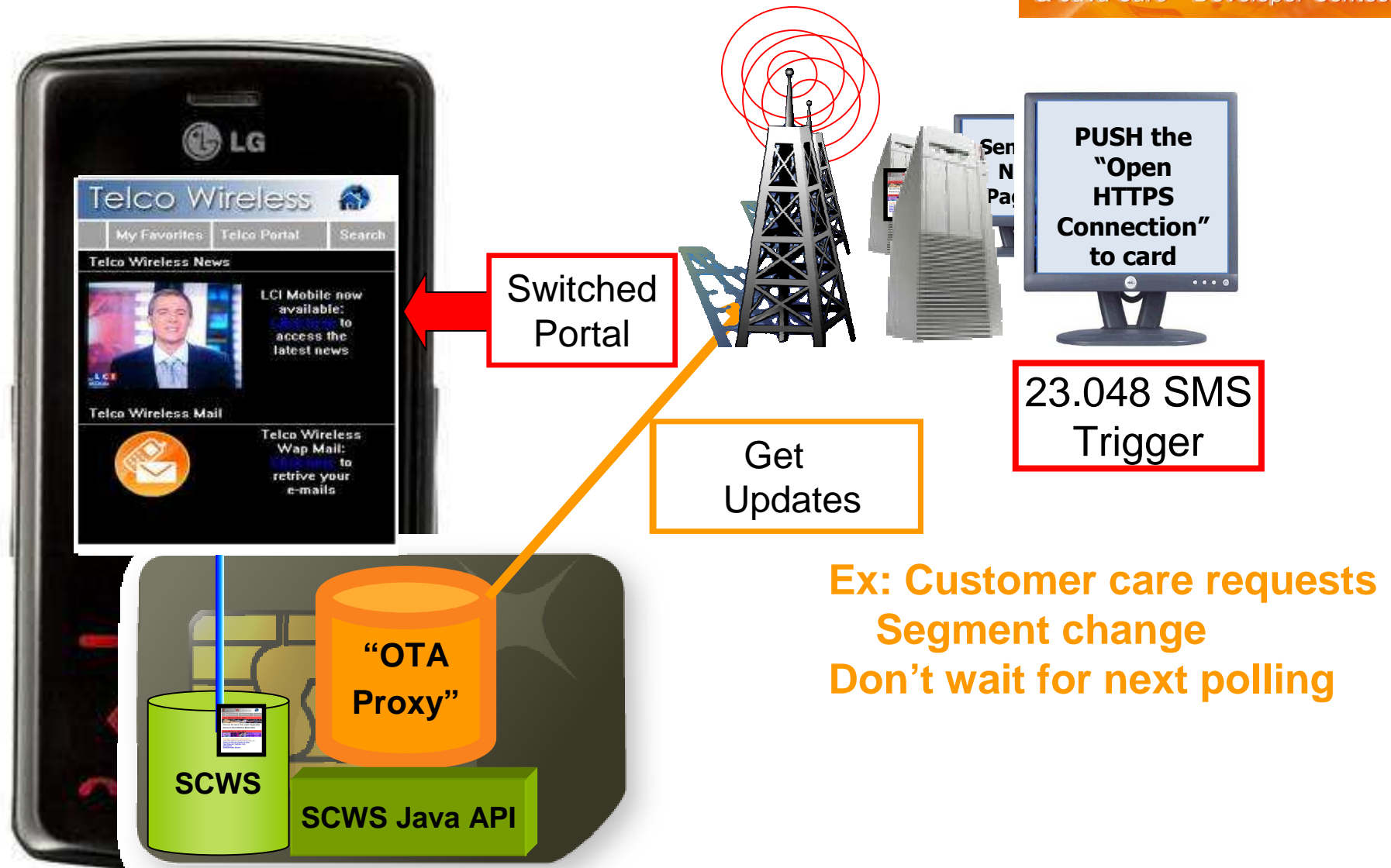


# Remote update – PULL mode



**Card regularly checks (polls)  
 Remote Server for updates  
 automatically**

# Remote update – PUSH mode



# Standardization



## « Smart Card Web Server » enabler is standardized at OMA

OMA-TS-Smartcard\_Web\_Server-V1\_0-20070209-C

- ✦ SCWS Enabler v1.0 approved as Candidate (5th March 07)
- ✦ Move from Candidate to Approved status expected Q1 2008



## Connectivity and servlet API are standardized at ETSI, in the « Smart Card Platform » group

- ✦ **BIP/TCP client and server** are standardized in « Release 7 »
  - ✦ TS 102 223, release 7.8.0 (or at least 7.2.0)
- ✦ **«Servlet API»** are standardized in « Release 7 »
  - ✦ SCWS API for Javacard (TS 102 588) approved
- ✦ **High Speed protocols** for UICC-Terminal interface
  - ✦ USB interface specification (TS 102 600) approved in « Release 7 »
    - ✦ based on USB-IC specification
  - ✦ Internet protocol connectivity (TS 102 483) approved in « Release 7 »
    - ✦ allows direct TCP/IP connection over HSP

# Questions





Thank you!