



## Evolved USAT

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# Why migrate USAT over IP?

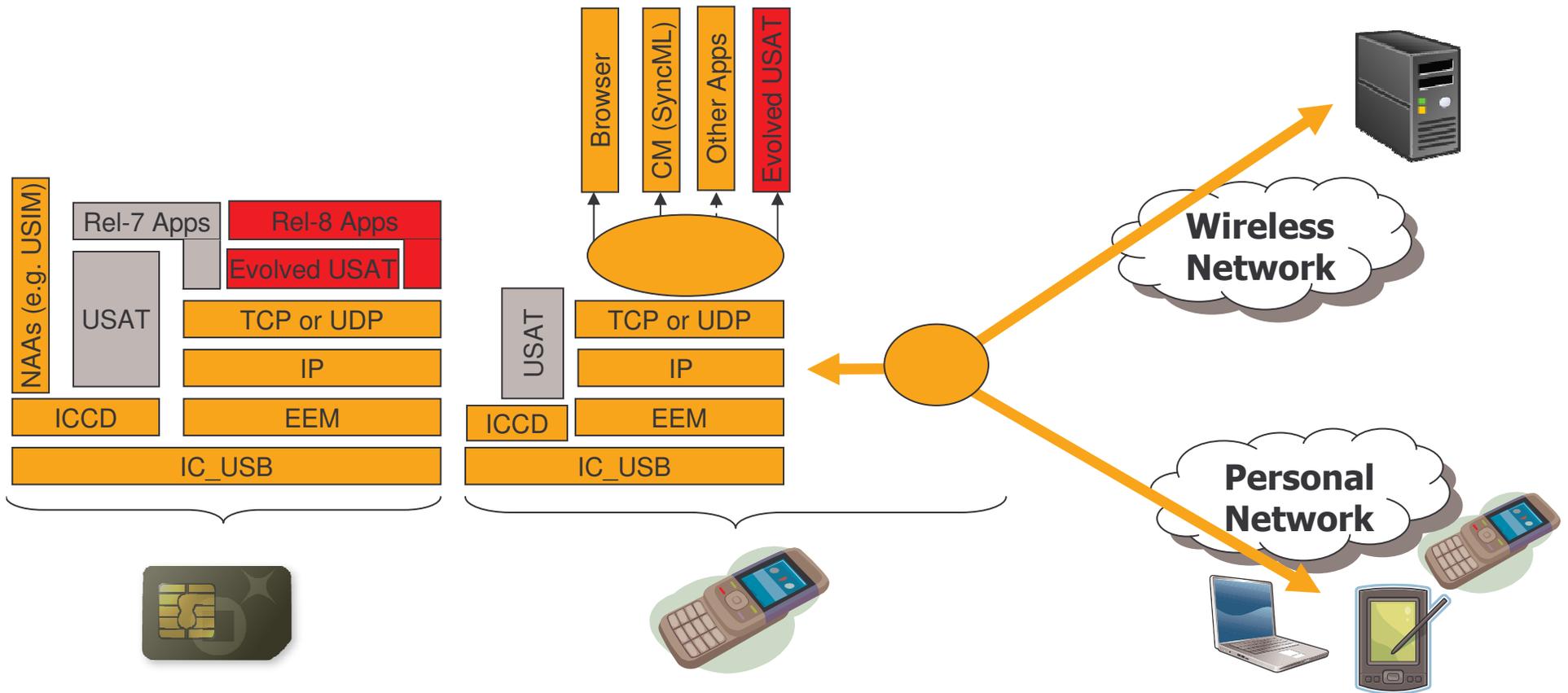
## ★ Fill the release 7 gaps

- Enable the UICC to set the network connectivity parameters (APN, QoS, routes, etc) for IP connections between UICC and remote entities
  - Available in BIP but not for IP (over EEM over HSP)

## ★ Rationalize ME & UICC applications design

- Leverage on SCWS
  - Provides a rich Graphical User Interface under the full MNO control
  - But USAT functions are not available for SCWS applications
- Unify the development framework
  - Run the entire application over IP instead of splitting one part over IP (e.g. SCWS to manage the UI, communicate with remote servers) and another part over ICCD (e.g. to get local information)
    - ✓ This could result in delays and de-synchronization: thus bad user experience
- Leverage on UICC IP capabilities
  - Use widely deployed protocols instead of smartcard-dedicated technology
- Maximize synergies
  - IP based applications are ubiquitous: Internet applications, IMS applications, OMA services, etc
  - Use UICC applications on PC, PDA

# Evolved USAT impacts on applications design



Which USAT functionalities should be migrated?

# Evolved USAT - User Interface aspects

## ★ Proposal:

- Use the SCWS (over IP/EEM), which provides a rich graphical user interface

## ★ Open question:

- Is there a need to migrate USAT User Interface functionalities?

USAT functionalities:  
DISPLAY TEXT, GET  
INKEY, GET INPUT, SET  
UP MENU, MENU  
SELECTION, SELECT  
ITEM, DISPLAY  
MULTIMEDIA MESSAGE,  
FRAMES (class "i")

# Evolved USAT – data connectivity

## ★ Proposal:

- Use ETSI TS 102 483: “IP connectivity” between UICC and terminal
  - No need to migrate BIP for remote connections and local IP connections with ME and local devices
- Standardize procedures for the configuration of network connectivity parameters by UICC
  - e.g. Network Access Name, Bearer Description, Data destination address, Routes to be used
- Enable IP connectivity between UICC and local devices
- Migrate BIP procedures for the establishment of non IP-based connections over Local Bearers (e.g. OBEX over Bluetooth or IrDA)

USAT functionalities:  
- BIP: remote access, UICC Server Mode, local bearers

# Evolved USAT – access to network services

## ★ Proposal:

- Enable those functionalities in evolved USAT

### USAT functionalities:

- SEND SMS, SMS-PP DOWNLOAD, Cell Broadcast data download, USSD Data Download, Submit MMS, Retrieve MMS, MMS notification download, Send USSD, Send SS
- SET UP CALL, MT call event, Call connected event, Call disconnected event, I-WLAN Access status event

# Evolved USAT – call control

## ★ Proposal:

- Enable those functionalities in evolved USAT

USAT functionalities:  
- Call Control and MO SMS control by USIM (CSD call, GPRS, SS, USSD, SMS),

# Evolved USAT – access to ME services

## ★ Proposal:

- Enable those functionalities in evolved USAT

### USAT functionalities:

- PLAY TONE, SET UP IDLE MODE TEXT, TIMER MANAGEMENT, RUN AT COMMAND, LANGUAGE NOTIFICATION, LAUNCH BROWSER & Browser termination event, Language selection, SEND DTMF, REFRESH (IMSI, GBA, Steering of Roaming), PROVIDE LOCAL INFORMATION (...)- Location status event, User activity event, Idle screen available event, Access Technology Change Event, Display parameters changed event, Network Search Mode Change Event, Browsing status event

# Evolved USAT – Multiple card

## ✦ Open questions:

- Do we need to migrate class “a” commands (Multiple cards)?

USAT functionalities:  
- GET READER STATUS,  
PERFORM CARD APDU,  
POWER ON CARD,  
POWER OFF CARD, Card  
reader status

# Evolved USAT – proactivity and service discovery

## ★ Proposal:

- Enable Remote Wake-Up functionality
- Develop a generic service discovery mechanism enabling the UICC to discover the available ME services and vice versa
- Definition of a back-off mechanism
  - E.g. define a the minimum waiting time before sending again the same command

### USAT functionalities:

-USAT Proactivity:

“91XX”,

MORE TIME, POLL  
INTERVAL, POLLING OFF,  
End of the proactive session  
indication

- USAT service discovery:

Terminal Profile, USIM  
Service Table,

# Summary

# Evolved USAT proposed scope

## ✦ Proposed scope:

- Support of SCWS over IP to provide a GUI for UICC based applications
- Support of ETSI TS 102 483 to provide remote/local IP connectivity for UICC applications
- Ability to configure access networks parameters
- Support of Remote wake-up
- Support of a generic service discovery mechanism
- Support of legacy USAT functions over IP
  - Some legacy services should not be migrated: e.g. BIP for remote connections, class “a”

# USAT commands to migrate?

Legend: Yes | No | Partially

- ✦ CALL CONTROL and MO SMS Control, COMMAND RESULT, LANGUAGE NOTIFICATION, LAUNCH BROWSER, PLAY TONE, PROVIDE LOCAL INFORMATION, REFRESH, RUN AT COMMAND, SEND DTMF, SEND SHORT MESSAGE, SET UP CALL, SET UP EVENT LIST, SET UP IDLE MODE TEXT, TIMER MANAGEMENT, TIMER EXPIRATION, RETRIEVE MULTIMEDIA MESSAGE, SUBMIT MULTIMEDIA MESSAGE, MMS Transfer Status, DISPLAY MULTIMEDIA MESSAGE, MMS notification download, TERMINAL APPLICATION, Send SS, Send USSD, Data download to UICC (SMS and CB), USSD Data Download
- ✦ EVENT DOWNLOAD
  - MT call; Call connected at near end (MT call); Call connected at far end (MO call); Call disconnected at near end; Call disconnected at far end; Location status; User activity; Idle screen available; **Card reader status**; Language selection; Browser termination; **Data available**; **Channel status**, Access Technology Change, Display parameters changed, Local connection, Network Information Change, Browsing status, **Frames Information changed**, I-WLAN Access status event
- ✦ **DISPLAY TEXT, GET INKEY; GET INPUT; GET READER STATUS; MENU SELECTION, PERFORM CARD APDU, POWER ON CARD, POWER OFF CARD, SELECT ITEM, SET UP MENU, SET FRAMES, GET FRAMES STATUS**
- ✦ MORE TIME, **POLL INTERVAL** (to configure a timeout for commands execution), **POLLING OFF**
- ✦ **PROFILE DOWNLOAD** (as a basis for a service discovery mechanism)
- ✦ **OPEN CHANNEL, CLOSE CHANNEL, RECEIVE DATA, SEND DATA, GET CHANNEL STATUS, SERVICE SEARCH, GET SERVICE INFORMATION, DECLARE SERVICE** (for Local connection only)