

Bringing The Power of the Smart Card to CDMA

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Objectives

- Share a status on R-UIM in CDMA market worldwide
- Highlight the main benefits for R-UIM in roaming
- Broaden the scope to other R-UIM related Best practices in wireless to address operator business challenges
 - Increase ARPU
 - Retain best customers
 - Reduce operational costs

Agenda

1. R-UIM Status

2. R-UIM to ease Roaming

3. Other RUIIM-based Best Practices in Wireless

4. Conclusion

R-UIM status

R-UIM card : description & “basic” benefits in a CDMA network

**WHY DO CDMA
OPERATORS
CONSIDER R-UIM
TODAY ?**

REMOVABLE / PORTABLE

- Put operator in control of the subscriber relationship
- Ease handset renewal
 - Number & Phonebook portability

MULTI-APPLICATIVE

- Ease migration to new technologies
- Allow plastic roaming

CUSTOMISABLE POST ISSUANCE

- Reduce operational costs
 - Simplify subscription management
 - Reduce time to market

R-UIM status

R-UIM availability – Focus on Memory

- R-UIM is standardized (TIA-820B documentation)
- Today, a full range of R-UIM cards is available on the market based on the latest technologies
 - Java
 - GSM/CDMA/3G
 - OTASP/OTAPA
 - CCAT (standardized in 3GPP2)
 - 32 to 128 k
- **R-UIMs have enough memory size to serve large CDMA operators**
 - Most operators, including China Unicom, started with 32K or 48K cards
 - 64K and 128K R-UIM cards are available NOW
 - Large PRLs can be accommodated

Memory size is not an obstacle to implementing R-UIM technology

R-UIM status

R-UIM deployment status

- Over 15 CDMA operators worldwide are using R-UIM in Asia & Eastern Europe
 - China
 - Taiwan
 - Thailand
 - Hong Kong
 - Indonesia
 - Mongolia
 - Russia
 - Kazakhstan
- More operators have announced launches for 2004
 - India
 - Vietnam
 - Korea
- Internal trials and pilots are starting in Latin and North America

Main usages for R-UIM

- Continuity of service with GSM & 3G
- Handset renewal
- Roaming
- New applications (M-payment, transportation)

R-UIM in CDMA networks is a reality today

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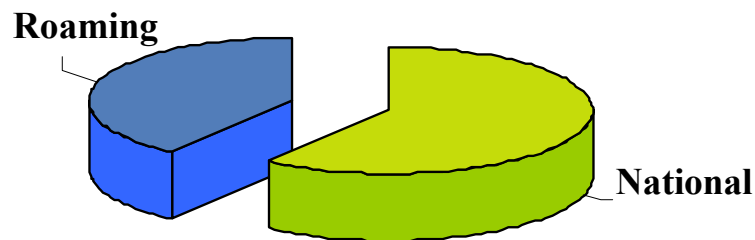
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R-UIM to ease Roaming

Roaming environment & business

- Roaming revenue represents 15-20% of operators revenue
- Roaming is used by many corporate users (high ARPU – key segment)
- Roaming is becoming more and more important with data or 3G services

Profit distribution in Western Europe



- 3% of traffic
- 13% of revenue
- **35% of profits**

Figures represent incoming and outgoing roaming
Sources: CSFB 2002, Charles River Associates 2001

R-UIM to ease Roaming

Scope of roaming & benefits

- Roaming with GSM
 - A dual-mode R-UIM has both GSM and CDMA subscriber data
- Roaming with W-CDMA (UIM and USIM)
 - A USIM with a CDMA applet
- Inter-standard Data Roaming (ISR)
 - Any of the above



Operator

- Generating additional revenues
- Retain higher value end-users by providing convenient roaming offers
- Reduce roaming costs by selection of best roaming partners
- Reduce fraud in roaming

End-user

- Convenient
 - Unique ME for all situations
 - Services access anywhere
- Cost controlled
 - Awareness on preferred partner pricing in roaming

R-UIM to ease Roaming

R-UIM is the best tool available for roaming

- Portable platform that operates across the Globe bringing all roaming Capabilities
 - Among CDMA (R-UIM only)
 - With GSM (R-UIM and SIM)
 - With W-CDMA (R-UIM and USIM)
- Automatic detection of activated network (GSM or CDMA)
- Tamper-proof device
 - Prevents subscription cloning
 - OTA deactivation if stolen handset
- Simplifies Logistics and Networks constraints
 - A unique card with several subscriptions

one number = one end-user = one card



**REMOVABLE
MULTI APPLICATIVE
CUSTOMIZABLE POST ISSUANCE**

R-UIM to ease Roaming

Dual mode CDMA / GSM now available

- Qualcomm chipsets (MSM6300) support R-UIM
 - All dual mode phones being launched support R-UIM
 - It is possible to use R-UIMs in those phones based on operator's requests
- Launches mid-2004 of dual- mode handsets supporting R-UIM/SIM
 - Motorola A 840, Samsung SCH-A790
- Example : China Unicom launching dual- mode handsets with R-UIM inside
 - R-UIM contains both GSM and CDMA subscriber data for convenience of use



R-UIM to ease Roaming

Let's go !

- To do ISR with R-UIM, the following is needed :
 - A roaming agreement with a GSM operator
 - Signalling conversion from MAP to ANSI-41
 - Syniverse (former TSI) helps operators in this area or an IIF (Inter-working, Inter-operability Function) is required for signalling conversion
 - R-UIM-enabled handsets
 - Dual-mode R-UIMs : GSM and CDMA files need to be populated in the card (example of China Unicom)
- You can do ISR two ways:
 - Plastic roaming
 - Two phones: one CDMA and one GSM
 - One dual-mode R-UIM with both GSM and CDMA files populated
 - With a GSM-CDMA phone and a dual-mode R-UIM

**R-UIM OTASP/OTAPA from Gemplus + Dual mode
Motorola/Samsung handset + Roaming agreement from Operator
= Roaming offer**

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Best practices in Wireless

What is at stake for wireless operators : from ARPU to AMPU

- Voice revenue is decreasing & handset subsidies increasing due to strong competitive pressure (strongly impacting wireless operator margin)
 - Data revenue is hardly compensating decrease in voice ARPU
 - SMS still accounts for 80% of data revenue for most wireless operators
- **Data AM(argin)PU development based on SMS traffic is the main challenge for wireless operators in the coming months/years**

HOW

- **Increase service usage**
 - Develop services awareness & adoption
 - Improve ease of use
- **Retain best customers**
 - Improve convenience
 - Differentiate from competition : Innovation
- **Reduce operational cost for operator to preserve margin**

Beyond Roaming

How to accelerate R-UIM return on investment

R-UIM to ...

Increase ARPU

MASS-MARKET

- **R-UIM as VAS booster**
 - CCAT & Dynamic CCAT solutions
 - DRM solutions for BREW & J2ME
- **R-UIM as a platform to deploy new phone usages**
 - M-payment, Transportation, Access Control

R-UIM to ...

Retain best customers

CORPORATE

- **R-UIM to increase convenience for users during lifecycle**
 - Phonebook management solutions
 - Corporate solutions
 - International & interstandard roaming

R-UIM to ...

Reduce operational costs

MASS-MARKET

- **R-UIM to simplify subscription management & reduce time to market**
 - Logistics & distribution solutions
 - New services & technologies introduction
- **R-UIM to reduce handset cost for low end segment**

Beyond Roaming

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Increase ARPU

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R-UIM to ...

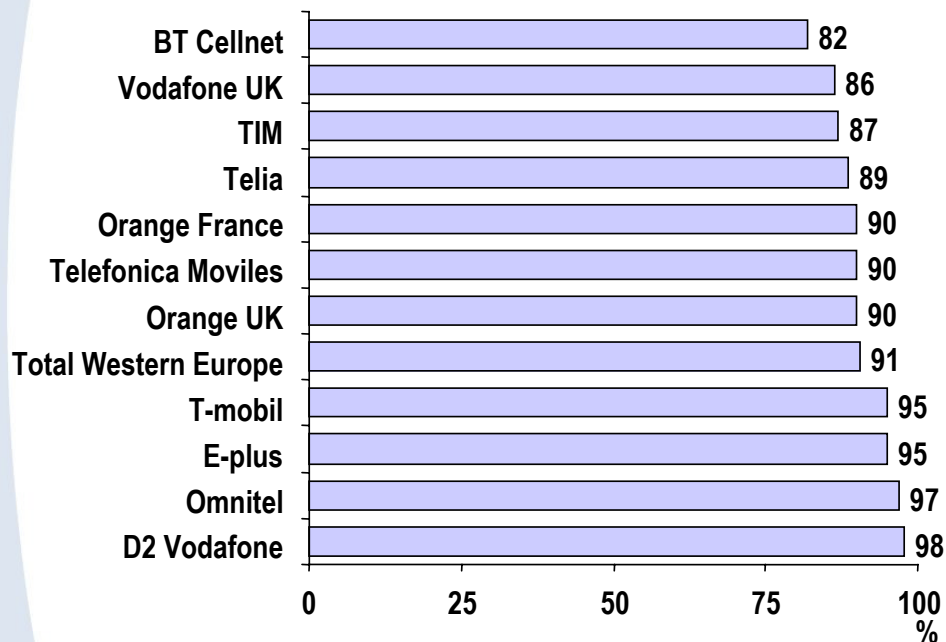
Reduce operation costs

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R-UIM as SMS/VAS booster

Data revenue : SMS is king

SMS as % of Data ARPU in Europe



Source: Yankee Group 2001

Forecasts

SMS currently accounts for
10% of total carrier's revenues

SMS traffic in Western Europe :
2001 : 186 billion SMS/year
2006 : 365 billion SMS/year

After 2004, SMS growth will start to
level off as **MMS rises in**
popularity.

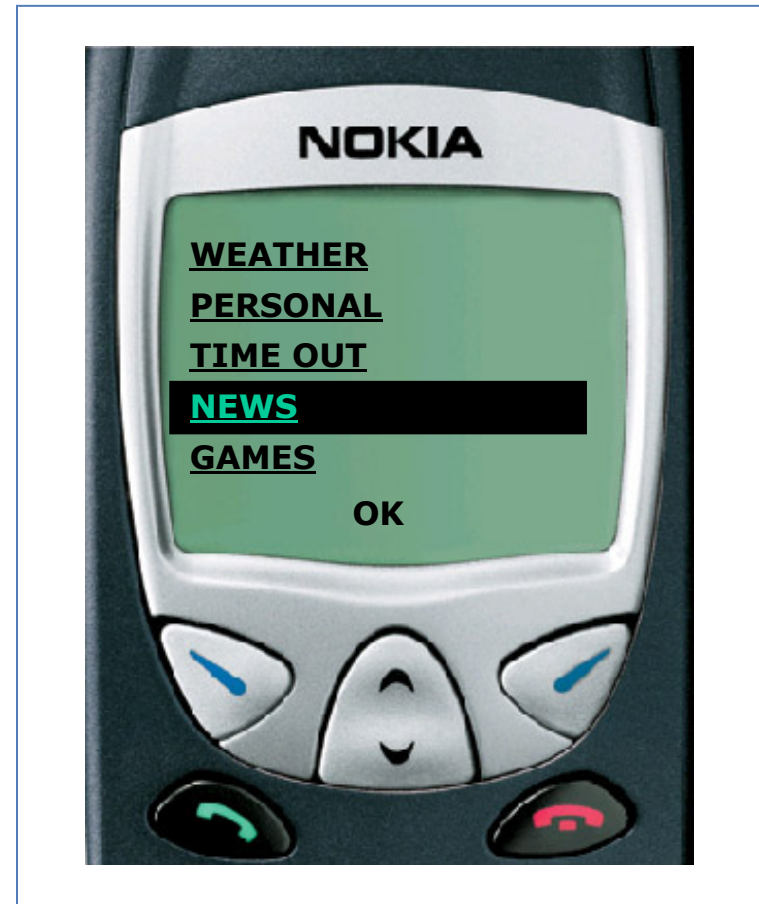
Source: Frost and Sullivan Study, March 2002

SMS is by far the main source of data revenue today, and will continue to be in the coming years

R-UIM as SMS/VAS booster

CCAT: CDMA Card Application Toolkit

- Card based technology
- Applications are stored within the card
- Menu-based architecture
- Channel used is SMS
- User navigates off-line and send requests to remote VAS servers



R-UIM as SMS/VAS booster

CCAT : Benefits

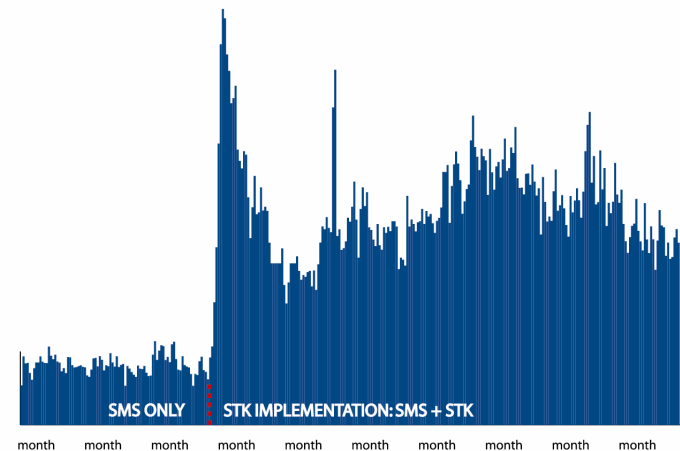
User-friendliness

- Playing a Character game w/ 3 stimuli
 - SMS: 24 actions from end-user
 - CCAT: 4 actions from end-user
- Playing a Quiz w/ 5 questions
 - SMS: 29 actions from end-user
 - CCAT: 9 actions from end-user

SMS traffic booster

At implementation,
growth : 820%

Average growth
in traffic: 265%



Source: European Operator / 2001

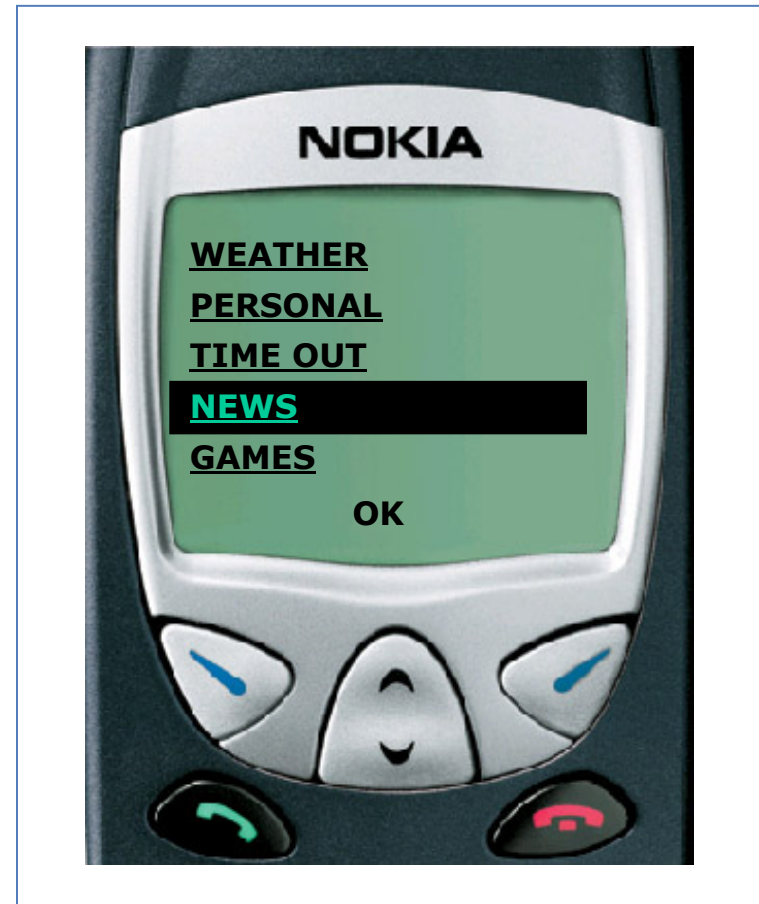
R-UIM as SMS/VAS booster

Dynamic-CCAT : Dynamic CDMA Card Application Toolkit

- Card-based technology
- Applications are stored within the card
- Menu-based architecture
- Channel used is SMS
- User navigates off-line and send requests to remote VAS servers

Evolution of the CCAT

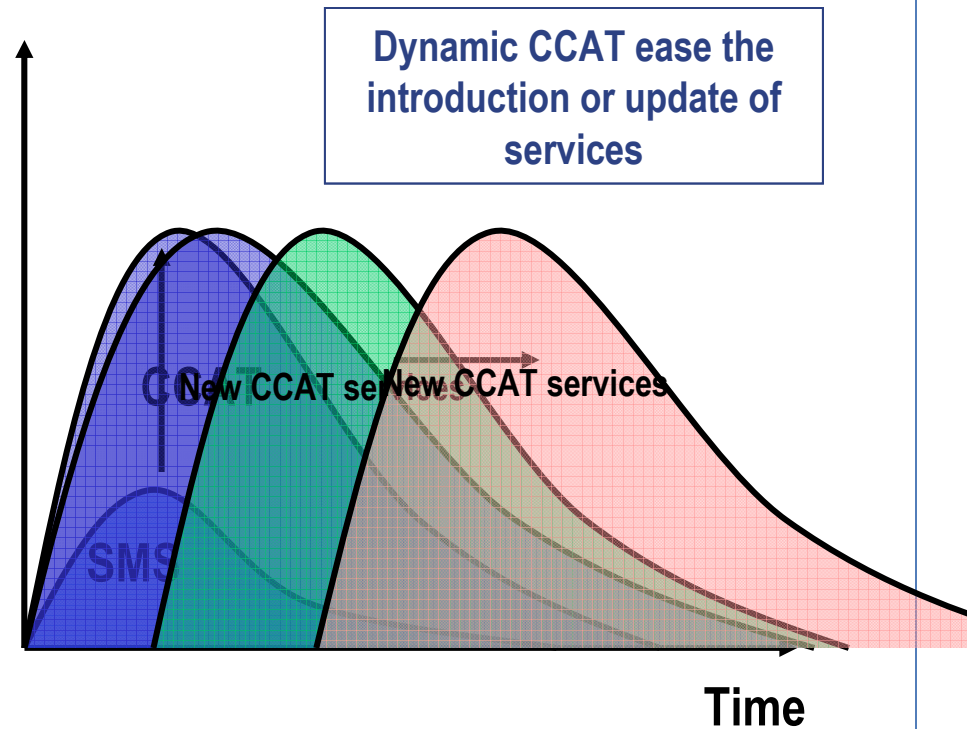
- Allowing update/delete of Menus/Services dynamically (Daily, Weekly...)
 - by operator
 - by subscriber



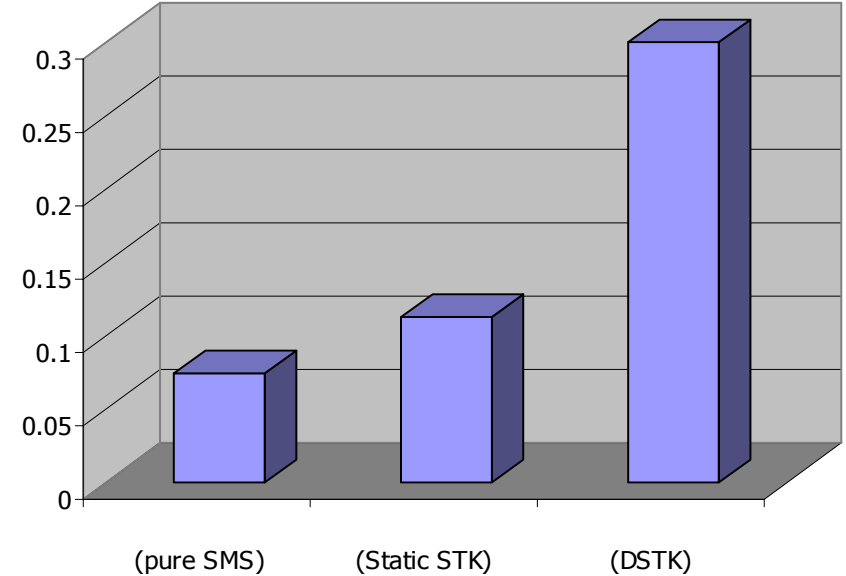
R-UIM as SMS/VAS booster

CCAT & D-CCAT : Impact on services usage & on SMS traffic

Services usage



SMS per user per month



Source: Internal Source, Brazil - 2003

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Conclusion

- R-UIM in CDMA is becoming a field reality
 - Significant number of deployments worldwide
 - Significant handsets portfolio
 - Broad R-UIM card offer by Gemplus
- Roaming is a key application for R-UIM adoption
 - Cards & handsets ready in 2004
 - Just try it
- Other R-UIM related solutions can help you justify migration and accelerate return on investment
 - Increase ARPU (service usage, DRM, mobile payment)
 - Retain best customers: high-end users, road warriors
 - Reduce operational costs (stop handset subsidies, accelerate handset renewal)

Gemplus is involved in all R-UIM projects worldwide, and as such is ready to help you with products and solutions to address your challenges



Thank you

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