VideoSMS

Integrate SMS in your enterprise !

- **Send personalized bulk SMS from your messaging system or your computer applications**
- **Build quickly high-value added Premium Pull and Push SMS applications**
- **Add SMS features to your Web**
- **Expand to MMS, Wap, Java and other mobile technologies**

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Introduction

Most people in developed countries own a mobile phone and the recreational and professional use of mobile applications and services is growing at a very fast rate. The mobile phone market has now reached maturity regarding the usage of voice calls, but the mobile and consumers data applications are only beginning their expansion.

With VIDEOSMS software set, Monaco Telematique MCTEL offers a complete solution to easily integrate this new technology to offer to your customers and users advanced applications that could be reached from any mobile phone, anywhere, anytime.

Furthermore, by setting up Premium SMS services, you will be able to resell your data and generate earnings.

This document describes how to take advantage of the SMS technology to increase your business efficiency and to generate additional profits, as well the Monaco Telematique MCTEL SMS offer.

How SMS works ?

SMS stands for Short Message Service, a mobile facility allowing to send and receive text or even binary messages to and from a mobile phone.

SMS are very easy to use even if the mobile phone keyboard is usually not very well suited to alphabetic data collection. More than 160 billion SMS are exchanged each month in European countries.

SMS use the GSM special signaling channel instead of the voice channel and is therefore a very reliable media channel. SMS may often be transmitted even when the mobile network is overloaded[1]

According to the origin of the message, SMS could be named:

- **Mobile Originated (MO)**: SMS-MO are **sent from** a mobile phone and could be sent either to another mobile phone (such when a mobile subscriber sends a personal message to another subscriber) or to a computer application that will process the message.
- **Mobile Terminated (MT)**: SMS-MT are **transmitted to** a mobile phone. They also could be sent by another mobile phone or generated by a computer application.

The SMS processing computer applications usually runs on corporate servers that are connected to the SMS network through specialized connectors and gateways connected to the SMS Centers of mobile operators. As they are processing huge number of SMS and in order to make them easier to remember, these servers are assigned short numbers instead of the

[1] The only exception beeing the new year event where even the GSM signalling channel is congested by hundreds of millions of SMS exchanged by users.

traditional 10-digits mobile numbers. These short numbers are called short codes and contains only 4 to 6 digits.

Each short number is usually specific to a given country and shared by all operators of the country.

SMS features

Size and type of messages

Short messages may contain:

- **Text data** : the size of a single text SMS may not exceed 160 characters.
- **Binary data**, such ringtones and pictures : the size of a single binary SMS is limited to 140 bytes.

It is nevertheless possible to transmit longer messages : a longer message can be split and sent as several SMS messages that will be 'concatenated' upon reception by the mobile in order to reconstitute the complete original message.

Transmission mechanism, error processing, time to live

SMS are transmitted by the mobile network operator to the the recipient mobile phone of the susbcriber. When the recipient is unreachable (mobile offline or outside network coverage for example), the message will be stored in the SMS Center of the mobile operator to be transmitted again should the mobile becomes available.

After a given time delay (the SMS time to live), the SMS will be destroyed if not successfully transmitted and a non-delivery acknowledgment will be returned to the sender.

The application generating the SMS may define :

- The maximal SMS time to live that could not exceed a limit depending on the network (often 3 days).
- The transmission date and time for delayed SMS : they will be stored and transmitted only after specified time.

Display and storage modes

The processing of the received SMS may vary depending on the SMS message class:

- Message stored in the phone memory.
- Message stored on SIM. If the SIM is full, the SMS may be lost.
- Flash message displayed immediately on the screen. The advantage is the display does not need any user action. The drawback is the message will not be stored and will be destroyed after reading.

Acknowledgements

The sending computer application may get an acknowledgement when the SMS has been successfully transmitted to its recipient or an error status with detailed error cause in case of problem.

The computer application may at all time retrieve the current message status:

- SMS-MT submitted to the gateway.
- SMS-MT transmitted to mobile operator SMS-C.
- SMS-MT delivered to the mobile phone.
- SMS-MT could not be delivered to the mobile phone, with error cause. Depending on the error cause, retries may be performed or not.

Billing models

There is two kind of billing models :

- In the **standard model**, the emitter of the SMS pays for message transmission:
  - A company sending a SMS-MT to an user will pay the SMS sending cost.
  - The receiving user pays nothing.
- In the **premium model**, the end user is charged for the message plus an added value that will be shared by the mobile network operator, the service provider giving access to the network and the information provider itself. Two main methods of billing are available:
  - **Premium Pull:** the user sends a SMS-MO to the server requesting information, and will receive back a SMS-MT returning the result. The user will pay for the sending of a standard SMS according to his mobile plan, and for the Premium fees whose a part will be refunded to the information provider. The information provider does not pay for sending the SMS-MT in response.
  - **Premium Push:** the user will subscribe first (using SMS, Web, any other method) to an information service that will send him unsolicited SMS-MT at regular intervals or when a given event occurs. The user will be charged for each such message received, a part of the monies will be refunded to the information provider.

Glossary

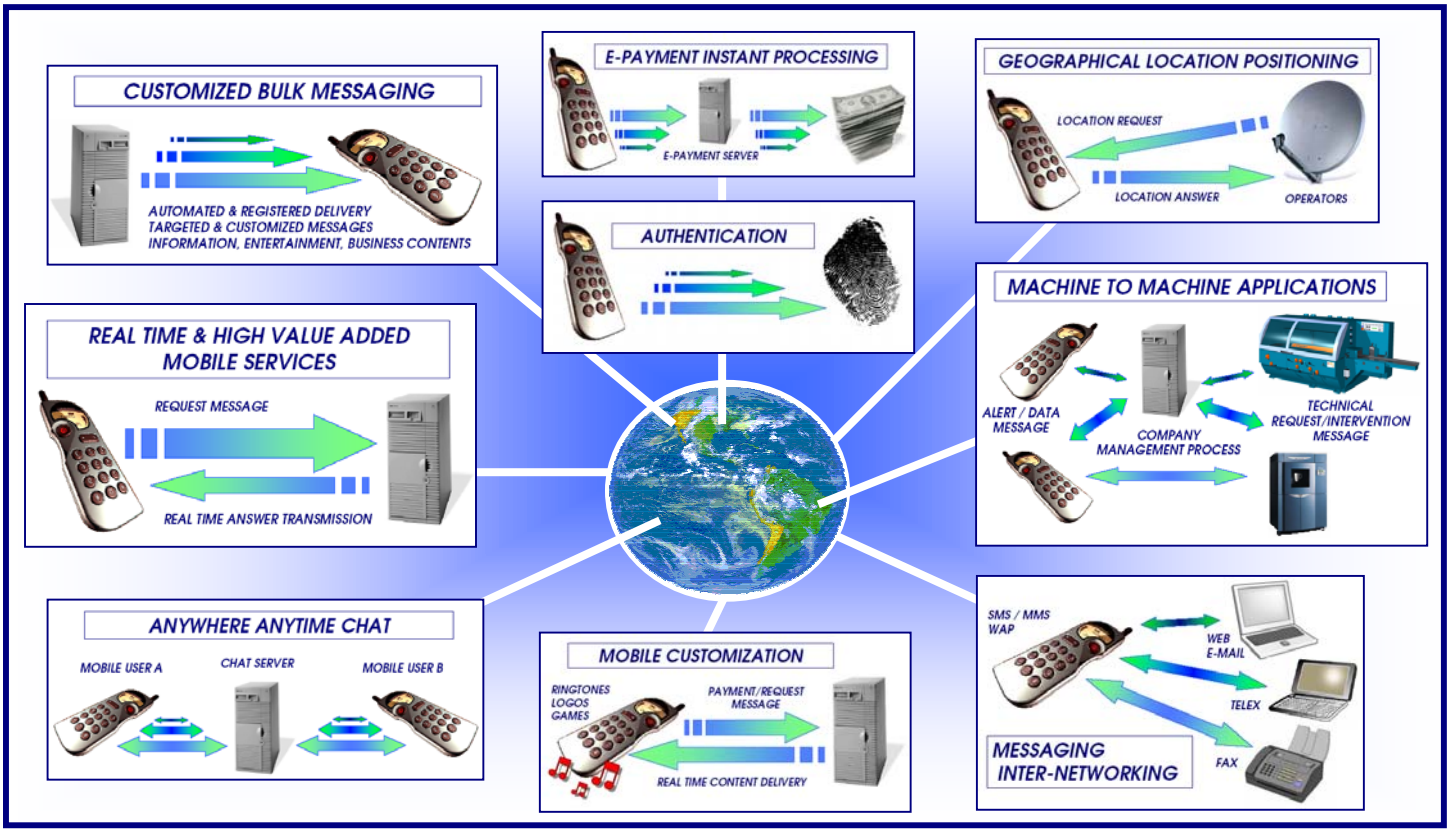
- **Alias** : in several countries, on Premium SMS services, the user mobile number (MSISDN) is masked by the operator and replaced by an unique alias number, in order to avoid the creation of unauthorized mobile numbers databases for marketing purposes byh the information provider.
- **Short code** : abbreviated number (usually from 4 to 6 digits) allocated to a SMS server running Premium SMS applications and allowing the user to send his/her message to a short code easy to remember instead of a 10 digits full mobile number.
- **OTA** (Over the Air) : this technology is used to download binary data to a mobile phone, for example : logos, ringtones, email or Wap configuration download by the mobile operator, SIM card customization by mobile network operator.

- **Push-SMS** : sending an unsolicited SMS-MT to a mobile user.
- **SMS = Short Message Service** : short text or binary message exchanged between two mobile phones[2] or a mobile phone and a computer application.
- **SMS-C** : SMS Service Center : is the SMS transmission platform run by the mobile operator. It uses a specific protocol to exchange SMS messages between mobile phones and the VIDEOSMS software (either installed on a customer system or run by the Monaco Telematique shared host center). The SMS-C use a store and forward technology allowing it to store a message until a given mobile phone becomes reachable. Monaco Telematique VIDEOSMS software is able to interwork with any SMS-C worldwide.
- **SMS-MO** (Mobile Originated) : SMS sent from a mobile phone.
- **SMS-MT** (Mobile Terminated) : SMS sent to a mobile phone.

[2] In numerous countries, it is also possible to send and receive SMS message from ordinary or advanced phones connected to the switched telephonic network.

What could be done with SMS services ?

The applications of SMS are nearly endless : this channel could be used to offer a wide range of services to mobile users.



Bulk SMS : sending personalized messages to recipients

SMS is a very effective way to send immediately a customized message to one or thousands of users.

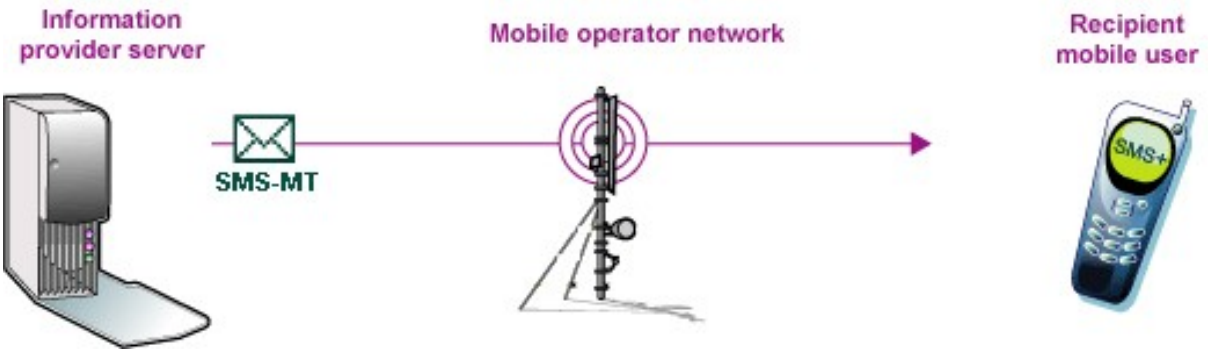


Figure 1: A computer system or application sends automatically personalized SMS-MT to mobile recipients

They could be used to:

- **Improve communication between employees by integrating SMS within the enterprise messaging system** and other integrated software (ERP) :
    - It is possible to send a message through SMS from the enterprise messaging system.
    - Any company application could automatically dispatch information through SMS to its intended recipient.
    - The company ERP or a secretary could automatically forward to the user:
        - His new appointments: using vCalendar format, they will be displayed and automatically entered in the phone calendar application.
        - His new customers data: they will be displayed and automatically entered in the mobile directory thanks to the vCard format.
    - SMS is a very reliable network : all messages will be acknowledged by the network when received by mobile recipient. In case of transmission problem (e.g. mobile unreachable), an alarm could be generated and the message could be automatically routed through another network (e.g. fax).
- **Send informational or promotional messages**, customized or not. For example :
    - Banks could send account balances at regular intervals.
    - A company could perform direct marketing operations to its customers.
- **Automatically send time-sensitive personalized information at predefined times or when a given event occurs** : the user could subscribe in advance to the service using SMS, Web, or any other method and he select which kind of information he will receive. The SMS application will then send him at predefined times or when a given even occurs:
    - Updated informations :
        - Weather of the day
        - Account balance
        - Daily news alerts
        - Sports updates
    - Alarm messages :
        - Account balance debtor.
        - Delay or cancellation of a flight.
        - Postponement of an appointment
    - Specific message on a given event:
        - When a stock value reach a given amount.
        - When an ad matching the criteria specified in advance is passed.
        - When a given news event occur (e.g. sporting match result).
        - When a pre-sold item becomes available.
        - And so on.

Device customization

The market of phone set customization is currently a very lucrative service in Europe: users are choosing and downloading ringtones, logos or images on their handset.

Although simple in principle, these services are complicated by the wide variety of handsets and supported standards. The added value of these services remains quite low: the user ask for a ringtone or a logo and get it, either through SMS or Wap push.

More added value applications may be built where the user download a Java game to be run on their phone. Advanced game or applications may be downloaded this way, and are selected either by SMS or more often via mobile Wap browsing.

Interactive processing : answering user request

Those applications may offer very high added value as they may allow any mobile user to perform any kind of request thru their mobile phone.

From the text content of the request SMS transmitted by the user, the server will be able to perform any kind of data processing: relational database search,

The exclusive Monaco Telematique SMS Grabber and Formatter technology allows to automatically perform search on existing Web sites, FTP files, videotex or computer applications according to user requests to immediately create a high value added SMS service taking advantage of the existing applications without any new development.

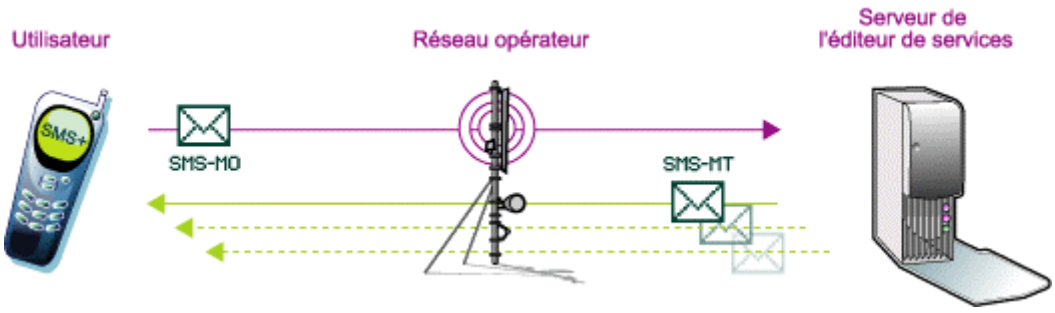


Figure 2: Example of interactive SMS service : the user sends a SMS-MO request that will be forwarded by his mobile network operator to the host server of the information provider. After processing, the information provider will send back one (or several) SMS-MT in answer with the requested information.

Amongst possible examples :

- Real-time request by sale forces of available stock of a given item with current price.
- SMS online banking operations: get account balance, get an alarm SMS message if the balance is negative,
- Taxi request: the system may even in some countries find the user geographical position in order to forward him the nearest taxi.
- Get the status of a plane flight.
- Interworking between SMS network and other networks: fax, email, telex, and so on.
- Meteorological information retrieval either for the general public or for special uses (aeronautical, nautical, mountain…).
- Games.

The Premium model **allows the SMS information provider to get paid for each user request**: depending on the short number used, charging rate selected and his contract with the network operator, the information provider will earn a given amount at each SMS-MO request sent by a mobile user. The mobile user will be invoiced directly on his phone bill by his network operator, and the network operator will pay back his share to the information provider.

Online payment

A SMS service may be used to perform online payment of virtual goods online, usually of small amount. Amongst possible use:

- The user want to download a logo or ringtone of small size on his phone : he send a Premium Pull SMS to request the good, and receive back the ordered ringtone or logo via SMS.
- If the good is too large, such a polyphonic ringtone, a color image or a Java game, the return SMS may include a Wap URL allowing the user to download the required good from a Wap site.
- Providing an Internet unlocking code giving access to a Web page: with this method, Web information providers may get easily paid for their online data, without having to set up complicated subscription procedures nor having to ask a reluctant user for a credit card number.
- Providing an unlocking code to a Wifi spot.

In the same way, the user will get invoiced on his phone bill, and the network operator will pay back the information provider.

Chat applications

SMS is an easy way to allow users to chat between them, through a chat server allowing users to begin a relationship without having to exchange first their phone numbers. The messages will pass through the SMS chat servers allowing users to remain anonymous.

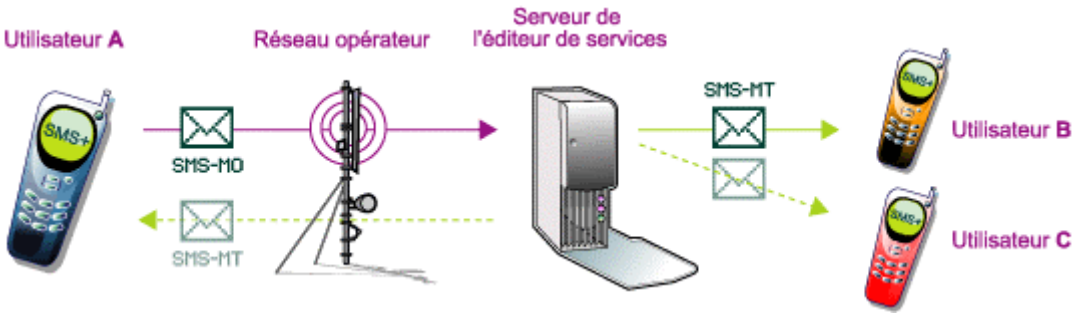


Figure 3: Example of SMS chat service: the user A may send a message to user B (or several users if he choose so). By passing through a SMS Chat server, the users does not have to disclose their private mobile phone numbers to each others.

Remote control

SMS may be used in remote control applications in order to:

- Transmit alerts to duty staff.
- Perform automated exchange of data between a remote controller and a central server, as explained below (Machine to Machine interface).

Machine to machine interface

SMS are a very effective and easy way to exchange automatically data between a remote or mobile system and another mobile system or a computing application.

SMS offers numerous advantages in this context:

- May easily be integrated in the remote system hardware.
- Does not need any fixed phone lines
- Immediate setup
- Reliable message delivery.

Location retrieval

More or more operators are currently opening the user geographical positioning retrieval feature, allowing a service provider to ask for the current or last known user location. The location is computed by the network operator by triangulation according the relative strength of the user's mobile received by nearest operator GSM relays.

This feature allows to build very useful applications in the fields of transportation, emergency care, help lines, resource management.

User interface and ergonomics

Main ergonomics principles are as follow:

- **Create an useful SMS application**, taking in account the network characteristics and offering a true value-added to the service.
    - Address mobile users needing on-the-way access to the offered data: it is for example not logical to offer SMS access to a database usually accessed free of charge from office users: if they do not need mobile access to the information, they will prefer to continue to use their Web access from their office.
    - The user request size must be as small as possible. Even if a SMS-MO may contains up to 160 characters, in practice the mobile phone sets are usually not very well suited to the data entry of numerous characters.
    - Short response time: the SMS application must answer in a very short time to the user request. A 5 seconds delay is usually fine.
- Each request is usually **identified by a keyword** allowing the server to select the appropriate processing application. For example, the keyword "FLIGHT" followed by a flight number will return the flight information for the given flight. This procedure allows to offer several different applications using a same short code. The keyword choice is essential to the easiness of use and success of the SMS Premium application:
    - They must be short and easy to remember.
    - Even when the service does not need any content in the SMS-MO to perform its processing (e.g. a game when only a SMS among several is selected to win), it is best to request at least a short keyword from the user as some mobile phones does not allow to send an empty SMS-MO.

  - The SMS server must manage not only the correct keyword by also possible variants (phonetical orthograph, uppercase/lowercase use, abbreviated forms, plural, main spelling errors).
  - If possible, use as keywords existing words in the country language to take in account the fact some users have the word dictionary and predictive data entry enabled on their phone.
  - In case of error or unrecognized keyword, an explanation SMS-MT must be returned to the sender to explain him the correct keyword syntax and service usage.
- User requests must be **simples and shorts** : for example sending an account number or a stock exchange name after the keyword.
  It is possible to use several steps (SMS-MO requests and SMS-MT responses) for example when several parameters are needed, it is best to keep the number of steps as small as possible. Each request is invoiced to the user.
- The application may perform any kind of processing even very complex ones, but they must be done is a **delay as short as possible**, less than one minute, in order to send an answer quickly to the user.
- As the size of the answered SMS-MT returned in reply is limited (160 characters per SMS, several SMS may nevertheless be concatenated in order to send back more than 400 characters), if a message of large size is to be returned, it is preferable when possible to send back a short SMS giving access to a Wap page containing the requested data (Wap push SMS) or to use other media (fax, email) to forward the requested information.

How to send SMS automatically (push-SMS)

The automated sending of personalized SMS from computer applications, Web sites, enterprise messaging system or emailing tools could be set up very quickly, at a very low cost, and without setup fee. The only requirement is to have an Internet access available (X.25 also supported).

Sending SMS from computer applications or Web sites

From any PC, computing application or Web site, it is very easy to send SMS :

- **No specific equipment is needed**, as the Monaco Telematique gateway will take in charge the interworking with the mobile operators. Of course, if the customer wish, a complete SMS gateway may also be supplied and installed on the customer computer center: in this case the customer will be directly connected to the mobile operators.
- **Push SMS sending tools are supplied free of charge**: PC program, XML tools, API.
- **No subscription is necessary**, the only cost incurred are the transmission costs of the SMS successfully sent.

From the IT manager point of view, the integration of push SMS functions in the company computing applications, ERP and messaging system is very quick and easy. The push SMS could be sent:

- Calling a Web cgi on the MCTEL Web/SMS gateway.
- Creating a XML text file describing the SMS to send and transmit it to Monaco Telematique SMS gateway through FTP or using a XML sender.
- Integrating the VIDEOSMS/Client functions within the computer applications : for example *sms_send* function request the transmission of a push SMS, the *sms_read_status* get back the SMS transmission status.

SMS PC Desktop sender and direct marketing tools

Monaco Telematique supplies free of charge to his customers all PC, Unix and OpenVMS tools required to dispatch promotional information via SMS to customers and prospective clients who have opted-in to receive such messages :

- PC Windows program with advanced user interface, real time SMS transmission status display, Outlook integration.
- Web interface to send personalized messages, check correct message transmission and list transmitted SMS.
- Complete logs with charging information, sending and receiving timestamp, status.
- Ability to send binary data (logos, ringtones), extended message formats (EMS), multimedia messages (MMS).

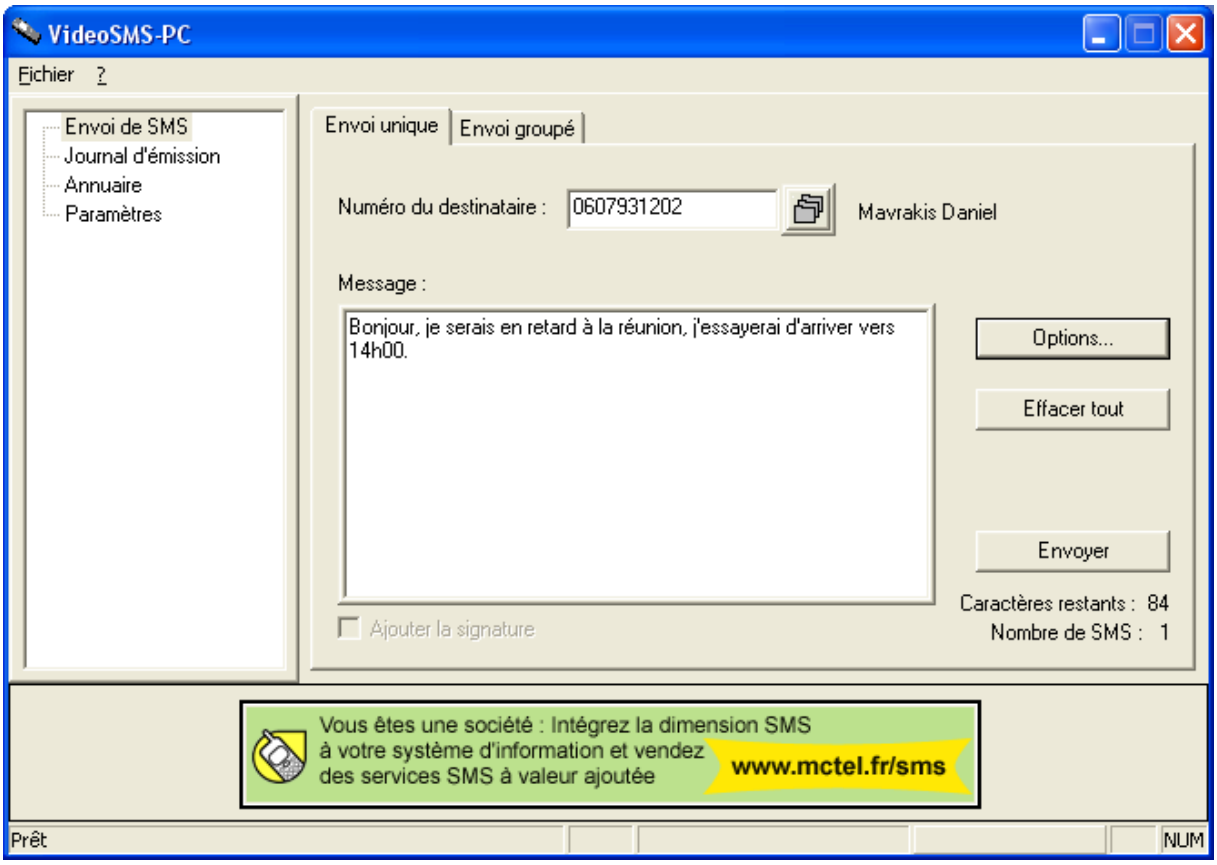


Figure 4: The VIDEOSMS Desktop PC software allows to quickly send bulk personalized SMS to one or multiple recipients. Delayed delivery, reception acknowledgement, email on delivery or on error, flash message features are supported. The software includes its own SMS directory, is integrated with Outlook, records all SMS sent.

The VideoSMS/PC Desktop program is freeware and may be downloaded free of charge on www.smsfax.com.

Integrating SMS capabilities to the enterprise messaging system

Monaco Telematique mobile communication tools may be easily integrated to enterprise messaging system, allowing to send easily messages to mobile users as any other recipient.

Alternate routing is available in order when a mobile phone is unreachable to route the message to an alternate number: other mobile number, email address, fax number, telex number.

Monaco Telematique MCTEL also supply interworking gateways between email, SMS, fax, and telex networks (please refer to http://www.mctel.fr for more information).

How to create high-value added transactional SMS applications ?

To the difference of simple push-SMS applications described in the previous chapter, transactional SMS applications are more complex to set up but offers a much higher added value, as the request transmitted by SMS is to be processed in order to return immediately an answer to the user.

Financial and administrative matters

Usually, transactional SMS services are run using easy to remember shortcodes and using Premium rates. In this case, administrative paperworks must be done:

- Choose a Premium rate and request the assignment of a short code.
- Sign a contract with mobile network operators in order to open a Premium service. The contract usually covers both the short code rental with the operator and the Premium service, so users will be invoiced for the SMS Premium calls directly on their mobile phone bills and the network operator will refund the relevant part to the SMS service editor.

Monaco Telematique MCTEL is operating short codes in several European countries. In order to start immediately your SMS service, you could share the use of an existing short code.

In order to help you for administrative SMS service setup, Monaco Telematique MCTEL has published countries-specific « *Administrative Guide of SMS service creation* ». Please refer to your country guide for detailed information.

Available taxation rates and Information Provider earnings

The table below lists the available Premium rates in European countries along with type of Premium offer (MO or MT) and short codes length.

Country	Short code length	Premium service type and options	User price (including VAT)	Information provider earnings (approximate) ex. VAT
Austria	10 (no shortcodes)	MT, MO	0.20 € to 10.00 €	
Belgium	4	MT, MO	0.15 € to 2.00 €	
Czech Rep.	7	MT, MO	3 CZK to 30 CZK	
Denmark	4	MT	0.50 DKK to 30 DKK	
Finland	4 or 5	MT, MO	0.16 € to 20.00 €	
France	5	MO with mandatory MT, LI, MT	0.00 € to 1.5 €	From 0.035 to 1 €

		soon		
Germany	5	MO	0.29 € to 4.99 €	
Greece	4	MO	0.29 € to 1.00 €	
Hungary	4	MT, MO	60 HUF to 799 HUF	
Ireland	5	MT, MO	0.09 € to 5.00 €	0.05 € to 2.93 €
Italy	5	MT, MO	0.16 € to 5.00 €	
Netherlands	4	MT, MO	0.25 € to 5.00 €	
Norway	4	MT, MO	0 NOK to 60 NOK	
Poland	5	MT	0.61 PLN to 10.98 PLN	
Portugal	4	MT	0.20 € to 3.00 €	
Spain	4	MO with mandatory MT	0.17 € to 1.39 €	
Sweden	5	MT, MO, LI	2 SEK to 30 SEK	
Switzerland	3 to 5	MO with mandatory MT	0.10 CHF to 3 CHF	0 CHF to 1.99 CHF
UK	5	MO, MT	£ 0.0 to £ 1.50	£ 0.0 to £ 1.00
USA				
MT: Premium MT: the user subscribes to the service and will be invoiced for each SMS-MT received. **MO**: Premium MO: the user sends a Premium SMS-MO request and get charged one-time (either on SMS-MO or on SMS-MT reply). **LI**: The mobile network operator may optionally provide user geographical location positioning				

Tableau 1: Comparative table of available Premium SMS services in several countries. The specified prices are those invoiced to the user and does not include the sending price of the request SMS-MO. The part paid back to the information providers may vary in a same country depending on the mobile network operator.

Short code assignment

The service editor may :

- Use an existing short code already managed by the company providing network connectivity.
- Subscribe to a new short code.

The rules to follow to get assigned a short code vary according to each country. Please refer to the administrative guide specific of your country for more information.

Contracting with mobile network operators

When a new short code is used, a contract must be passed with the network operators of the selected country in order to open the short code and to get paid for traffic on this short code.

Usually, it is needed to open the same short code on all the mobile operators of the country, in order to be able to easily offer and advertise the service to all mobile phone subscribers. The time needed for cross networks short code activation is usually ranging from 3 to 8 weeks.

When the service is hosted by a company providing network connectivity, the contractual part with mobile network operators may be reduced or eliminated, and the short code is immediately available.

General technical points

Interworking with SMS networks

The link between your computer applications and the mobile networks operators SMS Centers is provided by a SMS gateway.

Several interworking models are available :

- **You could operate yourself your own SMS gateway**, running on a system in your premises where VIDEOSMS Gateway has been installed. Your system must be connected and interwork with all mobile networks operators needed. That means that networking and infrastructure costs are to be taken in account.
- **You could install nothing on your computer systems and ask Monaco Telematique to both run your SMS applications and to provide SMS network connectivity through the MCTEL European SMS hosting center, connected to numerous SMS operators in Europe**. All management operations will be performed by Monaco Telematique staff. That also means that if specific requests are to be done on your data, a copy mechanism must be set up to allow Monaco Telematique to get a copy of the needed data.
- A similar but even better solution is **to ask Monaco Telematique MCTEL to provide SMS network connectivity** with **a customized SMS application accessing automatically and in real time to the data of your computer systems** through Web, FTP or other networking requests. In this case, you have nothing to develop and no networking interworking to set up and the accessed data are always up to date. The application setup may be immediate, thanks to **Web to SMS revamping solution**.
- An intermediate solution easy to setup and very flexible is **to run on your own computer systems your value-added applications and to use the client/server VIDEOSMS API to use the Monaco Telematique European SMS shared hosting center for network connectivity**. In this case, you will get the same flexibility and advanced processing features than if you would have purchased a complete SMS server, without the associated costs and without the need to connect and manage all SMS mobile networks connectivity.

Solution	Network connectivity need	Development time	Flexibility	Setup time and costs
Purchase and run your own SMS gateway	Yes	++	+++	++++
Host all your application on MCTEL host center	No	+	+	++
Use Web to SMS MCTEL revamping tools	No	Very short or immediate	++	+
Use the client/server API to run your applications on your system and use MCTEL for network connectivity	No	++	+++	++

VideoSMS API and development tools

Introduction

VideoSMS offers integrated development tools allowing to quickly and easily develop SMS applications and to integrate SMS features within your existing corporate servers, computer applications and relational databases:

- Of course **emailing and messaging push-SMS features** : automatic sending of SMS from your computer applications and messaging software.
- **Advanced functions to develop quickly transactional SMS services** : on receipt of a request SMS-MO from an user and after application-specific processing, sending back of the answer to the user request. These functions allow to create any kind of value-added applications: accessing relational databases or company ERP, online banking, games, chat, and so on.
- **Complete integration with other networks: email, fax, telex, voice applications, Web, Wap, videotex, and so on**.
- **Revamping tools** allowing to make immediately accessible through SMS data already published in electronic form, for example accessible through a Web server, a FTP file, SQL requests a VT or 3270 computer application, a videotex service. The revamping tools will automatically perform the necessary requests to retrieve the information, extract the relevant data, format them, and send back the answer to the user.

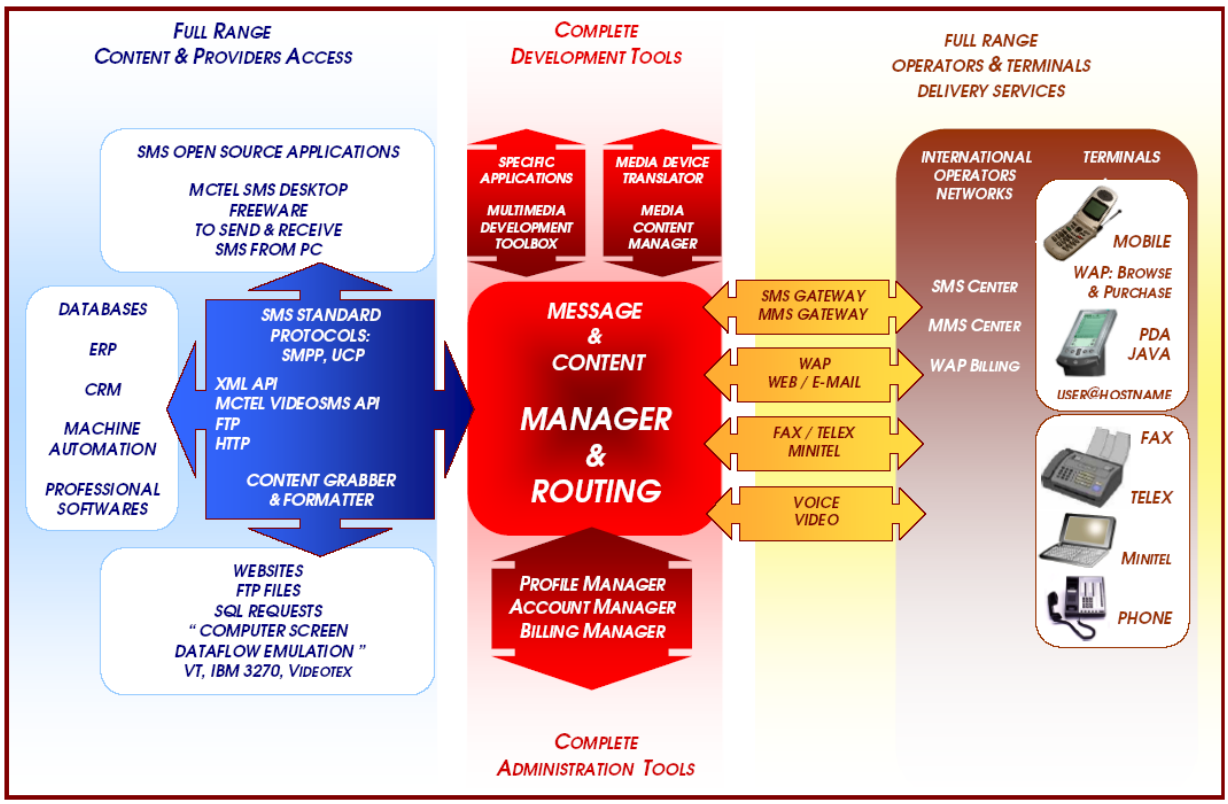


Figure 5: Complete view of Monaco Telematique MCTEL message management and communication dispatcher tools: MCTEL programs allows to build high value added applications managing

simultaneously SMS, MMS, Videotex, Fax, Telex, voice applications as well mobile Java JMEE applications.

The VIDEOSMS API Toolbox offers all features needed for a quick and easy development of your SMS applications :

- SMS and other networks (email, fax, telex, videotex, Web, Wap) communication dispatcher.
- Automated keyword recognition and specific data processing.
- Full session management system, including safekeeping of application context over several SMS exchanges, user identification, geographical positioning if needed, taxation rates management.
- Generating response to user request with binary and extended message format support, alternate network support (fax, email).

The communication with mobile network operators, whose SMS-Centers use different and incompatible protocols, is managed in a transparent way by VIDEOSMS communication layers, over all network layers supported (e.g. TCP/IP, X.25). VIDEOSMS is able to interwork with all mobile operators worldwide.

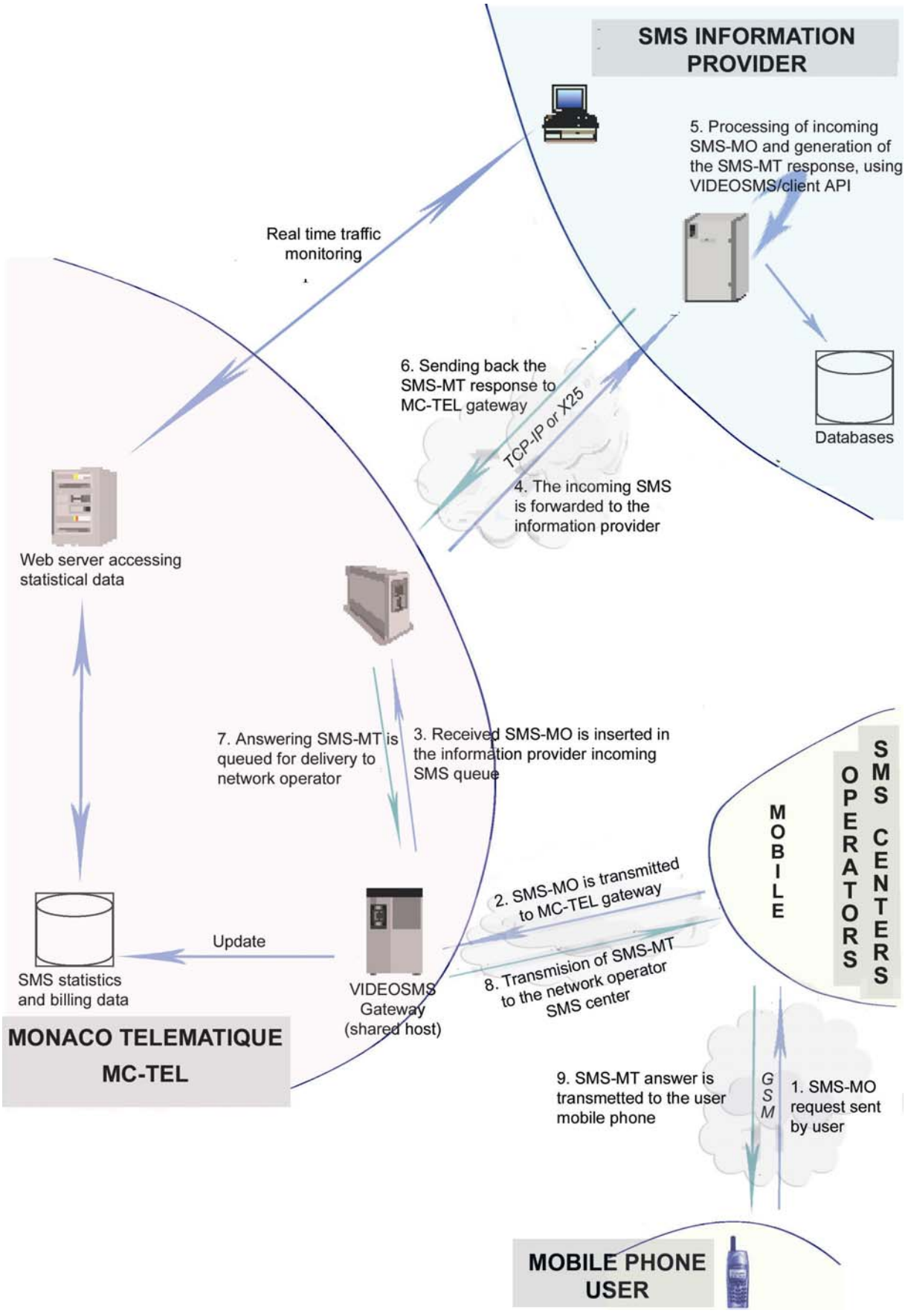
Multilingual support is included, making easier the realization of pan-European applications.

How in practice set up a transactional SMS application ?

The development of your transactional SMS applications may be done on your existing computer systems (most Unix, Windows NT/2000, OpenVMS) and take advantage of existing data processing applications.

For example, **here is how to integrate quickly SMS interactive processing in an existing data processing application**, accessing your existing databases :

- Make a copy of your existing application keeping all the processing functions (relational database search, processing, and so on.), to change only the user I/O functions. Replace the user I/O functions by the VIDEOSMS I/O functions (*SMS_Read* to get an incoming SMS-MO request, *SMS_Reply* to send back the response SMS-MT after request processing).
- Ask Monaco Telematique to open a SMS account for you.
- That’s all, your application is running.


SMS INFORMATION PROVIDER
5. Processing of incoming SMS-MO and generation of the SMS-MT response, using VIDEOSMS/client API
Real time traffic monitoring
6. Sending back the SMS-MT response to MC-TEL gateway
TCP-IP or X25
4. The incoming SMS is forwarded to the information provider
Databases
Web server accessing statistical data
7. Answering SMS-MT is queued for delivery to network operator
3. Received SMS-MO is inserted in the information provider incoming SMS queue
MOBILE OPERATORS SMS CENTERS
2. SMS-MO is transmitted to MC-TEL gateway
Update
SMS statistics and billing data
VIDEOSMS Gateway (shared host)
8. Transmision of SMS-MT to the network operator SMS center
MONACO TELEMATIQUE MC-TEL
9. SMS-MT answer is transmetted to the user mobile phone
GSM
1. SMS-MO request sent by user
MOBILE PHONE USER

The only network requirements is to have the system connected either to TCP/IP Internet or X.25 network to be able to use these client/server functions that are available on most operating systems :

- Windows NT/2000
- Compaq/Digital Unix.
- PC Unix-SCO.
- PC Linux.
- IBM Aix.
- HP-UX.
- Sun Solaris
- Compaq/Digital OpenVMS (VAX and Alpha).
- The client/server functions could be ported on other environments, please contact Monaco Telematique if needed.

The easiness of use of these functions and their easy integration within the existing data processing applications of the company make usually possible to create complete SMS interactive applications in a matter of days.

The exchange of data with Monaco Telematique platform could also be done using HTTP/HTML, FTP or SMTP.

Immediate setup from existing Web applications, FTP files, client/server SQL requests, VT, 3270 or videotex data flow

Another and quicker way is to configure the VIDEOSMS Application Gateway Interface that will automatically and without any development on company side access the company databases, get the relevant data, format them, and send back the SMS-MT reply. The access to company databases could be done using an existing Web or Wap application, a FTP file, a SQL request, a computer VT, 3270 or videotex application.

Thanks to the VIDEOSMS Application Gateway Interface, the grabbing of data from Web, Wap, Videotex, FTP files or SQL databases will be performed automatically. In this mode, the setting up of a SMS interactive service may often be done in a matter of hours.

If for example, your company has developed a Web service allowing to get stock exchange information, you could setup immediately a SMS Premium service allowing users to perform requests from SMS instead of by Web. You will have nothing to develop on your computer side, the VIDEOSMS Application Gateway Interface, on receipt of a SMS-MO request, will automatically access your Web site, perform the equivalent request, get the answer, extract the relevant information, format them and send back the SMS-MT response to the user in real time. The whole operation will take one or two seconds usually, a very short delay from the SMS user point of view.

This advanced technology consisted to access in a transparent way an existing application to take advantage of the developments already made may be used with:

- Web services whose processing scripts (cgi, pl, asp, Java beans) return a Web page giving back the requested information.
- Webservices accessed through XML/SOAP requests.

- Any file that could be retrieved by FTP.
- Data managed by a relational database (Oracle, Ingres, MySQL, and so on) that could be accessed through client/server SQL requests.
- The screen data flow of an existing computer application (VT 100, VT 220, IBM 3270, LU 6.2, Videotex).
- And so on.

In all cases, the received data (Web HTML page, XML data returned by a Webservice, FTP text or binary file, VT, 3270 or videotex data flow, SQL-retrieved data) are decoded automatically to extract the relevant data, in order to format them and to send the formatted response back to the user by SMS-MT.

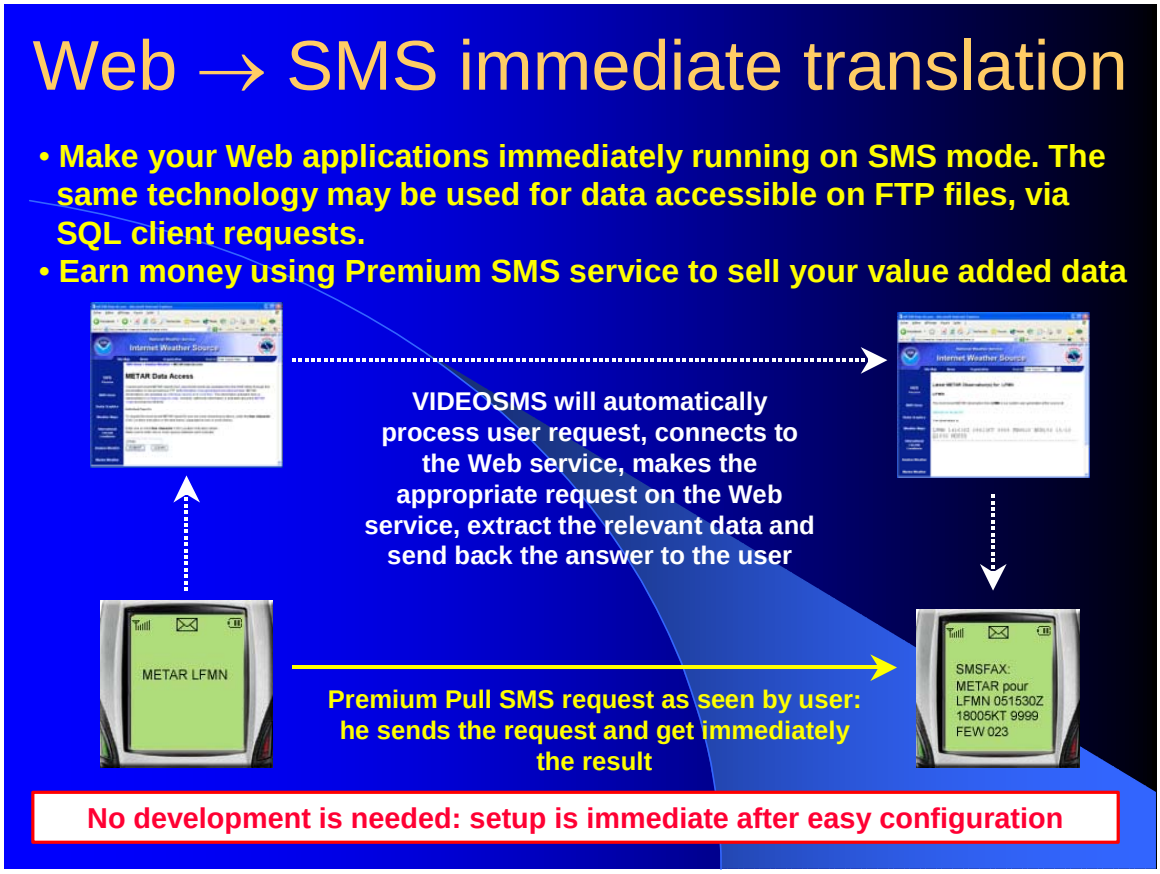


Figure 6: Example of immediate creation of a transactional SMS service taking advantage of an existing Web application. The same technology could be used for Wap, FTP, SQL or computer dataflow.

A solution fully integrated with the Monaco Telematique mobile products offering

VideoSMS software set is fully integrated with other networking and mobile software of Monaco Telematique :

- EuroWeb Web server.
- Fax gateway (VIDEOTELEFAX)
- Telex gateway (VIDEOTELEX)
- Videotex gateway (VIDEONET)

- WebVPC ordering over Internet.
- Online banking (Videobank).

Furthermore, the SMS functions could be called from any other application or software having a programming interface:

- Existing company computer applications.
- Relational databases.
- Back office, ERP, CRM, and so on.

A complete service offer

Monaco Telematique may assist you during the design and development phases of your SMS service and may even completely take in charge the service design and creation. A complete service offer is proposed by Monaco Telematique MCTEL to support you in the creation and operation of your mobile applications, including:

- Assistance and advice during mobile and SMS service design phase.
- Full development of your complete turnkey SMS application.
- Hosting your application on the Monaco Telematique MCTEL SMS hosting center.
- Use of the Monaco Telematique MCTEL SMS gateway to get network connectivity, the SMS applications running on your computer systems.

Thanks to VIDEOSMS Application Gateway Interface, and without any specific development, it is possible to take advantage of the data processing functions of existing applications (Web, FTP data, SQL databases, computer screens dataflow) to make their data immediately accessible from SMS requests.

Assistance during SMS service design phase

Monaco Telematique MCTEL may advise you during the SMS service design phase, in order to speed up the development, to take full advantage of the media capabilities, and to better address your users needs.

- General design of the SMS service.
- Ergonomics of the message requests and answers.
- Advice on taxation rates and payment model.
- Legal and deontological points.
- Help on administrative work (short number assignment, relationships with network operators and regulatory authorities, and so on.)

Complete turnkey SMS application

Monaco Telematique MCTEL make take in charge the whole development of your SMS application and deliver you a complete turnkey solution.

The developments will be done using the Monaco Telematique MCTEL VIDEOSMS Development Toolbox, the hardware platform and operating system and programming language specified by the customer, and any other needed third party software (RDBMS, ERP, CRM, and so on.).

This SMS application could either use the MCTEL SMS gateway for mobile network connectivity or use a VIDEOSMS Gateway installed on the customer system and connected to SMS-Centers of mobile operators.

Hosting your SMS application on Monaco Telematique SMS host center

In this case, no computer resource will be needed on information provider side, the SMS hosting center of Monaco Telematique MCTEL will provide both network connectivity and the application processing computer resources.

The Monaco Telematique MCTEL SMS hosting center offers all needed facilities:

- Numerous fault tolerant systems running 24hours a day and 7 days a week : HP/Digital OpenVMS and True 64 Unix, Sun Solaris, IBM Aix, HP HP-UX, and PC running UNIX-SCO, Linux, Windows 2000.
- Direct network interworking with numerous European networks operators, via X.25, TCP/IP Internet, Virtual Private Networks.
- Gateways to other networks: email, fax, telex, videotex, Web, Wap.
- Extranet billing and statistical features accessible through Internet to the information providers to allow them to follow in real time their service usage.

Using Monaco Telematique SMS gateway to offer SMS network connectivity to your computer systems and Web applications

Using this solution, you will process on your own computer systems the requests received from mobile users and send back the responses using the Monaco Telematique SMS gateway for mobile network connectivity. You computer systems do not need to be connected to the mobile network operators, saving costs and time.

There is two methods to develop the SMS application by itself, described in more detail below:

- Modify the existing computer applications to integrate SMS management (or write a new application from scratch).
- Simply configure the VIDEOSMS Application Gateway Interface to immediately access existing data that could be reached on a Web or Wap service, on a FTP file, making SQL requests or interpreting the display data flow of a VT, 3270 or videotex application.

Modifying your existing applications to integrate SMS management

The simple client/server SMS functions provided free of charge by Monaco Telematique MCTEL are very simple to use and could be easily integrated in your applications to provide SMS incoming (SMS-MO) and outgoing (SMS-MT) support.

To use them, you will need :

- A supported computer system :
    - Windows NT or 2000.
    - Unix : IBM AIX, HP/Digital True64 Unix, HP HP-UX, PC Linux, PC Unix-SCO, Sun Solaris.
    - OpenVMS (VAX or Alpha).

- Internet (TCP/IP) or X.25 access to exchange data with the Monaco Telematique SMS gateway.

Additionally to the client/server API, data could be exchanged with Monaco Telematique SMS gateway through SMTP (email), FTP, or HTTP requests.

Accessing from SMS the data from your Web, FTP files, SQL databases or computer screen dataflow

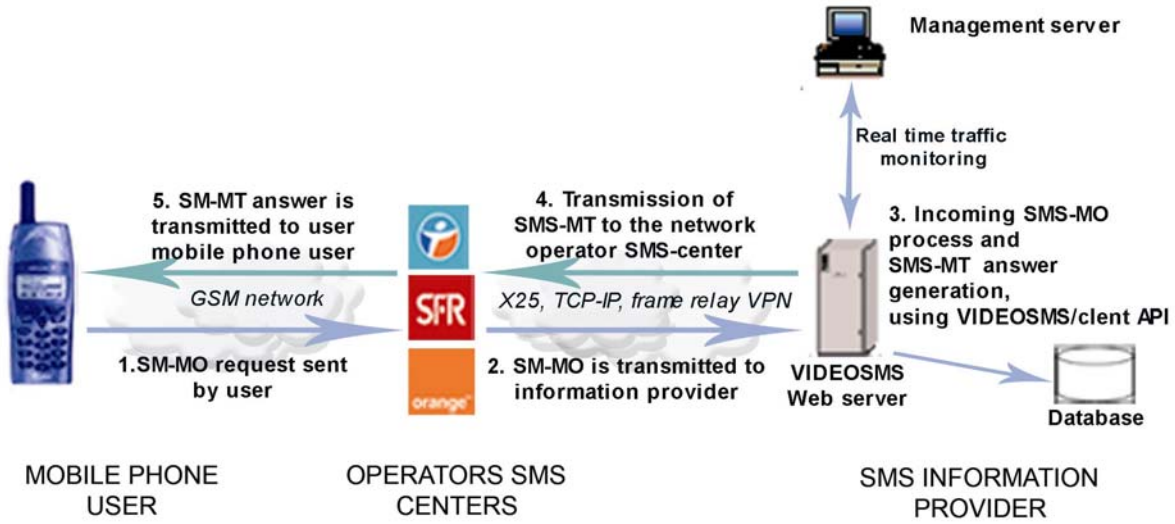
This solution is even more easy to use, as no development at all is necessary. A configuration script, usually written in less than one hour by Monaco Telematique will define how the data are to be retrieved and processed on receipt of a SMS-MO request by the VIDEOSMS Application Gateway Interface and the format of the SMS-MT to be returned.

The data are automatically retrieved:

- Using requests performed on existing Web or Wap services.
- By getting using FTP text or binary files and extracting data from them.
- By performing SQL client requests on existing databases.
- By accessing existing screen-designed computer applications using virtual VT, 3270 or videotex terminals.

Using this solution, a complete SMS service could be setup in a matter of hours.

Connecting your own SMS gateway to the mobile network operators



In this case your own computer system will both run your SMS applications and interwork with the mobile network operators. The prerequisites are as follow:

- VIDEOSMS Gateway software from Monaco Telematique MCTEL
- VIDEOSMS Development Toolbox for application development.

- Your specific SMS application(s) build using VIDEOSMS Development Toolbox either by your computer development engineers or those of Monaco Telematique MCTEL.
- A supported platform.
- The required networking routers and network connectivity to access mobile network operators (vary from one country to another, please contact Monaco Telematique for information regarding your country.

For more information

- Contact right now our commercial department at +377 9216 8888 or email us to mctel@mctel.fr
- Look at our Web service http://www.mctel.fr
- Access our SMS demo services (please contact us to get a list of short codes operating in your country).

Appendix 1 : Monaco Telematique SMS software

SMS connectivity software

Name	Usage
VIDEOSMS Gateway	Provide interconnectivity between information provider SMS application server and SMS-Centers of network mobile operators
VIDEOSMS Development Toolbox	Complete set of API to develop easily advanced SMS applications on the VIDEOSMS Gateway
VIDEOSMS Client Development Toolbox	Client/server API to develop advanced SMS applications on the customer systems, interworking with a remote VIDEOSMS Gateway providing mobile network connectivity
VIDEOSMS Application Gateway Interface	Provide revamping functions allowing to automatically extract to existing data and application via SMS, without any development. Specialized modules manage: • Web and Wap access and retrieval. • FTP retrieval and file support. • SQL requests. • Terminal data flow with several formats (VT, 3270, Videotex).
VIDEOSMS Desktop SMS	Standalone PC package allowing to send and receive SMS with Outlook integration.
VIDEOSMS-Center	Offers SMS-Center functions for mobile network operators

Network optional interfaces

Name	Usage
VIDEOTELEFAX	Fax gateway (outgoing and incoming support)
VIDEOTELEX	Telex gateway (outgoing and incoming support)
Email gateway	Email SMTP gateway
VTX/Gate, VTX/Web	Videotex gateway

SMS application software

Professional applications

- Electronic messaging
- ERP and CRM integration
- Online banking and stock exchange applications.
- Micropayment for Web services.

Entertainment applications

- Ringtones and logos downloading.
- Chat applications.
- Meteorological data retrieval.
- Voting applications.