



Enterprise One Number

Enterprise One Number Solution Overview

Software version 5.20, November 2009

Non-contractual document



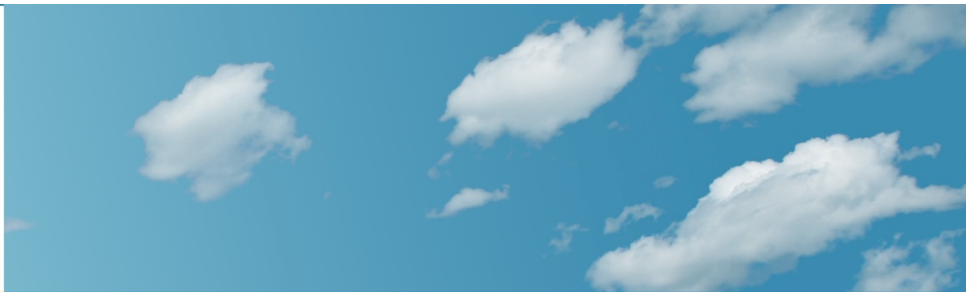


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1. Introduction

One Number	<p>The QuesCom solution enables one to be reachable at any time with a single number that becomes the only user telephony identity: The One Number.</p> <p>The One Number is at the same time:</p> <ul style="list-style-type: none">• A Corporate number• A Mobile phone number• A Fax number. <p>The One Number solutions brings to companies three benefits family:</p>
Savings & Control	<p>Connected to the switchboard, the QuesCom equipment reduces call costs to mobile phones. On all calls, the enterprise benefits from the best prices. With a single number, the company has an overall view of fixed and mobile flows through statistics allowing analysis of its activity.</p>
Voice calls and Fax	<p>The solution allows also employees to be reached at any time and have a personal fax, accessible with e-mail wherever they are.</p>
Mobility & Convergence	<p>One Number QuesCom solution delivers optimal availability for fixed and mobile calls. The solution enables one to be reachable at any time with a single number. Employees can benefit from the corporate features on their mobile phones. The company is making cost savings thanks to convergence.</p>



2. Enterprise One Number for Savings and Control

2.1. GSM Gateway features

Reduces GSM costs	<p>The QuesCom GSM appliance is an equipment that integrates enterprise's SIM cards.</p> <p>The QuesCom GSM strongly reduces enterprises' telephone bill:</p> <ul style="list-style-type: none">• By converting fixed-line calls (originating in a PBX) to any mobile phone (F2M) in « mobile to mobile » (M2M) calls, up to 50 % cheaper,• By converting calls originating in an enterprise mobile phone to any fixed-line phone (M2F) in « fixed to fixed » (F2F) calls, up to 80% cheaper for international calls for instance. <p>The QuesCom GSM appliance is provided with the following features:</p>
Network integration	<p>Enable efficient routing across different networks: incoming and outgoing calls routing, from/to any destination (VoIP, ISDN, GSM and CTI applications).</p>
Caller number presentation	<p>Incoming call number presentation: SIM card numbers related to calls placed to GSM phones through the gateway may be presented or not.</p>
GSM trunks	<p>The GSM gateway can support as many simultaneous calls as the number of included GSM ports</p>

2.2. VoIP gateway features

Overview	<p>The QuesCom gateways support TCP/IP communication.</p> <ul style="list-style-type: none">• H.323 and SIP compatible.• Codecs supported are: G.711, G.723, and G.729.• Echo Cancelation• DTMF detection and generation (INFO method, in band, RFC2833)
IP connections benefits	<p>The IP connection allows:</p> <ul style="list-style-type: none">• Interconnect the QuesCom appliance to an external gateway, gatekeeper or PBX so that VoIP calls are routed from or towards the QuesCom appliance.• Interconnect the QuesCom appliance to an IP Telephony operator, for instance, an ITSP or SIP Provider which provide IP Call Routing.• Interconnect QuesCom appliance together to extend GSM termination capacities.

2.3. Voice rate plans management

Use the best SIM to route the call

This feature enables the optimization SIM cards and GSM gateway usage.

- Detailed management of GSM rate plans and/or prepaid cards.
- Routing by the best SIM card according to the operator and the remaining credit.
- Minutes carrying forward.
- Minute management included in the bundle.
- Cross net calls authorization or not.
- Peak/Off peak plans management
- Alert when credit is empty.

2.4. Backup routes

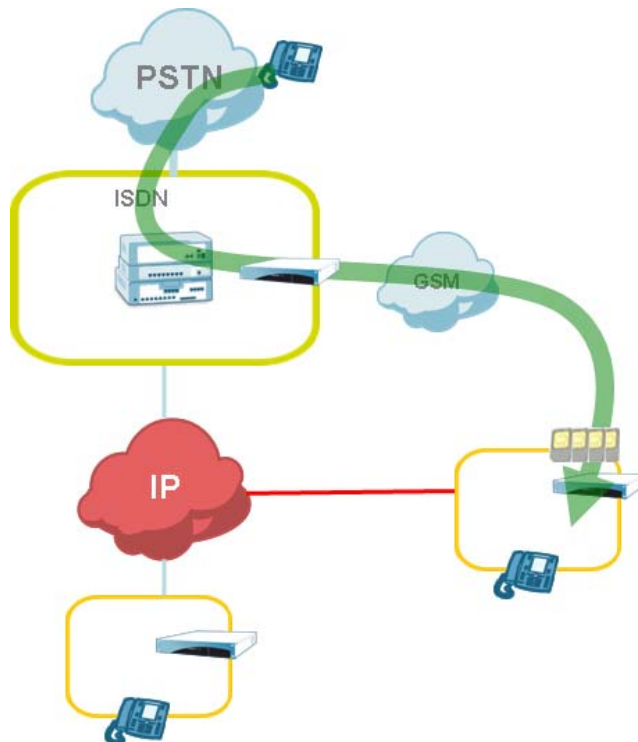
Backup routes

Back-up routing rules may be configured when a specific network is not available, so that call forwarding to other networks is ensured.

Example

When the GSM network is not available or all GSM ports are busy, it is possible to route the overflow traffic to PSTN or VoIP network.

Or, in case of IP WAN connection failure between the main site and the remote site, all incoming calls can be redirected by GSM to the QuesCom GSM appliance of the remote site (and vice versa).



2.5. Least Cost Routing (LCR)

Modify the called number

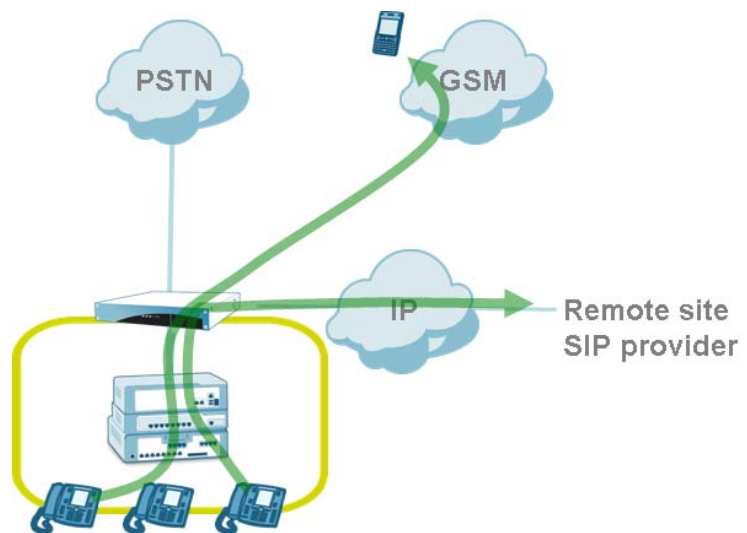
The Least Cost Routing (LCR) feature may be used to modify a called number by adding/removing/replacing it or a portion of it.

Benefits

Each call routes according to advanced routing rule to pass it out by the most cost effective network:

- ISDN,
- GSM or
- VoIP

The QuesCom appliance can be used as a traditional VoIP gateway:



2.6. Call-Through

Overview

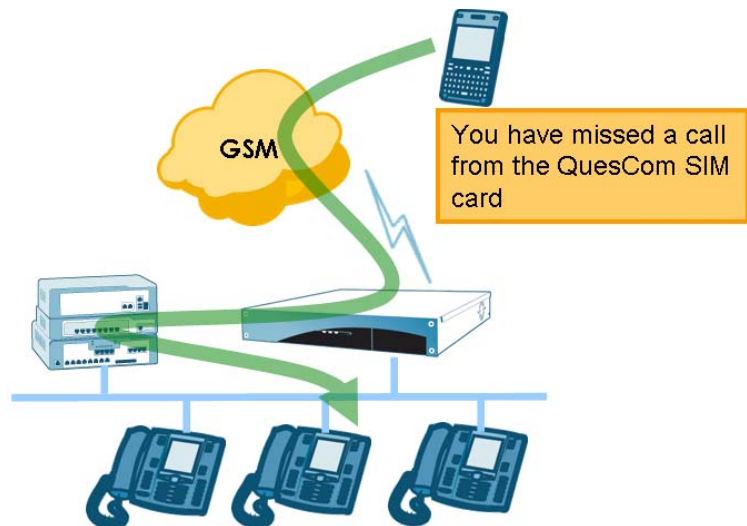
When the QuesCom appliance calls a mobile, the number presented is the one of the SIM card of the GSM ports of the QuesCom.

If the recipient misses the call and wants to call back the displayed number (the one of the SIM used in the gateway), thanks to the call through feature, he will be automatically connected to the last internal user who has called him through the QuesCom.

Example

The recipient does not answer the call because he is in a meeting and don't recognize the calling number. When he calls back, he is immediately connected to the internal user.

The call-through feature can be activated on a user per user basis.



2.7. Restriction profile

Forbid calls to phone numbers The Restriction profile feature may be used to forbid or not calls of a user to prefixes and phone numbers.

Example For instance, international calls can be forbidden for manufacturing department members.

2.8. Architecture in Pass-through on ISDN links

ISDN connection The Pass-through architecture is when the QuesCom appliance is connected between the PSTN and the PBX (by PRI or BRI lines).

In case of QuesCom appliance failure, there is a bypass and calls continue to be placed and received to the PBX.

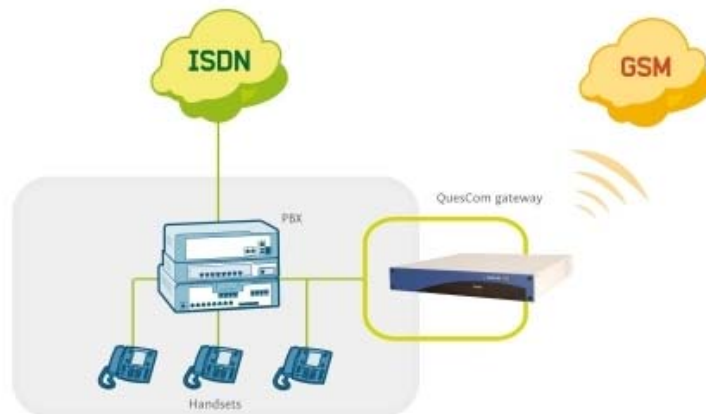


2.9. Architecture in Dedicated line on ISDN

ISDN connection

When the QuesCom appliance is connected only to the PBX, (by PRI or BRI lines) the architecture is named Dedicated.

This architecture is generally used for large GSM deployments (i.e. more than 32 GSM ports).



2.10. Architecture in H.323 or in SIP

IP connection

QuesCom appliance can be connected only by IP to an IPBX, using the H323 or the SIP protocol.



3. Enterprise One Number for Voice and Fax

Introduction

Fax feature are available in

- ISDN
- IP environments (T.38 codec).

The QuesCom appliance licensing allows by default 4 simultaneous faxes to be sent and/or received. This number can be increased to 30 simultaneous by adding a voice processing module.

The QuesCom manages also SMS sending and receiving (providing that the appliance contains GSM ports).



3.1. Fax receiving by email

Process

The QuesCom appliance can intercepts an incoming call (ISDN and IP). If a calling fax machine carrier is detected, fax session is established to receive the fax in a file (using official TIFF format) e-mailed (SMTP) as an attachment to the recipient's address (this email address being associated to the phone number on which the fax arrived).

The fax carrier detection adds 2-5 seconds delay in voice call treatment and routing.

Destination

Faxes can be received on:

- The One Number: Faxes and voice calls can be received on the same number AND at the same time.
- On dedicated fax DDI number

The email received by the user can afterwards be checked, saved, deleted, and transferred to any email address. A copy of the received fax can be stored on the administrator email.



3.2. Fax sending

Introduction Fax sending may be submitted for password authorization according the sender's number (fax right management).

A copy of the sent fax can be:

- sent by email to the sender
- stored on the administrator email

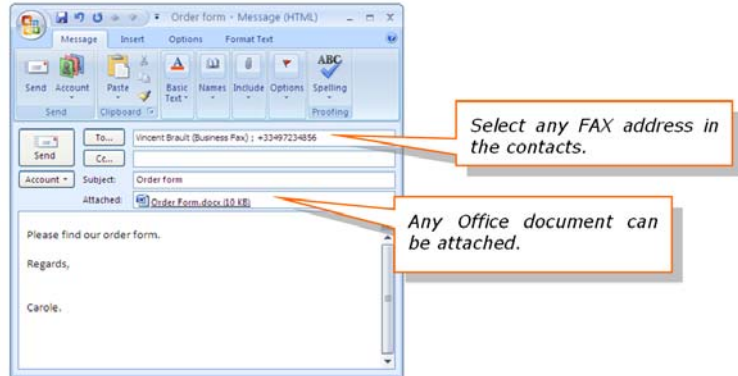
Sent faxes from Faxes can be sent using:

- Microsoft Outlook
- Microsoft Fax
- Lotus Notes
- A printer Driver

3.2.1. From Microsoft Outlook

As mail

The user can send a fax from Microsoft Outlook and attach any Microsoft Office documents and PDF files.



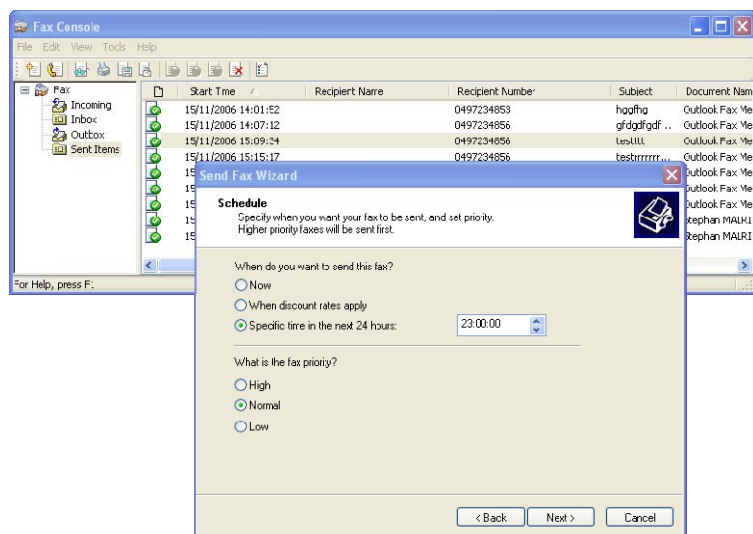
This solution implies the installation and configuration of Microsoft Fax Service

3.2.2. From Microsoft Fax console

Microsoft Fax console

The user can send a fax from Microsoft fax and benefit from all software features like:

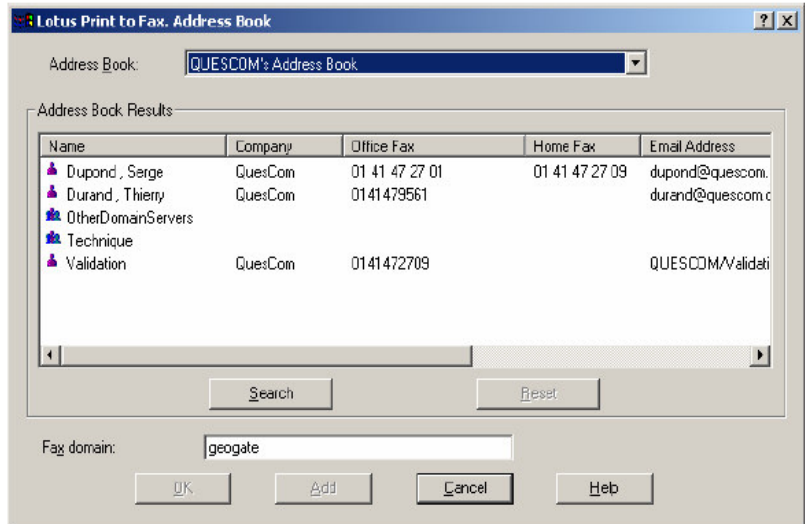
- Select several fax recipients in personal & corporate address books
- Merge any Microsoft Office document as in a fax
- Schedule sending



3.2.3. From Lotus Notes

Lotus Notes

The user can send a fax from Lotus Print to Fax and select several fax recipients in address books. This implies a Lotus Domino server on a Windows Server operating system.

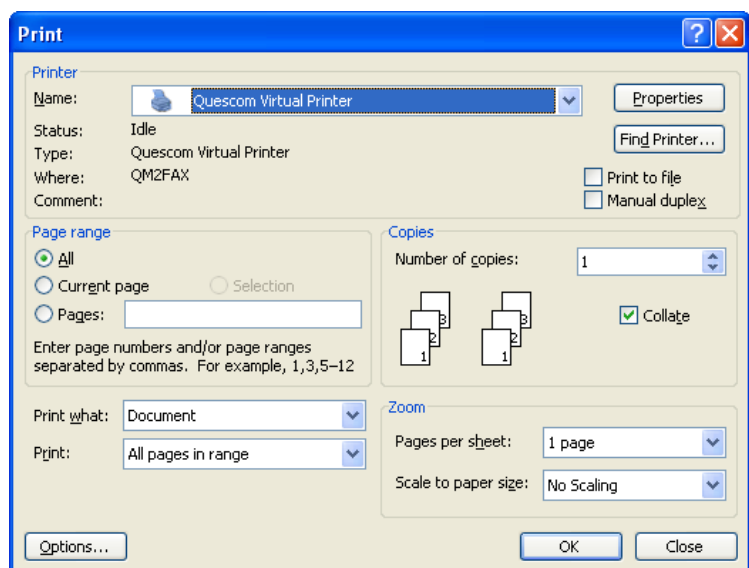


3.2.4. From a printer driver

QuesCom Virtual Printer

The user can send a fax from any Windows application by using the QuesCom printer driver (Virtual Printer Driver)

To send a fax, the user selects "Print" from "File" menu in any Windows application, chooses the printer named "QuesCom Virtual Printer" and then is prompted to enter the fax number.



The fax printer driver which is included in Microsoft Fax Service, named "Fax", can also be used.

3.3. FAX Architecture in ISDN

Receive faxes

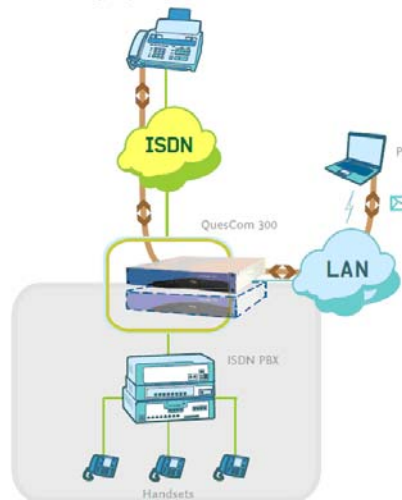
All calls received on the ISDN trunk are analyzed:

- If a fax carrier is detected, the fax is sent by email to the recipient.
- If no fax carrier is detected, the call is transparently forwarded to PBX for the recipient phone to ring.

Send faxes

From a fax application installed on its Windows based personal computer, the user can send faxes towards the PSTN trunk via the QuesCom appliance.

With a legacy architecture

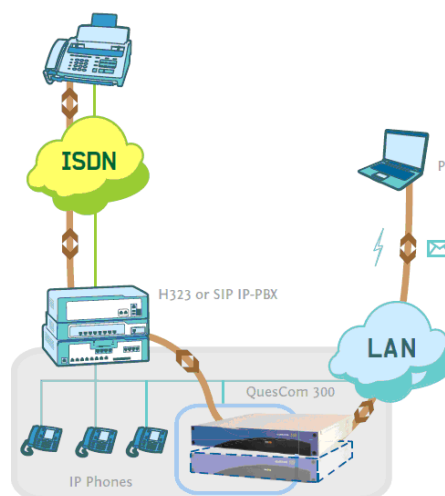


3.4. FAX Architecture in G.711 or T.38

Fax flow

For QuesCom deployment over IP environment, the user can send and receive faxes from its personal computer via the QuesCom appliance connected by T38 to an IPBX.

With a VoIP architecture



3.5. SMS features

3.5.1. Receiving SMS

Incoming SMS

SMS can be received on GSM gateway channels and sent by email.

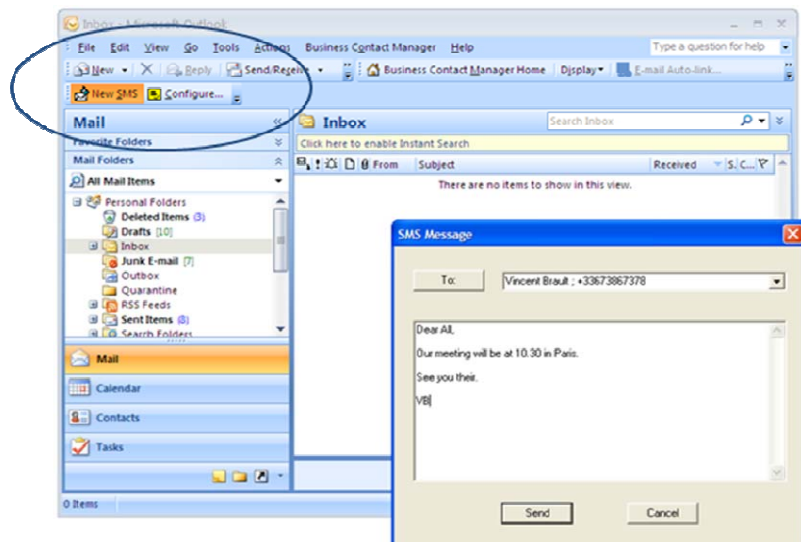
Each GSM channel is associated with an email address. Every incoming SMS will be sent to this e-mail.

3.5.2. Sending an SMS manually

Outgoing SMS

SMS can be sent by any user from his personal computer thanks to:

- The QuesCom Virtual Printer Driver, a QuesCom application installed on the user's PC
- a Microsoft Outlook plug-in



3.5.3. Automatic E-mail to SMS

Outgoing SMS

QuesCom appliance enables to send SMS, by sending emails to the QuesCom appliance. International characters in SMS (UTF-16/UCS-2) are supported.

The emails-to-SMS must be formatted with specific SMTP stream template (specification on demand) and authenticated thanks to ID & password.

Example

SMTP flow example:

```
MAIL FROM: MyCompany
RCPT TO: gateway@MyCompany.com
DATA
SUBJECT: Delivery of Goods
```

```
CallerID=user ID
PASSWORD=password
SMS=destination number
TEXT= Dear Sir, you goods have left our warehouse this morning. Best regards.
```

```
QUIT
```

3.5.4. HTTP to SMS

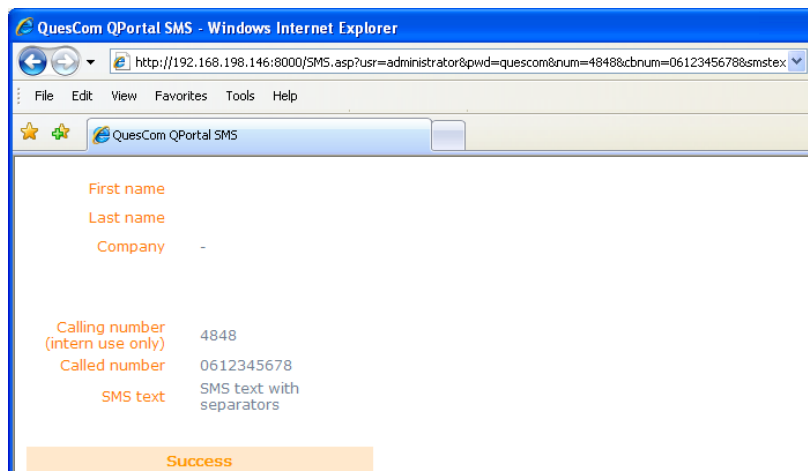
From URL

The user can send a SMS by entering an URL containing the IP address of the QuesCom appliance, his user name, his password, his calling number, the destination number of the SMS, and the SMS text.

Example

Example of URL format:

<http://192.168.198.146:8000/SMS.asp?usr=administrator&pwd=quescom&num=4848&cbnum=0612345678&smstext=SMS%20text%20with%20separators>



This SMS sending capability is very easy to integrate in any website or intranet.

4. Enterprise One Number for Mobility and Convergence

Introduction	<p>With a whole range of telecom services, sedentary and mobile co-workers are reachable wherever they are.</p> <p>The QuesCom appliance is the key device in your telephony organization to achieve better productivity by integrating your mobile phones into your PBX environment and at the same time optimize your communication costs.</p>
“Mobile user”	<p>One Number delivers optimal availability for fixed and mobile calls. Employees can benefit from the corporate features on their mobile phones and become “Mobile users”.</p>

4.1. Redirection rules

Redirect numbers	<p>When a “Mobile user” has created and activated a redirection rule, any incoming call to his fixed phone extension received on the QuesCom appliance is redirected to the configured redirection phone number</p>
Example	<p>During lunch time, redirect all calls to the GSM phone.</p>
Benefits	<p>It's no more necessary to publish different phone numbers (fixed extension, GSM...). You are always reachable on your fixed phone number, even when you are out of office.</p> <p>This redirection is transparent to the caller.</p>
Configuration	<p>All “Mobile Users” must be declared and activated from the QuesCom appliance administration interface. Each “Mobile User” defines his own redirection rules from the web-based interface.</p> <p>Any of the redirection rules can be activated at a time:</p> <ul style="list-style-type: none">• from the web-based interface or• with a phone call to the QuesCom and some DTMF keys pressed

4.2. Multiple ring

Overview A “Mobile User” being called on his One Number can configure multiple (up to 5) devices to ring at the same time.

Example instance user wants to be called, at te same time:

- On the originally called phone
- On the mobile phone
- On the home phone

As soon as any of the devices is picked up, the others stop ringing.

The screenshot shows the 'QuesCom QPortal - Windows Internet Explorer' window displaying the configuration page for a One Number profile. The URL is http://192.168.230.10:8000/profiles/redirect_edit.asp?RID=6&. The 'Number to redirect' field contains '2080'. The 'Redirection Events' section is highlighted with an orange border and includes the following options:

- Always redirect to: [Select] [] My Voice Box
- Multi ring: [Select] 0612345678, [Select] 0497123456, [Select] [], [Select] [], [Select] []
- If busy redirect to: [Select] [] My Voice Box
- If no answer redirect to: [Select] [] My Voice Box
- No answer Delay(s): 0

The 'Conditions' section includes:

- Redirect only when caller belongs to list: Business
- Do not redirect when caller belongs to list: Business
- Redirect only during my holiday
- Redirect upon specific week schedule [View schedule]

4.3. Voice Call Continuity (VCC)

Continue conversation A “Mobile User” in conversation on one of his phones (declared on the appliance) can seamlessly continue (hand over) the conversation to another phone device.

Example The “Mobile User” started a conversation on his mobile phone on the way to office and, arriving at office, can continue the conversation on his fixed phone.

Activation This Voice Call Continuity can be initiated:

- from the origin phone
 - the one actually in communication,
 - by pressing ‘*4’ followed by a number designating the destination phone in the user configuration
 - the one to continue the communication on,
 - by calling the Voice Call Continuity number configured on the QuesCom appliance

In both cases, the voice path is not interrupted.

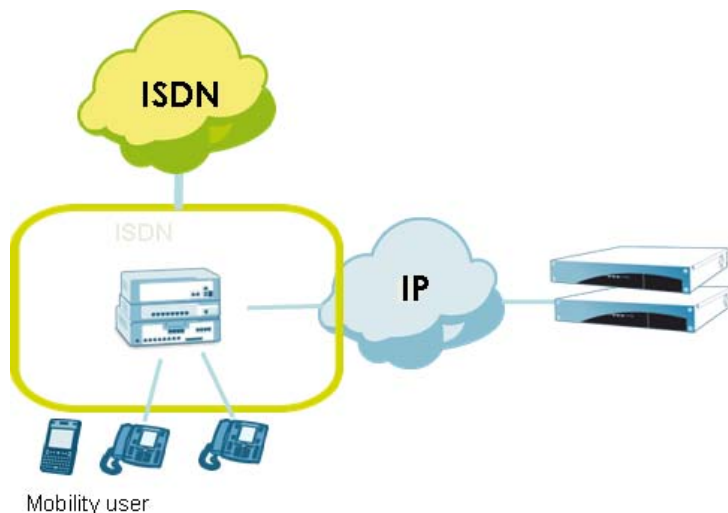
4.4. Virtual SIP Phones

Configuration simplified for IPBX Configuration of « Mobile User » is simplified for IPBX (like Aastra 5000) with the Virtual SIP Phone feature (VSP).

With VSP, for the IPBX point of view, « Mobile Users » are only SIP phones. Adding a “Mobile User” into the telephone environment consists in the declaration of a new SIP phone in the IPBX.

Benefits Natively, basic features including line supervision, boss/secretary relation, online/busy status etc. are available exactly like with a physical SIP phone.

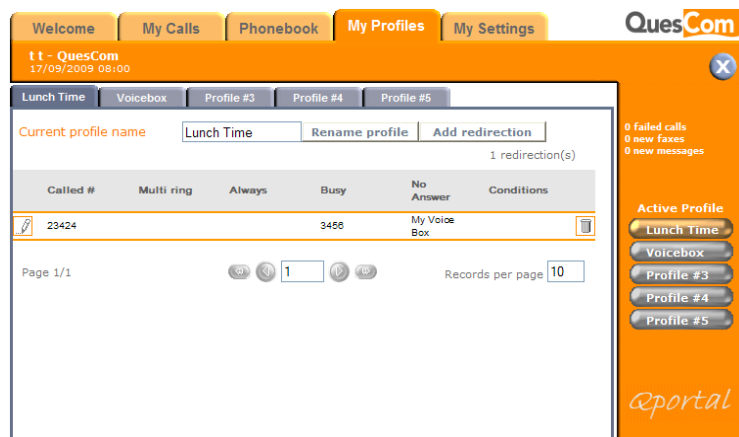
Virtual SIP phone can be registered/unregistered depending on mobile user status identified by the gateway (See the Mobile Reachability Detection feature)



4.5. Web portal user

4.5.1. Call management

- Web interface** The call management is performed from the user centric web interface. Several actions can be performed through this interface.
- Define profiles** Up to five redirection profiles can be configured. An incoming call can be automatically redirected to another number, according to various events:
- unconditional redirection
 - busy
 - no answer (no answer delay is configurable)
- Activate redirection** A redirection can be activated among the five available profiles. Profiles can be activated:
- from the web portal user
 - from any classic DTMF enabled phone
 - from MobiQ (QuesCom client software for mobiles)
- Call / fax logs** The received, missed or placed call log and the received or sent fax can be consulted.
- Music-on- hold selection** For Music on hold, select, among several messages pre-loaded by the administrator.



4.5.2. Address book

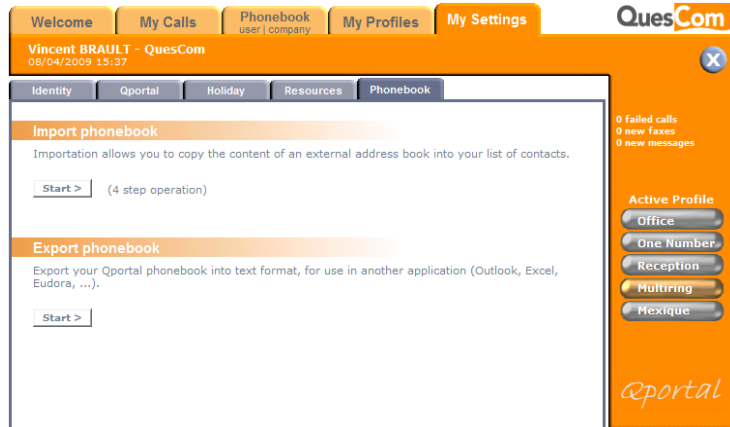
Click to dial from the address book

Every user can populate his phone book. They will access corporate contacts.

Both call history and click to dial functions will benefit from that feature.

Import address book

Import from a .csv file is also possible.



4.6. Call-Back

Reduce costs

The call-back feature prevents the mobile phone user from being billed for a call.

Call back can be initiated by:

- a phone call
- a SMS
- an http request
- MobiQ on Blackberry.

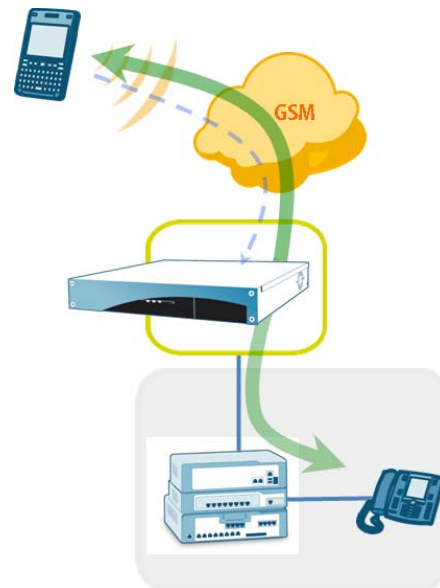
Example initiate by call

— — ▶ A truck driver calls the sales department inside the company in order to have more details about the delivery address.

The QuesCom appliance, intercepts the call, recognizes the caller number as a number authorized for call back and immediately disconnects the call.

→ Then, the QuesCom appliance calls the truck driver back. When the driver picks up the call, the QuesCom appliance calls the commercial department number previously called and connects both calls together.

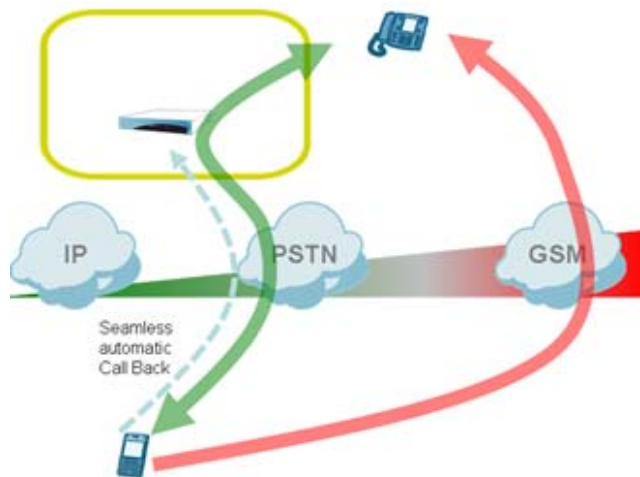
The truck driver's phone is not charged for the call.



Example, save money when calling international

When traveling, international calls from mobiles are expensive (active roaming).

The user can initiate a call back by calling the QuesCom appliance (this call is not charged). The QuesCom appliance calls the user back (passive roaming) and connects him to the local correspondent.



Benefits: average saving 50% in Europe.

Initiate also callback by SMS

A user can initiate a callback by sending an SMS to the QuesCom appliance (GSM ports mandatory on the appliance). This service can be secured by user identification (caller ID and/or password).

On receiving the SMS, the QuesCom appliance calls the user, calls the correspondent and connects them together. The SMS syntax is:

<CBR:>Number1, Number 2,CallerID, pwd

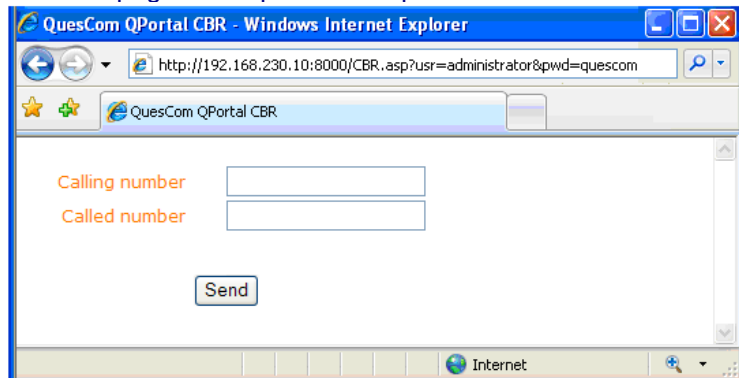
- Number1 and Number2 are the two numbers to join.
- CallerID and pwd are used for the authentication of the user. (Number 2,CallerID and pwd are optional fields)

Initiate callback by http

A user can initiate a callback from a web page. The user connects to the web server of the QuesCom appliance. After identification, a page is displayed where he can enter the phone number he wants to call and optionally the phone number he wants to be called back on.

The QuesCom appliance then calls him back and, when the call is established, calls and joins the destination number.

The web page is compatible with phones & PDA.



Call back without initial connected call and CLI not shown

Callback scenarios without initial connected call rely on caller authentication by its Caller ID (CLI). When travelling (roaming) and placing international calls, CLI is not always propagated depending on Mobile and Fixed Network Operators. When the CLI is not shown (that is not received by the QuesCom appliance), callback can't be done.

In order to cope with that phenomenon, two solutions can be implemented :

- Call Back by SMS:
<CBR:>Number1, Number 2,CallerID, password
 - Number1 and Number2 are the two numbers to join.
 - CallerID and password are used for the authentication of the user.(Number 2,CallerID and password are optional fields)
- Call back on dedicated numbers:
Each user will get a dedicated call back phone number on the QuesCom. Every time the user A call the call back number A, call will drop and QuesCom gateway will call back user mobile phone A, then place 3rd call toward destination.
That configuration is compatible with the Seamless Call Back implemented on MobiQ for BlackBerry.

4.7. Two stage dialing

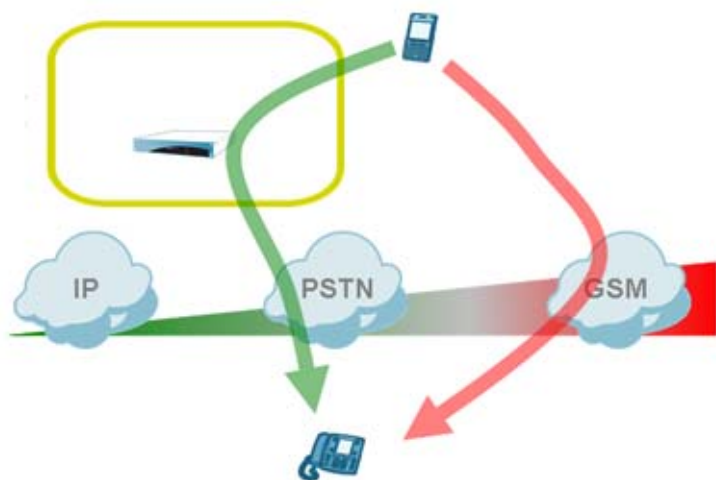
Seamless two stage dialing

The two stage dialing allows costs reduction for international calls from mobiles.

From his mobile, the user calls the local QuesCom appliance, and the QuesCom appliance:

- calls the international and
- connects the user and the correspondent

By this way, the international call is performed from the office and not from the mobile.



4.8. Mobile Extension

4.8.1. PBX like features on the mobile using DTMF

Access to PBX features

PBX features from mobile (or any other phone) are possible by:

- Calling a dedicated direct line number on QuesCom appliance
- Activate PBX like feature by playing DTMF (DTMF are generated when pressing a button on a phone)

PBX features

PBX like features available are:

DTMF	Action
9	Listen voice messages
8 X	Activate a QPUser profile X
#	Hang up
0	Start / break a conference
*	Exit from the current menu or cancel the action and return to the dial tone
In call	
*	Hold/Resume call – Music on hold
1	Resume held call
2	Second call or swap call
3	Blind/unattended transfer
4 id	Voice call continuity (active mode) to phone Id
#	Hang up the call, can chain a new one

One Number presented

When the « Mobile User » places a call as described above, the identified number showed to the correspondent (supposing no CLI restriction on the networks used) is the “One Number” on which the user is always reachable.

4.8.2. PBX like features on the mobile using MobiQ (Mobile client software)

MobiQ



MobiQ is a friendly user interface for mobiles that interacts with QuesCom solution to activate PBX features on mobiles. MobiQ is available for:

- BlackBerry
- Windows Mobile and
- Nokia E series mobile

You are still using all the standard functions from your mobile phone, but in communication you benefit of the MobiQ menu.

View MobiQ interface on: www.quescom.com

In call features

- Display calling or called numbers
- Music on hold
- Second call
 - ▶ By number
 - ▶ By contacts (using phone contact list)
 - ▶ By call log
 - ▶ Display both numbers
 - ▶ Switch between parties
 - ▶ Call transfer (attended)
- Blind transfer (unattended)
- Conference (establish and stop)
- Call chaining

Off call features

- Profile activation (5 available)
- Voicemail access (QuesCom voicemail system)

Outgoing calls

- Exclude Call list (list of numbers with direct call, ie. emergency numbers)
- Using Client software
 - ▶ By number
 - ▶ By contacts (using phone contact list)
 - ▶ By call log
- Using standard phone interface
 - ▶ By catching and routing outgoing calls
 - All calls
 - On demand (call by call)
 - Off (off when using standard phone interface)

Call back

Automated on BlackBerry

Incoming calls

QuesCom interface pops-up

Settings

- Automatic launch at phone start
- Set up of QuesCom appliance phone number
- Exclusion list
- Routing rules (all calls, on demand, off)
- Authorization access to voice services
- Authorization access to settings
- Authorization access to routing rules

4.8.3. *MobiQ Dual for Automatic Voice Call Continuity WiFi GSM (Universal Handover)*

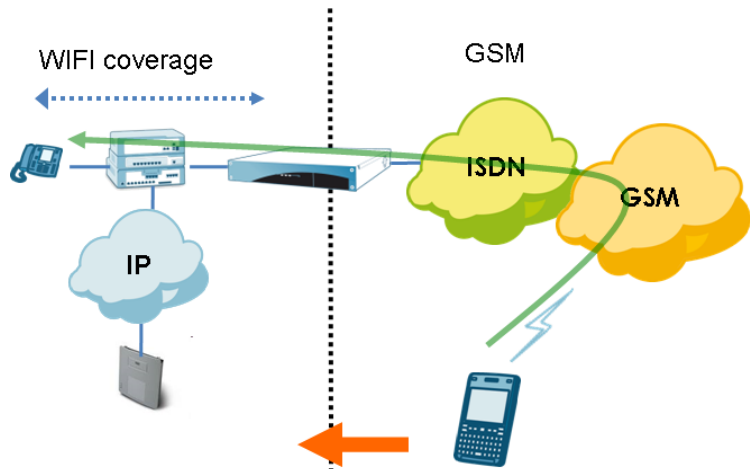
Automatic switch between GSM and WiFi-VoIP

MobiQ Dual companion software is for seamless voice call continuity on convergent phones (dual mode GSM/WiFi phones).

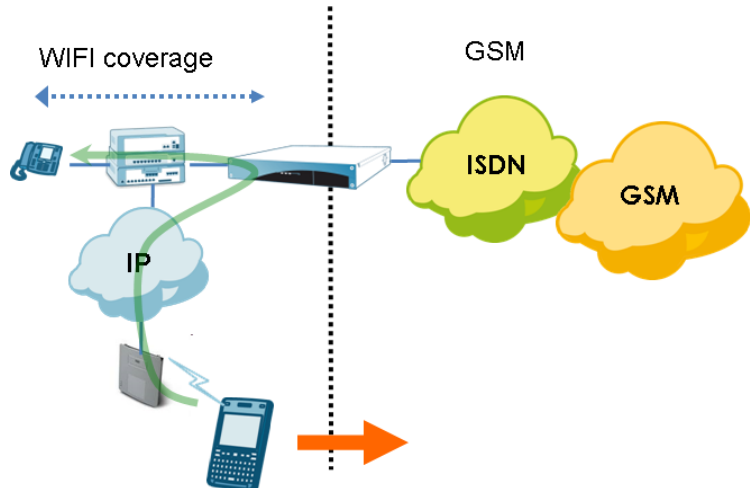
Switch from GSM to WiFi-VoIP (or from WiFi-VoIP to GSM) decision is taken by MobiQ Dual, depending on different conditions (among them the WiFi and GSM coverage and signal level).

Example

A « Mobile User » uses a mobile phone dual mode GSM/WiFi and initiates a conversation in GSM mode.



When reaching a WiFi coverage and VoIP capability, for cost reduction, the communication is automatically switched to WiFi mode.



Handset support Ask for compatibility list.

4.8.4. Mobile Reachability Detection

No use to call me on mobile when it is off !

The “Mobile Reachability Detection” feature allows the monitoring of mobile phone reachability of MobiQ users.

Depending on the mobile phone status, reachable or not (i.e. registered or not in the GSM network), different actions can be taken to change the routing of the calls that should be forwarded to this mobile phone:

- In IPBX SIP environment, the “Not Reachable” status can be transmitted to the IPBX. The IPBX will then manage calls toward this mobile (example, redirect calls to the operator when the mobile is not reachable).
- In legacy PBX environment, the “Not Reachable” status is handled by the QuesCom appliance (example, redirect calls to PBX messaging system instead of mobile)

Handset support Ask for compatibility list.

4.8.5. Caller number identification (CLI)

Display real caller number

Calls placed to a mobile phone using GSM gateway normally incur loss of Caller number presentation (due to GSM network restriction). The CLI replacement feature enables to automatically send the caller number to the mobile phone (using SMS) and display the real caller number on the MobiQ interface.

This can only be activated for calls placed to a MobiQ enabled phone.

Handset support Ask for compatibility list.

4.8.6. Set up & configuration

MobiQ configuration

MobiQ provisioning is “synchronized” with the “Mobile User” configuration from the Web Portal User.

The two main aspects of provisioning are:

- Pushing the appropriate software to the mobile phone, according to “Device” declaration on the gateway
- Sending configuration to the mobile phone, corresponding to user rights granted by the administrator (settings access, routing mode...) and user profile configuration (profile name change reflected on the phone)

4.9. CTI and TAPI

Develop your application

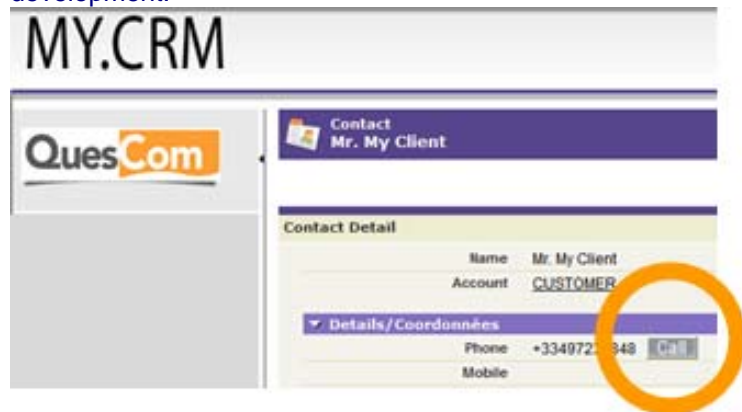
QuesCom provides the TAPI Service Provider application: a programming interface enabling TAPI Clients to interact with and control a QuesCom appliance in order to provide a broad range of telephony services.

Example

The TAPI Service Provider application enables enterprises creating new applications in order to improve customer relationship.

For example, this feature can create a “Call me back” link from company’s web site or a “Click-to-dial” feature from a CRM software.

The integration of this feature may request a specific development.



Click to dial from Outlook

TAPI Applications like Click to Dial from Microsoft Outlook can then be offered.

5. Redundant architectures

5.1. QuesCom cluster architecture

Overview A QuesCom appliance cluster is a group of connected QuesCom appliances working together to improve the scalability, the redundancy and the flexibility of a solution.

Cluster solutions can be deployed in ISDN and VoIP context.

Benefits Cluster brings redundancy to a solution and secure all services for “users”:

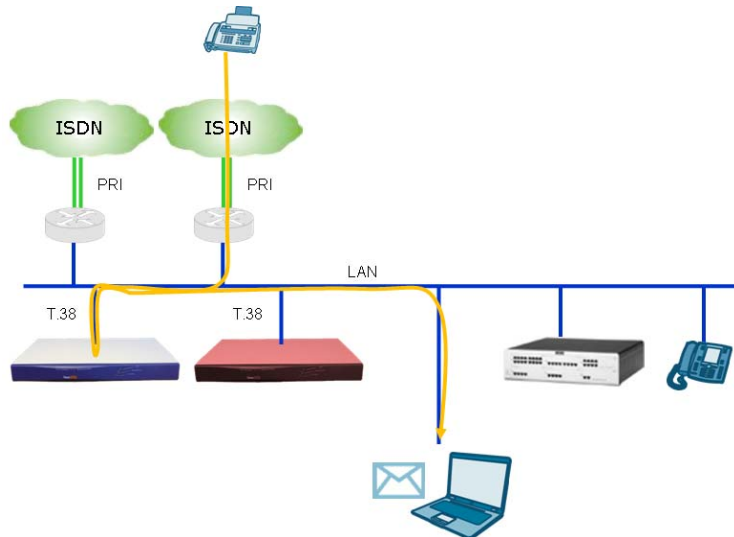
- Fax (Fax2Mail, Mail2Fax, Voice/Fax discrimination)
- SMS (SMS sending & receiving)
- Incoming call management (redirections, multiple ring)
- Mobility Services

Cluster brings redundancy on equipment. All QuesCom appliances are installed as “stand-alone” and are autonomous. Any QuesCom can be added, removed or “lost” at any time. In a cluster, QuesCom appliance cannot be a Point of Failure.

Cluster brings scalability to a solution by increasing the number simultaneous calls managed.

Depending on chosen architecture, cluster solution can rely on load balancing capability of telecom equipments, or configuration changes on email servers or PBX.

Example Example of a redundant architecture for FAX over IP T.38:



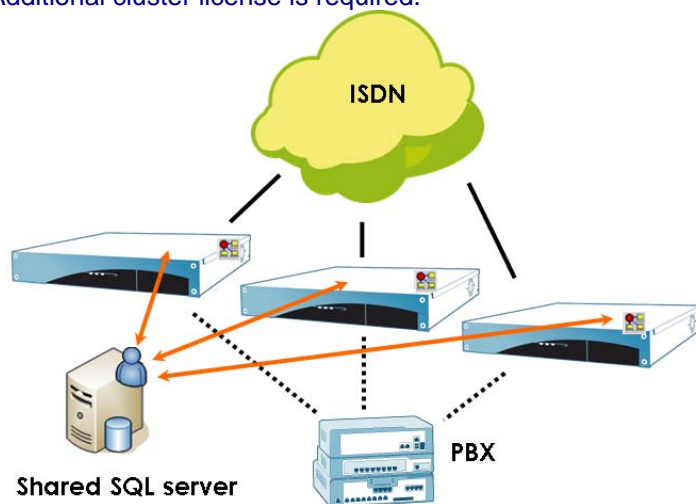
Check Cluster dedicated documentation.

5.2. QuesCom appliance groups

Overview	Up to 5 QuesCom appliance can be grouped and managed as unique system.
Benefits	Grouping QuesCom appliance allows extension of <ul style="list-style-type: none">• ISDN trunks• GSM ports Multi-site GSM resources can be joined together to increase global capability.

5.3. Cluster of users

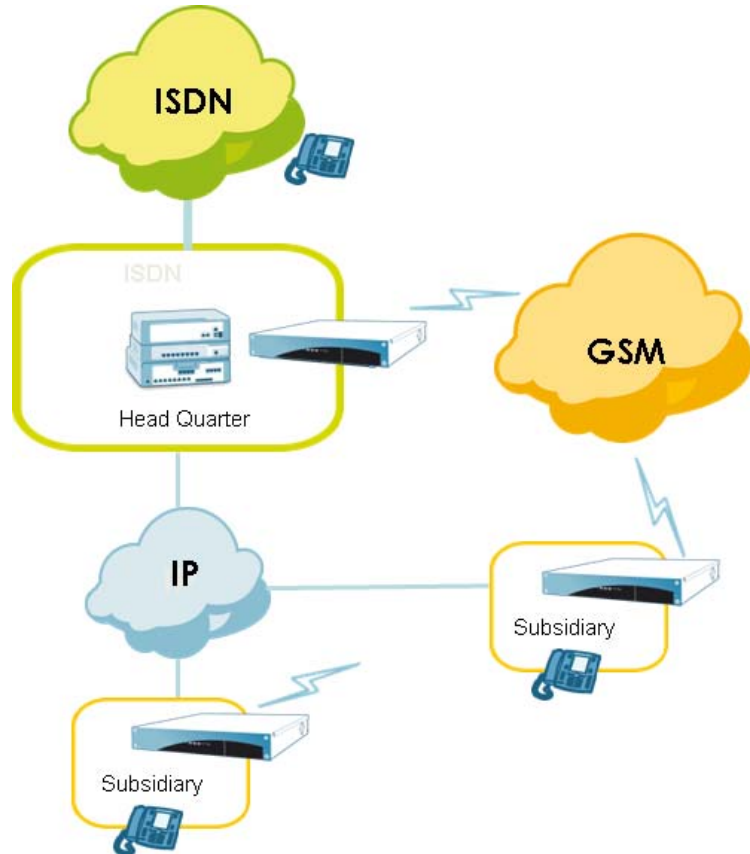
Overview	For deployment with large amount of users and large amount of QuesCom appliance (more than 10), users' configuration can be stored in a real time shared external database (SQL). Additional cluster license is required.
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5.4. Multi site deployment

Overview

QuesCom appliance can be deployed in a multi site environment. Connected by IP and GSM, this solution reduces communication cost between sites.



Benefits

The GSM network becomes an automatic voice backup in case of IP WAN failure between the main site and subsidiaries.

PSTN connections on remote sites can be suppressed

6. Administration

6.1. Available connection types

RS232	Local administration via serial port RS232 is possible: connection of console cable included, and use of HyperTerminal (Private Edition, recommended).
IP	Remote administration via IP network: <ul style="list-style-type: none">• Ethernet RJ45 10/100 Mbits port• use of Telnet (used port: 23)• FTP (used port: 21)
ISDN	Remote Access Service (RAS) connections are possible on BRI and PRI lines.

6.2. Configuration

Wizards

The installation and the configuration is 100% wizard based. Depending on functions and architecture selected during the wizard, IPBX connections and routes for voice, fax and SMS, are automatically created.



Advanced configuration

Advanced configuration using a web-based interface (QPortal, used port: 8000).

- Use of Internet Explorer 5.5 or later
- User authentication by login and password
- All product features are configurable.



Network settings

'Network' configuration is also available by command line interface under Telnet session or using serial console port.

6.3. User import and synchronisation

User synchronization

For massive user deployment, a synchronization is available:

- with a LDAP server or
- by the import of user record in CSV file

Only fields mandatory for user creation in QPortal are synchronised: QPortal login, Fax and SMS sending/receiving.

Synchronize from the web interface

This synchronisation can be started:

- from the web interface
- from the configuration wizard

QuesCom www.quescom.com Database: 5.10.000 - Interface: 5.20.005

HOME FILTERS LOGOUT SAVE CANCEL

User synchronization CSV LDAP

Choose synchronization method CSV LDAP

Server parameters Field Mappings Caller ID Mappings

IP address of LDAP server LDAP.quescom.com

Port 389

User name Administrator

Password QuesCom

Base location CN=Users,DC=LDAP,DC=quescom,DC=

Scope SUBTREE

Filter ((memberOf=CN=GW Users,CN=Users.C

Page Size 100

Synchronization interval (min) 60

Test LDAP Sync LDAP now

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6.4. Monitoring

QWAdmin

QWAdmin is a monitoring interface based on Microsoft Management Console.

Ports used are 1168 & 1169 (over UDP).

Installation files can be retrieved from the QuesCom CD-ROM or QuesCom web site.

QWAdmin allows the monitoring of gatekeeper and gateway modules and QPortal web access.

Gatekeeper monitoring

- Hardware and software components information and settings
- Telnet console
- Traces download
- Hardware components monitoring (fan, temperatures...)
- Gatekeeper system events
- Real time communication events

Gateway monitoring

- Software components information and parameters
- Statistics
- Gateway system events
- Real time communication events
- Real time GSM trunks monitoring
- GSM signal quality monitoring
- DSP resources monitoring

IP connections

QWAdmin display the VoIP devices, IPBX connection and Virtual SIP Phone connection status.

Port	Name	Signal (dBm)	%	Graph	Description
0	[_] BOUYGTEL	-53	96.8%		Operator name and Signal quality.
1	[_] BOUYGTEL	-53	96.8%		Operator name and Signal quality.
2	ERROR: NO SIM CARD		0.0%		Operator name and Signal quality.
3	ERROR: NO SIM CARD		0.0%		Operator name and Signal quality.
4	ERROR: NO SIM CARD		0.0%		Operator name and Signal quality.
5	ERROR: NO SIM CARD		0.0%		Operator name and Signal quality.
6	ERROR: NO SIM CARD		0.0%		Operator name and Signal quality.
7	ERROR: NO SIM CARD		0.0%		Operator name and Signal quality.

6.5. Backup/restore configuration

Backup the entire system

A complete backup of all data can be done by the administrator.

Then, a backup file (format .sfx) can be downloaded and saved as a backup on your computer.

Note that a brief service interruption is necessary.

6.6. Duplication of configuration

Duplicate with QSet

On homogenous configuration, a duplication of configuration from one appliance to another is possible if both hardware configurations are the same.

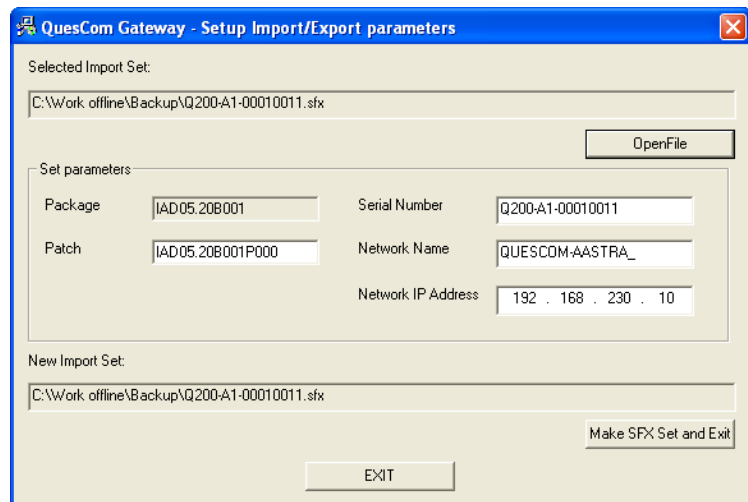
QSet software (QuesCom property) allows:

- opening a .sfx file,
- modifying settings (IP addresses, network names and serial number) then
- saving the new settings into a renamed .sfx file which can be used in another QuesCom gateway

Benefits

This feature is useful when spare appliances updating is necessary.

Note that a brief service interruption is necessary.



6.7. Software update

- | | |
|------------------------|---|
| Update to last version | Firmware update file can be downloaded from the Support web site. The upgrade process can be launched by: <ul style="list-style-type: none">• by a command line• from the QuesCom administration console QWAdmin |
|------------------------|---|

Note that a brief service interruption is necessary.

6.8. Traces

- | | |
|-----------------|--|
| Software traces | Traces of all events are also available on the volatile memory. All traces are dispatched by component (gatekeeper, gateway, qwebsvr...). They have a maximum size of 4 MB and loop when the file is full. |
|-----------------|--|

Traces can be consulted in QWAdmin or downloaded by ftp.

- | | |
|-----------------|---|
| IP/ISDN Sniffer | An IP and ISDN sniffer is embedded into the QuesCom appliance and can be enabled/disabled manually. |
|-----------------|---|

6.9. Alarms and failure

- | | |
|---------|---|
| QWAdmin | All errors are visible through the QuesCom Management Console.
A third party application can be configured to send event messages to a mail box. |
|---------|---|

- | | |
|------|---|
| SNMP | The QuesCom appliance also has an SNMP MIB that: <ul style="list-style-type: none">• provides a real-time view of:<ul style="list-style-type: none">○ communications on ISDN, GSM and IP trunks○ hardware status• can send SNMP traps to a network management devices if configured about ISDN, GSM and IP trunk status (up/down) |
|------|---|

- | | |
|---------------|--|
| Audible alarm | In the case of overheating (for example due to fan failure) an audible alarm sounds on the device. |
|---------------|--|

6.10. Communication logs (CDR)

Available logs	<p>4 logs are available:</p> <ul style="list-style-type: none">• Attended calls• Interrupted or failed calls: cause is displayed (ITU standard)• Sent, received or failed faxes• Sent, received or failed SMS
CDR	<p>The QuesCom device logs all call details in a CDR (Call Detail Record) database and can produce a number of detailed reports. The details recorded are:</p> <ul style="list-style-type: none">• Origin and destination of the call• Called and calling party numbers• Number before and after LCR management• Hour, date of beginning and end of the call• Duration of the call• Failure type of call according table of failed calls• Call type (ISDN, VoIP, CTI, ...) and details about used ISDN and GSM ports
CDR in the web interface	<p>Summary views are available from the web interface and a number of more detailed filters can be defined.</p>
CDR sent by email	<p>All data can also be exported to a third party application (enterprise's call accounting software) and/or emailed by period defined (text format) to an administrator.</p> <p>This feature can be enabled or disabled.</p>

6.11. Hardware diagnostic

Self diagnostic Hardware diagnostic can be performed by a pre-installed software program. This program sets the QuesCom appliance in a hardware test mode and allows the administrator to perform hardware diagnostics when the QuesCom fails to start or is defective.

6.12. Firewall

Firewall Each QuesCom appliance embeds a stateless firewall that restricts or block packets based on source, destination address and rules.

The firewall can be configured by command line through a telnet session.

6.13. Certifications and partnership

