innovaphone Compatibility Test Report

(erstellt am 01.07.04 von innovaphone Test Lab / ssc in \\COMPAT2\DESKTOP\TE-SYSTEMS\COLLOQUIUM.DOC, zuletzt geändert von Christoph Künkel am 28.07.2004)

Vendor: *te -systems*

Model: *Colloquium.IP (conference server)*

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1 Background Information

1.1 Summary of the te-systems software

The te-systems software package contains following software components: XCAPIVoiceoverIP and the ISDN Voice.

XCAPIVoiceoverIP

The XCAPIVoiceoverIP is fully compatible with the European ISDN-standard CAPI 2.0 and the ITU (International Telecommunication Union)-standard H.323 for VoIP, so it is possible to call on a standard line-based phonenet and the package based net at the same time. Communications are possible in all directions, even mixed conferences are easy realized. XCAPI is a kernel mode application.

ISDN VOICE

The components of the software are: the ISDN Voice Server and the SDK. The ISDN Voice software component is a programming interface based on graphical icons. With the SDK (Software Development Kit) you have the possibility to program complex solutions with graphical icons combined to a logical flow chart. These flowcharts were call "projects".

The basic software package includes many examples (projects), designed with ISDNVoiceIII. The ISDNVoice III Server can manage various different telephone numbers, connecting to a different project each or all of them to a single project. All activities of a running project can be watched via status control. If another project is wanted, it is possible to start it directly in the Server, hence no incoming call is necessary.

A main feature of the ISDNVoice III is the option to start telephone conferences with any number of participants. The projects are operating with the ISDN Voice Server, it organizes the communication between the person calling, the ISDNVoiceIII Project and the PBX (IP 400). It is possible to run ISDNVoice III SDK and ISDNVoiceIII Server parallel on the same machine.

This evaluation covers the conference server component (Colloquium.IP) only. Other components (such as the ISDN Server, the SDK and XCAPI) are only covered as far as they are required to run Colloquium.IP.

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1.2 Installation and Configuration of the te-systems software

We used the following software components:

- XCAPIVoiceoverIP,
- the ISDN Voice III with the project "inbound conference",
- a WEB Server (IIS Internet Information Server) and a database (MySQL).

We have installed the software on a Windows 2000 Professional Workstation (with Windows 2000 5.00.2194, Service Pack 4). The hardware is the innovaphone Gateway IP 400, a PC and standard Ethernet board.

Before installation you must be logged on with administration privileges and put in the Alladin USB dongle for license authorisation.

Check if the USB controller is available: `Start -> Einstellungen -> Systemsteuerung -> System -> Hardware -> Geräte Manager <your-pc-name> -> USB Controller.`

The installation was easy with the setup program.

1.2.1 XCapi

After the installation we find the XCAPI as part of the Device Manager in the folder System Control, it is accessed like a standard ISDN board, that also is configured with Device Manager.

We start the configuration from `START Menu -> Programme-> XCAPI -> XCAPI Konfiguration -> AMD PCNET Family Ethernet Adapter -> H.323 -> Gatekeeper`

In the version tested, XCapi doesn't support overlapped sending, so we have two configurations.

- Direct Registration with PBX

The te-systems XCapi can register directly with the PBX.

In the XCapi control panel, we add the gatekeeper IP address using XCAPI mode "Gatekeeper an fester Adresse verwenden".

We add the telephone number: `Eigene Telefonnummer :Tel.Nr` (500 in our case).

The registration at the PBX was ok (with the IP address of the te-systems PC).

With this configuration, since XCapi does not support "overlapped sending", each number used by an XCapi application must be defined as an individual "User Object" in the PBX (with no "Gateway" check mark ticked). This insures that no incomplete numbers are sent to XCapi.

- Registration with relay

An alternative is to register XCapi with the innovaphone relay gatekeeper instead. This way, a route can be used to convert overlapped sending to en-bloc sending.

In the XCapi control panel, we add the gatekeeper IP address using XCapi mode "Gatekeeper an fester Adresse verwenden".

In the option "Eigene Telefonnummer" we add an H323-ID and the appropriate alias.

The registration with relay was OK.

1.2.2 ISDN Server

The configuration of the ISDNVoice III Server is easy. The only data to define is, which phone number is associated with which project.

We used an 8 lines license (8 B channels) in the server.

We used the following project packages:

- iv[inbound conference] german with the MSN 500
- iv[inbound conference] delete old files (9999) and
- iv[inbound conference] record conference (112277).

This is the Colloquium.IP conference server.

The Server must be started before the first person dials into the service. The project ColloquiumIP (iv[inbound conference]) starts automatically when you open the internet explorer. Here you have the option to start a conference. Date and time of the conference are defined and the participants to be invited are entered. New conferences can be established using a web interface.

1.3 Installation and Configuration of the innovaphone components

1.3.1 innovaphone PBX

Depending on the XCapi setup, there are 2 ways to configure the innovaphone gateway / PBX.

- Direct Registration of XCapi with PBX

We configure a new user object on the PBX. The configuration must match the settings in the XCapi configuration so XCapi can register directly with the PBX. The "gateway" flag is turned off. The E164 "number" used for this object must match the full number used for the project to call. The PBX will not send the call until the full number is dialled. All extraneous digits will be discarded, so no overlapped sending is possible.

- Registration of XCapi with relay

We configure the a new user object on the PBX and turn on the "gateway" flag. The E164 number used is the smallest prefix of all numbers used by XCapi (e.g. if XCapi uses number 500 to 599, then 5 is used).

In the gateway we configure two VoIP Interfaces. One (say GW3) serves as Gatekeeper for XCapi. It is configured as "gatekeeper client group" and the alias used by XCapi for registration is added to this gatekeeper definition.

The other (say GW4) is used as a registration with the PBX. It is configured as "Registration to gatekeeper as gateway" and the alias provided such that it matches the configuration of the PBX user object.

In the routing table we have two routes. One will route all calls from GW3 to GW4 transparently. The other will route all calls from GW4 to GW3 transparently but with option "force en-block dialling" turned on. This will convert overlapped sending into en-bloc dialling after a timeout. As an alternative, if the numbers used by XCapi all have deterministic length, a map can be used which forces the gatekeeper to collect the appropriate number of digits before relaying the call (e.g. if all numbers are 3 digits, then use "called number in: …" and "called number out: (empty)".

1.3.2 IP 200

For the IP200, we used the standard configuration.

2 Device Tested

Information in this chapter is derived from accompanying material and/or from visual inspection or from testing.

Sample chart

Sign	Category
Ok, yes	Yes, feature is present/ok

Sign	Category
no	No, feature is not present/ok
n/a	Feature does not apply
nt	Not tested

Basic Device Information

Manufacturer	TE-SYSTEMS
Model	ISDN Voice III - Colloquium.IP
Hardware Revision	N/a
Firmware Revision	**XCapi 1.2.15.0, Server Build 331, Colloquium.IP**
Serial / MAC	N/a
Documentation used	XCAPI VoiceoverIP Benutzerhandbuch Version 1.1 ISDN Voice Benutzerhandbuch
Hardware provided for testing	USB License dongle
Software Test	Yes
Device Type	

Applies?	Category
No	IP Hardware Terminal
No	IP Software Client
Yes	IP Software Server
No	IP Gateway analogue

IP Gateway ISDN	No
IP Gateway SS7	No
IP Gateway V5.2	No
Other:	

Media	
Audio	yes
Video	no

Basic Device Characteristics

Signalling Stack

Applies?	Protocol
Yes	H323
Yes	H450.2 Call Transfer
yes	H450.3 Call Diversion
yes	H450.4 Call Hold
Nt	H450.5 Call Pickup
Nt	H450.6 Call Waiting
Nt	H450.7 Message Waiting
Nt	H450.8 Name Identification
Nt	H450.9 Call Completion
Nt	H450.10 Call Offer

Signalling Stack

Nt	H450.10 Call Offer
Nt	H450.11 Call Intrusion
Nt	SIP
Nt	MGCP
Nt	Skinny

Supported codecs

Applies?	Codec
yes	G711
No	G729
No	G723
No	G726
Nt	GSM
No	XPARENT
No	H261/H263
No	Supports VAD
No	Supports CNG
No	G722
Nt	T.38 UDP
Nt	T.38 TCP

3 Test Results

Information in this chapter is derived from testing.

Feature	Description	Remarks	Result
	GK discovery works		Ok
	Fixed GK registrations works		Ok
	Registrations supports GK-ID		Ok
	Device registers w/o Extension (just by name)		Ok
	Device registers by extension		Ok
	Device registers with H.235 password		No
	Device registers multiple identities		Ok
	Device can configure IP address, GK attributes (gk-id, gk-ip, alias) from DHCP (vendor specific)		N / a
Basic Call	Setup call from device to IP200, use vad/cng if supported, verify bidirectional media channel		
	using g711a		Nt
	using g711u		Nt
	using g723		Nt
	using g729		Nt
	Device supports overlapped sending		Nt

Category	Description	Value
	Device supports early media channel (before connect, e.g. "wrong number" announcement is heard)	Nt
	Setup call from IP200 to device, use vad/cng if supported, verify bidirectional media channel	
	using g711a	**Yes**
	using g711u	**Yes**
	using g723	**No**
	using g729	**No**
	Device supports overlapped sending	No
	Device supports early media channel (before connect, e.g. "wrong number" announcement is heard)	Nt
	Device shows CLI #	Yes
	CLI name	No
	CLI Display Info	No
	Device shows called id #	Yes
	Called id name	Yes
	Voice Quality OK overall	Yes
DTMF	DTMF tones sent correctly	**Nt**
	DTMF tones received correctly (audible)	**Yes**
	Device switches to DTMF mode automatically after connect	**N / A**

Music on hold	Device plays music on hold when held remotely	Nt
	Held end hears music on hold when held by device	**Nt**
Hold/Retrieve	Device can put call on hold	**Nt**
	Device can create secondary outgoing call	Nt
	Device can accept a secondary incoming call	**Yes**
	Conferencing	Tested with 6 participants	**Yes**
	Device can terminate either call and retrieve remaining call	**N / A**
	Device can toggle between both calls, media stream ok	N / A
	Either call can be held remotely and retrieved remotely, media stream ok	N / A
	Device signals call hold to GK	N / A

Feature	Description	Test	Result	Overall
Call Transfer (with cons.)	Device can be transferred by far end (check media ok, display on all 3 phones ok)	A calls T, a calls b, a xfers T to b	Works yes	Yes
		A calls b, a calls T, a xfers b to T	Works yes	
		T calls a, b calls a, a xfers T to b	Works nt	
		B calls a, T calls a, a xfers b to T	Works nt	
	Device can transfer both call ends (media ok, display on all 3 phones ok?).	T calls A, t calls b, t xfers A to b	Works nt	Nt
		T calls b, t calls A, t xfers b to A	Works nt	
		A calls t, b calls t, t xfers A to b	Works nt	
		B calls t, A calls t, t xfers b to A	Works nt	
Call Transfer (blind)	Device can be transferred by far end (check media ok, display on all 3 phones ok)	A calls T, a xfers T to b	Works yes	Yes
		A calls b, a xfers b to T	Works yes	
		T calls a, a xfers to b	Works nt	
	Device can transfer blindly (media ok, display on all 3 phones ok?).	T calls A, t xfers to b	Nt	Nt
		A calls t, t xfers to b	Nt	

Call Forwarding	Device displays current call forwarding (interrogation)		Nt
	Device can set call forwarding		Nt
	CFB		Nt
	CFNR		Nt
	CFU		Nt
Directory	Device built-in directory		N / a
		Does CLI resolution	N / a
		Can be dialled from	N / a
		Exists	N / a
Hands free	Loudspeaker operation works fine		N/a
	Hands free works fine		N/a
	Volume adjustable during call		N/a
Keys	Device has speed dial keys		N/a
	Device has programmable function keys		N/a

Ethernet	PC port		N/a
	Exists		**N/a**
	Does auto sense		N/a
	Does auto neg		N/a
	Can be fixed		N/a
	Does basically work		N/a
	Voice quality OK under heavy load		
	PC Connectivity OK under heavy load		
	spare wire		N/a
	Phantom		N/a
	Device can set TOS for local VoIP		N/a
	Device does not set TOS for PC traffic		N/a
	Device can use 803.2pq fpr local VoIP		N/a
	Device does not use 803.2pq for PC traffic		N/a

Various	•
Remarks	•
	•

Language	Remarks	User Interface	Web Interface	Admin Manual	User Manual
German		**yes**	**yes**		yes
English			**yes**		
French					
Dutch					
Italian					
Spanish					
Swedish					
Danish					
Norwegian					
Finnish					
Other					

4 Various Remarks

The best voice quality in the test with 5 participants we had when the package size of the codecs on the IP 200 and on te-systems CAPI configuration was the same (20 ms or 90 ms).

After the certification, we have regressed with Colloquium.IP XCAPI Version 1.2.37.0. This version fixes the "overlapped sending" Problem described in Chapter 1.2.1 "XCapi". For overlapped sending to work, XCAPI needs an additional configuration option "INFORMATION_NO_UUIE=1" in the Tweaks/Gerätespezifisch/innovaphone section. Using this setup, XCAPI supports overlapped sending and can be registered directly at the PBX for all applications. In the case of Colloquium.IP, the settings in ISDNVoiceIII server (Einstellungen/Projekte) must be set to "Durchwahl" (either "variable" or "fest").

5 Summary

Colloquium IP - the conference server with XCAPI is now a innovaphone recommended product.