

# ENUM

service examples  
with VoIP and Instant Messaging

# Agenda



- address resolution in VoIP
- ENUM as a solution
- PBX application scenario
- applications beyond „cheap calls“

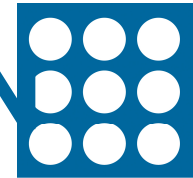
# address resolution: VoIP/SIP



sip:office@enum.at



# VoIP-URIs incompatible with PSTN



enum.at  
net.communications

sip:office@enum.at  
???



sip:office@enum.at

# VoIP-resolution with ENUM



ENUM DNS

query: +43 1 5056416 ?

response: sip:office@enum.at

+4315056416

Caller ID: +4315056416@nic.at43.at

+43 1 5056416  
sip:office@enum.at

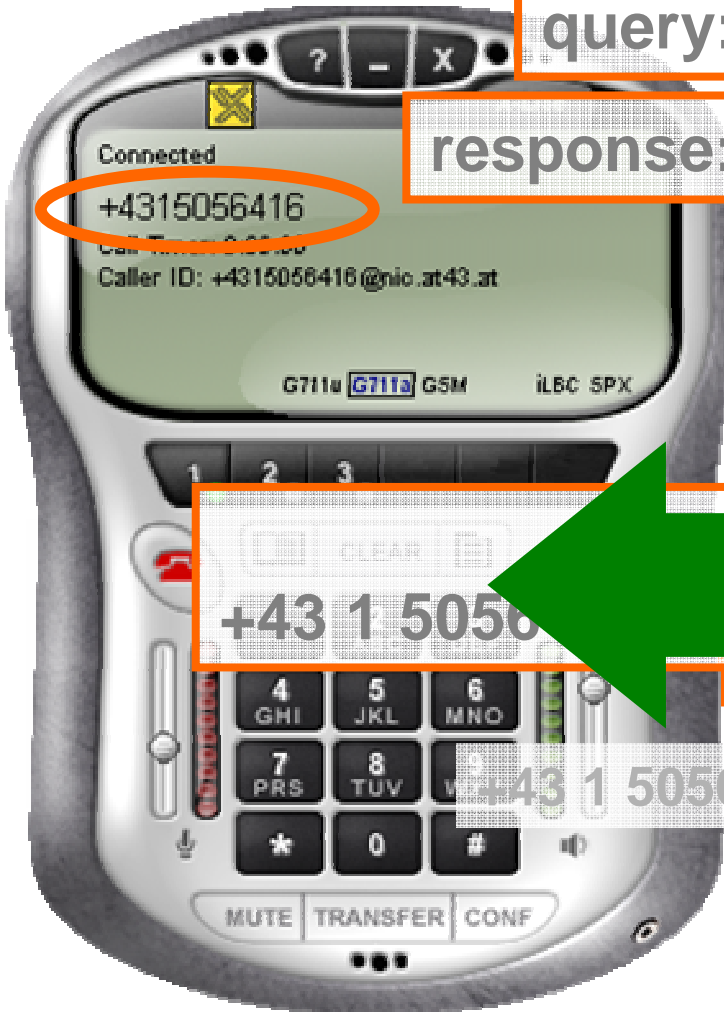
+43 1 5056

enum.at

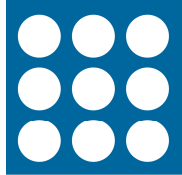


+43 1 5056416 sip:office@enum.at

+43 1 5056416 sip:office@enum.at

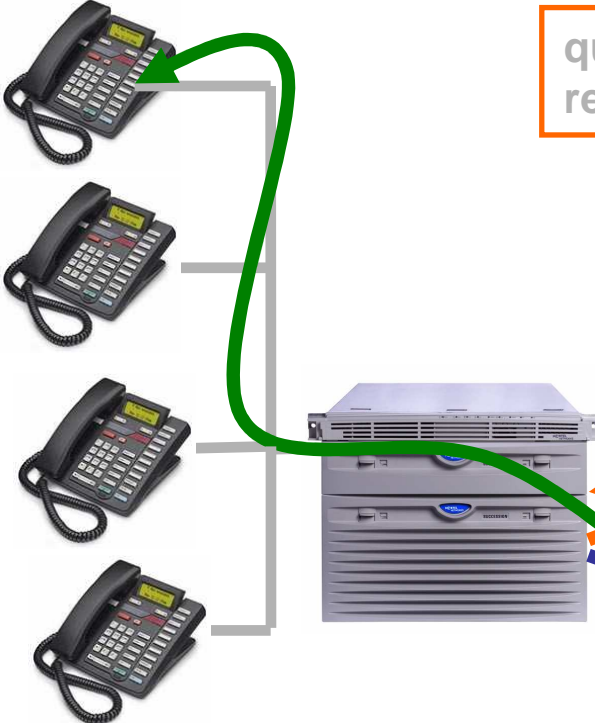


# PBXes and ENUM: no entry



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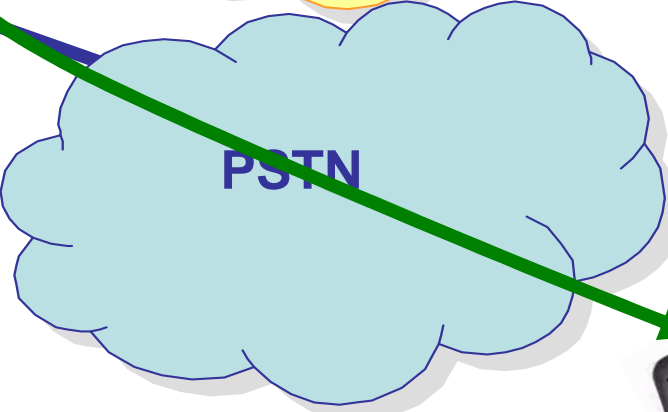
dials  
+43 6XX YYYYYYY



IP/ENUM-enabled  
PBX

ENUM DNS

query: +43 6XX YYYYYYY  
response: not found



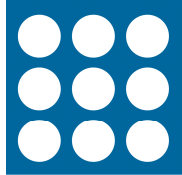
+43 1 5056416  
sip:office@enum.at



+43 6XX YYYYYYY



# PBX and ENUM: target has entry



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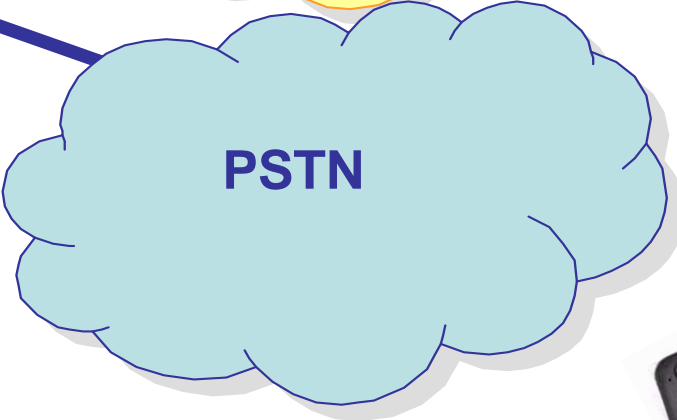
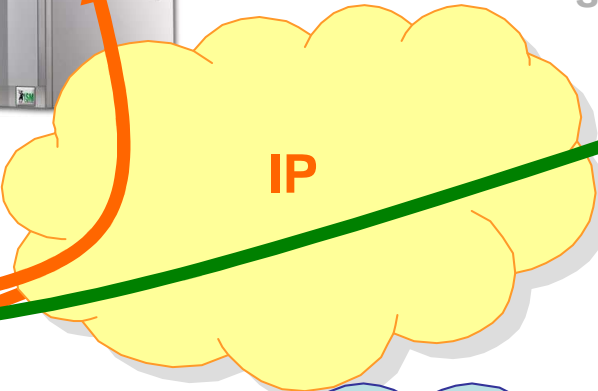
dials  
+43 1 5056416



IP/ENUM-enabled PBX

ENUM DNS

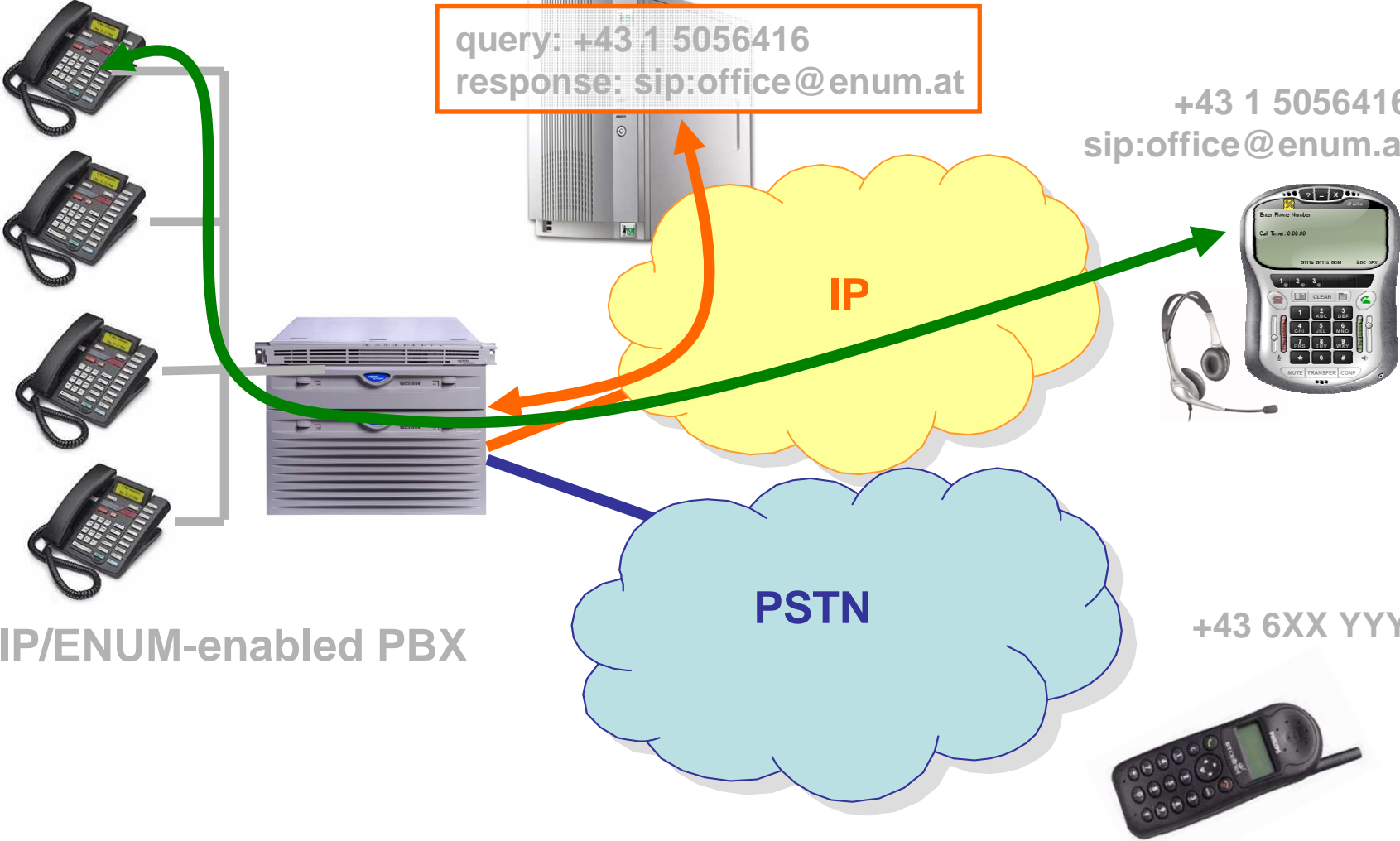
query: +43 1 5056416  
response: sip:office@enum.at



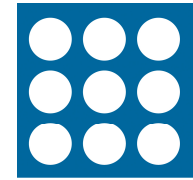
+43 1 5056416  
sip:office@enum.at



+43 6XX YYYYYY



# service example: ISDN replacement with value added



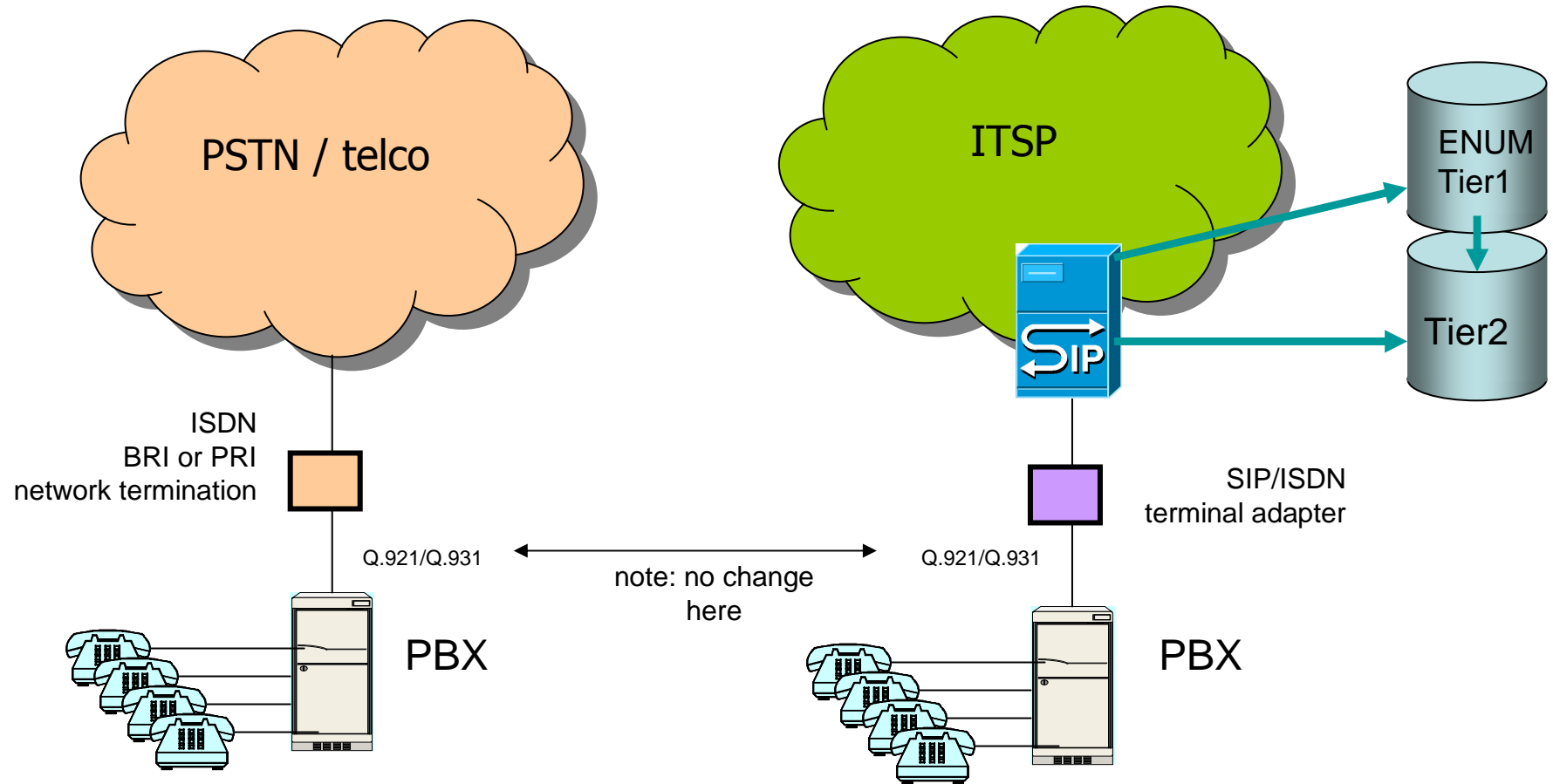
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net.communications

- ISDN still popular in Europe – large installed base
- combination of
  - SIP VoIP service
  - VoIP/ISDN terminal adapter – e.g. [www.inalp.ch](http://www.inalp.ch) (Smartnode series)
  - **ENUM within SIP proxy** – no change in PBX necessary
  - wildcard record for head number is fine
- **result: ENUM-enabled PBX by moving PBX ISDN plug from PSTN to new adapter**

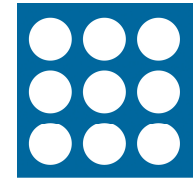




# ISDN replacement: before & after



# ISDN replacement: benefits



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- users can keep their PBX as-is
- users gain Internet-side passive reachability through ENUM „announcement“
- users get least (actually zero) cost routing on outbound calls if destination is also ENUM/VoIP
- ITSP wins basic monthly charge
- all DID numbers covered with a single ENUM delegation – high resolution rate/€

**RTCOutgoing**

SIP

Destination:  Call Directly ENUM Lookup

SIP URI:  Call SIP URI

Email Address:  Send Email

Homepage:  Show Homepage

SIP Status:  Disconnect

ENUM Status:  Tune

Video Send:

Video Recieve:

User Name:  Domain:  Log On

Password:  Outboundproxy:  Log Off

REGISTER status:

Website von Robert Schischka - Microsoft Internet Explorer provided by nic.at

Address: <http://testdb.nic.at/rs/index.htm>

## Willkommen auf der persönlichen Website von Robert Schischka



**Lebenslauf:**  
 Robert Schischka studierte Betriebswirtschaftslehre an der Wirtschaftsuniversität Wien mit den Schwerpunkten Wirtschaftsinformatik und Controlling. Seine beruflichen Schwerpunkte liegen in den Themenbereichen IT-Strategie, IT-Architektur und Infrastruktur, sowie IT-Sicherheit. Langjährige Erfahrung sammelte er als Sicherheitsexperte bei einem Tochterunternehmen der Österreichischen Nationalbank, sowie als Consultant bei dem international tätigen IT-Beratungsunternehmen CSC. Seit September 2003 ist er neben Richard Wein Geschäftsführer der nic.at und zuständig für den technischen Betrieb.

**Kontakt:**

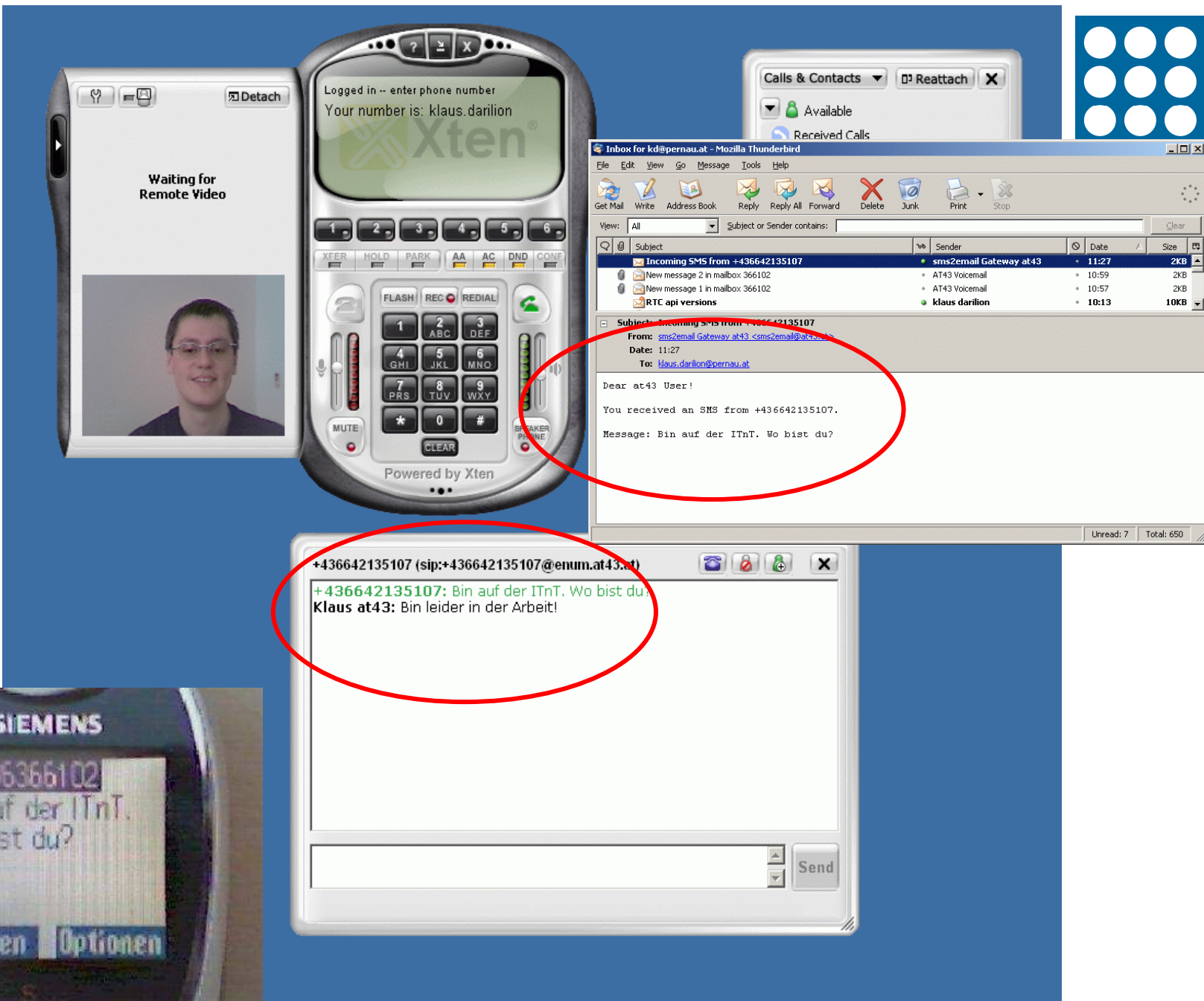
- Tel.: +43 1 505 64 16 - 0
- Fax: +43 505 64 16 - 19
- Handy: +43 664 913 47 78

**Aktueller Terminplan:**  
 Woche vom 14.2. bis 20.2.2005

	Mo	Di	Mi	Do	Fr	Sa	So
08:00							
09:00							
10:00							
11:00	<b>Bespr.</b>	<b>Vortrag</b>			<b>Dienst-</b>		
12:00		telefonisch			<b>reise</b>		
13:00		nicht					
14:00		erreichbar!					
15:00							
16:00							
17:00							
18:00							

Done Internet





Waiting for Remote Video

Logged in -- enter phone number  
Your number is: klaus.darilion

Calls & Contacts  
Available  
Received Calls

Inbox for kd@pernau.at - Mozilla Thunderbird

Subject	Sender	Date	Size
Incoming SMS from +436642135107	sms2email Gateway at43	11:27	2KB
New message 2 in mailbox 366102	AT43 Voicemail	10:59	2KB
New message 1 in mailbox 366102	AT43 Voicemail	10:57	2KB
RTC api versions	klaus darilion	10:13	10KB

Subject: Incoming SMS from +436642135107  
From: sms2email Gateway at43 <sms2email@at43.net>  
Date: 11:27  
To: klaus.darilion@pernau.at

Dear at43 User!  
You received an SMS from +436642135107.  
Message: Bin auf der ITnT. Wo bist du?

+436642135107 (sip:+436642135107@enum.at43.net)

+436642135107: Bin auf der ITnT. Wo bist du?  
Klaus at43: Bin leider in der Arbeit!

Send

SIEMENS

059966366102  
Bin auf der ITnT.  
Wo bist du?

Senden Optionen

# summary



- ENUM is an application of DNS to translate telephone numbers into (a set of) URI's.
  - globally visible
  - intelligence can move to client
  - not restricted to VoIP/SIP
  - currently Opt-In
  - RFC 3761
  - registered e164.arpa
  - +43 is in production status - +49 to start in 2005(!)



phone: +43 1 5056416

fax: +43 1 5056416 19

office@enum.at

[www.enum.at](http://www.enum.at)