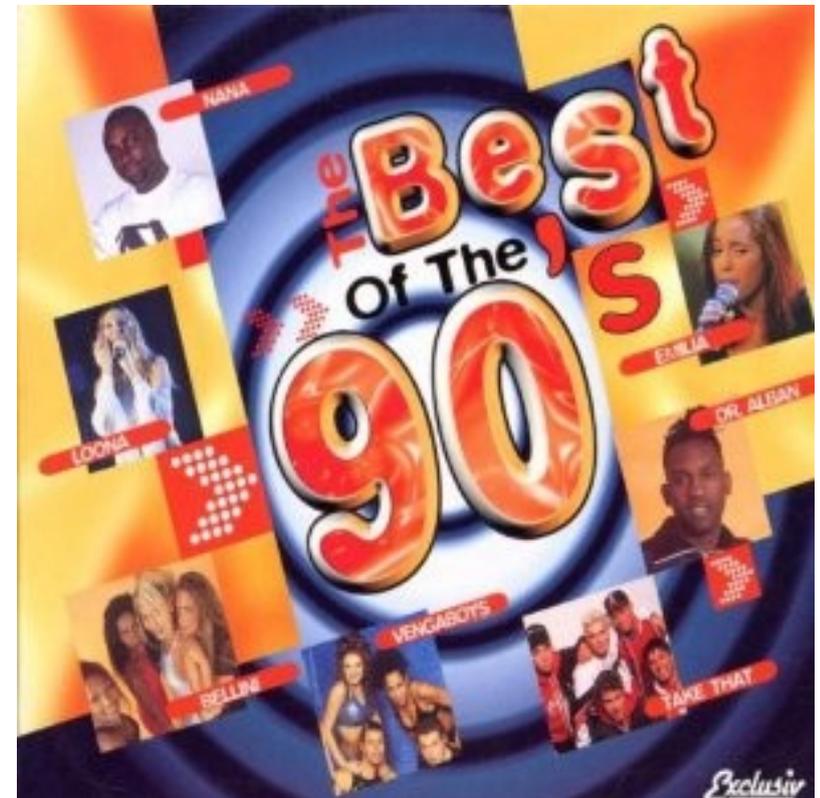# Rich Communications
with Kamailio & IMS

What is he talking about?

- Timetravel: The 90s till today
- IMS on Kamailio

- Definition: Rich Communications
- Rich Communications in SIP and Kamailio

- Practical example: Be surprised...

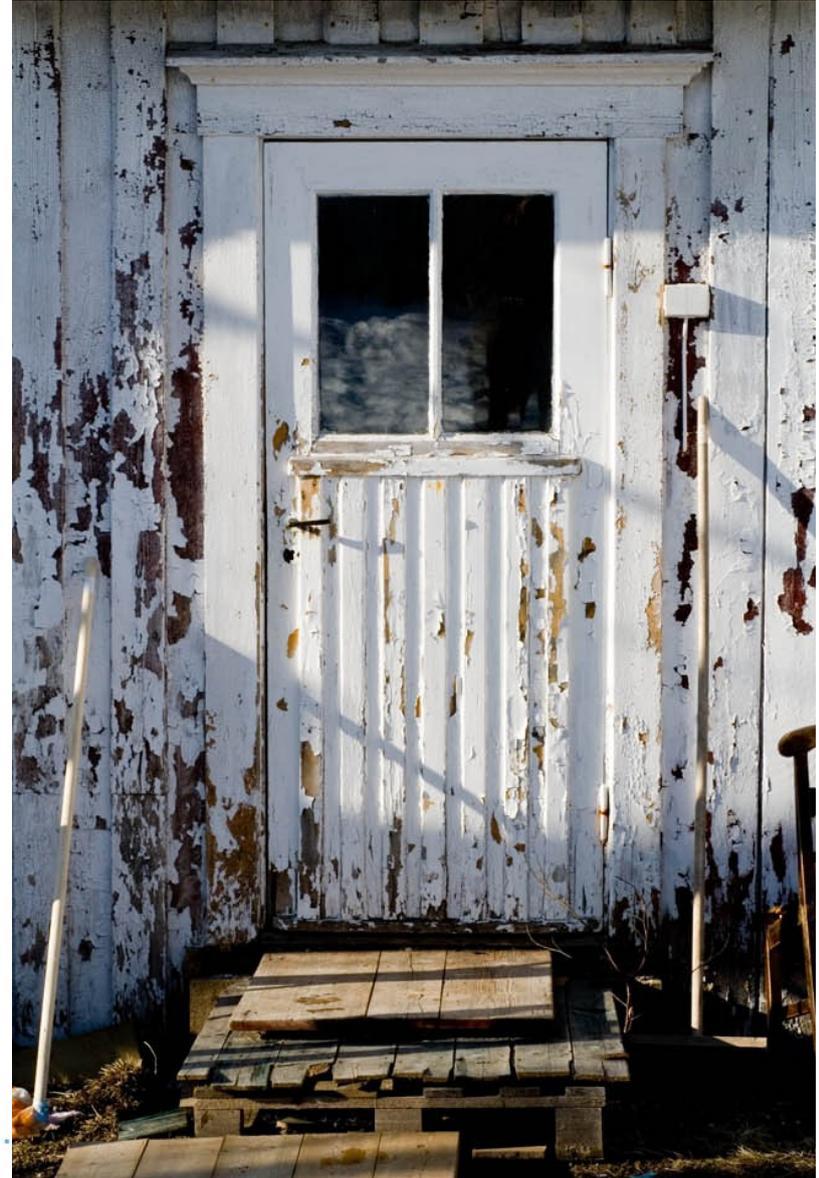- Outlook: Doubango Framework & Clients

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Let's look back to the 90's:

- VoIP is pretty cool

- IMS is pretty cool
  - 3GPP Release 99

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...but there was a backdoor:

Voice could still
be circuit
switched.

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And many operators were lazy...
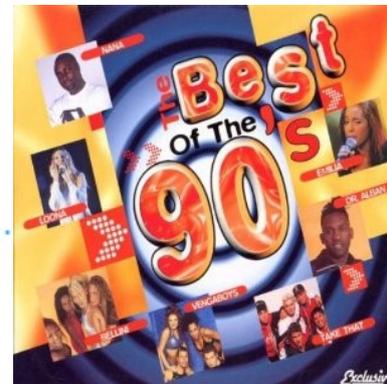
...and kept using circuit switched for voice.

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And now?

- Just All-IP networks left
  (e.g. LTE, DSL, ...)
- VoIP & SIP is still pretty cool...
  ...but quite often not really standardized.
- IMS was (back in the 90's)
  a pretty cool concept

  ## IMS is still pretty cool!

IMS on Kamailio

- Diameter interfaces added
  (e.g. Cx, Dx, Sh, Ro, Rx)

- Aligned implementation with IMS specs &
  created sample configuration

- Will go in Live for an
  LTE network in Tansania!

Current Status

So now we've got VoIP in mobile/fixed networks.

Booooooring!

Let's talk about SIP...

- SIP was never designed for just Voice

- H323 was PSTN Emulation
    SIP was Multimedia-Sessions

- SIP is heavily extendable

- Several RFC's already defined for Rich
    Communications

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Let's talk about Rich Communications:

- Rich phonebook

- Presence & Instant Messaging

- Video and other Media (Online-Gaming?)

- „SIP beyond VoIP" was published 2007...

Let's get started!
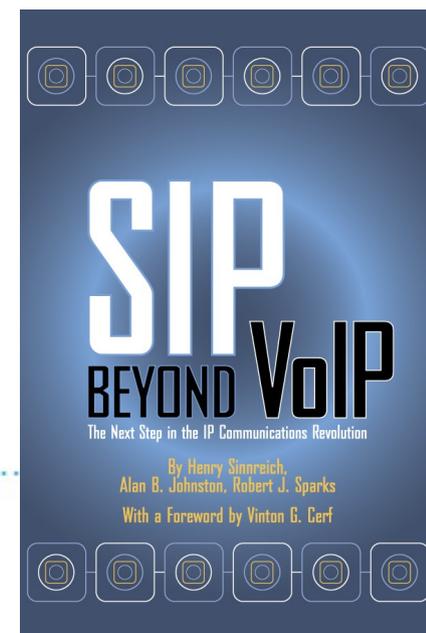
SIMPLE Presence

- SIP for Instant Messaging and Presence Leveraging Extensions
- Developed by the IETF
- SIMPLE defines an extensible framework based in the Publish-Subscribe-Notify model
- Extended in several RFCs
- Adopted by the GSMA with RCS (rel 1-4, +RCSe)

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Rich Communications beyond SIP

XCAP

- XML Configuration Access Protocol
- XCAP-Applications:
  - XCAP capabilities
  - Online Resources (Buddy-Lists, Configuration, ...)
  - Presence rules
  - RLS services (Subscribe to List Changes)

- defined in RFC4825, 4826, 4827 & RFC5025

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Rich Communications beyond SIP

MSRP

- Message Session Relay Protocol

- Session based IM for SIP

- RFC 3428 (SIP MESSAGE) is not true IM

- defined in RFC 4975 & 4976

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Message Session Relay Protocol

Establish and negotiate an TCP connection between two endpoints

- Chat sessions
- File transfer (RFC 5547)
- Desktop sharing
- Image/Music streaming

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Integration in Kamailio

- SIP/SIMPLE is integrated in Kamailio for years
  - Including Extensions for RLS & Conferencing
  - Including an XMPP Gateway functionality

- Integrated XCap-Server was added in 2010

- Integrated MSRP-Relay was added in March 2012

All protocols for GSMA's RCS-Standards implemented!

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What's next?

Let's embed Facebook (or Google+ or ...) to your Presence-Experience with LUA:

```lua
function add_facebook_info()
  user = sr.pv.get("rb")
  r, c, h =
http.request("https://graph.facebook.com/...")
  if c == 200 then
    sr.pv.put("new_content", process(r));
end
```

And use it in Kamailio:

```
modparam("app_lua", "load",
"/etc/kamailio/lua/fb.lua")
event_route[xhttp:request] {
[...]
switch($rm) {
 case "PUT":
   if(lua_run("add_facebook_info"))
     xcaps_put("$var(uri)", "$hu",
"$new_content");
   else
     xcaps_put("$var(uri)", "$hu", "$rb");
   exit;
[...]
```

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Just imagine what you could do...

- Use Instant-Messaging for posting on your favorite social network

- Add friends to your buddy list and on your favorite social network using one interface

- Use Facebook photos in your buddy-list

- How about a „Like" button in your SIP/IMS IPTV-App?

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Now we've got the Server.
How about a client?

The Doubango Framework is an Open-Source/GPL client Framework, with full support for:
• SIP Audio and Video
• SIP Presence / Simple
• XCap
• MSRP
• Audio/Video (AMR, Speex, G.729, G.711, GSM, iLBC, VP8, H.264, H.263, Theora, MP4V-ES...)
• Full HD (1080p) video

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More on Doubango.org...

With Reference Implementations:
- IMSDroid for Android-Devices
- IDoubs for IOS (iPhone, iPad, iPod)
- Boghe for Windows

 and a brand new SipML5 using WebRTC:
- Audio and Video
- For easy integration into Browsers
     (or social networks, or...)
- No Plugin or Gateway required
- just HTML5 and WebRTC

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Questions?

Thank you!

Contact: www.ng-voice.com – carsten@ng-voice.com