

SIP-Router.org Project

The SIP Application Server Toolkit

Daniel-Constantin Mierla
Co-Founder
CEO Asipto

<http://sip-router.org>



OpenIMSCore

The Geni

2002 June 2005 July 2008 August 2008 November 2008

SIP Express Router (SER)

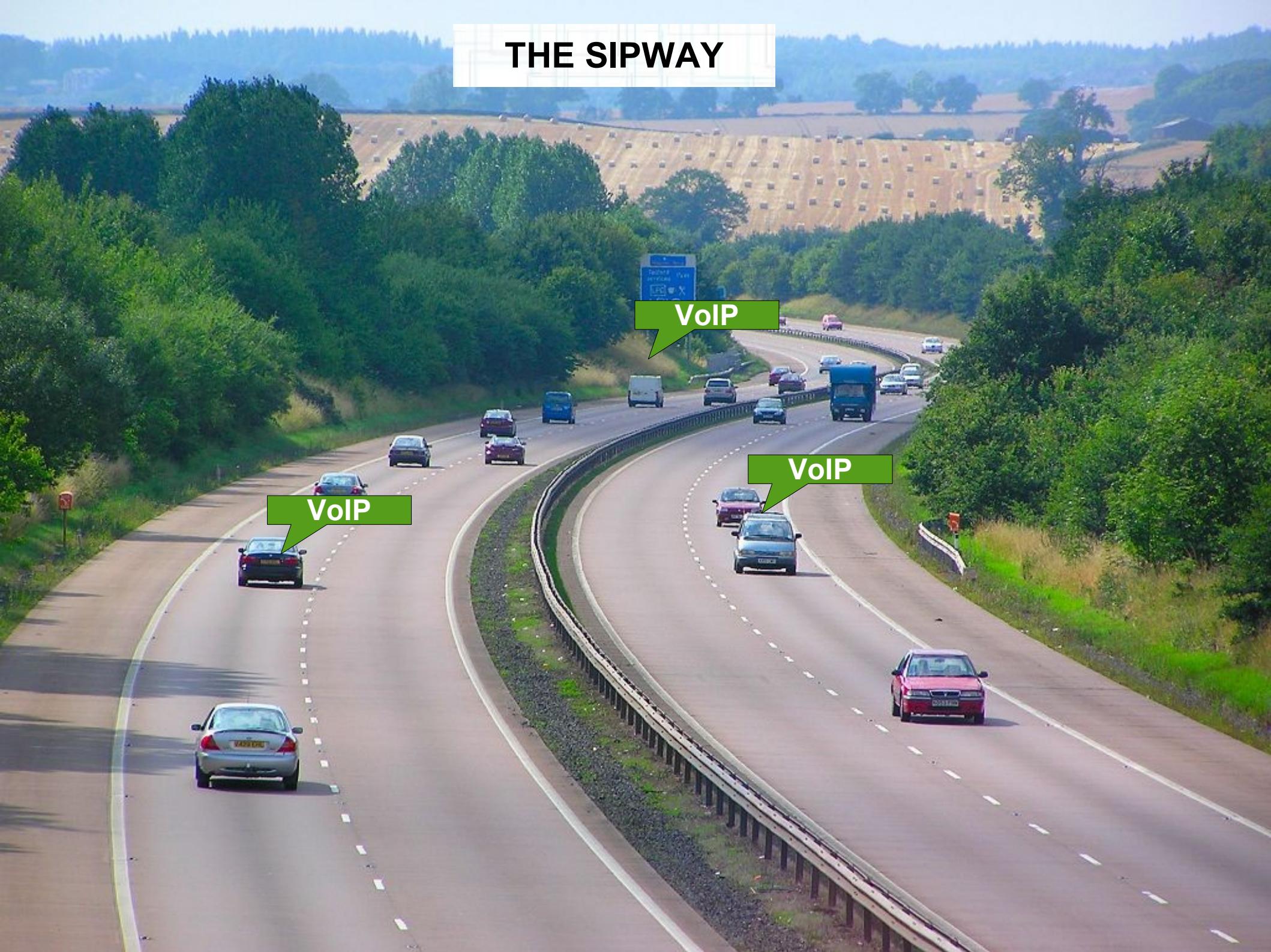
OpenSER

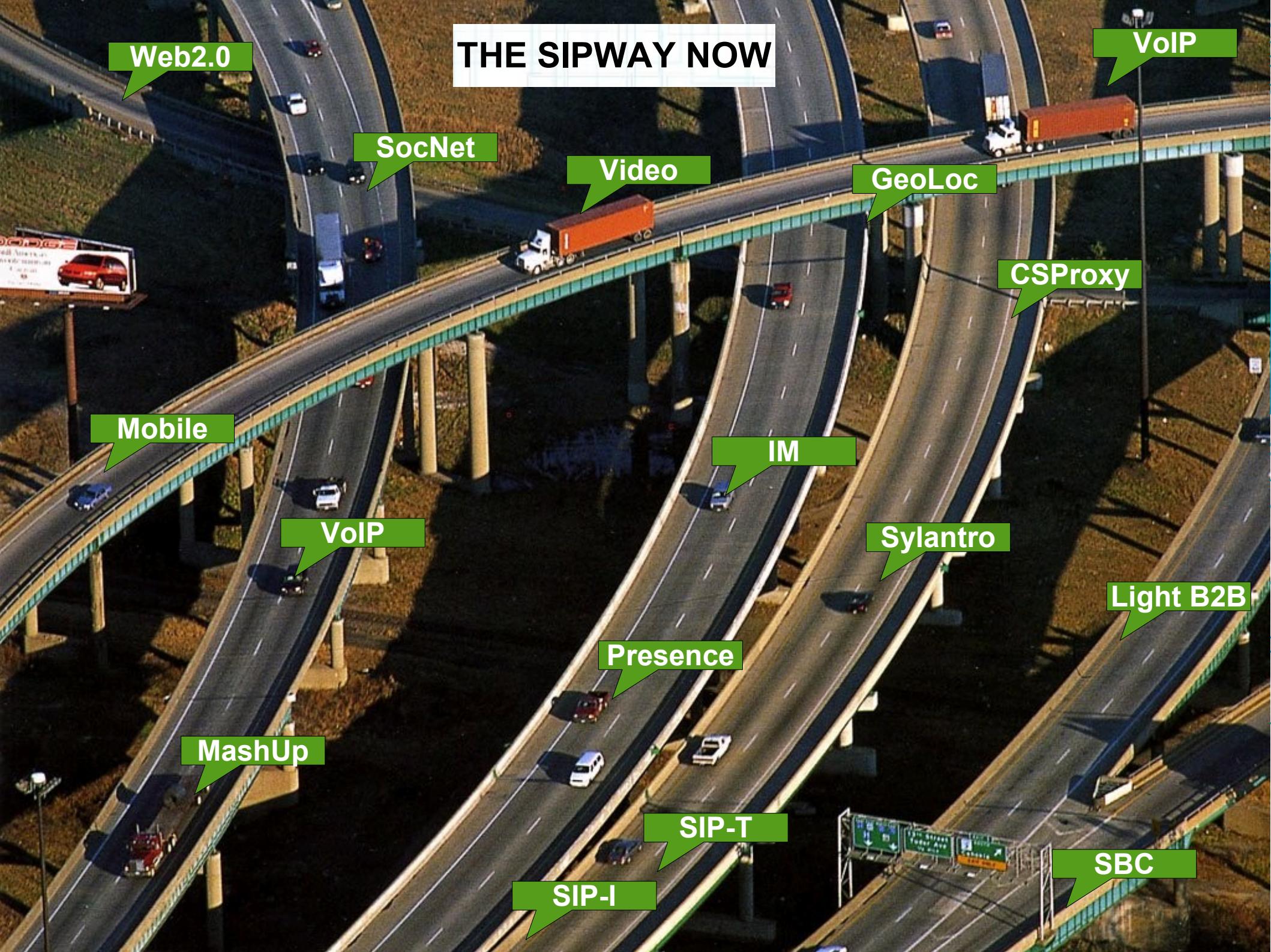
Kamailio

SIP Router

Other Forks...

THE SIPWAY





THE SIPWAY NOW

Web2.0

VoIP

SocNet

Video

GeoLoc

CSProxy

Mobile

IM

VoIP

Sylantro

Light B2B

MashUp

Presence

SIP-T

SIP-I

SBC

Ecosystem

- Administration interface
 - SIREMIS - <http://siremis.asipto.com>
- User interface for VoIP services
 - SERWEB - <http://www.iptel.org/serweb/>
- Command line tools
 - kamctl, sercmd, serctl
- Interfacing
 - Xmlrpc, Binrpc, Http, Raw protocol: UDP, FIFO
- Interoperability
 - Asterisk, Sems, FreeSWITCH; XMPP

Fixing it



... actually ...



... and ...



People from everywhere

- Telco grade, large service providers
 - iptelorg.com, 1&1, Telio, Freenet
- SIP application servers
 - Voztelecom, Iptego
- Integrators, new features builders
 - Asipto, BasisAudionet, Tutpro, Ipcom.at, Evariste, Edvina, Voiceworks
- Embedded systems, appliances
 - VoIPEmbedded, SIPWise

The Kernel Approach

- Build rock-solid:
 - SIP parser
 - Share extension interface
 - Memory manager
 - Transport layer: TCP, TCP, TLS, SCTP
 - SIP transaction management
 - Synchronization and locking system
- For the rest be **as crazy as** you like

What's the else?

- Application level
 - Different concepts of:
 - Data structuring
 - Integration with third-party components
 - All-in-one or lego bits
 - Development direction
- Management level
 - Releasing policy
 - Community interaction

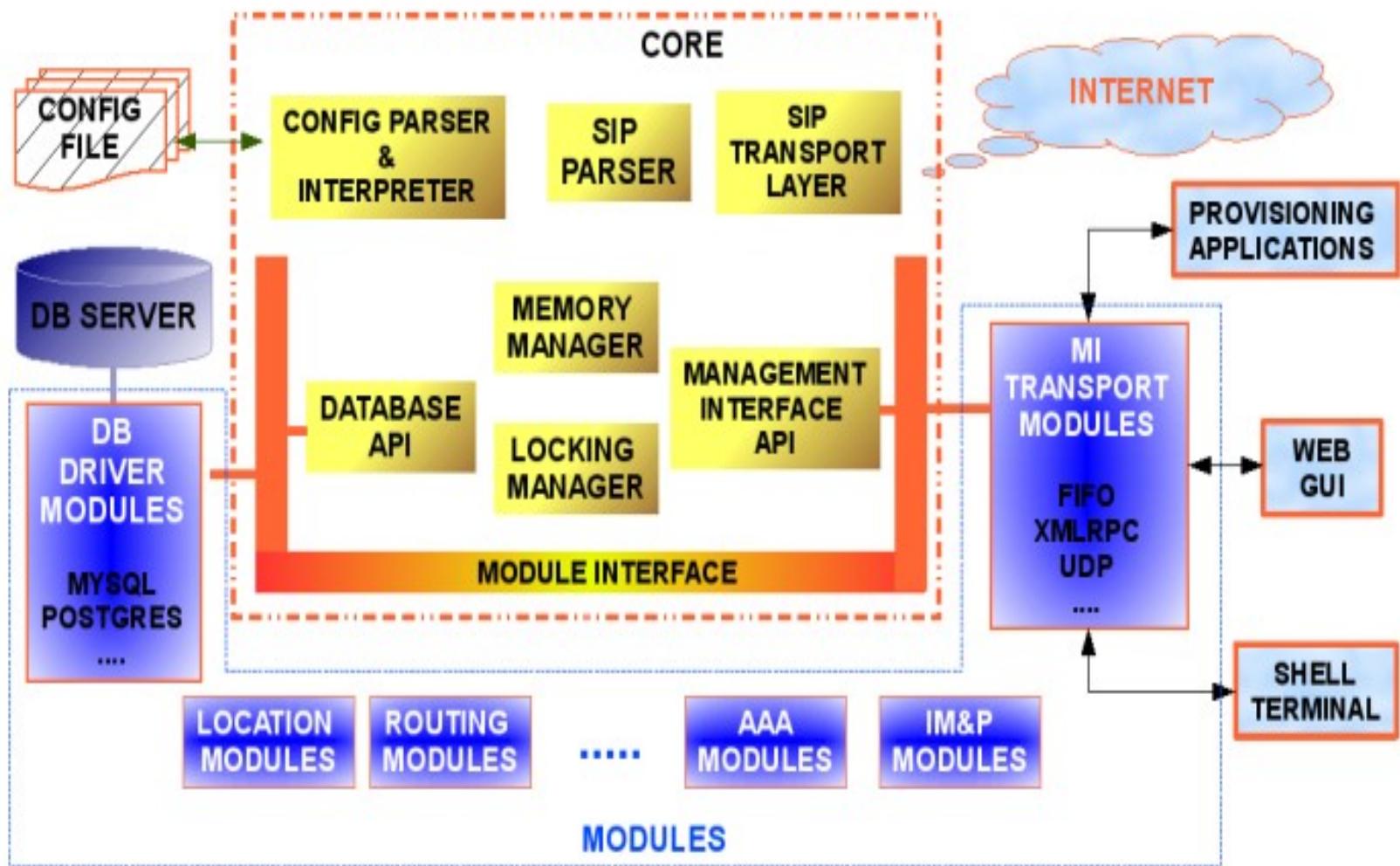
Started as...

- Bring together the developers
- Help user communities of both projects
- Reduce maintenance overhead
- Avoid duplicated efforts in development
- Develop a core framework that is **flexible, extensible and scalable**

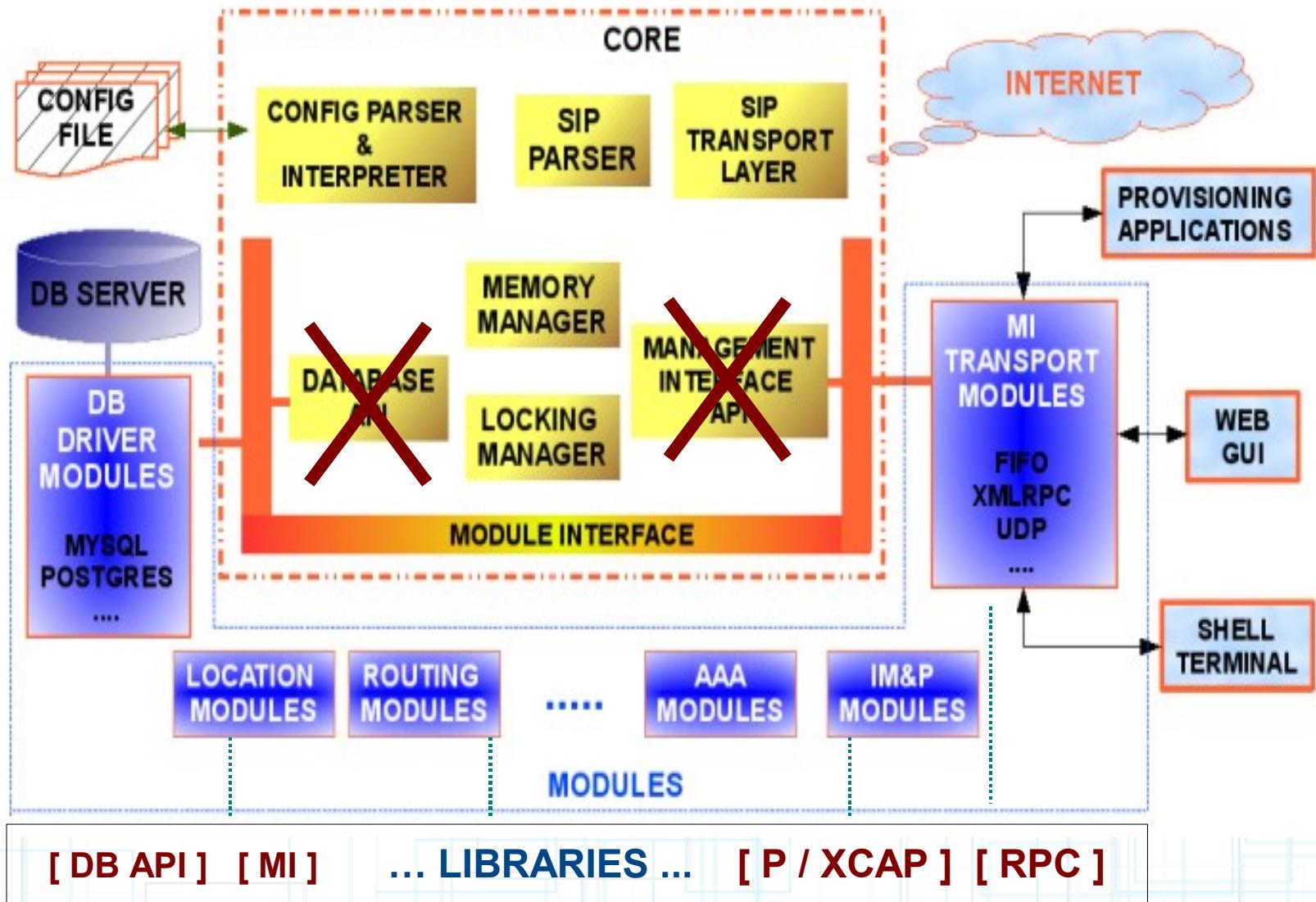
... will continue to

- Promote and build a solid open source SIP server platform
- Bring innovation to the market
 - <http://sip-router.org/wiki/tbd>
- Ensure business credibility and confidence
- Make future forking undesirable

Architecture



Architecture



What happened so far?

- Kick start in November 2008
 - Kamailio (OpenSER) 1.5.x
 - 1.5.0 on March 04, 2009
 - 1.5.1 last week
 - New development on SER 2.1.0
 - Asynchronous TCP, prepared statements
 - Building the infrastructure
 - GIT repository
 - Web site, mailing lists
 - Enjoyed: Christmas, New Year, Easter ...

Kamailio (OpenSER) 1.5.x

- Web
 - <http://www.kamailio.org>
 - <http://www.openser-project.org>
- SourceForge project still:
 - <https://sourceforge.net/projects/openser/>
- SVN Repository
 - <https://sourceforge.net/projects/openser/>
- Shortest development period: Aug 2008 – Jan 2009
- Largest new features addition
 - Brand new stuff

Kamailio (OpenSER) 1.5.x

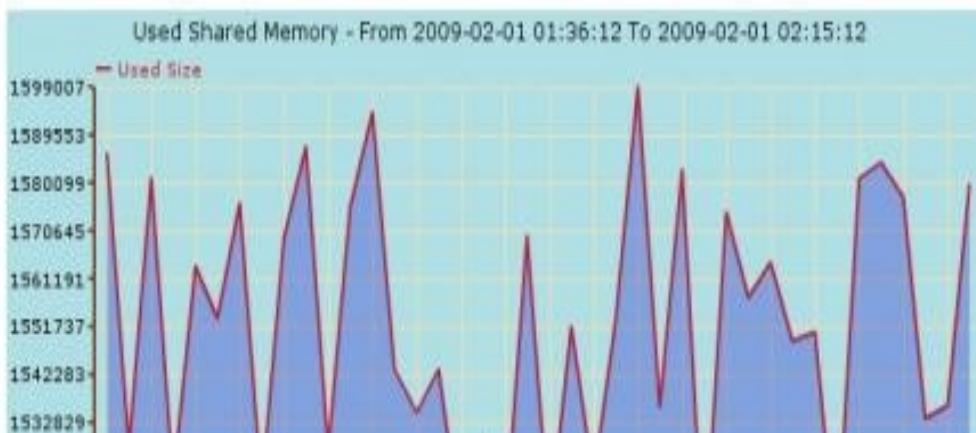
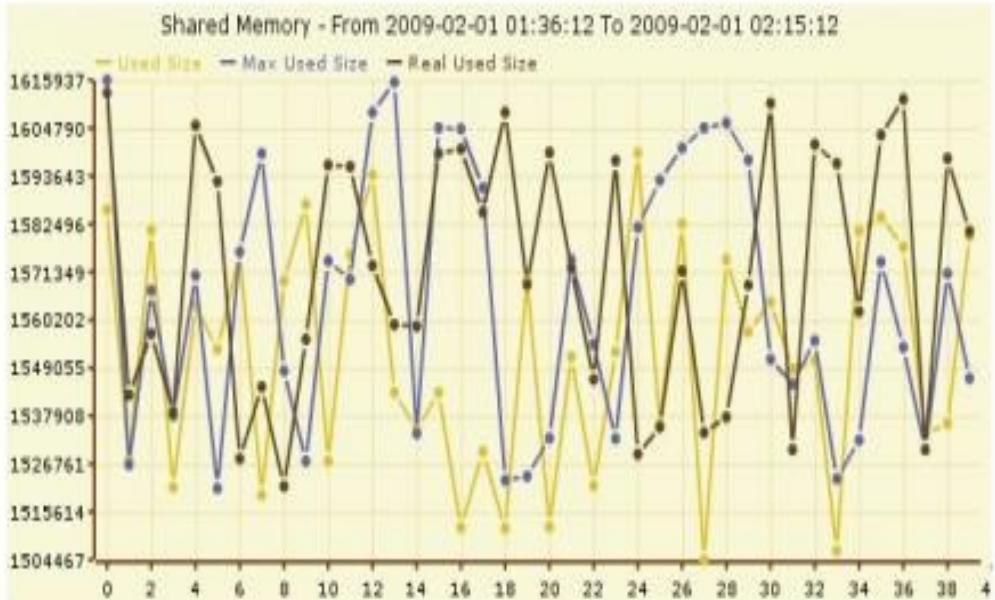
- 12 new modules (gosh 93 now after merging 5)
 - DialogInfo Presence support
 - Configuration file shared cache system
 - Fast SQL operations
 - XMPP/MSN/... interconnection via PURPLE library
 - HTTP query
 - Timer-based route execution
 - Perl-like regular expression support

Kamailio (OpenSER) 1.5.x

- New features in old modules
 - Least cost routing re-shaping
 - Fine control and access of request/reply during transaction processing
 - Initiate SIP requests from config file
 - Fine access to user location records
 - Priority based load balancing destinations
 - Option to store and manage only one location record per subscriber
 - Message body handling dedicated functions

SIREMIS

- **Web administration interface:** <http://siremis.asipto.com>
 - provides system and database administration tools for Kamailio (OpenSER)
 - subscriber, database aliases and speed dial management
 - location table view
 - dispatcher, prefix-domain translation and least cost routing (lcr) management
 - access control lists (user groups) and permissions management
 - accounting records, missed calls and call data records view
 - hash table, dial plan table and user preferences table management
 - offline message storage view
 - communication with Kamailio (OpenSER) via MI UDP sockets
 - create and display charts from statistic data stored by Kamailio (OpenSER)

[Chart Services >>](#) [Random Charts](#) [SHM Charts](#) [Location Charts](#)

SIP Router 3.0

- Just integration? No, lot of brand new stuff:
 - Memcached daemon support
 - Config language extended
 - Switch with regular expression
 - Break (C-Like) support in config
 - Asynchronous processing
 - Suspend-resume approach
 - SCTP, TCP, TLS new features and improvements
 - New statistics and health monitoring systems

What for Kamailio 3.0

- DB API-based LDAP integration
- Hot reload (partial) of the configuration file
- Binrpc interface
- Kernel based RTP relay for NAT traversal
- Internal DNS cache system
- In-config operations for the generic DB API
- Extra memory and locking/synchronization managers
- Asynchronous TCP, Prepare statements
- Named routes, flags

Time lines?

- Today:
 - Only 4 modules out 93 not ported yet
 - Several extensions in core and tm to be still done
 - Default configuration file of Kamailio (OpenSER) 1.5.0 (call routing, AAA, NAT traversal and presence server) is running out of the box
- Beta out:
 - One-two months

Presence in Germany

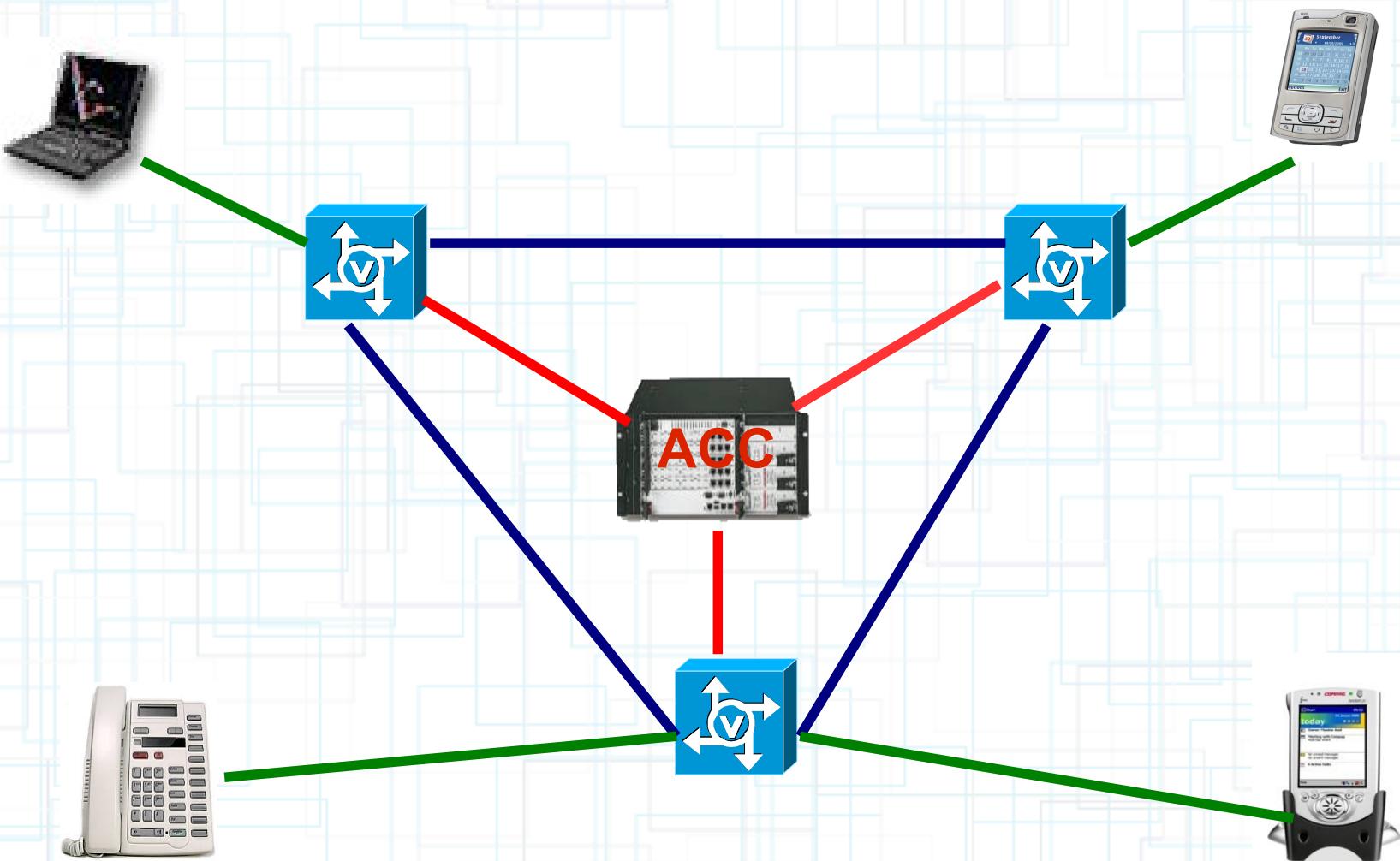
- The two biggest VoIP deployments
 - 1&1 (members of the management board)
 - Over 2 millions subscribers
 - Over 1 billion minutes per month
 - Freenet
 - 0.8 million subscribers
 - Hundreds millions minutes per month





Done with the literature!!!

Accounting Server



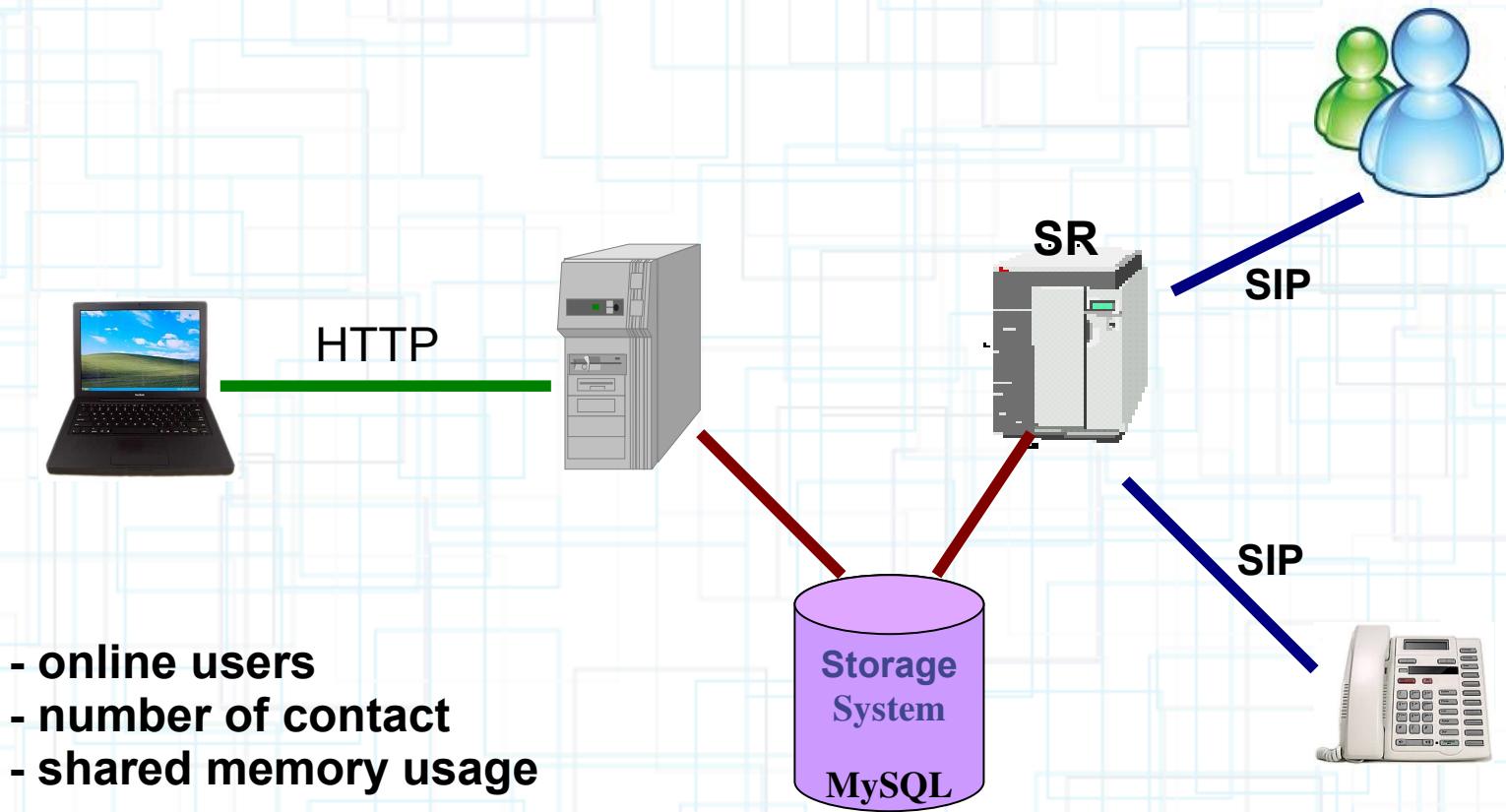
Proxy Server Config

```
onreply_route[1] {  
    if(status!="200")  
        return;  
  
    $uac_req(method)="ACCOUNTING";  
  
    $uac_req(ruri)="sip:store@accounting.kamailio.org;transport=sctp";  
  
    $uac_req(furi)="sip:server@server1.kamailio.org";  
  
    $uac_req(hdrs)="Content-Type: text/accounting-csv\r\n";  
  
    pv_printf($uac_req(body), "$TS,$ci,$ft,$tt,$T_req($fu),$T_req($ru)");  
  
    uac_send_req();  
}
```

Acc Server Config

```
route{
    if(method=="ACCOUNTING" && $rU=="store")
    {
        sql_query("ca",
            "insert into accounting
                (timeval,callid,ftag,ttag,src,dst)
            values ('$(rb{s.select,0,,})',
                    '$(rb{s.select,1,,})',
                    '$(rb{s.select,2,,})',
                    '$(rb{s.select,3,,})',
                    '$(rb{s.select,4,,})',
                    '$(rb{s.select,5,,})' ),
            "ra");
        send_reply("200", "Stored");
    }
}
```

Server load view



Create the table

```
CREATE TABLE `statistics` (
  `id` int(10) unsigned NOT NULL auto_increment,
  `time_stamp` int(10) unsigned NOT NULL default '0',
  `shm_used_size` int(10) unsigned NOT NULL default '0',
  `shm_real_used_size` int(10) unsigned NOT NULL default '0',
  `shm_max_used_size` int(10) unsigned NOT NULL default '0',
  `shm_free_used_size` int(10) unsigned NOT NULL default '0',
  `ul_users` int(10) unsigned NOT NULL default '0',
  `ul_contacts` int(10) unsigned NOT NULL default '0',
  PRIMARY KEY (`id`)
) ENGINE=MyISAM;
```

SIP Server Config

```
loadmodule "rtimer.so"

loadmodule "sqllops.so"

modparam("rtimer", "timer", "name=tst;interval=300;mode=1;")

modparam("rtimer", "exec", "timer=tst;route=8")

modparam("sqllops","sqlcon","ca=>mysql://openser:openserrw@localhost/openser")

route[8] {

    sql_query("ca",

        "insert into statistics (time_stamp,random,shm_used_size,
        shm_real_used_size,shm_max_used_size,shm_free_used_size,ul_users,
        ul_contacts) values ($Ts,$stat(used_size),$stat(real_used_size),
        $stat(max_used_size),$stat(free_size),$stat(location-users),
        $stat(location-contacts))", "ra");

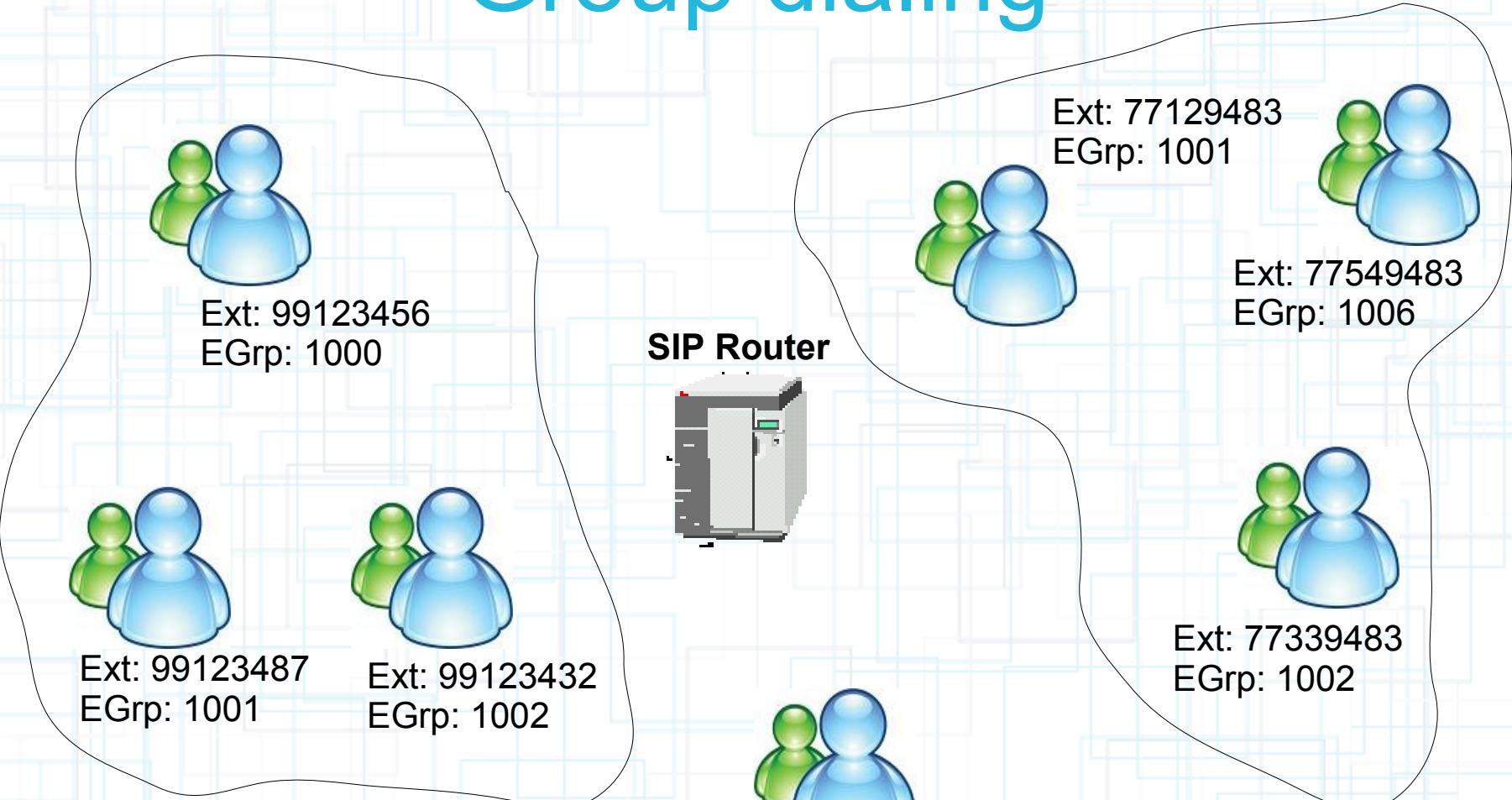
    }

}
```

Within group dialing

- Centrex like feature
 - Users grouped by affiliation, friendship a.s.o.
 - Inside the group each member has a short extension assigned
- What it takes
 - For many: new module and big waves
 - For the rest:
 - One table definition plus one more attribute per user
 - 5 lines of configuration

Group dialing



Database updates

```
ALTER TABLE subscriber ADD COLUMN pbxgroupid INT NOT NULL DEFAULT 0;
```

```
CREATE TABLE pbxgroups (
    id INT(10) UNSIGNED AUTO_INCREMENT PRIMARY KEY NOT NULL,
    pbxgroupid INT DEFAULT 0 NOT NULL,
    shortdial VARCHAR(16) DEFAULT "" NOT NULL,
    extension VARCHAR(64) DEFAULT "" NOT NULL,
    CONSTRAINT pg_u UNIQUE (groupid, shortdial)
) ENGINE=MyISAM;
```

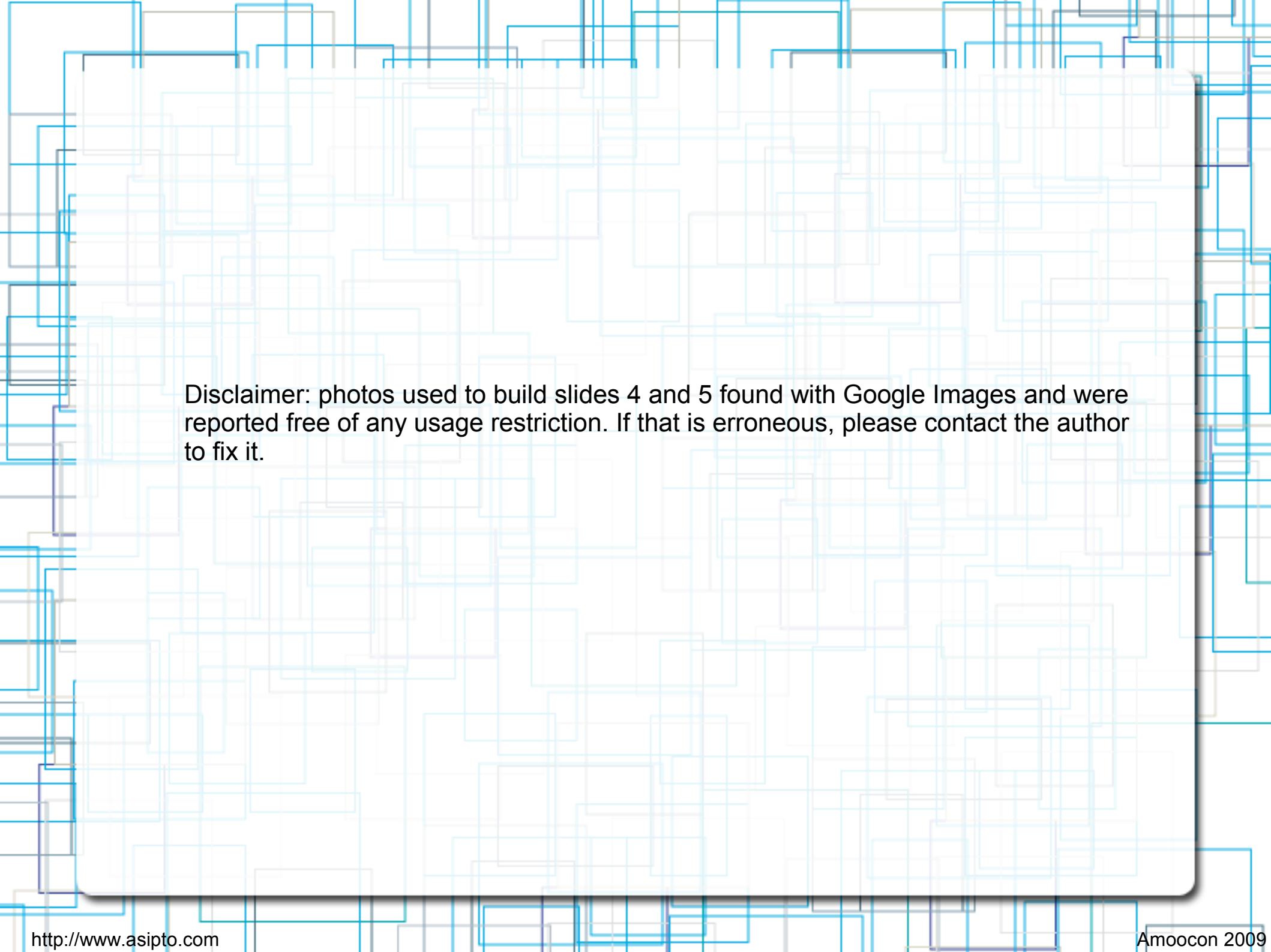
Configuration file

- modparam("auth_db", "load_credentials", "\$avp(s:pbxgroupid)=pbxgroupid")
....
- sql_query("ca"
 **"select extension from pbxgroups where pbxgroupid=\$avp(s:pbxgroupid)
and shortdial='\$(rU{s.escape.common})'"**,
 "ra");
- if(\$db(r=rows)>0) \$rU = \$db(r=>[0,0]);
....

Thank You!!!

Daniel-Constantin Mierla

- miconda@gmail.com
- **Asipto SRL:** <http://www.asipto.com>
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- <http://www.openser-project.org>
- <http://siremis.asipto.com>



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