

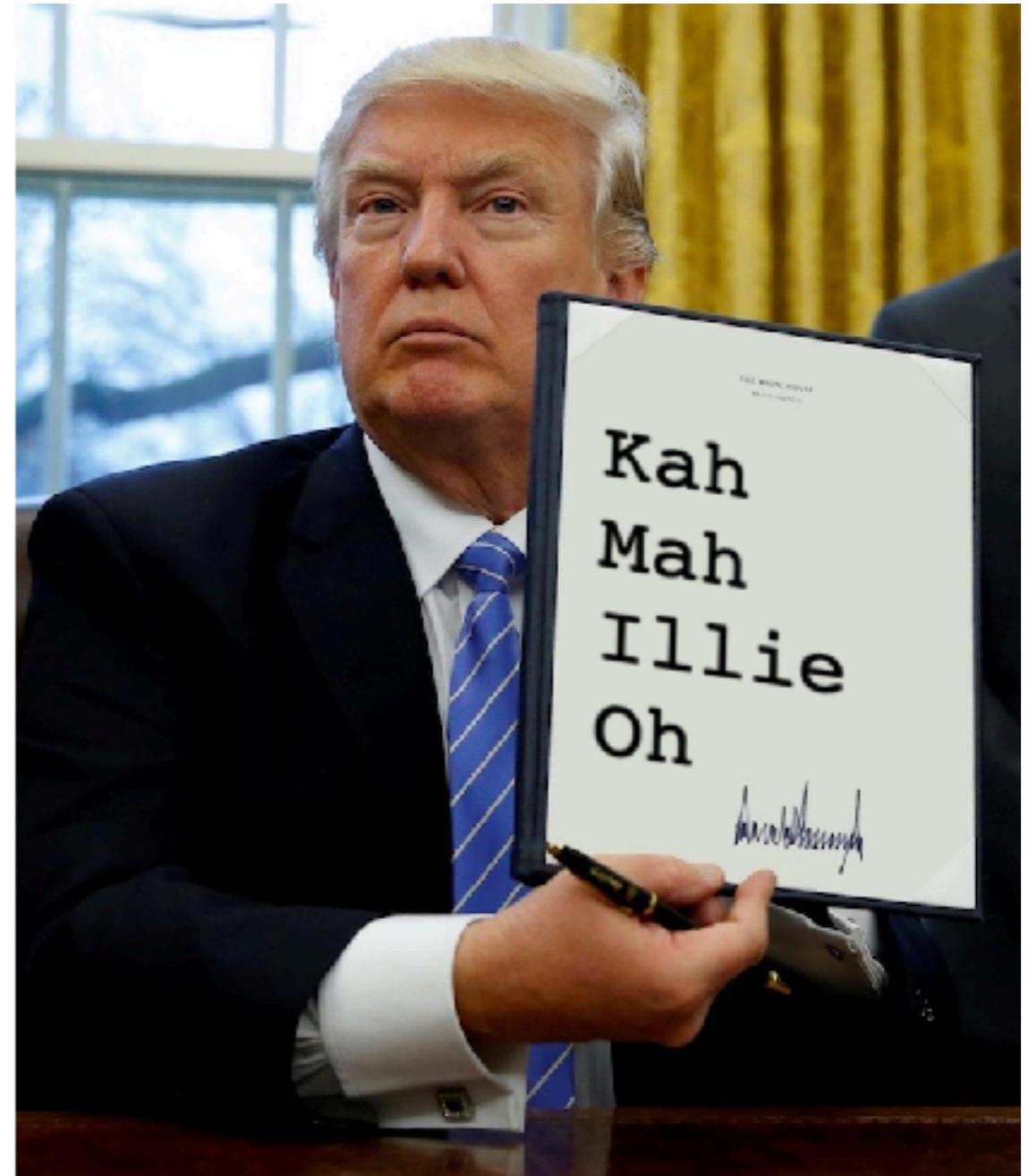


Kamailio - Modern VoIP Services Scalability With Intelligent SIP Routing

Fred Posner, VoIP Engineer
LOD Communications, Inc.
@fredposner
<https://qxork.com>

What the what?

- Kah Mah Illie Oh
- Kah Mylie Oh

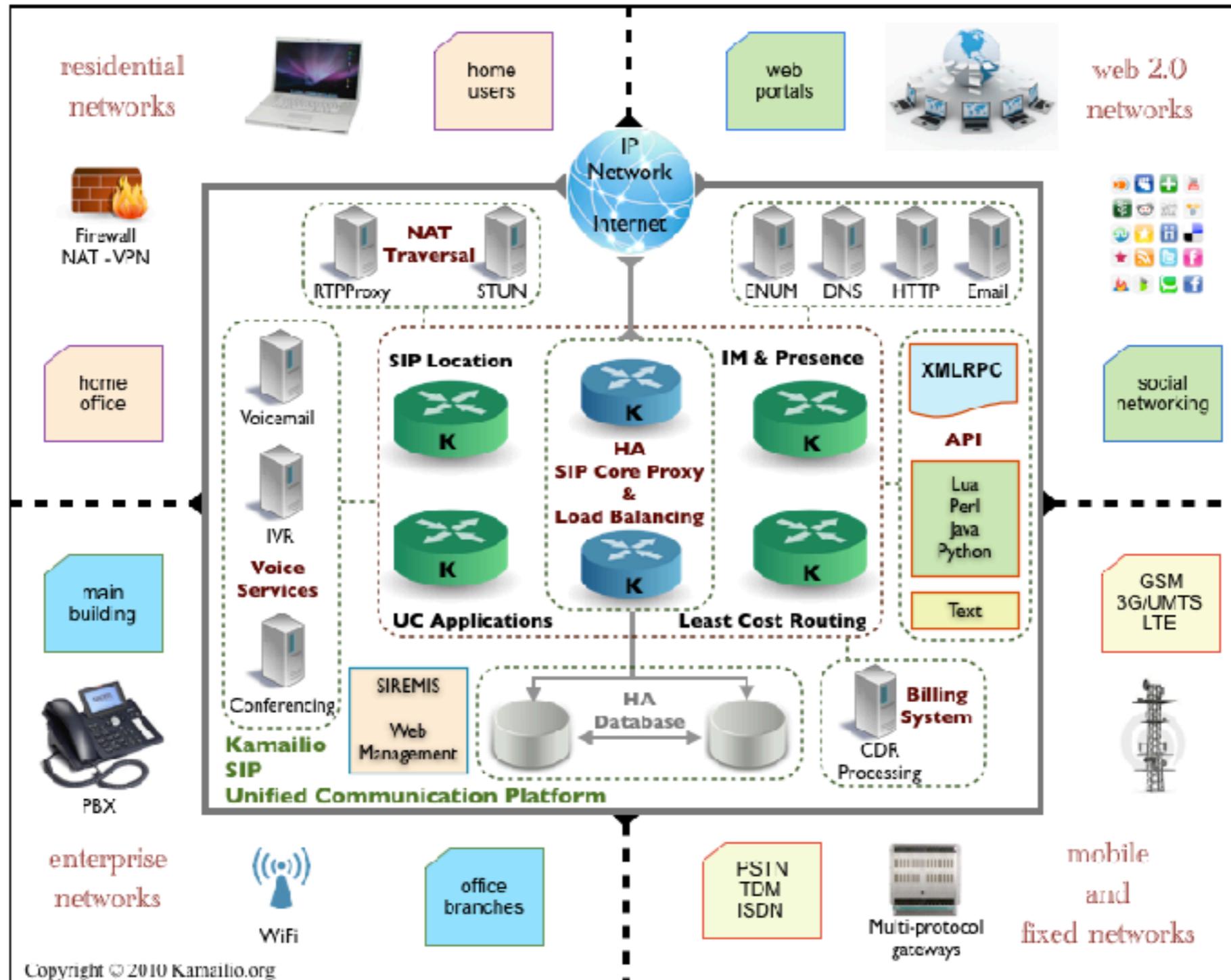


Who am I?

- Fred Posner
- @fredposner
- VoIP Engineer
- Florida based



What is Kamailio?



What is Kamailio?

- Open Source SIP Server
 - Thousands of call setups **per second**
 - GPL
- SIP Proxy server
- SIP Registrar server
- SIP Location server
- SIP Application server
- SIP Dispatcher server
- SIP Websocket server



What *isn't* Kamailio?

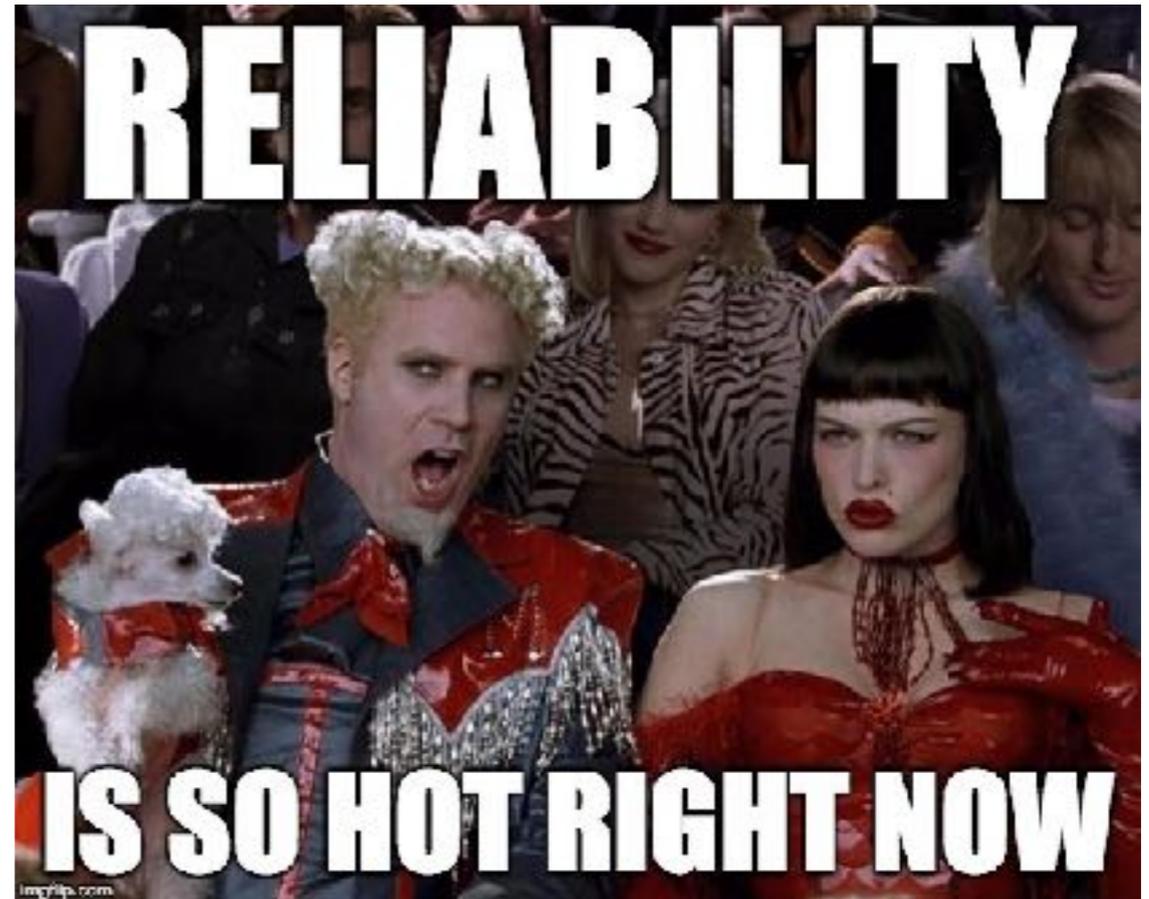
- SIP Phone
- Media Server
- B2BUA

- Can you name an open source software that is these things?



Why Kamailio?

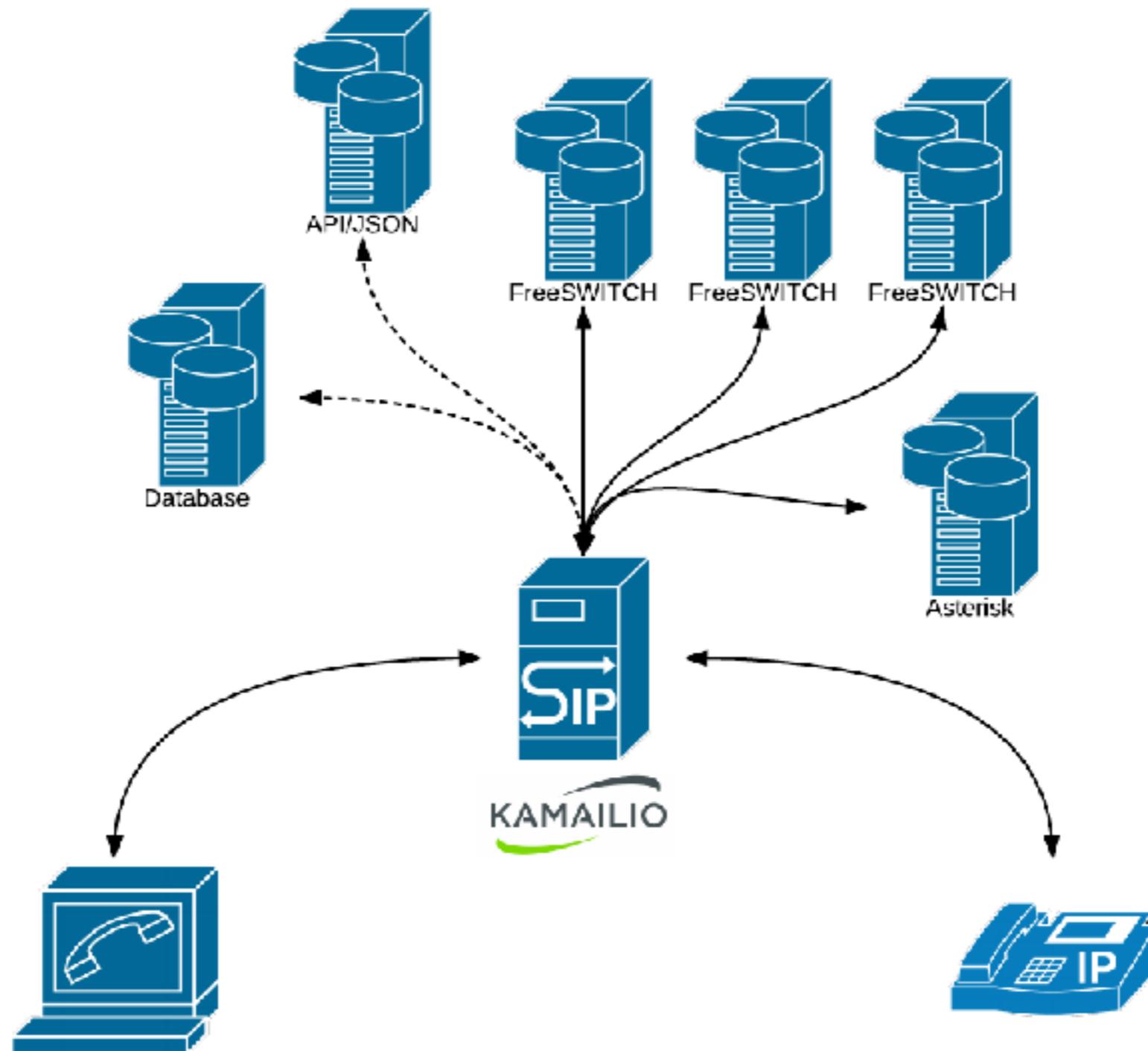
- Fast
- Flexible
- Reliable



Key Features

- Modular
- Scalability and Flexibility by design
- IPv4, IPv6
- TLS/TCP/UDP
- WebSocket
- NAT Traversal
- JSON, XMLRPC, HTTP APIs
- SQL & NOSQL
- Embedded Interpreters (Lua, Java, Perl, Python, more)
- Load Balancing
- LCR
- Asynchronous processing (TCP / TLS, SIP Routing), external API
- and mucho mucho mas

Most Common Deployment

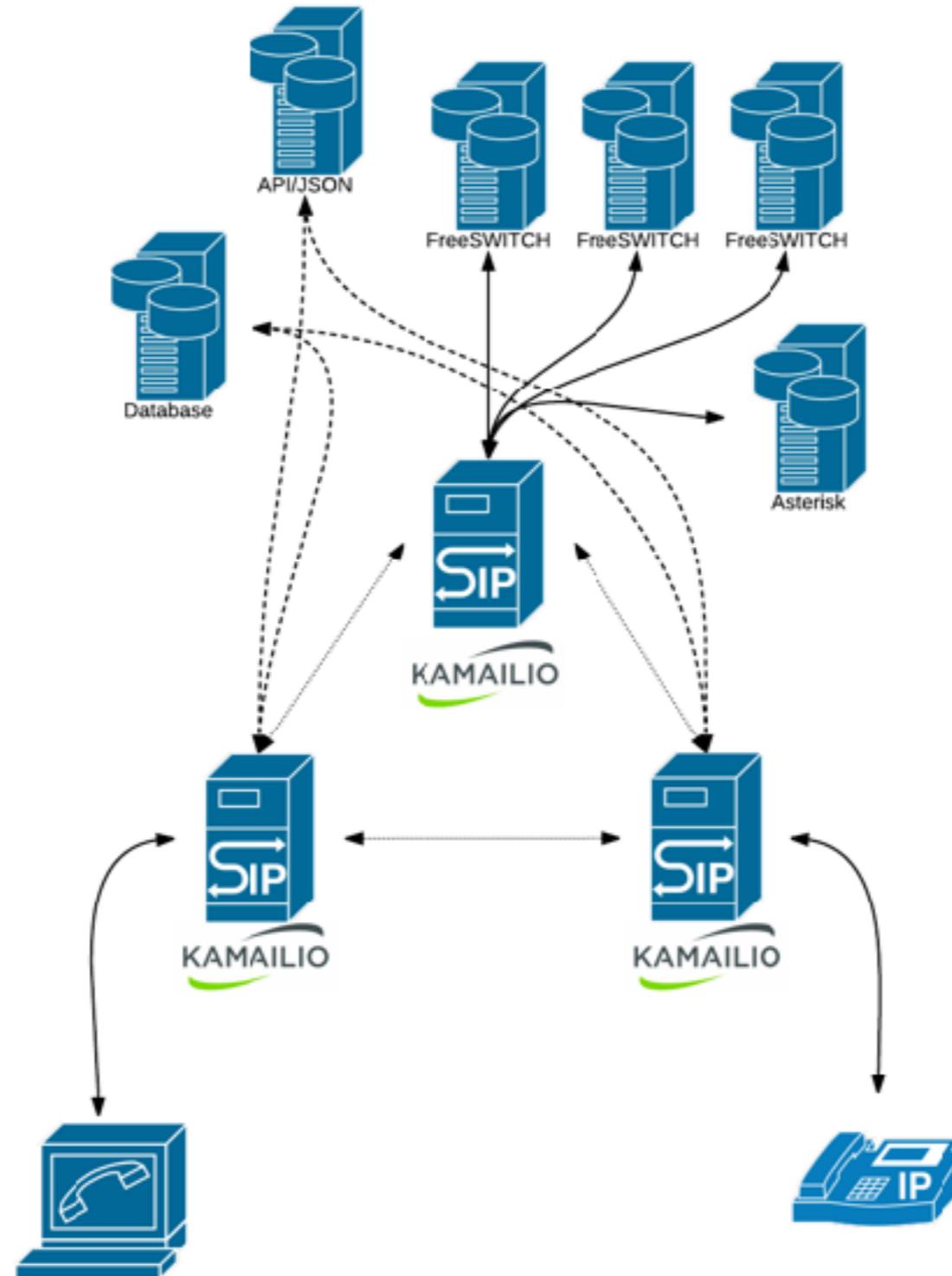


Scale SIP/RTC

- Load Balancing
- Dispatcher Module
 - Various Algorithms
 - Node monitoring
 - Re-route of failures



Scaled Deployment



got lua?

Kamailio v5

- FreeSWITCH and Lua go hand in hand
- **kemi**
Kamailio Embedded Interface
- Framework allows using your favorite scripting language for SIP routing blocks



<https://github.com/kamailio/kamailio/blob/master/misc/examples/kemi/kamailio-basic-kemi.cfg>

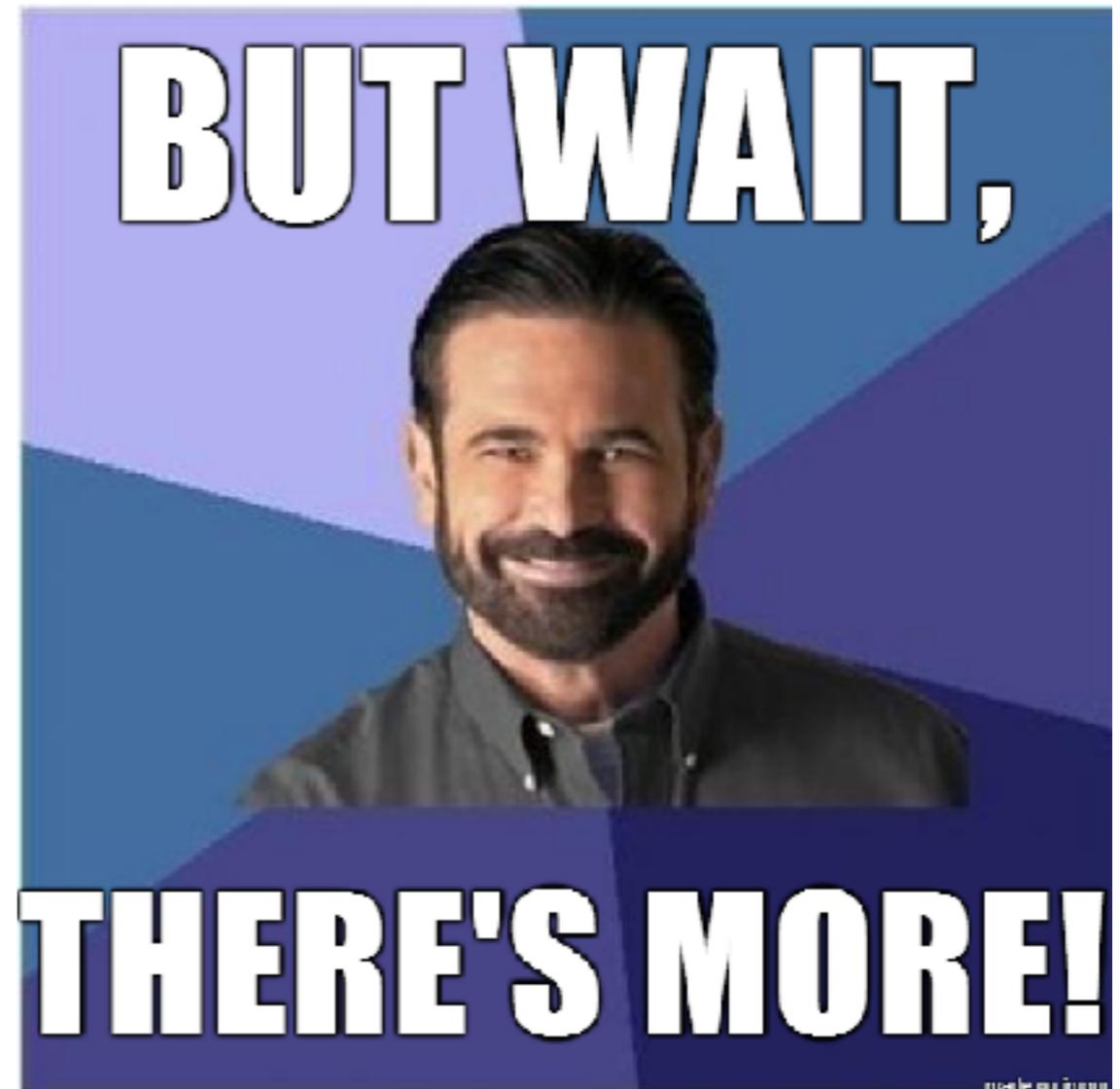
<https://github.com/kamailio/kamailio/blob/master/misc/examples/kemi/kamailio-basic-kemi-lua.lua>

Lua example

```
if KSR.pv.is_null("$rU") then
    -- request with no Username in RURI
    KSR.sl.sl_send_reply(484,"Address Incomplete");
    return 1;
end
```

kemi benefits

- Live changes (no restart)
- Supports Lua, JavaScript, Python, Squirrel
- libs, expressions, modules, statements from your favorite language
- New dimension of flexibility



API Routing

- `http_client / http_async_client`
- `evapi`
<http://kamailio.org/docs/modules/stable/modules/evapi.html>
- `rtjson`
<http://kamailio.org/docs/modules/stable/modules/rtjson.html>
- `nodejs`



Mid-Registrar

- since 2010
- <https://www.kamailio.org/docs/modules/stable/modules/uac.html>
- remote registrar even handles R-URI modifications

```
if(uac_reg_lookup("$rU", "$ru"))
{
    xlog("request from a
remote SIP provider [$ou => $ru]
\n");
}

lookup("location");
```



HTABLE

- Hash Table Module
- Stored in shared memory
- Custom cache system
- Replication via DMQ



**“If you’re not using HTABLE,
you’re doing something wrong.”**

–@miconda / Daniel-Constantin Mierla

SIP Edge Proxy — “SBC”

- Since 2001
- Security
- NAT
- Accounting
- RTP Proxy
(rtpproxy, rtpengine)



It's About Power

- Flexibility in language, protocol, format, and controllers
- Lua, Python, JavaScript, Perl, Squirrel, etc
- HTTP, RPC, EVAPI, SIP, etc
- XML, JSON, custom
- node+js, SQL, php, Custom apps, etc
- **Power to Scale**





See you in Berlin!

kamailioworld.com

kamailio.org

Ask a good
question...

Get a cookie.

Fred Posner
@fredposner
qxork.com

