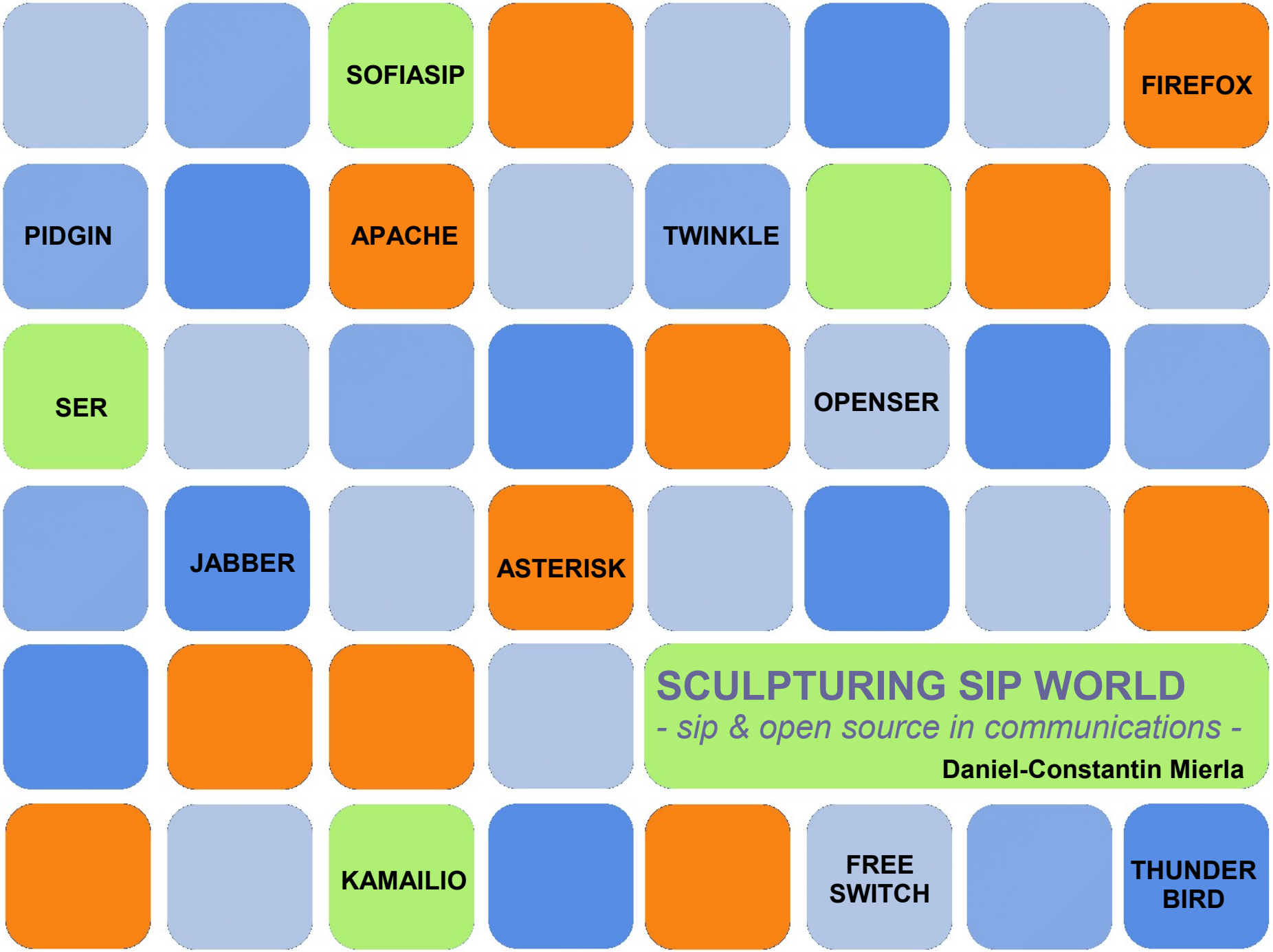

SOFIASIP
FIREFOX
PIDGIN
APACHE
TWINKLE
SER
OPENSER
JABBER
ASTERISK
SCULPTURING SIP WORLD
- sip & open source in communications -
Daniel-Constantin Mierla
KAMAILIO
FREE SWITCH
THUNDER BIRD

About me

- *Daniel-Constantin Mierla*
  - Computer science engineer

- 2002 – 2005: researcher at Fraunhofer Institute for Open Communication Systems – FhG FOKUS – Berlin, Germany

- 2005 - : consultant VoIP using Open Source projects
- CEO ASIPTO
  - http://www.asipto.com

Work in communication world

- Since 2002 – core developer of SIP Express Router
- Since 2005 – co-founder and core developer of OPENSER (Kamailio)
  - member of management board
- Early IETF work of SIP-XMPP interoperability
  - Next week workshop in Paris, at INRIA
- Presentations and courses
  - SIP and VoIP
  - Scalability and security
  - Integration of open source applications: Asterisk, OPENSER, FreeSWITCH, FreeRADIUS
  - Developing OPENSER
- Instant messaging and presence
  - Unified communication

Using any open source application?

pidgin
gaim

Open Source for VoIP and SIP

SIP-based communications

- Voice
- Video
- Instant messaging
- Presence
- Location
- Gaming
- Integration
- Collaboration

Aware of ...

Constantin Brancusi

- Bird in space -

http://en.wikipedia.com/wiki/Bird_in_Space

What is SIP?

- Signaling protocol
- Internet Engineering Task Force
- Negotiation of session parameters

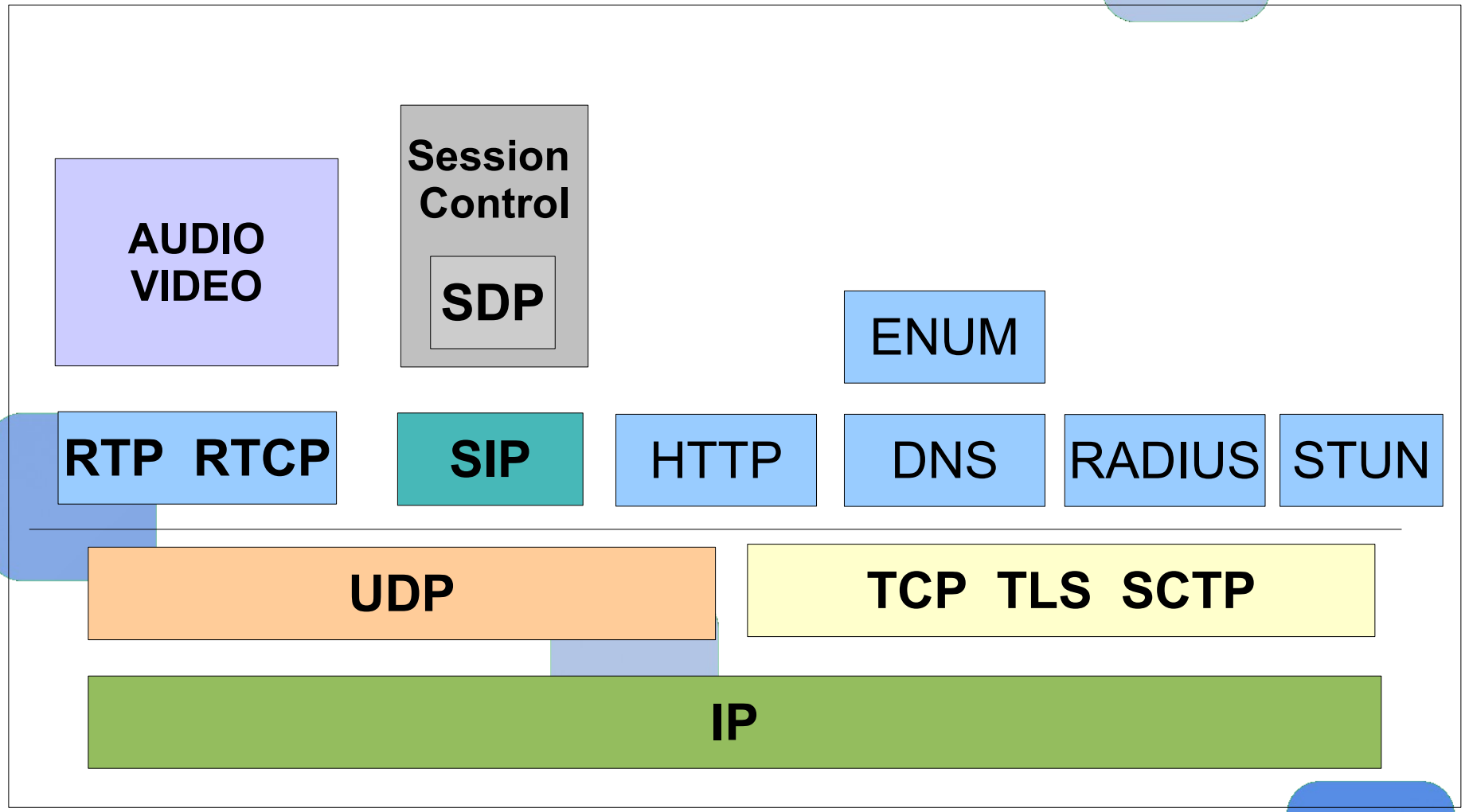
Strong points

- Text based protocol
  - Easy to understand and trouble shoot by humans
  - Same as http/web, smtp/email
- Flexibility and extensibility
  - Easy to add new functionalities
- Mobility
  - IP network world wide
- Voice, video, instant messaging, presence, gaming...
  - Session based communication
- Open protocol
  - Many vendors
- Adopted as the protocol for NGN services
  - 3GPP

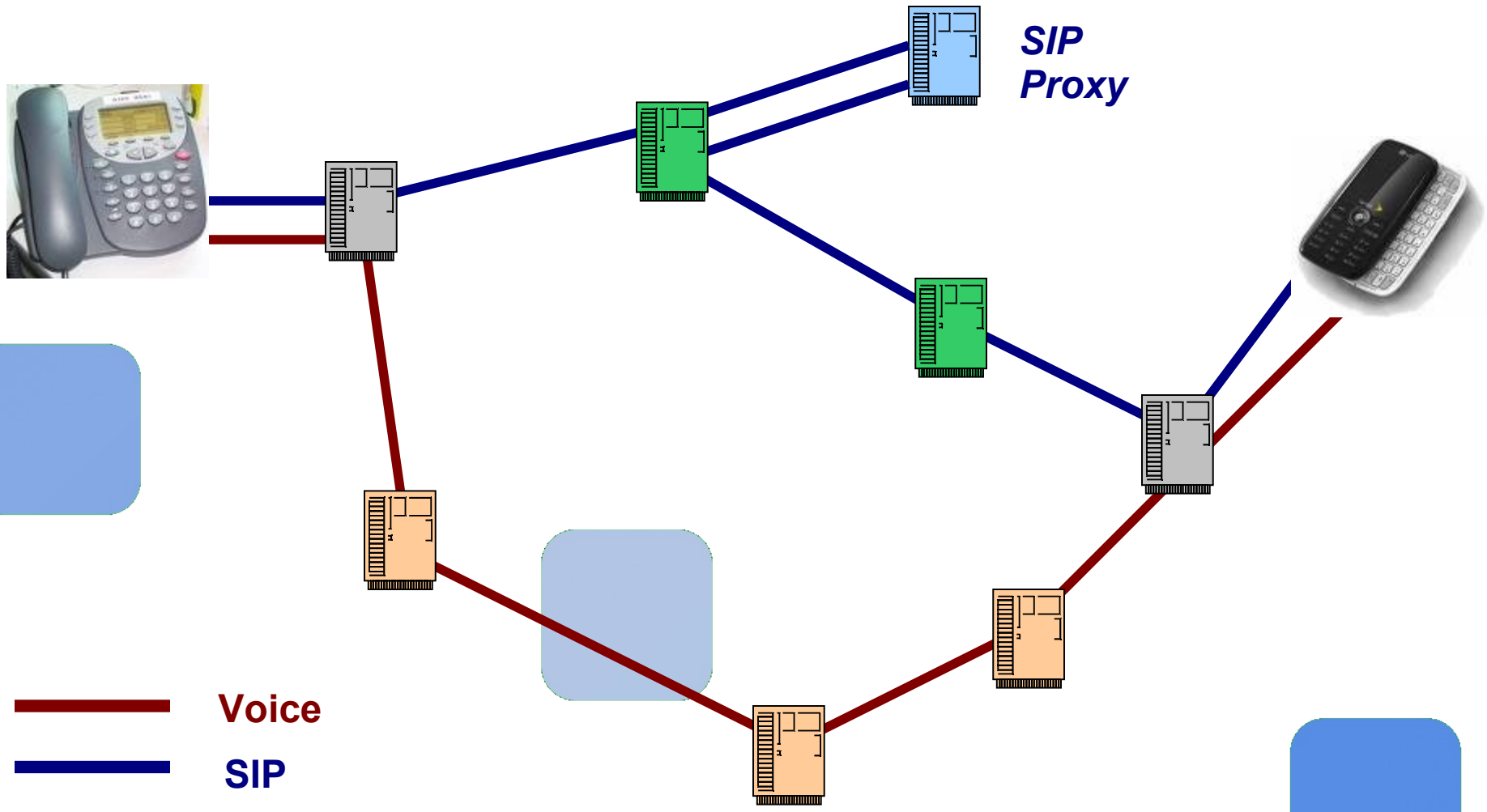
Weakness

- Interoperability
  - Many vendors many interpretations of specifications
- Designed for IP network
  - Troubles in being adopted by classic telephony
- Complexity
  - Making it easy for humans could mean hard for machines
- Large number of extensions
  - Becomes heavy and hard to follow
- Not all shall be migrated to SIP
  - Better alternatives out there

SIP Architecture



SIP Session – VoIP Call



SIP: the raw material ... what next?

SIP Tools

- Applications
- Frameworks
- Libraries

OPENSER

- recently renamed to Kamailio
- developed in C – Linux/Unix environment
- modular architecture
  - small footprint core (pretty much useless if used alone)
  - features plugged by modules (over 80)
- scripting language for configuration
  - combination of C and Shell styles
  - easy to understood when having programming background
- very strict in following standards
  - loose when receiving
  - strict when sending
- world wide development team
  - over 25 registered developers
  - Hundreds of contributors

Features

Plug in module interface
Perl programming interface

Customizable routing policy
User location service
IPv4-IPv6
UDP/TCP/TLS/SCTP
SIP translator

SIP proxy, redirect and registrar server
user registration with
digest authorization

Offline message service
Presence server
ENUM lookup support
Advanced routing (dispatching and LCR)
Dialing support
aliases and speeddial

Multi-domain support
LDAP/H.350 support

Features

OSP support for peering
Java SIP Servlet programming interface

Link any application to OPENSER using FIFO/UNIXSOCK/DATAGRAM/XMLRPC interfaces

NAT traversal
Security permissions
anti-DOS attacks
User call preferences
Call Processing Language

Database API
MySQL
PostgreSQL
UNIXODBC
BERKELEYDB
ORACLE
Text files
RADIUS

Gateway

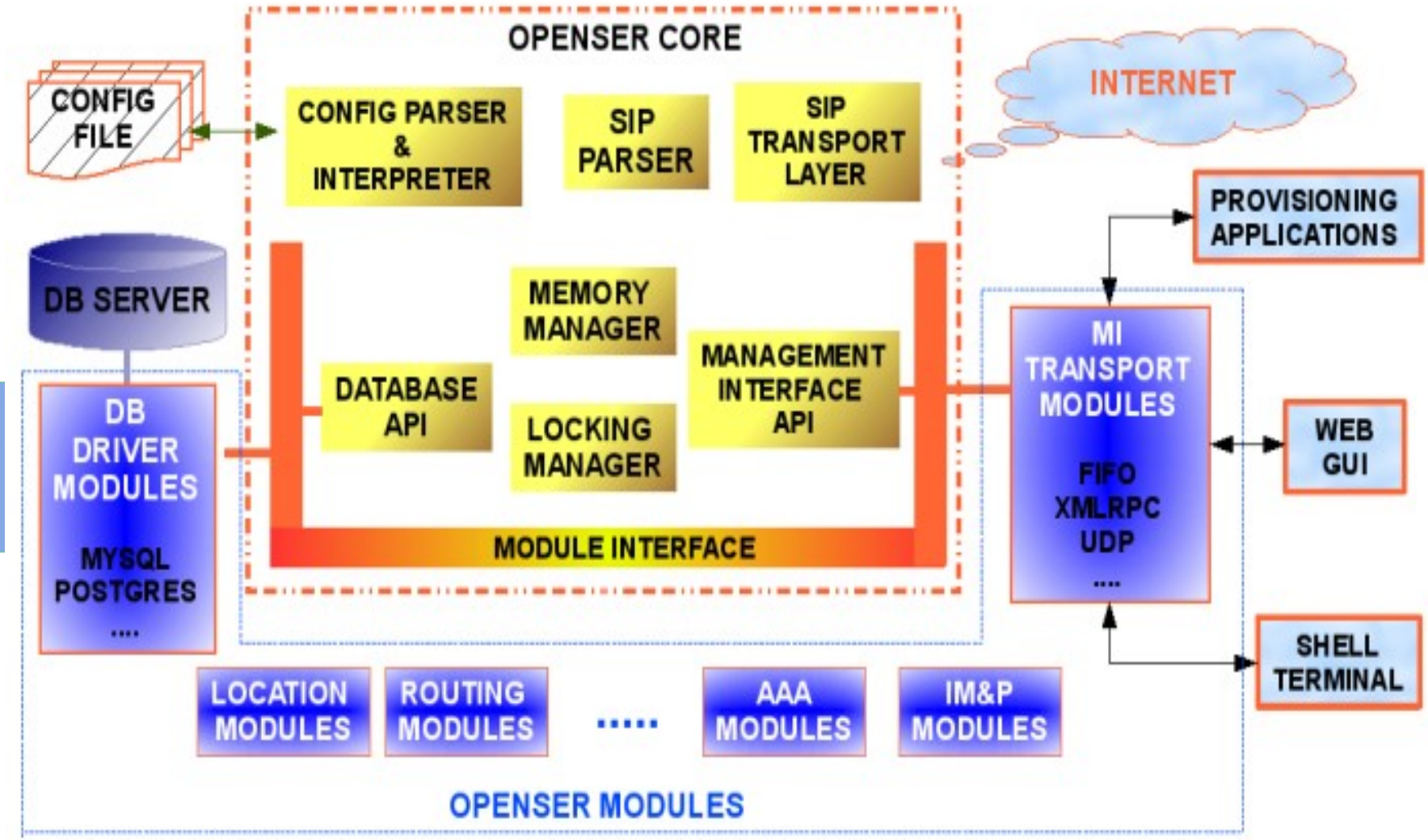
SMS
XMPP

Accounting through log file, database or Radius/DIAMETER servers

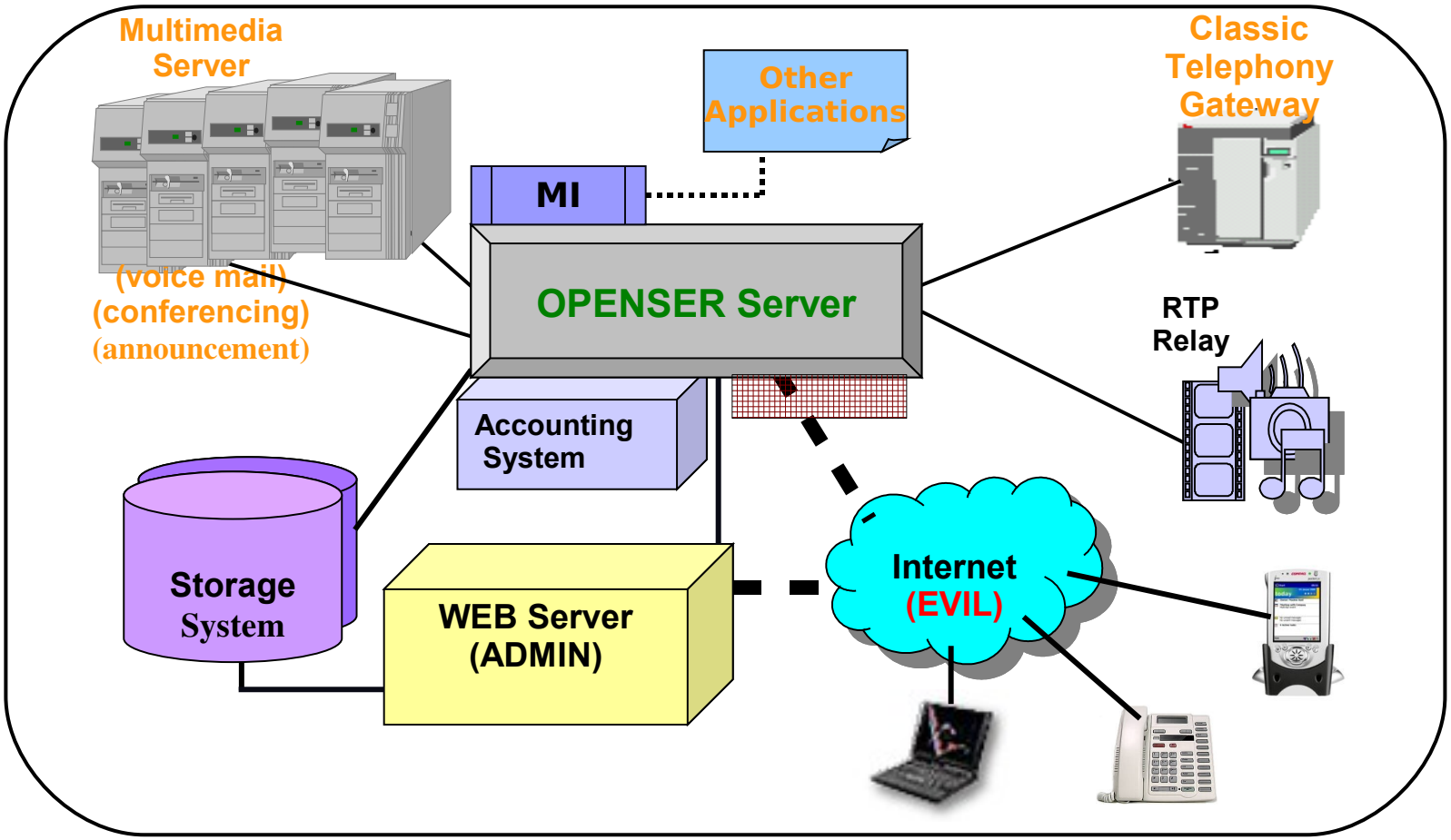
Using open source: why?

- no vendor trap
  - faster development cycle
  - split work between parties
  - easy synchronization with the main stream
- contributions ⇒ unified effort for development
  - CISCO (BerkeleyDB)
  - 1&1 (carrier routing)
  - Collax (perl scripting support)
  - Voztelecom (Application Agent)
  - SomaNetworks (Session Timer)
  - Trans Nexus (OSP)
  - Enum.at (Infrastructure Enum, Domain policy)
- performance and flexibility
  - build on with your imagination

Internal architecture



IP Communication Platform



Asterisk

- An Open Source Modular Multiprotocol PBXa
- Asterisk delivers services on the SIP network
  - Voicemail
  - PSTN gateway
  - Conference
  - Announcement services
- multiple protocols: IAX2, SIP, h323, Skinny, zap, jingle
- multiple codecs: gsm, g711, g729, ilbc, ...
- transcoding
- gateway to PSTN
- protocol translation
- back-to-back user agent

SIP applications, libraries and frameworks

- SIP Express Router
- SofiaSIP
- FreeSWITCH
- CallWeaver
- Twinkle
- Asterisk
- Kphone
- Minisip
- Openser

- PjSIP
- Yate
- LibOSIP
- Ekiga
- Openwengo
- Linphone
- JAIN

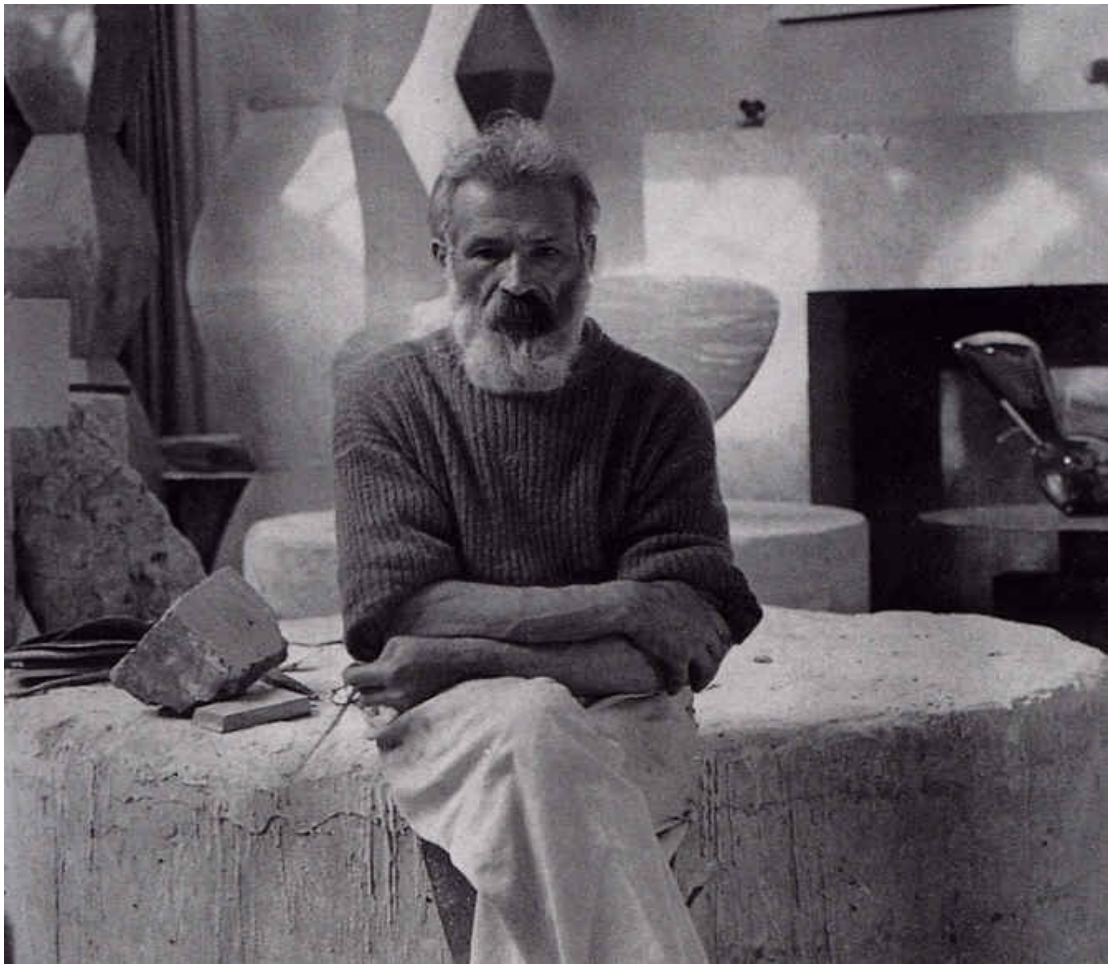
Closing the circle: build the value...

The developer

... benefits ...

- money
  - ?!?
- celebrity
  - ?!?
- power
  - ?!?
- fun
  - ?!?
- monotony and spare time
  - ?!?

... after a while ...



... building it ...

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Bird in Space

From Wikipedia, the free encyclopedia

"**Bird in Space**" is a series of sculptures by Constantin Brancusi, a Romanian sculptor. The original work was created in 1923. It was sold in 2005 for 27.5 million US dollars, a record for a sculpture sold in an auction. [1] [2] [3] [4] [5]

In the "Bird in Space" works Brancusi concentrated not on the physical attributes of the bird but on its movement. The bird's wings and feathers are eliminated, the swell of the body is elongated, and the head and beak are reduced to a slanted oval plane. [6]

Seven of the sculptures in the series are made of marble, while the other nine were cast in bronze. The first and best known of the series is housed in the Metropolitan Museum of Art in New York City, while a bronze-cast one resides in that city's Museum of Modern Art. Three copies of the sculpture are housed in the Philadelphia Museum of Art. One (a 1926 bronze) is on display at the Seattle Art Museum.

"Bird in Space" was the cause of a court battle due to the piece being taxed by U.S. Customs. The argument was in regard to Brancusi stating that the sculpture was 'art' and not taxable materials. Time magazine reported the event thus;

> "Rumanian Sculptor Constantin Brancusi had to pay $4,000 to bring his Bird in Flight into the U. S. ... Works of art are duty free. But Sculptor Brancusi's bird had neither head, feet nor feathers. It was four and a half feet of bronze which swooped up from its base like a slender jet of flame. Customs Inspector Kracke said it was not art; merely "a manufacture of metal . . . held dutiable at 40% ad valorem." The press bantered, jibed. Indignant modernists wrote abstruse, defensive paragraphs. Sculptor Brancusi complained to the Customs Court.

> "Last week Sculptor Brancusi won his case. In its decision the Customs Court dogmatically defined art: "It is a work of art by reason of its symmetrical shape, artistic outlines and beauty of finish." Even the most wretched of logicians knows enough not to repeat the same term in both subject and definition ("art" —"artistic outline"). But Sculptor Brancusi had his money refunded." [7]

References

[edit]

1. ^ Brancusi's 'Bird in Space' soars to new auction record

Open Source Developer

- have an impartial attitude
  - don't fall to one company interests and pressures
- preserve code coherence
  - clear integration of new contributions
  - avoid code duplicity
- maintain compatibility and additional tools
  - new releases cannot be radical changes
- sustain a clear roadmap and project development
- moderate disputes
  - because they happen ...
- manage community communication and networkings
  - events: conferences, summits
  - online meeting: irc, audio conferencing

Open Source Business

- Consultancy
  - Design
  - Implementation
  - Deployment
- Development
- Support
- Training
- Integration
- Employed
  - Hired developer
- Vendor
  - Appliance
  - Hardware

SIP and Open Source: any success story?

1&1 and freenet

- http://www.ilocus.com/2008/03/the_largest_voip_offering_base.html

The largest VoIP offering based on open source platform

By JR | March 26, 2008

If you think open source VoIP platforms are for tiny little startups that trade scalability and reliability for reduced capex, you should know that German service providers carry nearly 2 billion minutes of commercial VoIP each month over open source platforms. There can't be a stronger validation of open source VoIP platforms than this.

So who are the heroes? 1&1 and Freenet lead the pack. 1&1 serves 1.76 million VoIP subscribers on OpenSER - making it the largest VoIP offering based on open source platform - while Freenet serves around 0.8m on SER. Together they ship over 1.5 billion minutes per month on these modest-but-robust platforms.

One small step for open source. One giant leap for VoIP. I bet you would develop a crush on this open source stuff if I told you how many of these VoIP lines in Germany are primary phone lines. Unfortunately I don't have that info yet.

digium

- Started by the creator of Asterisk

Digium Receives $13.2MM in VC Investment

Cory Andrews August 9, 2006 at 4:22 pm

Categories VoIP Industry News Comments None

MATRIX PARTNERS

digium | Asterisk

By BRUCE MEYERSON AP Business Writer

NEW YORK Aug 9, 2006 (AP)— Matrix Partners is investing $13.2 million in Digium Inc., the creator and coordinator of Asterisk, a popular open-source software platform for business phone systems that's based on Linux and Internet Protocol.

The funding announced Wednesday marks the first round of venture capital for Digium, which oversees development of the free Asterisk platform, but is also one of a growing number of companies selling a customized phone system derived from the software.

iptelorg

Tekelec acquired German and Czech-based iptelorg GmbH, developer of leading-edge Session Initiation Protocol (SIP) routing software on August 3, 2005.

The acquisition further expands Tekelec's IMS portfolio and is a central part of our IMS strategy to bring the same level of carrier-grade reliability, scalability and innovation to our customers' rapidly growing SIP signaling needs that we provide for their SS7 networks.

iptelorg's SIP Express Router has proven its reliability, speed and value in real-world commercial implementations, anchoring offerings from T-Online International AG and EarthLink, Inc. among others. Its technology is optimized for Tekelec's integrated communications solutions, including the industry-leading EAGLE® 5 Signaling Applications System platform.

Tekelec's leadership in current-generation signaling enables wireline and wireless voice networks to initiate, modify and terminate calls, adding the ability to offer and manage key applications like mobility, call forwarding, number portability and security. SIP routing extends Tekelec's leadership in high-reliability, high-throughput signaling to next-generation networks.

truphone

Save money on mobile calls
NOW ON iPhone
1:25 PM
truphone
Menu
truphone
NOKIA
Exit
Huge savings on international calls
Uses Wi-Fi to save you money
Same low prices worldwide
Even works in dead spots
Avoid out-of-bundle charges
NEW!
Call USA and Canada for

Thursday, April 17, 2008

Truphone raises £16.5m [$32.7M] in Series B round

New round to fund ongoing development of world's first global mobile operator

Mobile internet network operator Truphone has raised £16.5m ($32.7m) of Series B venture capital funding.

The round was led by private investors, with all of Truphone's existing backers – Burda Digital Ventures, Eden Ventures, Independent News & Media, Straub Ventures and Wellington Partners – also participating.

Truphone is a global, mobile operator that enables free and low-cost mobile phone calls via the internet, offering dramatic value to customers. Through the recent purchase of SIM4travel, Truphone has also completed its GSM core network, which will enable it to offer low-cost GSM calls worldwide via a travel SIM.

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Una plataforma de servicios web exclusiva con aplicaciones innovadoras

- Multiplicación de la productividad de la telefonía convencional
- Reducción exponencial de los costes de uso y mantenimiento

Telefonía IP

- Aumento de la productividad
- Reducción de costes de tráfico de llamadas
- Menor inversión en infraestructura
- Nuevas y mejores funcionalidades

Productos y servicios

La integración del potencial de las aplicaciones web con la tecnología VoIP.

Servicios accesibles a través de la banda ancha de Internet con total garantía de calidad y

Tecnología líder

inversión en I+D

↓

oferta tecnológica líder

Concluding: SIP + Open Source

- Open source gives the opportunity to innovate faster with low resources
  - Short time from idea to results
  - Control by yourself
- SIP and open standards allow large customer base
  - Many vendors
  - Many applications, frameworks and libraries
- The market is world wide
  - No boundaries
  - Reusing IP network infrastructure
- Communication beyond voice
  - Voice, video, instant messaging, presence, gaming
  - Location, emergency services
  - Integration with web, email, calendar

Thank you!

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