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EYEPEA

Asterisk and the calendars

When non-C developers meet Asterisk+libical

Who I am ?

- Creator of API-Hour (Daemon framework for Python-AsyncIO)
- Creator of aiosip (used by Sangoma to test their phones)
- Co-maintainer of Panoramisk (Asterisk binding for AsyncIO)
- Small contributor in several AsyncIO libraries (aiohttp…)
- Interested by benchmarks to find the bottlenecks.
- Contributor of https://www.techempower.com/benchmarks/

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1. Most simple as possible (“prêt-à-porter”)
2. Distributed telephony and collaboration
3. Efficiency is the first class citizen (1500+ simultaneous calls by server)

EYEPEA

1. Full-monty customized solutions (“haute couture”)
2. Solutions mainly based on Wazo (AAA solution)
3. Historical business of the company

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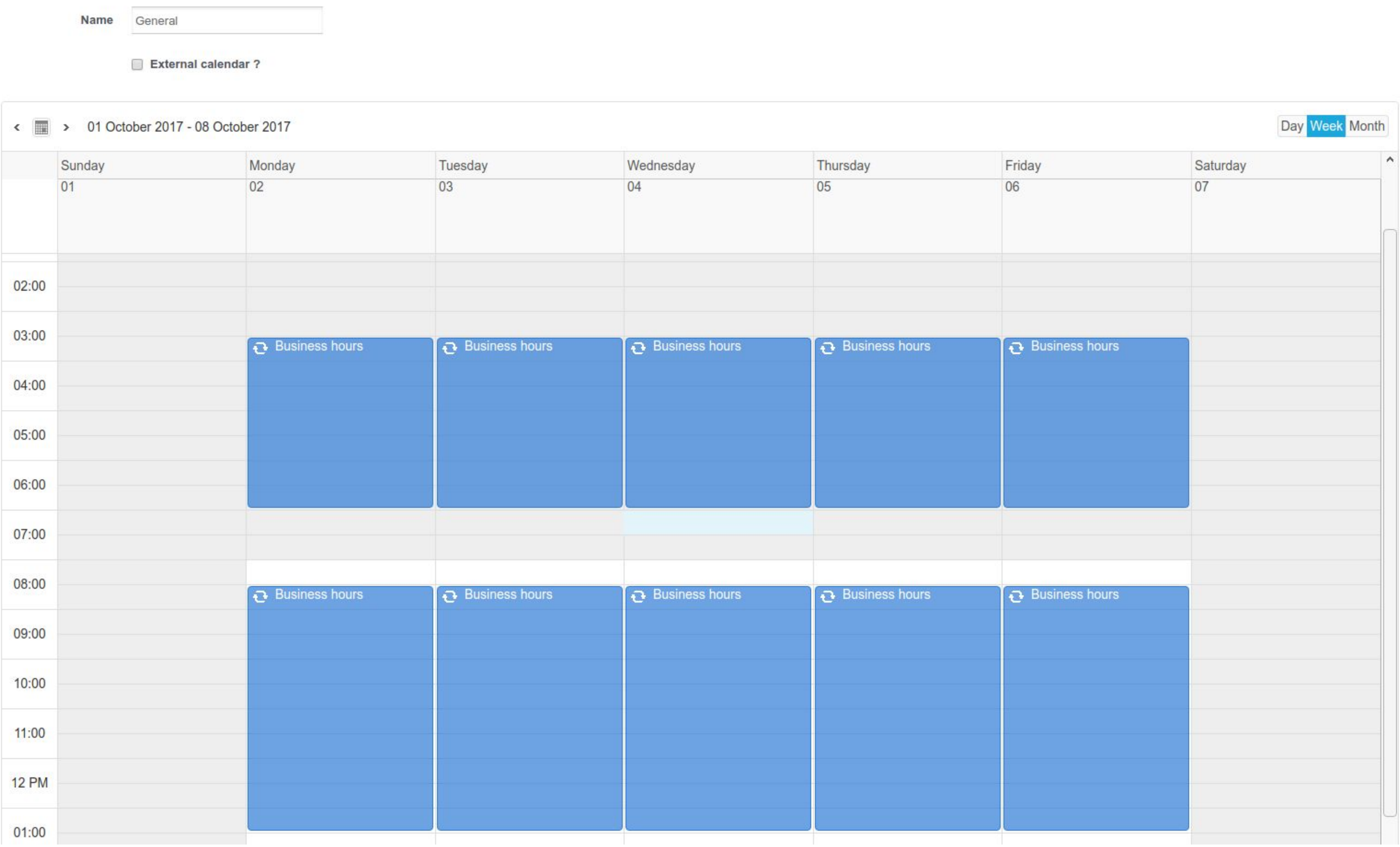
Some of our clients

Bouygues Immobilier
RECTICEL
picard
TOYOTA BOSHOKU
PARKEON
Altenor EXPERTISE & INNOVATION
EUROPEAN COMMISSION
.eu Your European Identity
EUROCONTROL
Lagardère
diadeis
CTM Solutions
JOHNSON ELECTRIC
European Service Network
UNHCR The UN Refugee Agency
NATO OTAN
ENERGYICT
LS travel retail
Budget
Gedimat des fondations aux finitions
de boeck
NMBS B SNCB
KATOEN NATIE
QUALIGAZ La référence gaz
BARE INTERNATIONAL
@llo DOCTEUR.fr
Benelux Businesscenter
Pepibru
Brussels
UNE ARDEUR D'AVANCE
Province de Luxembourg
1819 APPELEZ-LE
Adequat Business Center
GROUPE SECA
EURO KITCHEN
Kingspan
Marchin
3mundi
WEBA
BENÉS
Van Marcke
ALURO
Politie Police
LE FOREM
Maisons Laffitte
Nassogne
eupen
Newtec
Cavell
AMP
FX-Motion.Com
Allo
eucolait
edma
Vrije Universiteit Brussel
Thomas&Betts
tellus
Railrest
KAVA
Lisis
NETIKA
VERDEGEM BOUW BOUWPROJECTEN OP UW MAAT.
APEAL
MAJORITY REPORT
SNEF
GENTAUR
Eucomed Medical Technolog
CLB Noordwest-Brabant
HUBWOO
tictacphoto
CAF
Globule Bleu new media communication
SEMAPHORE a CSE-Global Group Company
Jouets BROZE
service magic.com
UPSALE
FORATOM
ENSA
BiiON ACT'L group
ECAM Institut Supérieur Industriel
VOX TENEO Interactive Communication
UBIDATA
RAINCODE
acsone
Ideal Sales Concept
Vluchtelingenwerk VLAANDEREN
VLIR UOS
LIGNE PLUS
phcom business development
ALTEA
HANDICAP INTERNATIONAL
MEDECINS SANS FRONTIERES
HeadOffice
edipro groupe
universal communication inspiring people
ISIS
OBV
BPS
cetic Your connection to ICT research
Financité
Base
BIFFF
WALDATA
Integrated Services for Information Systems
Wertz communication
Solidarité Protestante
NEW B
ALPINTER

Customer needs

1. Open/close schedule
2. Personal calendar
3. Oncall schedule
4. Google Calendar/Office365 integration

In ALLOcloud, step 1: Define a calendar

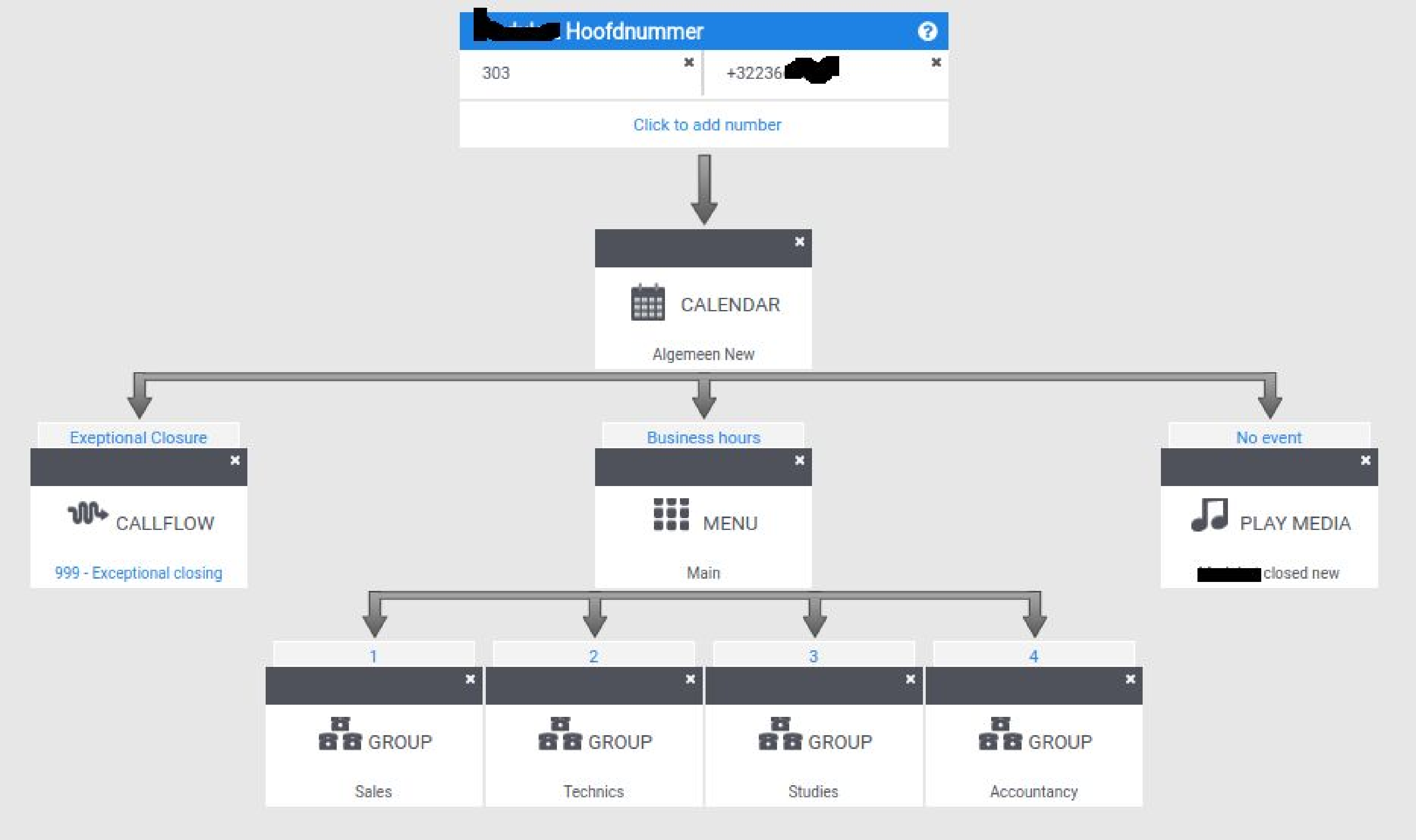


Name: General

□ External calendar ?

01 October 2017 - 08 October 2017

In ALLOcloud, step 2:
Put the calendar in the callflow



[redacted] Hoofdnummer

303

+32236[redacted]

Click to add number

CALENDAR

Algemeen New

Exeptional Closure

CALLFLOW

999 - Exceptional closing

Business hours

MENU

Main

No event

PLAY MEDIA

[redacted] closed new

1

GROUP

Sales

2

GROUP

Technics

3

GROUP

Studies

4

GROUP

Accountancy

icalendar: the most obvious format

1. Used in lot of products

2. Stable standard

3. Very old
   = More chances to have good implementations

Old = Stable ?

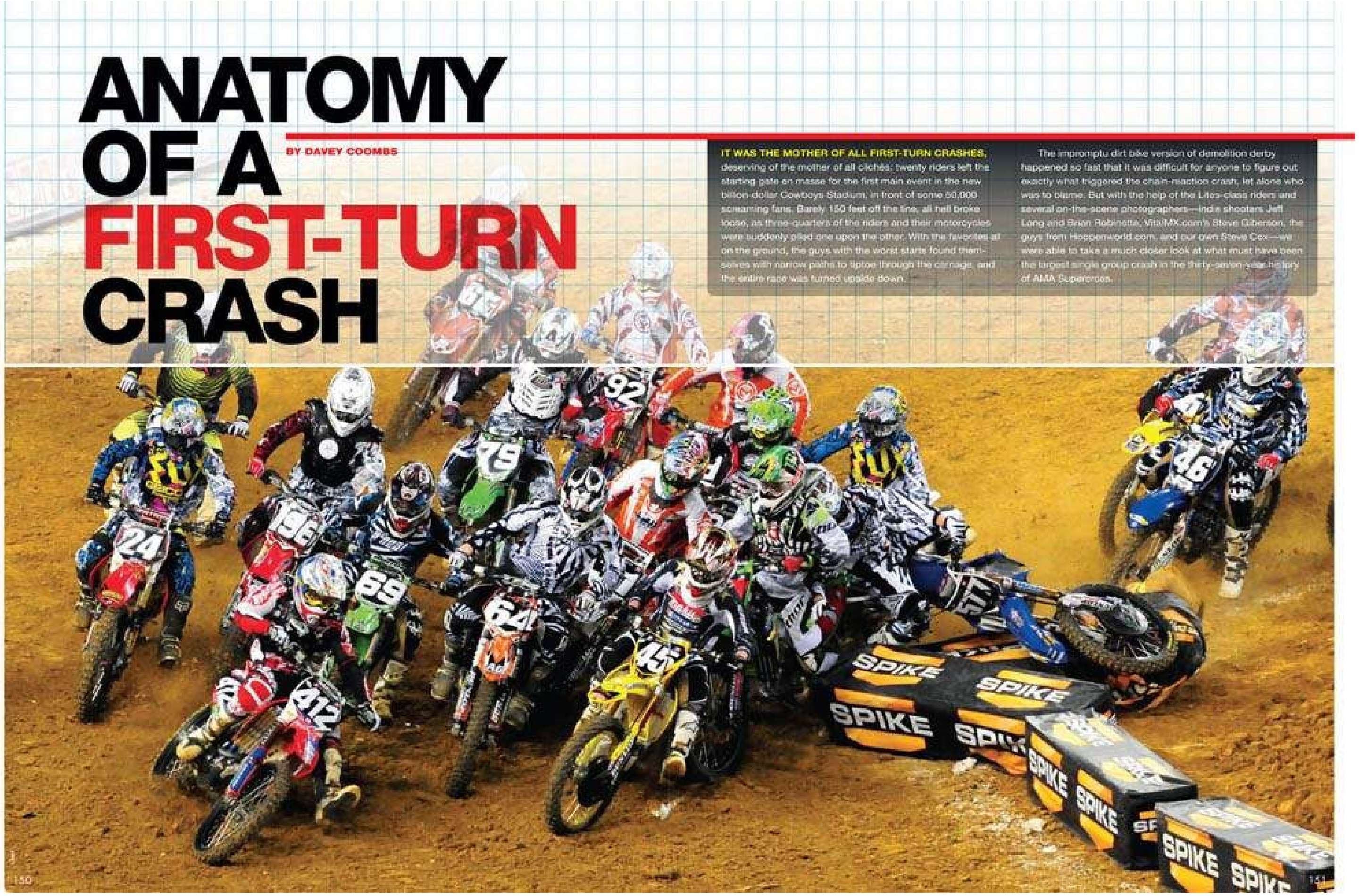
First release: icalendar in pure Python

1. Easier for us debug/integrate in our workflow

2. libical integration in Asterisk looked like a PoC during an Astricon:
   a. Very few returns from sysadmins on Internet
   b. Lack of examples
   c. Need to dig in the original Astricon presentation to understand how to use dialplan functions
   d. Afraid by Asterisk crashes

Gentle remark: we are not C experts ;-)

First client = First-turn crash



ANATOMY OF A FIRST-TURN CRASH

BY DAVEY COOMBS

IT WAS THE MOTHER OF ALL FIRST-TURN CRASHES, deserving of the mother of all clichés: twenty riders left the starting gate en masse for the first main event in the new billion-dollar Cowboys Stadium, in front of some 50,000 screaming fans. Barely 150 feet off the line, all hell broke loose, as three-quarters of the riders and their motorcycles were suddenly piled one upon the other. With the favorites all on the ground, the guys with the worst starts found themselves with narrow paths to tiptoe through the carnage, and the entire race was turned upside down.

The impromptu dirt bike version of demolition derby happened so fast that it was difficult for anyone to figure out exactly what triggered the chain-reaction crash, let alone who was to blame. But with the help of the Lites-class riders and several on-the-scene photographers—indie shooters Jeff Long and Brian Robinette, VitalMX.com's Steve Giberson, the guys from Hoppenworld.com, and our own Steve Cox—we were able to take a much closer look at what must have been the largest single group crash in the thirty-seven-year history of AMA Supercross.

Main challenge: recurency

Most librairies parse recurrency fields

BUT

Most don’t interpret correctly recurrency data

icalendar format: example

```
BEGIN:VEVENT
DTSTART;TZID=Europe/Brussels:20151221T090000
DTEND;TZID=Europe/Brussels:20151221T180000
RRULE:FREQ=WEEKLY;BYDAY=MO
DTSTAMP:20161108T165938Z
UID:gig9ashd5abvg669k3tq1t6gqo@google.com
CREATED:20151227T185112Z
DESCRIPTION:
LAST-MODIFIED:20160112T225808Z
LOCATION:
SEQUENCE:0
STATUS:CONFIRMED
SUMMARY:Working hours
TRANSP:OPAQUE
END:VEVENT
```

icalendar recurency: technical

“RRULE", "RDATE", "EXDATE", “RECURRENCE-ID” and "EXRULE” fields

Example:

```
DTSTART;TZID=US-Eastern:19970902T090000
RRULE:FREQ=DAILY;COUNT=10
```

open-source icalendar libraries comparison

Tested all Python, Ruby, Perl… libraries

Long story short: **libical rules**

B-plan: libical integration in Asterisk

1. Client mood:

2. Put res_calendar.so on production

3. Huge success after half a day of work

Thanks a lot Asterisk developers :-)

BUT

Winter is coming…

DST nightmare

libical forks and libical3

1. Bugs with timezone and DST
2. all already fixed in libical3
3. But, libical1 and libical forks in sunbird, evolution… distributed in Debian Jessie

Solution

1. Uninstall libical
2. Clone and build from master branch
3. And… it works !

the final bug of recurring

1. A last corner case still exists when you edit a recurring event: recurrence-id

2. We submitted a fix on Gerrit: ASTERISK-27296

3. Thanks Benoît for the fix ;-)

res_calendar is production ready

1. For now, we have 973 calendars on production

2. A file system support is in the pipe, but not yet ready (memory leaks)

3. Maybe a Python binding of libical

4. Thanks again Asterisk developers ;-)

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Questions ?

@GMLudo: Twitter