hepic.

Lorenzo Mangani

CEO, QXIP BV

Based in Amsterdam, The Netherlands
WBSO, Research & Development of Open-Source and Commercial Capture Technologies
Consulting, Design, Integration Services and Software Licensing for Businesses Worldwide

Self-Proclaimed "Robin-Hoods" of VoIP and RTC Monitoring since 2010

qxip

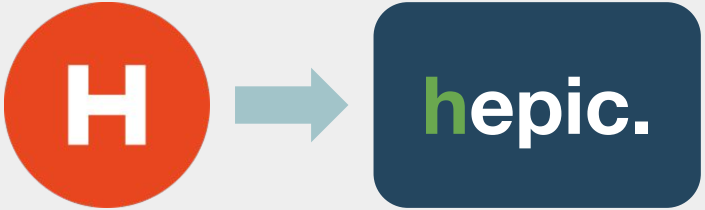
HEPIC: What is it?

Alexandr and I spent most of our last decade passionately working on the concepts and ideas behind **HOMER**

We first created **~~SIPCAPTURE~~** and later founded **QXIP BV** with the unique purpose of guaranteeing longevity, independence and protection to our innovation and open projects present and future - and we succeeded so far!

Over time, we also reached some of the *design limitations* of our current model, design and even our org name.

hepic represents the turning point for our **Technologies** to become flexible, trusted, mature industry standards

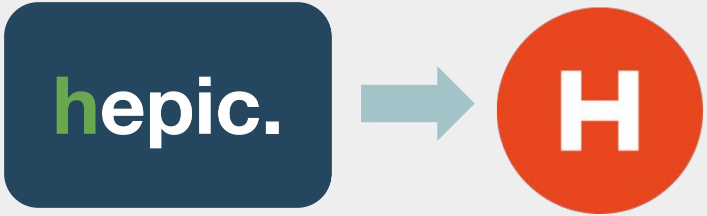


NO PANIC! - HOMER is and will always remain 100% Open-Source and Free!

The next major releases of **HOMER** will be based on **HEPIC** stack technologies and will spark a new wave of evolution across all **HEP** supported platforms, with benefits for everyone - reducing the cost and efforts required to maximize our technology and development roadmap and express the release cycles and frequency of updates for all of our projects!

***OpenSIPS** is leading the way and with 2.3 becomes the first platform to provide HEPIC features in a HOMER Setup!*

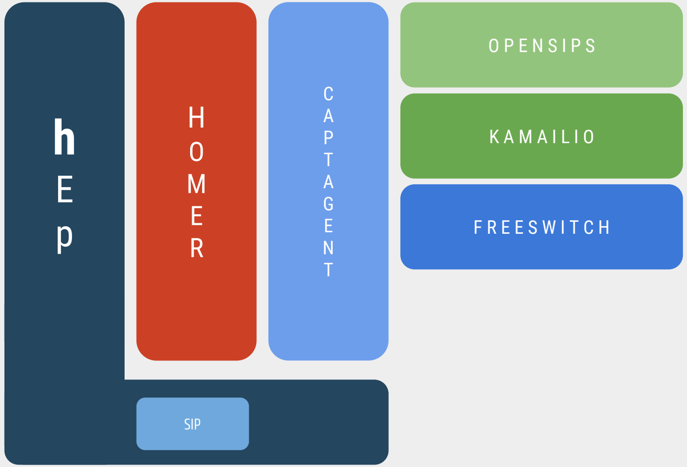
Elements of the **HEPIC** stack will also be available for *licensing* or as *SaaS* for advanced business use cases, guaranteeing a perpetual and self-sufficient financial backing feed for all of our *Open-Source* components to remain as such, *Forever!*



HEP ECOSYSTEM

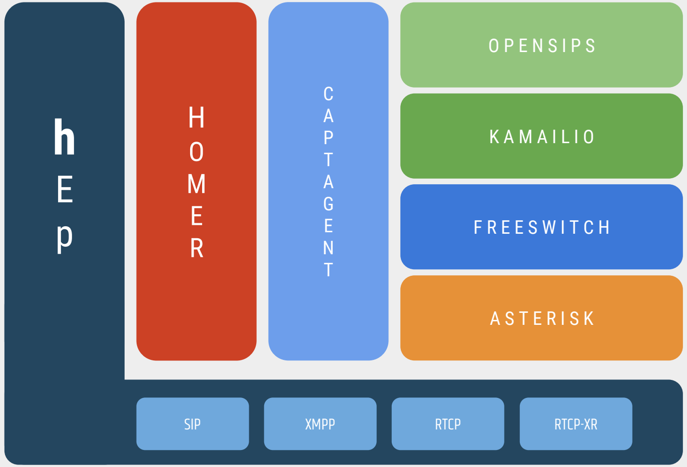
RECAP THE **STACK**

HEP ECOSYSTEM



HEP EVOLUTION

HEP ECOSYSTEM



hEp

HOMER

CAPTAGENT

OPENSIPS

KAMAILIO

FREESWITCH

ASTERISK

SIP

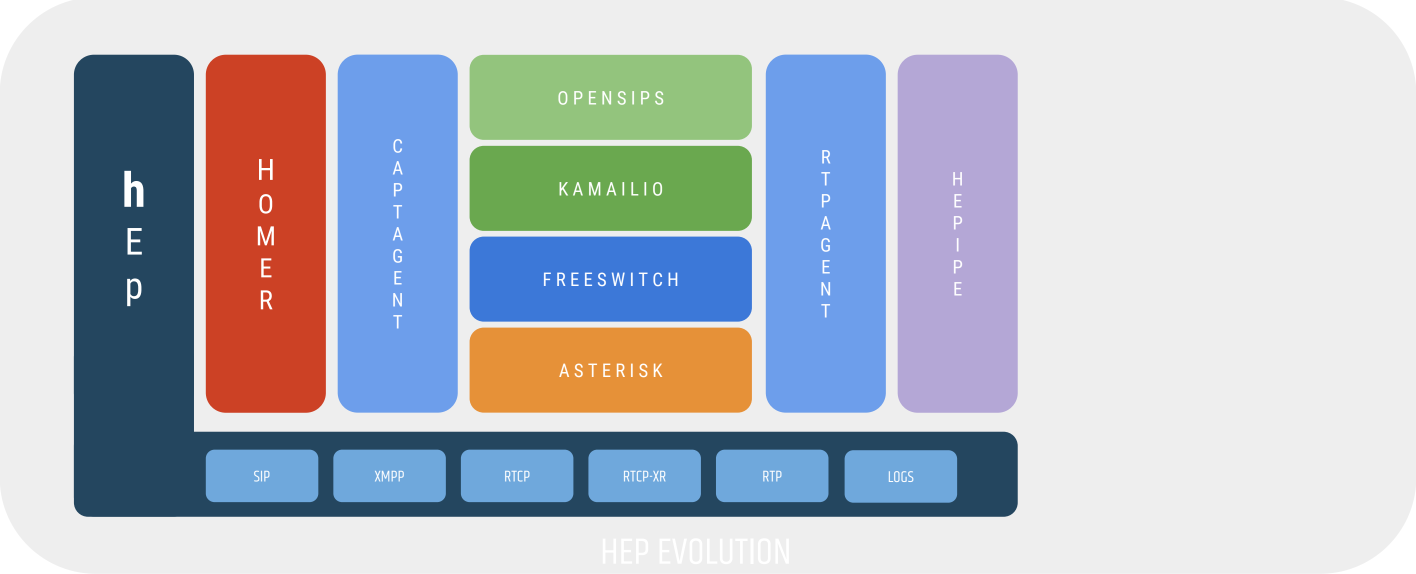
XMPP

RTCP

RTCP-XR

HEP EVOLUTION

HEP ECOSYSTEM



hEp

HOMER

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RTPAGENT

HEPIPE

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XMPP

RTCP

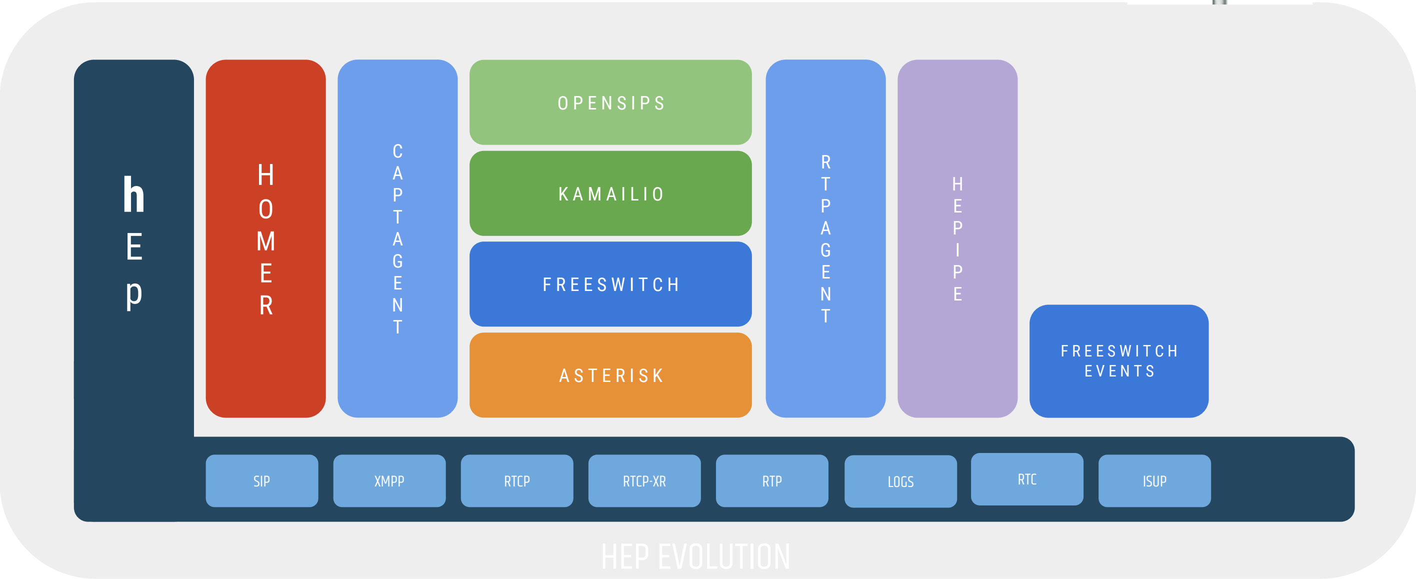
RTCP-XR

RTP

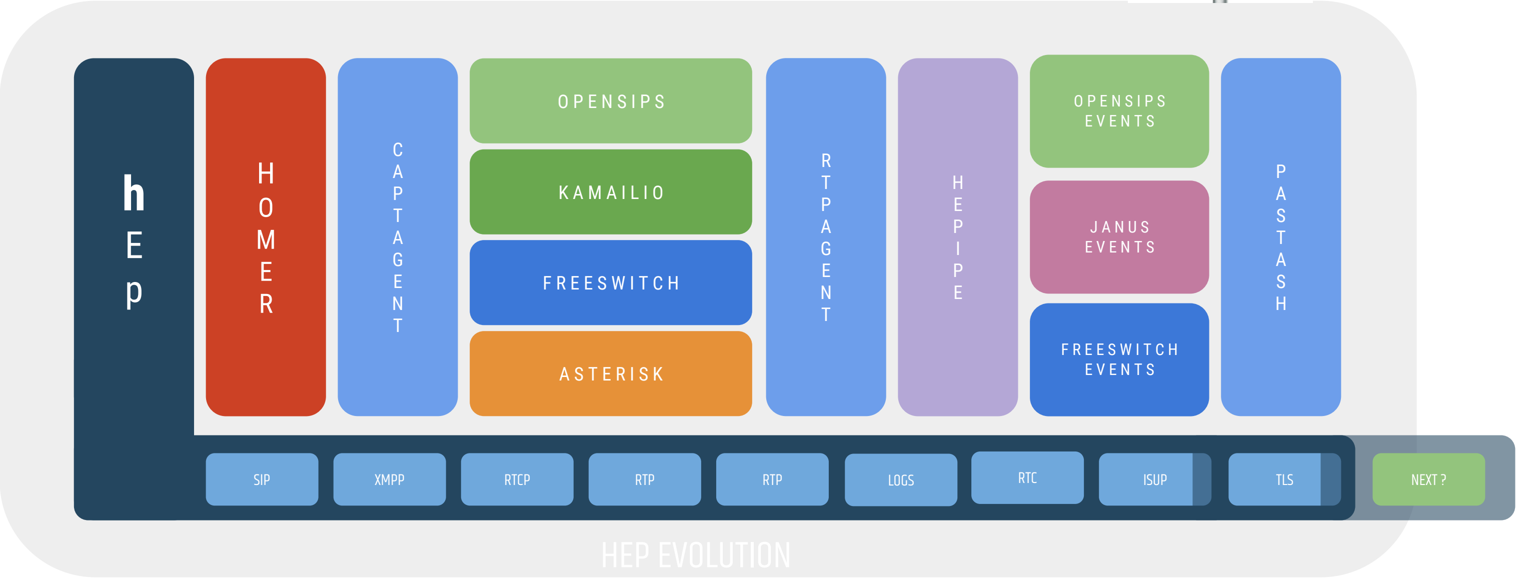
LOGS

HEP EVOLUTION

HEP ECOSYSTEM



HEP ECOSYSTEM



hEp

HOMER

CAPTAGENT

OPENSIPS

KAMAILIO

FREESWITCH

ASTERISK

RTPAGENT

HEPIPE

OPENSIPS EVENTS

JANUS EVENTS

FREESWITCH EVENTS

PASTASH

SIP

XMPP

RTCP

RTP

RTP

LOGS

RTC

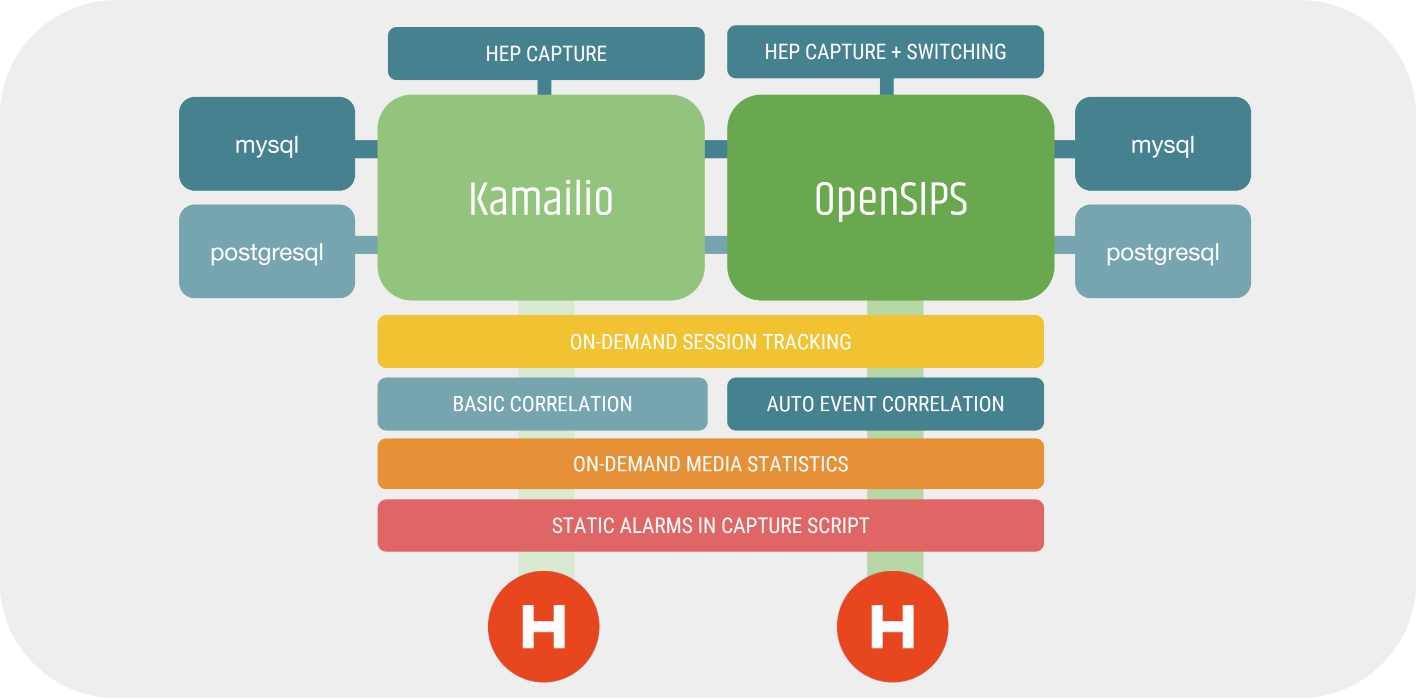
ISUP

TLS

NEXT ?

HEP EVOLUTION

HEP CAPTURE SERVERS



HEP CAPTURE

HEP CAPTURE + SWITCHING

mysql

postgresql

Kamailio

OpenSIPS

mysql

postgresql

ON-DEMAND SESSION TRACKING

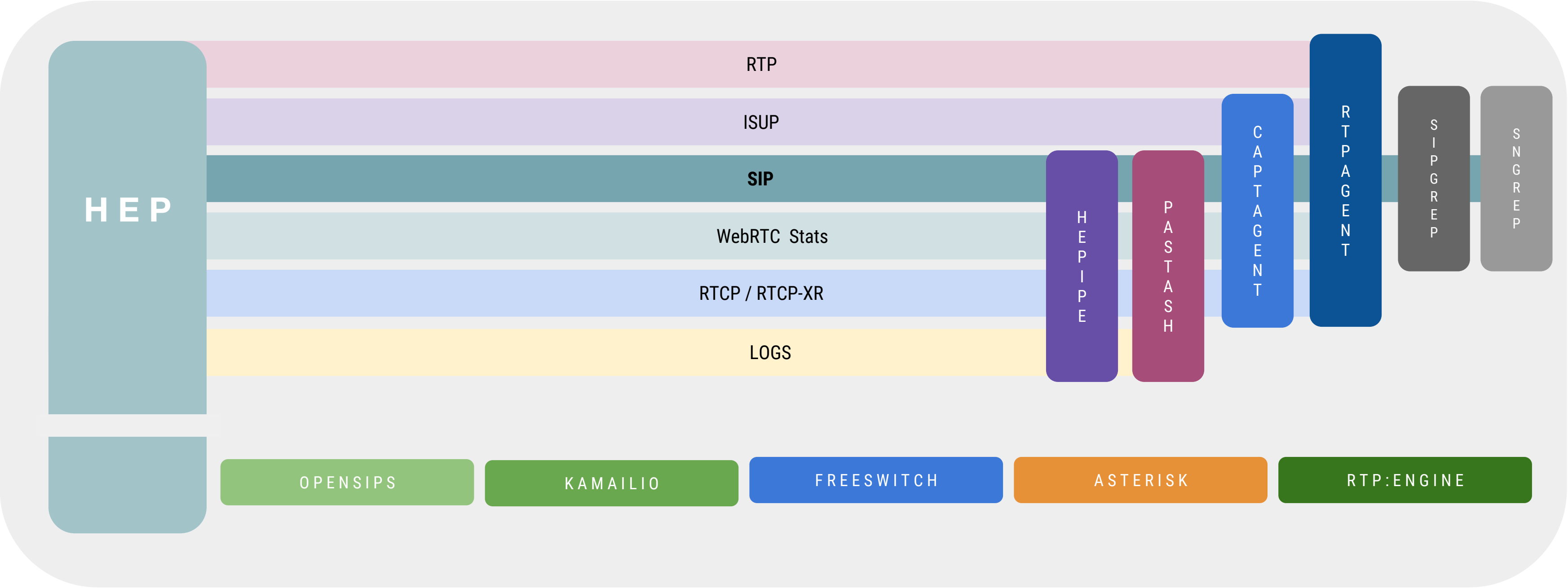
BASIC CORRELATION

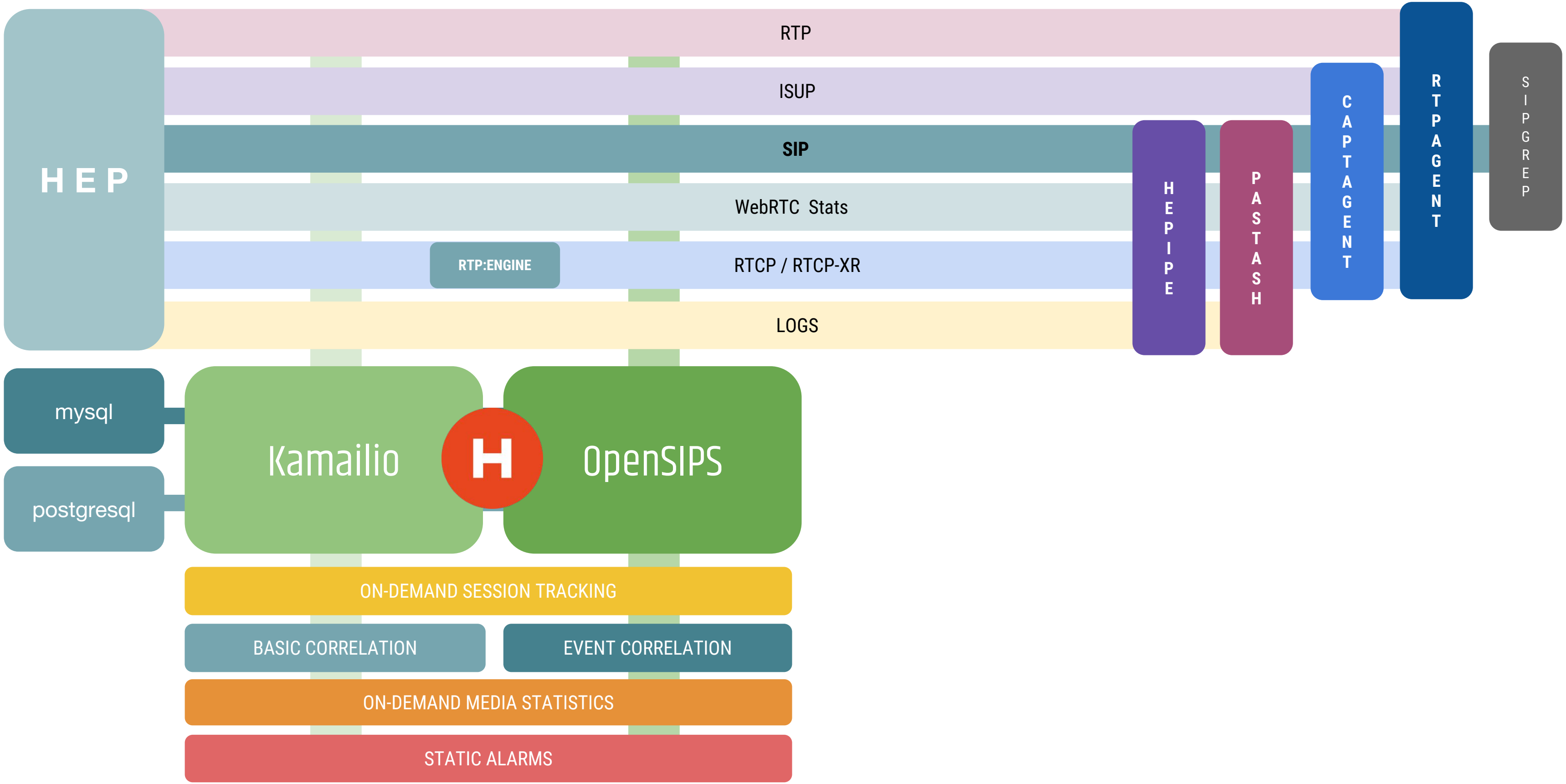
AUTO EVENT CORRELATION

ON-DEMAND MEDIA STATISTICS

STATIC ALARMS IN CAPTURE SCRIPT

HEP AGENTS


HEP
RTP
ISUP
SIP
WebRTC Stats
RTCP / RTCP-XR
LOGS
HEPIPE
PASTASH
CAPTAGENT
RTPAGENT
SIPGREP
SNGREP
OPENSIPS
KAMAILIO
FREESWITCH
ASTERISK
RTP:ENGINE


HEP
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RTPAGENT
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mysql
postgresql
Kamailio
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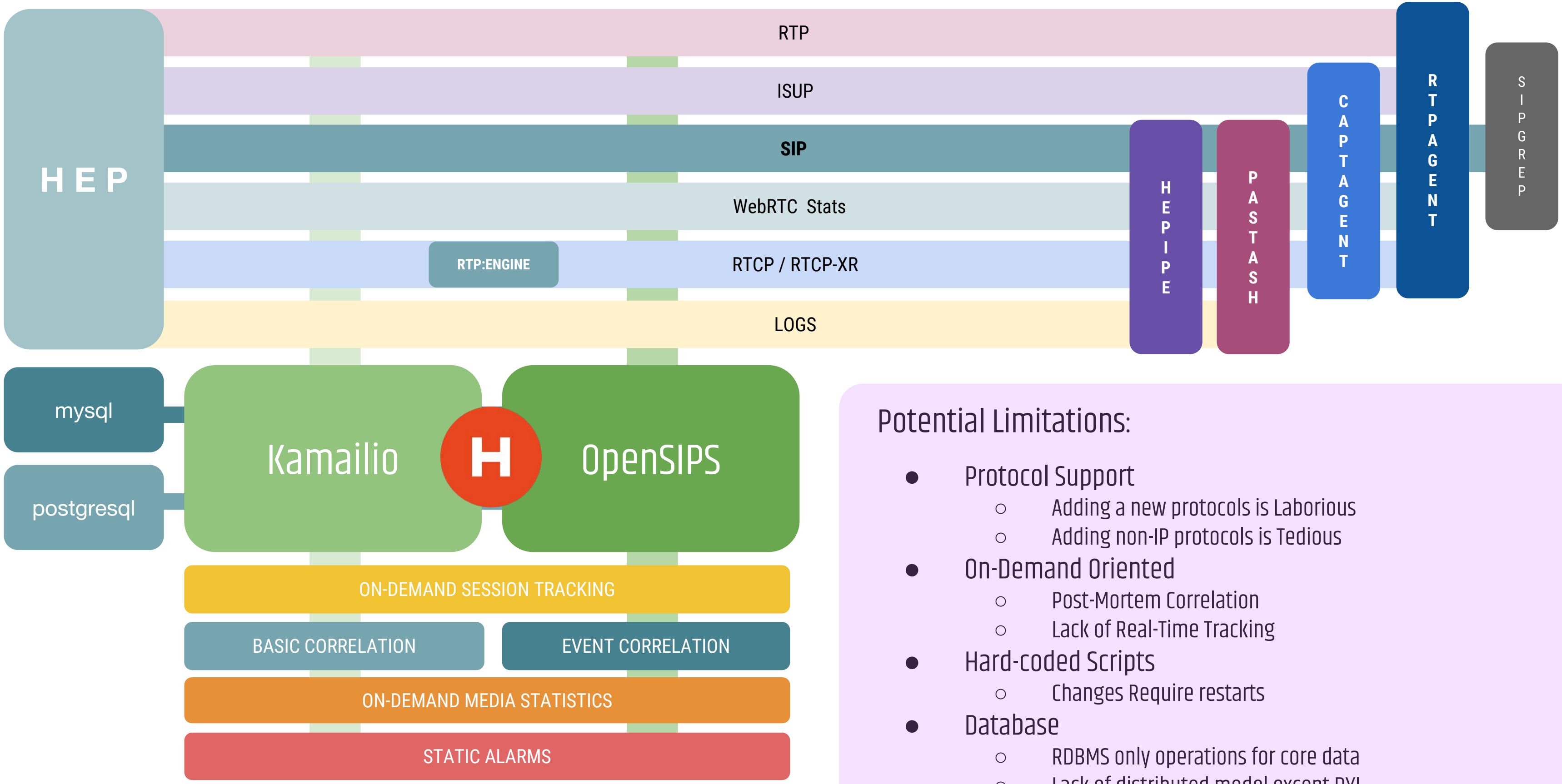
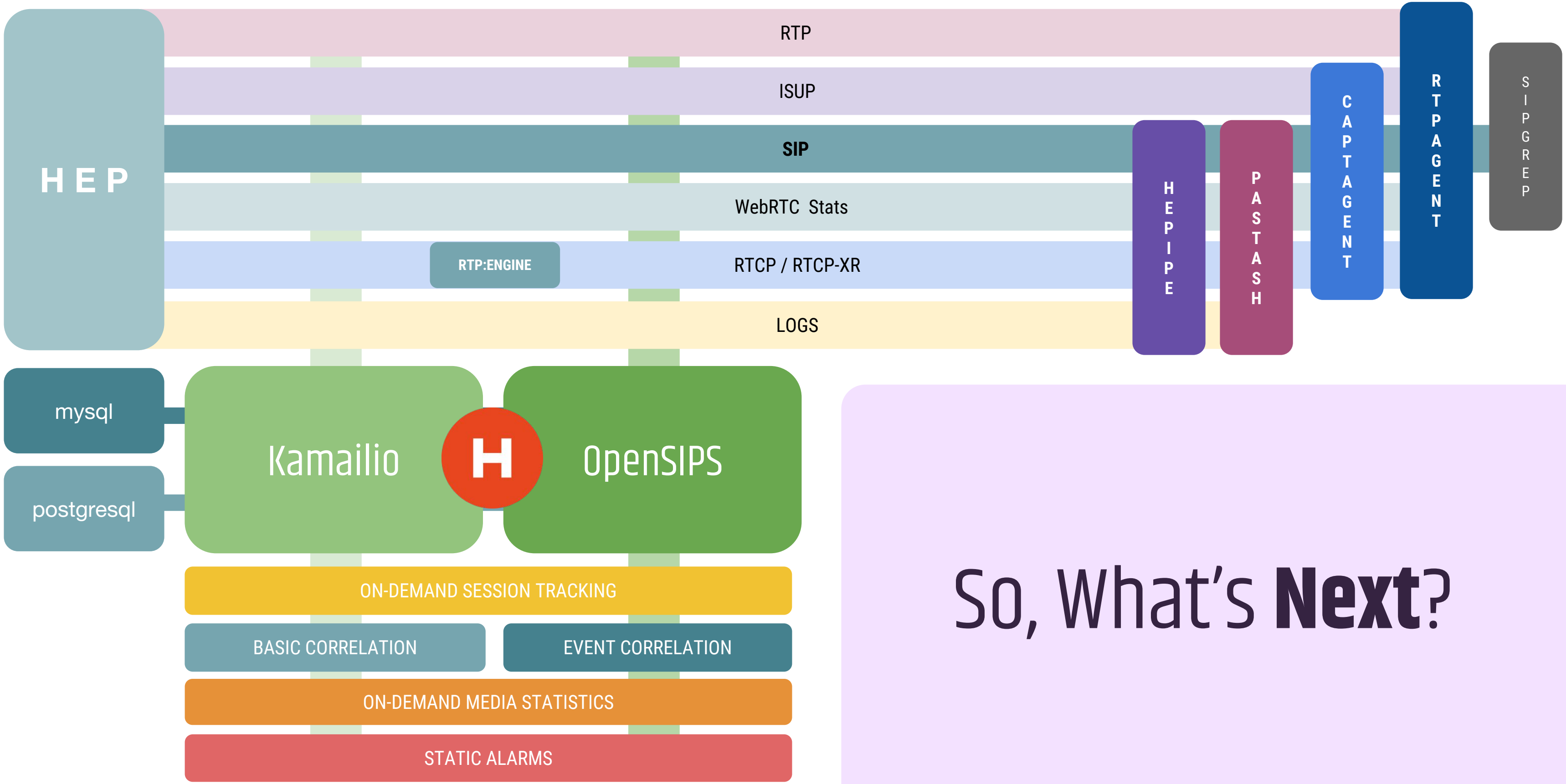
OpenSIPS
ON-DEMAND SESSION TRACKING
BASIC CORRELATION
EVENT CORRELATION
ON-DEMAND MEDIA STATISTICS
STATIC ALARMS



Potential Limitations:

- Protocol Support
  - Adding a new protocols is Laborious
  - Adding non-IP protocols is Tedious
- On-Demand Oriented
  - Post-Mortem Correlation
  - Lack of Real-Time Tracking
- Hard-coded Scripts
  - Changes Require restarts
- Database
  - RDBMS only operations for core data
  - Lack of distributed model except DYI



HEP

RTP

ISUP

SIP

WebRTC Stats

RTP:ENGINE

RTCP / RTCP-XR

LOGS

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RTPAGENT

SIPGREP

mysql

postgresql

Kamailio

H

OpenSIPS

ON-DEMAND SESSION TRACKING

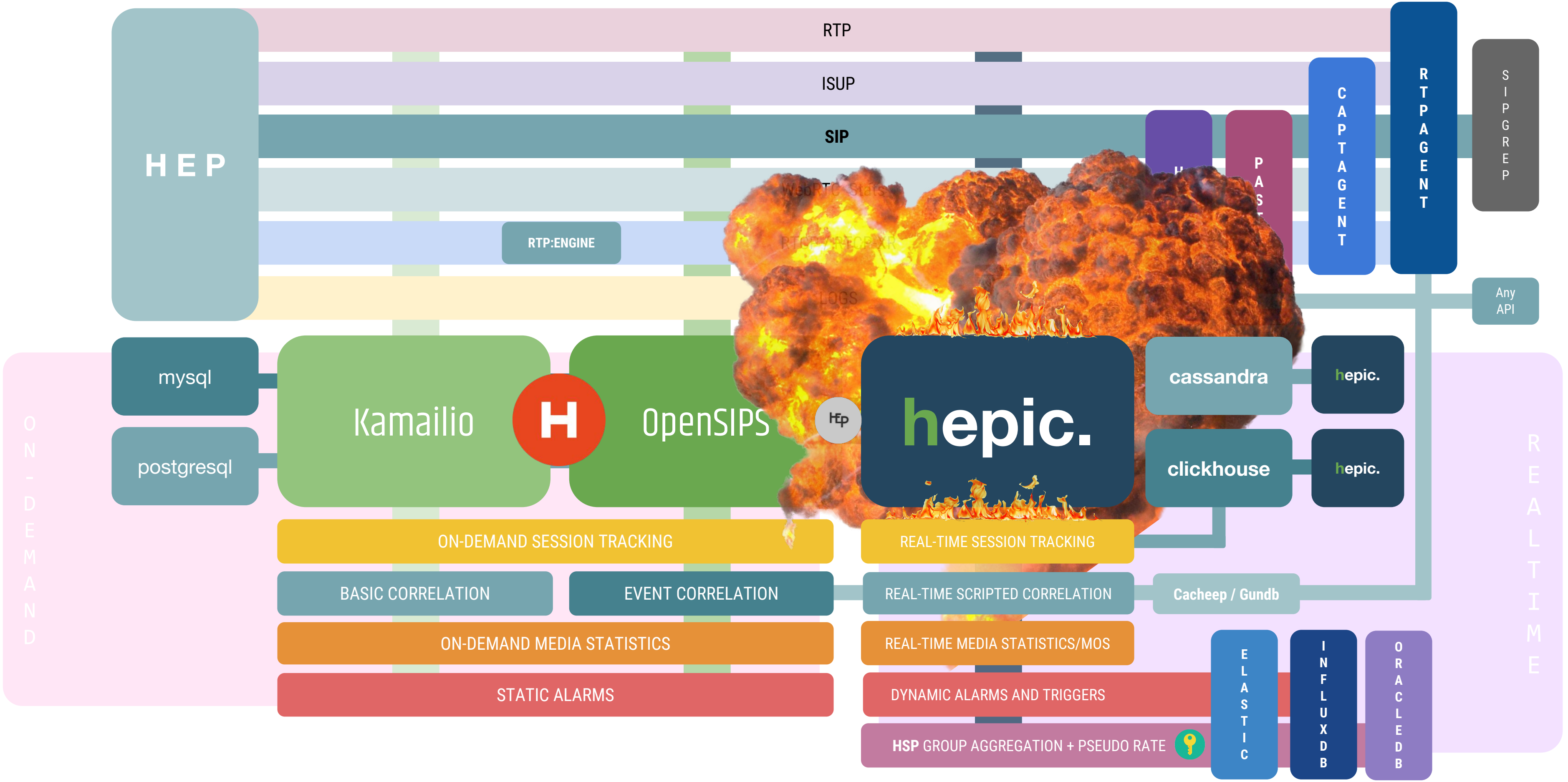
BASIC CORRELATION

EVENT CORRELATION

ON-DEMAND MEDIA STATISTICS

STATIC ALARMS

So, What’s **Next**?



HEP

RTP

ISUP

SIP

WebRTC Stats

RTP:ENGINE

RTCP / RTCP-XR

LOGS

H

PAST

CAPTAGENT

RTPAGENT

SIPGREP

Any API

mysql

postgresql

Kamailio

H

OpenSIPS

HEP

hepic.

cassandra

hepic.

clickhouse

hepic.

ON-DEMAND

ON-DEMAND SESSION TRACKING

BASIC CORRELATION

EVENT CORRELATION

ON-DEMAND MEDIA STATISTICS

STATIC ALARMS

REAL-TIME SESSION TRACKING

REAL-TIME SCRIPTED CORRELATION

Cacheep / Gundb

REAL-TIME MEDIA STATISTICS/MOS

DYNAMIC ALARMS AND TRIGGERS

HSP GROUP AGGREGATION + PSEUDO RATE

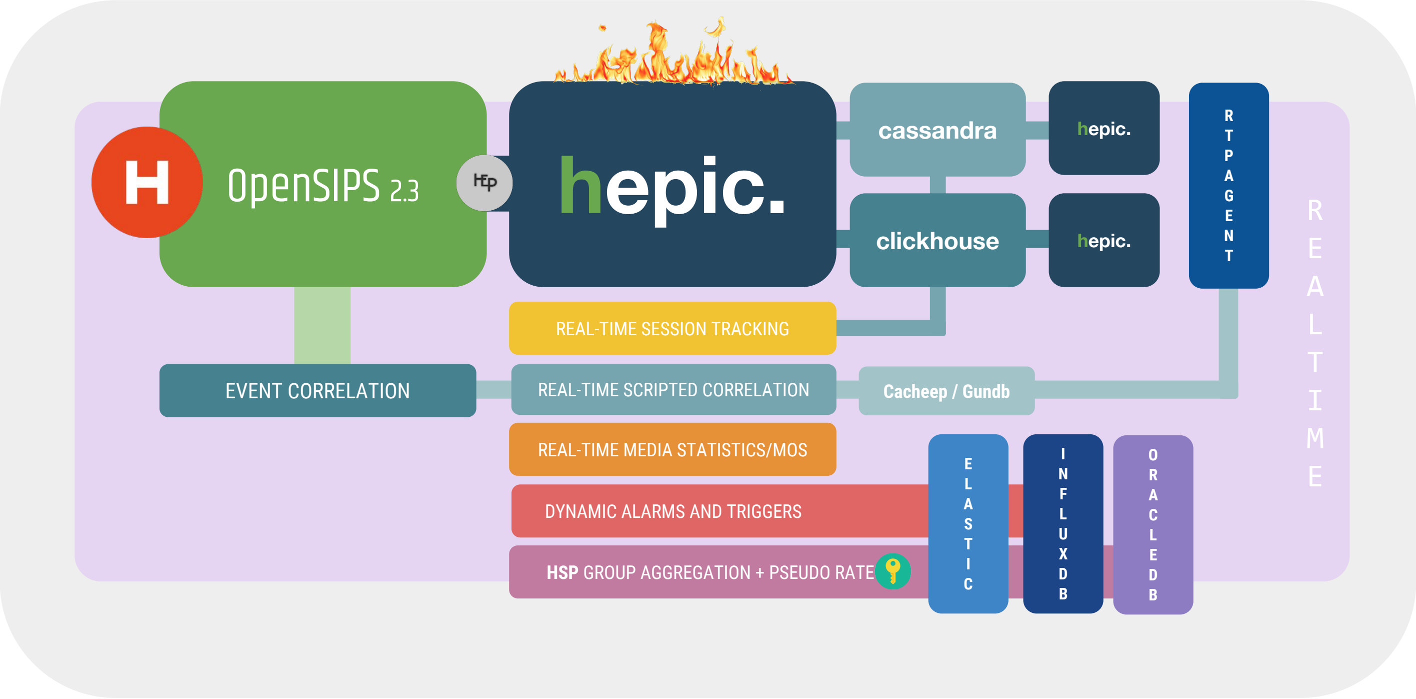
ELASTIC

INFLUXDB

ORACLEDB

REALTIME

HEPIC + OPENSIPS


H
OpenSIPS 2.3
HEP
hepic.
cassandra
hepic.
clickhouse
hepic.
RTPAGENT
REALTIME
REAL-TIME SESSION TRACKING
EVENT CORRELATION
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REAL-TIME MEDIA STATISTICS/MOS
DYNAMIC ALARMS AND TRIGGERS
HSP GROUP AGGREGATION + PSEUDO RATE
ELASTIC
INFLUXDB
ORACLEDB

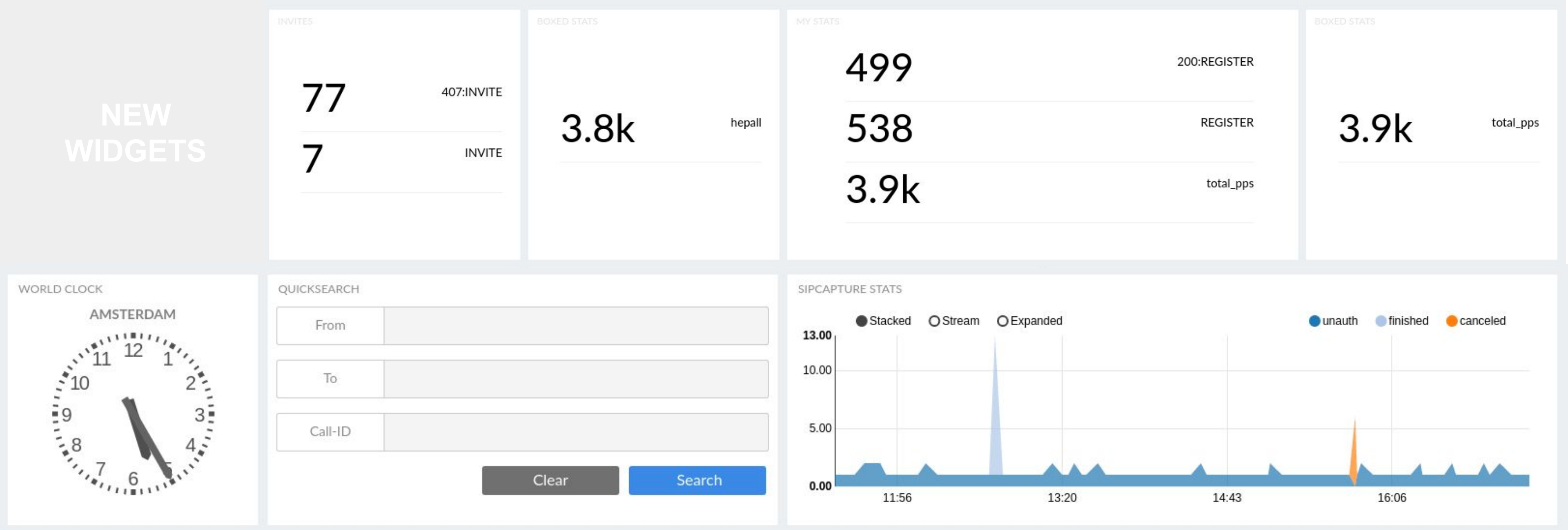
HEPIC UI

Unified Look & Feel

Less is More!

HEPIC UI reduces the amount of clutter and helps users focus on their actual targets without spending hours learning how to use it. Learning from our own experiences, all functionality is now simply expressed within a handful of widgets, with space for many more!

Dashboards and Panels are now true Drag-n-Drop with free sizing and saved per User - nobody's messing with your Panels!



NEW WIDGETS

INVITES

77 407:INVITE

7 INVITE

BOXED STATS

3.8k hepall

MY STATS

499 200:REGISTER

538 REGISTER

3.9k total_pps

BOXED STATS

3.9k total_pps

WORLD CLOCK

AMSTERDAM

QUICKSEARCH

From

To

Call-ID

Clear

Search

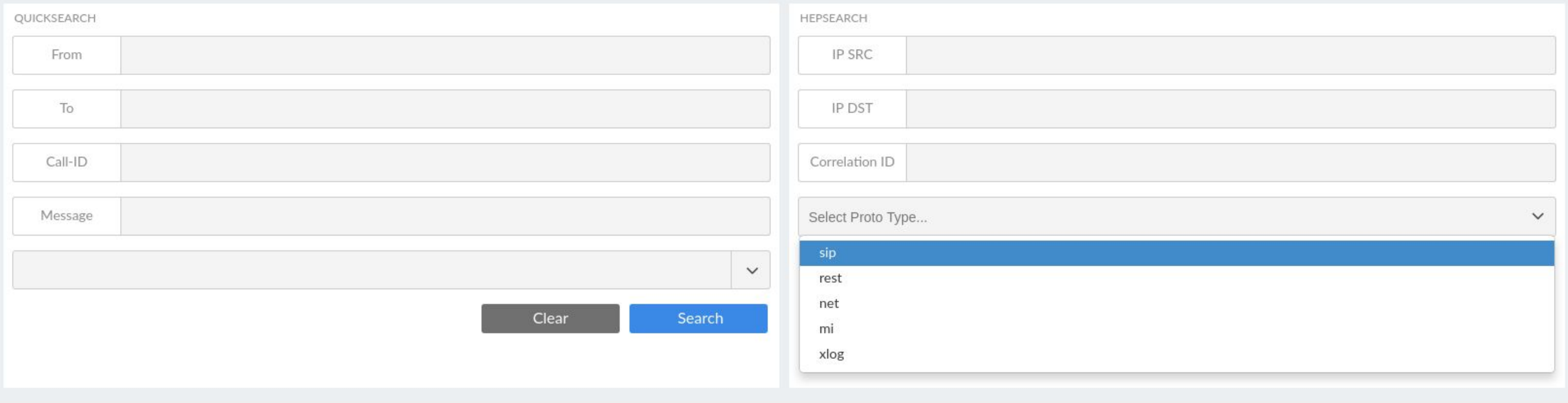
SIPCAPTURE STATS

More is... More!

HEPIC abandons the SIP-Centric nature of our previous design, and supports and expects multiple protocol to be captured, correlated and searched for - with correlation and indexing strategy determined by the sending party for flexibility and custom tailored integrations

OpenSIPS 2.3 leads the pack and already features capture coverage for **SIP, REST, NET, MI** and **XLOG** natively via **HEP** and/or DB Driver

PROTIP: Do not miss the next presentation to learn everything about the other size of the Puzzle!



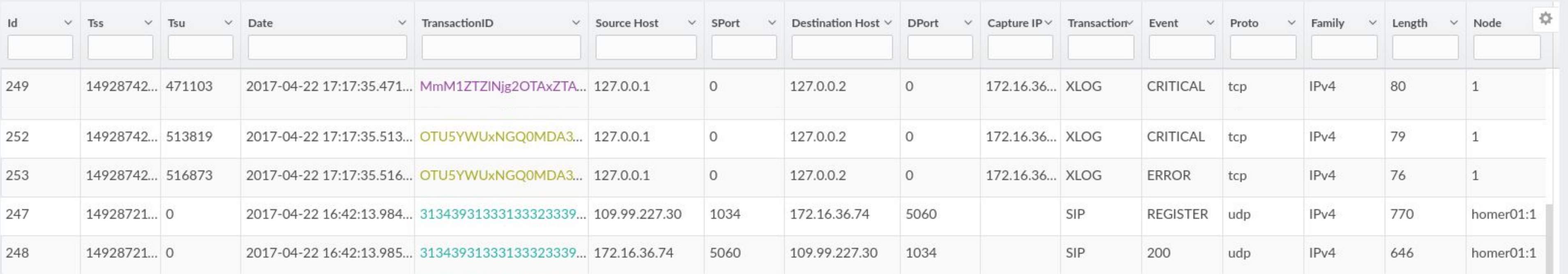
Searching at an Angle

More protocols are fun, but we did not want to loose the voice-centric view so important to the Engineers relying on our platforms. After experimenting with a few approaches, we decided to create two search Tiers:

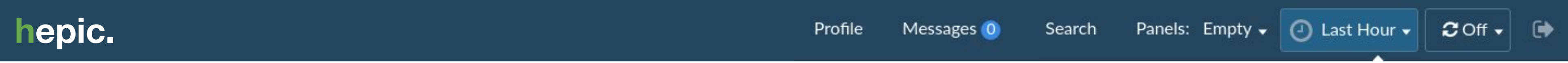
- **Protocol Specific** *(SIP, ISUP, RTC, etc)*
- **HEP Generic** *(Any Supported)*

HEPIC represents **Generic** cross-protocol search results in a way similar to a Wireshark from a networking perspective, outlining the protocols transporting events, logs and packets as captured over the wire (or virtual wire!) with full filtering and grouping capabilities, providing quick access to trigger **Protocol Specific** searches with them as a starting hop, as long as the selected message has relations.

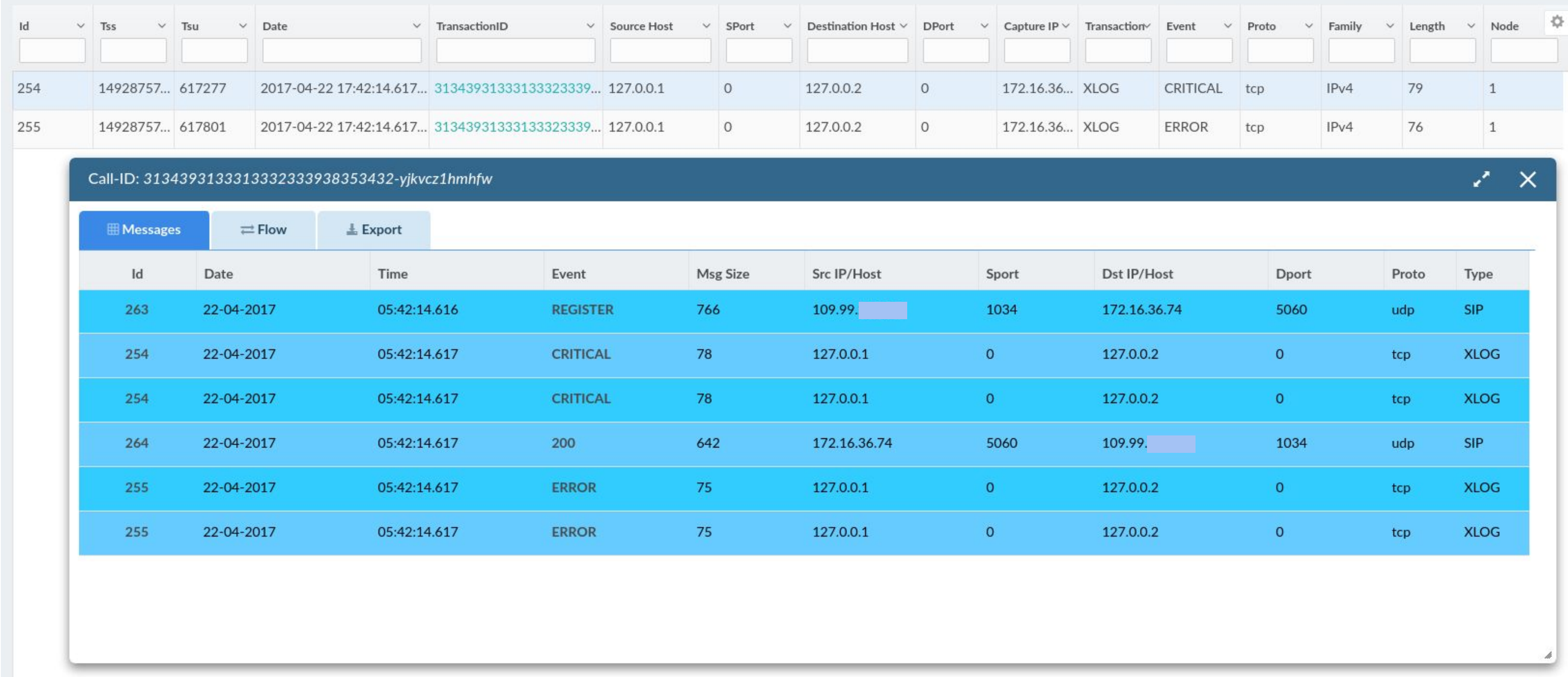
Behind the scenes, the powerful **Cross-Protocol Correlation** is ready to kick in transparently and show its full potential!



Id	Tss	Tsu	Date	TransactionID	Source Host	SPort	Destination Host	DPort	Capture IP	Transaction	Event	Proto	Family	Length	Node
249	14928742...	471103	2017-04-22 17:17:35.471...	MmM1ZTZINjg2OTAxZTA...	127.0.0.1	0	127.0.0.2	0	172.16.36...	XLOG	CRITICAL	tcp	IPv4	80	1
252	14928742...	513819	2017-04-22 17:17:35.513...	OTU5YWUxNGQ0MDA3...	127.0.0.1	0	127.0.0.2	0	172.16.36...	XLOG	CRITICAL	tcp	IPv4	79	1
253	14928742...	516873	2017-04-22 17:17:35.516...	OTU5YWUxNGQ0MDA3...	127.0.0.1	0	127.0.0.2	0	172.16.36...	XLOG	ERROR	tcp	IPv4	76	1
247	14928721...	0	2017-04-22 16:42:13.984...	313439313331333233339...	109.99.227.30	1034	172.16.36.74	5060		SIP	REGISTER	udp	IPv4	770	homer01:1
248	14928721...	0	2017-04-22 16:42:13.985...	313439313331333233339...	172.16.36.74	5060	109.99.227.30	1034		SIP	200	udp	IPv4	646	homer01:1



Cross-Protocol Correlation: XLOG to SIP

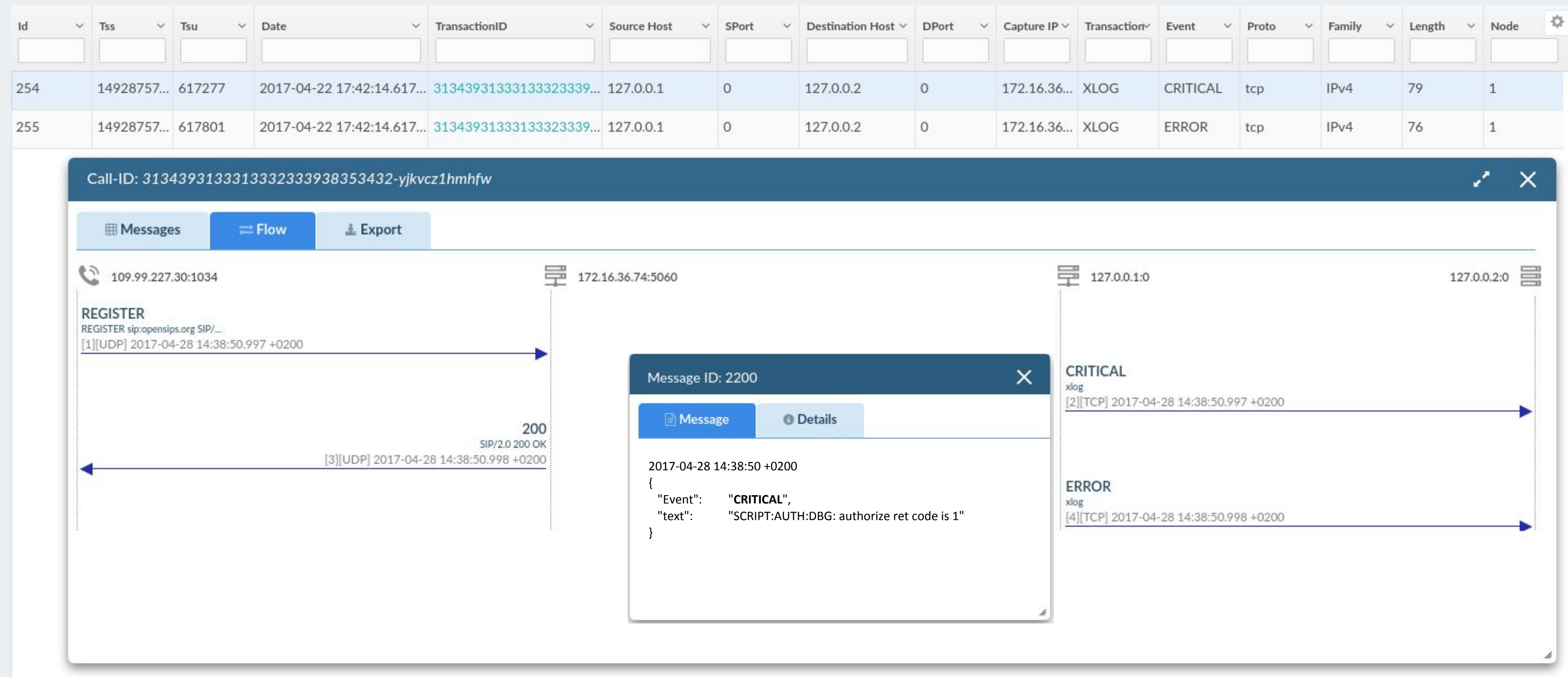


Id	Tss	Tsu	Date	TransactionID	Source Host	SPort	Destination Host	DPort	Capture IP	Transaction	Event	Proto	Family	Length	Node
254	14928757...	617277	2017-04-22 17:42:14.617...	31343931333133323339...	127.0.0.1	0	127.0.0.2	0	172.16.36...	XLOG	CRITICAL	tcp	IPv4	79	1
255	14928757...	617801	2017-04-22 17:42:14.617...	31343931333133323339...	127.0.0.1	0	127.0.0.2	0	172.16.36...	XLOG	ERROR	tcp	IPv4	76	1

Call-ID: *3134393133313332333938353432-yjkvcz1hmhfw*

Id	Date	Time	Event	Msg Size	Src IP/Host	Sport	Dst IP/Host	Dport	Proto	Type
263	22-04-2017	05:42:14.616	REGISTER	766	109.99.[redacted]	1034	172.16.36.74	5060	udp	SIP
254	22-04-2017	05:42:14.617	CRITICAL	78	127.0.0.1	0	127.0.0.2	0	tcp	XLOG
254	22-04-2017	05:42:14.617	CRITICAL	78	127.0.0.1	0	127.0.0.2	0	tcp	XLOG
264	22-04-2017	05:42:14.617	200	642	172.16.36.74	5060	109.99.[redacted]	1034	udp	SIP
255	22-04-2017	05:42:14.617	ERROR	75	127.0.0.1	0	127.0.0.2	0	tcp	XLOG
255	22-04-2017	05:42:14.617	ERROR	75	127.0.0.1	0	127.0.0.2	0	tcp	XLOG

Cross-Protocol Correlation: XLOG to SIP



Id	Tss	Tsu	Date	TransactionID	Source Host	SPort	Destination Host	DPort	Capture IP	Transaction	Event	Proto	Family	Length	Node
254	14928757...	617277	2017-04-22 17:42:14.617...	3134393133313332339...	127.0.0.1	0	127.0.0.2	0	172.16.36...	XLOG	CRITICAL	tcp	IPv4	79	1
255	14928757...	617801	2017-04-22 17:42:14.617...	3134393133313332339...	127.0.0.1	0	127.0.0.2	0	172.16.36...	XLOG	ERROR	tcp	IPv4	76	1

Call-ID: *31343931333133323339383534 32-yjkvcz1hmhfw*

REGISTER
REGISTER sip:opensips.org SIP/...
[1][UDP] 2017-04-28 14:38:50.997 +0200

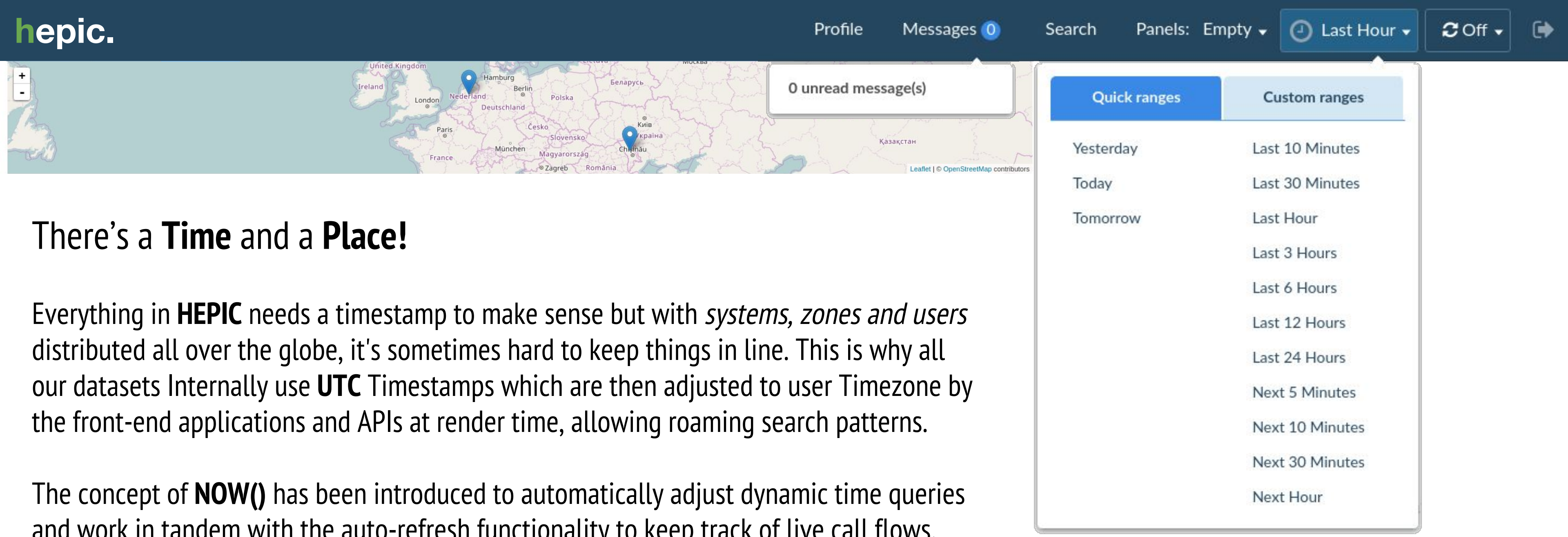
200
SIP/2.0 200 OK
[3][UDP] 2017-04-28 14:38:50.998 +0200

CRITICAL
xlog
[2][TCP] 2017-04-28 14:38:50.997 +0200

ERROR
xlog
[4][TCP] 2017-04-28 14:38:50.998 +0200

Message ID: 2200

```
2017-04-28 14:38:50 +0200
{
  "Event":       "CRITICAL",
  "text":        "SCRIPT:AUTH:DBG: authorize ret code is 1"
}
```



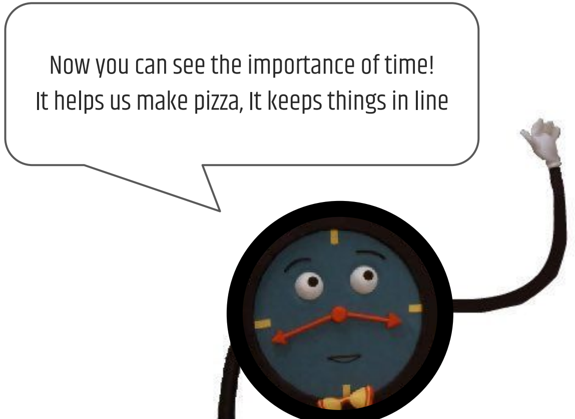
0 unread message(s)

There’s a **Time** and a **Place!**

Everything in **HEPIC** needs a timestamp to make sense but with *systems, zones and users* distributed all over the globe, it's sometimes hard to keep things in line. This is why all our datasets Internally use **UTC** Timestamps which are then adjusted to user Timezone by the front-end applications and APIs at render time, allowing roaming search patterns.

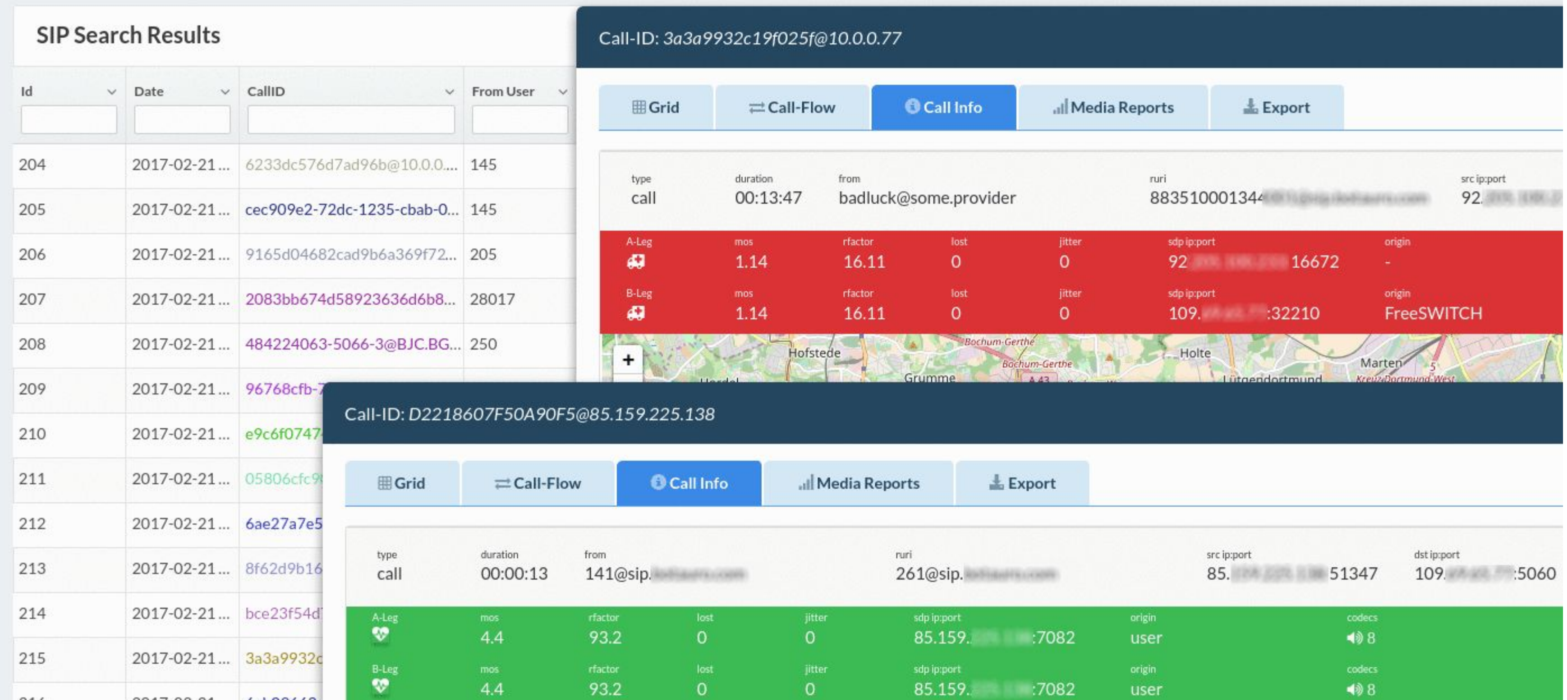
The concept of **NOW()** has been introduced to automatically adjust dynamic time queries and work in tandem with the auto-refresh functionality to keep track of live call flows.

HEPIC internal transaction detail records (TDR) keep track of *Geo-Location* for all session involved IPs and when available, e.164 Geo Destinations determined from call prefixes


Now you can see the importance of time!
It helps us make pizza, It keeps things in line

HEPIC INSPECTOR

We worked hard to simplify the way data is represented to the end-users to serve both experience and young engineers using HEPIC



SIP Search Results

Id	Date	CallID	From User
204	2017-02-21 ...	6233dc576d7ad96b@10.0.0....	145
205	2017-02-21 ...	cec909e2-72dc-1235-cbab-0...	145
206	2017-02-21 ...	9165d04682cad9b6a369f72...	205
207	2017-02-21 ...	2083bb674d58923636d6b8...	28017
208	2017-02-21 ...	484224063-5066-3@BJC.BG...	250
209	2017-02-21 ...	96768cfb-7	
210	2017-02-21 ...	e9c6f0747	
211	2017-02-21 ...	05806cfc9	
212	2017-02-21 ...	6ae27a7e5	
213	2017-02-21 ...	8f62d9b16	
214	2017-02-21 ...	bce23f54d	
215	2017-02-21 ...	3a3a9932c	

Call-ID: *3a3a9932c19f025f@10.0.0.77*

type	duration	from	ruri	src ip:port
call	00:13:47	badluck@some.provider	88351000134[redacted]	92.[redacted]

	mos	rfactor	lost	jitter	sdp ip:port	origin
A-Leg	1.14	16.11	0	0	92.[redacted]16672	-
B-Leg	1.14	16.11	0	0	109.[redacted]:32210	FreeSWITCH

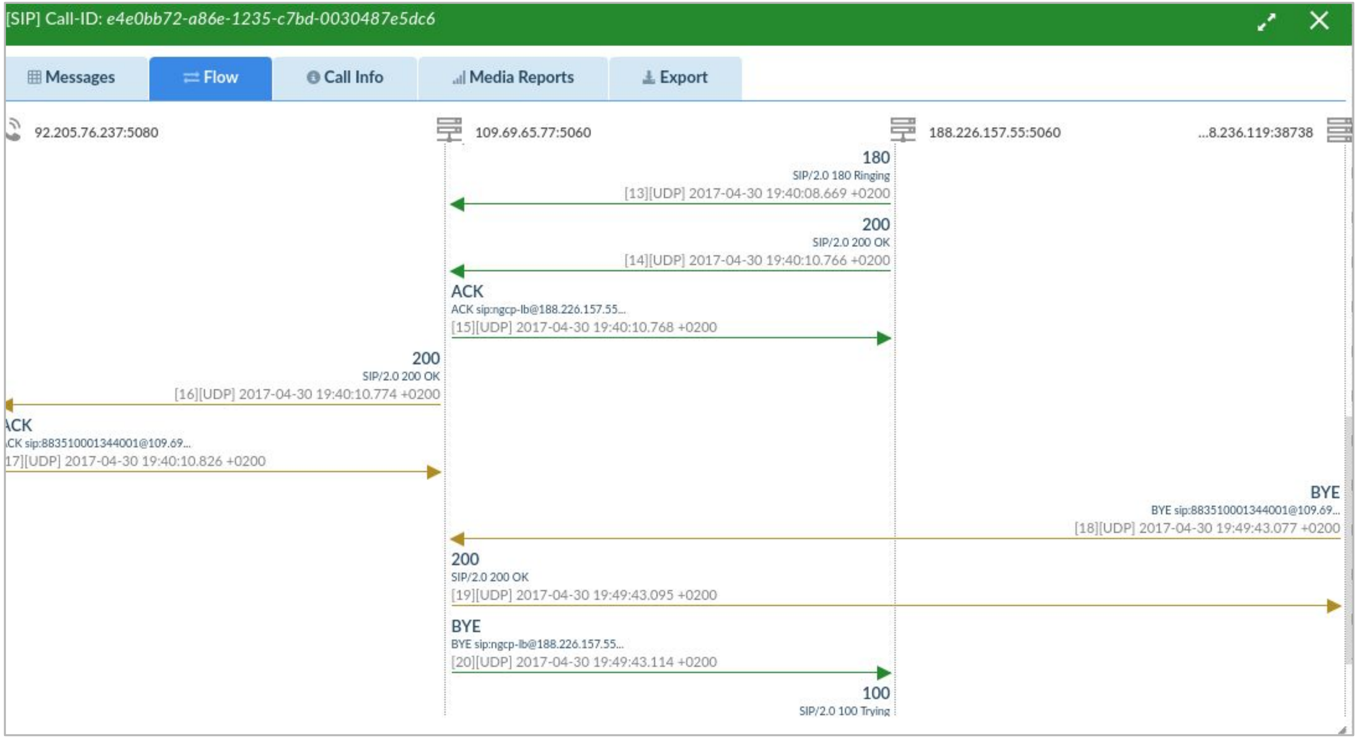
Call-ID: *D2218607F50A90F5@85.159.225.138*

type	duration	from	ruri	src ip:port	dst ip:port
call	00:00:13	141@sip.[redacted]	261@sip.[redacted]	85.[redacted]51347	109.[redacted]:5060

	mos	rfactor	lost	jitter	sdp ip:port	origin	codecs
A-Leg	4.4	93.2	0	0	85.159.[redacted]:7082	user	8
B-Leg	4.4	93.2	0	0	85.159.[redacted]:7082	user	8

HEPIC INSPECTOR

Call Flow is more powerful than ever with multi protocol Support!



[SIP] Call-ID: *e4e0bb72-a86e-1235-c7bd-0030487e5dc6*

92.205.76.237:5080
109.69.65.77:5060
188.226.157.55:5060
...8.236.119:38738

180
SIP/2.0 180 Ringing
[13][UDP] 2017-04-30 19:40:08.669 +0200

200
SIP/2.0 200 OK
[14][UDP] 2017-04-30 19:40:10.766 +0200

ACK
ACK sip:ngcp-lb@188.226.157.55...
[15][UDP] 2017-04-30 19:40:10.768 +0200

200
SIP/2.0 200 OK
[16][UDP] 2017-04-30 19:40:10.774 +0200

ACK
CK sip:883510001344001@109.69...
17][UDP] 2017-04-30 19:40:10.826 +0200

BYE
BYE sip:883510001344001@109.69...
[18][UDP] 2017-04-30 19:49:43.077 +0200

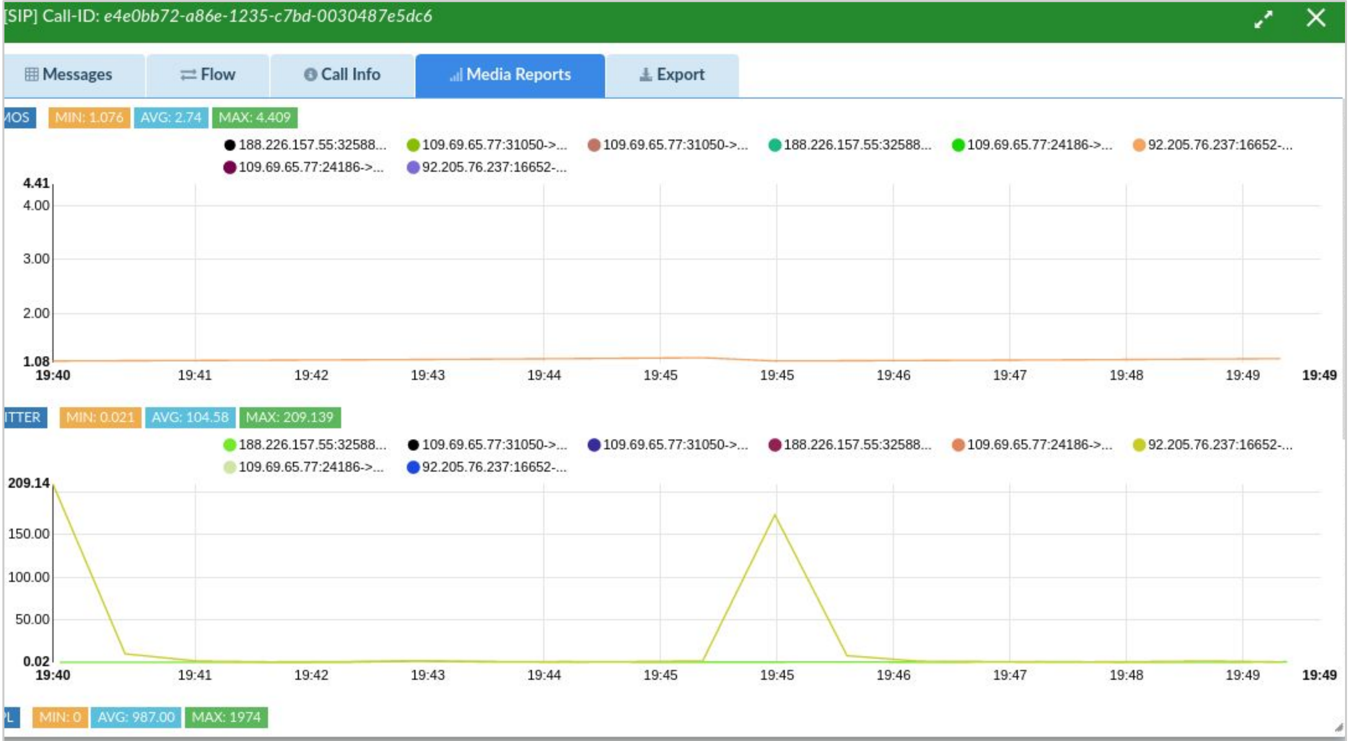
200
SIP/2.0 200 OK
[19][UDP] 2017-04-30 19:49:43.095 +0200

BYE
BYE sip:ngcp-lb@188.226.157.55...
[20][UDP] 2017-04-30 19:49:43.114 +0200

100
SIP/2.0 100 Trying

HEPIC INSPECTOR

Media Reports are automatically correlated and stacked to make sense, be it RTP, RTCP, RTCP-XR or Custom!



[SIP] Call-ID: *e4e0bb72-a86e-1235-c7bd-0030487e5dc6*

MOS MIN: 1.076 AVG: 2.74 MAX: 4.409

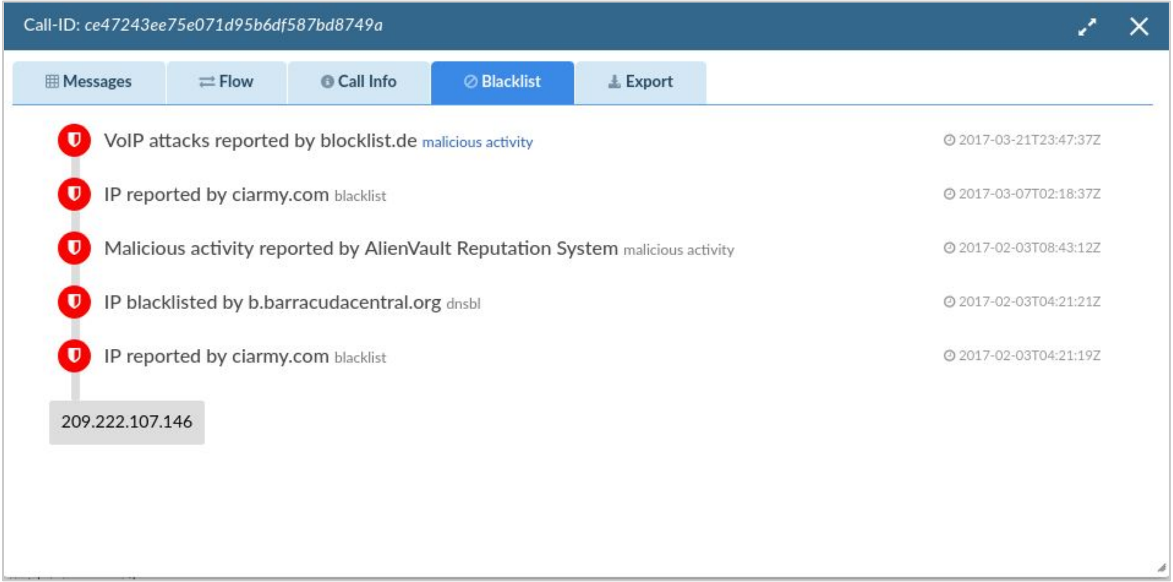
ITTER MIN: 0.021 AVG: 104.58 MAX: 209.139

L MIN: 0 AVG: 987.00 MAX: 1974

HEPIC BLACKLIST

Fraud is all over, and we’re bending backwards to make it easier for our users to know what they’re dealing with.

More on this Later!



Call-ID: ce47243ee75e071d95b6df587bd8749a

VoIP attacks reported by blocklist.de malicious activity — 2017-03-21T23:47:37Z

IP reported by ciarmy.com blacklist — 2017-03-07T02:18:37Z

Malicious activity reported by AlienVault Reputation System malicious activity — 2017-02-03T08:43:12Z

IP blacklisted by b.barracudacentral.org dnsbl — 2017-02-03T04:21:21Z

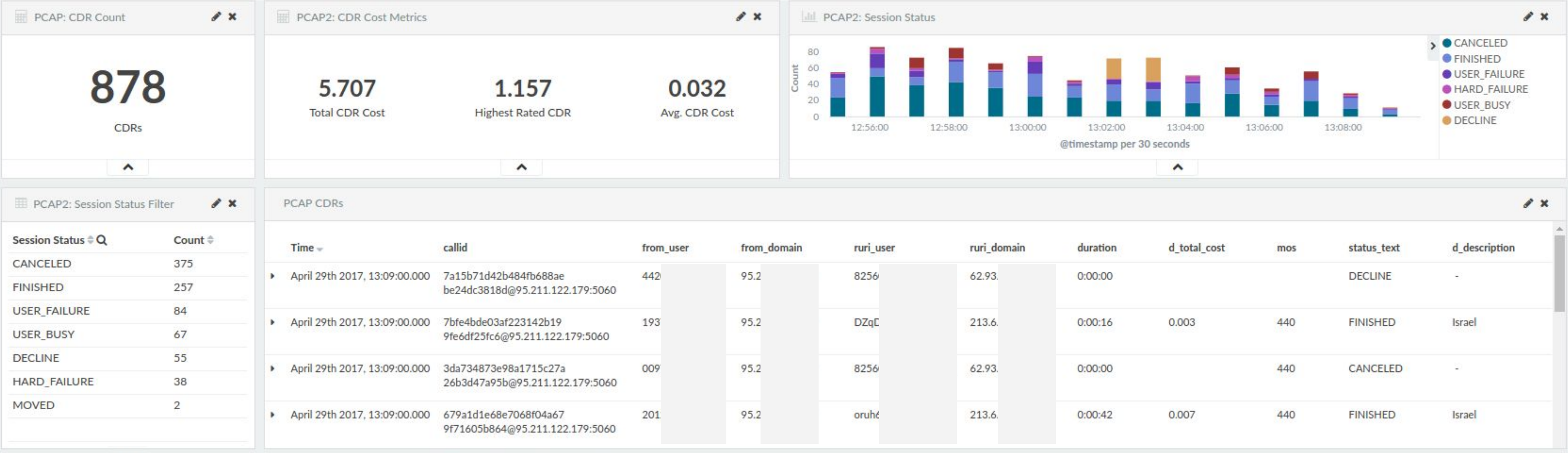
IP reported by ciarmy.com blacklist — 2017-02-03T04:21:19Z

209.222.107.146

HEPIC TRANSACTION DETAIL RECORDS

Every time a new transaction is processed in **HEPIC** the system generates or updates a dedicated “TDR” containing all relevant information gathered on every known aspect of the communication and its details including network, protocol level and media/call quality details, complete with UUID pointers to the original data for instantly hopping between statistics and the full events behind them using API calls.

TDRs can be used internally or exported to any external database, traditional or big-data, for integrations, analytics and much more



PCAP: CDR Count

878
CDRs

PCAP2: CDR Cost Metrics

5.707
Total CDR Cost

1.157
Highest Rated CDR

0.032
Avg. CDR Cost

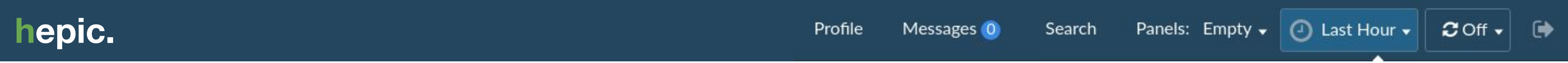
PCAP2: Session Status

PCAP2: Session Status Filter

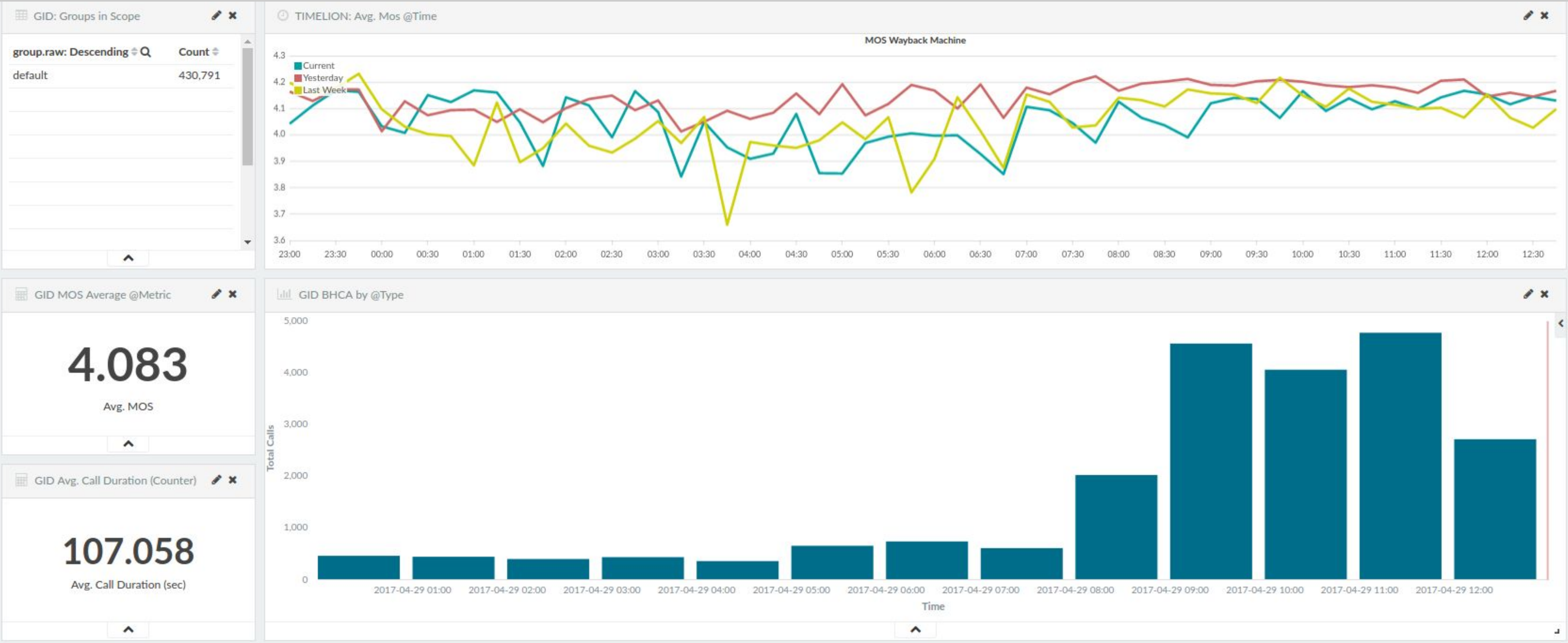
Session Status	Count
CANCELED	375
FINISHED	257
USER_FAILURE	84
USER_BUSY	67
DECLINE	55
HARD_FAILURE	38
MOVED	2

PCAP CDRs

Time	callid	from_user	from_domain	ruri_user	ruri_domain	duration	d_total_cost	mos	status_text	d_description
April 29th 2017, 13:09:00.000	7a15b71d42b484fb688ae be24dc3818d@95.211.122.179:5060	442[redacted]	95.2[redacted]	8256[redacted]	62.93.[redacted]	0:00:00			DECLINE	-
April 29th 2017, 13:09:00.000	7bfe4bde03af223142b19 9fe6df25fc6@95.211.122.179:5060	193[redacted]	95.2[redacted]	DZqD[redacted]	213.6.[redacted]	0:00:16	0.003	440	FINISHED	Israel
April 29th 2017, 13:09:00.000	3da734873e98a1715c27a 26b3d47a95b@95.211.122.179:5060	009[redacted]	95.2[redacted]	8256[redacted]	62.93.[redacted]	0:00:00		440	CANCELED	-
April 29th 2017, 13:09:00.000	679a1d1e68e7068f04a67 9f71605b864@95.211.122.179:5060	201[redacted]	95.2[redacted]	oruh[redacted]	213.6.[redacted]	0:00:42	0.007	440	FINISHED	Israel



HEPIC MOS TIME-MACHINE



GID: Groups in Scope

group.raw: Descending	Count
default	430,791

TIMELION: Avg. Mos @Time

GID MOS Average @Metric

4.083

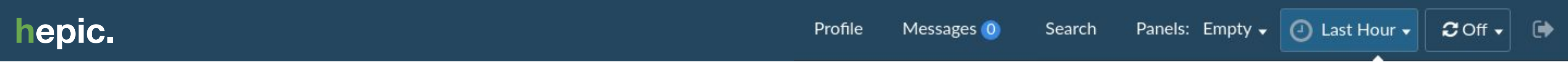
Avg. MOS

GID BHCA by @Type

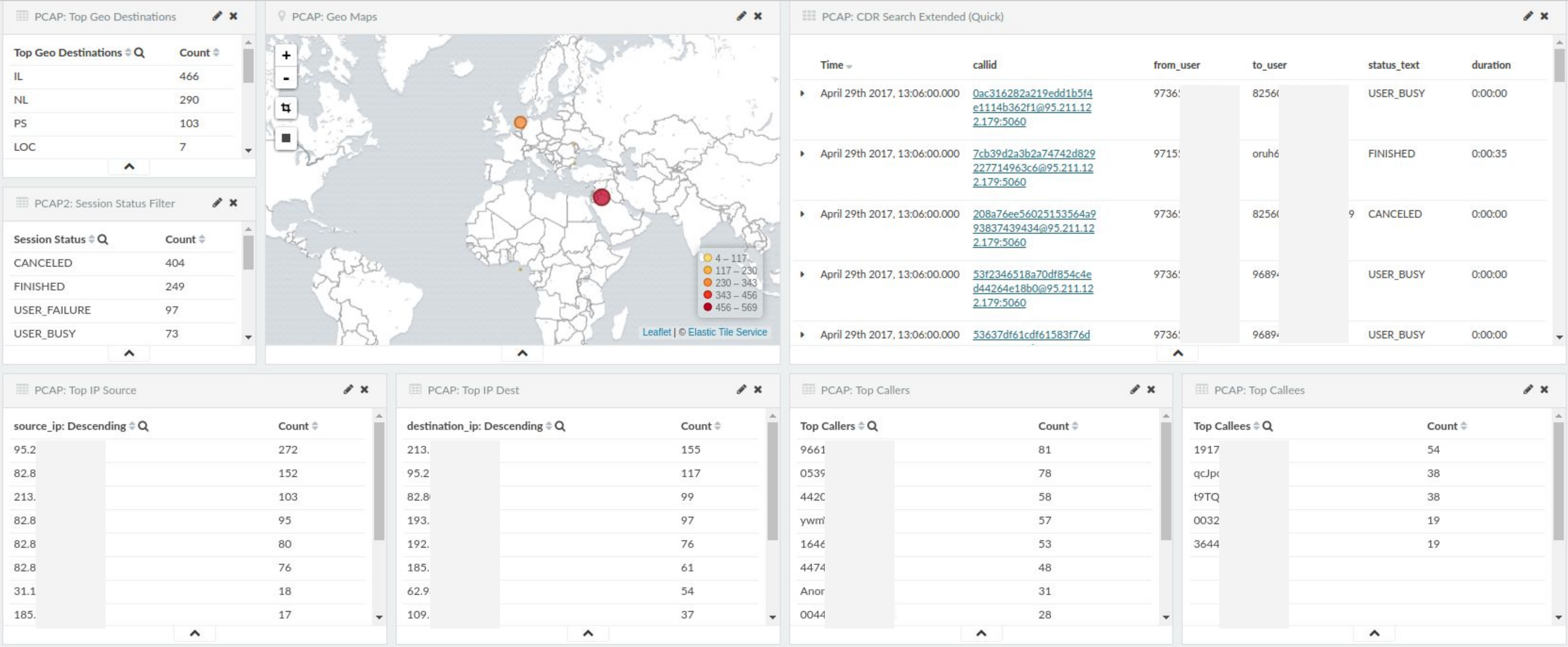
GID Avg. Call Duration (Counter)

107.058

Avg. Call Duration (sec)



HEPIC NETWORK TOP



PCAP: Top Geo Destinations

Top Geo Destinations	Count
IL	466
NL	290
PS	103
LOC	7

PCAP2: Session Status Filter

Session Status	Count
CANCELED	404
FINISHED	249
USER_FAILURE	97
USER_BUSY	73

PCAP: Geo Maps

PCAP: CDR Search Extended (Quick)

Time	callid	from_user	to_user	status_text	duration
April 29th 2017, 13:06:00.000	0ac316282a219edd1b5f4e1114b362f1@95.211.122.179:5060	9736[redacted]	8256[redacted]	USER_BUSY	0:00:00
April 29th 2017, 13:06:00.000	7cb39d2a3b2a74742d829227714963c6@95.211.122.179:5060	9715[redacted]	oruh6[redacted]	FINISHED	0:00:35
April 29th 2017, 13:06:00.000	208a76ee56025153564a993837439434@95.211.122.179:5060	9736[redacted]	8256[redacted]	CANCELED	0:00:00
April 29th 2017, 13:06:00.000	53f2346518a70df854c4ed44264e18b0@95.211.122.179:5060	9736[redacted]	9689[redacted]	USER_BUSY	0:00:00
April 29th 2017, 13:06:00.000	53637df61cdf61583f76d	9736[redacted]	9689[redacted]	USER_BUSY	0:00:00

PCAP: Top IP Source

source_ip: Descending	Count
95.2[redacted]	272
82.8[redacted]	152
213.[redacted]	103
82.8[redacted]	95
82.8[redacted]	80
82.8[redacted]	76
31.1[redacted]	18
185.[redacted]	17

PCAP: Top IP Dest

destination_ip: Descending	Count
213.[redacted]	155
95.2[redacted]	117
82.8[redacted]	99
193.[redacted]	97
192.[redacted]	76
185.[redacted]	61
62.9[redacted]	54
109.[redacted]	37

PCAP: Top Callers

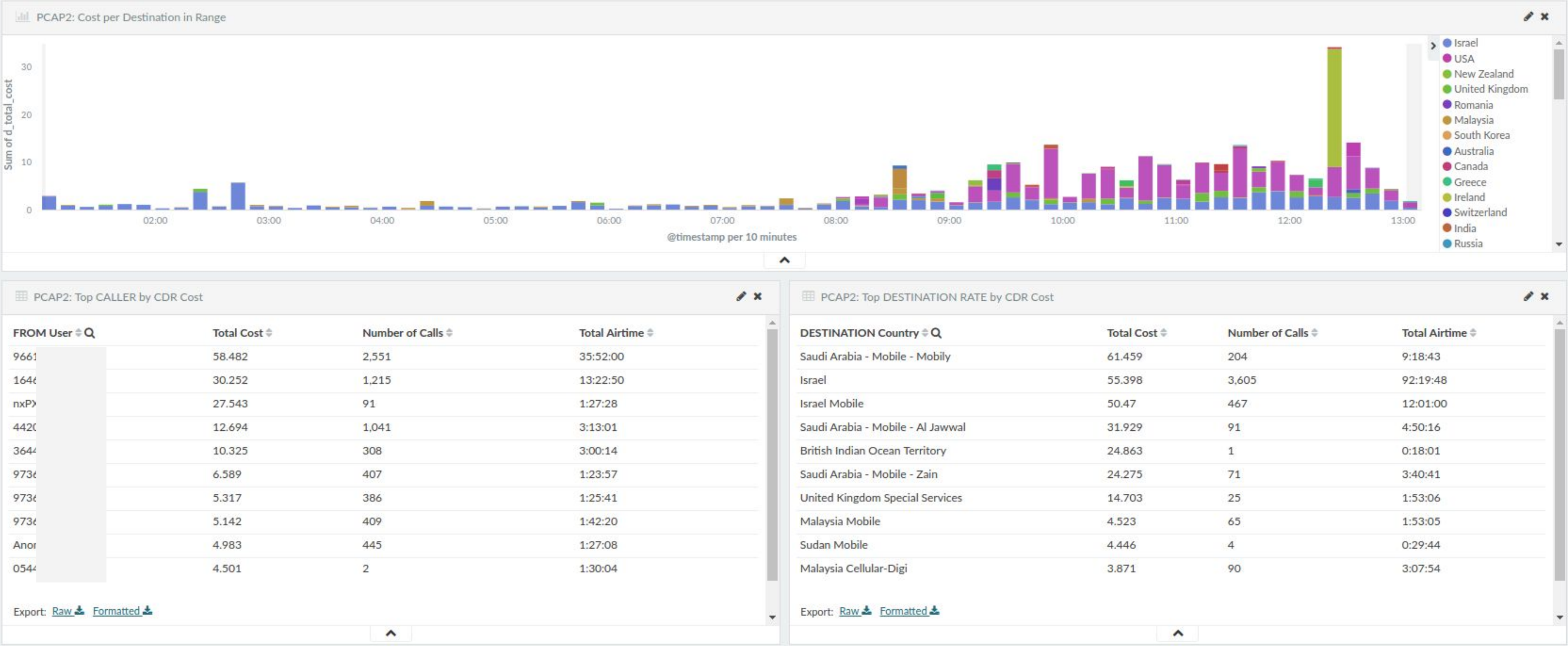
Top Callers	Count
9661[redacted]	81
0539[redacted]	78
4420[redacted]	58
ywm[redacted]	57
1646[redacted]	53
4474[redacted]	48
Anor[redacted]	31
0044[redacted]	28

PCAP: Top Callees

Top Callees	Count
1917[redacted]	54
qcJp[redacted]	38
t9TQ[redacted]	38
0032[redacted]	19
3644[redacted]	19

hepic. Profile Messages 0 Search Panels: Empty Last Hour Off

HEPIC FRAUD DETECTION



PCAP2: Top CALLER by CDR Cost

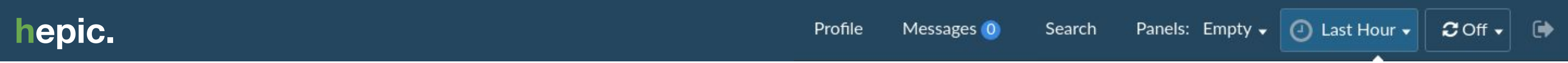
FROM User	Total Cost	Number of Calls	Total Airtime
9661[redacted]	58.482	2,551	35:52:00
1646[redacted]	30.252	1,215	13:22:50
nxPX[redacted]	27.543	91	1:27:28
4420[redacted]	12.694	1,041	3:13:01
3644[redacted]	10.325	308	3:00:14
9736[redacted]	6.589	407	1:23:57
9736[redacted]	5.317	386	1:25:41
9736[redacted]	5.142	409	1:42:20
Anon[redacted]	4.983	445	1:27:08
0544[redacted]	4.501	2	1:30:04

Export: Raw Formatted

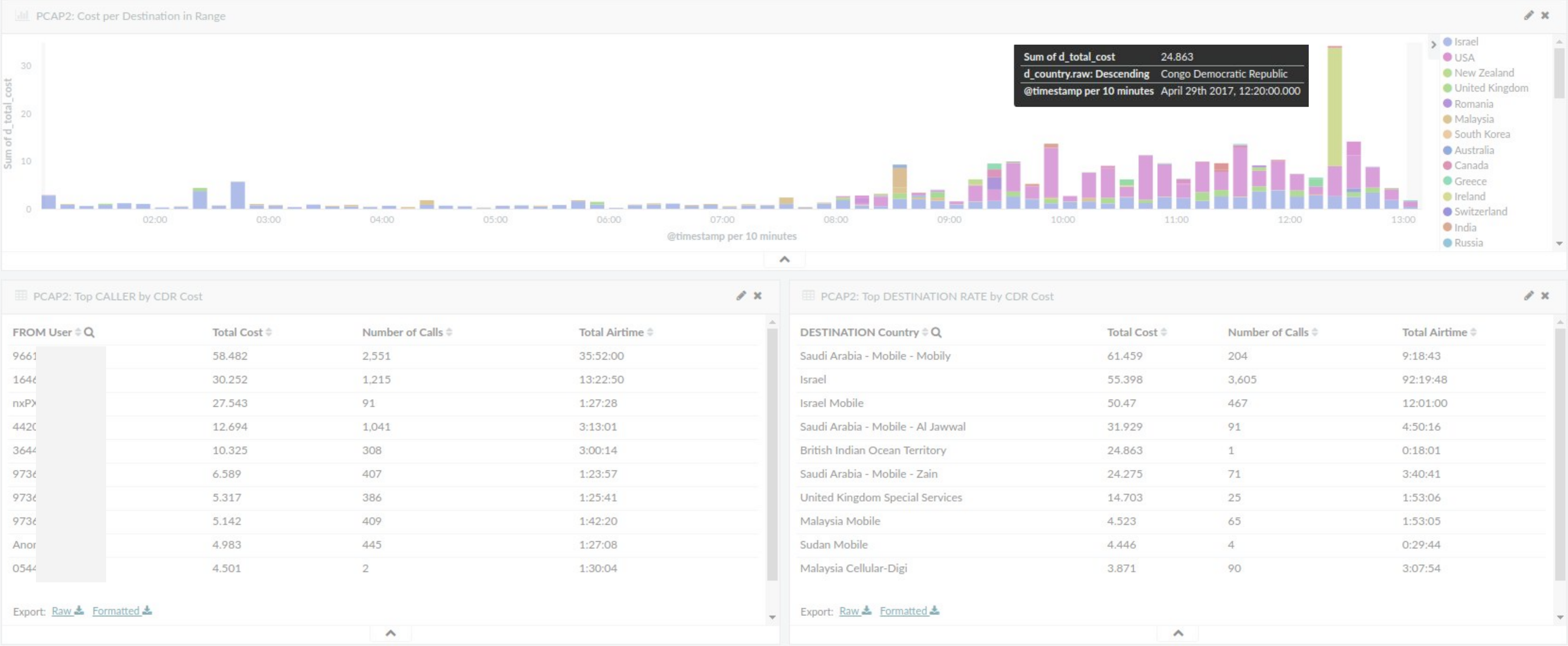
PCAP2: Top DESTINATION RATE by CDR Cost

DESTINATION Country	Total Cost	Number of Calls	Total Airtime
Saudi Arabia - Mobile - Mobily	61.459	204	9:18:43
Israel	55.398	3,605	92:19:48
Israel Mobile	50.47	467	12:01:00
Saudi Arabia - Mobile - Al Jawwal	31.929	91	4:50:16
British Indian Ocean Territory	24.863	1	0:18:01
Saudi Arabia - Mobile - Zain	24.275	71	3:40:41
United Kingdom Special Services	14.703	25	1:53:06
Malaysia Mobile	4.523	65	1:53:05
Sudan Mobile	4.446	4	0:29:44
Malaysia Cellular-Digi	3.871	90	3:07:54

Export: Raw Formatted



HEPIC FRAUD DETECTION



Sum of d_total_cost	24.863
d_country.raw: Descending	Congo Democratic Republic
@timestamp per 10 minutes	April 29th 2017, 12:20:00.000

PCAP2: Top CALLER by CDR Cost

FROM User	Total Cost	Number of Calls	Total Airtime
[redacted]	58.482	2,551	35:52:00
[redacted]	30.252	1,215	13:22:50
[redacted]	27.543	91	1:27:28
[redacted]	12.694	1,041	3:13:01
[redacted]	10.325	308	3:00:14
[redacted]	6.589	407	1:23:57
[redacted]	5.317	386	1:25:41
[redacted]	5.142	409	1:42:20
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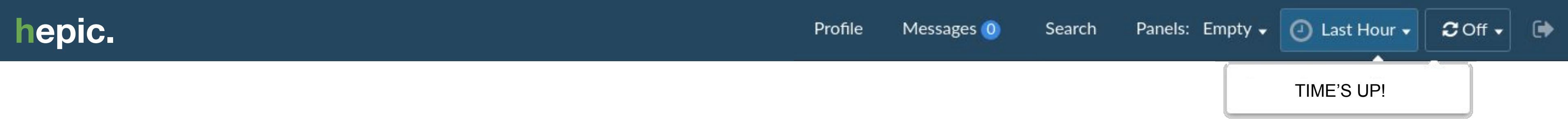
Saudi Arabia - Mobile - Zain	24.275	71	3:40:41
United Kingdom Special Services	14.703	25	1:53:06
Malaysia Mobile	4.523	65	1:53:05
Sudan Mobile	4.446	4	0:29:44
Malaysia Cellular-Digi	3.871	90	3:07:54

Export: Raw Formatted



. . . AND **MUCH** MORE!

KEY **HEPIC** CONCEPTS

RTC ENGINEERING TOOLS

Take Voice Engineering and Troubleshooting to the next level using the integrated session tracking and inspection features

VENDOR AGNOSTIC TELCO BIG-DATA

Real-Time programmable API for any VoIP and RTC platform with connectors for all major Big-Data platforms, vendor agnostic

MONITORING + ALERTING

Leverage the Real-Time alarms and triggers internally or externally with any of the supported HSP data platforms

OPEN CORRELATION

Inject any correlation data from any third-party application in Real-Time to be used by all connected Capture Agents and Servers

BLEEDING EDGE TECHNOLOGY

Designed to be easy extensible with new, experimental and custom protocols, ready for 3rd party deep platform integration

LONG-TERM DATA & METADATA

Double the value of your data by exporting data and/or metrics to any external storage or API for further processing or data retention

Sounds Interesting?

Our Team is ready for your Business

Projects:	http://sipcapture.io
Github:	http://github.com/sipcapture
Company:	http://qxip.net
Support:	helpdesk@qxip.net
Commercial:	sales@qxip.net

hepic.