Authorization and Accounting for Janus sessions using CGRateS

JanusCon 2024

GRateS

carrier grade realtime charging

About us

ITSYSCOM
Engineered Solutions

Located in Bavaria/Germany with back-offices in Romania and Albania

Over 17 years of experience with architecting server side solutions in VoIP environment

Platform implementations covering both wholesale and retail business categories

Responsibly understanding real-time processing constraints and the seriousness of live system outages

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About CGRateS

Real-time Enterprise Billing Suite
Pluggable into existing infrastructure
Accommodate new components into ISP/ITSP
network (eg: new Comm switch, SMS Service)
Non-intrusive into existing setups

Open Source Software
Born in 2010, first sources published in 2012
Full sources available on Github repository
100% Go (golang.org) from beginning
No add-ons in private repositories
More than 425.000 lines of code
Consideration for community contributions

3 branches, indefinitely supported
v0.10, Master, 1.0

Performance Oriented
Built-in advanced cache system (transactional, LRU
+ TTL records)
Asynchronous processing with micro-threads
Including API load balancer

Modular architecture
Cloud-ready, micro-services with rich set of RPC
APIs
Easy to enhance by rewriting specific components

Test driven development
Over 10000 tests as part of test suite

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Feature rich

Online/Offline Charging System (OCS)

Multi-tenancy from day one

Multiple DBs supported

Real-time configuration reloads

Rating Engine with Derived Charging and
A-Number rating

Account Balances Management with
Bundles and *dynaprepaid

Session or Event Charging with balance
reservation and refunds

STIR/SHAKEN authentication with API
server support

CDR logging with support for Interim
Records and RatingQueues

High number of interfaces for event
reader/exporter
(AMQP/SQS/SQL/CSV/XML..)

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Feature rich (2)

Fraud detection with automatic mitigation

LCR with QoS/Bundles

Call Statistics with pattern monitoring

Dynamic pricing imports with templates

Diameter/Radius/DNS/SIP Server with process templates (standard agnostic)

Resource allocation controller
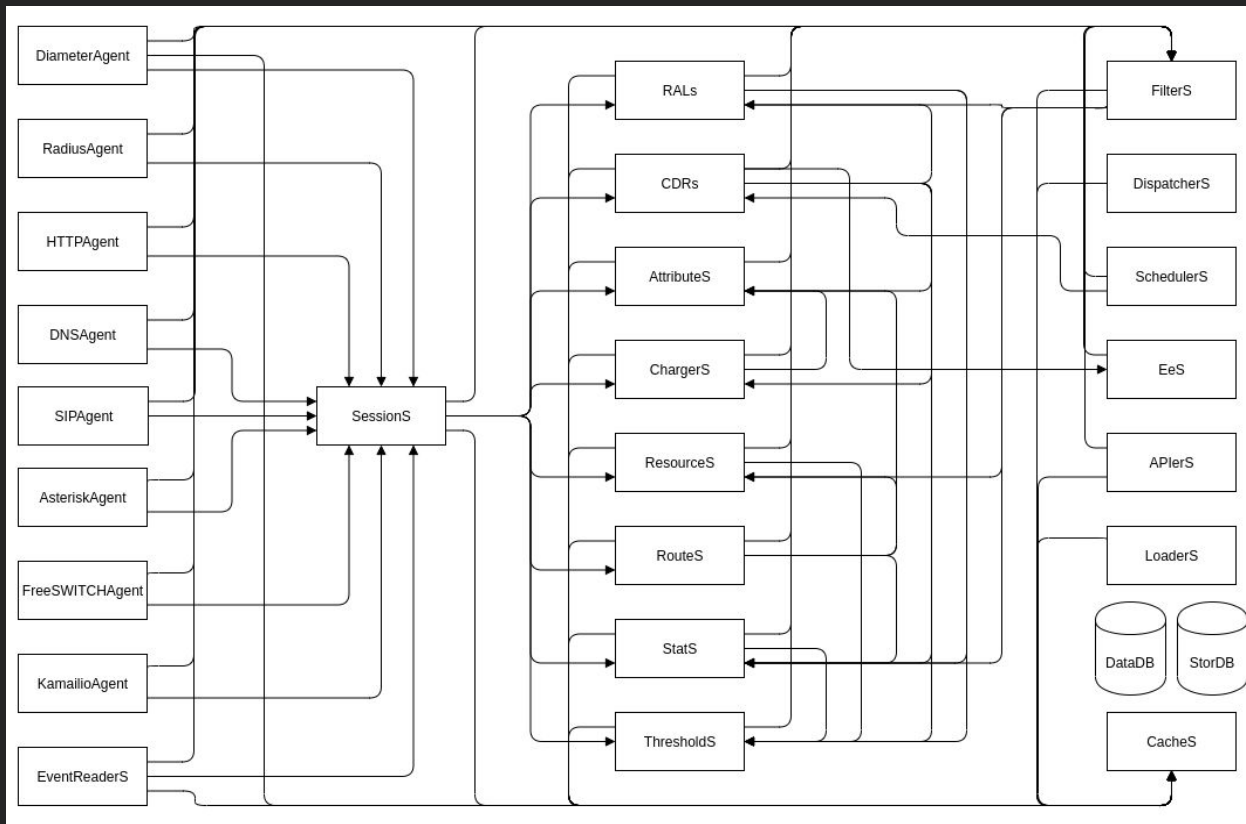
API server with GOB, JSON, HTTP-JSON support

Built-in High-Availability and Dynamic-Partitioning support

API capturing/analisis service

Clustering through remote/replication for internal cache and database

Data versioning with automatic migration

Agile in developing new features

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Janus Integration

HTTP REST server

Using
https://github.com/cgrates/janusgo
HTTP to browser and websockets to Jason
Bidirectional communication opened to *SessionS* for forced disconnects
Flexible events data to be fed via *REST*
Request processors for complete flexibility
Performance oriented: fully asynchronous
Additional sessions data to be stored
Events data enhancements via *AttributeS*

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Janus CreateRequest

CGRateS Auth Request

```
T 2024/04/30 12:24:21.182718 192.168.56.1:54652 ->
192.168.56.104:2080 [AP] #5

POST /janus HTTP/1.1.
Host: 192.168.56.104:2080.
...
{
    "janus": "create",
    "transaction": "KmloBy9yGGmI"
}
```

```
{
    "method": "SessionSv1.AuthorizeEvent",
    "params": [
        {
            "GetAttributes": true,
            "GetMaxUsage": true,
            "Tenant": "cgrates.org",
            "ID": "da39a3ed80709",
            "Time": "2024-04-30T12:24:21.184345459+02:00",
            "Event": {
                "Account": "192.168.56.1",
                "Destination": "echotest"},
        ...
}
```

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Janus Webrtcup Event   CGRateS Session Initiate

```
{
    "janus": "webrtcup",
    "session_id": 3860464482525458,
    "sender": 962662192368936
}
```

```
{
    "method": "SessionSv1.InitiateSession",
    "params": [
        {
            "GetAttributes": true,
            "InitSession": true,
            "ForceDuration": true,
            "Tenant": "cgrates.org",
            "ID": "da39a3ee5e6b4b0d325595601890afd80709",
            "Event": {
                "Account": "192.168.56.1",
                "AnswerTime": "2024-04-30T12:35:25.453631132Z",
                "Destination": "echotest",
                "OriginHost": "192.168.56.104",
                "OriginID": "3860464482525458"
            },
            ...
```

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Janus Destroy Req

T 2024/04/30 12:35:29.107244 192.168.56.1:35418 ->
192.168.56.104:2080 [AP] #275
POST /janus/3860464482525458 HTTP/1.1.
Host: 192.168.56.104:2080.
...
.
{
    "janus": "destroy",
    "transaction": "3xJz1V4VUww0"
}

CGRateS Session Terminate

{
    "method": "SessionSv1.TerminateSession",
    "params": [
        {
            "TerminateSession": true,
            "ForceDuration": true,
            "Tenant": "cgrates.org",
            "ID": "da39a3ee5e6b4b0601890afd80709",
            "Time": "2024-04-30T12:35:29.10755641+02:00",
            "Event": {
                "Account": "192.168.56.1",
                "AnswerTime": "2024-04-30T12:35:25.453631132Z",
                "Destination": "echotest",
                "OriginHost": "192.168.56.104",
                "OriginID": "3860464482525458",
                "Usage": 3653842430
            ...
        }

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Janus Destroy Req

```
T 2024/04/30 12:35:29.107244 192.168.56.1:35418 ->
192.168.56.104:2080 [AP] #275
POST /janus/3860464482525458 HTTP/1.1.
Host: 192.168.56.104:2080.
...
.
{
    "janus": "destroy",
    "transaction": "3xJz1V4VUww0"
}
```

CGRateS Process CDR

```
{
    "method": "SessionSv1.ProcessCDR",
    "params": [
        {
            "Tenant": "cgrates.org",
            "ID": "da39a3ee5e6b4b0d3255bfef95601890afd80709",
            "Time": "2024-04-30T12:35:29.108449234+02:00",
            "Event": {
                "Account": "192.168.56.1",
                "AnswerTime": "2024-04-30T12:35:25.453631132Z",
                "Destination": "echotest",
                "OriginHost": "192.168.56.104",
                "OriginID": "3860464482525458",
                "Usage": 3653842430
            },
            ...
}
```

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Applicability

Billing
Session
Port
Count
Subscription

Fraud mitigation
Cost
Duration
Simultaneous use

StatS
Average
Totals

Resources
Limit ports with dynamic logic

Attributes
Enhance Janus sessions with information out of CGRateS

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Questions

Website
http://www.cgrates.org

Documentation
http://cgrates.readthedocs.org

Code + issues tracker
https://github.com/cgrates/cgrates

Support
Google group: **CGRateS**

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