

# ***From High Performance Memory Manger to Call Center support - OpenSIPS 1.11***

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# What is OpenSIPS ?



# How is OpenSIPS developed?



*It's safe, but inefficient !*

Not so many high-level features to make it attractive, but high costs on development.



*It's efficient, but not safe !*

Heavy high-level features  
on top of an under-sized  
foundation → disaster.

*Safe and efficient !*  
Sufficient high-level  
features on top of a  
foundation able to sustain  
them !



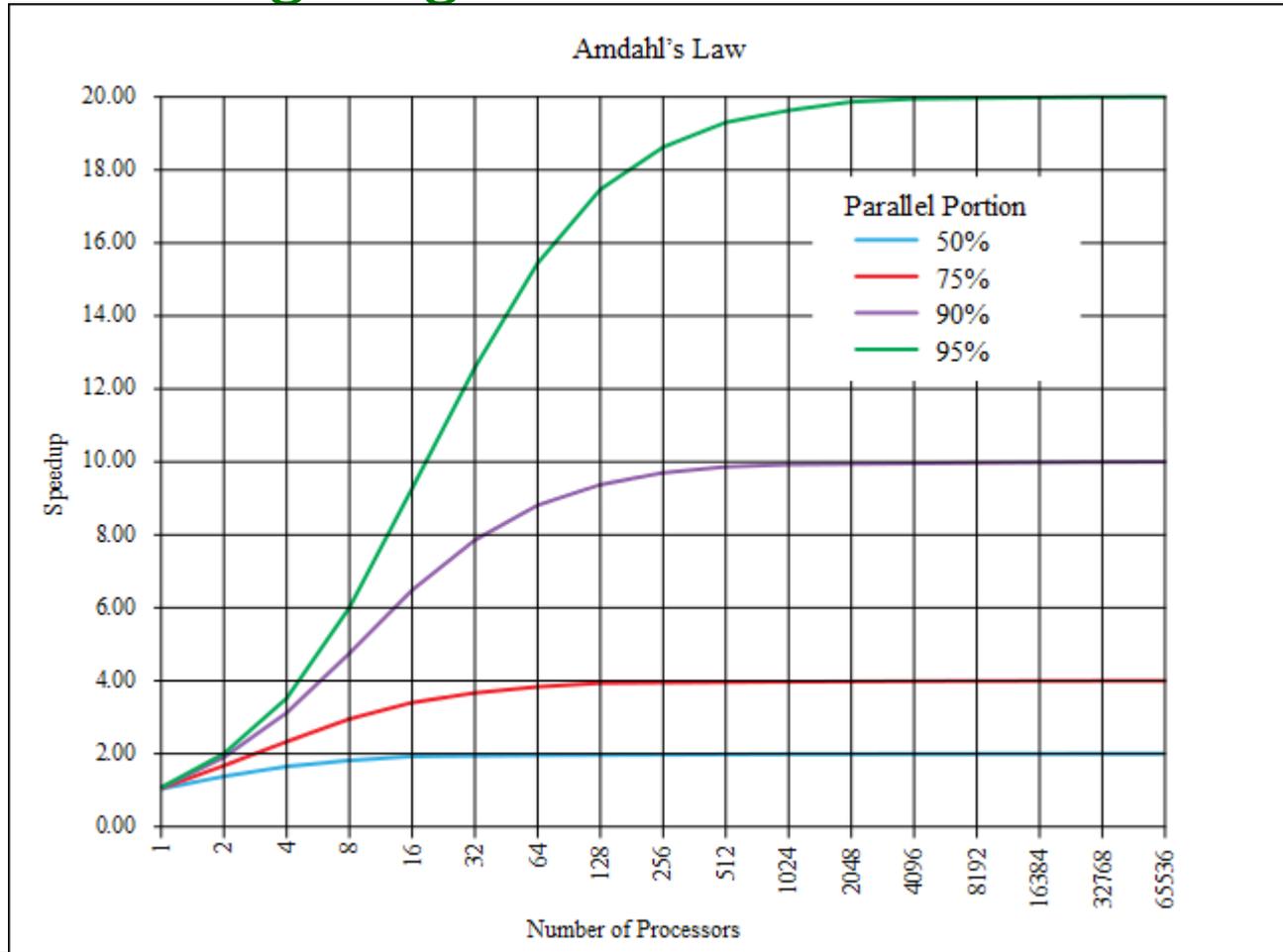
# OpenSIPS 1.11

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## 1.11 major release

- 1.11 is the new LTS release !
- addresses the full verticality as development
- Strong focus on consistency and consolidation of the existing features, from bottom to top.

## What are we fighting with ?



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## High performance memory allocator

- A new high-performance Memory Manger which boosts the multi-threading capabilities with +100% .
- Can generate reports on patterns of memory usage (size and fragments)
- Based on previous reports, can do memory warm-up on startup (controlled fragmentation)

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## SIP layer performance

- Eliminated several bottle-necks in Transaction layer by increasing the level of parallelism.
- Partitioning in the TCP stack to increase the parallelism in handling large number of TCP connections.

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## Results ?

- A boost from 25 000 cps up to around **60 000 cps** while using only 50% of the CPU.
- Easily handling **5 000 000 concurrent calls**
- Handling **400 000 mobile end-users TCP connections**

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## Consistency and persistence

- Modules – global parameters moved as function parameters for better flexibility
- Script – a new “for-each” statement to iterate sets
- Script – functions may have missing parameters, like *function(p1,p2,,,p3)*
- Persistent state (on restart and reload) for destinations in Dynamic Routing, Dispatcher and Load-Balancer modules

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## Registration replication

- Relies on the Binary INternal Interface (BIN) for inter OpenSIPS communication
- User Location module replicates in realtime the registrations and their state to other OpenSIPS instances
- Full registration replication on other OpenSIPS instances
- Essential feature for **geo-distributed systems** !

## Script Helper

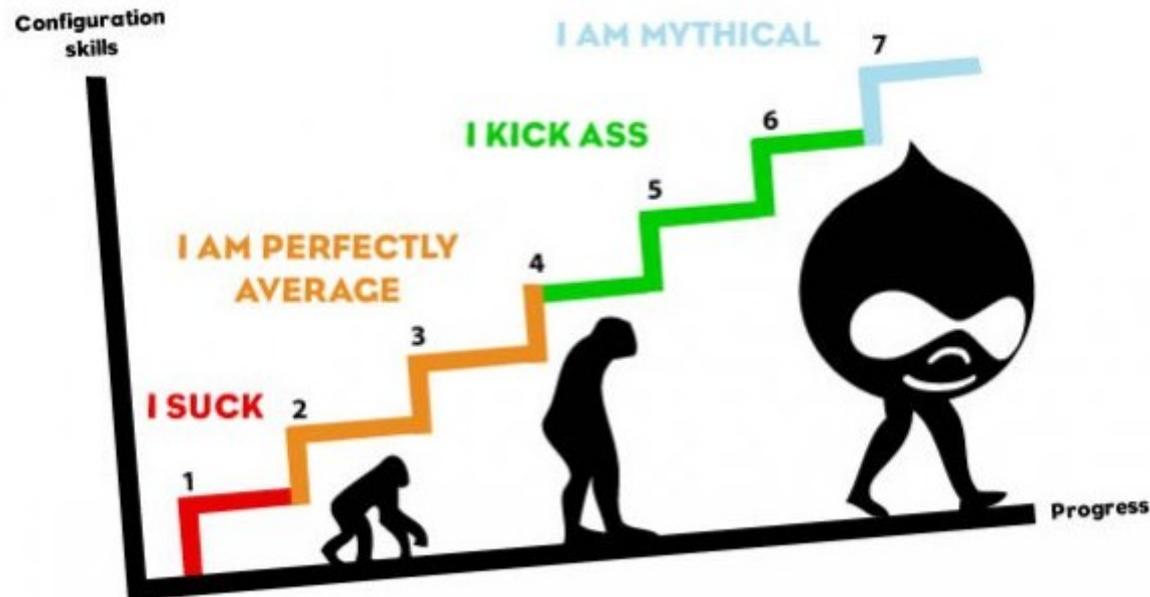
- Helps to start in an easy way with the OpenSIPS scripting (the learning curve gets milder)

- Transparent handling of SIP sequential requests
- Automatic dialog support



## Script Helper

- Avoid learning too many things in the same time, but rather discover them one at the time !



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## Call Center

- Call queuing in OpenSIPS (signaling only)
- Inbound call center – multiple queues, sets of agents, skills, priorities, statistics & reports
- Integration with Media Server via the B2BUA engine
- To be used in combination with DID (DR module), external IVRs, external dialers.

***Demo to follow !***

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## Call Center

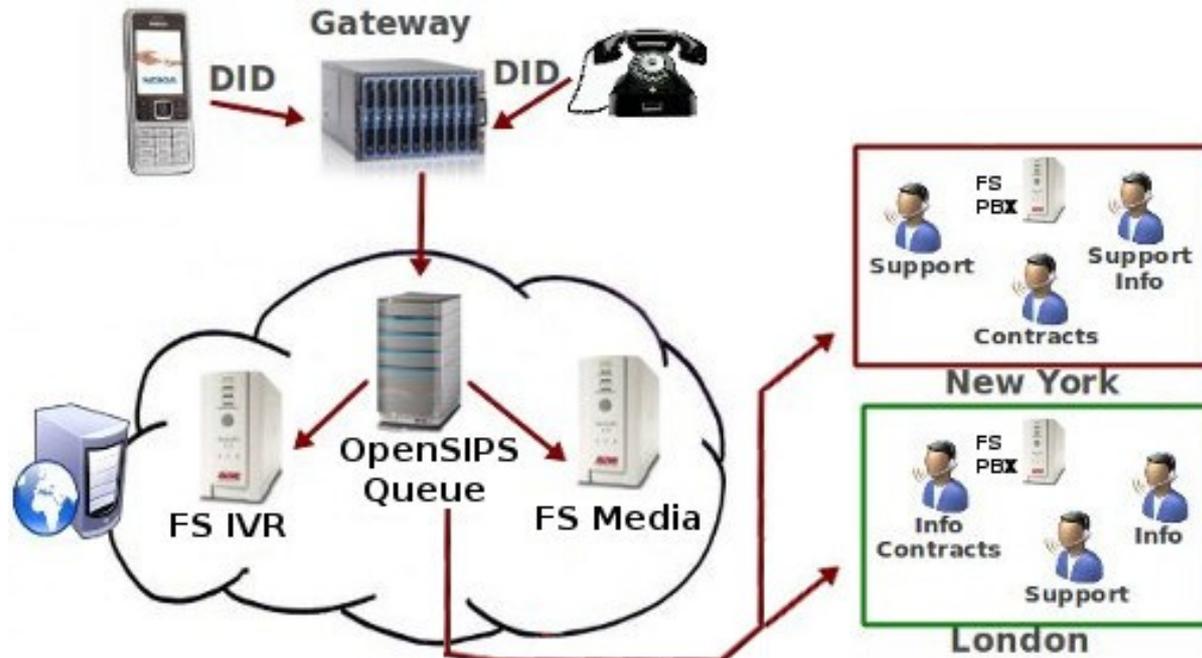
- Provides server side only, no specific tools for the agent side
- Targets large scale inbound call centers
  - > 1000 agents , > 100 000 cc
- Perfect solution to scale and grow existing small call centers
- Address also geo-distributed scenarios.

### Before using OpenSIPS ...



and when using OpenSIPS...





- Quality based routing
- Fraud detection based on profiles
- Async I/O operations from script
- Routing Data partitioning

..... to be ready for OpenSIPS 1.12

## 2 minutes Call Center demo

Thank you for your attention  
You can find out more at [www.opensips.org](http://www.opensips.org)  
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[www.opensips-solutions.com](http://www.opensips-solutions.com)

Questions are welcome