Kamailio as building block for Voice and AI platforms

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VON:Builder New York

October 2023

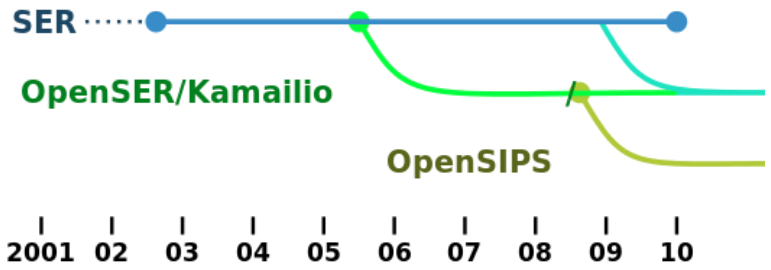
Agenda

- About
- Kamailio - quick introduction
- Kamailio for Voice infrastructure
- Interacting with APIs
- Using machine learning and artificial intelligence tools
- Contact

About GILAWA

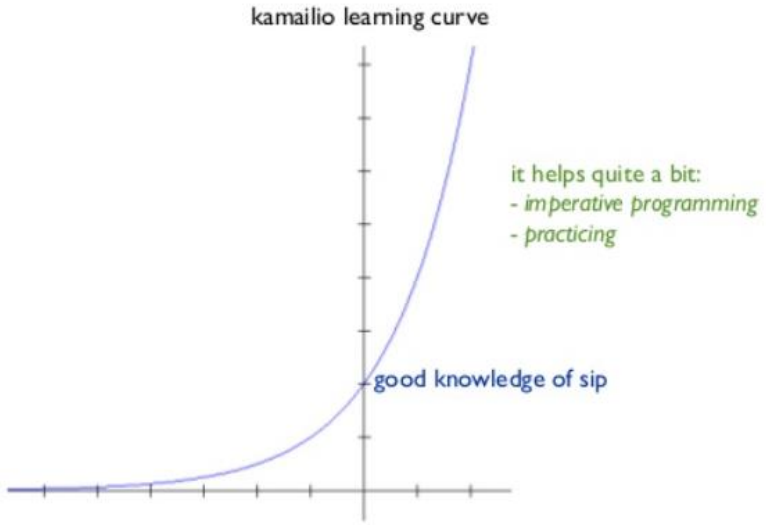
- We offer services for Real-Time Communication platforms
  - Consulting and Management
  - Administration/Developer trainings
  - Development and IT Operations
- Kamailio experience since 2007
- Independent and neutral service provider
  - No own end-user products
  - No vendor contracts
- Our customer are Internet Service Providers and Telephone Provider
- Germany, Europe, North-America, Asia and Middle-East

About Kamailio (1/2)



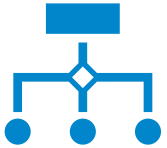
- Kamailio®
  - Carrier grade SIP-Server published under GPL license, in development since 2001
  - For the implementation of medium to large VoIP/Real-time Communications Plattforms
  - Usual first use-case to scale existing PBX systems or to implement SBC functions
- Active and diverse developer team
  - Several core developers, different packager and frequent pull request
  - Regular maintenance releases
- Extensive core functions and over 200 extension modules

About Kamailio (2/2)



- Kamailio was designed as a SIP proxy
  - It is not PBX as for example Asterisk
  - It is no „B2BUA“, therefore no complete separation of incoming and outgoing traffic
- Learning Kamailio might be more difficult as learning other telephony software
  - Kamailio is not configured, but programmed
  - Solid SIP knowledge not only suggested but required
- Kamailio can be usually easily operated and maintained
  - Stable, good performance
  - Low dependencies from core and main modules

Kamailio for voice infrastructure (1/2)



“SBC” functions

Load-balancing and security checks

Topology hiding

Network address translation for SIP and media

Transcoding

Application services

Device/Phone registration

Call routing

Authentication Authorization and Accounting

Presence services

Dialog-info

Message-waiting Indication

Other

Kamailio for voice infrastructure (2/2)

Translation functions

WebRTC gateway scaling

Adapting proprietary voice components

Interfacing with public commercial cloud services (like MS Teams or other)

IMS/NGN functions

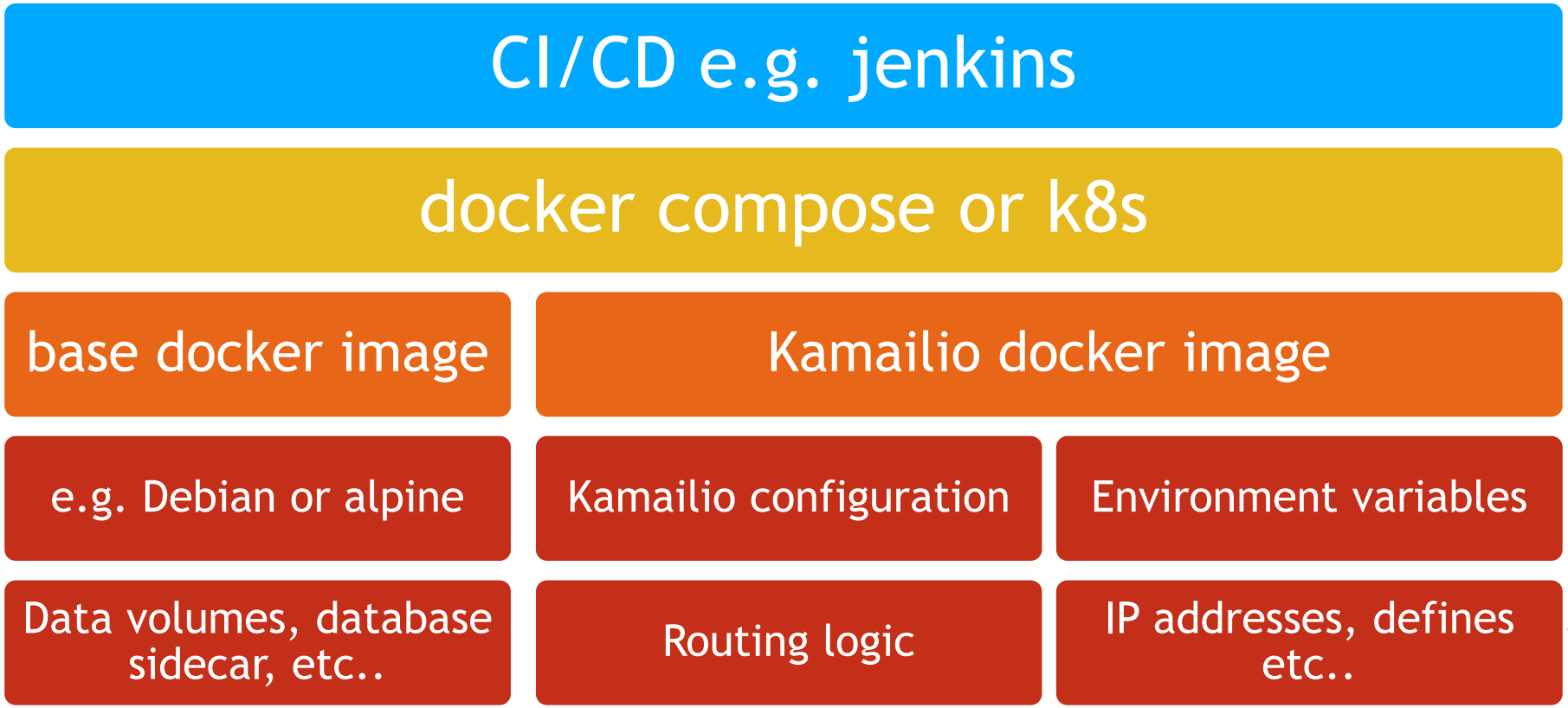
Providing different IMS applications/functions for mobile networks

Interfacing with different IMS protocols or commercial components

Deployment models

- Kamailio can be deployed in different ways, with Linux packages or container
- If you use docker for deployment, you usually end up doing your own docker packages as you need a specific configuration for your service
- Kamailio supports many pre-processing as command line parameter
- Recent Kamailio version also support “modparamx” for dynamic variable parameter evaluation
- With Kubernetes you usually will end up using environment variables for this information
- It’s possible to to use ansible or saltstack to build the docker container, but usually a CI/CD infrastructure is used

Kamailio inside docker or kubernetes



Interacting with APIs

- Kamailio provides a wide variety of API interfaces
- Kamailio as API client
  - Recommendation to use a HTTP REST API, for example with JSON data fields
  - Both synchronous and asynchronous API calls are supported
  - Multiple API calls can be chained together in the configuration
  - Can be easily scaled depending on the requirements
- Kamailio as API server
  - Recommendation to use the JSONRPC for a REST HTTP API with JSON data fields
  - Kamailio provides embedded HTTP support, no external API server necessary
  - Can be easily scaled depending on the requirements

Using ML and AI tools

- Remember, Kamailio does not care about media (much), as usually this is the interesting information, we need to feed the data to external consumers
  - One option is to use the rtpengine-recording daemon, use storage for processing
  - Another option with less latency is the proc interface for one the fly processing
- Kamailio can of course provide all sorts of interesting events
  - Call data for getting information about caller or callee, duration, call quality etc..
  - Billing related data for detection of fraud or other malicious usage
  - IP addresses, User names, Password (hashes) etc..
- You could also interact a custom API by using the KEMI interface, for example with python scripts

Thank you

- Thank you – any questions?
- Hope to see you at other conferences!

Thank you

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