Workshop:
IMS & VoLTE in minutes

Kamailio World 2017

Todays goals

- Last year with Kamailio & IMS in review
- Basic IMS Infrastructure overview
- Installation & Configuration of the network:
  - Proxy-CSCF + RTPEngine + SEMS-SBC
  - Interrogating-CSCF
  - Serving-CSCF
  - OCS, HSS, Management-Interfaces
- Walkthrough of the Management-Interface

Why VoLTE?

- Spectrum is limited

- Traditional 2G / 3G Networks use appr. 40% of the available spectrum for Voice

- With Voice-over-LTE it's down to 10%

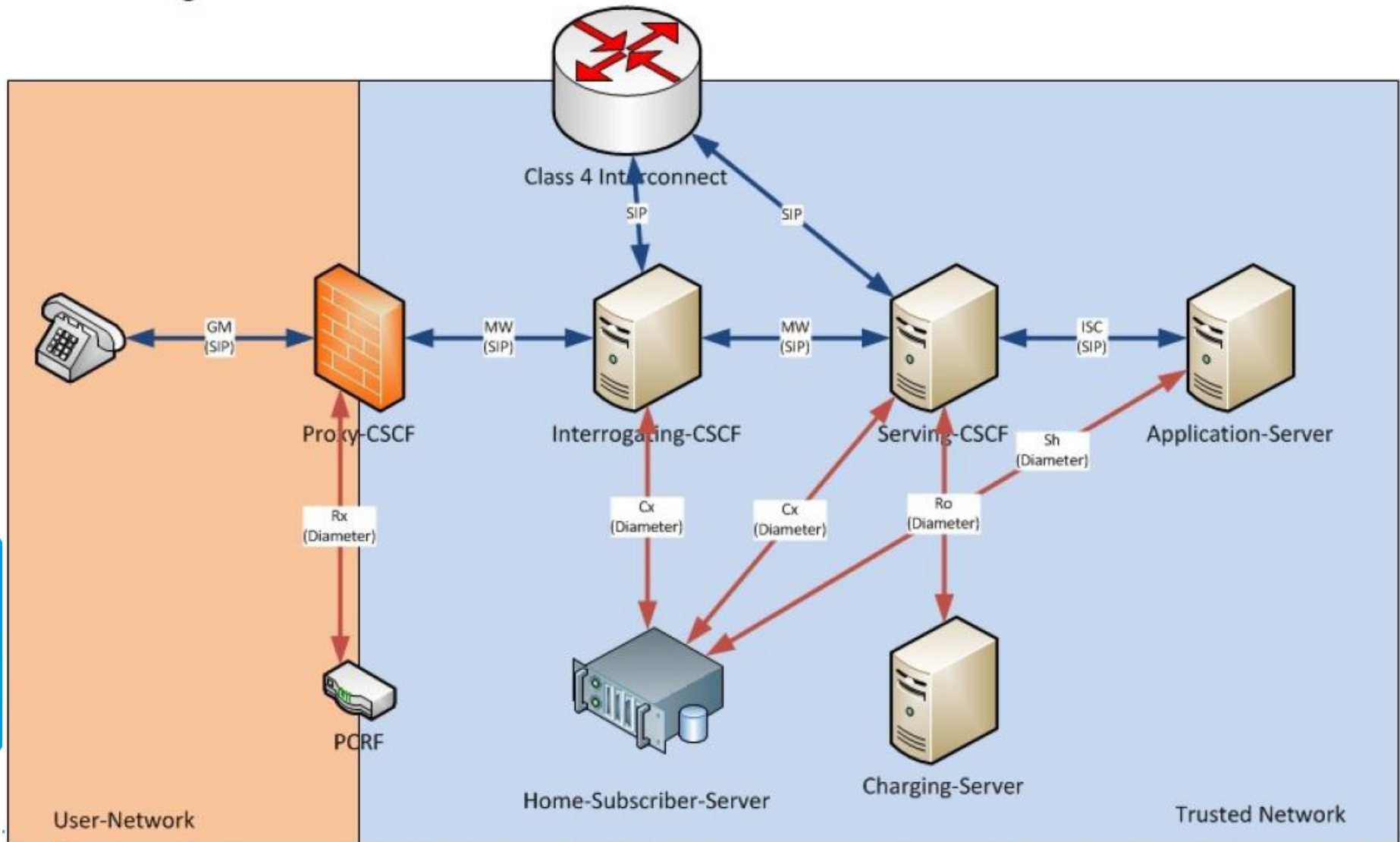- Cost of "pure" LTE networks are appr. 80% compared to 3G (5% compared to 2G)

Last year in review

New Additions since KamailioWorld 2016:

- Online-Charging Server (OCS)

- A new, generic Diameter-Server

    – A new Home-Subscriber-Server

    – A new Management-Interface

- Overhaul of the installation process

- Various Bug-Fixes ;-)

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Basic IMS Infrastructure overview

Requirements: Operating System

- Debian 8 or Ubuntu 16.04 (LTS)
- DNS-Server (Bind) – this is a must!
- A MySQL-Server

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Requirements: LTE Network

- A dedicated APN with the name - IMS
- PCO Options, which indicate the address of the Proxy-CSCF
- Should use QCI 5
- You need to indicate support for „Voice-over-Packet-Switched" (VoPS)
- You need a PCRF or other methods to establish a dedicated bearer for Voice!

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Requirements: Devices

- Any SIP-Capable device will do (Desk-Phone, VoIP-App, DSL-Modem, ...)
- For VoLTE, you need a VoLTE enabled phone
  - Usually, off-the-shelf phones don't work*
  - Device Manufacturers offer Engineering Versions to Operators
  - VoLTE needs to be enabled by the manufacturer for a specific network
  - *) Known Alternative: OnePlus 3/OnePlus 3T

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Preparations: DNS & MySQL

- Install „off-the-shelf" Bind and MySQL

- Add Zone file:

```
wget http://repository.ng-voice.com/mnc001.mcc001.3gppnetwork.org
```

- Add Zone to /etc/bind/named.conf.local:

```
zone "mnc001.mcc001.3gppnetwork.org" {
        type master;
        file "/etc/bind/mnc001.mcc001.3gppnetwork.org";
}
```

- Restart Bind:

```
service bind9 restart
```

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Let's get started

- wget http://repository.ng-voice.com/install.sh
- Execute „install.sh"
- Install the necessary packages (using apt-get):
  - ims-pcscf
  - ims-icscf
  - ims-scscf
  - ims-mmtel
  - ims-hss
  - telcosuite3-rest-api
  - telcosuite3-webmanagement
  - ims-rtpengine
  - ims-sems

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Adding PSTN-Interconnects

- Inbound calls need to point to the I-CSCF
- Outbound gateways are defined in Dispatcher List

on the Serving-CSCF

- ENUM is required for number to user mapping

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Installation of Kamailio IMS

Walkthrough of the Management-Interface

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