Case study

Kamailio as IN SIP Application Server

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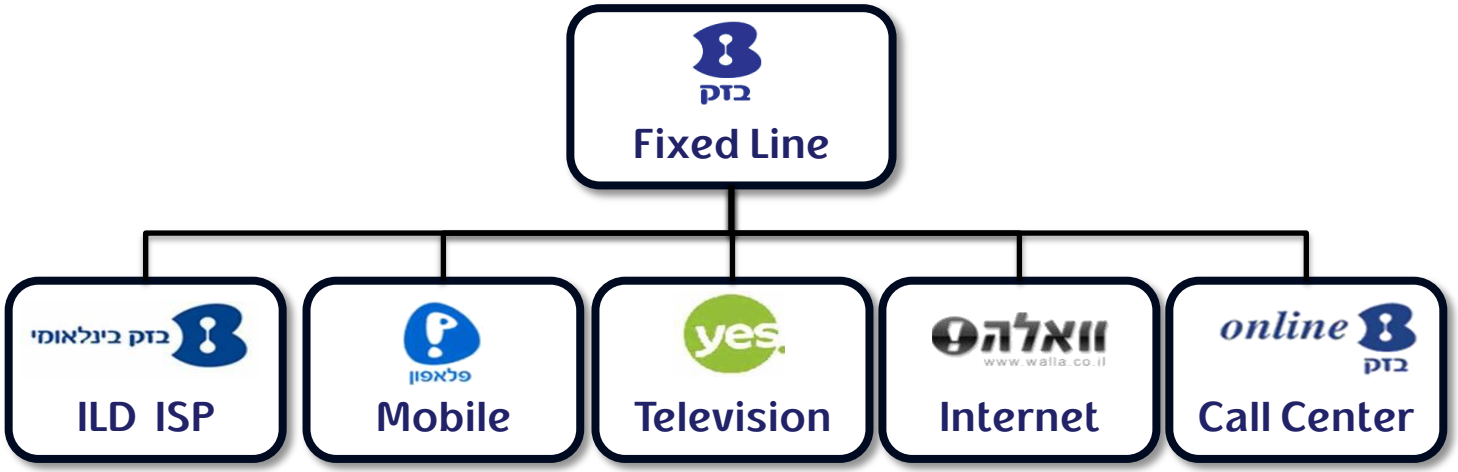
Goals:

- Show that open source implementation can be done on a very large scale.
- That kamailio can easily be set as a base to many added value applications.
- Briefly go over our IN implementation.

Established in 1984
Bezeq is the Leading
Telecom Company in Israel

- 7500 Employees.
- 1.2 Million Internet subscribers (house holds).
- 2 Million Telephony subscribers (house holds).

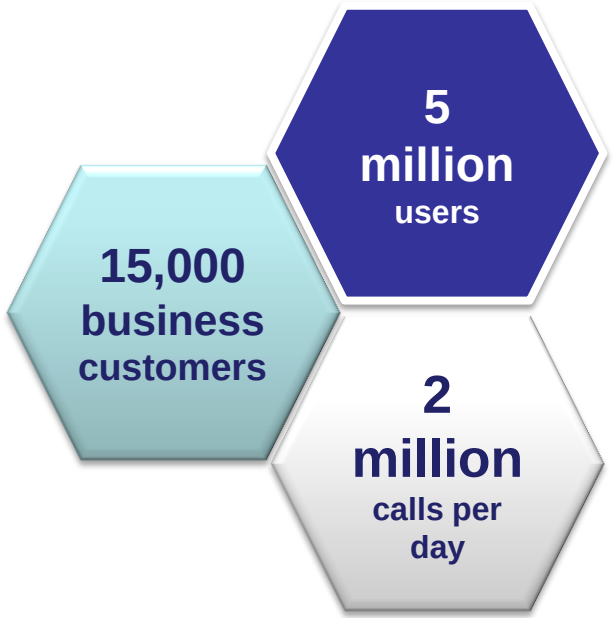


bezeq

Intelligent Network.

Provides services like:

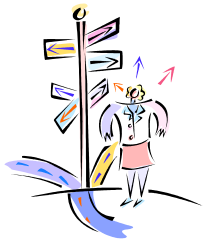
- **1800** Number Translation Services (NTS).
  - Single Route (SR).
  - Percentage Routing (PR).
  - Time Depended Routing (TDR).
  - Origin Depended Routing (ODR).
- **IVR** (hosted)**.**
- **Billing** .
- **Outbound Dialer**.



Project starting point

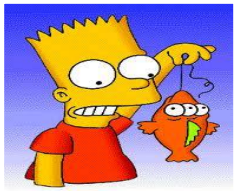
- Product end of life and support.
- Tight schedule (we need it tomorrow ?#!:?).
- Telco grade (Availability, Scalability, Redundancy, Capacity).

why not buy one?



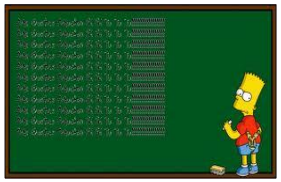
OK, let us build one….

First steps

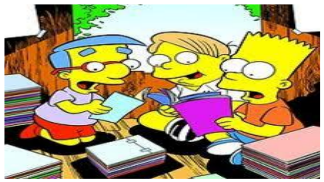


Fish the needs

Reverse engineering



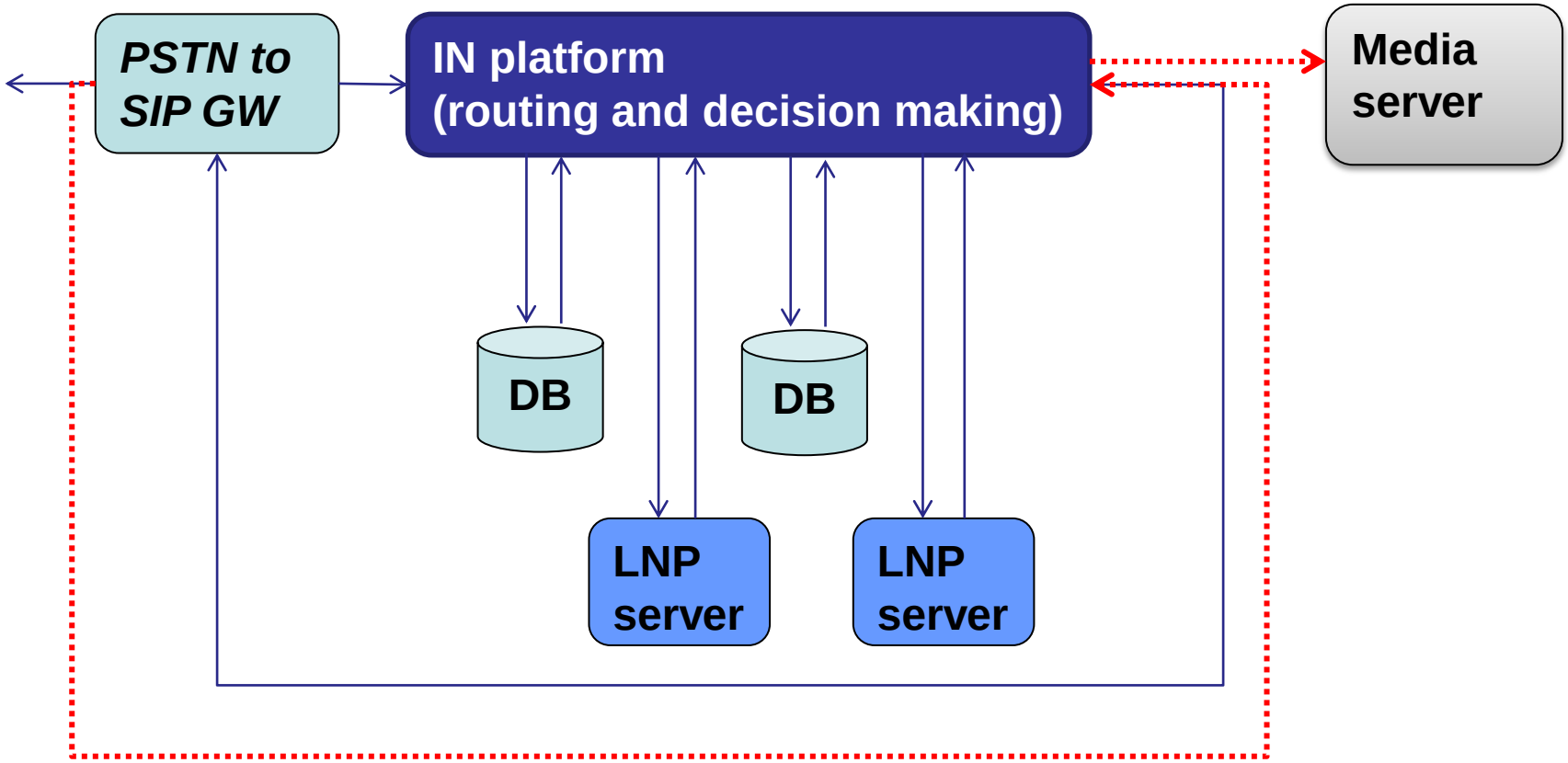
Understanding data structure



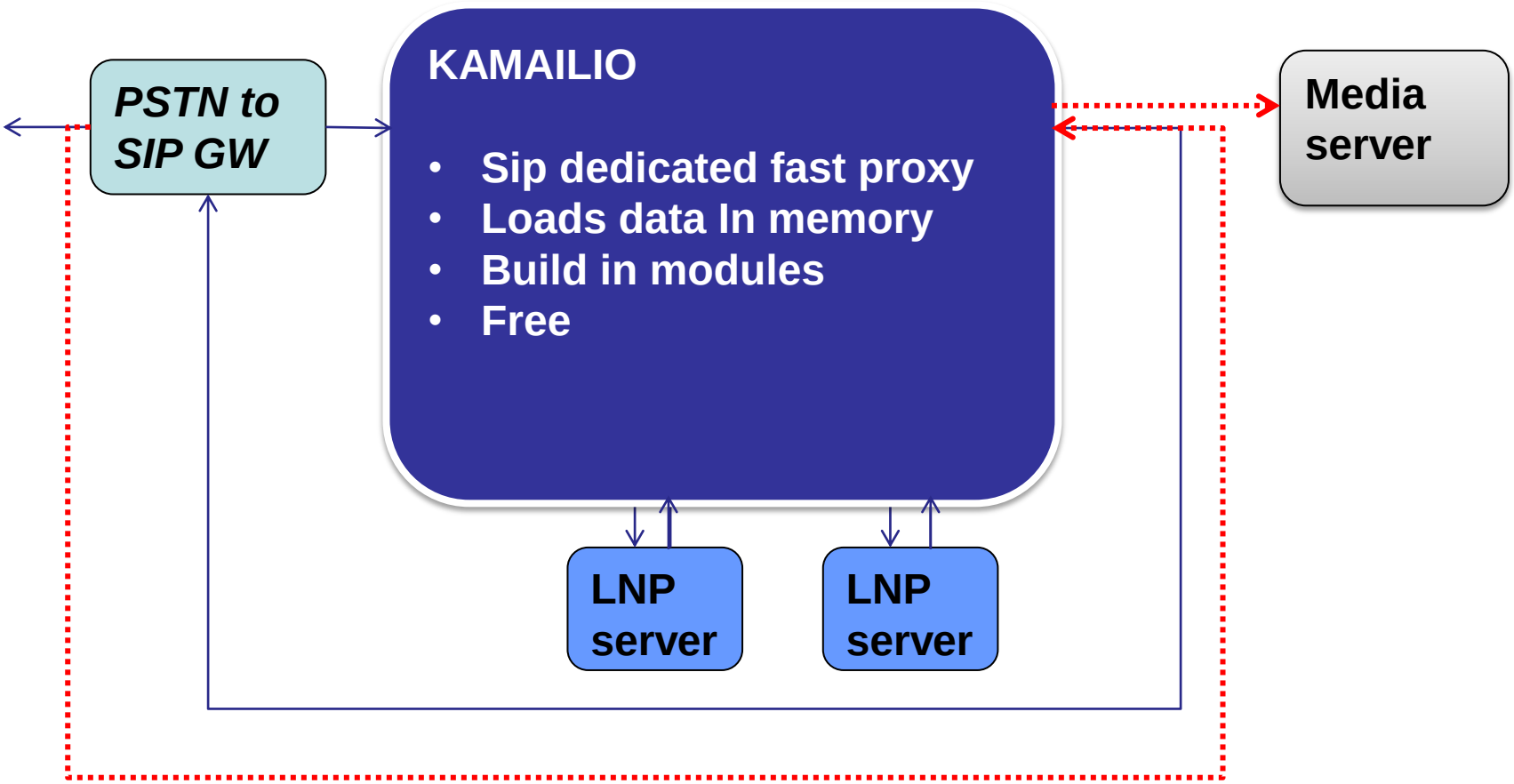
Map surrounding systems

Plan a full Geographical DRP solution

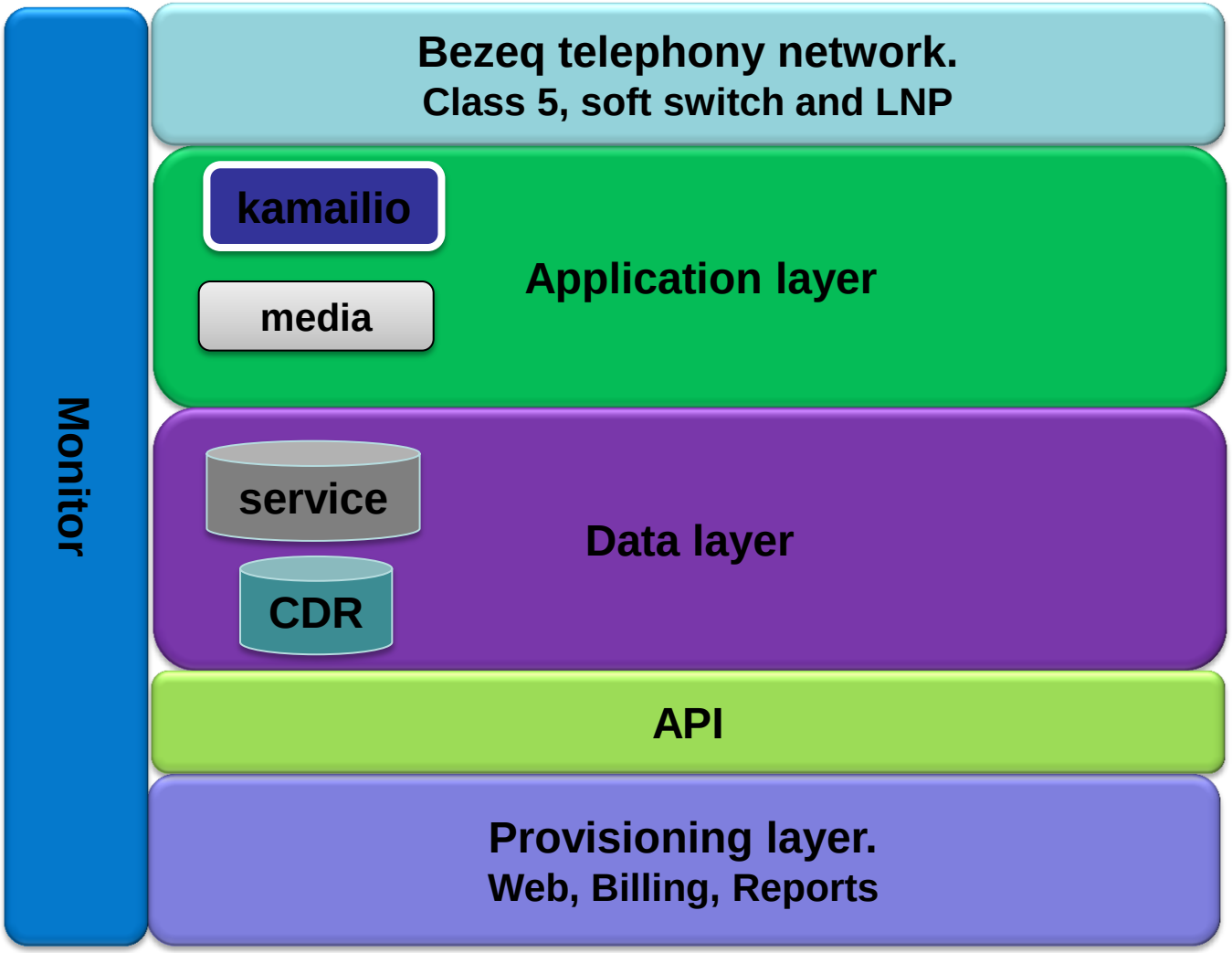
Basic IN call flow



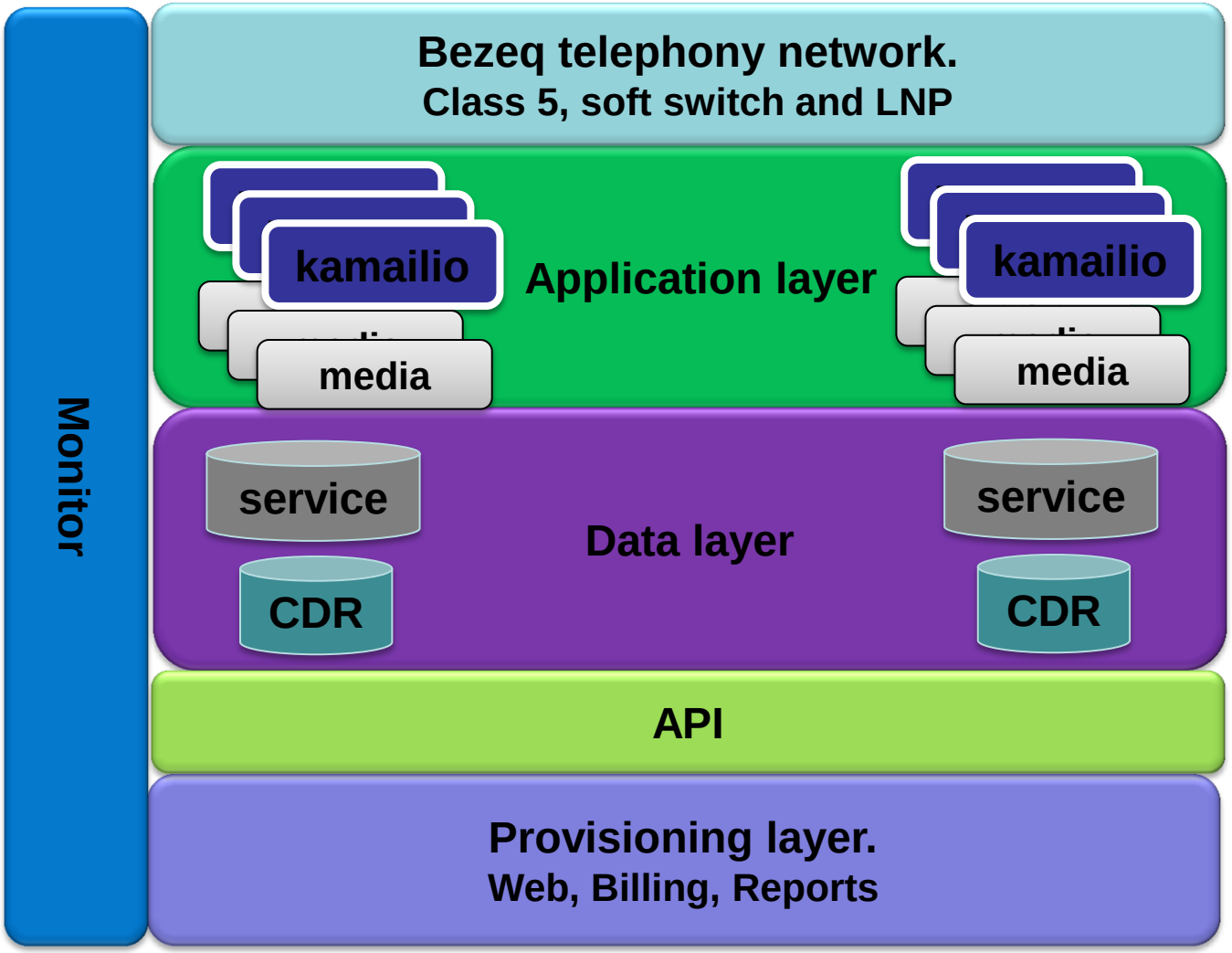
Basic IN call flow



Architecture



Architecture



Some modules we use

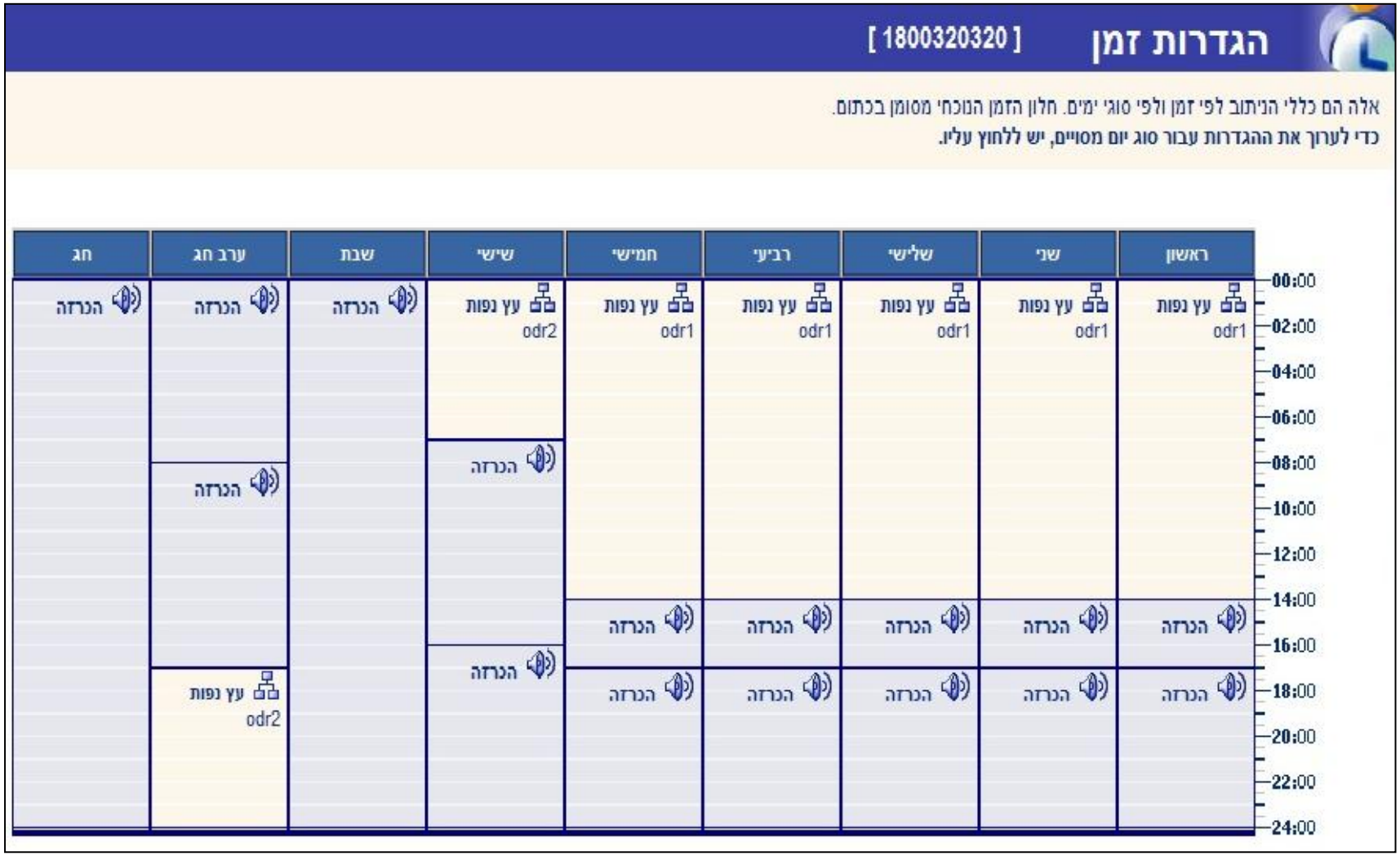
- **DISPATCHER** – Load balance traffic for LNP and Media servers.
- **DIALPLAN, MTREE, HTABLE** – Load subscriber's data in memory.
- **CARRIERROUTE, DROUTING** – Easily deploy services like Percentage routing and Time Depended Routing
- **PIPELIMIT** – Limits traffic.
- **ACCDB** – Billing.
- **SQLOPS, TEXTOPS, RTIMER** and more…….

TDR Service

- We deploy the **T**ime **D**epended **R**outing service using the **DROUTING** module. It provides a quick, straight forward and easy way to manage the time settings.

- We created an API and a WEB interface, that allows the customer to configure time settings easily. Including special days and holydays settings.

TDR Service


הגדרות זמן
[1800320320]
אלה הם כללי הניתוב לפי זמן ולפי סוגי ימים. חלון הזמן הנוכחי מסומן בכתום.
כדי לערוך את ההגדרות עבור סוג יום מסויים, יש ללחוץ עליו.
ראשון
שני
שלישי
רביעי
חמישי
שישי
שבת
ערב חג
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24:00

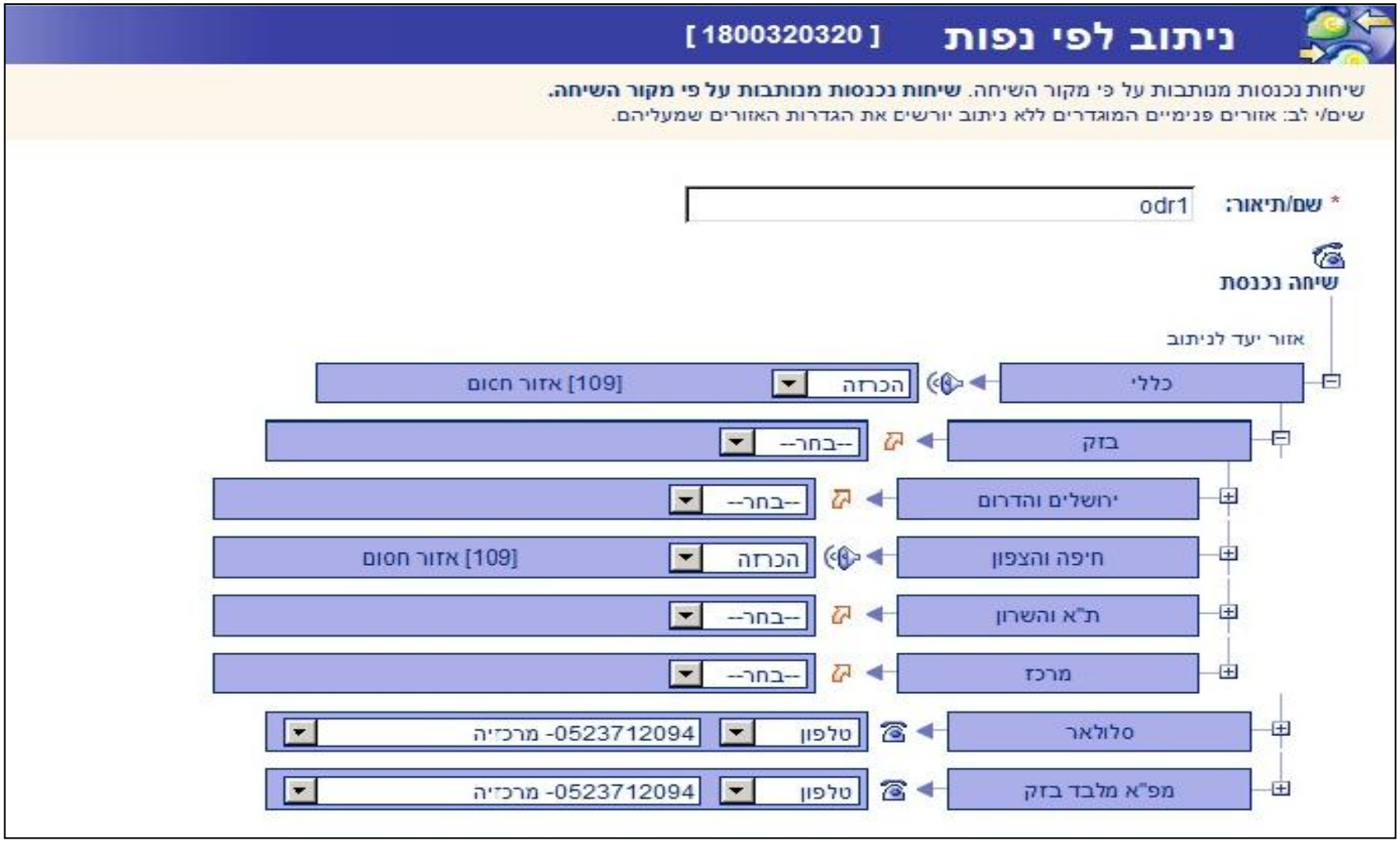
ODR Service

- The **O**rigin **D**epended **R**outing service is done with **MTREE** module.

- We use the **MTREE** module to:
  - Load **5 million** phone numbers to memory .
  - Set a code to each number that indicates the region.
  - Match the code to the region MTREE table.

- **MTREE** advantages are:
  - Able to load huge amount of data.
  - Work as “longest match” mechanism.

ODR Service


ניתוב לפי נפות
[1800320320]
שיחות נכנסות מנותבות על פי מקור השיחה. שיחות נכנסות מנותבות על פי מקור השיחה.
שים/י לב: אזורים פנימיים המוגדרים ללא ניתוב יורשים את הגדרות האזורים שמעליהם.
* שם/תיאור:
odr1
שיחה נכנסת
אזור יעד לניתוב
כללי
הכרזה
[109] אזור חסום
בזק
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ירושלים והדרום
--בחר--
חיפה והצפון
הכרזה
[109] אזור חסום
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טלפון
0523712094- מרכזיה
מפ"א מלבד בזק
טלפון
0523712094- מרכזיה

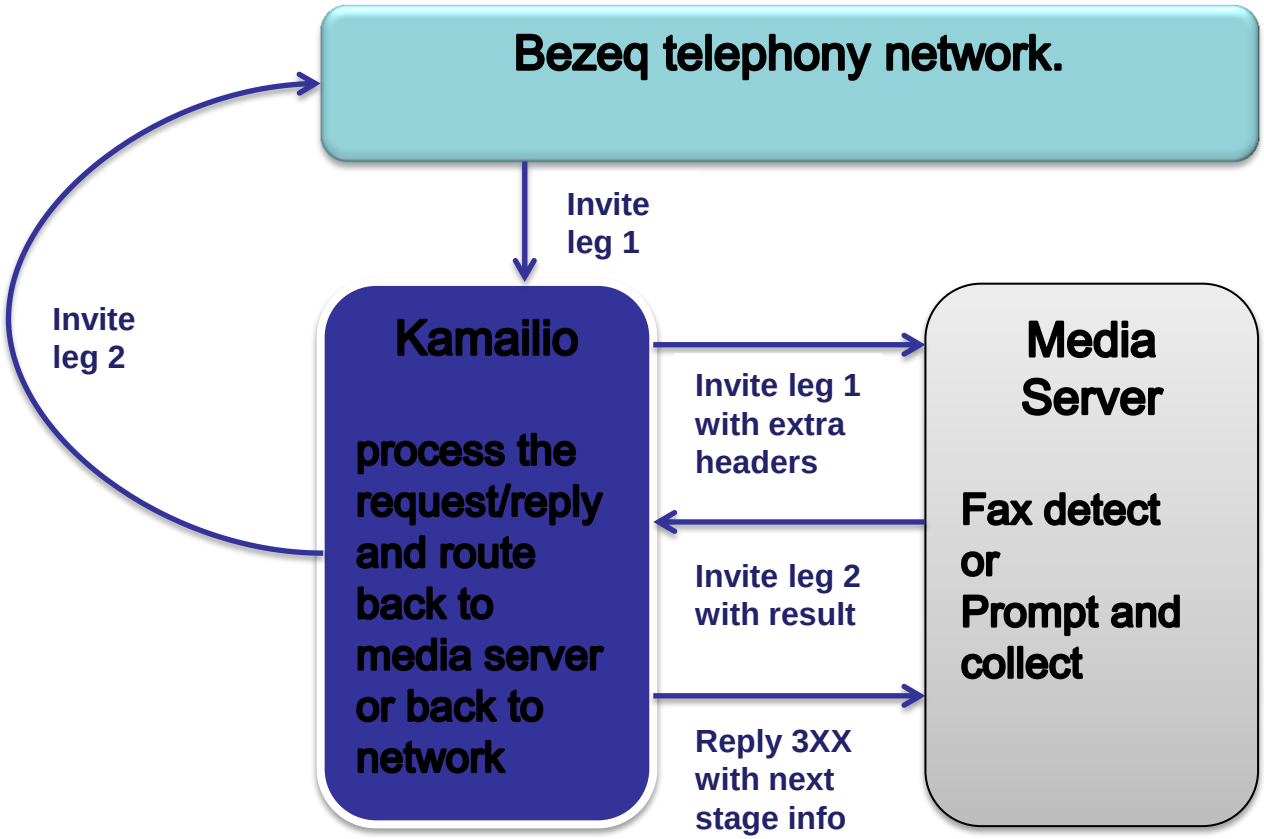
IVR Service

- **IVR** steps are stored using **HTABLE**:
  - **Junctions** table (Each junction has a code).
  - **Announcements** file path table (Based on the junction code).
  - **Actions** table (Each junction has a set of actions and results).
  - **Extensions** table (An action can be a direct route to extension).

- The call is transferred to the **media** server to prompt and collect based on the data sent in sip headers we add.

- **DIALOG** module is used to create parameters that will make it easy to bind 2 legs or more for billing.

IVR call flow



Thank you for your time.

contact:

Uri shacked Via LinkedIn