aare net

Training anSwitch V7

PBX CALL ROUTING & CALL DISTRIBUTION

Classification:	For Internal Use
Status:	Released
Version:	E1.6
Author:	D. Bochsler

INTRODUCTION & MOTIVATION

This training covers the topics:

- All types of call routing
- All types of incoming call routings
  - Direct Dialing In DDI
  - Advanced Call Distribution ACD
  - Interactive Voice Response IVR

After this training, the trainee is enabled:

- To understand the anSwitch call routing concept
- To configure the call distributions DDI, ACD and IVR
- To advise users and customers concerning the call distributions DDI, ACD and IVR
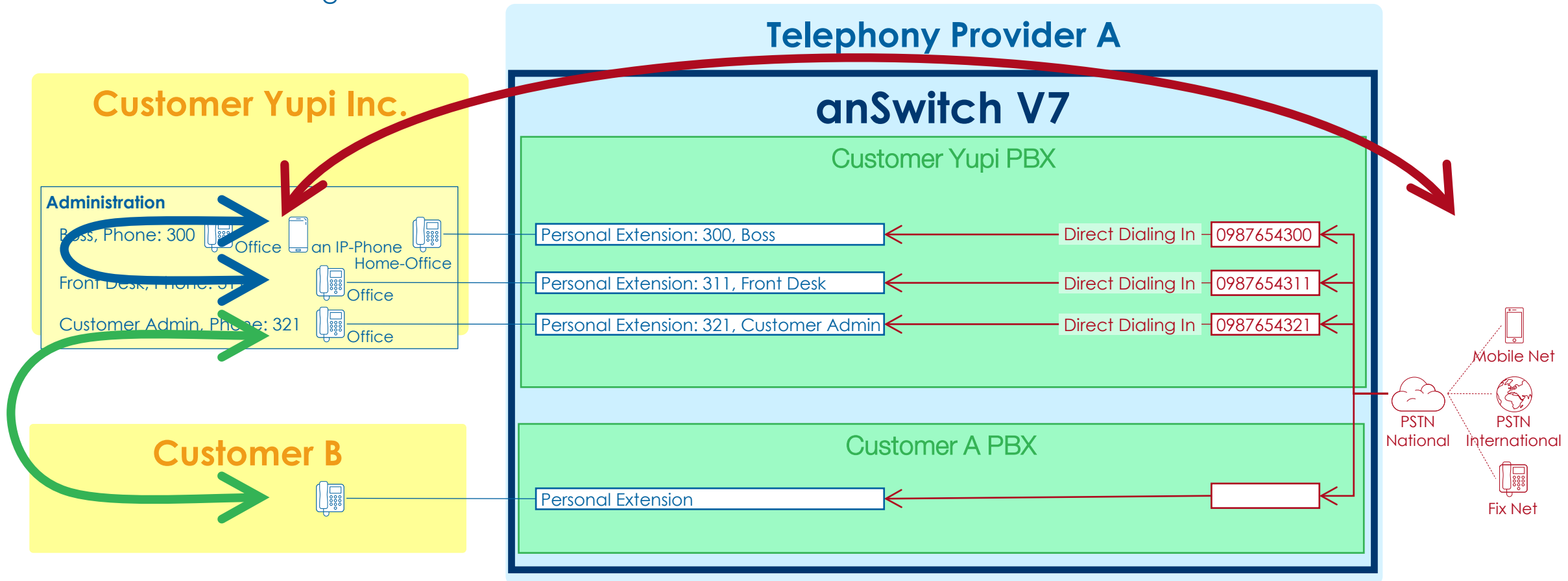
IT'S NOT MAGIC

IT'S "KNOW HOW"

TABLE OF CONTENTS
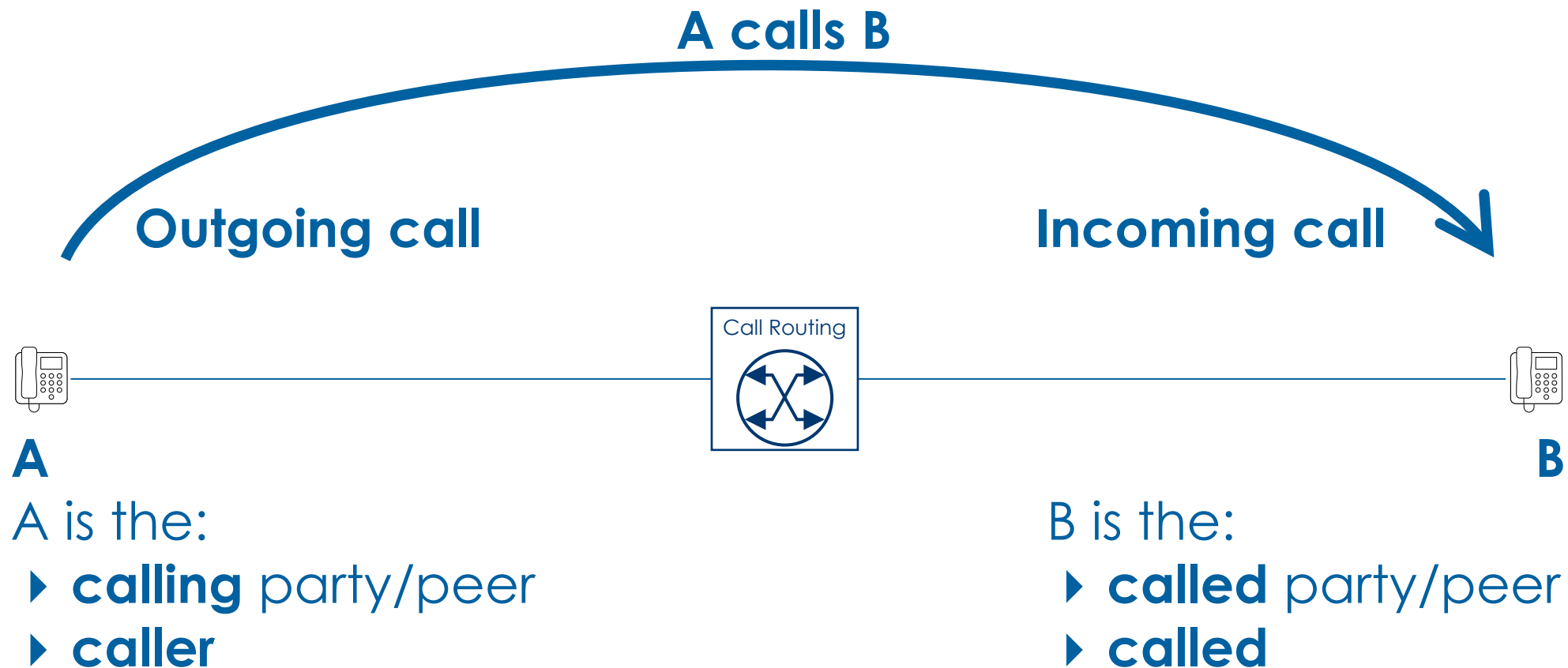
1   OVERVIEW CALL ROUTING & CALL DISTRIBUTION

OVERVIEW OF THE CALL ROUTING & CALL DISTRIBUTION

▶ The correct configuration of the call routing & call distribution assures that:
  ▶ All possible destinations can be called.
  ▶ Incoming calls can be distributed in the desired manner.
  ▶ No incoming calls are lost!

CALL PARTY DEFINITIONS

▶ Call party definitions:

A calls B

Outgoing call   **Incoming call**

Call Routing

A   **B**

A is the: B is the:
▶ **calling** party/peer   ▶ **called** party/peer
▶ **caller**   ▶ **called**
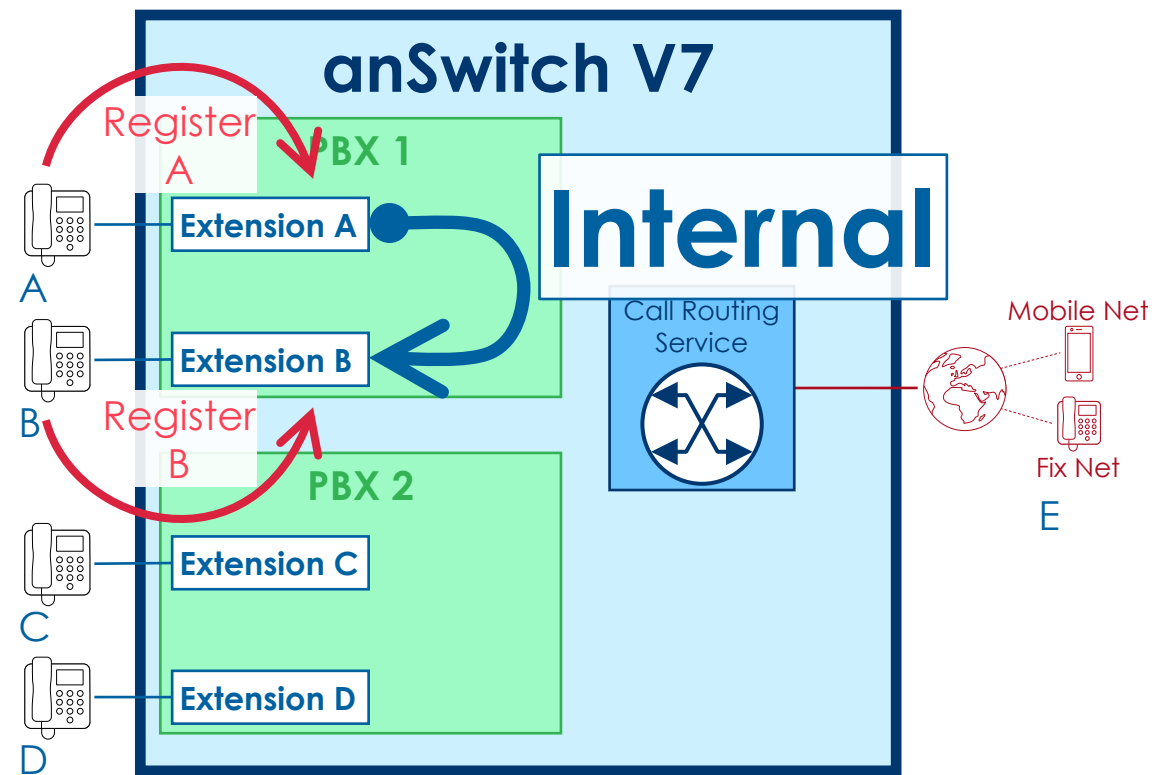
CALL ROUTING DEFINITIONS

▶ Call routing definitions:
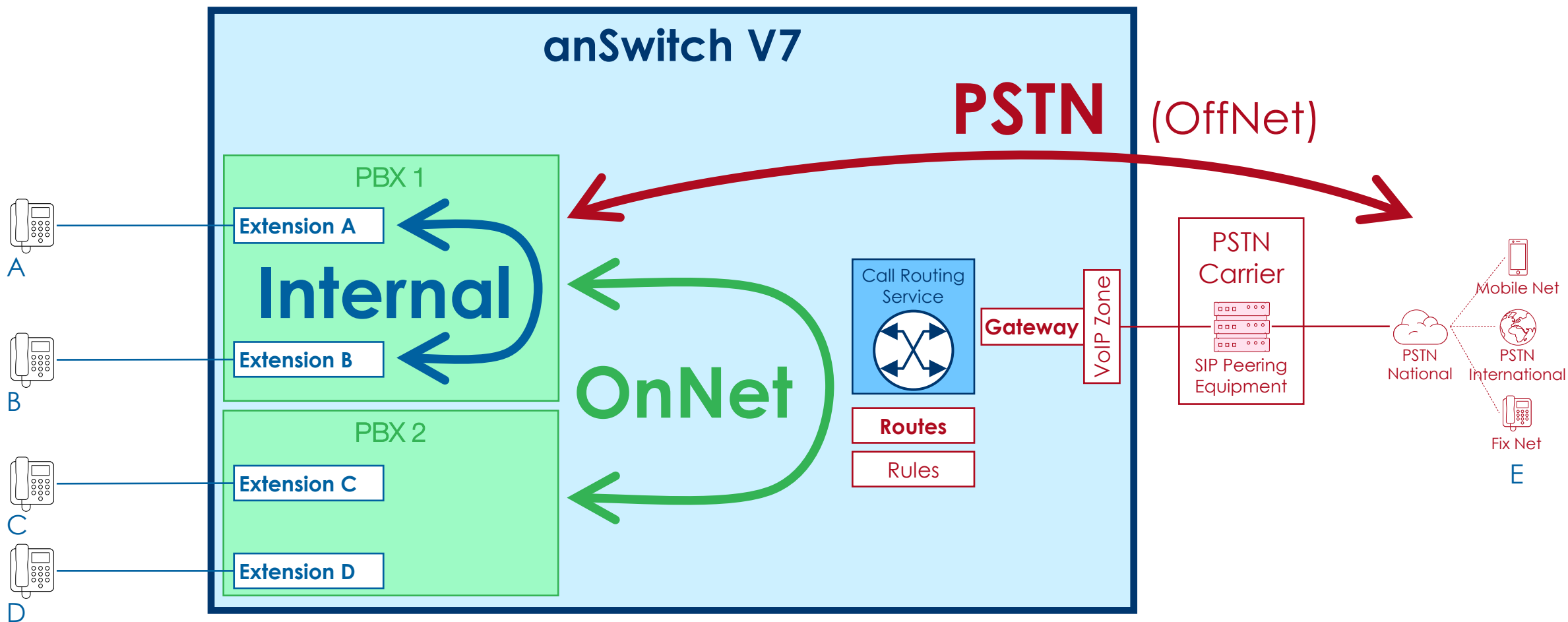
# 2   PBX INTERNAL CALL ROUTING

OVERVIEW PBX INTERNAL CALL ROUTING

▸ PBX internal calls are possible:
  ▸ As soon SIP phones have registered to the PBX extensions.
  ▸ The user A dials the internal number of B

▸ For the internal call routing no specific routing configurations are needed!

3 PBX OUTGOING CALL ROUTING: ONNET & PSTN

OVERVIEW PBX ONNET CALL ROUTING

▸ PBX internal calls are possible:
  ▸ As soon SIP phones have registered to the PBX extensions.
  ▸ The user B dials the public number of D, the configured DDI forwards the call to D

▸ For the OnNet call routing no specific routing configurations are needed!
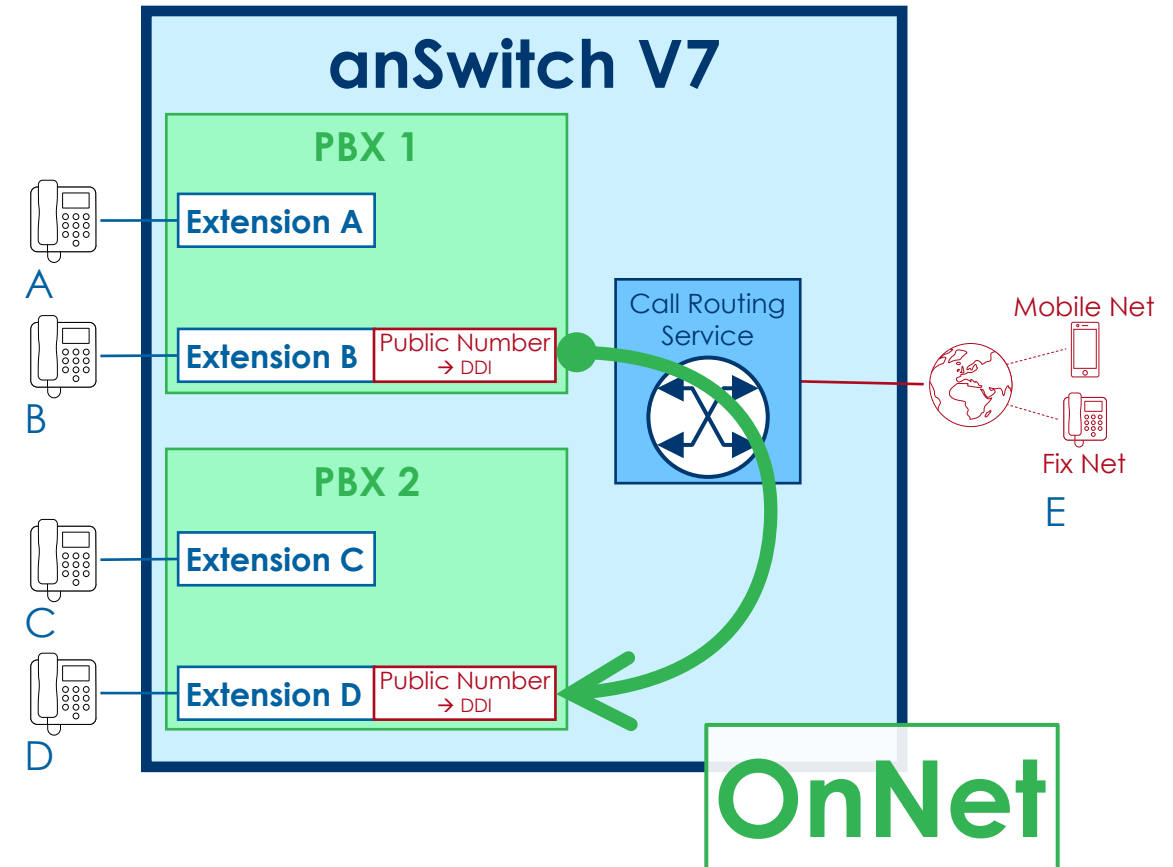
OVERVIEW PBX OUTGOING PSTN CALL ROUTING

▸ Outgoing PSTN calls are possible when Routes and Gateways are configured.

▸ There are 2 types of outgoing call routing toward the PSTN
   a. Via Routes and Gateways configured on level system or tenant
   b. The PBX has one or more own Client-Trunks with own Routes and Gateways.

   ▸ As soon SIP phones have registered to the PBX extensions.

   ▸ The user B or D dial the public number of E.
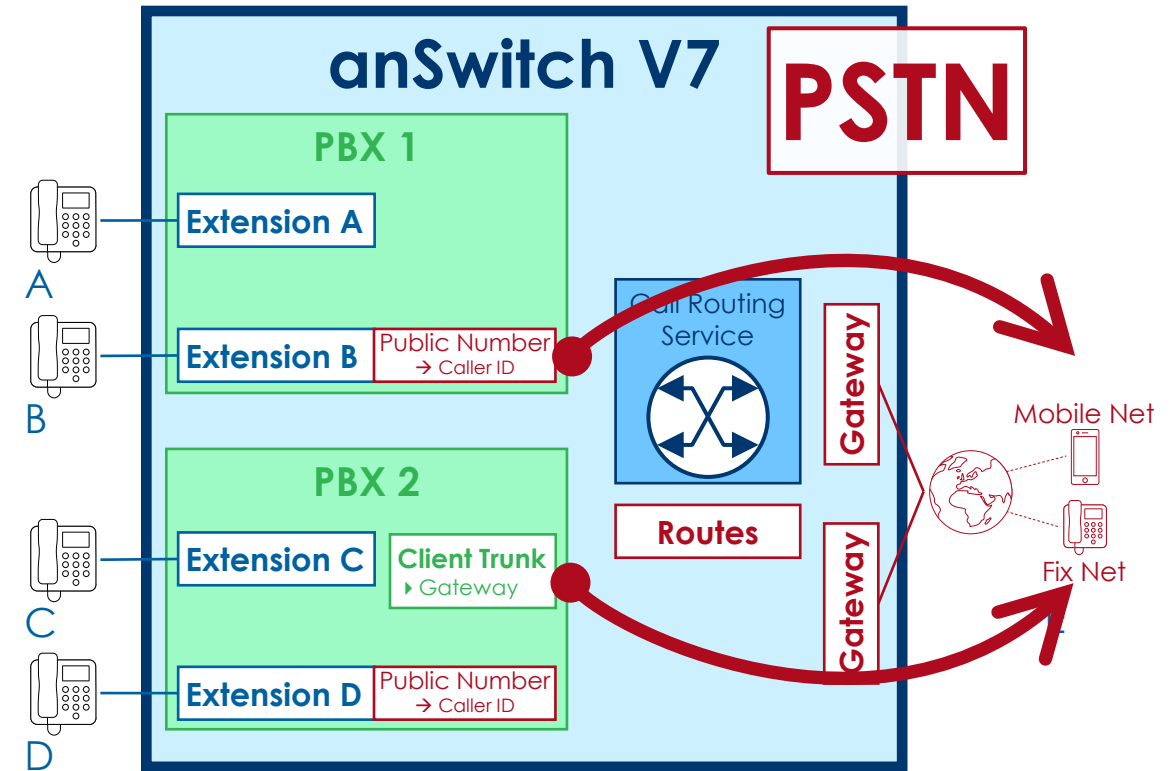
Note How to apply a Client-Trunk, see document: "PBX Creation & Management"

SPECIAL PBX OUTGOING CALL TO PSTN/ONNET WITH "PUBLIC PREFIX"

▸ For PBX outgoing calls to the PSTN/OnNet a PBX "Public Prefix" can be defined.

  ▸ The "Public Prefix" can be seen as the code for fetching a free line to the PSTN/OnNet.

▸ By default, no "Public Prefix" is configured.

▸ At need any number between 0 – 9 can be defined as "Public Prefix":

  ▸ "Public Prefix": Empty or Digit 0 – 9

  > Menu: PBX Administrator
    > Sub-Menu: PBX Settings

▸ Caller dialing procedure:

  ▸ The caller dials the PSTN number with the "Public Prefix", e.g. "0": 00123456789

PBX Settings PA-PBX-0AX89001

▦ PBX Dashboard   ⚙ PBX List

🖫 Save

PBX

Name
PA-PBX-0AX89001

Description
Yupi Inc, Honolulu, 0987654300 – 49, 0800654310, 0800

Member of
Provider A   ⌄

Teams Domain

Public numbers

Number range
0449980105,0550-9,0650-9,0800654310,0800654340,09

Valid from
20.04.2021 06:00   📅

Valid until   📅

Properties

Extensions   10 ↕

Service Extensions   10 ↕

External channels   20 ↕

Public Prefix

Time Zone   Date Format
Europe/Zurich ⌄   dd.MM.yyyy ⌄

Time Format
24 Hours ⌄

Time mode
Timetable   ⌄

SPECIAL PBX OUTGOING CALL TO PSTN/ONNET WITH "PIN"

▸ For PBX outgoing calls to the PSTN a PIN can be defined.

▸ A PIN can be defined for PBX Extension individually:

  ▸ PIN: Any number
  ▸ At number category select: "PIN required"

> Menu: PBX Administrator
  > Sub-Menu: Extensions
    > Click the row of the desired extension
      > Click on link: Extension Setup

▸ Caller dialing procedure:

  ▸ The caller dials the PSTN number.
  ▸ By an in-band announcement the caller is required to enter the PIN.
  ▸ The call is routed if the PIN is correct.

BLOCKING OUTGOING CALLS TO THE PSTN

▸ PBX outgoing calls to certain number categories can be blocked.

▸ Blocking a number category:
- ▸ At number category select: "Blocked"

> Menu: PBX Administrator
> > Sub-Menu: Extensions
> > > Click the row of the desired extension
> > > > Click on link: Extension Setup

▸ The number categories are:
- ▸ International: International phone numbers
- ▸ National: National phone numbers
- ▸ National VAS: National value-added phone numbers

▸ The number categories are defined in the pricelist which is assigned to the PBX "Customer Price List".

4 OVERVIEW PBX INCOMING CALL ROUTING

OVERVIEW PBX INCOMING CALL DISTRIBUTION OPTIONS

▶ The anSwitch PBX offers **3** incoming call distribution modes:

1. All Phones
   ▶ An incoming call is signaled to all registered phones of the Personal Extension.

2. Advanced Call Distribution ACD
   ▶ An incoming call is signaled to the assigned phones of the Service Extension.
   ▶ There are several different methods for signaling the phones, e.g.: linear, cyclic, parallel.

3. Interactive Voice Response IVR
   ▶ An incoming call is forwarded to IVR menus where the caller can be informed about the further proceeding.
   ▶ The caller can send responses that influences the further call processing

OVERVIEW DISTRIBUTION MODE: ALL PHONES

▸ The incoming call is forwarded by a Direct Dialing In DDI to a Personal Extension.

▸ All registered phones of the Personal Extension will ring concurrently.

▸ The user has different features at hand, e.g.: Call Forwarding CF, Call Reject, etc.
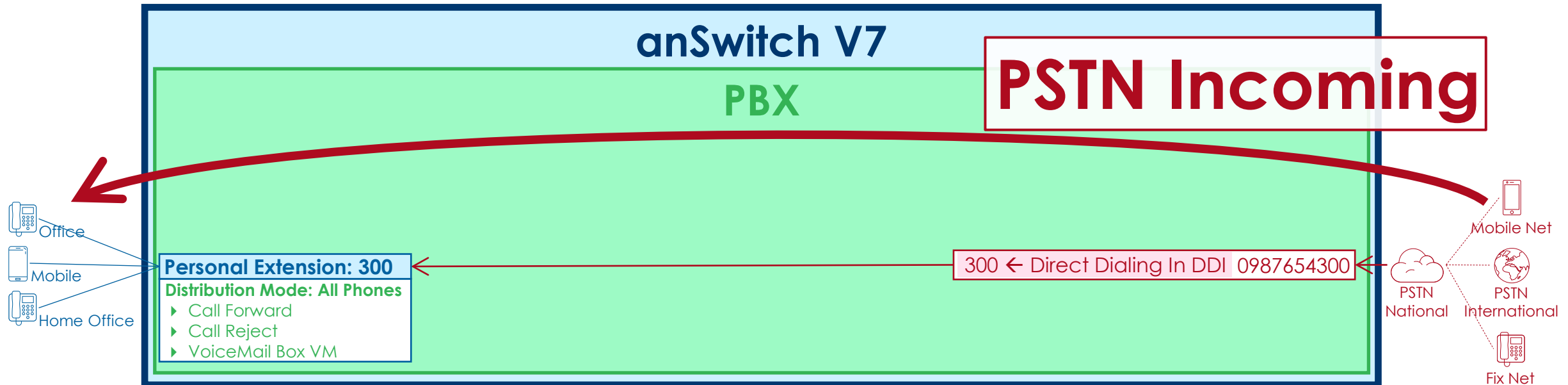
OVERVIEW DISTRIBUTION MODE: ADVANCED CALL DISTRIBUTION ACD

▸ The incoming call is forwarded by a Direct Dialing In DDI to a Service Extension.
▸ The assigned phones are signaled according the timetable and method.
▸ The caller can hear a notification and/or waiting music when put into a waiting queue.
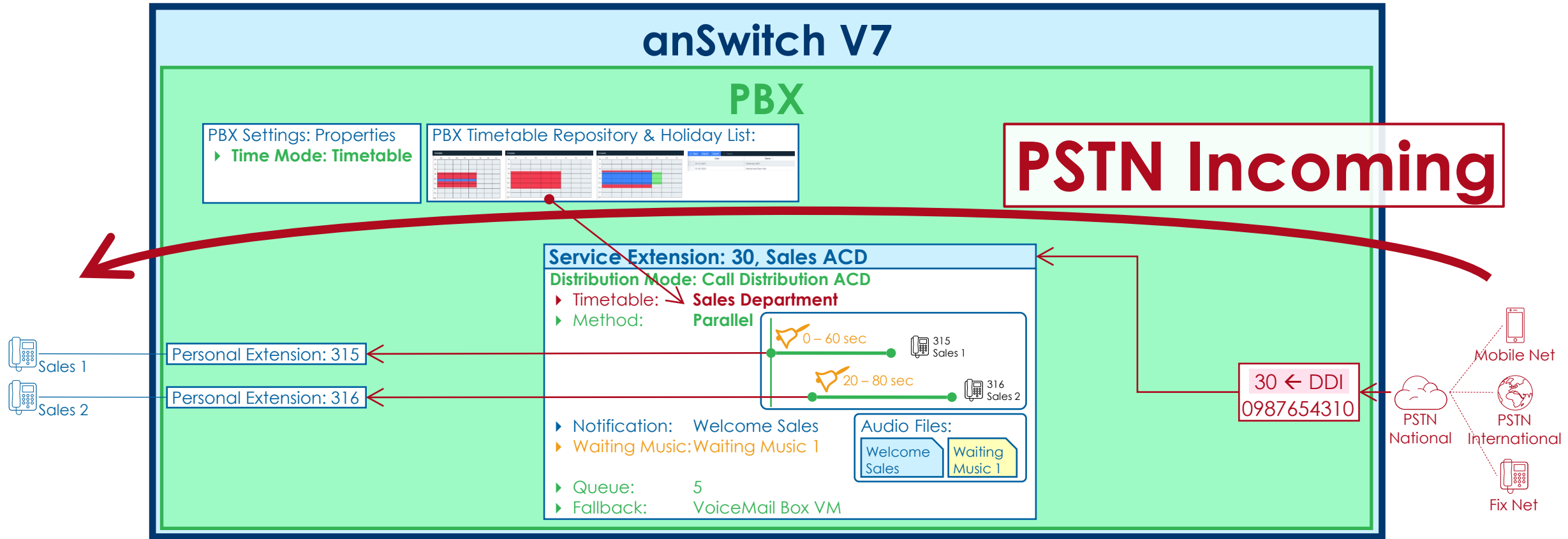
OVERVIEW DISTRIBUTION MODE: INTERACTIVE VOICE RESPONSE IVR

▸ The incoming call is forwarded by a Direct Dialing In DDI to a Service Extension.

▸ The caller is forwarded to IVR menus where the caller is informed about the further proceeding.
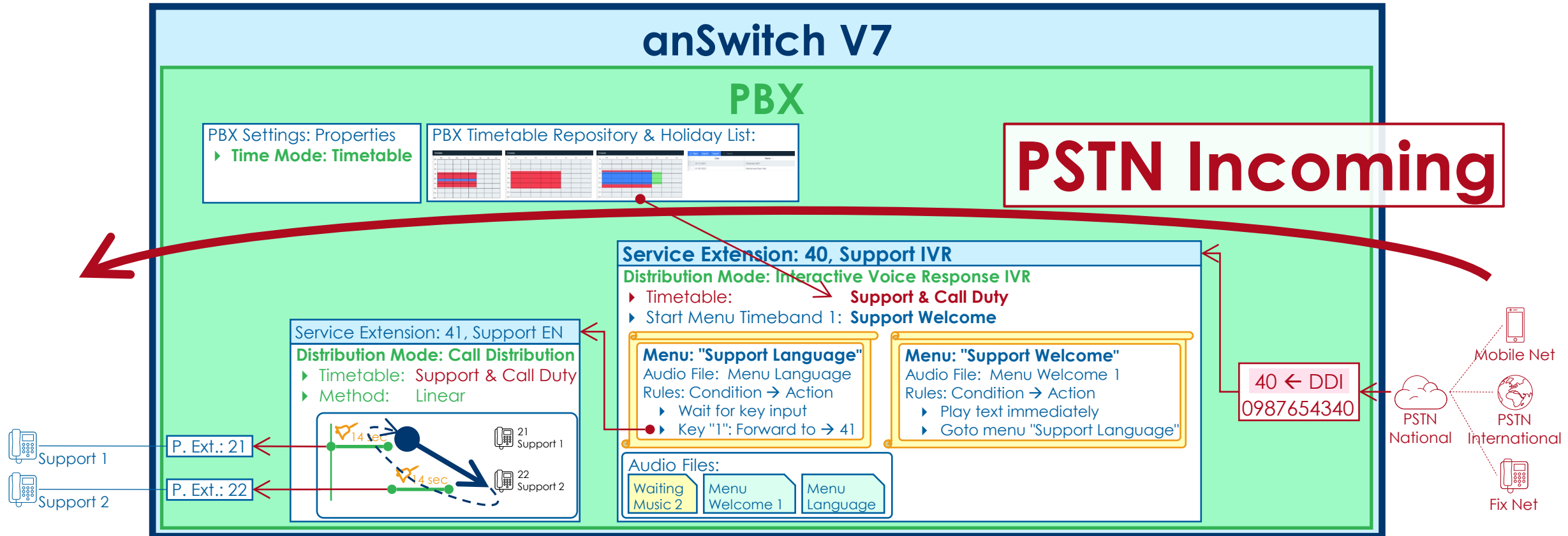
OVERVIEW DISTRIBUTION MODE: PAGING – INTERCOM

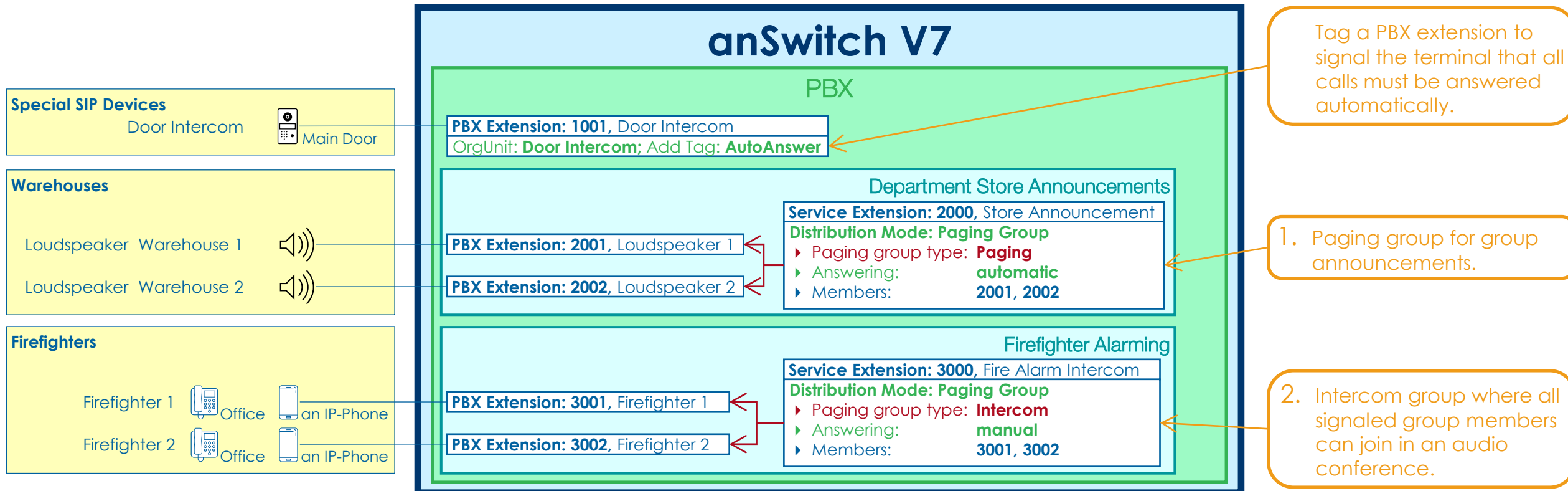▸ Detailed description of the feature "Paging – Intercom", see documentation "Paging – Intercom"

▸ Use cases of Paging – Intercom:

  ▸ Paging group for group announcements

  ▸ Intercom group where all signaled group members can join in an audio conference

anSwitch V7

PBX

Special SIP Devices
Door Intercom
Main Door

PBX Extension: 1001, Door Intercom
OrgUnit: **Door Intercom**; Add Tag: **AutoAnswer**

Tag a PBX extension to signal the terminal that all calls must be answered automatically.

Warehouses

Loudspeaker Warehouse 1

Loudspeaker Warehouse 2

Department Store Announcements

PBX Extension: 2001, Loudspeaker 1

PBX Extension: 2002, Loudspeaker 2

Service Extension: 2000, Store Announcement
Distribution Mode: Paging Group
▸ Paging group type: **Paging**
▸ Answering: **automatic**
▸ Members: **2001, 2002**

1. Paging group for group announcements.

Firefighters

Firefighter 1
Office   an IP-Phone

Firefighter 2
Office   an IP-Phone

Firefighter Alarming

PBX Extension: 3001, Firefighter 1

PBX Extension: 3002, Firefighter 2

Service Extension: 3000, Fire Alarm Intercom
Distribution Mode: Paging Group
▸ Paging group type: **Intercom**
▸ Answering: **manual**
▸ Members: **3001, 3002**

2. Intercom group where all signaled group members can join in an audio conference.

5   PBX INCOMING CALL ROUTING: DIRECT DIALING IN DDI

PBX INCOMING CALL ROUTING WITH DIRECT DIALING IN DDI

▶ Incoming calls to the PBX from the PSTN (or OnNet) must be routed via Direct Dialing In DDI to either:

  ▶ A PBX Personal Extension with registered SIP phones.

  ▶ A PBX Service Extension with dedicated call distribution algorithms, see sections:

    ▶ Advanced Call Distribution ACD
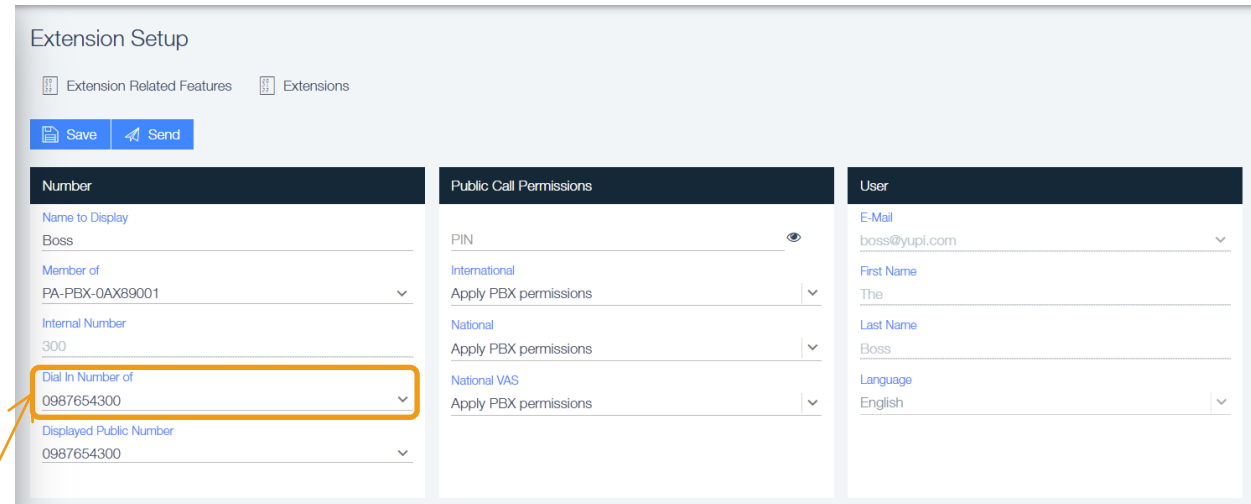   ▶ Interactive Voice Response IVR
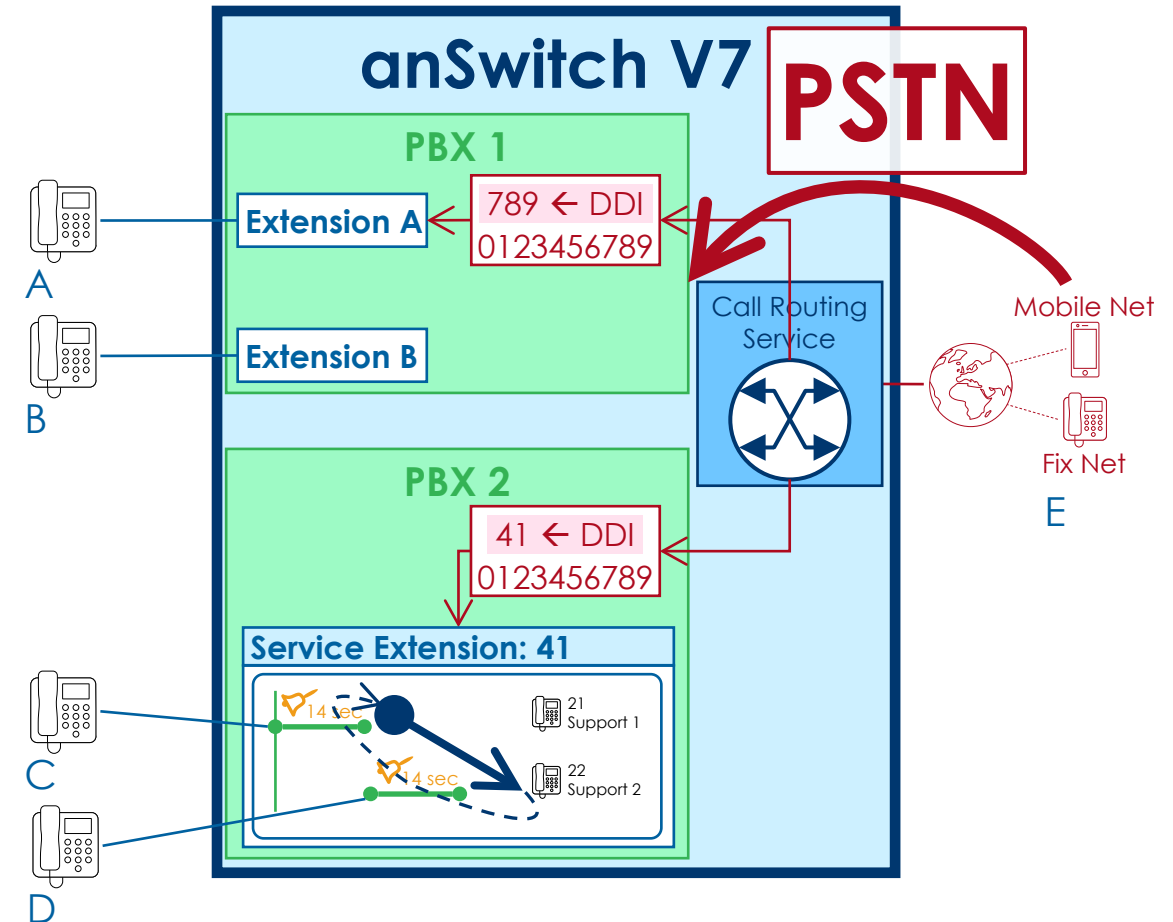
Note — Other advanced incoming call routing solutions can be realized with a customer CTI application using the CallControl API, see document:
"Using & Managing the CTI API"

CONFIGURATION OF DIRECT DIALING IN DDI

▸ For configuring DDI the public number must be selected whose incoming calls are forwarded to the internal number.
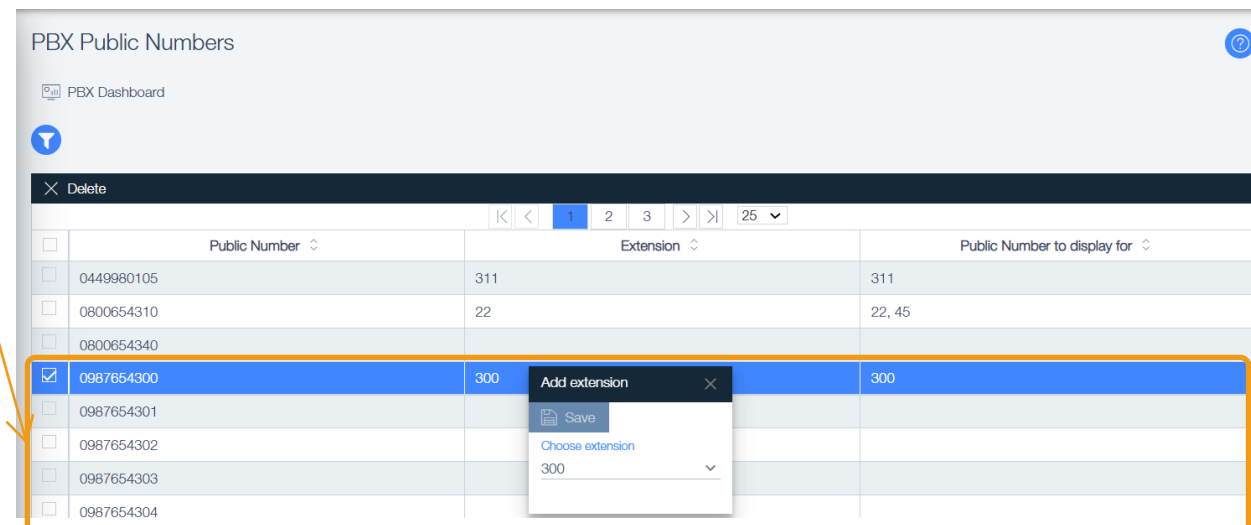
▸ Variant 1: In the "Extension Setup" :
  ▸ Select the public number.
    > Menu: PBX Administrator
      > Sub-Menu: Extensions
        > Click the row of the desired extension
          > Click on link: Extension Setup
            > Select the public number at "Dial In Number of"

▸ Variant 2: In the "Public Numbers" :
  ▸ Select the internal number.
    > Menu: PBX Administrator
      > Sub-Menu: Public Numbers
        > Click the row of the desired public number
        > In dialog "Add extension" select the internal number

▸ Variant 3: Automatically during the PBX Extension creation.
  ▸ See training: training_answitch_403_pbx_department_extension

6   TIMETABLE BASED INCOMING CALL ROUTING

OVERVIEW TIMETABLES

▸ Incoming calls to the PBX can be scheduled by timetables.

▸ A Timetable defines the scheduling for incoming calls according:
  ▸ Weekdays
  ▸ Day times
  ▸ Holidays

▸ A Timetable contains timebands. A timeband defines which ACD or IVR is invoked upon an incoming call.

▸ Timetables are PBX and/or PBX Department resources.
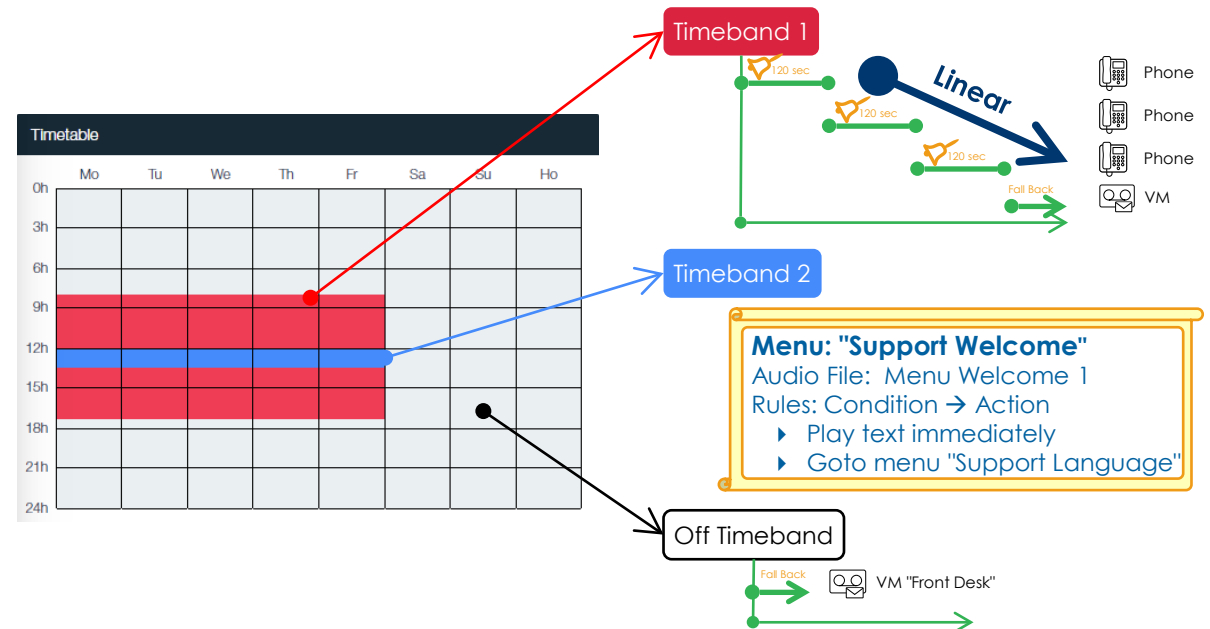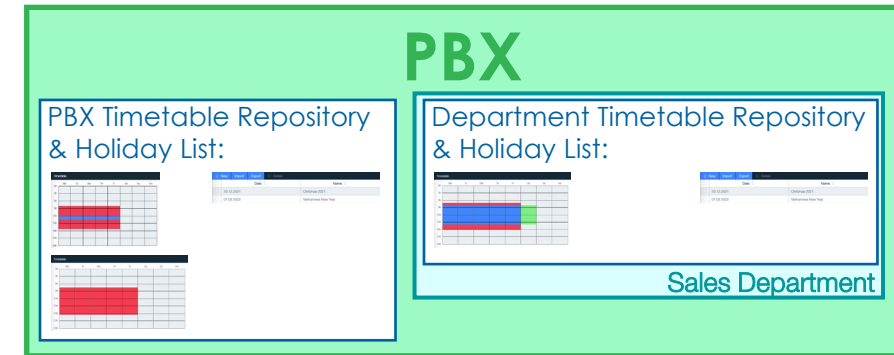
OVERVIEW TIMEBANDS

▸ A timeband defines the scheduling of a call distribution according:

  ▸ Weekday

  ▸ Day time

  ▸ Holiday

▸ A Timetable can contain a max. of 5 configurable timebands.
An "Off Timeband" handles all incoming calls that are not covered by a timeband.

▸ To an Timeband an call distribution type e.g., ACD or IVR, is associated.

Definition of the Timebands

Realization of the call distributions for the PBX Extension
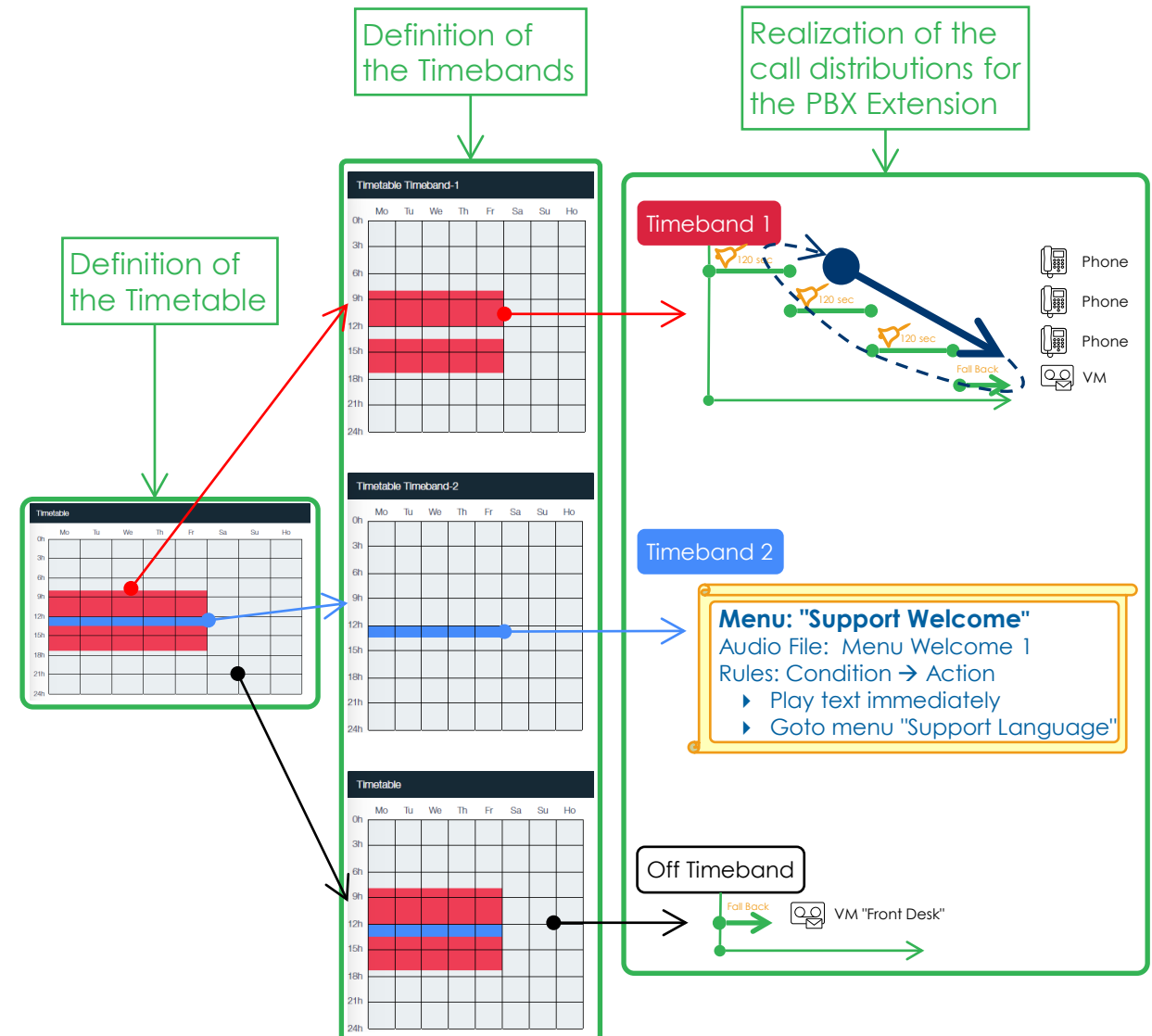
Definition of the Timetable

Timetable Timeband-1

Timetable Timeband-2

Timetable

Timetable

Timeband 1

120 sec.
120 sec.
120 sec.
Fall Back

Phone
Phone
Phone
VM

Timeband 2

Menu: "Support Welcome"
Audio File: Menu Welcome 1
Rules: Condition ➔ Action
  ▸ Play text immediately
  ▸ Goto menu "Support Language"

Off Timeband

Fall Back   VM "Front Desk"

CREATING & MANAGING HOLIDAYS

▶ **The PBX Administrator can create and manage a list of holidays.**

    ▶ **Create a new holiday entry:**

        > Menu: PBX Administrator / Department Administrator
            > Sub-Menu: Holidays
              > Click button: New

                > Configure a single or a range of holidays

    ▶ **Manage an existing holiday:**

        > Menu: PBX Administrator / Department Administrator
            > Sub-Menu: Holidays
              > Click the row of the desired holiday
                > Configure the dialog: Edit Holiday

▶ **A Department Administrator can manage holidays for the department.**

    ▶ The department holidays are private for the department and not visible on the PBX level.

▶ **The holiday list can be exported, modified with MS Excel and reimported.**

CREATING & MANAGING TIMETABLES

▸ The PBX Administrator can create and manage a repository of Timetables.

  ▸ Create a new Timetable:
    > Menu: PBX Administrator
      > Sub-Menu: Timetables
        > Click button: New

  ▸ Manage an existing Timetable one:
    > Menu: PBX Administrator
      > Sub-Menu: Timetables
        > Click the row of the desired timetable

▸ A Department Administrator can manage timetables for the department.
  ▸ The department timetables are private for the department and not visible on the PBX level.

▸ Timetables can be exported, modified with MS Excel and reimported.

PBX

PBX Timetable Repository & Holiday List:

Department Timetable Repository & Holiday List:
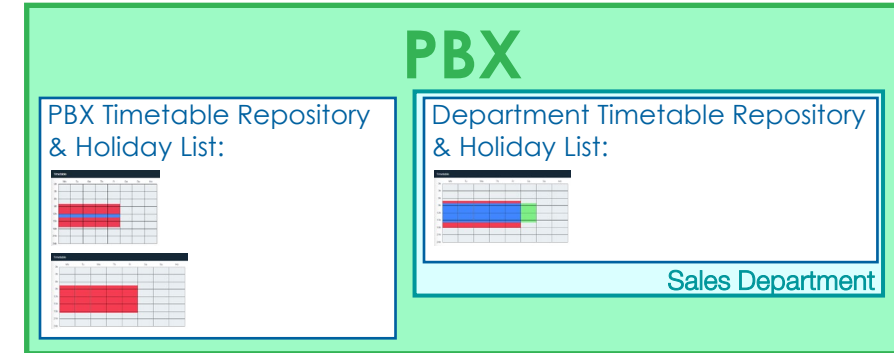
Sales Department

PBX Timetables - PA-PBX-0AX89001

PBX Dashboard

| + New | Import | Export | ✕ Delete |

	Name ⌄	OrgUnit Id	OrgUnit name
☑	PBX Default	26	PA-PBX-0AX89001
☐	Support & Call Duty	26	PA-PBX-0AX89001
☐	Sales Department	26	PA-PBX-0AX89001

	A	B
1	**Timetable**	PBX Default
2	**Timeband**	**Pattern**
3	1	12345@0730-1200
4	1	12345@1300-1730
5	2	12345@1200-1300

CONFIGURING THE TIMEBANDS OF A TIMETABLE

▸ A timetable can contain up to 5 timebands.

▸ A Timeband can contain n registration periods defining the daily periods during weekdays or the holidays.

  ▸ Create a timeband:
    > Click the desired color of the timeband

  ▸ Add periods to the timeband:
    ▸ Daytime "From ... To"
    ▸ Weekdays
    ▸ Holiday list of the PBX or a department
    > Click: New
      > Configure the period in the dialog: "Registration Period"

Note The daytime starts at 00:00 and ends at 24:00.

OVERVIEW OF THE TIMETABLE "TIME MODE" OF THE PBX

▸ The Time Mode defines the time interpretation of all the PBX Timetables.

  ▸ Time Mode setting: Timetable
    ▸ An incoming call on Monday 10:00 is routed according Timeband 1
    ▸ An incoming call on Wednesday 12:24 is routed according Timeband 2

➔ This is the default Timetable Time Mode of the PBX and is deployed to all incoming call routings which are based on timetables.

PBX

PBX Settings: Properties
▸ **Time Mode: Timetable**

Timeband 1

120 sec
120 sec
120 sec
Fall Back

Phone
Phone
Phone
VM

Timetable

	Mo	Tu	We	Th	Fr	Sa	Su	Ho
0h								
3h								
6h								
9h								
12h								
15h								
18h								
21h								
24h								

Timeband 2

Menu: "Support Welcome"
Audio File: Menu Welcome 1
Rules: Condition ➔ Action
▸ Play text immediately
▸ Goto menu "Support Language"

Off Timeband

Fall Back
VM "Front Desk"
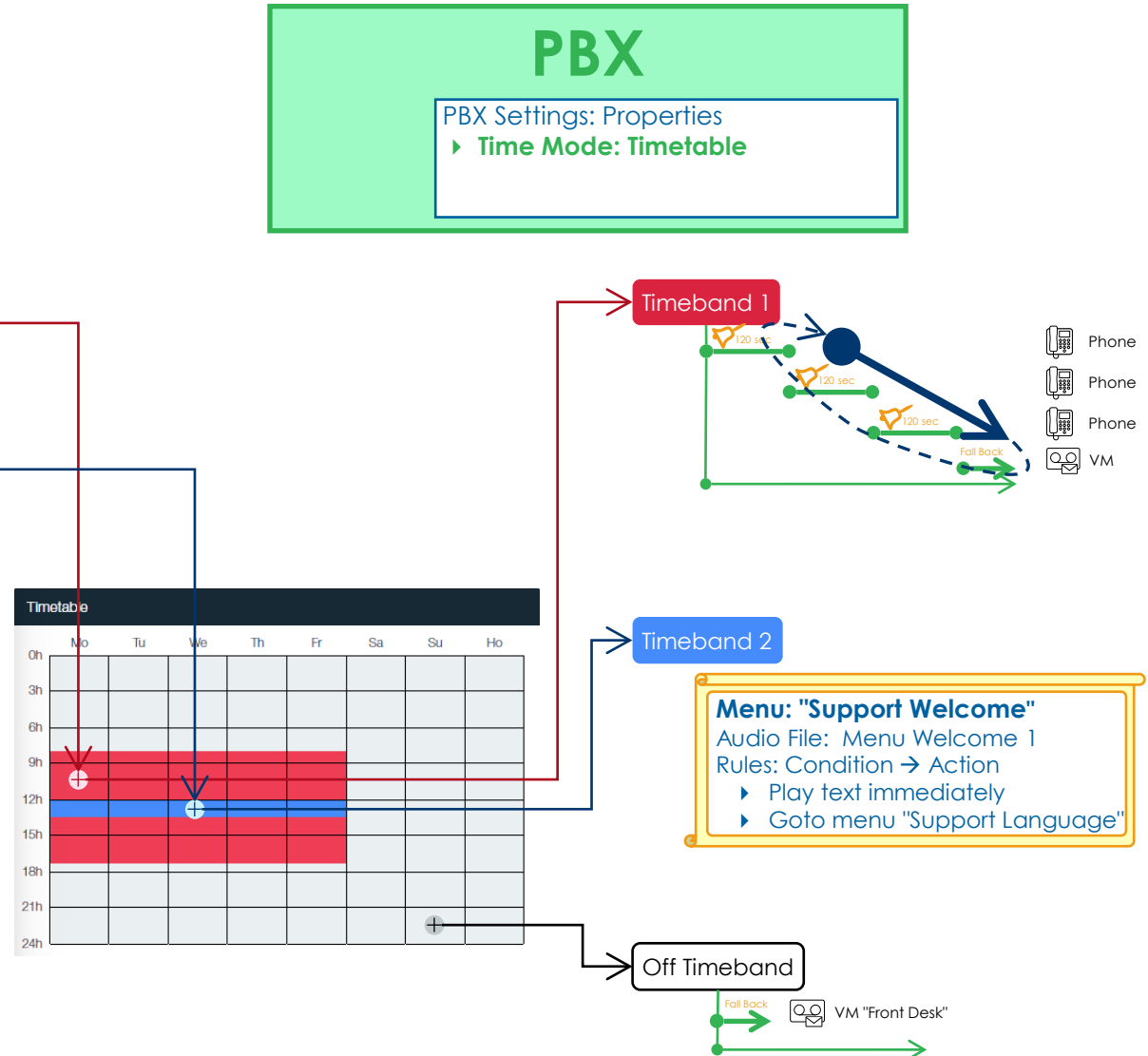
OVERVIEW "TIME MODE NIGHT" OF THE PBX

▸ The time mode "Night" changes the interpretation of time for all timetables of the PBX/Department from the time of activation until 24:00 of the same day.

> **PBX**
>
> PBX Settings: Properties
> ▸ **Time Mode:Night**
>   **Night permanent**

> ▸ Activation Time Mode setting:
> "Night" & "Night permanent"
> Example:
> ▸ The mode "Night" was **activated on Monday, 15:30**.
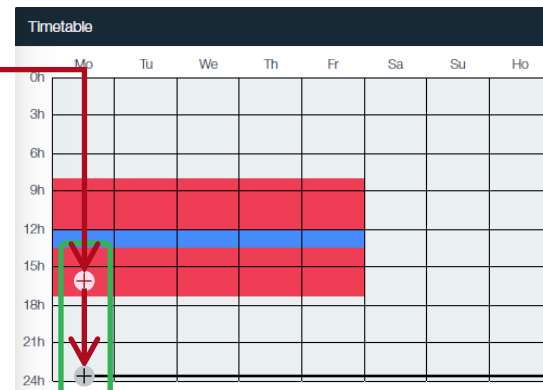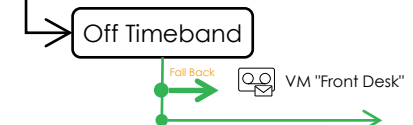> ▸ The time of all later incoming calls on Monday e.g., 17:05, is ignored and replaced by **24:00**.
> → The later incoming calls on Monday are routed according "Off Timeband".
>
> ▸ Deactivation of "Night" :
> ▸ Time Mode: "Night"
> Automatically at 24:00 of the activation day.
> ▸ Time Mode: "Night permanent"
> Until manually set back to mode "Timetable".

Timeband 1

Phone
Phone
Phone
VM

Timeband 2

> **Menu: "Support Welcome"**
> Audio File: Menu Welcome 1
> Rules: Condition → Action
> ▸ Play text immediately
> ▸ Goto menu "Support Language"

Timetable

	Mo	Tu	We	Th	Fr	Sa	Su	Ho
0h								
3h								
6h								
9h								
12h								
15h								
18h								
21h								
24h								

The actual time is replaced by 24:00.
→ In this example the call is routed according "Off Timeband".

Off Timeband

Fall Back   VM "Front Desk"

OVERVIEW "TIME MODE WEEKEND" OF THE PBX

▸ The Time Mode "Weekend" alters the interpretation of the day and time of all the PBX Timetables until the next weekend.

    ▸ Activation Time Mode setting: "Weekend" & "Weekend permanent"
    Example:
       ▸ The mode Weekend was **activated on Thursday, 17:00**.
       ▸ The day/time of all later incoming calls of this week e.g., Thursday 17:05, are ignored and replaced by **Sunday 24:00**.
         ➔ The later incoming calls of this week are routed according "Off Timeband".

    ▸ Deactivation of "Weekend":
       ▸ Time Mode: "Weekend"
       Automatically at 24:00 of the next Sunday.
       ▸ Time Mode: "Weekend permanent"
       Until manually set back to mode "Timetable".

PBX

PBX Settings: Properties
▸ **Time Mode: Weekend**
      Weekend permanent

Timeband 1

Phone
Phone
Phone
VM

Timeband 2

Menu: "Support Welcome"
Audio File: Menu Welcome 1
Rules: Condition ➔ Action
▸ Play text immediately
▸ Goto menu "Support Language"

Timetable

	Mo	Tu	We	Th	Fr	Sa	Su	Ho
0h								
3h								
6h								
9h								
12h								
15h								
18h								
21h								
24h								

The actual day/time is replaced by Sunday 24:00.
➔ In this example the call is routed according "Off Timeband".

Off Timeband

Fall Back   VM "Front Desk"

USE CASE OF THE PBX "TIME MODE NIGHT/WEEKEND"

▸ The Time Modes Night/Weekend might be useful in cases where all incoming calls are routed primarily to a front desk organization.

   ▸ Usage of "Night":
   In the case that the Front Desk personnel has an earlier end of day they can activate the time mode "Night". Afterwards all incoming calls are routed according the timetable configuration at midnight (24:00) of this day.

   ▸ Usage of "Weekend":
   In the case that the company has a long weekend, e.g. due to holidays, the activated time mode "Weekend" routes all incoming calls according the timetable configuration of the next Sunday at midnight (24:00).

CONFIGURING THE PBX TIME MODE

▸ Configure the PBX time mode in the Portal UI:

> Menu: PBX Administrator
> > Sub-Menu: PBX Setting
> > > Select the desired time mode

CONFIGURING THE PBX TIME MODE

▸ Select the time mode with *#-code 98 from any phone of the PBX or a Department:

  ▸ If the phone belongs to a Department Extension the time mode will change only for this Department.

  ▸ If the phone belongs to a PBX Extension, then the time mode of the PBX is changed.

Description		*#-Codes
Select the PBX Time Mode	Timetable	Dial: *980
	Night	Dial: *981
	Weekend	Dial: *982
	Night permanent	Dial: *983
	Weekend permanent	Dial: *984

▸ Tune the time mode usage with OrgUnit attributes on level PBX or PBX Extension

OrgUnit Attribute	Value	Description
User Feature Related		
timemodeConfigLevel	[pbx] Default: pbx	When this attribute is set in a PBX Extension then the phones of this Extension will always set the time mode on level PBX.
timemodeConfigPermission	[true | false] Default: true	If this attribute is set to "false" on level PBX or PBX Extension, then the time mode cannot be changed by the *98-code.

Best Practice Configure the desired *#-codes as 'Speed dial' on phone keys.

7   NOTIFICATION & MUSIC AUDIO FILES
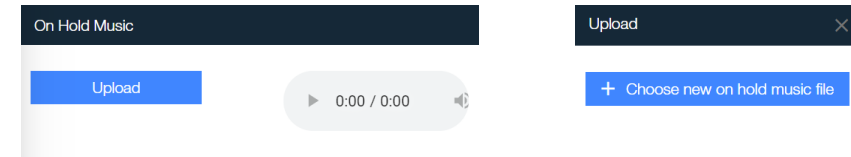
OVERVIEW OF NOTIFICATION & MUSIC AUDIO FILES

▶ Notification & Music Audio Files are needed in different features:

   ▶ Call Hold CH:

      ▶ Optional hold music and/or notification of the PBX.*

   ▶ VoiceMail Box VM:

      ▶ Optional greeting and notification of the user.*

   ▶ Advanced Call Distribution ACD:

      ▶ Optional notification

      ▶ Optional waiting music

   ▶ Interactive Voice Response IVR:

      ▶ For the IVR menu notification

      ▶ Optional waiting music

* Else the anSwitch default audio file is used.
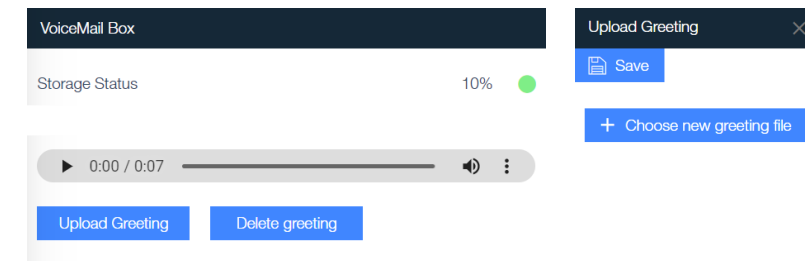
UPLOAD PREPARED AUDIO FILES

▸ Audio files can be prepared in advanced.

  ▸ The following audio formats and limits are allowed for audio files:
    ▸ WAV (PCM coded)
    ▸ MP3
    ▸ Max. duration is limited to 5 minutes
    ▸ ACD & IVR: The max. file size is limited to 50MByte

▸ The upload process is usually:

  1. Start the upload process
  2. Select the audio file and upload it from the PC
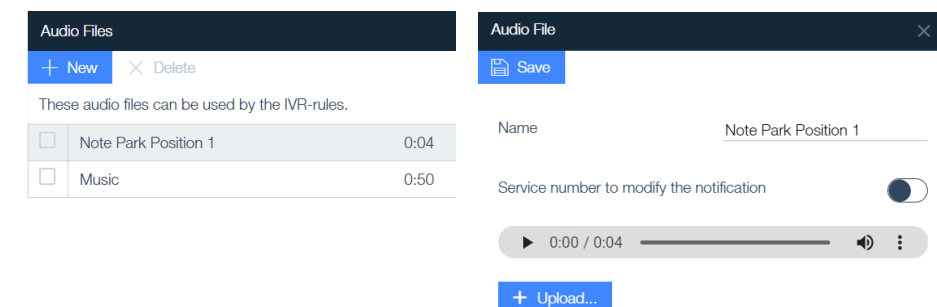 3. Save the audio file
  4. Check by listening the audio file

▸ PBX Call Hold :

On Hold Music

Upload   ▶ 0:00 / 0:00

Upload   ✕

+ Choose new on hold music file

▸ VoiceMail Box VM:

VoiceMail Box

Storage Status   10% ●

▶ 0:00 / 0:07 ───────── 🔊 ⋮

Upload Greeting   Delete greeting

Upload Greeting   ✕

🖺 Save

+ Choose new greeting file

▸ ACD & IVR:

Audio Files

+ New   ✕ Delete

These audio files can be used by the IVR-rules.

| ☐ | Note Park Position 1 | 0:04 |
| ☐ | Music | 0:50 |

Audio File   ✕

🖺 Save

Name   Note Park Position 1

Service number to modify the notification   🔘

▶ 0:00 / 0:04 ───────── 🔊 ⋮

+ Upload...
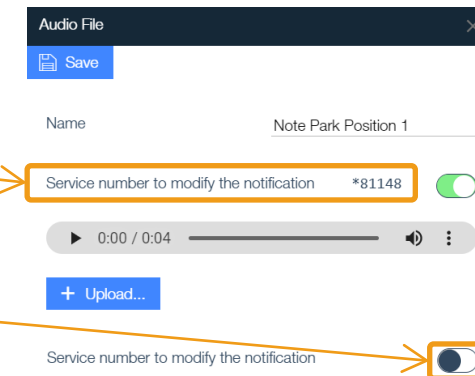
RECORD AN AUDIO NOTIFICATION BY PHONE

▶ Some features allow you to record a personal greeting or notification via a phone.

▶ VoiceMail Box VM:
1. From any phone of the extension of the VoiceMail Box dial: *86
2. Select the VM menu for recording the personal greeting.
3. Follow the in-band instructions for recording

▶ Record an audio file from any phone of the PBX for ACD & IVR notifications:
1. The dialog offers to record an audio file by dialing *81<CODE>, e.g. *81148
2. Follow the in-band instructions for recording
   ▶ To protect the recording disable the recording of the audio file.

▶ ACD & IVR:

Audio Files
+ New   ✕ Delete

These audio files can be used by the IVR-rules.

☐	Note Park Position 1	0:04
☐	Music	0:50

Audio File   ✕
🖫 Save

Name   Note Park Position 1

Service number to modify the notification   *81148

▶ 0:00 / 0:04   🔊 ⋮

+ Upload...

Service number to modify the notification

USEFUL LINKS & TOOLS FOR AUDIO FILE HANDLING

▶ Manipulating audio files for Windows, Mac and Linux:
  ▶ Audacity®: https://www.audacityteam.org/

▶ License free music files:
  ▶ CCMixter: http://dig.ccmixter.org/

▶ Link to web site with text to audio conversion:
  ▶ Free Text-To-Speech and Text-to-MP3 for US English: https://ttsmp3.com/

| Note | Disclaimer: This document may contain active links to third-party websites. Aarenet AG does not control such websites nor do we accept any liability with respect to content, accuracy or completeness of such websites. These third-party links are provided only as information and a service to visitors of the website. The inclusion of a third-party website link does not imply approval or endorsement of the content of the linked website by us nor does it imply any approval or endorsement of any other information provided by such third-party website or company. Furthermore, Aarenet AG is not liable for any postings or messages published by users of discussion boards, guest books or mailing lists provided on his page. |

8   PBX INCOMING CALL ROUTING: ALL PHONES

OVERVIEW CALL DISTRIBUTION "ALL PHONES"

▶ The call distribution mode "All Phones" is characterized as follows:

  ▶ An incoming call is signaled to all registered phones of the PBX Extension.

  ▶ All user features associated with the PBX Extension are available:
    ▶ Call Forwarding CF
    ▶ Call Rejection
    ▶ VoiceMail Box VM
    ▶ etc.

  ▶ This PBX extension is counted as "Personal Extension" in the license.

OVERVIEW CALL DISTRIBUTION "ALL PHONES"

▸ All incoming calls to the internal number are signaled concurrently to all registered phones of this PBX Extension.

Incoming calls from Internal & OnNet & PSTN

09876543300 DDI → 300 → **Personal Extension: 300,** Boss

Fix Net

Boss, Phones: 300
Office
an IP-Phone
Home-Office

All phones are ringing concurrently:
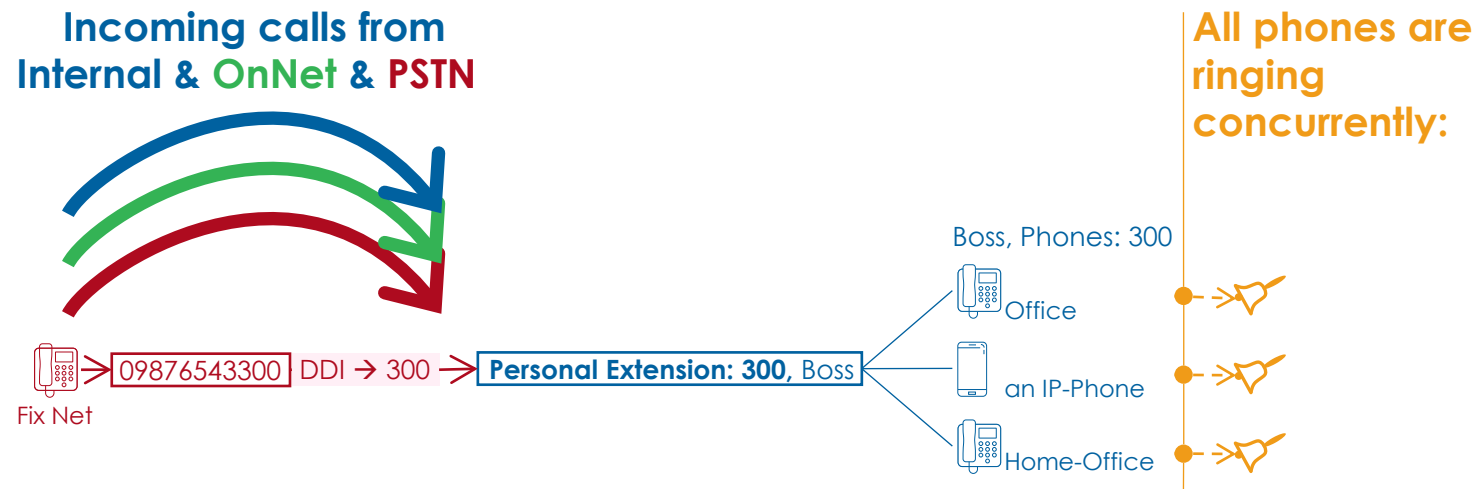
ACTIVATE CALL DISTRIBUTION: ALL PHONES

▶ Activate the "All Phones" call distribution mode:

> Menu: PBX Administrator
> Sub-Menu: Extensions
> Click the row of the desired extension
> Click on link: Extension Setup
> Select Distribution mode: All Phones

How to add phones to the extension see training:
▶ training_answitch_701_phone_configuration

9 PBX INCOMING CALL ROUTING: ADVANCED CALL DISTRIBUTION ACD
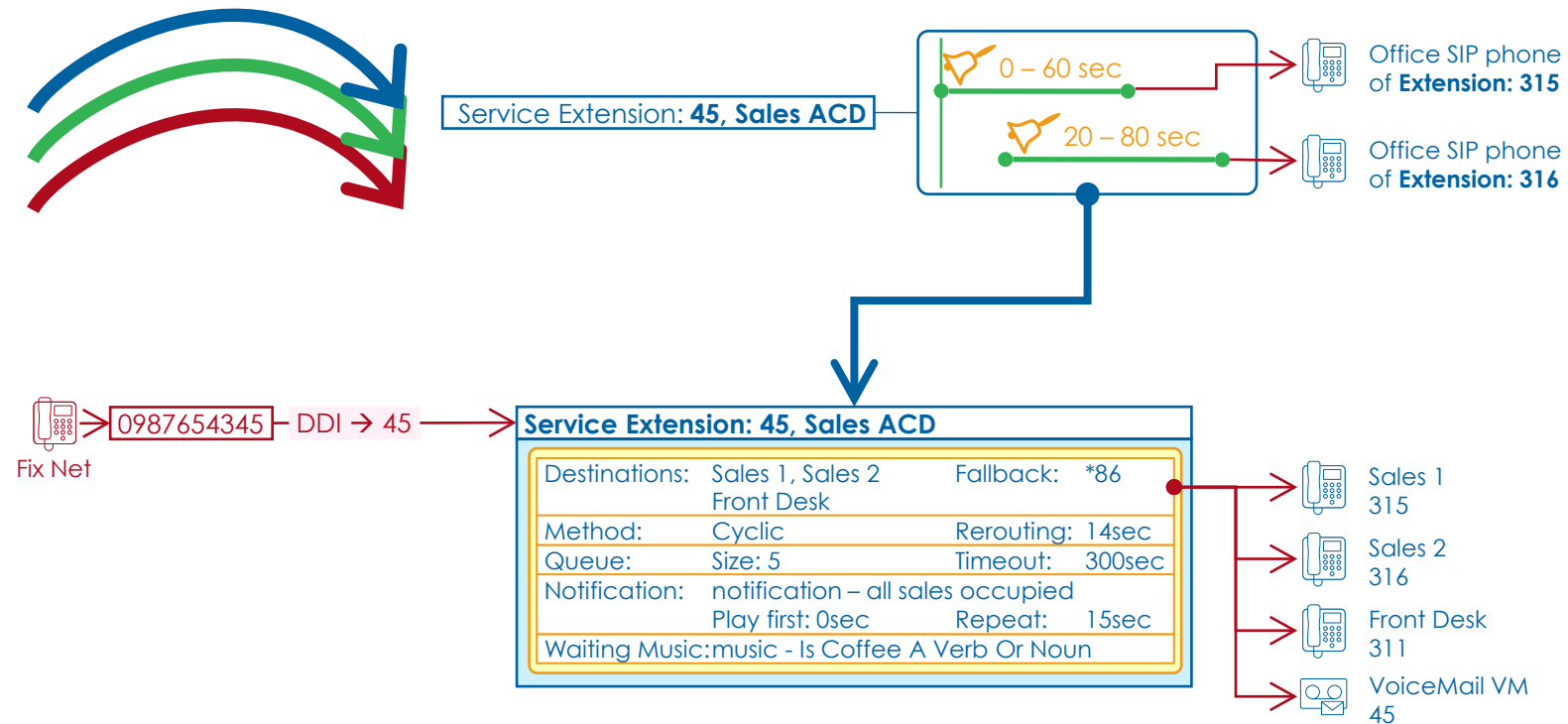
OVERVIEW ADVANCED CALL DISTRIBUTION ACD

▶ The call distribution mode "Advanced Call Distribution ACD" is characterized as follows:

 ▶ An incoming call is signaled to destinations with selectable methods:
  ▶ Linear signaling
  ▶ Cyclic signaling
  ▶ Parallel

 ▶ Different types of destination types can be signaled:
  ▶ Any type of number: internal extension, national & international number.
  ▶ Exactly defined internal phones
  ▶ VoiceMail Box VM

 ▶ Additional optional ACD possibilities, like waiting queue, breakout, music:
  ▶ A waiting queue length can be defined.
  ▶ A waiting queue can have a waiting music and/or notification (mini IVR).
  ▶ A fallback destination can be defined if no destination responds.
  ▶ Definable DTMF digits for breaking out of the waiting queue to the fallback destination.

 ▶ A PBX extension with an ACD is counted as "Service Extension" in the license.

OVERVIEW ADVANCED CALL DISTRIBUTION ACD

▸ All incoming calls to this extension are signaled to the assigned destinations with the selected signaling method.

Incoming calls from Internal & OnNet & PSTN

The destinations are ringing according the selected signaling method:

Service Extension: **45, Sales ACD**

0 – 60 sec → Office SIP phone of **Extension: 315**

20 – 80 sec → Office SIP phone of **Extension: 316**

Fix Net
0987654345 — DDI → 45

Service Extension: 45, Sales ACD

Destinations:	Sales 1, Sales 2 Front Desk	Fallback:	*86
Method:	Cyclic	Rerouting:	14sec
Queue:	Size: 5	Timeout:	300sec
Notification:	notification – all sales occupied		
	Play first: 0sec	Repeat:	15sec
Waiting Music:	music - Is Coffee A Verb Or Noun		

Sales 1
315

Sales 2
316

Front Desk
311

VoiceMail VM
45

ACTIVATE CALL DISTRIBUTION: ADVANCED CALL DISTRIBUTION ACD

▶ Activate the "Advanced Call Distribution ACD" mode:

> Menu: PBX Administrator
> > Sub-Menu: Extensions
> > > Click the row of the desired extension
> > > > Click on link: Extension Setup
> > > > > Select Distribution mode: Call Distribution
> > > > > > Click button: Save

▶ Start the ACD configuration:

> Click on the link: Advanced Call Distribution ACD

▶ Configure the ACD:

> See the following pages.
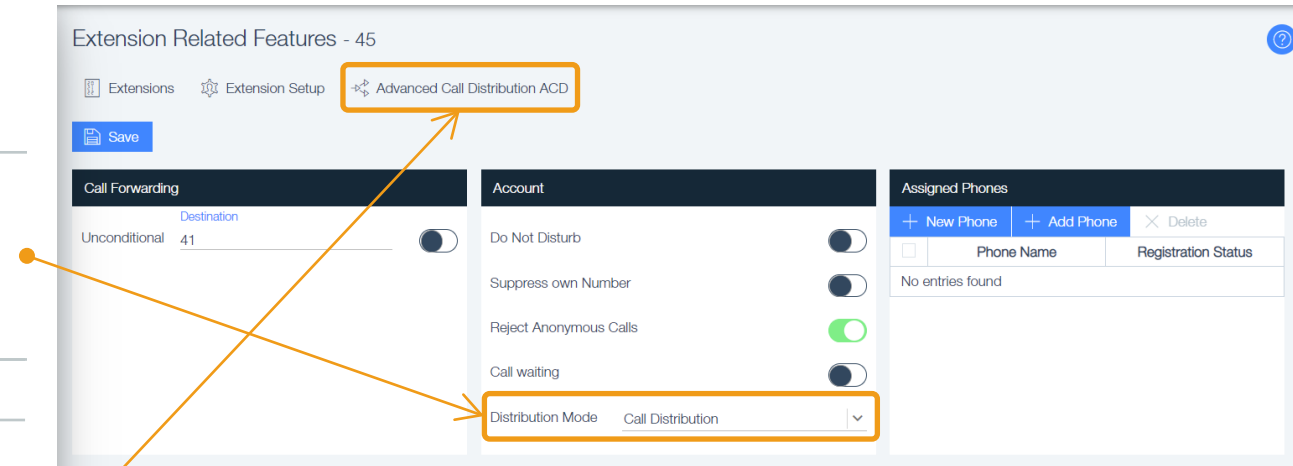
Note   In order not to lose the overview, it is not recommended to assign telephones to a service extension.

BEST PRACTICE BEFORE STARTING THE CONFIGURATION OF ACD

Best Practice	1. Define the basics of the ACD:
	  ▸ Signaling method: Linear, cyclic, parallel
	  ▸ Waiting queue? yes/no, size
	  ▸ Failover destination and timeout
	
	2. Create all destinations that will be signaled by the IVR e.g.:
	  ▸ Personal extensions
	  ▸ Advanced Call Distribution ACD
	  ▸ (Other Interactive Voice Response IVR)
	
	3. Prepare all needed audio files of this ACD for upload.

CONFIGURATION ACD: ASSIGN THE DESTINATIONS

▶ Assign the destinations that are part of the ACD:

> On page: Advanced Call Distribution ACD
   > Click button: New
      > In dialog "Destination": Configure the destination
         > Click button: Save

▶ Configure the destination:

▶ Type "Number"
   ▶ Internal extension number of the PBX
   ▶ National & international numbers
      Voice Mail Box VM of the extension: *86
   ▶ Voice Mail Box VM of any PBX extension e.g., 311: *86311

▶ Type "Phone"
   ▶ Internal phone of the PBX or Department
   ▶ We select exactly the desired SIP phones!
      → Thus, from an internal extension with several registered phones, we can select **exactly the one** phone we want.

When starting typing the number a list of matching numbers from:
▶ PBX internal numbers
▶ PBX contacts
are dynamically presented.
→ Select one of the offered numbers or continue to type the desired number.

Select from the offered internal phones list.
▶ Search for phone names by entering a string e.g., for the phones whose name contain "Sale" enter "sal"
▶ The three "..." at the end of the list indicate that there are more phones to choose from.

CONFIGURATION ACD: ASSIGN THE FALLBACK DESTINATION

▸ Configure the fallback destination:

- The fallback destination is signaled if no response was received from the other destinations

  > Configure in tile: Call Distribution
    > Select the type of fallback:

    ▸ destination: Any dialable number or *-code, e.g.
      ▸ 311   : Internal number
      ▸ 0123456789 : National number
      ▸ *86   : VoiceMail Box of this ACD
      ▸ *86311 : VoiceMail Box of 311

    ▸ recording: Forward to an audio file of this ACD
      ▸ Select the required audio file

▸ Configure a breakout from the waiting queue to the fallback destination for the caller
Note:
    Inform the caller to press the configured DTMF sing Forward to an audio file of this ACD.

    ▸ Quit queue to fall back:
      Configure the desired DTMF digits: [0-9 | * | #]
          Example single DTMF '#':   #
          Example several DTMF '1' or '*':   1*

Settings

Selected timetable

DTMF Keys

Quit queue to fallback   1#

Audio Files

+ New   ✕ Delete

☐ music - waiting - Is Coffee A Verb Or Noun   3:24
☐ notification - all sales occupied   0:04
☐ Please Call Later   0:01

Notification

Waiting music   music - waiting - Is Coffee A Verb Or Noun

Notification   notification - all sales occupied

Play the notification the first time after   sec.   0

Repeat every   sec.   12

Call Distribution

Method   Parallel

Queue size   5

Queue Timeout   sec.   300

Fallback if no response to   recording   Please Call Later

+ New   ✕ Delete

☐ ☰ Phone: Sales 1-Yealink T21P E2   0s - 60s
☐ ☰ Phone: Sales 2-Yealink T40G   75s - 150s
☐ ☰ 0041319802811 Aarenet Front Desk   155s - 300s

Fallback if no response to   recording   Please Call Later

CONFIGURATION ACD: DEFINE THE SIGNALING METHOD

▸ Assign the signaling method:

> On page: Advanced Call Distribution ACD
  > Select the method

Notification

Waiting music	music - waiting - Is Coffee A Verb Or Noun	⌄
Notification	notification - all sales occupied	⌄
Play the notification the first time after	sec.	0 ⌄
Repeat every	sec.	12 ⌄

Call Distribution

Method	Parallel	⌄
Queue size		5 ⌄
Queue Timeout	sec.	300 ⌄
Fallback if no response to	recording ⌄	Please Call Later ⌄

＋ New   ✕ Delete

☐ ☰	Phone: Sales 1-Yealink T21P E2	0s - 60s	🟢
☐ ☰	Phone: Sales 2-Yealink T40G	75s - 150s	🟢
☐ ☰	0041319802811 Aarenet Front Desk	155s - 300s	⚫

▸ Configure the signaling method:

  ▸ "Linear"
    ▸ Starting from A down each destination is signaled. After the last destination, the signaling restarts at A.

  ▸ "Cyclic"
    ▸ Like "Linear" but the signaling start changes every time to the next destination.

  ▸ "Parallel"
    ▸ Each destination is signaled according the user defined pattern.

  ▸ "User defined" ➔ Deprecated – Do not use!
    ▸ Like "Parallel" but has no waiting queue.
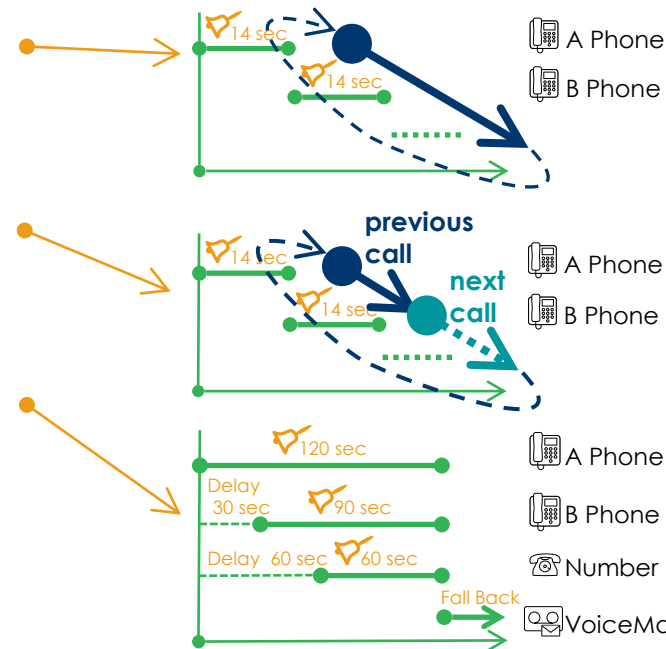
By grabbing a row by the icon ☰ you can shuffle the signaling order of the destinations.

14 sec   A Phone
14 sec   B Phone

previous call
14 sec   A Phone
next call
14 sec   B Phone

120 sec   A Phone
Delay 30 sec   90 sec   B Phone
Delay 60 sec   60 sec   Number 1
Fall Back   VoiceMail

CONFIGURATION ACD: METHOD SPECIFICS

▸ Configure for the methods "Linear" & "Cyclic" specific parameters:

    ▸ "Reroute Timeout"
        ▸ Define the ringing duration in seconds of a destination until the next destination is signaled.

Rule of thumb for calculating the ringing duration of a phone:
▸ A phone rings about every 4 seconds
▸ Duration of 3 ringing cycles with spare time:
    3 times x 4sec + 2 Sec = 14sec

▸ Configure for the method "Parallel" specific parameters:

    ▸ Configure ringing start and duration
        ▸ Define the ringing start and duration by moving the sliders.
    ▸ Configure the maximum ringing duration
        ▸ Define the maximum ringing duration with parameter "Queue timeout".
            → After this timeout the call will be forwarded to the optional "fallback if no response" destination.

CONFIGURATION ACD: OPTIMIZE THE DESTINATION SIGNALING

▸ Optimize the destination signaling by skipping non-accepting destinations by activating "Ring No Answer RNA".

- ▸ When "Ring No Answer RNA" is activated, a skipping is applied for the actual call when:
  - ▸ A signaled user has rejected the call.
  - ▸ A destination ringing timed out because the user didn't answer the call.

- ▸ The "Ring No Answer RNA" may be desirable:
  - ▸ To prevent "endless" ringing before advancing to the fallback destination.

- ▸ A destination excluded due to RNA is not signaled again in the current call distribution. The destination is signaled again with the next incoming call to this ACD.

▸ Activate "Ring No Answer RNA":
> Configure in tile: Settings
> Activate slider: No rerouting on RNA

▸ Example with activated RNA:

From the next pass onwards, the B destination is skipped during the current call distribution.

CONFIGURATION ACD: DEFINE A WAITING QUEUE

▸ To prevent any number of waiting callers and limiting the waiting time for those, a waiting queue can be configured:

- ▸ "Queue Size"
  - ▸ Define how many caller can be put into the waiting queue.
  - ▸ If set to 0 then:
    - ▸ the waiting queue is switched off.
    - ▸ A caller is forwarded immediately to the fallback destination.

- ▸ "Queue Timeout"
  - ▸ Define in seconds how long a waiting caller is hold in the waiting queue if no destination becomes available.
  - ▸ If set to 0 no waiting duration for the waiting caller is active.

  Note:

  After this timeout, the call will be forwarded to the optional "fallback if no response" destination.

Notification

Waiting music	music - waiting - Is Coffee A Verb Or Noun ∨
Notification	notification - all sales occupied ∨
Play the notification the first time after	sec. 0 ↕
Repeat every	sec. 12 ↕

Call Distribution

Method	Cyclic ∨
Queue size	5 ↕
Reroute Timeout	sec. 14 ↕
Queue Timeout	sec. 300 ↕
Fallback if no response to	recording ∨ Please Call Later ∨

＋ New   ✕ Delete

☐	≡ Phone: Sales 1-Yealink T21P E2	🟢
☐	≡ Phone: Sales 2-Yealink T40G	🟢
☐	≡ 0041319802811 Aarenet Front Desk	⚫

Rule for calculating the queue size:
▸ Queue size = number of destinations + number of caller held in the waiting queue
Example:
   2 destinations, e.g. 2 sale agents + max. **5** callers in the waiting queue = **7 queue size**

Note   If both the "Queue Size" and the "Queue Timeout" are set to 0 then the fallback destination will never be signaled.

CONFIGURATION ACD: ASSIGN NOTIFICATION & MUSIC FOR THE WAITING QUEUE

▸ To inform and/or entertain waiting callers, an information and waiting music can be played.

  ▸ Upload the audio files for the notification and waiting music, see section:
        Notification & Music Audio Files

  ▸ "Waiting Music"
    ▸ Select from the uploaded audio files the desired waiting music.

  ▸ "Notification":

  ▸ "Play the notification the first time":

  ▸ "Repeat every":
    ▸ Select from the uploaded audio files the desired notification.
    ▸ Define an optional delay until the notification is played.
    ▸ Define an optional repeating cycle of the notification.

Settings

| Selected timetable | | |
| Quit queue to fallback | 1# | |

DTMF Keys

Audio Files

+ New   ✕ Delete

☐	music - waiting - Is Coffee A Verb Or Noun	3:24
☐	notification - all sales occupied	0:04
☐	Please Call Later	0:01

Notification

Waiting music	music - waiting - Is Coffee A Verb Or Noun
Notification	notification - all sales occupied
Play the notification the first time after	sec.	2
Repeat every	sec.	20

Call Distribution

Method		Parallel
Queue size		5
Queue Timeout	sec.	300
Fallback if no response to	recording	Please Call Later

+ New   ✕ Delete

☐	≡	Phone: Sales 1- Yealink T21P E2		0s - 60s	🟢
☐	≡	Phone: Sales 2- Yealink T40G		75s - 150s	🟢
☐	≡	0041319802811 Aarenet Front Desk		155s - 300s	⚫

CONFIGURATION ACD: SELECT A TIMETABLE

▸ By default, an ACD starts without any date/time scheduling. If a day/time scheduling is needed, then a prepared timetable must be assigned.

   ▸ How to create & manage timetables, see section:

       Timetable Based Incoming Call Routing

▸ Assign a timetable to the ACD:

   ▸ "Select timetable"

      ▸ "Permanent"

         ▸ Permanent means that no timetable is activated for this ACD. The call distribution is valid for all day times, weekdays and holidays.

      ▸ List of selectable and prepared Timetables

         ▸ Select the desired timetable

         ▸ Depending on the ownership of the extension only the timetables of the PBX or department are available

CONFIGURATION ACD: ASSIGN ACD'S TO THE TIMEBANDS

▶ When the timetable is assigned, then for each timeband of this timetable an individual advanced call distribution ACD can be configured with own:

- ▶ Destinations
- ▶ Distribution method
- ▶ Waiting queue
- ▶ Notification and waiting music

▶ If the ACD had already had a "Permanent" configuration, then these are assigned to the "Non-Timeband Hours".

10 PBX INCOMING CALL ROUTING: INTERACTIVE VOICE RESPONSE IVR

OVERVIEW INTERACTIVE VOICE RESPONSE IVR

▶ The call distribution mode "Interactive Voice Response IVR" is characterized as follows:

▶ An incoming call is routed to an IVR menu, where the caller can be informed with a notification and optionally prompted for a specific key entry.

▶ Any number of IVR menus are allowed within an IVR call distribution.

▶ An IVR menu contains any number of IVR rules which define an action upon a certain condition:

▶ Available conditions:
  ▶ "Immediately when the menu starts"
  ▶ "After some delay"
  ▶ "If a key is pressed"
  ▶ "If a collected number matches a certain criteria"

▶ Possible actions:
  ▶ "Call a number"
  ▶ "Play an audio file"
  ▶ "Play a notification"
  ▶ "Change to another menu"
  ▶ "Release this connection"
  ▶ "Call the collected number"

▶ A PBX extension with a IVR is counted as "Service Extension" in the license.

OVERVIEW INTERACTIVE VOICE RESPONSE IVR

▸ **All incoming calls to this extension are forwarded to the assigned IVR menu.**

Incoming calls from Internal & OnNet & PSTN

Incoming calls are guided by the IVR menus toward their destinations:

Service Extension: **40, Support IVR**

Menu: Welcome to the Support
- ▸ Play text immediately
- ▸ Wait for key: 1, 2, *
- ▸ Call numbers: 41 or 42
- ▸ If no input release after 90 sec

Fix Net

0987654340 — DDI → 40

Service Extension: 40, Support IVR

Menu: Welcome to the Support

Rule:	Condition:	Immediately play notification	
	Action:	Play audio file: Welcome to the Support	Repeat: 15sec
Rule:	Condition:	If a key is pressed	Key: 1
	Action:	Call a number	Number: 41
Rule:	Condition:	If a key is pressed	Key: 2
	Action:	Call a number	Number: 22
Rule:	Condition:	After some delay	After: 90 sec
	Action:	Release this connection	

Service Extension: 41, Support ACD - English & German Agents

Destinations:	Agent 1, Agent 2	Fallback:	none
Method:	Cyclic	Rerouting:	14sec
Queue:	Size: 5	Timeout:	300sec
Notification:	notification - English German Supporter	
	Play first: 0sec	Repeat:	15sec
Waiting Music:	music - Dream of the forest	

Agent 1
21

Agent 2
22

Agent 2
22

ACTIVATE CALL DISTRIBUTION: INTERACTIVE VOICE RESPONSE IVR

▸ Activate the "Interactive Voice Response IVR" mode:
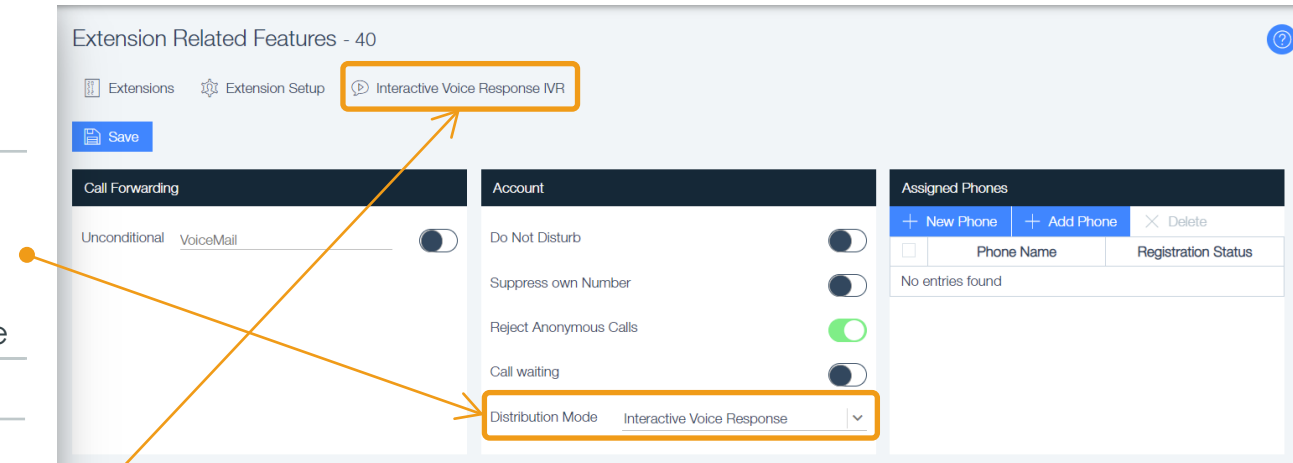
> Menu: PBX Administrator
  > Sub-Menu: Extensions
    > Click the row of the desired extension
      > Click on link: Extension Setup
        > Select Distribution mode: Interactive Voice Response
          > Click button: Save

▸ Start the IVR configuration:

> Click on the link: Interactive Voice Response IVR

▸ Configure the IVR:
> See the following pages.

| Note | In order not to lose the overview, it is not recommended to assign telephones to a service extension. |

BEST PRACTICE BEFORE STARTING THE CONFIGURATION OF IVR

Best Practice

1. In a **simple story book plan** the menu structure and what must be done in the menu. Example:
    ‣ Menu Name: "Welcome Working Hours"
      ‣ Play welcome text with instructions
      ‣ Wait for user key input:
        ‣ Press 1 for support
        ‣ Press 2 for sales
        ‣ …

    ‣ Menu Name: "Support"
      ‣ …

    ‣ Menu Name: "Sales"
      ‣ …

2. Create all destinations that will be signaled by the IVR e.g.:
    ‣ Personal extensions
    ‣ Advanced Call Distribution ACD
    ‣ (Other Interactive Voice Response IVR)

3. Prepare all needed audio files of this IVR for upload.

# CONFIGURATION IVR: CREATE & UPLOAD NOTIFICATION & MUSIC AUDIO FILES

▶ Prepare and upload all needed audio files for the menu notifications and waiting music.

    ▶ Upload the audio files for the notification and waiting music, see section:
        Notification & Music Audio Files
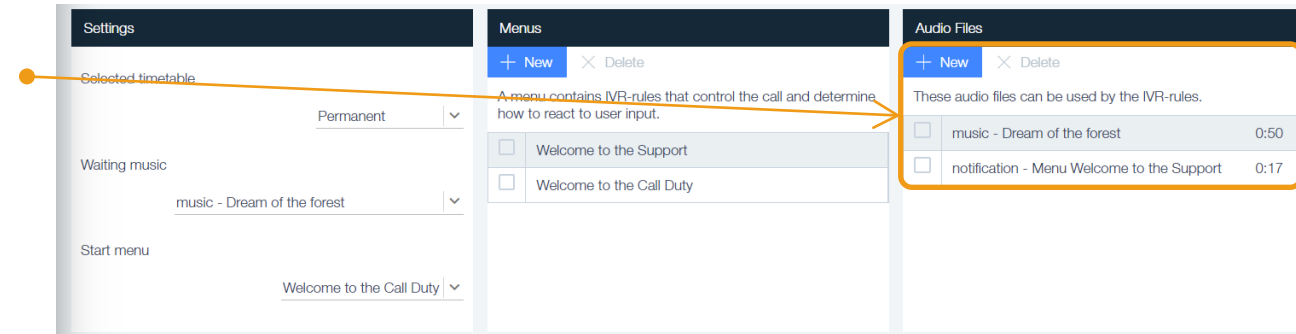
CONFIGURATION IVR: PREPARE EVERYTHING FOR THE IVR

▸ Make sure to have all objects ready that are referenced by the IVR e.g.:
   ▸ The internal numbers of ACD service extensions
   ▸ The internal numbers of IVR service extensions
   ▸ The internal numbers of personal extension

▸ Create the IVR-menus of this IVR:
   ▸ Create and name the **IVR-menus** according the planning, so they are **ready for refence**.
      ➔ It is not necessary that these IVR-menus contain any IVR-rules yet.
> Click button: New
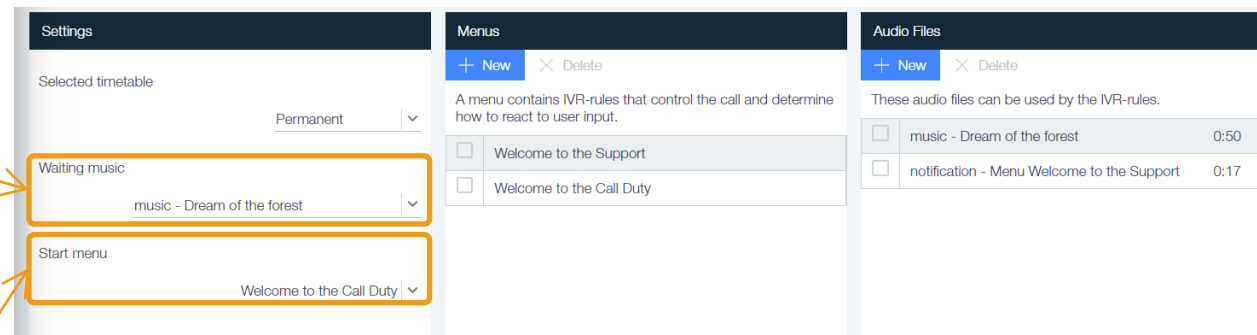   > In the dialog "Menu": just configure the parameter Name
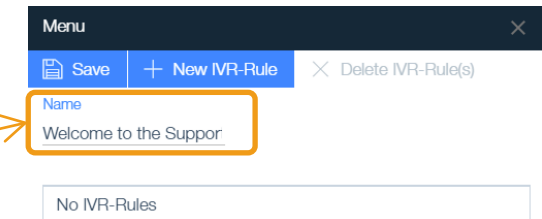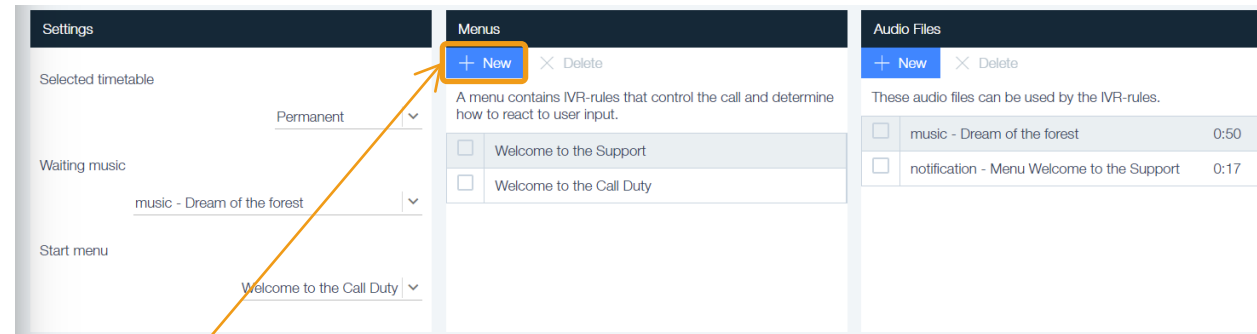
▸ Assign the optional waiting music of this IVR:
> Select the audio file for: Waiting music

▸ Assign the start menu of this IVR:
> Select the IVR-menu for: Start menu

CONFIGURATION IVR: SELECT A TIMETABLE

▸ By default, an IVR starts without any date/time scheduling. If a day/time scheduling is needed, then a prepared timetable must be assigned.

  ▸ How to create & manage timetables, see section:
      Timetable Based Incoming Call Routing

▸ Assign a timetable to the IVR:

  ▸ "Select timetable"

    ▸ "Permanent"

      ▸ Permanent means that no timetable is activated for this IVR. The call distribution is valid for all day times, weekdays and holidays.

    ▸ List of selectable and prepared Timetables

      ▸ Select the desired timetable
      ▸ Depending on the ownership of the extension only the timetables of the PBX or department are available

Interactive Voice Response IVR 40 Support IVR

⛭ Extension Related Features

💾 Save

Settings	Menus	Audio Files
Selected timetable	+ New ✕ Delete	+ New ✕ Delete
Permanent ⌄	A menu contains IVR-rules that control the call and determine how to react to user input.	These audio files can be used by the IVR-rules.
Waiting music	☐ Welcome to the Support	☐ music - Dream of the forest 0:50
music - Dream of the forest ⌄	☐ Welcome to the Call Duty	☐ notification - Menu Welcome to the Support 0:17
Start menu		
Welcome to the Call Duty ⌄		

Support & Call Duty ⌄
Permanent
PBX Default
Support & Call Duty
Sales Department

CONFIGURATION IVR: ASSIGN IVR'S TO THE TIMEBANDS

▸ When the timetable is assigned, then for each timeband of this timetable an individual interactive voice response IVR can be configured with an own:

- ▸ Starting IVR-menu

▸ If the IVR had already had a "Permanent" configuration, then these are assigned to the "Non-Timeband Hours".

Interactive Voice Response IVR 40 Support IVR

Extension Related Features

Save

Settings

Selected timetable

Support & Call Duty

Waiting music

music - Dream of the forest

Start menu during timeband-1 hours
Welcome to the Support

Start menu during timeband-4 hours
Welcome to reduced Support

Start menu during non-timeband hours
Welcome to the Call Duty

Menus

+ New   ✕ Delete

A menu contains IVR-rules that control the call and determine how to react to user input.

- Welcome to the Support
- Welcome to the Call Duty
- Welcome to reduced Support

Audio Files

+ New   ✕ Delete

These audio files can be used by the IVR-rules.

- music - Dream of the forest   0:50
- notification - Menu Welcome to the Support   0:17

Timetable -

| | Mo | Tu | We | Th | Fr | Sa | Su | Ho |

OVERVIEW IVR-RULES

▶ In the IVR-Menus IVR-Rules are defined which describe a condition e.g.:
  ▶ Wait that the caller presses a certain key
  and the action that must be executed when the condition matches e.g.:
  ▶ Call a number

▶ Recommended script preparation:

> **IVR-Menu: Welcome to Support**
> **IVR-Rules:**
> ▶ Play immediately the welcome
> ▶ Key: 1 → Menu: Support English & German
> ▶ Key: 2 → Menu: Support French
> ▶ Key: 3 → Call the number 321
> ▶ Key: 9 → Restart this menu
> ▶ If no calling user input release the call after 55sec

▶ Realized configuration of the IVR-Rules:

▶ An IVR-Menu can have any number of IVR-Rules with "Condition→Action":

Available conditions:
  ▶ "Immediately when the menu starts"
  ▶ "After some delay"
  ▶ "If a key is pressed"
  ▶ "If a collected number matches a certain criteria"

Possible actions:
  ▶ "Call a number"
  ▶ "Play an audio file"
  ▶ "Play a notification"
  ▶ "Change to another menu"
  ▶ "Release this connection"
  ▶ "Call the collected number"

IVR-RULES: LIST OF "CONDITIONS"

▸ Selectable conditions for starting an IVR-rule action are:

    ▸ "Immediately when the menu starts"
        ▸ The action is immediately executed without waiting for a caller input or timeout.

> Specify when this IVR-rule shall be executed:
>
> Immediately when the menu starts ⌄

    ▸ "After some delay"
        ▸ The action is executed after a configured timeout e.g.: 14 seconds

> Specify when this IVR-rule shall be executed:
>
> After some delay ⌄
>
> The IVR-rule starts after [14 ⌄] seconds

    ▸ "If a key is pressed"
        ▸ The action is executed when the user presses a defined key e.g.: 1

> Specify when this IVR-rule shall be executed:
>
> If a key is pressed ⌄
>
> The IVR-rule starts if one of the following keys is pressed: [1]
>
> Multiple keys can be specified as: 0-3, 9, *, #
> To match all digits, use: 0-9

    ▸ "If a collected number matches a certain criteria"
        ▸ See Overview of Number "Conditions" & "Actions"

> Specify when this IVR-rule shall be executed:
>
> If the collected number matches a certain criteria ⌄
>
> The IVR-rule starts if the collected number matches the regex:
> `[1-9][1-9][1-9]`
>
> A valid regex pattern is for example: *(123|4...)*

IVR-RULES: LIST OF "ACTIONS"

▶ Selectable actions for IVR-rules when the condition matched:

- ▶ "Call a number"
  - ▶ The configured number is dialed.
  - ▶ If the destination doesn't respond, then an optional new IVR-menu can be called.

- ▶ "Play an audio file"
  - ▶ An audio file is played and restarts at its end.
  - ▶ Optionally a new IVR-menu can be called when playing the audio file is finished.

- ▶ "Play a notification"
  - ▶ An audio file is played once and can be optionally repeated periodically e.g.: 15 sec

- ▶ "Change to another menu"
  - ▶ The IVR is continued with another IVR-menu.

- ▶ "Release this connection"
  - ▶ Release this connection immediately.

Specify what to do when the IVR-rule is executed:

Call a number

The number to call is:

You can specify a menu that will be used if the call fails.

The new menu if the call fails: -

Specify what to do when the IVR-rule is executed:

Play an audio file

The audio file to play is: Welcome Support Working Hours

After playing the audio file goto menu:
-

Specify what to do when the IVR-rule is executed:

Play a notification

The audio file to play is: Welcome Support Working Hours

Repeat the notification every 15 seconds.

Specify what to do when the IVR-rule is executed:

Change to an other menu

The new menu is: Support English & German

Specify what to do when the IVR-rule is executed:

Release this connection

IVR-RULES: NUMBER-COLLECTION "CONDITION" & "ACTION"

▸ **The IVR-Menu can handle number collection and post-dialing of numbers.**
  - ▸ An IVR-Menu contains a number collector where the key inputs of the caller are collected.
  - ▸ The collected number can be used for initiating a specific action or as phone number that shall be dialed later.

▸ **Number collection "Condition":**
  - ▸ "If a collected number matches a certain criteria"
    - ▸ The action is executed when the entered number match the conditions of the regex.

▸ **Number collection "Action":**
  - ▸ "Call the collected number"
    - ▸ The previously collected number is dialed when the entered number match the security conditions of the regex.
    - ▸ Number manipulation and replacement are possible with the stream editor sed substitute "s" and Java Regex "back-references".
    - ▸ Optionally a new menu can be called when the call fails.

The number shall have 3 digits but no "0"

The number must start with 3

IVR-Rule   ×

🖫 Save

Specify when this IVR-rule shall be executed:

[If the collected number matches a certain criteria ▾]

The IVR-rule starts if the collected number matches the regex:

`[1-9][1-9][1-9]`

A valid regex pattern is for example: *(123|4...)*

Specify what to do when the IVR-rule is executed:

[Call the collected number ▾]

For security reasons a pattern must be defined for the destination number. The call is only started if the dialled number matches the pattern.

The pattern is this regular expression (i.e. [2-4]..): `3..`

Optionally a prefix (i.e. '8') or replacement expression (i.e. 's/(..)/8$1/') can be specified to manipulate the dialled number.

The prefix or replacement expression `s/(.*)/*86$1/`

You can specify a menu that will be used if the call fails.

The new menu if the call fails: [Welcome to the Support ▾]

The dialed number must be extended with *86. Example:
    User input: 315 → The dialed number: *86315

IVR-RULES: USEFUL REGEX FOR NUMBER-COLLECTION

Regex Pattern	Matching Example	Remark
2673	2673	Match exactly these digits in position and length. Useful for: ▸ PIN ▸ Single phone number
(123|99|056789)	123 **or** 99 **or** 056789	Match exactly these 3 numbers with digits in position and length. Useful for: ▸ A small number of different phone numbers Example: Check for emergency numbers and the company support number that a user is allowed to dial e.g.: (110|112|023456789)
40[7-9]	407 or 408 or 409	Match a small range of numbers that: ▸ Starts with digit 4 ▸ Has at 2nd position a 0 ▸ Has in the 3rd position a digit out of the range 7-9 ▸ Is no longer than 3 digits Useful for: ▸ A small range of different phone numbers ▸ The phone numbers have similarities

Regex Pattern	Matching Example	Remark
[125]...0 Variant: [125].{3}0	19990 or 28880 or 52340 or …	Match a number that: ▸ Starts with 1 or 2 or 5 ▸ Followed by any 3 digits ▸ Has at 5th position a 0 ▸ Is no longer than 5 digits Useful for: ▸ The phone numbers have similarities
[1-9][1-9][1-9] Variant: [1-9]{3}	111 or 999 or 234 or …	Match a number that: ▸ Has 3 digits ▸ Allows any digit, but not 0 Useful for: ▸ Internal numbers with the max. of 3 digits ▸ 0 is not allowed, so, it doesn't match national or international numbers)
[1-9]*	1 or 23 or 987654321 or …	Match a number that: ▸ Is of any length ▸ Allows any digit, but not 0 Useful for: ▸ Internal numbers ▸ 0 is not allowed, so, it doesn't match national or international numbers)

All about regular expression regex see training:
▸ training_answitch_304_support_regex

CONFIGURATION IVR: EXAMPLE "SUPPORT IVR"

▶ Configuration example:

11   SUSPEND A USER FROM ACD CALL DISTRIBUTIONS

SUSPEND A USER FROM ACD CALL DISTRIBUTIONS

▶ When a user is absent, it may be needed to suspend this user from the ACD.

▶ Suspending a destination in an ACD optimizes automatically the signaling of the remaining destinations.

    ▶ Suspend via Portal UI:
       > On page: Advanced Call Distribution
         > Deactivate the destination

    ▶ Suspend a user from ACDs via the user's phone with the *-code 29:

Description		*#-Codes
Suspend a destination from Advanced Call Distribution ACD	All ACDs	Activation/Toggle: *29
		Deactivation: #29
	Only from ACD with number	Activation/Toggle: *29Number
		Deactivation: #29Number
		Status: *#29

Advanced Call Distribution ACD 45 Sales ACD

⚙ Extension Related Features

💾 Save

Settings

Selected timetable   Permanent

Audio Files

+ New   ✕ Delete

☐ music - waiting - Is Coffee A Verb Or Noun   3:24
☐ notification - all sales occupied   0:04

Signaling

Waiting music   music - waiting - Is Coffee A Verb Or Noun ▼

Notification   notification - all sales occupied ▼
      sec.

Play the notification the first time after   2 ⬍
      sec.

Repeat every   20 ⬍
      sec.

Queue Timeout   300 ⬍
      sec.

Reroute Timeout   14 ⬍

Call Distribution

Method   Cyclic ▼

Queue size   5 ⬍

Fallback destination if no response   *86

+ New   ✕ Delete

☐ ≡ Phone: Sales 1-Yealink T21P E2
☐ ≡ Phone: Sales 2-Yealink T40G
☐ ≡ 041319802811

Note   In order not to lose the overview, it is not recommended to assign telephones to a service extension.

12 SUSPEND AN ACD OR IVR CALL DISTRIBUTION FOR MAINTENANCE

SUSPEND AN ACD OR IVR CALL DISTRIBUTION FOR MAINTENANCE

▶ For maintenance work it may be necessary to suspend an ACD or IVR call distribution.

▶ However, during the maintenance the e.g., company's support service must be available.

▶ Activate the unconditional call forwarding CFU of the extension to any type of destination:

- ▶ Voice Mail Box VM of this extension
- ▶ Internal extension number of this PBX
- ▶ National & international numbers
- ▶ Voice Mail Box VM of any PBX extension e.g., 311: *86311

▶ Suspend via Portal UI:

> On page: Extension Related Features
> At "Unconditional" configure the CFU destination
> Activate the slider

LAST PAGE

Date	Doc-ID		Description	Changes
18.9.2023	training_as7_404_pbx_call_routing_e15		V7.13: New feature "Configure Ranges of Holidays" Optimized ACD configuration in the Portal UI	Page: 29 Chapter: 9
7.2.2024	training_as7_404_pbx_call_routing_e16		V7.14: New feature "Ring No Answer RNA"	Page: 56