BUILDING YOUR OWN CALL-CENTER

ON

Yeastar MyPBX & QueueMetrics Live

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(SoftBCom, www.softbcom.com)

The new integrated solution for building small-medium sized corporate call centers includes MyPBX (a hardware implementation of IP PBX by Yeastar) and QueueMetrics (a cloud solution for call center managing system by Loway). The corresponding press releases can be found here: http://www.yeastar.com/NewsItem.html/136 (Yeastar) and http://loway.ch/press-releases.jsp?uid=press-20151118-yeastar (Loway).

We are familiar with both components of these complexes quite well and so we have decided to find out what advantages has this unusual combination, who could be interested in it and how efficient it is.

To have a better idea about it, we have assembled a stand comprised of IP PBX MyPBX U520 (courtesy of the Russian company IPMatika; http://www.ipmatika.ru/), which was used remotely, and QueueMetrics Live - a cloud installation of QueueMetrics (the license is courtesy of the Swiss company Loway, www.loway.ch).

First of all let's try and figure out who might be interested in this sort of unusual integrated system. One of the possible ways of joint use of the above mentioned components is shown in Fig. 1.

Connection to telephony providers is carried out either via analogue telephone lines (telephony provider 1) or through the internet using SIP and IAX2 protocols (telephony provider 2). It is also possible to connect to multiple telephony providers simultaneously. The first option (connecting via telephone lines) requires the use of additional modules (expansion cards with FXO interface that will be inset into the MyPBX box).

MyPBX communicates with QueueMetrics through the internet. IP telephones are directly connected to MyPBX via the local computer network. In case you want to connect analogue telephones, you will need additional modules, the FXS expansion cards.
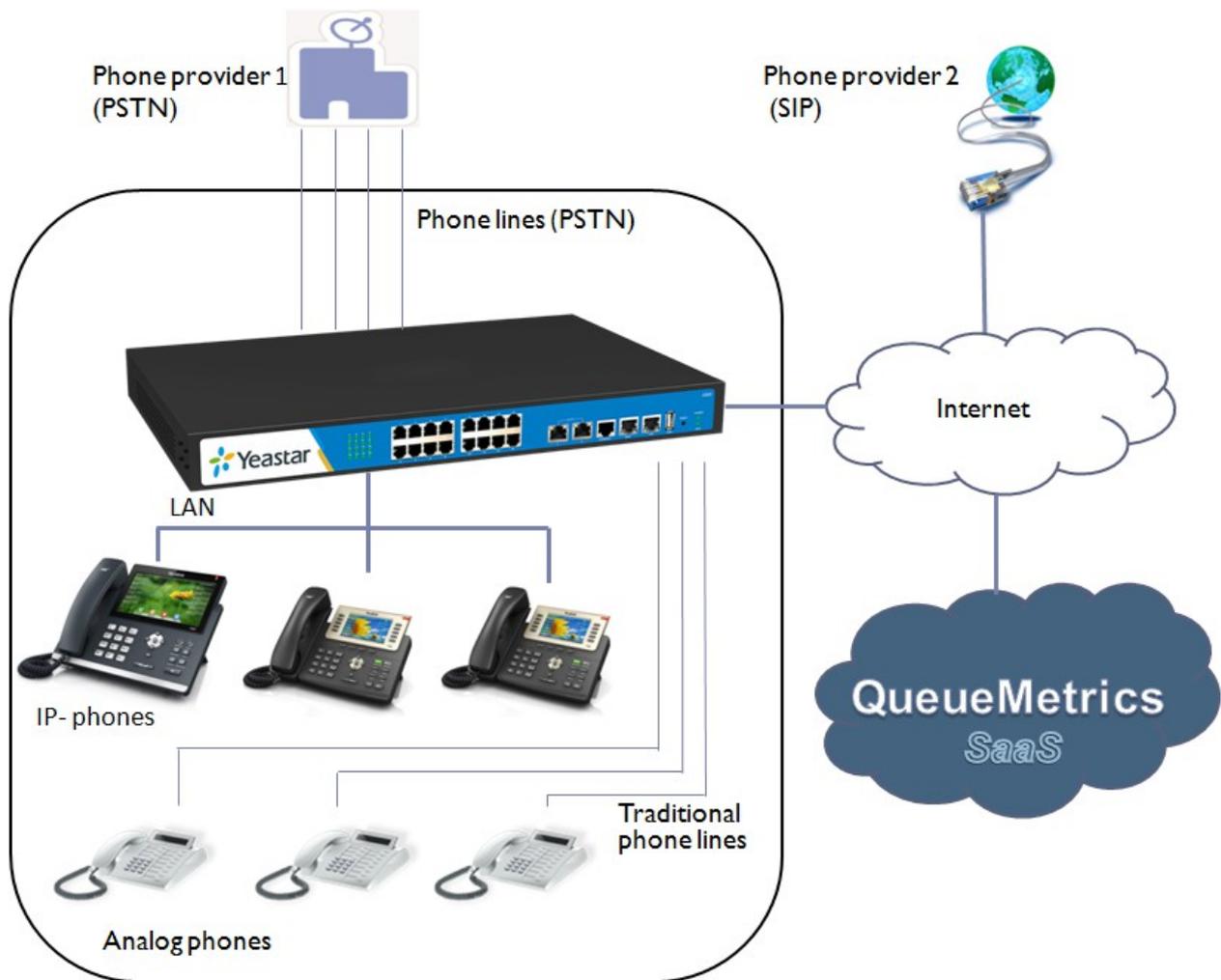
Figure 1. **A simple scheme how to use the integrated solution MyPBX + QueueMetrics**.

A brief information on Yeastar MyPBX IP PBX

The MyPBX U520 model we had the chance to explore is the top model of the Yeastar line of module IP PBXs. All devices in this line are characterized by similar functionality. It may include plug-in modules for connecting to incoming and outgoing analogue telephone lines, as well as mobile connecting modules (GSM / UMTS).

You can find a review and test results for Yeastar MyPBX Standard model (which gives a general idea of this PBX product line) here: https://medium.com/@SoftBCom_Berlin/993d9b020237.

The information on the Yeastar MyPBX model lines that can be combined with QueueMetrics Live is available on the web site of the vendor: http://yeastar.com/Products.html/MyPBX-U-Series and http://yeastar.com/Products/MyPBX-Standard.

Thus, MyPBX is installed in the client's office. It can comprise all the necessary modules of expansion and connection. This reasonably sized and noiseless block doesn't require special storing conditions, doesn't have any moving parts (except for the fan), and is designed to provide reliable operation for years.

This system has a number of undeniable advantages:

  1. You can use it either with IP telephones connected via a local network or with regular analogue phones connected with the help of FXS expansion cards and gateways. Expansion cards are installed

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right in the PBX box. Connection of the PBX to FXS gateways is done through the local network. Everything is compact and convenient.

2. All possible means of connecting to the telephony providers are available: via regular PSTN lines (FXO modules that you would need can be 'stuffed' in the box, and as many as you need), or it can be PRI connection and even GSM/UMTS; there are specialized interface modules for all the above mentioned options. You can always choose a model from this product line that will be able to comprise the full range of necessary options and functions.

3. You don't need to install any servers or software. Inside the box there is an IP telephony kernel based on Asterisk; it is managed via a web interface with simple logics. You won't require system administrators or setting specialists. The high reliability of the system provides you with at least several years of efficient work without the need for tuning or servicing.

4. Even if your office doesn't have the internet connection now or it is down, MyPBX can operate as a classic office PBX. You will have the option of connecting to the internet service later, so you will be able to make use of the well-known advantages of IP telephony then.

5. After purchasing and installing the system you will have no additional costs for servicing or monthly payments (we are not talking about domestic and international telephone bills from your provider here, of course).

6. An undeniable advantage of MyPBX (at least compared to many virtual IP PBXs) is the high quality of provided communications. It's not a secret that multiple cases of using 'handcrafted' products in VoIP sphere have caused people to believe that IP telephony is not reliable and provides poor sound quality. Without any doubt it is not related to MyPBX in any way; that is a professional system, meeting the highest demands in the area.

Yeastar MyPBX IP PBX is designed for small and medium-sized businesses, especially those meeting one or several of the following criteria:

a) There are incoming wire telephone lines (PSTN or PRI), and there is no plan to get rid of the existing connection to the telephony providers.

b) There is a certain amount of analogue telephones in the office that will be used along with IP PBX.

c) Installing a software IP PBX on the company's servers is undesirable or impossible (due to the need to purchase servers, in-service problems, etc.).

d) Independent setting and using of IP PBX without paying for outsourced professional services is a priority.

e) There is no possibility or conditions for installing a fully operational IP PBX in a cloud.

So to say, everything is clear about MyPBX: with this product you can implement a modern infrastructure of corporate IP telephony with minimal effort and expenses, while obtaining reliable and good quality communications. Nevertheless, even a medium-sized business may face the necessity of having its own call center one day.

The target audience business could be a delivery service, a chain of clinics or beauty salons, a whole-seller or a tourist agent chain. All of them have similar tasks: effectively servicing incoming calls, providing high quality client service with the help of their own well-trained agents. But how can you bring your costs to the minimum (without purchasing expensive software and equipment, etc.)?

MyPBX and QueueMetrics

This is where QueueMetrics comes in, a product by the Swiss company Loway. Since the first release over a decade ago, thousands of installations have been made globally. QueueMetrics implements key call-

center managing processes including monitoring, reporting and analytics (the overview of QueueMetrics can be found here: https://medium.com/@SoftBCom_Berlin/4049b3a4e0fc). All of that for a reasonable price: a four-year license for 10 call center agents costs 1,000 Swiss francs (excluding VAT), which made about 1000 USD when this article was being written. The detailed conditions of use a SaaS installation (QueueMetrics Live) can be found here: http://queuemetrics-live.com.

Asterisk and QueueMetrics are known to be perfectly compatible. The novelty of the proposed solution is in the successful integration of a hardware system Yeastar MyPBX (with Asterisk inside) with a cloud installation of QueueMetrics.

Thus, we get a cost-effective solution on a professional level. Purchasing Yeastar MyPBX is a relatively small one-off expense (the above-mentioned Yeastar MyPBX U520 model costs less than $3,000, connector modules excluded, whilst the price of the least advanced model in this line is ten times lower). QueueMetrics license for a cloud installation is paid for monthly. It is less than 30 Swiss francs per month for ten agents.

This brings up the question of the proposed solution reliability.

Reliability of cloud installations in general is an old and familiar subject. Many companies have placed their key business applications in clouds.

Cloud installations are not the cause for possible problems, the Internet connection is. Usually the connection is being backed-up with a separate Internet provider.

Please keep in mind: if the connection to telephony providers is done through analog lines (and the Internet connection is not used for telephony), occasional Internet failures would result in QueueMetrics operation brakes (which is not crucial), but will not have any drastic effect on the telecommunication system operation and your connection to the outer world.

So, let us analyze functioning of the integrated system in question.

A Manual on connecting QueueMetrics to Yeastar MyPBX can be found on Loway's website (http://manuals.loway.ch/Uniloader-chunked/ch06.html#_yeastar_mypbx). We used this document as a guidance and confirm that it is sufficient for the integrated system launch, but "classic" manuals on QueueMetrics (http://manuals.loway.ch/QM_UserManual-chunked/) are also very useful for an in-depth understanding.

Using these materials, one can merge Yeastar MyPBX and QueueMetrics Live without any particular problems. However, we do recommend to involve experts rather than do this type of work by yourself.

The fundamental principle of building a call center on Asterisk is that you arrange a queue of incoming calls and connect agents to it. Below you can see how to do it with Yeastar MyPBX. For other aspects of tuning and use of this IP PBX, please see the review https://medium.com/@SoftBCom_Berlin/993d9b020237.

If you want to make a call center with MyPBX, the main thing is to create and set up an agent queue (see Fig. 2) and IVR (see Fig. 3).

To create a queue, go to the corresponding window (Fig. 2), enter the queue number in 'Queue Number' field, and its name in 'Queue Name' field. No need to add agents during integration with QueueMetrics, as they will join the queue later by themselves.
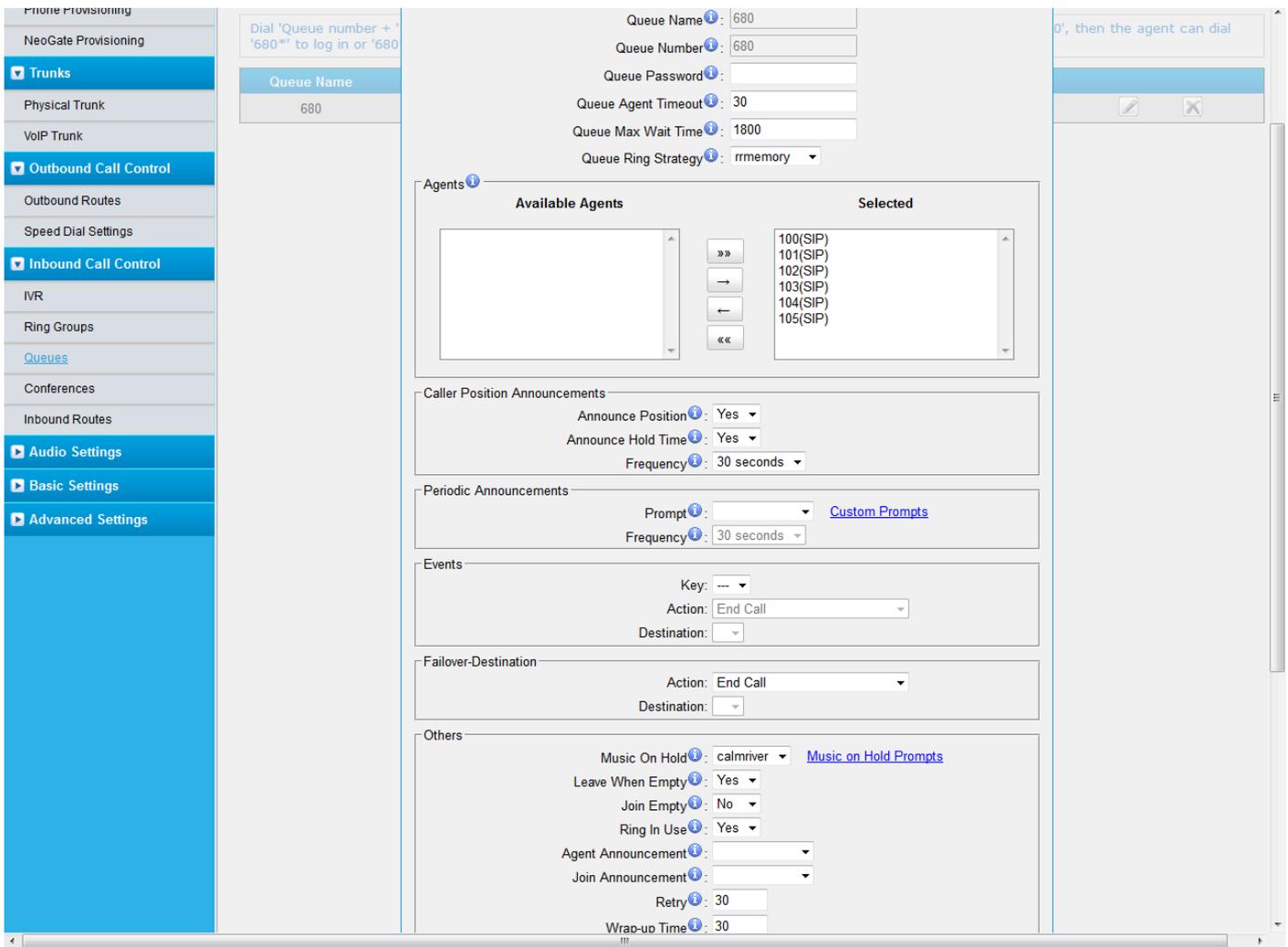
Figure 2. **Queue configuration**

To create an IVR, go to the corresponding window (Fig. 3). There in the 'Action' fields you set actions for every IVR choice (e.g. connecting to an extension, playing an IVR, voice mail recording etc.), and in the 'Destination' fields you set corresponding destinations where calls will be routed (after the selected digit/symbol is pressed on the phone). All these fields belong to 'Keypress Events' section.
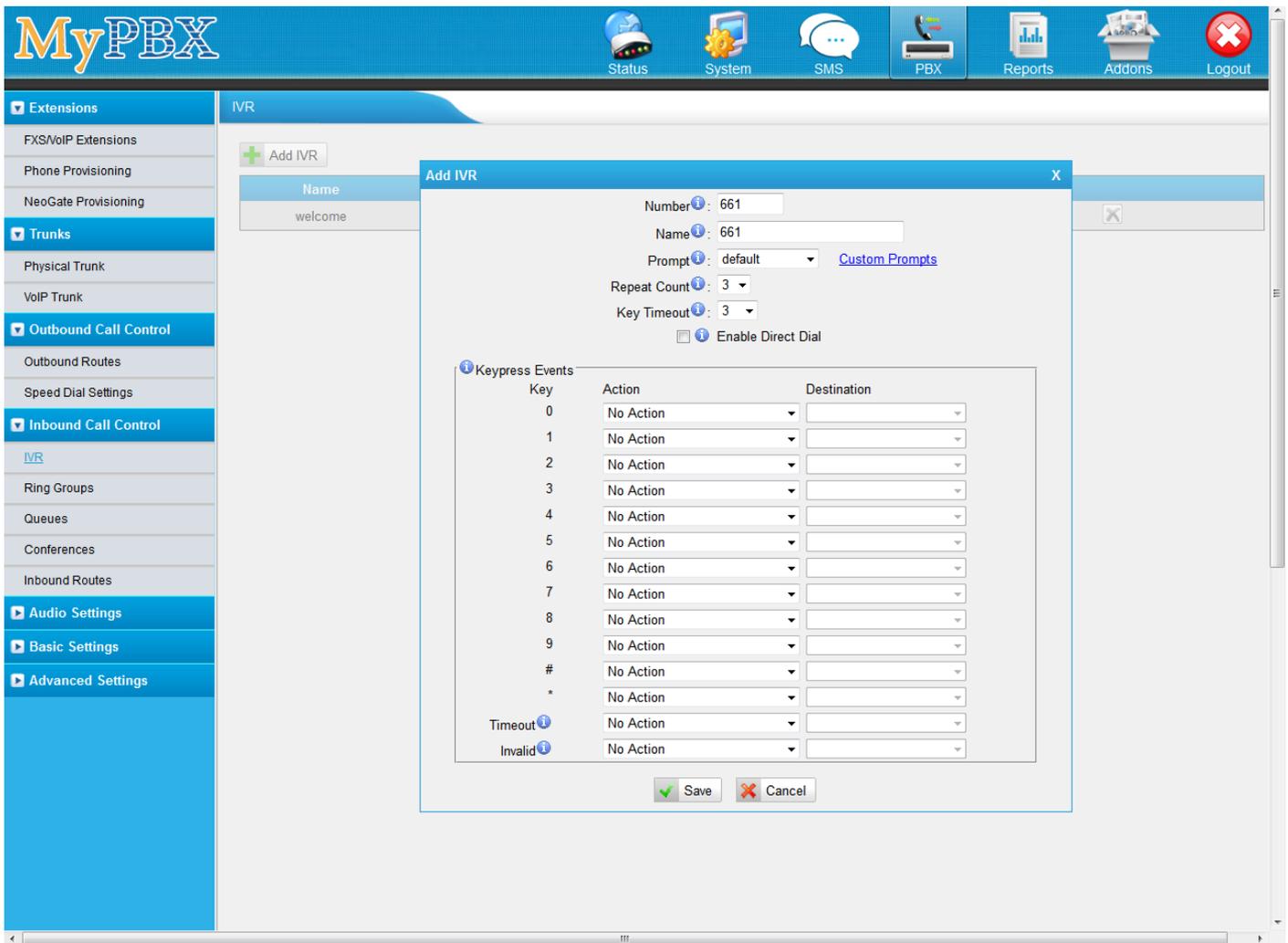
Figure 3. **IVR configuration**

After connecting QueueMetrics to MyPBX, it is necessary to carry out the initial QueueMetrics configuration (add queues and agents previously created in MyPBX).

QueueMetrics functionality for managing Asterisk-based call centers is briefly described here: https://medium.com/@SoftBCom_Berlin/4049b3a4e0fc. The content of this overview is entirely applicable to MyPBX.

Four main functions of QueueMetrics and their configuration

1. *Real-time agent monitoring (with a possibility to track agents' activity (Fig. 4), and queue management (see Fig. 5)):*

Figure 4. Agent **Monitoring**

Agents that are currently logged in are presented in the 'Agents currently logged in' list (Fig. 4). 'Calls Being Processed' list shows queue names, current calls in progress, and names of agents handling them. A call center supervisor can listen to current calls and give tips to agents by chat. She also can connect to every agent's desktop via remote access.
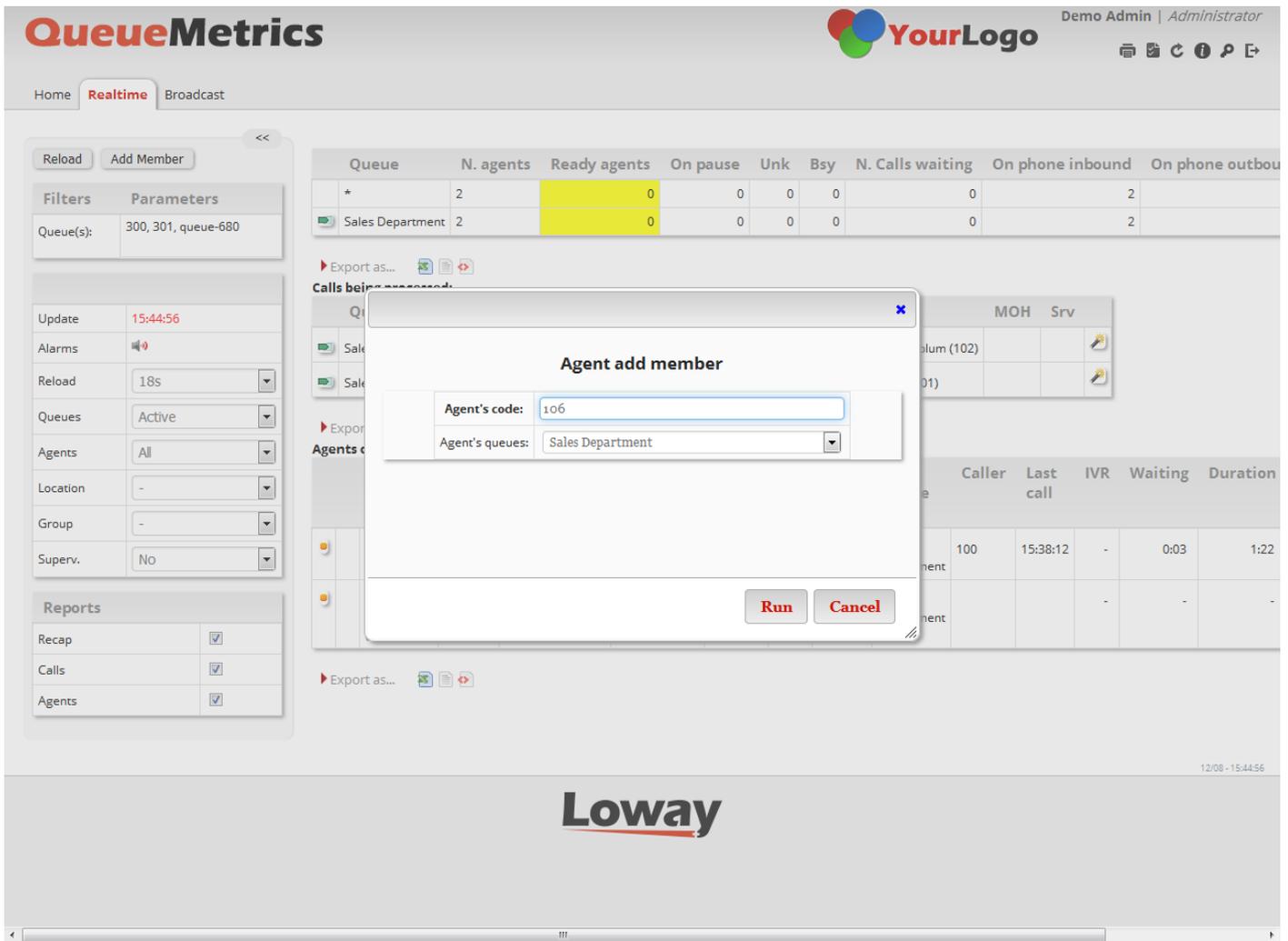
Figure 5. **Adding agents to a queue**

An agent's name must be entered in 'Agent's code' (Fig. 5). The name of the queue (where the agent must be added to) should be entered in 'Agent's queues' field.

2. *Getting call center performance reports: answered/unanswered call details, agent session details, call breakdown for a time period, etc.*
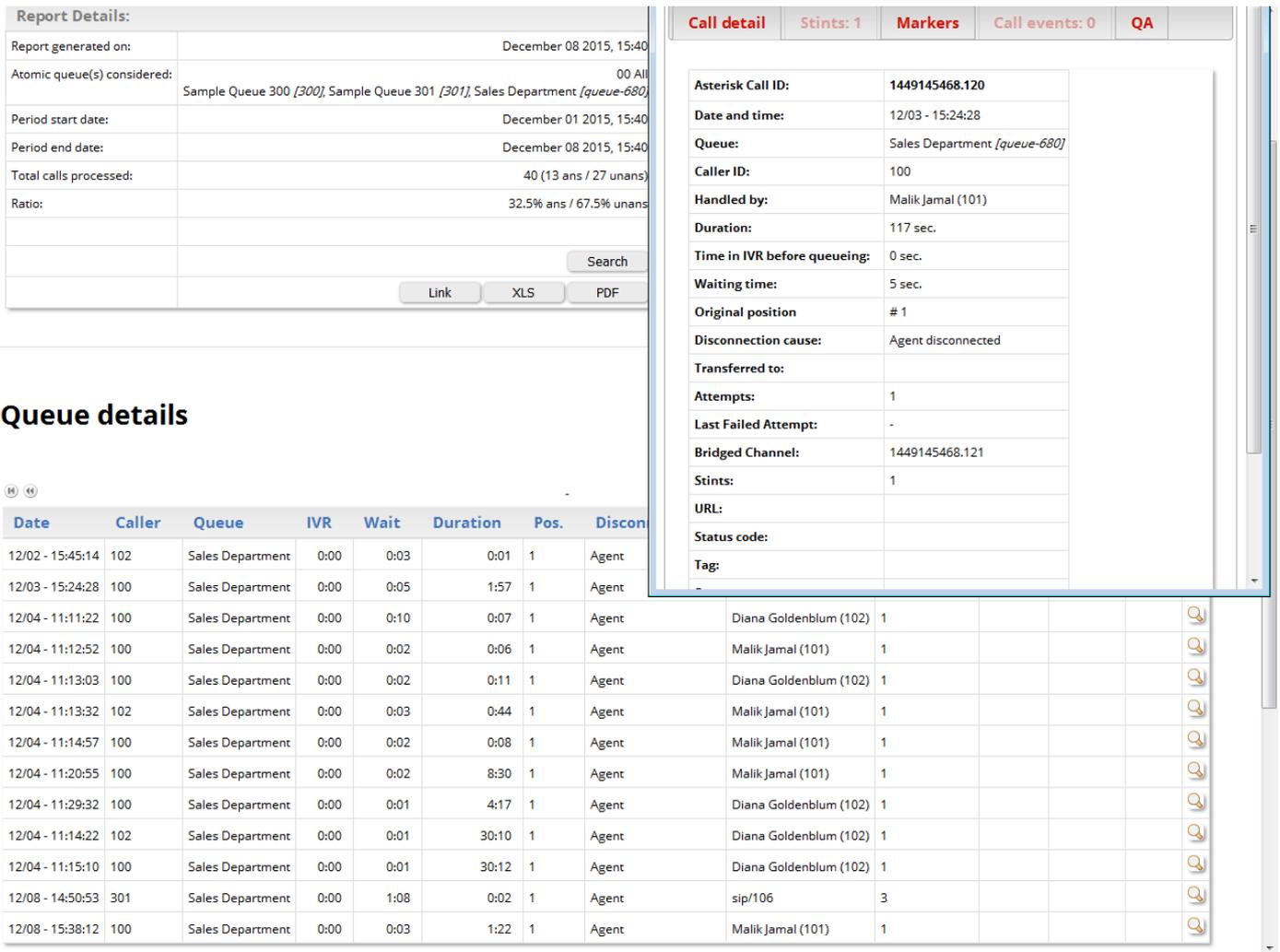
Figure 6. **Queue details**

A table in the bottom of Fig. 6 screen shows data on all calls for a selected period of time in a selected queue. Press the magnifying glass icon to see details on every call.

An example of such data could be found in the small window (top right, Fig.6): date and time, queue name, client's phone number, agent's name and number, call duration, waiting time, disconnection cause, etc. There is also a possibility to listen to every call.

Agent session detail

Agent sessions	
N. of agents available:	2
Average agent time:	113:13:10
Min agent time:	101:29:01
Max agent time:	124:57:19
Total agent time:	226.4 H

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Session and pause durations

Level	Agent	Sessions	Avg Session	Pauses	Avg Pause	Pause %	Pauses per session
Main	Malik Jamal (101)	2	50:44:30	0	-	0.0%	0.0
Main	Diana Goldenblum (102)	2	62:28:39	0	-	0.0%	0.0

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Agent availability (for all the queues they are member of)

Level	Agent	Time	On pause	Billable	Non bill.	Overlapping	...	
Main	Malik Jamal (101)	101:29:01	0:00	0:00	0:00	0:00	44.8%	▬▬▬▬▬
Main	Diana Goldenblum (102)	124:57:19	0:00	0:00	0:00	0:00	55.2%	▬▬▬▬▬

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Answered calls (for selected queues)

Level	Agent	N. calls	Total call time	Avg call time	Avg wait time	% of queue

Figure 7. **Agent sessions** (i.e. intervals of time between the agent having entered and exited a queue)

The report in Fig. 7 shows how many sessions an agent has carried out, these sessions' duration, quantity of pauses for every agent (e.g. an agent may take a pause during a lunch break), average pause length, etc.

3. *Agent performance quality control (based on objective assessment of call statistics and subjective assessment by controllers).*

Figure 8. **An agent's performance quality assessment by a controller**

A controller can listen to a recorded conversation between an agent and a client and assess performance by assigning value from 0 to 100 for every criterion (you can set your own criteria; this is done by Admin).

4. *Agent's dashboard. Here she can join a queue, switch pause mode on, look up a client's file (by entering the corresponding URL), and view data on her calls.*
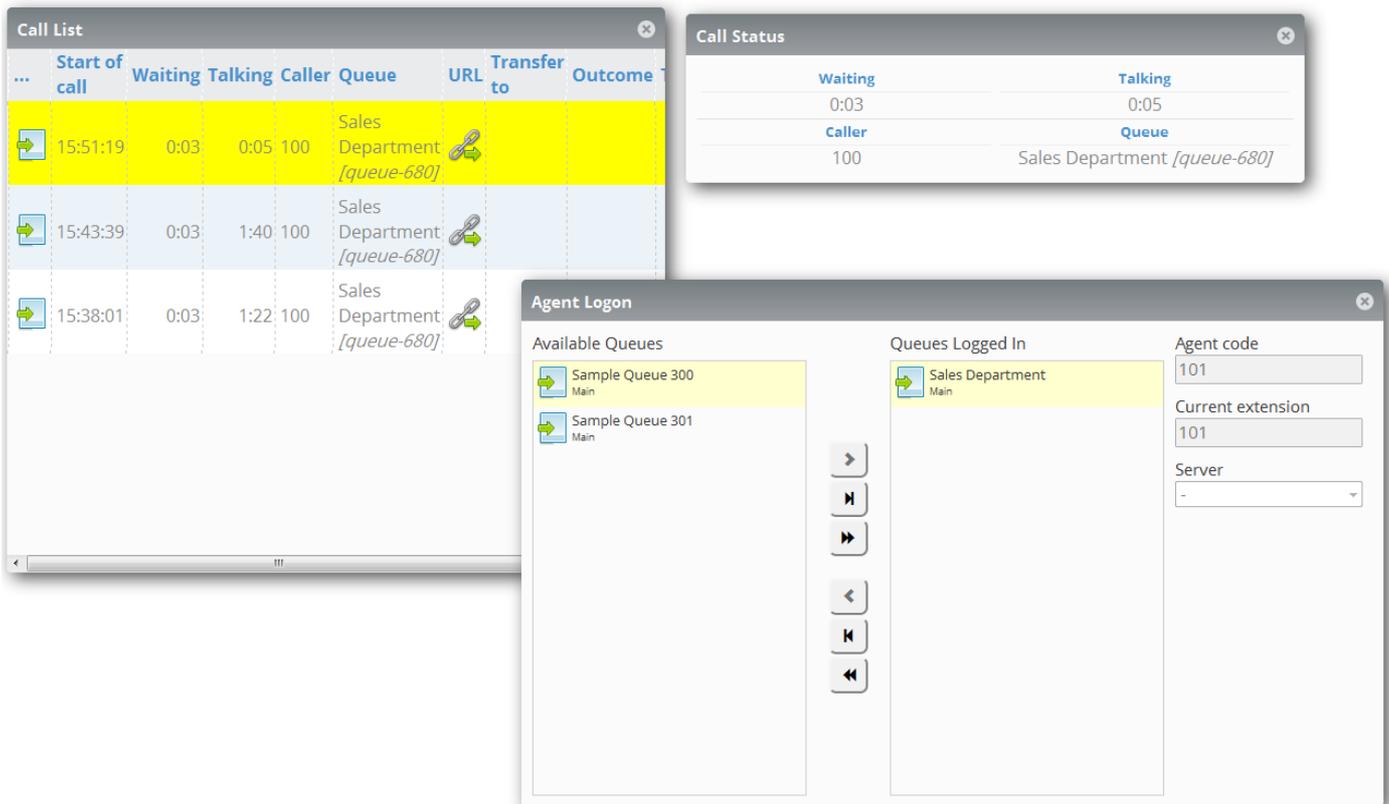
Figure 9. **Agent's dashboard**

Fig. 9 shows windows accessible in Agent's dashboard. In the 'Agent Logon' window she can join queues. 'Call List' window shows details of her calls (including URL links to CRM). Call Status window shows current call data.

Summary

The integrated solution consisting of Yeastar MyPBX and Loway's QueueMetrics is a system well fit for setting up a basic call center.

In such a call center, the IP PBX will be able to maintain only simple queue structures, but for small or medium business it is not a significant restriction. In general, this solution is a professional one, as it is based on tried-and-true technologies and systems from proven manufacturers.