# RECORDING VoIP TRAFFIC via PORT MIRRORING

## OrecX will easily record your VoIP traffic once your VoIP traffic is seen on the server interface.

Use Port Mirroring (SPAN, port spanning or port monitoring) to get the right traffic to the OrecX server.

- To understand “what is port mirroring?”, please see Appendix A (page 6).

## How to configure Port Mirroring

There are a few different "Port Mirroring" configurations to consider for different types of VoIP networks & different types of VoIP recording needs.

In any case**…**

1. **be sure your switch supports port mirroring,** port spanning or port monitoring functions (whatever term the manufacturer uses for that function).

2. **decide which calls need to be recorded….there are three types of calls:**
   - **Outbound** (local phone makes a call to the external phone)
   - **Inbound** (call is received from the external phone to the local phone)
   - **Local** or **Internal** (call is established between two local phones)

If recording of local calls is not necessary (or there are no such calls), then a configuration of "Port Mirroring" is very simple….you need to mirror the port where IP PBX is connected to (see Figure 1).

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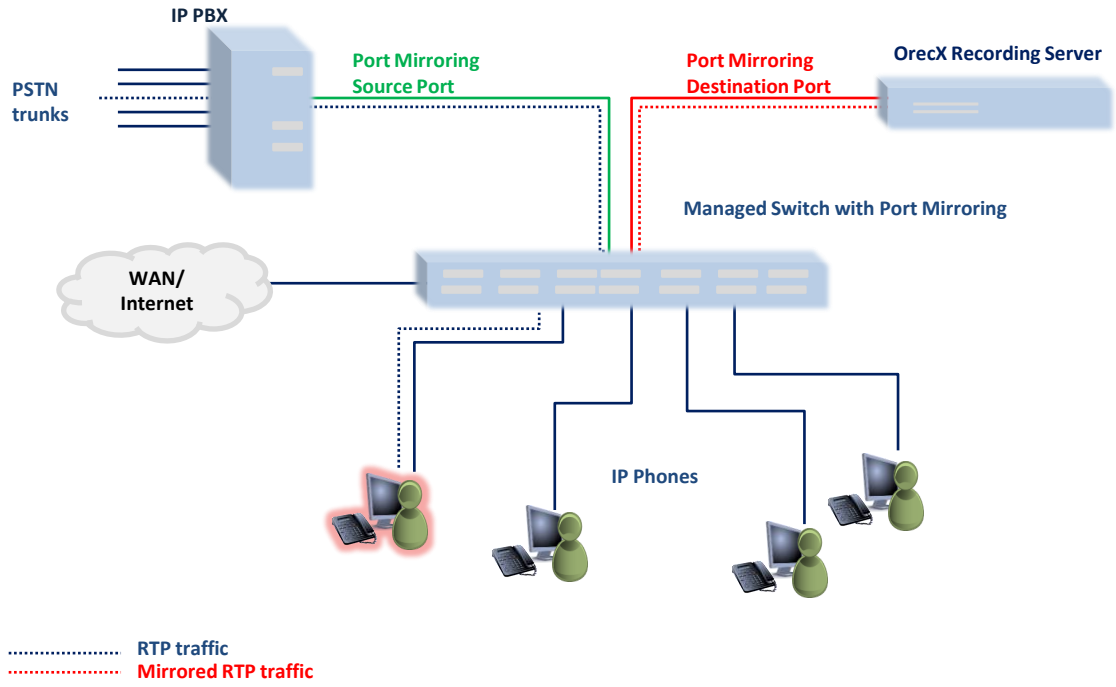
### Figure 1.
### Recording of Inbound and Outbound calls only




As you can see with Figure 1, RTP audio traffic is sent from IP Phone to IP PBX.
This traffic is mirrored to OrecX server, where it is decoded.
This solution works for both inbound and outbound calls, but may not work for local calls.

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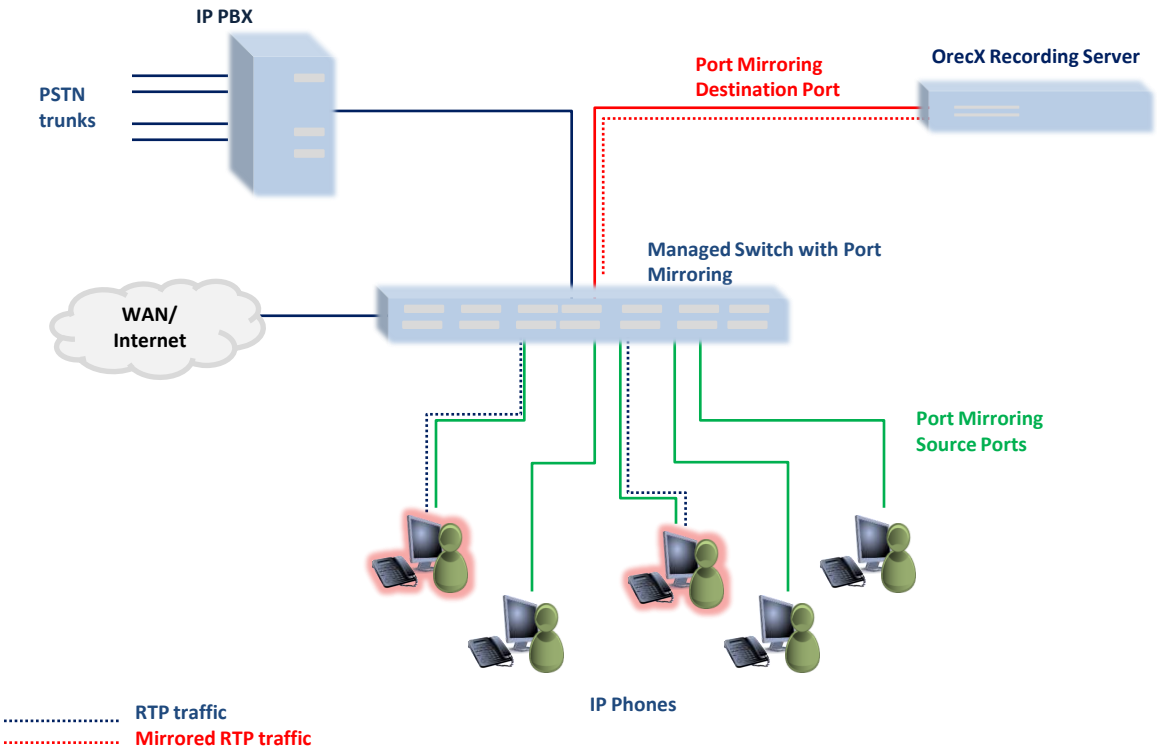
On most IP PBX systems there is an optimization for network bandwidth usage…if the call is made between two local/internal IP Phones, then RTP traffic is sent directly between phones without reaching of IP PBX (see Figure 2).

**Figure 2.**
**Recording of Inbound, Outbound & Local/Internal calls**



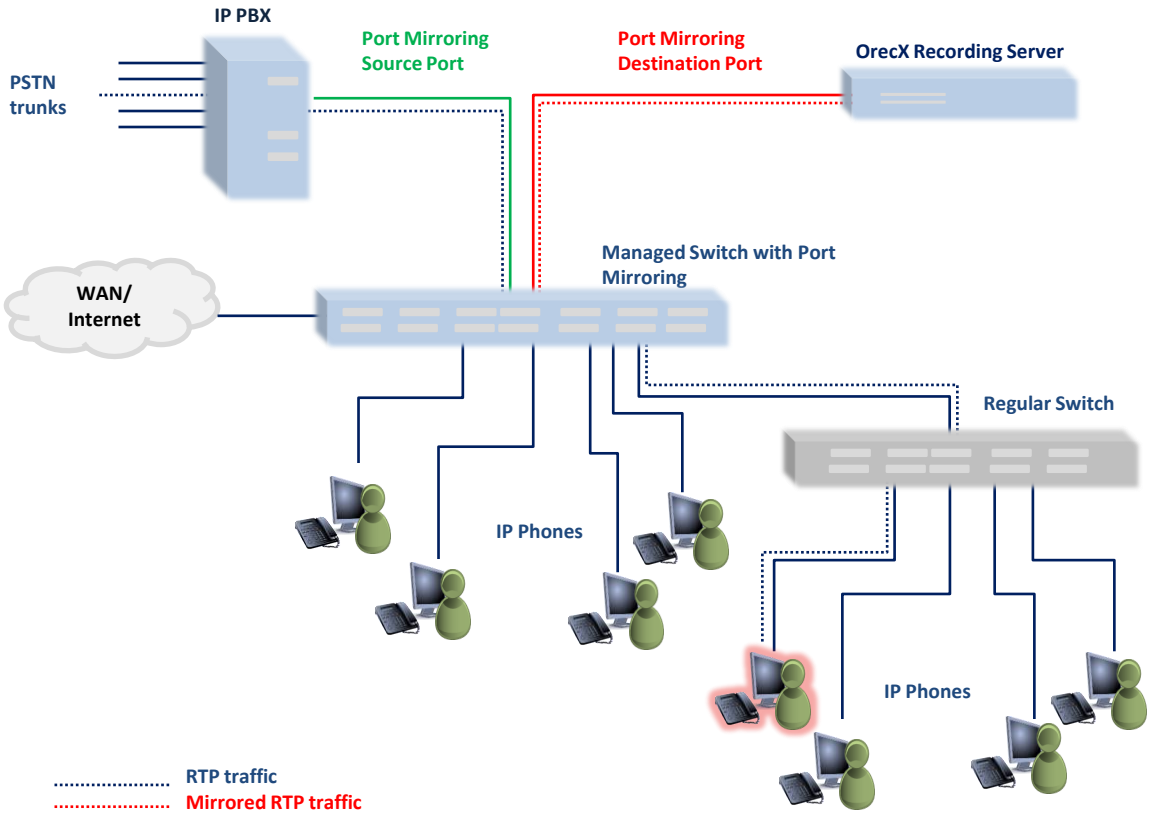

In order to record Local calls as well as Inbound and Outbound **you must mirror every port** where IP Phones are connected.

## RECORDING VoIP TRAFFIC via PORT MIRRORING

### VoIP Recording – Multi-switch network

Configuration of "Port Mirroring“ in a multiple switch setup is easy if recording of local calls is not required.
In this case "Port Mirroring" is required only on the main switch (see Figure 3).

**Figure 3.**
**Recording of calls on the second switch**
**(no local/internal calls need to be recorded)**



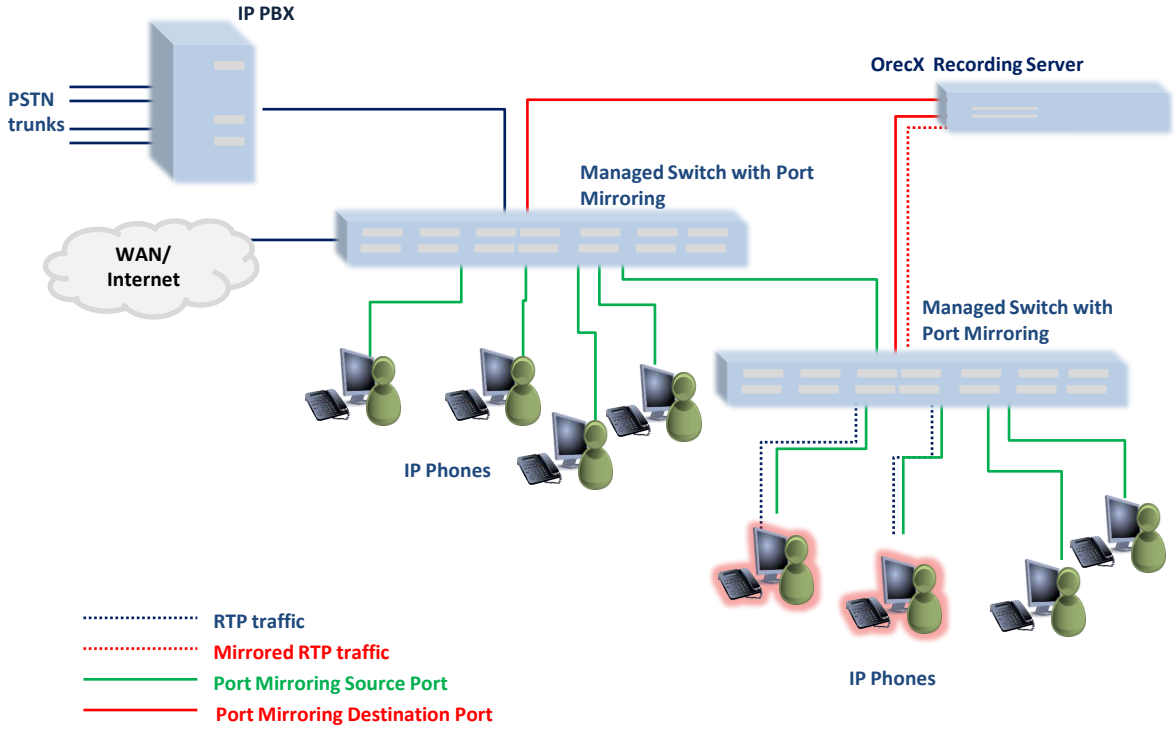
## RECORDING VoIP TRAFFIC via PORT MIRRORING

# Recording with Multiple Switches & Internal/Local Calls

In multi-switch scenarios, where **recording of local calls is required…there are three configurations:**

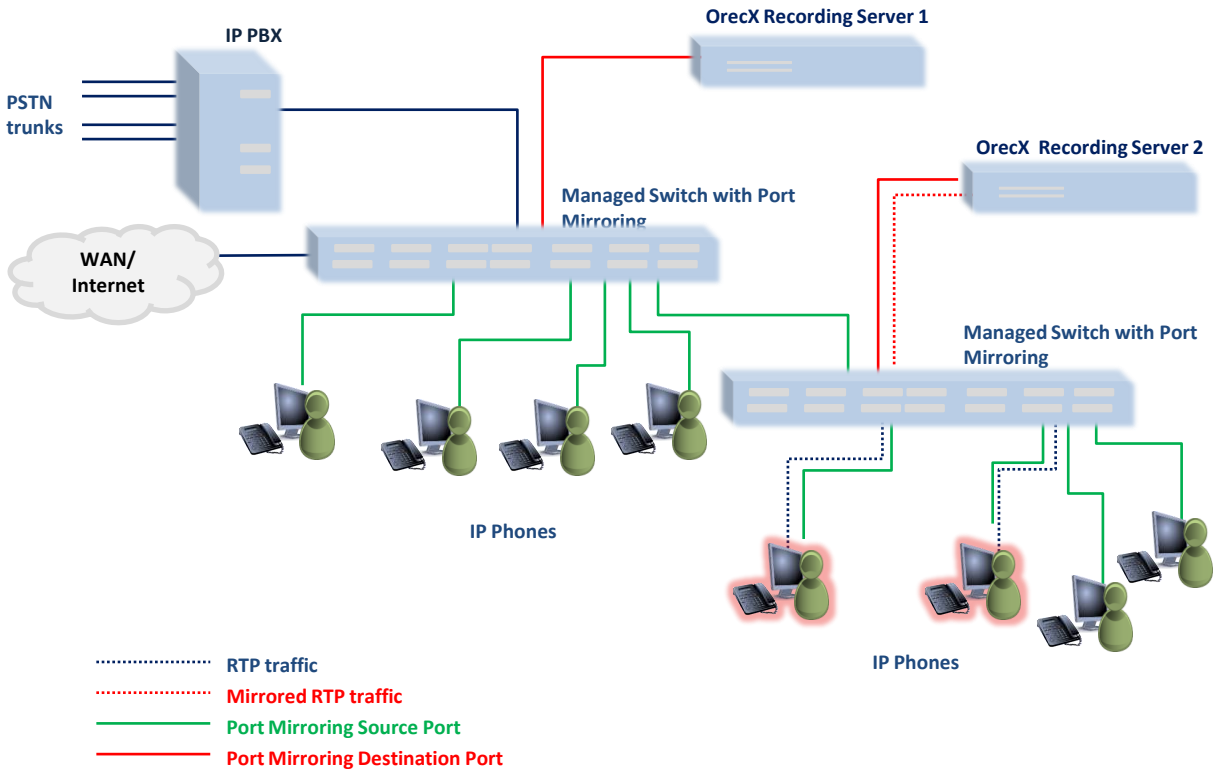
1. Install additional network adapter into OrecX server and connect multiple switches to it (see Figure 4)
2. Install a separate OrecX server for the second switch (see Figure 5).
3. Use Remote SPAN (RSPAN) capability of Cisco Catalyst Switches (see Figure 6)

## Figure 4.
## OrecX server with two network adapters



## Recording with Multiple Switches & Servers

### Figure 5.
### Two OrecX servers



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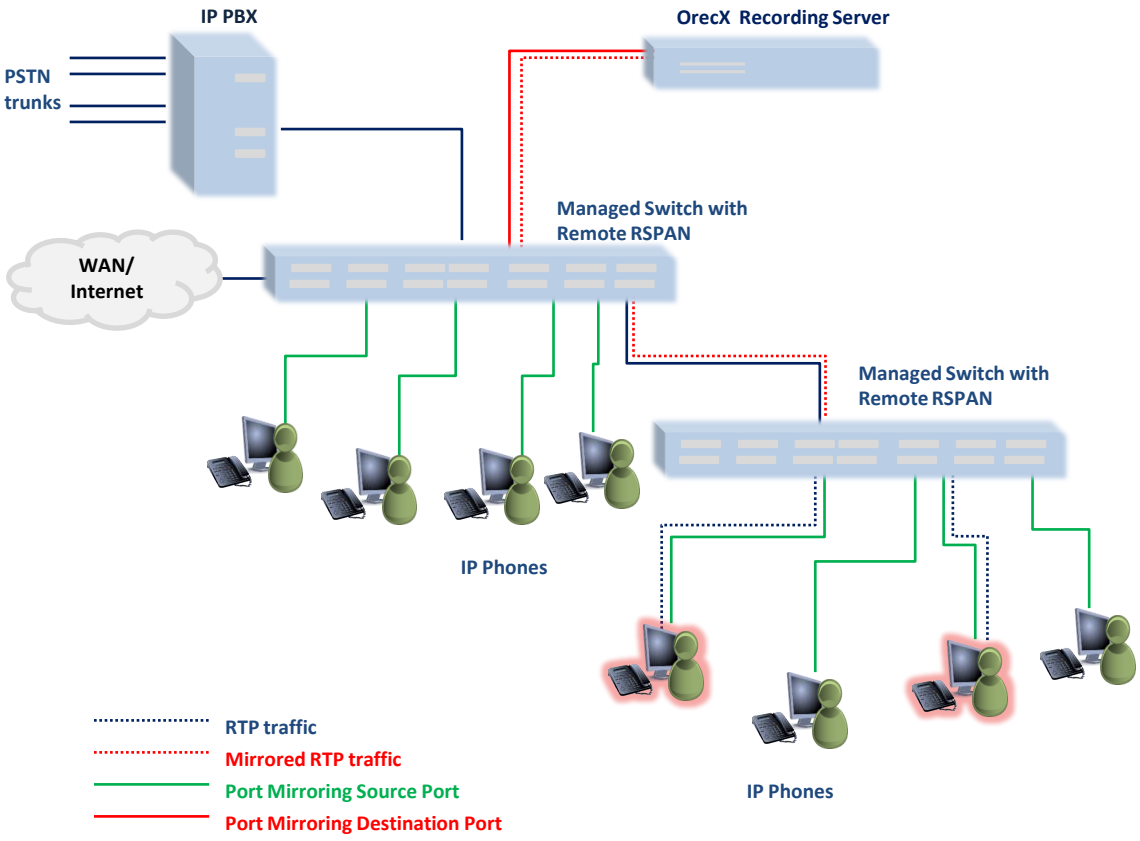
# Recording with Multiple Switches & RSPAN

## Figure 6.
## RSPAN Configuration




RSPAN allows you to monitor source ports that are spread all over a switched network, not only locally on a switch with SPAN. This feature appears in CatOS 5.3 in the Catalyst 6500/6000 Series Switches and is added in the Catalyst 4500/4000 Series Switches in CatOS 6.3 and later.
The functionality works exactly as a regular SPAN session. The traffic that is monitored by SPAN is not directly copied to the destination port, but flooded into a special RSPAN VLAN. The destination port can then be located anywhere in this RSPAN VLAN. There can even be several destination ports.
For More on RSPAN…
http://www.cisco.com/en/US/products/hw/switches/ps708/products_tech_note09186a008015c612.shtml#topic4-2

# Appendix A – What is Port Mirroring?

**Port Mirroring**, also known as **SPAN (Switched Port Analyzer)**, is a method of monitoring network traffic. With port mirroring enabled, the switch sends a copy of all network packets seen on one port (or an entire VLAN) to another port, where the packet can be analyzed.

Port Mirroring features, which is supported in nearly all enterprise class switches (managed switches), allows other computers to see a network traffic which is not visible to them in general case.

Managed switches have a configuration interface (web-based or command-line console), which administrators may use to specify the source port(s) to be mirrored and the destination port, where copy of all packets will be forwarded.

Below pictures illustrate how port mirroring feature works.

Four computers (A, B, C and D) are shown on this example. On Figure 2 they are connected to a managed switch with port mirroring support, while on Figure 1 they are connected to a general switch without port mirroring support.

A network traffic is sent between computers A and B (one portion of data is sent from A to B and another portion is sent in reverse direction from B to A).

**In Figure 1** you will see how a general unmanaged switch works.

It forwards packets directly between ports, where computers A and B are connected to.

Other computers (C and D) do not see these packets.

**In Figure 2** you will see the same scenario, but on the switch with port mirroring function.

The network traffic is sent again between computers A and B.

But there is a computer D, which is listening (monitoring) to that traffic.

Every packet, which is sent or received by computer A is duplicated (mirrored) to computer D port.

When configuring port mirroring on the switch, the "source monitoring port" is a port, where computer A is connected to and the "destination analysis port" is a port, where computer D is connected to.

**Figure 1. General Switch**

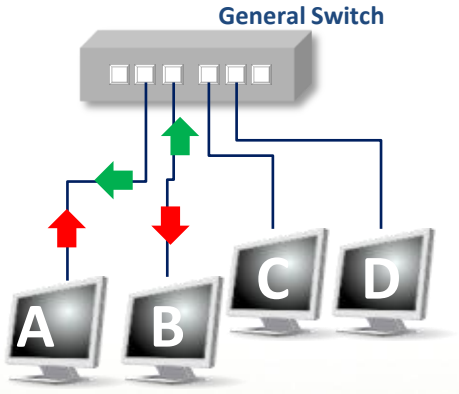
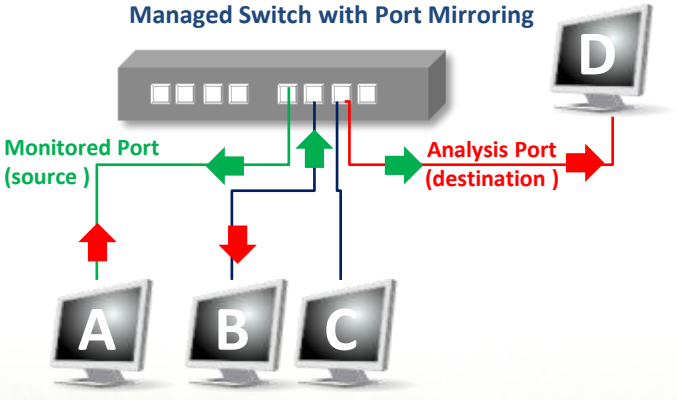



**Figure 2. Managed Switch with Port Mirroring**



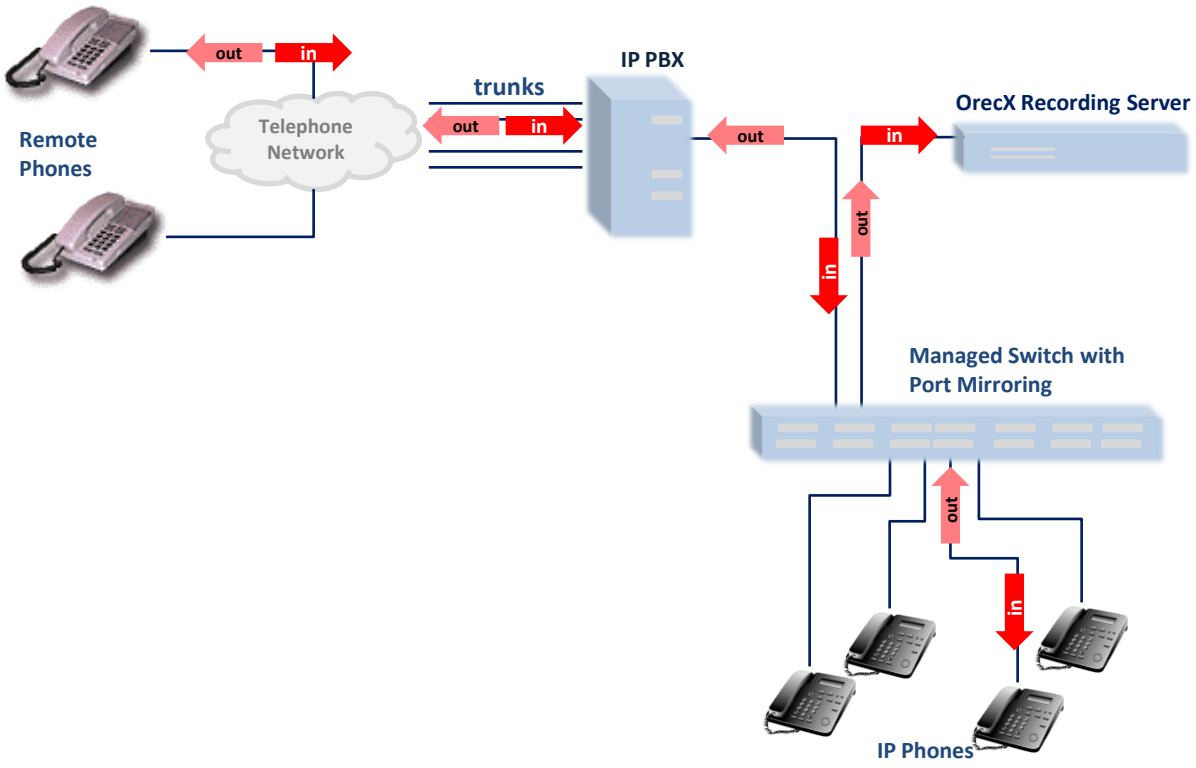
# RECORDING VoIP TRAFFIC via PORT MIRRORING

## How Port Mirroring function can be used for recording voip calls?

OrecX leverages port mirroring capability of a network switch to accomplish "unobtrusive" recording of VoIP calls.

The switch forwards to OrecX server a copy of every network packet sent or received by IP phones.

Below picture illustrates how the network should be configured to allow a recording of calls.




In this example, one of IP Phones makes a call to a remote phone outside of the local network (whether it is analog phone, cellular or IP Phone).
The network traffic from IP Phone goes through a switch and then to IP PBX.
Orecx server receives a copy of every network packet, which is sent or received by IP Phone. in out
By using intelligent packet capturing technology, OrecX can detect VoIP-related packets inside the network traffic, decode them and save the audio part on a disk.

OrecX
Open Source Recording