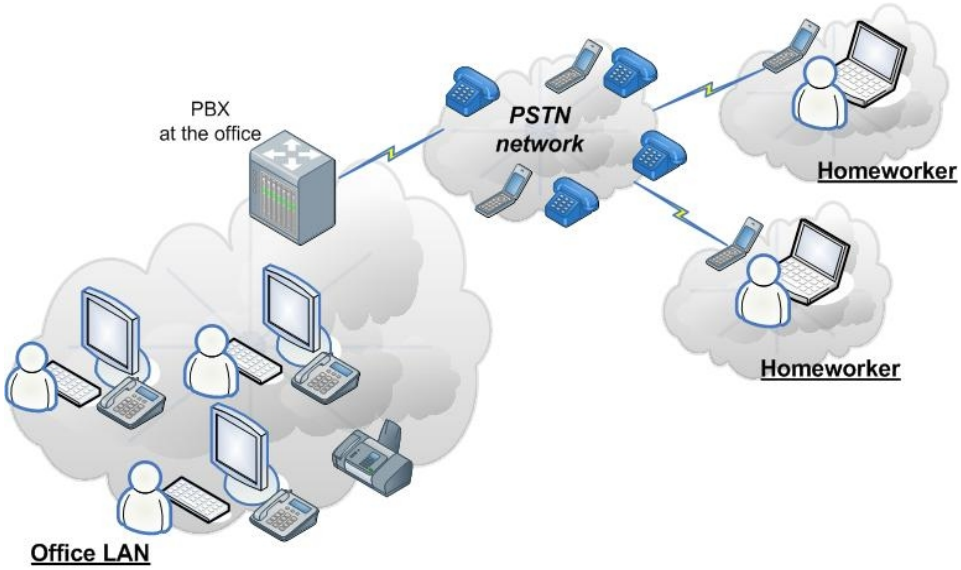
Cost Comparison of a Hosted PBX Versus a Traditional PBX

This whitepaper describes the cost structures of implementing a traditional PBX compared to the costs of implimenting a hosted PBX solution in the same office. All calculations are done from a Dutch perspective.

Setup and basic assumptions

The setup of the traditional PBX is as follows:



In this whitepaper, we assume to have an office with 25 workplaces and an average of 5 remote workplaces (home-workers and traveling team members). In the traditional setup, the PBX is placed on the office premises. ISDN lines and phone numbers are connected to the PBX for employees to make outoging calls and as well as receiving inbound calls. A basic ADSL 1:10 connection is used for office Internet access and employees use this connection to retrieve e-mail. Those that work from home and traveling members of the sales force use their mobile phones to make and receive phone calls, as well as using their own cable or DSL line for Internet access.

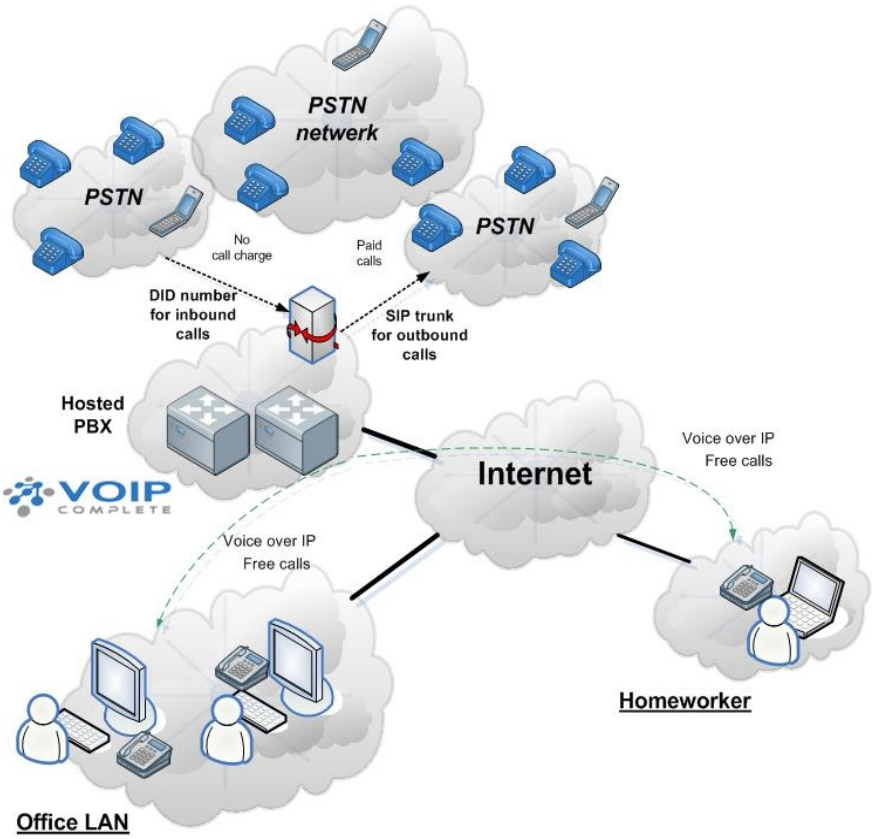
Calculating with the commonly used Alcatel OmniPCX 4200 PBX, the costs for this implementation would be the following:

One time costs for a traditional PBX	Price	Amount	Subtotal
Alcatel OmniPCX 4200, including 3 DLC 8 extension cards and CTI add on module	€ 1130	1	€ 1130
Installation Alcatel OmniPCX 4200	€ 50	5	€ 250
Alcatel 4019 digital business phones	€ 110	25	€ 2750
One time costs ADSL (modem/installation)	€ 365	1	€ 365
Protection against poweroutage: APC Smart-UPC SC 420	€ 100	1	€ 100
Total one time costs			**€ 4595**
Average per month cost calculated over 5 years			**€ 77 per month**

Monthly costs for a traditional PBX	Price	Amount	Subtotal
ISDN2 lines	€ 22	2	€ 44
1024/512 kbit/s ADSL 1:10 internet connection	€ 130	1	€ 130
Service contract Alcatel OmniPCX 4200	€ 49	1	€ 49
Powerusage PBX, ADSL modem and Smart UPC	€ 8	1	€ 8
Total monthly costs			**€ 231 per month**

The total costs for implementing and operating a traditional PBX with ISDN lines sum up to € 308 per month, including the one time investment of € 4595 spread out over an estimated period of 5 years.

As a comparison, we will now calculate the costs for this same office using the hosted PBX service. This solution can be sketched as follows:



In this scenario, the office uses Voice over IP – calls our routed over the Internet to their destination, rather than the traditional phone line. Often this requires for the office to upgrade their Internet connection because it does need to be able to support the incoming and outgoing cals. Special IP phones are also used in the office. These phones log in to the hosted PBX, situated remotely in the secured environment of the Internet Telephony Service Provider. The home-worker also uses an IP phone that logins to the same hosted PBX using their own local DSL or cable Internet connection. This allows phone calls between the remote employee and the office to have no additional costs.

The costs for the office with a hosted PBX service are:

One time costs for a hosted PBX	Price	Amount	Subtotal
One time costs SDSL (modem/installation)	€ 435	1	€ 435
Snom 300 IP phones	€ 90	30	€ 2700
Total one time costs			**€ 3135**
Average per month cost calculated over 5 years			**€ 52 per month**

Monthly costs for a hosted PBX	Price	Amount	Subtotal
VOIPcomplete hosted PBX 6 concurrent calls	€ 55	1	€ 55
4 x ported phone numbers	€ 9	1	€ 9
Subscription SDSL 1534 kbit/s 1:4 internet connection	€ 240	1	€ 240
Powerusage SDSL modem	€ 2	1	€ 2
Total monthly costs			**€ 306 per month**

The total cost for setup and operating a hosted PBX solution for the example office sum up to € 358 per month including the one time fee of € 3135 spread out over an estimated period of 5 years.

Call costs

Now that the operational costs are known for the 2 PBX scenarios, it is time to estimate the monthly calling costs. First we have to make assumptions about the calling patterns within the organization. The next tables show the assumptions we made to calculate the monthly call costs. The number of calling minutes is the same for both scenarios, as well as the destinations of the calls. As mentioned earlier, the remote works (those that work from home as well as those that travel) tend to use cell phones in the traditional scenario. In the VoIP scenario they use an IP phone which is connected to the hosted PBX.

Office calling pattern					
Total number of minutes per month	8500				
Duration of the average call	5 minutes				
	% total minutes	**KPN start**	**KPN minute**	**VOIPcomplete start**	**VOIPcomplete minute**
Calling minutes NL regional	10% - 850 min.	0.0369	0.0250	0.0336	0.0168
Calling minutes NL national	35% - 2975 min.	0.0447	0.0379	0.0336	0.0168
Calling minutes NL mobiel	25% - 2125 min.	0.0447	0.1200	0.0420	0.1170
Calling minutes BE	35% - 2975 min.	0.0894	0.0703	0.0420	0.0320
Calling minutes DE	10% - 850 min.	0.0894	0.0643	0.0420	0.0250
Calling minutes other international	10% - 850 min.	0.0894	0.0900	0.0420	0.0400

Home-workers/travelling sales force calling pattern in the traditional scenario			
Total number of minutes per month	2000		
Duration average call	5 minutes		
	% total minutes	**KPN mobile start**	**KPN mobile minute**
Calling minutes NL from mobile	100% - 2000 min.	0.0500	0.0900

Home-workers/travelling sales force calling pattern in the VoIP scenario			
Total number of minutes per month	2000		
Duration average call	5 minutes		
	% total minutes	**VOIPcomplete start**	**VOIPcomplete minute**
Calling minutes to office	30% - 600 min.	0	0
Calling minutes NL regional/national	50% - 1000 min.	0.0336	0.0168
Calling minutes NL mobile	20% - 400 min.	0.0420	0.1170

Based on these assumptions, and using the per minute costs of Dutch KPN Telecom for traditional telephone services and VOIPcomplete for the Voice over IP scenario, the monthly costs can be calculated for our example office as follows:

Total call costs in traditional scenario	
Total start tariffs office	€ 97
Total calling minutes office	€ 580
Total start tariffs homeworkers/travelling sales force	€ 20
Total calling minutes homeworkers/travelling sales force	€ 180
Total monthly call costs - traditional scenario	**€ 877**

Total call costs in VoIP scenario	
Total start tariffs office	€ 65
Total calling minutes office	€ 395
Total start tariffs homeworkers/travelling sales force	€ 10
Total calling minutes homeworkers/travelling sales force	€ 53
Total monthly call costs - Voice over IP scenario	**€ 523**

Conclusion

In this whitepaper we compared the costs of 2 PBX scenarios. The first scenario uses a traditional setup of an Alcatel OmniPCX 4200 PBX with ISDN lines on the office premises. The second scenario is based on using Voice over IP and a hosted PBX.

If we compare the costs of implementing and operating the PBXs in both scenarios, then it seems that the traditional setup is 14% cheaper than the setup based on the hosted PBX.

But if we also add the monthly call costs to this figure, we can conclude that the hosted PBX scenario is 26% more cost effective compared to the PBX in the traditional setup. For our example office with 25 workplaces and 5 homeworkers and/or travelling sales force this means a monthly saving of € 304 on communications costs.

Besides these savings, the hosted PBX scenario has the added advantage that the home-workers and travelling sales force are available directly on their IP phones. Office employees can reach them for free through an internal extension number and, if necessary, customers and suppliers can reach them as well by calling a predefined public telephone number which is routed to the extension of their IP phone.

Another advantage of the VoIP scenario is its flexibility and scalability. If the organization grows, there is no need to purchase extra ISDN lines which have to be connected to the office PBX by telecommunication specialists. Instead, all you need to do is upgrade its Internet connection before adding the extra IP phones. These actions can be done by office employees after very little instruction.

Based on the two scenarios we can safely conclude that VoIP systems are more cost effective and easier to implement than traditional phone services.