



All Voice over IP Explanations Vo.2

May 2017

Contents

1	All IP Transformation	3
1.1.	Why All IP	3
1.1.1	Many important benefits	3
1.1.2	Flexible.....	3
1.1.3	Simple.....	3
1.1.4	Efficient	3
1.2.	Managing the transformation	3
1.2.1	The Service Provider can support you in switching to All IP	3
2	Important issues	4
2.1.	What do I need to think about when I switch?	4
2.2.	Switching alarm systems to IP	4
2.2.1	Frequently asked questions.....	4
2.3.	Switching fax machines to IP	5
2.3.1	Frequently asked questions.....	5
2.4.	Switching lift phone systems	6
2.4.1	Frequently asked questions.....	6
2.5.	Switching modem applications to IP	7
2.5.1	Frequently asked questions.....	7

1 All IP Transformation

Internet Protocol (IP) is the most established technology for data transmission worldwide. In addition to data, IP can also be used for image, film, music and voice transmission. Luxembourg Service Providers are in the progress of switching its conventional fixed network telephony services over to IP. The old telephony infrastructure will be gradually decommissioned over the next years. Customers who have not yet switched to an IP product will be helped to do so by Luxembourg Service Providers. Currently, a significant number of subscriber lines (>70K in 2017) are switched to IP technology and these customers can already benefit from the advantages of IP products.

1.1. Why All IP

1.1.1 Many important benefits

The switch to All IP is taking place around the world and means that fixed networks, TV, mobile telephony and the Internet, as well as all the services linked to them, will communicate universally, in a common language, via Internet Protocol (IP). The sooner you switch, the more key benefits you will enjoy.

1.1.2 Flexible

With All IP you can communicate and work without restrictions on any device, anywhere, any time.

1.1.3 Simple

All IP simplifies communication and collaboration and reduces the complexity of voice and data services.

1.1.4 Efficient

All IP enables new service models that optimize investment and operating costs while improving transparency.

1.2. Managing the transformation

1.2.1 The Service Provider can support you in switching to All IP

The service providers can give residential customers one-to-one advice about how to switch their fixed network telephones to IP. It is usually just a case of connecting the telephone cable with the new router that is provided by the service provider. We recommend that small and medium sized enterprises use the switch to check their communications infrastructure and exploit the potential for All IP as effectively as possible.

2 Important issues

2.1. What do I need to think about when I switch?

As well as your conventional fixed-line telephone, the switch to IP affects many other applications that communicate via the traditional fixed network connection.

2.2. Switching alarm systems to IP

Alarm systems that transmit alarms over the traditional fixed network are affected by the switch to IP. Luxembourg Service Providers are in the process of replacing the traditional fixed network connections with IP-compatible telephone lines. The old telephony infrastructure will be gradually decommissioned. All alarm systems affected will have to be modernized in advance to ensure their reliable continued operation.

2.2.1 Frequently asked questions

Which alarm systems are affected?

Only alarm systems that currently transmit alarms over the traditional fixed network (analogue or ISDN) are affected. Many systems are not affected because they only transmit alarms over the mobile network. Systems that only sound an alarm locally (using a siren) are also not affected.

As an owner, what must I do?

Contact the installer or supplier of your system as early as possible. They will take the necessary steps to ensure the reliable operation of your alarm system. We would recommend switching the alarm system before the telephony switch.

Transmission over the fixed IP network and mobile network

Dual solutions are the most reliable; they transmit information primarily via the fixed IP network but also over the mobile network. This is seen as the most reliable means of transmitting information. It is even more reliable than traditional transmission using the fixed network alone.

Transmission over the mobile network

Transmission over the mobile network meets the necessary requirements in many cases. Many systems are already equipped for this alternative type of transmission, which is easy to implement.

Transmission over the fixed IP network

Transmission over the fixed IP network meets the necessary requirements in many cases. Many systems can be switched to this type of transmission relatively easily.

Analogue-IP converter

Some alarm system providers use additional converters to connect previous systems directly with an IP device.

Modem over VoIP

Tests with manufacturers have shown that many conventional alarm system modems can transmit successfully via the analogue router interface but the Service Provider cannot give any commitment on the transmission of the signal data.

2.3. Switching fax machines to IP

In general, fax machines can still be used after switching to IP telephony. Analogue fax machines can be connected directly to the router, just like fixed-line telephones. However as the Luxembourg Operators are migrating their telephony networks to an IP Protocol, and also on the international interconnect between the different operators the transformation to All IP Networks are progressing the transmission of Fax Messages cannot be guaranteed anymore. Whereas from the technology view technical solution exist for the transmission of faxes in an IP Network, the different operators (national and international) cannot guarantee the same quality then in an old circuit switched network.

2.3.1 Frequently asked questions

Can I use my fax machine with IP?

In general, you will still be able to use your analogue fax machine after switching to IP. With IP, you need to connect your fax machine to the analogue telephone adapter on the router, just like fixed-line telephones. If your analogue fax machine no longer works properly after switching to All IP, please make the following changes to the settings on your device:

- a) Reduce the transmission rate, e.g. from 14,400 bps to 9,600 bps.
- b) Turn error correction off: switch Error Correction Mode (ECM) to "off".

As a business customer, what must I do?

If an analogue fax machine must be used, please note that Luxembourg Operators cannot guarantee that it will be possible to transmit faxes. The reasons for this are the variety of parameters of the IP network, which are network- and location-specific and could possible cause issues with fax transmission. This is why, for the transmission of business-critical data, we recommend switching to an alternative solutions.

How reliable is fax transmission with IP?

Faxes and other modulated services in the voice transmission bandwidth do not have the same level of reliability in the IP environment. However, we are unable to comment on individual cases since various factors can significantly influence transmission quality, such as the type of device, device settings and type of device connection to the IP network at the transmitter and receiver. Documents may not be completely rendered or the transfer itself may break down entirely due to technological reasons. At international transfer level especially, you need to anticipate increasing difficulties.

Are there any simple alternatives?

We assume that analogue communication services will disappear from the market in the medium to short term. We would therefore recommend that you switch to an IP solution. This includes sending and receiving faxes using PC or e-mail solutions.

2.4. Switching lift phone systems

Lift phones that transmit emergency calls over the traditional fixed network are affected by the switch to IP. Luxembourg Service Providers are in the process of replacing the traditional fixed network connections with IP-compatible telephone lines. The old telephony infrastructure will be gradually decommissioned. We advise lift manufacturers to switch to mobile telephony products or alternatives specially designed for the lift sector.

2.4.1 Frequently asked questions

Which lift phones are affected?

Only lift phones that currently transfer emergency data alarms using the conventional fixed network (analogue or ISDN) are affected. Many systems are not affected because they only transmit alarms over the mobile network.

As an owner, what must I do?

Contact your maintenance agreement provider or the lift manufacturer as soon as possible. They will take the necessary steps to ensure the reliable operation of your lift phone system.

Why is Luxembourg Operators moving to mobile communications?

Mobile solutions are a good option today. For fixed IP telephony, no optimized router with integrated battery is currently available and the function of the IP connection is not always guaranteed in the event of a power failure.

2.5. Switching modem applications to IP

Applications that communicate Data over the traditional fixed network via voice modem are affected by the switch to IP. Luxembourg Service Providers are in the process of replacing the traditional fixed network connections with IP-compatible telephone lines. The old telephony infrastructure will be gradually decommissioned. All modem applications that are affected need to be modernized in advance to ensure their reliable continued operation.

2.5.1 Frequently asked questions

Which modem applications are affected?

Applications such as alarm systems, franking machines, remote controls, remote monitoring, building services, industrial systems, electricity meters and many others that currently transmit signals with a modem over the traditional fixed network (analogue or ISDN). Many systems are not affected because they only use the mobile network to transmit information or they are already IP compatible.

As an owner, what must I do?

Contact the installer or supplier of your system as early as possible. They will take the necessary steps to ensure the reliable operation of your modem-based systems. The majority of modem applications will still work using the ATA port on the router (analogue telephone adapter). Check operational issues with the manufacturer.

What do you need to do before switching to IP?

If you are using a modem system that communicates via the fixed network, the IP compatibility of the system needs to be checked before all communication is switched to IP.

Transmission over the fixed IP network and mobile network

Dual solutions are the most reliable; they transmit information primarily via the fixed IP network but also over the mobile network. This is seen as the most reliable means of transmitting information. It is even more reliable than traditional transmission using the fixed network alone. This type of transmission is particularly recommended for critical systems.

Transmission over the mobile network

A connection with the 3G/4G network is the best option for most applications and is economical and reliable. Wireless communication also reduces installation costs.

Transmission over the fixed IP network

A pure IP connection can be advantageous when it can be integrated easily into the LAN. The application can communicate more easily with other machines in the network or be monitored directly.

Transmission over the fixed VoIP network

Existing modems can often operate reliably on the analogue interface of the router. This can be an expedient solution, particularly for non-critical transmission. The connection needs to be checked regularly.