

## Intercoms Over IP: SIP protocol vs P2P protocol

The benefits offered by the communication audio and audio / video over IP, compared to traditional analog systems, are now universally recognized: one for all the reduction of the costs and of the installing times that you can get by being able to share the LAN with other systems and to use existing networks.

Therefore when it is already available a LAN that is used to manage a group of computers, the automation of production lines or a video surveillance system you can install quickly and easily systems as intercom, intercoms, emergency call or public address by sharing the network with existing services.

The possible architectures for such systems are based on the adoption of a SIP protocol (Session Initiation Protocol) or on the adoption of a P2P protocol (Peer to Peer); the first is the protocol used by most part of the telephone exchanges, such as the popular Asterix, while the second is the one used in the exchange of files and the direct communication between computers such as occurs in Skype.

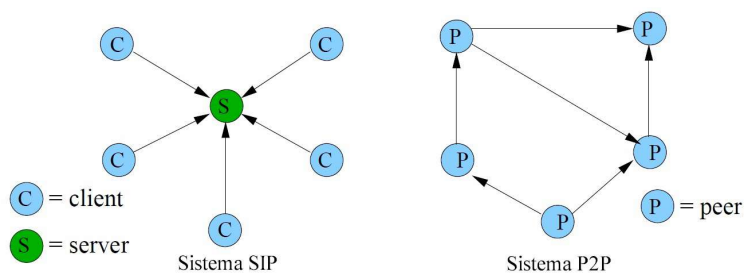
Many of the systems available on the market today use a client-server architecture that uses the SIP protocol for communications management. These systems require a communication server, on which are recorded all the existing clients, who takes care of managing the communication between different client: the connection request of an apparatus to another is addressed to the server and then is the server that deals with route it towards the apparatus is intended to receive the call and that puts in communication the two terminals.

Ultimately each client does not know the IP address of the other but it is only the SIP server that is aware of the complete architecture of the system and, consequently, it is only through the server that it is possible to establish the connection between two devices.

It is therefore clear how the server represents a critical element in the overall architecture and therefore in systems that need a high degree of reliability (for example, the systems of emergency calls) is often prescribed for the adoption of a redundant server.

Other solutions use a server-less structure that is based on the adoption of a P2P communication protocols (literally "as an equal") where each apparatus, called Peer, has the ability to connect itself directly with the apparatus with which it must communicate without the intervention of any intermediate device which, precisely, like the server.

This is possible because each device directly and independently performs the initialization function of the connection, which in SIP systems is performed by the server, because the IP address of the peer with which you need to connect is resident in its memory.



It is immediate and obvious to understand as a P2P system offers important advantages such as easy scalability (to add a new apparatus it is enough to have a free IP address on the network and it is not necessary an expansion of the server capacity) and as high reliability since it is not present no element (server) whose fault can affect the efficiency of the communication system.

In most cases it is not necessary that the intercom system is connected to the telephone network but, If it is necessary for management requirements to connect the intercoms both with the private telephone network or the public telephone network, a system based on SIP architecture may seem of more immediate use since this protocol is the same used by PBX but actually, even a system that uses the P2P protocol can be connected to a telephone network using a phone-gateway that can act as a "bridge" between the two protocols.

Ultimately it can be said that systems based on SIP systems are "centralized intelligence" since all the information that manage the connections reside on the server while the P2P systems are systems for "distributed intelligence" because each terminal has all the information that allow it to connect to the other terminals of the system.

It is therefore clear that systems based on a P2P protocol thank to their nature are systems with greater system reliability because there is no apparatus whose fault can affect the functionality of the entire system as it does in the case of a server fault.