7 FEATURES
TO KNOW WHEN

CHOOSING A VIDEO CONFERENCING SYSTEM

MOTILDE
TRUE COLLABORATION

INTRODUCTION

Videoconference had already established itself for several years as an essential tool for remote collaboration, used both internally and with external partners; the pandemic has made this technology a must. Many small and medium-sized companies are now taking the decision to equip themselves with a real videoconferencing ecosystem: individual workstations, home office equipment, videoconferencing rooms, dedicated Internet connections, etc. But, what are the factors to be considered before making an investment?

First of all, the diversity of solutions on the market requires a quick definition of what is videoconferencing: it is any system that puts you in communication with a remote site(s) by ensuring at least these 5 functions:

« SEE, BE SEEN, SPEAK, BE HEARD, SHARE A DOCUMENT. »

With these functions fulfilled, the differentiation between videoconferencing systems can be described in seven basic characteristics.

SUMMARY

1. **Proprietary or standard system?**
2. **Peripherals: room system or desktop?**
3. **Point to point/ multi point**
4. **And what about audio?**
5. **Bandwidth level**
6. **The layout**
7. **Content sharing or co-publishing?**

FEATURE 1

PROPRIETARY OR STANDARD SYSTEM?

Like any information system, a videoconferencing solution is based on the combination of hardware and software.

These fall broadly into two categories

closed systems that use proprietary protocols

and **open systems** that are based on market standards.

HARDWARE

Concerning the hardware, two choices are possible:

- the use of a dedicated machine (called codec as "coder/decoder")
- or the use of a machine equipped with a standard OS like windows, IOS, android, ...

IN BRIEF

The hardware codec has the advantage of its specialization (specific GPU chips, ...) and its power dedicated to the videoconferencing function, but on the other hand will suffer from its cost and a less easy deployment than a standard machine.

SOFTWARE

Regarding the software, it is the same equation:

- The industry standard protocol: H323/SIP is an umbrella of several standards: video (MPEG4), audio (G7xx) and data (H239). **It ensures that your video conferencing system can "talk" to any other standard equipment**.
- On the other hand, proprietary solutions do not respect this standard and will therefore require gateways to communicate with the H323/SIP world, which makes their deployment in the professional world more complex. On the other hand, **they often offer connection optimizations between two machines using their protocols.** This is typically the case for consumer tools like Skype or Google Meet, or professional tools like Teams or Zoom

The most emblematic case of this battle of standards is the SVC (Scalable Video Control) protocol, which brings a tangible improvement in bandwidth management but has the disadvantage of having as many standards as manufacturers/editors.

FEATURE 2

PERIPHERALS: ROOM SYSTEM OR DESKTOP?

The hardware drives the communication devices: cameras, screens, microphones, speakers in order to transmit and receive an audio and video stream.

DESKTOP

These devices can simply be integrated into your desktop machine (all PCs today are equipped with a webcam, a microphone and speakers).

It is often an individual use at his workstation or in mobility

OR

ROOM SYSTEM

These devices can be true stand-alone HD quality tools. This is called a "room system".

The videoconferencing experience can be enjoyed collectively in a room thanks to these devices which are often driven by a codec.

IN BRIEF

The quality of the room experience is obviously much better than desktop video conferencing software: CD quality sound, large screen display...

An intermediate solution exists with BYOD cameras: the videoconference is hosted on a participant's PC but the participant uses a BYOD sound bar camera which of course provides much better performance than the PC peripherals.

FEATURE 3

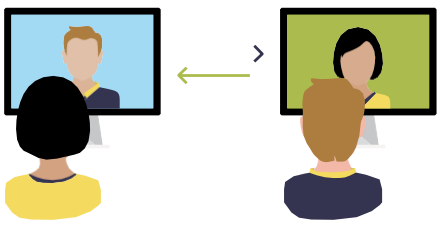
POINT-TO-POINT / MULTIPOINT

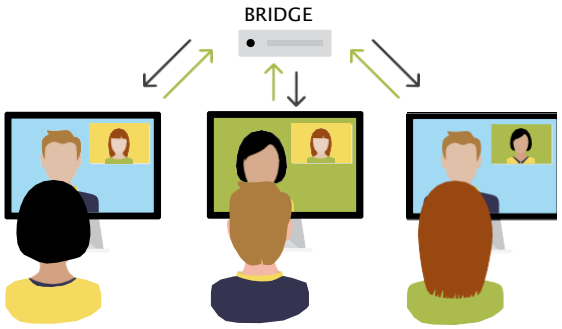
A videoconference can gather only two interlocutors / remote sites but also three or more.

The first case - called "point-to-point" - gathers the majority of the situations

However, most users adopt "multipoint" systems (three or more remote interlocutors/sites in the video conference) by adopting the adage: "who can more can less".

« DEPENDING ON THE STUDY, BETWEEN TWO THIRDS AND THREE QUARTERS OF VIDEOCONFERENCES ARE "POINT-TO-POINT".





POINT TO POINT SITUATION

The "point-to-point" can be done by a direct connection between two machines without an intermediary (machine A calls machine B using its public IP number, like the telephone)

MULTI-POINT SITUATION

Multipoint" requires additional equipment: the different sites communicate with a "videoconference bridge" that sends an aggregated video/audio/data stream to all.

This "videoconference bridge" is replaced by a specialized router in the case of SVC technology..

OUR ADVICE

Although some manufacturers/publishers proudly claim capacities of 25 interconnectable sites for their multipoint equipment, it is hardly desirable to exceed more than six sites in a single video conference (two rows of three).
Beyond that, it becomes necessary to use other modes of communication such as streaming: a speaker / master site is viewed at the same time by all participants but the latter are not displayed.

Some "intelligent" systems make it possible to combine the two approaches: several master sites exchange in a videoconference which is viewed and listened to by an unlimited number of "voyeur" sites; the latter can intervene by chat or even in audio.

FEATURE 4

AND WHAT ABOUT AUDIO ?

Video often consumes minds (and bandwidth) when it comes to video conferencing.
Yet the first focus of any videoconferencing investor should be audio conferencing (a videoconferencing team does allow for audio conferencing sessions) for two reasons:

REASON 1

The statistics show that the latter remain important in percentage vs. sessions using video.

REASON 2

During a videoconference session, our brain can intermittently deal with a minimum of disturbances in the video stream (pixelation, slowed images, ...) without our attention suffering too much.

On the other hand, poor audio quality (choppy sound, echo, distortion, ...) immediately becomes prohibitive and ends the exchange.

FEATURE 5
THE BANDWIDTH LEVEL

The choice of a videoconferencing system must always be accompanied by an examination of the "pipes" that will carry the video/audio/data streams.
It is first the internal network that carries the data from the codec to the internet output point (box, router, ...) and then the internet link to the destination site(s).

The level of bandwidth and its stability are essential to the success of a videoconference!

> «IN BOTH CASES, YOU NEED TO LOOK AT THE BANDWIDTH AVAILABLE FOR AVAILABLE FOR VIDEOCONFERENCING AS WELL AS THE ASSOCIATED JITTER (THIS IS THE DIFFERENCE IN LATENCY LATENCY DIFFERENCE BETWEEN THE INDIVIDUAL PACKETS BEING TRANSMITTED)."

FOR INSTANCE

For a good High Definition (720p) video experience, you will need about 1 Mbps per remote site. For example, if you are planning a session with three remote sites/callers, you will need 3Mb/s of available bandwidth.

This is an average figure that depends on your equipment and the protocols used.

FEATURE 5 **THE LEVEL OF BANDWIDTH**

This bandwidth can be obtained by using the company's existing Internet connection or, better yet, through a dedicated line.

CAN WE USE AN EXISTING LINK ?

Yes, but this configuration may require the implementation of a QoS (Quality of Service) that prioritizes a certain percentage of the line for videoconferencing activity. Otherwise, the video conferencing quality will depend on the activity of the other users of this existing link... not a very satisfactory way of working.

> « AT THE LEVEL OF THE INTERNAL NETWORK, IT IS NECESSARY TO PREFER WIRED TO WIFI BECAUSE EVEN IF THE LATTER IS CONCEIVABLE FOR A VIDEOCONFERENCE, VERY OFTEN THE FLOW PASSES BY HOLLOWS WHICH DEGRADE THE QUALITY".

WHY CHOOSE A DEDICATED LINE ?

This second case not only ensures good quality videoconferences in all circumstances (and not only on days when the company's internet link is under-used) but also avoids disrupting other shared activities on the same link.

Finally, it allows the separation of security against external attacks with the other activities of the company.

FEATURE 6
THE LAYOUT

The layout in which your videoconference will take place is an essential component of the quality of your exchange. Indeed, the layout of the premises: shape of the meeting table, location of the windows, position of the peripherals: camera, microphone, loudspeakers, ... but also the lighting and acoustics, will greatly enhance or degrade your videoconferencing experience.

LET'S TAKE 3 EXAMPLES

THE EYE CONTACT

If the camera and the return screen of the remote site are not grouped on a very close line, then the loss of visual contact with your remote interlocutor(s) will significantly impact the quality of your exchange.

THE POSITION OF THE CAMERI IN RELATION TO THE LIGHT AND IN PARTICULAR TO THE WINDOWS

For example, backlighting will cause high bandwidth overuse because:

- natural light is not stable
- the principle of videoconferencing is to encode all the pixels that move, like light typically.

THE SHAPE OF THE TABLE AND ITS LOCATION IN RELATION TO THE SCREENS

The key word for all participants: see and be seen.

FEATURE 7

CONTENT SHARING OR CO-EDITING?

As we saw in the introduction, all video conferencing systems must offer the ability to share content. This content can be shared in turn, with each party/remote site taking over at any time.

On the other hand, few solutions today offer the possibility of :

SHARE THEIR CONTENT AT THE SAME TIME FOR TWO REMOTE SITES

Indeed, the content sharing protocol (H239 most of the time) only allows a one-way: only one site can display its content at the same time.

CO-EDIT THE SAME DOCUMENT AT THE SAME TIME

Again, this is a limitation of the existing classical protocols.

IN BRIEF

This co-editing is however very useful when it comes to collaborating in real time at a distance, if only to be able to point with one's mouse to an element of the document displayed by the remote site; the understanding immediately goes up two notches.

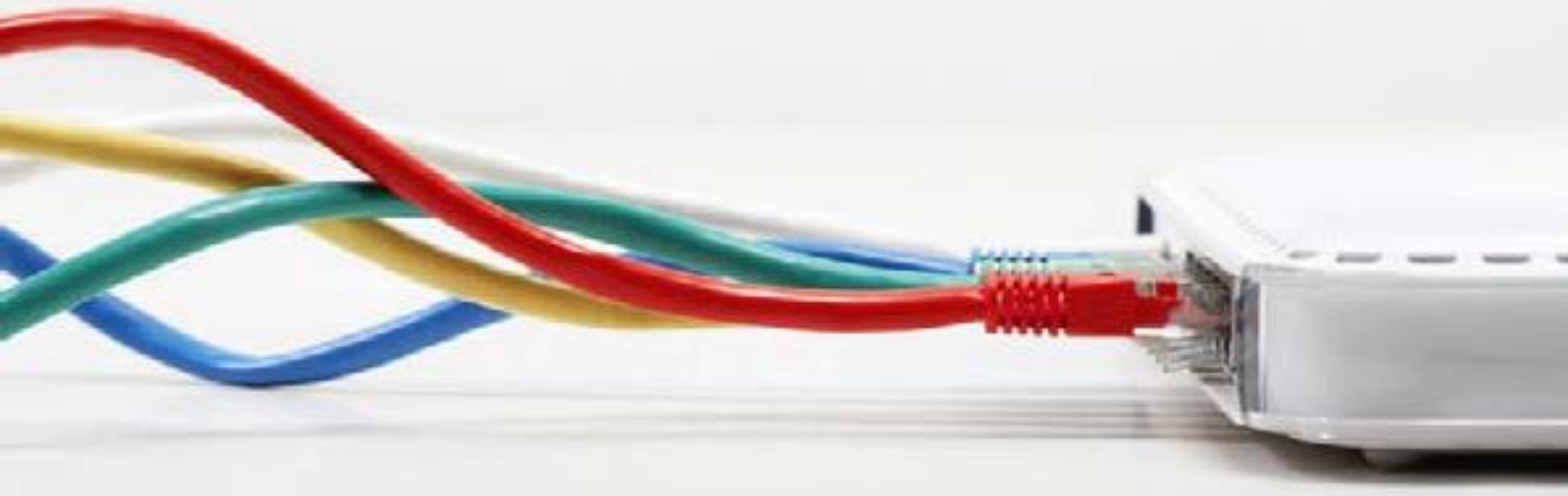
HOWEVER, THERE ARE PROPRIETARY SOLUTIONS THAT CAN PERFORM BOTH FUNCTIONS

They are still few and far between today, but given the importance of collaboration in companies, there is no doubt that they will develop. For example, Zoom currently allows you to share a whiteboard in co-edition.

OUR ADVICE

It is important to ensure the connection with the local participants in the room: what could be more frustrating if they cannot take the hand to display a content only reserved to the meeting leader connected to the codec.

You will need to ensure that your local content sharing equipment and your video conferencing solution can interface natively.



TO CONCLUDE

In conclusion, one last point (often neglected) must be looked at with vigilance:
This is what we call Triple Play consistency.

The quality of your video conferencing experience is the product of 3 factors:

Quality =
Video tool x Bandwidth x Layout

As with any product, it is unfortunately the least of these factors that will dictate the quality of your videoconference. For example, there is no point in getting a highly capable room codec with excellent bandwidth if the layout is basic. Conversely, the best equipped and best laid out room will only provide a mediocre video experience if the bandwidth is insufficient or unstable.

It is therefore useful to call on a professional who masters these three areas of expertise: he or she will be able to advise you on balanced solutions that will ensure a successful investment.

REQUEST A DEMO

MOTILDE
TRUE COLLABORATION

FOLLOW US