



# A Camera to Client Direct Streaming Architecture: Reliability

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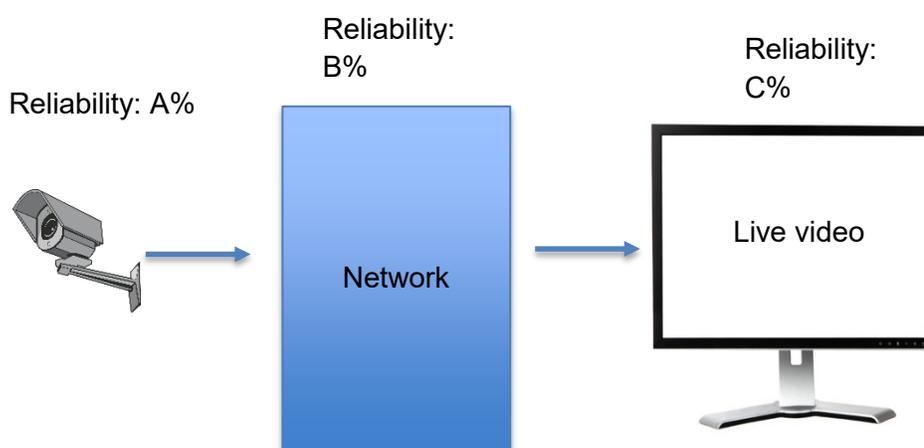
# Introduction

In many surveillance applications, the need to have a human operator view live video from one or more cameras is paramount. Even though AI does well for “seen-before” circumstances, many scenes viewed by surveillance cameras have a non-exhaustive set of “not-seen-before” circumstances. Because of this, while AI can augment security, a human viewer of live video is irreplaceable in many cases to detect events and take quick actions.

In this document we compare the reliability of two architectures that deliver video from the camera to the viewer.

## Direct Streaming from a Camera to a Viewer

In the direct streaming architecture, video from the camera is routed by the network directly to one or more viewers. See Figure 1: Direct Streaming.



Overall Reliability of live video is  $A\% \times B\% \times C\%$

*Figure 1: Direct Streaming*

If the reliability of each component is as in Figure 1, where X% is the chance that the component works at any instant of time, assuming each component is independent of other components, the reliability of live video at the viewer is  $= A\% \times B\% \times C\%$ . (We also assume that factors that affect reliability across components, e.g. power supply, are the same across the comparison in this document.)

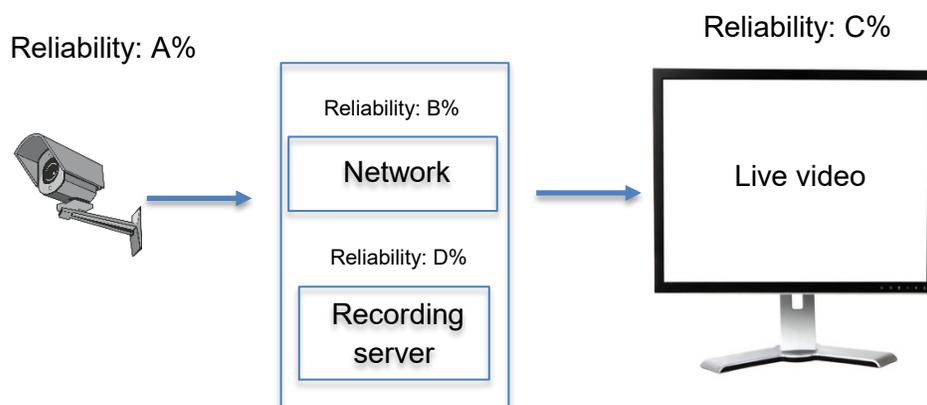
# Streaming from the Camera to a Server and from the Server to a Viewer

Here, in Figure 2, we first stream from a camera to a recorder and from the recorder to viewers.

All components in the architecture need to function correctly for live video to be seen at the viewer. Since there are four independent components, the overall reliability is:  $A\% \times B\% \times C\% \times D\%$ .

Since  $D\%$ , the reliability of the server, is always less than 100%,  $A\% \times B\% \times C\% \times D\%$  will always be smaller than  $A\% \times B\% \times C\%$ .

So this architecture less reliable than direct streaming.



Overall Reliability of live video is  $A\% \times B\% \times C\% \times D\%$

*Figure 2: Camera to Recording Server to Live Viewer*

While a single recording server is shown in Figure 2, it could generally represent any redundant array of recorders. With higher redundancy,  $D\%$  gets close to 100% without ever reaching it.

## Summary

A direct streaming architecture for live video is more reliable than an architecture in which video is first captured by a server and then relayed to viewers from the server.

It is recommended for applications in which uninterrupted live video is critical.

## About Vega Systems Inc.

Vega Systems Inc., provides innovative MIP plugins that add unique capabilities to XProtect. We help Milestone resellers worldwide, offer differentiated XProtect solutions. For more information, visit: <https://www.vega25.com/surveillance>.