

# Low Latency

Sub-400msec Multicast IP Video Distribution to Standard STB



## Real World Delivery of Low Latency Glass-to-Glass

### What is latency?

Latency is a measure of the time delay observed between the input to a system and its output.

In most Enterprise IP installations where broadcast TV or live video content is being delivered to viewing points, delays of less than 1s are not a significant consideration.

However, in applications such as coverage of live events, minimizing latency is desirable, and may indeed be an essential requirement.

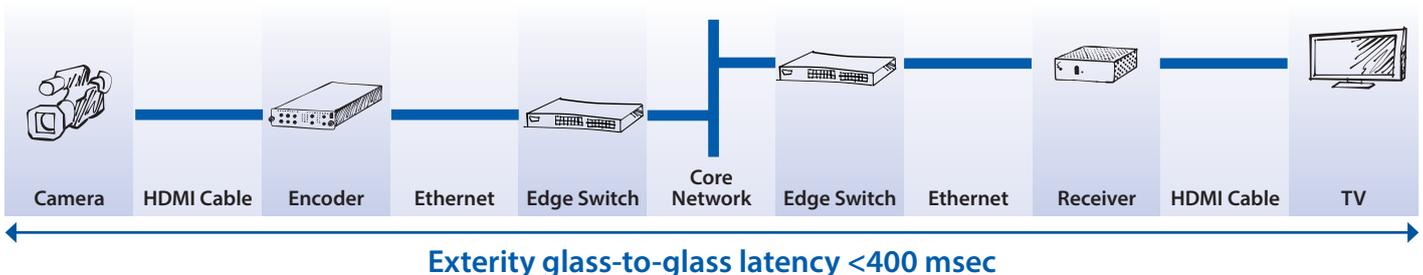
### Exterity and Latency

The way Exterity approaches latency is based on our years of experience of delivering real world Enterprise IP video installations and on the principle of what matters to the end user.

This means that rather than emphasize specific latency figures that apply only to one or two parts of the system, or only apply in perfect circumstances, Exterity focuses on realistic end-to-end or glass-to-glass latency, delivered to multiple end points via industry-standard IP multicast transport streams.

Exterity equipment works to a latency of 300-400 msecs, providing the highest quality HD (1080i) streams, meaning you don't have to compromise on quality to achieve latency. This is measurable, provable and practical for virtually all IPTV uses. Latency figures that only apply to a single component, such as an encoder, might sound impressive, but these claims are difficult to confirm and do not reflect the real world.

Further, Exterity latency is always quoted for a full multicast IPTV environment, which is realistic for the majority of applications. In some specialist circumstances, for example, in keyhole surgery where real-time hand-to-eye coordination is essential, specific point-to-point lower latency may be necessary. However, to achieve the latencies required by these applications, specific connections will be used which cannot be scaled to many end users without a huge impact on network requirements.



### The Latency Chain

Each component in the chain has an impact and will cause delays in data transmission adding up to the total system latency. Some components, such as cables, have negligible effect. Others, such as the camera and TV in this example, are outside of the system creator's control.

Based on a wide range of real-world customer installations, Exterity IPTV systems can achieve a glass-to-glass latency of 300-400 msec.

### Low Latency Compromises

At the very limits of delivering low glass-to-glass latency, specialist companies that deliver solutions have to make many compromises between video quality, network configuration and bandwidth needs to achieve these performance levels.

- Point-to-point network routes are configured specifically to minimise traffic delivery
- Video quality is reduced either through simplification of encoding GOP structures or encoding block scale to minimise encoding and decoding effort
- Jitter buffers that smooth network variability are reduced or removed
- Delivery of un-encoded video content to remove encoding/decoding overhead results in potentially Gbps of traffic, placing significant burden on networks beyond point-to-point applications



For further information about Exterity low latency set-up, please refer to the Exterity Knowledge Base Article KB000313 'Minimising Latency'.

This information is available to registered Exterity channel partners and consultants.  
Please visit [www.exterity.com](http://www.exterity.com) to log in or register.