

Background





Located in the heart of West Los Angeles, the Silvus Headquarters stands at the corner of one of the busiest intersections in the United States with over 120,000 cars passing through this area every day. This area serves as a channel between UCLA, downtown Los Angeles, and the most congested freeway in the United States – I 405.

The Challenge

The high traffic nature of this area, coupled with the tall buildings along the corridor make for a challenging wireless scenario. The severe multipath that arises from such an environment is enough to cripple most communication systems. Silvus sought out to tackle this challenge head on and deploy a mesh-networked surveillance system in two locations within Westwood – The immediate area surrounding Silvus Headquarters and on the UCLA campus.

Silvus Solution

The setup comprised of 2 mobile cameras with 500kbps video per stream, a relay node, and 1 display showing feed from both cameras. The four node setup was operating in the heavily congested 2.4GHz ISM band and is as follows:

- Mobile Video Source 1 
- Mobile Video Source 2 
- Relay Node 
- Video Viewer 

Figures 1 and 2 show the positioning of the Video Viewer and relay nodes in the Silvus HQ setup and the UCLA setup respectively. The green and yellow dashed lines show the paths of Video Source 1 and 2 respectively, starting at the relay node and moving away until the link is lost.



Figure 1. Node Deployment and Mobile Coverage at Silvus HQ

It is worth noting that in Figure 1, the video viewer is located inside of the fourth floor of Silvus HQ.

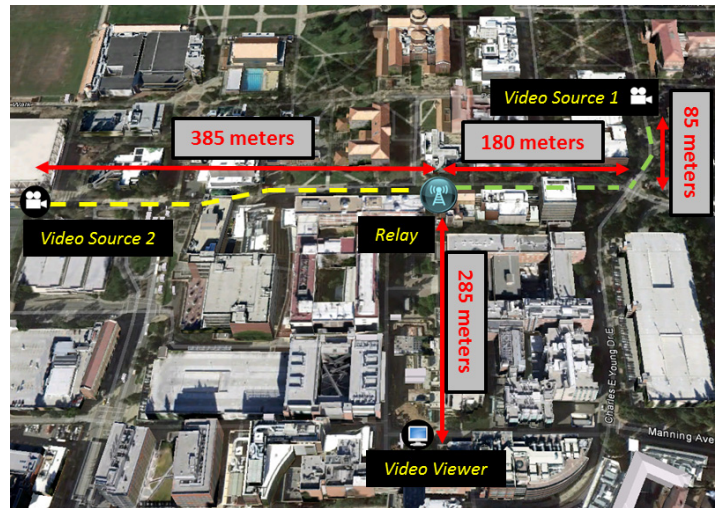


Figure 2. Node Deployment and Mobile Coverage at UCLA

Summary

Silvus successfully demonstrated its ability to provide mesh coverage of roughly 1Km NLOS aggregate distance. This was achieved using just four nodes in a heavily congested urban area and a university campus with high foot traffic and dense foliage.