

AgileMesh Deployment Case Studies

Regional WMD Drill

SITUATION: Regional WMD scenario-based exercise, with multiple (35 to 50) SWAT, EOD, fire, rescue, emergency medical, HAZMAT and other units participating.

CHALLENGE: To maintain meaningful command and control over many different types of operations with different command chains and radio frequencies while attempting to understand the tactical problems and the ever-changing resolution of those problems.

SOLUTION: Deployment of AgileMesh video nodes into the problem, delivered by a squad of operators while en route to a mission. Strategic placement of video nodes allowed real-time images to be viewed by commanders, team leaders and operators. This allowed all participants to better understand spatial relationships, be able to view the progress of advancing units, gather tactical intelligence from afar and obtain a more complete understanding of the area of operation overall.

Video nodes were placed in a linear array, creating concentric, overlapping “bubbles” of connectivity. At the last bubble, an Ethernet cable was run from the node to a laptop located in the Tactical Operations Center. From this location, Command was able to “see” the problem from nearly a mile away as well as move (PTZ) the cameras to improve or modify their view.

Barricade with Hostages – multi-angle surveillance

SITUATION: Patrol was dispatched to a carjacking (with firearms) in progress and was able to arrive while the suspects were still present. A pursuit was initiated, the vehicle eventually stopped and the suspects fled on foot. Several were apprehended, two escaped. However, a K-9 track led officers to an apartment in a small complex. Additional information and intelligence confirmed that the apartment was the location to which the outstanding suspects had fled. A perimeter was established, intelligence was gathered and a phone call was placed to instruct the suspects to exit the apartment. The phone was answered but no one responded to the commands. The area was very constricted. The surrounding apartments were evacuated and SWAT was called.

SWAT arrived, relieved patrol officers in the inner perimeter and established a contact team at the 1-2 corner. SWAT then deployed microphones into the suspect apartment from an adjacent apartment and learned that there appeared to be at least one female and one child, as well as male voices, inside the apartment. The contact team was converted to a crisis team and preparations were made to make emergency entry if needed.

Later, a child, a female and a male exited the apartment and advised that the two suspects were inside the apartment. Attempts were made to contact the suspects, without success. A “throw phone” was then inserted.



CHALLENGE: Due to the close proximity of other buildings and the linear nature of the structures, it was difficult to place containment teams without creating crossfire problems. Once the throw phone was inserted, video was available, but only to negotiators, who were not stationed with the contact/crisis team.

SOLUTION: Deployment of a “double” AgileMesh camera node opposite and at a slight angle (45 degrees off the 1-4 corner) from the contact/crisis team allowed one camera to be zoomed in tightly on the main apartment door, while the second camera provided a wide-angle view of the 1 and 4 sides of the building. The wireless remote viewer was deployed to the contact/crisis team. A single node (no native video) was deployed to broadcast video from the throw phone and create linkage to the node on the 1-4 corner. Two other nodes (no native video) were deployed to strengthen and elongate the mesh to the Tactical Operations Center. This configuration allowed Command to visualize both inside and outside the problem from their remote location as well as provide the contact/crisis team with backside and interior intelligence.

SWAT Training

SITUATION: A SWAT team was conducting semiannual training in Hostage Rescue Tactics at an abandoned manufacturing plant. The limited “office” space at the facility was being used to run “ex-employee returns to the office with a gun” HRT scenarios.

CHALLENGE: The limited size and amount of “office” space made it very difficult for trainers and evaluators to be “in” the space during the dynamic portion of the operation.

SOLUTION: Deployment of a single-camera AgileMesh node inside the problem at a central point that had a view of the entry point. Using the remote viewer to manipulate the camera and as a local recording device, instructors were able to see important areas within the structure as well as review movement with the team.

Barricade with Entry – non-lethal due to use of AgileMesh Equipment

SITUATION: An EDP, off his medication, was destroying his mother’s apartment. When contacted by patrol officers through a broken living room window, the suspect retreated into the apartment out of view and started a fire. Patrol evacuated the surrounding apartments, established a perimeter and called SWAT. Shortly thereafter, it was determined that either the fire had been the suspect smoking or it had extinguished itself.

When SWAT arrived, the inner perimeter was replaced, contact was attempted with no success and a contact team was staged at the 1-4 corner. The decision was made to utilize a Remotec FA-6 Robot to deliver a throw phone into the apartment. To do so, the living room window was broken to allow the robot arm to penetrate the room. The FA-6 was equipped with a PTZ camera, mounted on the arm just behind the claw. When the phone was delivered into the living room it became apparent that the arm-mounted PTZ camera provided a commanding view of the apartment. While the suspect would not approach the robot or retrieve the throw phone, he was not concerned with being in view of the robot’s cameras. The suspect remained unresponsive to requests to negotiate a surrender.



CHALLENGE: As this barricade continued, the suspect appeared to become more agitated and refused to speak with negotiators. A tactical plan was established, which included using an explosive breaching charge to remove the front door and subsequent diversion device detonations to drive the suspect to the front door, followed by less lethal weapons deployment to take the suspect into custody. Covertly setting an explosive charge on the front door was difficult to do without compromise. It was important to know where the suspect was inside the apartment and to be able to communicate that location in real time to other elements.

SOLUTION: Early in the barricade, several AgileMesh nodes were deployed to establish video surveillance around the apartment. To provide interior visibility, the analog video feed from the robot was placed into a video node. This video signal then became available to Command, the contact team and the element that was about to set the charge on the front door. The breachers learned that the suspect was three feet from the target door. As a result, a series of distractions and noises were created to cover their approach and the setting of the charge. Ultimately, because the various elements were able to see where the suspect was and was not, the planned breach and less lethal deployment were able to be executed at a strategically opportune movement.

Special Event Video Coverage

SITUATION: A New Year's Eve block party was held in a marketplace area where four bars cooperated to make an entire section available to partygoers. The venue was fenced and patrons were charged admission. Several small, adjoining parking lots were used to provide an area where a small stage was constructed for band performances. The venue, being a street, was very linear, and approximately 12, 000 people attended.

CHALLENGE: To provide effective, efficient public safety services during this event. At peak times it was difficult even to move through the crowd, much less know what was happening in the central area. Since there were few locations in which to station spotters with good vantage points, even deploying spotters on high ground was difficult and of limited value.

SOLUTION: The AgileMesh Video Node tripod was configured so that the center post protruded down instead of up. The tripod legs were adjusted so that they were completely flat. This transformed the camera into a quickly deployed, independently supported "pendant" type camera, which was suspended in the camera-and-lighting superstructure. Three nodes were deployed in this manner along the street. Another node was placed on high ground but within range of a 300-foot cable run to the nearest city building. With an IP address and subnet change, the signal was pumped into the city's intranet and made available to selected city administrators. As a result, police and fire services were better able to visualize problem areas, direct resources to needed areas and improve officer safety.

Crime Surveillance

SITUATION: After an attack on a female worker, investigators requested cameras to enhance traditional surveillance methods. The area of operation, which is a thoroughfare for walkers, joggers and bicyclists, consisted of large buildings on either side of a 100-yard-wide greenbelt bike path.



CHALLENGE: The rapid deployment of multiple cameras to provide visibility from both sides of the path, around trees and other obstacles, in daylight and nighttime environments, with little ambient illumination. The windows on the adjoining buildings did not open, nor, due to the nature of the business, were the windows available to be used. The buildings were three to five commercial stories high, the floor of the greenbelt depressed another 15 to 30 feet and the area of interest was more than 400 yards long.

SOLUTION: Scouting the area indicated that the easiest, most efficient way to provide the needed surveillance was to deploy AgileMesh camera nodes. Within hours of the scout, one node was deployed to a position on the roof of a three-story building east of the bike path and one node was deployed to a position on the corner of a five-story building west of the bike path. The two nodes, which were approximately 450 yards apart, created a connection between them. Monitoring was accomplished by connecting an Ethernet cord to one node. A laptop computer was installed in a utility building on the roof. This system provided control of both cameras and the ability to monitor the area from a single vantage point using the zoom lenses to “look” into areas that were normally difficult to observe. The surveillance was initially requested for five to seven days; however, the surveillance provided by the AgileMesh nodes was so valuable that the surveillance was extended for more than two weeks.

Disaster/Readiness Drill Coverage

SITUATION: During participation in a disaster drill being conducted with entities from several states as well as participants from state and local governments and several private sector companies, a SWAT team was asked to conduct a clearing exercise in full PPE and SCBA.

CHALLENGE: To provide video visibility into the SWAT team’s clearance area to assist with the evaluation and critique process. This “visibility” was to be provided on the day of the operation, with no prior knowledge of the scenario or the location.

The building in which this operation was to take place was on the second floor of a 1960s-era defense contractor’s plant with no windows and substantial solid walls. The “work space” consisted of a series of cubicles arranged in two adjacent rooms. The cubicles extended to within three feet of the ceiling.

SOLUTION: Deployment of a single camera node and a double camera node into the area. The single camera node was placed in a corner to allow 90-degree visibility into the entire room. The double camera node was placed in an open “transition” area between the two rooms. As a result, one camera could see into one room while the other camera provided an opposite perspective into the room where the single node was deployed. Both nodes were deployed so that they “looked” over the cubicle walls. This provided very good visibility into the areas where the team would operate. Two additional nodes were deployed as repeaters only to strengthen the mesh. However, upon checking the health of the mesh, it was learned that the two repeater nodes were unnecessary. During the operation, LE, military and private-sector officials monitored the feed, which provided real-time visibility into an area that was too small to occupy physically while the team was operating.