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2015 Video Quality in Public Safety (VQiPS) Workshop After Action Report

Workshop Overview

Date: June 17-18, 2015

Location: Newark, New Jersey

Participants: Public safety (e.g., law enforcement, fire response, emergency medical services), representatives from standards development organizations, industry and federal partners

Overview: This year's Workshop brought together more than 65 attendees including public safety, industry, standards development organization representatives, federal partners and more. Our impetus for continuing to host this workshop is to provide public safety with a venue to share their most pressing capability gaps in the video arena, as well as share with them the latest VQiPS knowledge products/tools in development, emerging technologies from industry partners, and the latest in video standards developments. The workshop provided updates from federal partners including the Department of Commerce's National Institute of Standards and Technology, the Department of Justice's National Institute of Justice and the First Responder Network Authority. There was an overview of DHS S&T's SAVER Program, along with a review of their latest report on body worn cameras. Attendees gained insight and heard about key lessons learned from the recent Baltimore riots. Case study sessions included presentations from representatives from the Philadelphia Police Department, the South Dakota Division of Criminal Investigation, General Mitchell International Airport and the Port Authority New York and New Jersey. Attendees were also able to hear about ongoing activities within the National Public Safety Telecommunications Council, such as a recent EMS video survey they conducted. There was a session on the latest video standards, which included presentations from the Underwriters Laboratory and the International Association of Chiefs of Police. Finally, there were numerous industry partners in attendance highlighting the latest in video technologies, specifically in the areas of license plate readers, video redaction, body worn cameras, video imaging, video compression and more. There was also a recognition ceremony for the VQiPS Leadership team and key stakeholders who have contributed greatly to the success of the program. During the workshop, VQiPS announced that they were working on several knowledge products, including the development of an update to the Digital Video Quality Handbook and a Video System and

Applications Policy Considerations knowledge product. Volume II of the Digital Video Quality Handbook will include the latest in video advancements, such as High Efficiency Video Coding, 4K and updates in video standards. The VQiPS Policy Considerations knowledge product is not intended to be yet another prescriptive policy document, but rather a tool agencies can use as they procure and implement their video system to identify critical policy-related considerations such as video retention, content management and security. Look for both documents to be published by the end of the year. All future VQiPS knowledge products will be published on www.firstresponder.gov and presentations from this year's workshop may be made available upon requests sent to: First.Responder@HQ.DHS.GOV.

Panel Descriptions:

See Appendix A.

VQiPS Vision and Mission:

Vision

The VQiPS Working Group will create a collaborative environment that accelerates the ability of users to specify and deploy video technology solutions that meet user requirements and improve public safety and homeland security enterprise operations.

Mission

The VQiPS Working Group creates knowledge products, fosters a knowledge-sharing environment, and supports research, development, testing and evaluation for enhanced video quality through measurable, objective and standards-based solutions across the full spectrum of video-use cases for the public safety community.

VQiPS Background:

First responders rely heavily on video technology to increase their situational awareness while onsite at an incident, monitoring an incident from afar or conducting day-to-day response. As video technology has evolved, equipment options have become increasingly complex. Many first response agencies lack the tools and subject matter expertise needed to make informed video system purchasing decisions, so they often turn to manufacturers to direct them in their purchasing decisions. The VQiPS Initiative provides information and support to first responders so they can articulate their own video quality needs, and ultimately buy the best products to fit their unique needs. The VQiPS Initiative began in 2008 as a partnership between the U.S. Department of Homeland Security Science and Technology Directorate and the U.S. Department of Commerce Public Safety Communications Research program. Through the creation of unbiased guidance and educational

resources, VQiPS assists the first response community in clearly defining and communicating their video quality needs. VQiPS empowers practitioners with the tools and information needed to purchase and deploy the appropriate video technology solutions to support their mission. VQiPS is driven by a multi-faceted group of stakeholders composed of local, state and federal first responders from across disciplines, federal partners, representatives from academia and standards-making bodies, and industry. Among its most noteworthy knowledge products, the VQiPS Working Group has developed a web tool User Guide that assists practitioners in determining video options based on specific video scenes they will be targeting and the resulting tasks needing to be accomplished based on viewing that scene. Further, VQiPS has developed a glossary of video system terminology, a video library, the Digital Video Quality Standards Handbook and numerous technical reports on topics such as Optimizing Network Resources for Transmitting Video on Public Safety LTE Networks.

Workshop Participant Feedback

Participants offered the following anecdotal feedback to guide the development of future workshops:

- Vendor presentations showcased technologies and capabilities that some were not previously aware of and therefore found it to be of value.
- Included a good variety of relevant topics, informative speakers and information that could be useful at home agencies.
 - Good balance of theory, policy and application.
- Workshop attendees represented a good mix of stakeholders in public safety video.
 - Valued opportunity to speak to other agencies who are tackling similar video-related issues.
- Real world presentations on lessons learned and future use of video for given agencies was especially beneficial to hear.
- New format for workshop without breakout sessions worked well.
- Provided new content as opposed to simply a repeat of last year's workshop.
 - Demonstrated progress on issues raised at last year's workshop (i.e., significant interest in policy considerations document being developed).
- Agenda was too full and long; consider including additional breaks throughout the day.
- Workshop hotel location was not optimal given accessibility to public transportation and general walking area.
 - Limited access to restaurants within and immediately adjacent to hotel.

After Actions Based on Lessons Learned

Participants offered the following list of recommended actions to improve the workshop; all recommendations will be strongly considered for implementation next year:

- Adding short introductions or ice breakers at the beginning of workshop.
- Circulate an attendees list along with workshop welcome packet.

- Future presentation topics:
 - Testing acceptance of systems (e.g., CCTV).
 - Site acceptance testing.
 - Operational acceptance testing.
 - Additional sessions on video interoperability and standards.
 - Practitioner presentations on body worn cameras best practices and policy.
 - Additional sessions on video forensics.
 - Additional sessions from relevant federal partners:
 - Bureau of Justice Assistance regarding Global Advisory Committee.
 - Community Oriented Policing Services regarding recent body worn camera grants.
- Hold an organized social networking event.
- Have additional breaks throughout the Workshop.

Appendix A: Panel Summaries

Session Title	Panel Summary
Session #1 – Updates from Federal Partners and Video Organizations/Working Groups	Attendees learned about FirstNet’s view on the use of video applications on the nationwide public safety broadband network, including some potential use cases and challenges within the application ecosystem. NIST provided an overview of its work, in coordination with its federal partners, in the video analytics space. The presentation also highlighted the broader R&D landscape. Finally, attendees gained an understanding of DOJ’s Global Justice Information Sharing Initiative and, more specifically, the Video Task Team’s activities.
Session #2 – CONOPs	There are a wide variety of definitions and understanding of CONOPs. The panel provided a baseline definition of it and then spoke to the importance of the establishment of robust CONOPs. The panel highlighted the importance of involving all stakeholders in the CONOPs development process and establishing CONOPs ahead of system deployment when possible. The city of Houston and Los Angeles County Sheriff’s Department shared lessons learned from their CONOPs development experiences. Houston is developing plans to integrate video into specific emergencies.
Session #3 – DHS SAVER Program: Body Worn Cameras	Workshop attendees learned about the FRG SAVER program, which provides knowledge products for first responders. Participants learned about the methodology used to select SAVER program topics. They also had the opportunity to gain insights on the SAVER program’s Body Worn Cameras Report , which examines 7 different models of body worn cameras and provides pros and cons based on several use cases. These reports help provide objective information and responder evaluations to inform procurement. SAVER reports can be found at www.firstresponder.gov .
Session #4 – Lessons Learned: Using Video for Major Events	Workshop attendees gained an understanding of Baltimore Police Department’s CitiWatch system, which provides GIS crime mapping and live video feeds from the field. Specifically, attendees heard about how video recorded during the April 2015 riots was used to help public safety officials in the field.
Session #5 – Video Design Improvement Process	Johns Hopkins University’s Applied Physics Lab explained how video system design improvement is a comprehensive process based on mission requirements and requires the right formatting and transportation networks. The audience heard how the City of Houston undertook an effort where it assessed its video system and all relevant components, including the process of discovering, diagnosing and fixing a stutter in Houston’s video delivery to show that video troubleshooting takes methodical analysis.
Session #6 – Case Studies: Focus on Public/Private Partnerships	The panel highlighted the challenges of public/private video sharing, including camera registration, image ownership, cooperative planning and cost sharing. Philadelphia PD shared information about its SafeCam system, which allows businesses and citizens to register their cameras for use and even includes incentives for participation in the program.

Session Title	Panel Summary
Session #7 – Emerging Video Technologies: Video Analytics, Internet of Things, Lighting, etc.	The emerging technologies panel sessions provided an opportunity for attendees to hear about the latest industry trends and solutions. This session focused on Internet of Things and video analytic solutions with the potential to help public safety meet their mission. Topics that were covered included bitrate and quality management, as well as video lighting.
Session #8 - Case Studies: Video Use in Airports and Community Colleges	Workshop attendees learned about General Mitchell International Airport's video system, and how some federal funding is made available for airport video systems. A former chief of police at Illinois' Harper Community College discussed his experiences and challenges in establishing a video system from scratch. Finally, the attendees heard from the Boise Fire Department and specifically about how it expected to use the nationwide public safety broadband network when established including for video applications.
Session #9 – Regroup and Recap	Workshop attendees reviewed what was covered on Day 1 and previewed the sessions for Day 2.
Session #10 – Policy Considerations and Issues in Video Use and Application	VQiPS Policy Subcommittee members provided an overview of the VQiPS Policy Considerations document that is being developed. The panelists clarified what the intention of the document is and, perhaps more importantly, what it is not. This resource is not meant to be another prescriptive policy document on how an agency should set its policies for a video system, but rather it is meant to help an agency identify all the components of policy that they should take into account when establishing their video system. It will also highlight how some agencies are dealing with issues such as video retention and security. The document is planned to be released this calendar year and will be made available on www.firstresponder.gov .
Session #11 – Industry Lab	During the emerging technology panels, industry members demonstrated several technologies. This industry lab session provided Workshop attendees with the opportunity to network and learn more about the technologies that industry members brought to the Workshop. This time allowed for hands on demonstrations and follow up questions.
Session #12 – NPSTC Update and EMS Video Survey Overview	NPSTC gave a general update on its organizational activities and provided an in-depth summary of results from a survey conducted with medical professionals on the use of pre-hospital telemedicine video. Respondents were asked to assess a set of scenarios and whether they would use video. Among the takeaways was the fact that different areas of public safety will have different policy constraints, and will need to effectively balance benefits and liability.
Session #13 – Emerging Video Technologies: Session II	This emerging technology panel consisted of presentations that ran the gamut from user equipment to network solutions. Industry partners spoke about the latest advancements in body worn camera technology, as well as video datacasting solutions that leverage digital television spectrum. Workshop attendees also learned about the latest in cyber security trends.
Session #14 – VQiPS Recognitions	DHS OIC recognized members of its VQiPS Leadership Team/Video Technology Advisory Group and other select stakeholders who have contributed greatly to the program.

Session Title	Panel Summary
Session #15 – Case Studies: State and Local Agencies	This case study panel consisted of representatives from the Port Authority New York and New Jersey (PANYNJ), as well as the South Dakota Division of Criminal Investigation. PANYNJ highlighted the lessons learned and best practices the agency gained from converting from an analog to an IP-based CCTV system. The representatives from South Dakota spoke about how the agency used video to support a large scale event that hosts over a million people in a small rural town.
Session #16 – Video Standards High Level Round-Up: National, International and Tactical	This panel reviewed the latest in video standards from a variety of organizations. workshop attendees learned about standards efforts in the areas of video equipment for tactical use, as well as vehicle license plates. Additionally, the Department of Justice provided updates on a variety of video related standards they are supporting.
Session #17 – Video Analytics, Redaction & Video Forensics	Workshop attendees heard from industry experts about the latest in video redaction, forensics and analytics solutions. The panel covered trends in the marketplace for public safety video.

Appendix B: Workshop Agenda

Video Quality in Public Safety (VQiPS) Workshop

June 17, 2015 | 7:00 AM–5:35 PM
Newark Airport Hilton
1170 Spring St.
Elizabeth, New Jersey

Purpose:

To engage the public safety video community for the purposes of:

1. Providing a forum for end users, academia and industry to learn from each other, as well as share the progress and future direction of the VQiPS program.
2. Helping public safety professionals meet their video system planning, designing, operating and sustainment needs through development of technology and policy consideration focused knowledge products.

Outcomes:

- I. Shared understanding of the VQiPS tools.
- II. Gathered feedback on the future direction of the VQiPS program.
- III. Increased awareness of developing technologies, promising practices and lessons learned.
- IV. Enhanced understanding of user needs, including acquisition, CONOPs and policy issues.

Agenda: June 17- Elizabeth Ballroom (A, B, &C)

Session #	Agenda Item	Time
Session #1 - Welcome	Registration	7:00-8:00 AM
	Welcome, Workshop Overview and OIC Update	8:00-8:10 AM
	<ul style="list-style-type: none">- Cuong Luu, DHS OIC- John Contestabile, Johns Hopkins University Applied Physics Lab (JHU APL)- Karenya Drake, DHS OIC Support	

Session #	Agenda Item	Time
	Updates from Federal Partners and Video Organizations/Working Groups <ul style="list-style-type: none"> - Mark Golaszewski, FirstNet - John Powell, Global Advisory Committee - John Garofolo, DOC NIST 	8:10-9:10 AM
Session #2: CONOPs	Concept of Operations (CONOPS) Session <ul style="list-style-type: none"> - Moderator: Mark Ryckman, City of Corning - John Powell, Los Angeles Sheriff's Department - Julie Stroup, City of Houston 	9:10-10:10 AM
	Break	10:10-10:25 AM
Session #3: DHS SAVER Program: Body Worn Cameras	DHS SAVER Program: Body Worn Cameras <ul style="list-style-type: none"> - Brian Warner, DHS First Responders Group 	10:25-10:55 AM
Session #4: Lessons Learned	Lessons Learned: Using Video for Major Events <ul style="list-style-type: none"> - Moderator: Joe Heaps, DOJ NIJ - Sam Hood, Baltimore PD 	10:55-11:55 AM
	Lunch	11:55 AM-1:25 PM
Session #5: Video Design Improvement Process	Video Design Improvement Process <ul style="list-style-type: none"> - Moderator: John Contestabile, JHU APL - Julie Stroup, City of Houston - Hinrich Schmidt, Motorola Solutions 	1:25-2:20 PM
Session #6: Case Studies	Case Studies: Focus on Public/Private Partnerships <ul style="list-style-type: none"> - Moderator: Don Zoufal, SDI - Nola Joyce, Philadelphia PD 	2:20-3:20 PM
	Break	3:20-3:30 PM

Session #	Agenda Item	Time
Session #7: Emerging Video Technologies	<p>Emerging Video Technologies: Video Analytics, Internet of Things, Lighting, etc.</p> <ul style="list-style-type: none"> - Moderator: Steve Surfaro, Axis Communications - Chris Uiterwyk, IPConfigure - Michael Schwartzberg, Agent Video Intelligence - Alan Paterson, Axis Communications 	3:30-4:30 PM
Session #8: Case Studies	<p>Case Studies: Video Use in Airports and Community Colleges</p> <ul style="list-style-type: none"> - Moderator: Don Zoufal, SDI - Michael Keegan, General Mitchell International Airport - Michael Alsup, Illinois Association of Chiefs of Police - Paul Roberts, Boise FD 	4:30-5:30 PM
	Closing Remarks	5:30-5:35 PM

Video Quality in Public Safety (VQiPS) Workshop

June 18, 2015 | 8:00 AM–5:30 PM

Newark Airport Hilton

1170 Spring St.

Elizabeth, New Jersey

Agenda: June 18- Elizabeth Ballroom (A, B, &C)

Session #	Agenda Item	Time
Session #9: Regroup & Recap	Regroup & Recap	8:00-8:05 AM
Session #10: VQiPS Policy Subcommittee Report Out	Policy Considerations and Issues in Video Use and Application <ul style="list-style-type: none">- Moderator: Don Zoufal, SDI- Mike Fergus, International Association of Chiefs of Police (IACP)- Julie Stroup, City of Houston- Mark Ryckman, City of Corning	8:05-9:05 AM
Session #11: Industry Lab	Industry Lab	9:05-10:05 AM
	BREAK	10:05-10:15 AM
Session #12: NPSTC Update	NPSTC Update and EMS Video Survey Overview <ul style="list-style-type: none">- Barry Luke, National Public Safety Telecommunications Council	10:15-11:15 AM
Session #13: Emerging Video Technologies Session II	Emerging Video Technologies: Session II <ul style="list-style-type: none">- Moderator: Steve Surfaro, Axis Communications- Chris Kirby, TASER- Mark O'Brien, SpectraRep- Kent Browne, IBM	11:15-12:15 PM

Session #	Agenda Item	Time
	Lunch	12:15-1:45 PM
Session #14: VQiPS Recognitions	VQiPS Recognitions - Cuong Luu, DHS OIC	1:45–1:55 PM
Session #15: Case Studies	Case Studies: State and Local Agencies - Moderator: Don Zoufal, SDI - Jack Niedermeyer, Port Authority New York New Jersey - Chad Carpenter, South Dakota Division of Criminal Investigation	1:55-2:55 PM
Session #16: Video Standards High Level Round-Up	Video Standards High Level Round-Up: National, International and Tactical - Moderator: Joe Gittens, SIA Standards - Lou Chavez, Underwriters Laboratory - Joe Heaps, DOJ NIJ - Mike Fergus, IACP	2:55-3:55 PM
	BREAK	3:55-4:10 PM
Session #17: Video Analytics, Redaction & Video Forensics	Video Analytics, Redaction & Video Forensics - Moderator: Steve Surfaro, Axis Communications - Michael Schwartzberg, Agent Video Intelligence - Chris Uiterwyk, IP Configure	4:10-5:20 PM
	Closing	5:20-5:30 PM