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TRAINING & TECHNICAL ASSISTANCE

Digital Evidence Integration

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Introduction

- Digital Evidence Integration Introduction
- Agency Perspectives:
 - Montgomery County, MD, Department of Technology Services and Police Department
- Digital Evidence Integration Future





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Introduction

Elliot Harkavy, BWC TTA Technology Advisor

Overview

- What is Digital Evidence Integration?
- Examples of Digital Evidence
- Benefits of Digital Evidence Integration
- Current Digital Evidence Systems
- Future Integrated Digital Evidence Systems
- BWC-CAD Integration
- Digital Evidence Integration and NG911



What is Digital Evidence Integration?

- Digital evidence integration - a process which optimally compiles:
 - Videos
 - Photographs
 - Electronic files, and
 - Other digital data
- into a common repository or system

- Allows evidence to be viewed in one place
- Provides a consolidated evidentiary view of a given case
- Can provide intelligence based on commonalities across events and source of digital media evidence



Examples of Digital Evidence

- BWC video
- In-car video (ICV or “dash cams”)
- Automated license plate reader (LPR) images and data
- Closed circuit TV camera video files:
 - Law enforcement
 - Transportation, public works, and other government agencies
- Helicopter, airplane, and drone photos and videos
- Crime scene photos and videos
- Computer files
- Data Files
- Photos and video from the public
 - Witness photos and video
 - Security photos and video
 - Media photos and video



Benefits of Digital Evidence Integration

- Digital evidence integration can offer agencies:
 - Increased productivity for:
 - Officers,
 - Investigators, and
 - Prosecutors
 - Accurate linkage of videos to other evidence
 - Enhanced evidence tracking
 - Ensuring all have a full picture of the case being made



Current Digital Evidence Systems

- ▶ Currently, multiple systems for storing evidence:
 - ▶ Computer Aided Dispatch (CAD) Systems
 - ▶ Records Management Systems (RMS)
 - ▶ BWC and ICV video repositories
 - ▶ Other video repositories
 - ▶ Photo repositories
 - ▶ Crime scene management systems
 - ▶ Physical evidence tracking systems
 - ▶ Prosecutors' case management systems
 - ▶ Numerous other digital systems
- ▶ Most of these systems do not integrate with the others
 - ▶ No common platform to view all evidence in an integrated manner
 - ▶ Limited ability to link evidence for additional insights



Future Integrated Digital Evidence Systems

- ▶ Single vendor integrated systems
 - ▶ Some system vendors are moving towards integrated digital data
 - ▶ BWC vendors
 - ▶ CAD/RMS vendors
 - ▶ Crime scene management vendors
 - ▶ It is not clear whether:
 - ▶ Vendors will succeed in developing a fully integrated system
 - ▶ Law Enforcement will accept a single fully integrated system
- ▶ Federated Systems
 - ▶ Tools that will link the various disparate systems to form a virtually integrated system
 - ▶ LInX –Law Enforcement Information Exchange may be a model
 - ▶ LInX connects systems across hundreds of law enforcement agencies to facilitate investigative data searches



BWC – CAD Integration

- BWC-CAD integration may be a first step
 - BWC –CAD Integration links BWC Data with CAD/RMS Data
 - It creates an initial level of Digital Evidence Integration
- More information on BWC-CAD integration may be found in our September 2018 Webinar
 - <http://bwctta.com/tta/webinars/bwcs-and-computer-aided-dispatch-cad-integration>



Digital Evidence Integration and NG911

- ▶ Next Generation 911 (NG911) is rolling out across the U.S.
 - ▶ NG911 allows public to:
 - ▶ Contact 911 via text and email
 - ▶ Provide photos, video, and other digital media to 911 systems
 - ▶ Law enforcement and other emergency responders will need ways to accept and utilize NG911 digital media
 - ▶ Digital Evidence Integration may be part of that solution
 - ▶ FirstNet – the national first responder wireless data network may also play a role





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Montgomery County, Maryland

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Business Need

Video and Digital evidence can be managed in a way that:

- ▶ Allows investigators to focus on investigations rather than how to manage video;
- ▶ Does not place exponentially greater demands on discovery staff;
- ▶ Continues to allow defense access to digital evidence through single eDiscovery Portal; and
- ▶ Preserves chain of custody.



Current Challenges with Digital Evidence

- ▶ Evidence across multiple agencies & systems
- ▶ Many incompatible video formats
- ▶ Multiple media /websites/ processes/ vendors
- ▶ Redaction of videos is labor intensive & expensive.
- ▶ Systems not currently designed to handle large volume of data
- ▶ Network Bandwidth is insufficient for constant sharing of massive files
- ▶ Courtrooms not properly equipped for video
 - ▶ Video required in almost every case



Video & Digital Evidence Used in the Investigation & Prosecution of Crimes

County Generated Shorter Retention



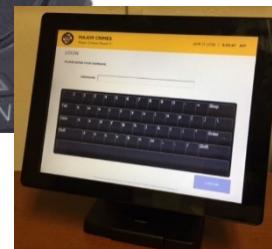
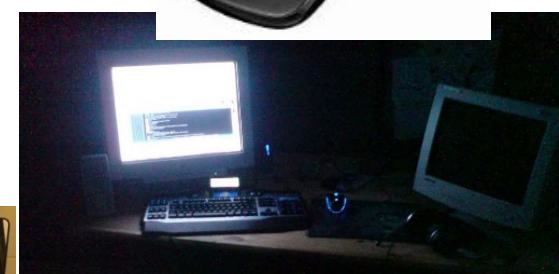
County Generated Longer Retention



External Video and Images



GAS STATION OUTDOOR CAMERAS



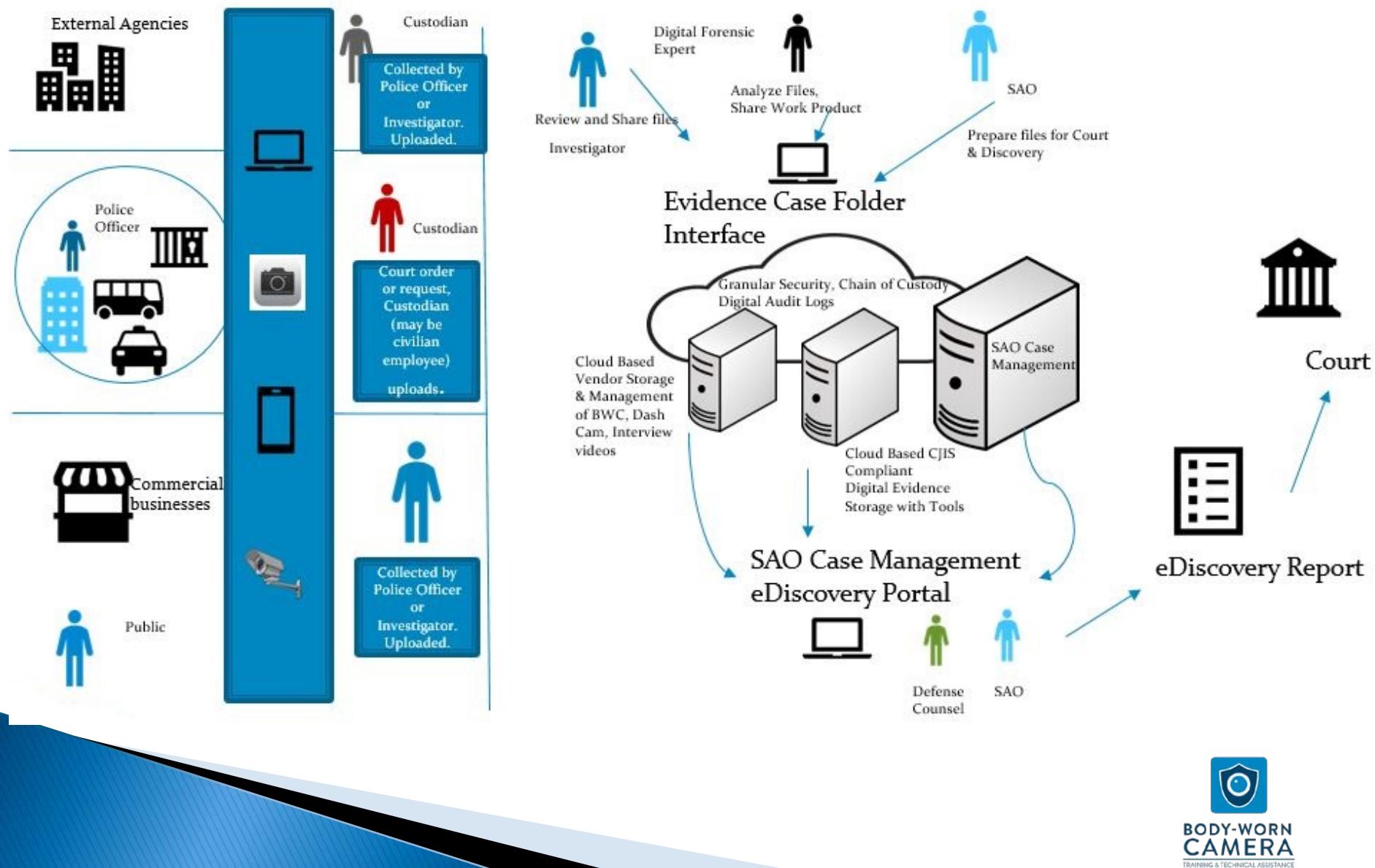
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Vision of the Future Digital Evidence Management and Discovery Environment

- Cloud Storage.
- Video and Digital Evidence is shared via a single web portal using role based workflows.
- eDiscovery Portal allows comprehensive discovery packet to be downloaded by defense counsel; eDiscovery log available to Court.
- Security and Chain of Custody addressed with security permissions, workflows, audit logs and easily viewed and checked hash values.
- Web portal and bandwidth enables access to digital evidence for viewing, live analysis and evidence prep with no discernable delays.
- Evidence contained within one of two types of case folders: 1) Ongoing Investigation 2) Case based on an incident number and subsequent charging documents.



Digital and Evidence Management Vision of the Future



Business Requirements Video (To Be)

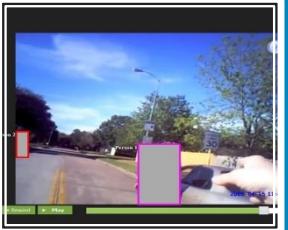


Police Officers or Investigators Obtain Video

Requires determination of method to view video.

- MP2 Video Viewer
- Intellex Player
- REM Player
- Verint Codec
- VLC Media Player

Police Review Video for Relevant Sections and Share Video to State's Attorney through a single website or portal



State's Attorney Prepares Video for Discovery

- 1) Relevant Clip
- 2) Possible Redaction for Discovery or Court



State's Attorney Shares Video with Defense Counsel through eDiscovery Portal.



State's Attorney can easily produce Discovery Log from single location of all digital evidence to include documents, digital files, photographs and video .

Chain of Custody Preserved; Digital Log Produced.



Next Steps

- ▶ Further Define Business and Technical Needs:
 - ▶ Convene Working Group
 - ▶ Develop projections to further define future needs.
 - ▶ Define Measurable Outcomes
 - ▶ Conduct a network analysis of current and planned capabilities to ensure viability of working with large files in the cloud and a complete technical analysis of current Prosecutor Case Management System to make upgrade or new acquisition decision.
 - ▶ Cost/benefit analysis of steps required to meet need.
- ▶ Develop Strategic Plan. Components will include steps for requirements, acquisition and implementation of each of the following:
 - ▶ Data Architecture and Governance
 - ▶ Prosecutor Case Management System Upgrade/Acquisition Plan
 - ▶ System Architecture (Technology, Network, Security)





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Future Possibilities for Digital Evidence Integration

Craig D. Uchida, Ph.D., President
Justice & Security Strategies, Inc.

Some Thoughts...

- ▶ Digital evidence is everywhere and now affects almost all aspects of investigation and prosecution.
- ▶ While much of the future of Digital Evidence Management (DEM) can be envisioned, some cannot.
- ▶ The criminal justice community is not prepared for the digital evidence “tsunami” that is just off shore.
- ▶ Technology will continue to grow exponentially and so will its ability to improve the management of digital evidence.
- ▶ The funding and procurement of technology by the criminal justice community will be challenged to keep pace with this exponential growth.



- ▶ It's time to re-evaluate digital evidence processes and workflows and prepare for the future.
- ▶ Data “silos” and lack of data integration are the single largest roadblocks to effective DEM.
- ▶ Technology can breakthrough “silos” and make data integration vastly more effective and efficient.
- ▶ Why is this important?

SO HOW DO YOU TACKLE THIS CHALLENGE?



DEM Tasks

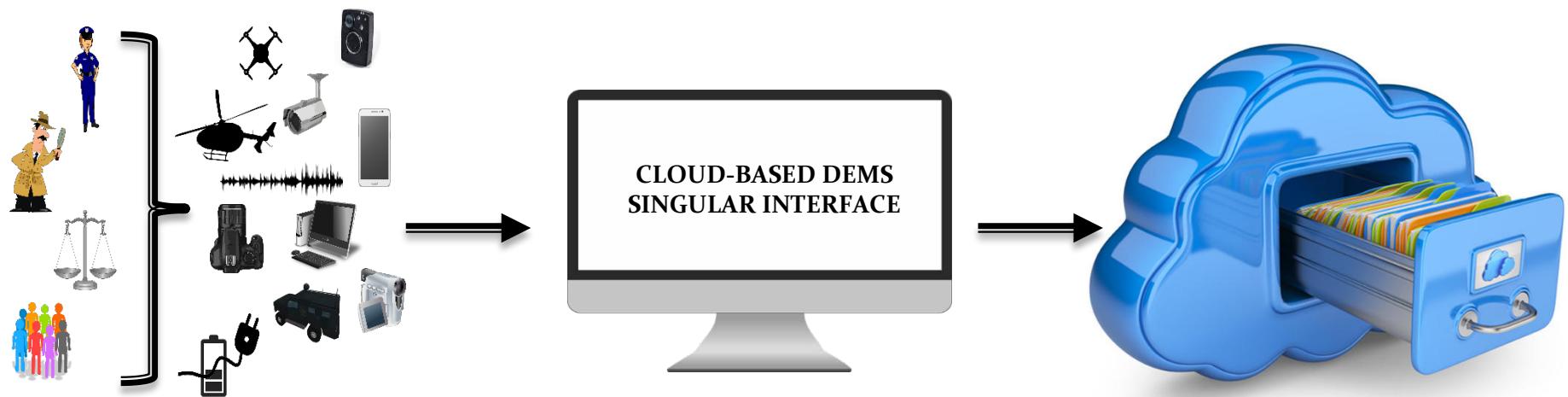
- ▶ Collection
- ▶ Data Ingestion
- ▶ Storage
- ▶ Data Integration and Management
- ▶ Access
- ▶ Data Withdrawal
- ▶ Use



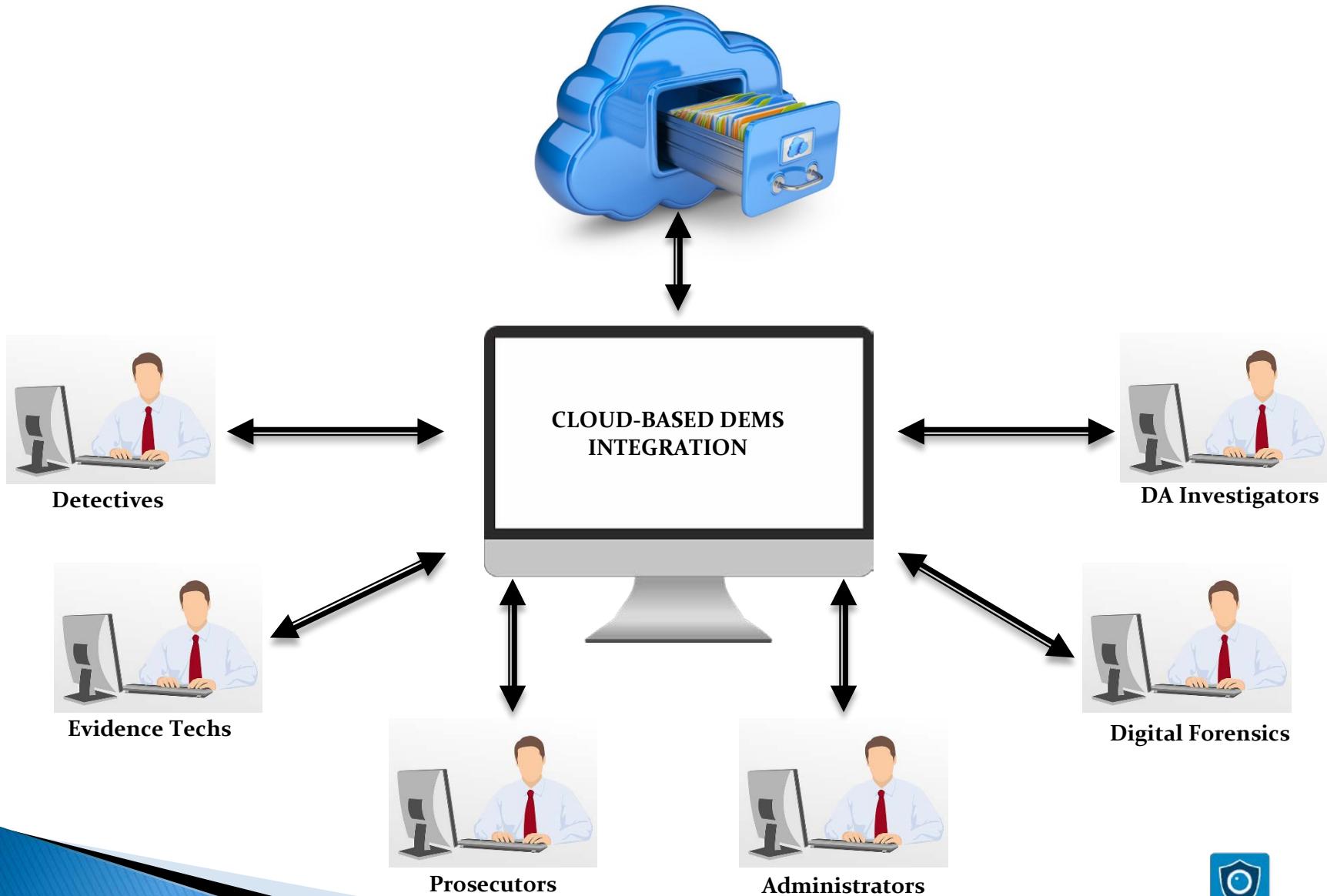
Single System Integration (SSI) Model



Single System Integration Model



Single System Integration Model

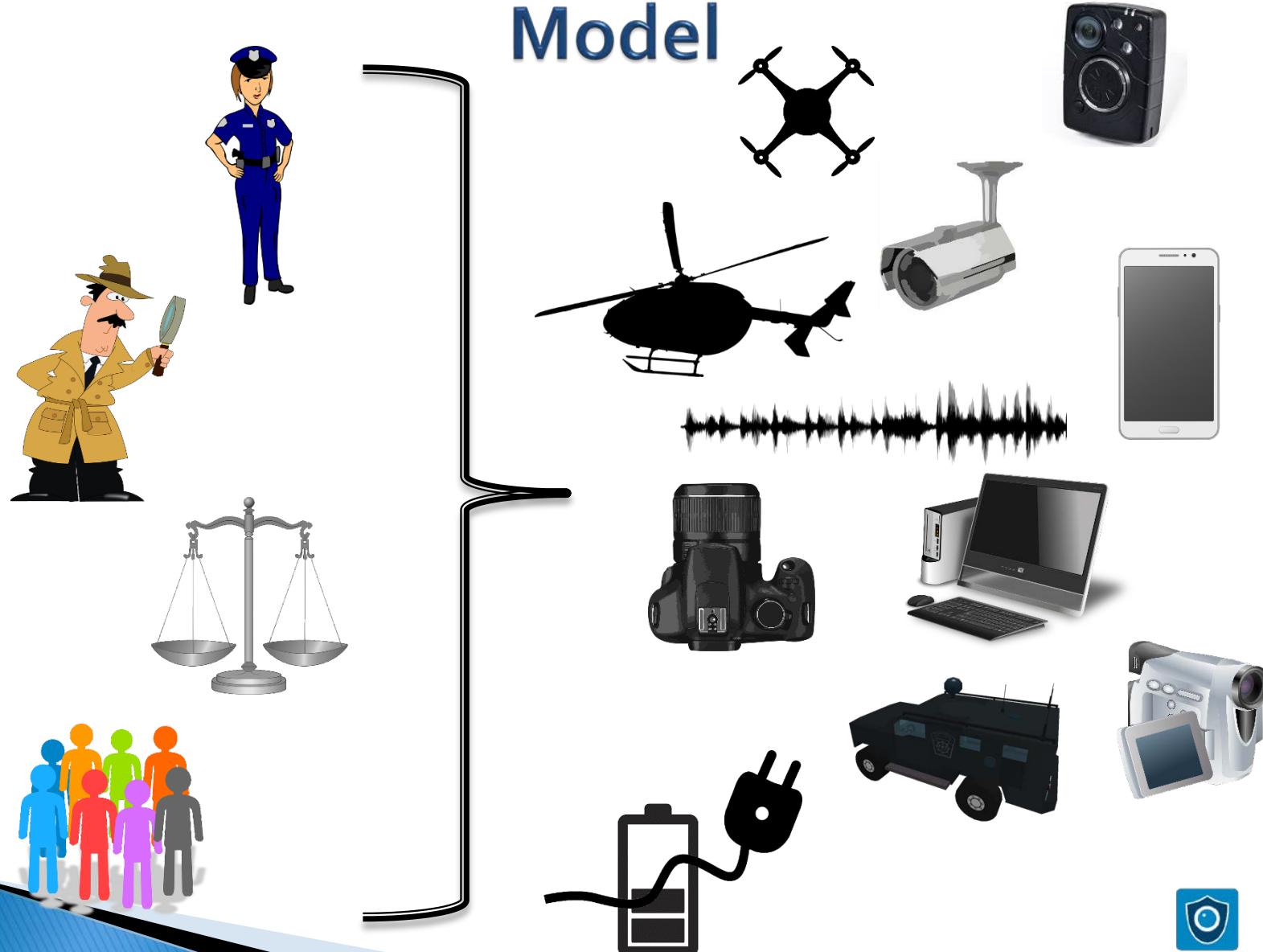


Some SSI Factors For Consideration

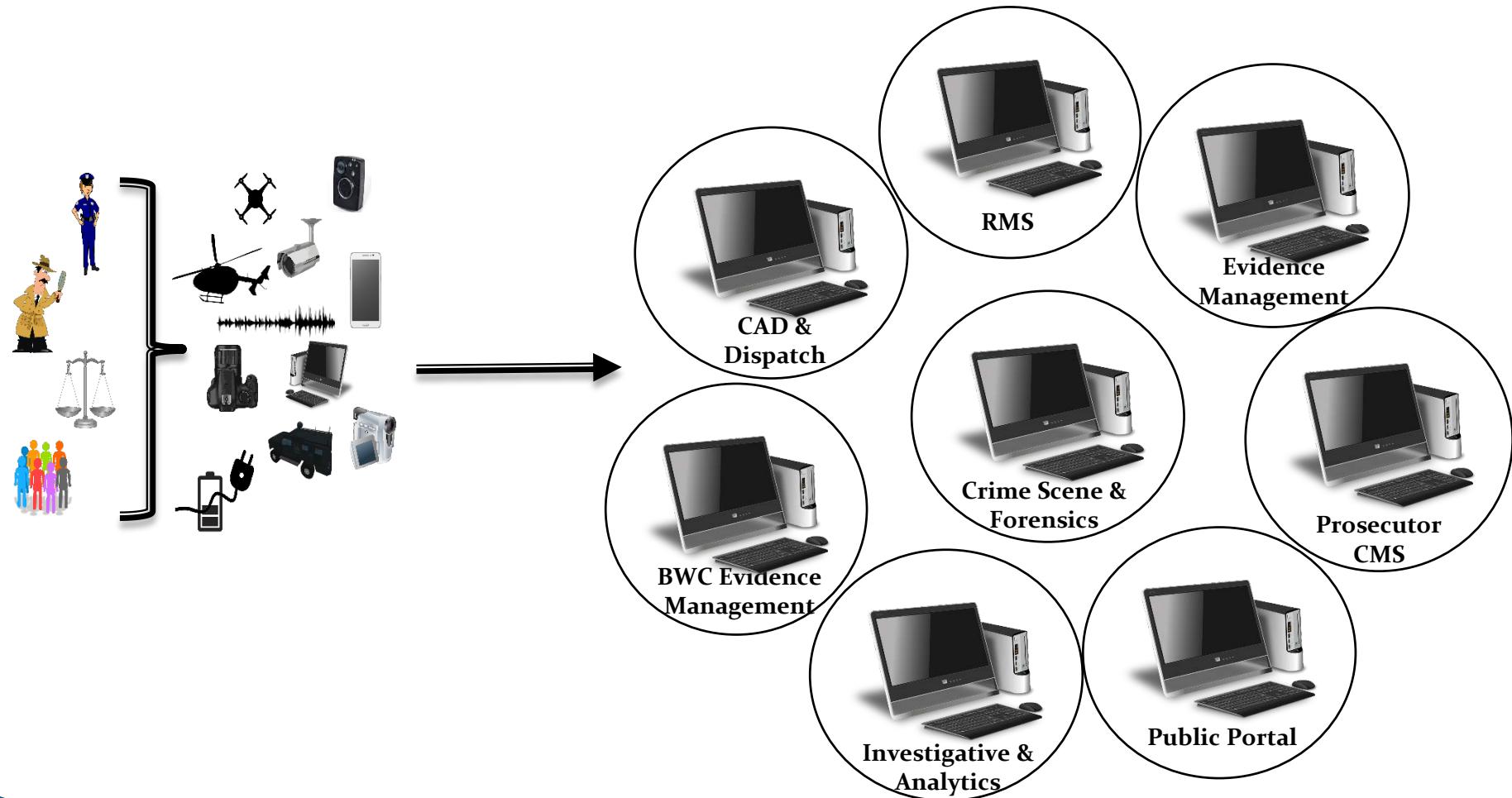
- ▶ Requires extensive collaborative operational and budgetary planning
- ▶ Can be expensive
- ▶ Takes time to become a reality
- ▶ Commitment to a single system provider for all functions
- ▶ May not provide the best individual solution for every function
- ▶ Cloud based system provides certain major advantages
- ▶ Ease of management and use



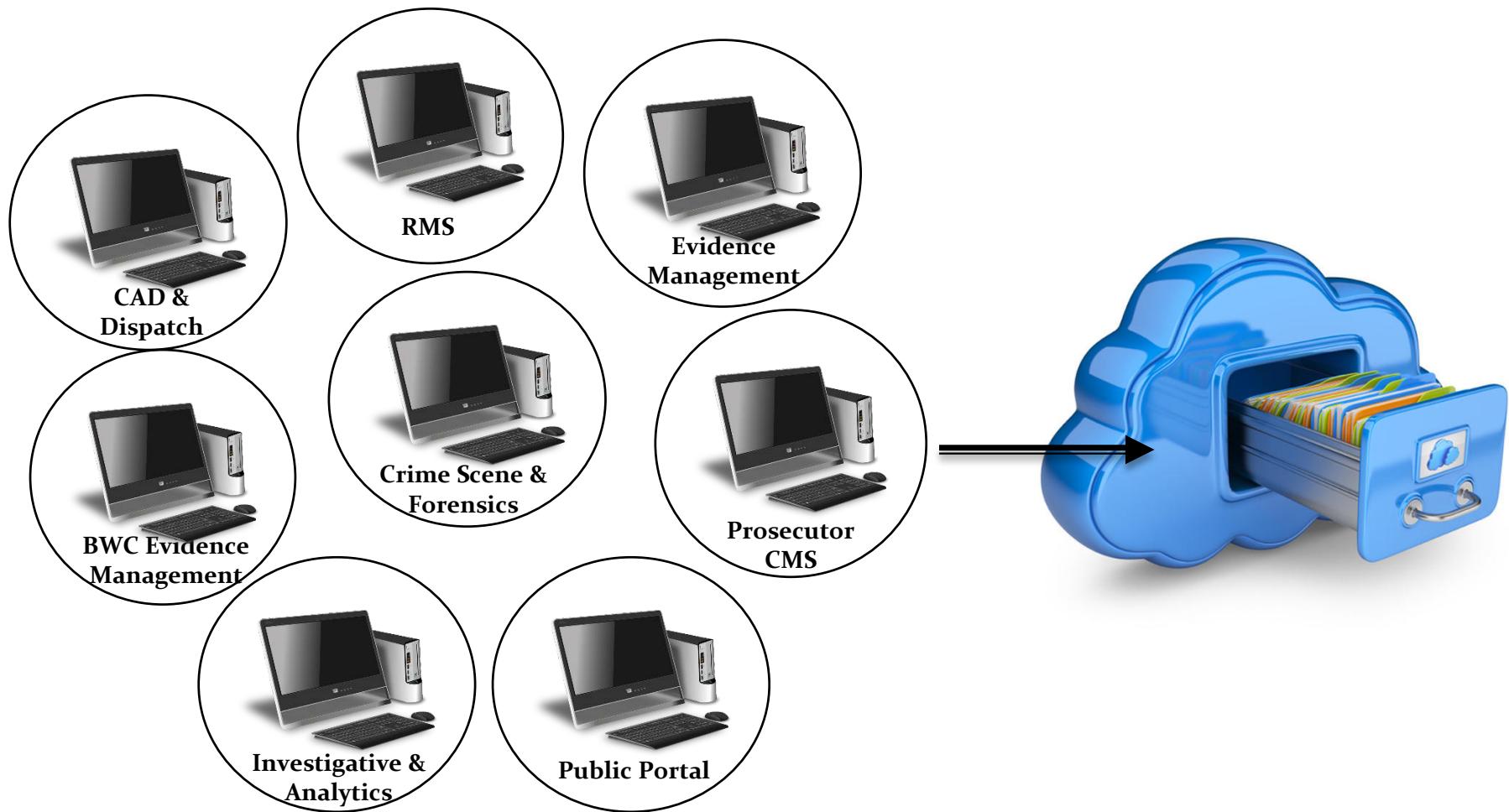
Federated System Integration (FSI) Model



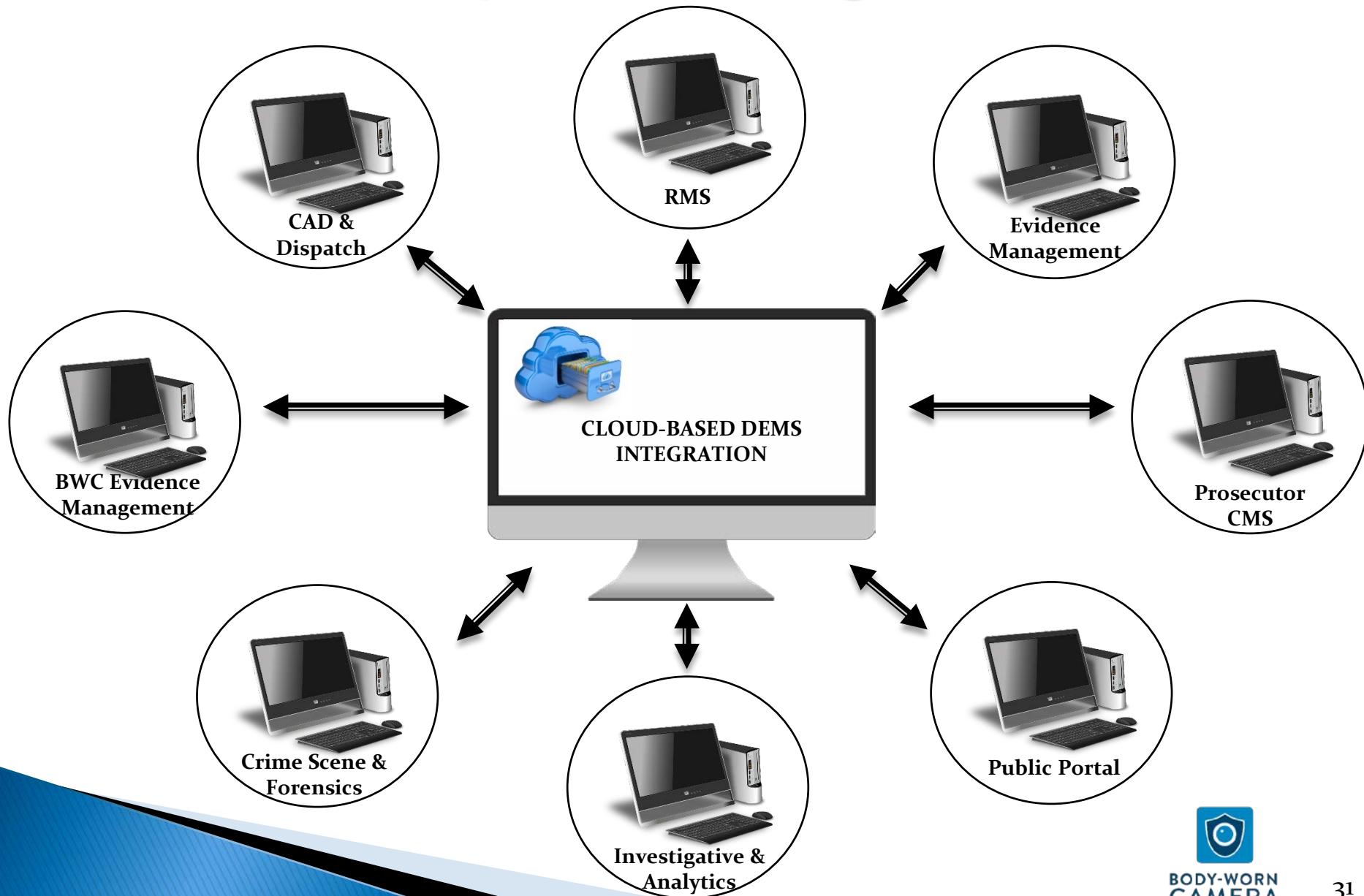
Federated System Integration Model



Federated System Integration Model



Federated Systems Integration Model



Some FSI Factors for Consideration

- ▶ Maintains existing systems, but allows for data integration
- ▶ Requires extensive collaborative operational and budgetary planning
- ▶ May cost less to implement
- ▶ Can be made operational relatively quickly
- ▶ Flexibility in DEM system provider
- ▶ Allows for the individualized solution for each function



A Few Things a DEMS Should Do:

- ▶ Integrate all relevant systems
- ▶ Access and search all systems
- ▶ Be easy to use with an intuitive interface
- ▶ Provide content “packaging”
- ▶ Embed real-time updates
- ▶ Have a share capability
- ▶ Have extensive auditing capabilities
- ▶ Be adaptable and scalable
- ▶ Apply content analytics
- ▶ Have a robust administrative function
- ▶ Provide conversion capabilities
- ▶ Have extensive system security measures
- ▶ Provide an effective cloud storage solution



Two Final Thoughts

- ▶ Local criminal justice communities need to work together to develop a vision and model on which to guide future funding, procurement, and use of a DEMS.
- ▶ Failure to do so will cost money and impact prosecutions.



Resources

- ▶ BJA Body-Worn Camera Toolkit (<https://www.bja.gov/bwc>)
- ▶ Getting started guide (<https://www.bja.gov/bwc/topics-gettingstarted.html>)
- ▶ TTA website (www.bwctta.com)
 - ▶ Includes Webinars on BWC-CAD Integration & Digital Evidence Management <http://bwctta.com/tta/webinars/>
- ▶ BWC subject matter experts
- ▶ TTA email address (BWCTTA@cna.org)



Questions and answers

- ▶ Please let us know your thoughts.

