

# City of Houston HITS Cloud Strategy and Body Worn Camera Project

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# Overall HITS Goals

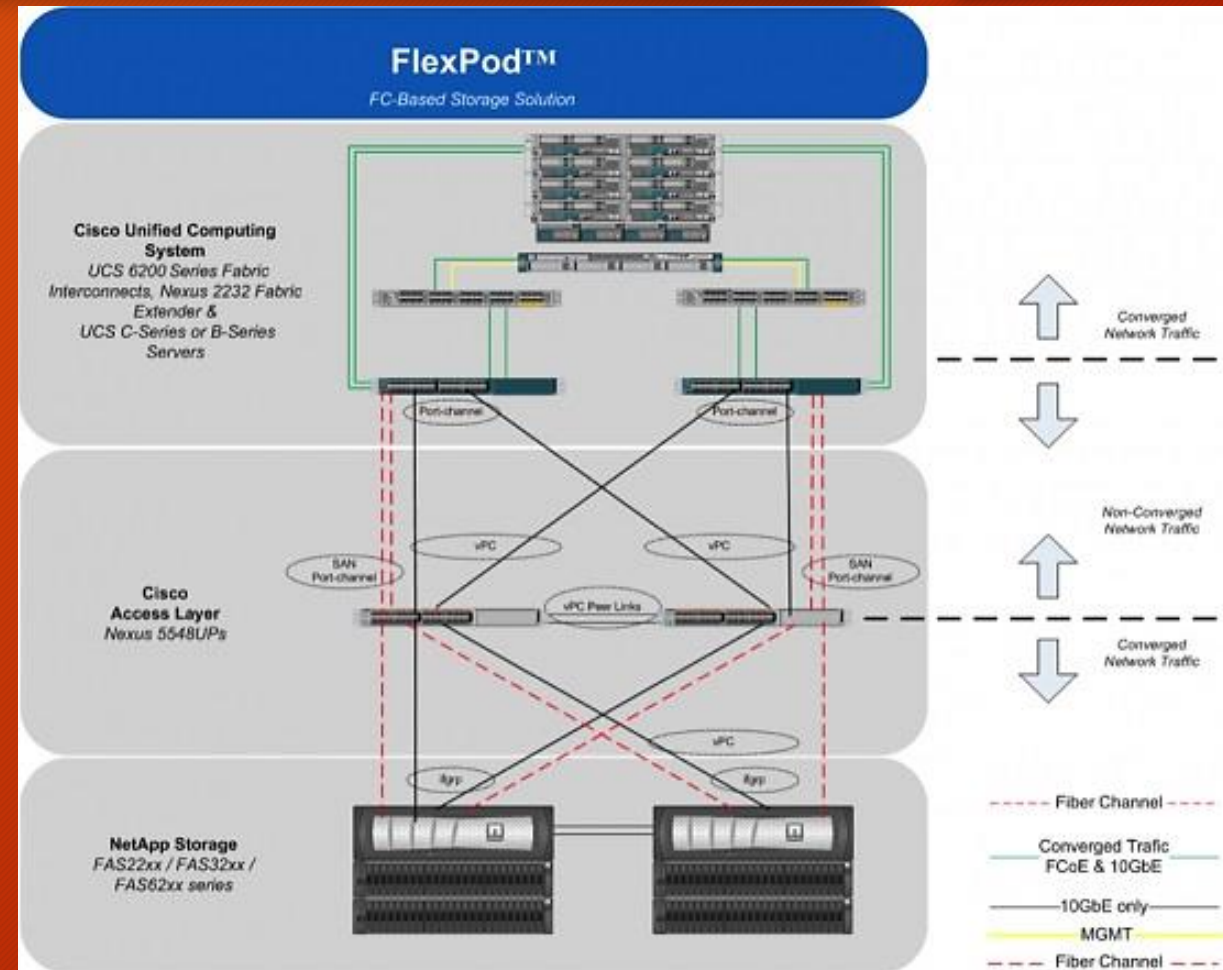
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- Provide Enterprise Services
  - Voice
  - Network
  - Email
  - Communications platforms
  - Shared Enterprise applications
- Provide Outstanding Customer Service
- Provide Responsive and Timely Solutions

# Definitions – On-Premise Storage

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- Storage that has all components on-premise, locally to provide local access to data
- Includes Storage Area Networks (SANs) or Network-Attached Storage (NAS) devices
- Includes a data switch fabric that connects the servers to the storage



# Definitions – Cloud-based Storage

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## Cloud Storage:

- Based on a highly virtualized infrastructure providing near-instant elasticity and scalability, multi-tenancy and metered resources.
- Made up of many distributed resources that appear as one, single resource.
- Can be highly fault-tolerant through redundancy.



# Types of Cloud Storage

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- Personal Cloud - also known as *mobile cloud storage*, consisting of public storage of personal data that is accessible to an individual from anywhere
- Public Cloud - storage provider fully manages the enterprise's public cloud storage
- Private Cloud - storage provider has infrastructure in the enterprise's data center managed by the provider
- Hybrid Cloud - combination of public and private cloud storage where critical data is stored separately from public data
- Government Cloud - secure cloud reserved for government entities with security and compliance at the forefront of solutions

# Advantages - On-Premise Storage

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- City retains complete management and control of their environment in secure data center areas
- City data is stored/handled internally
- Back-up, archiving and maintenance of data are done locally
- Redundancy and failover are set up and maintained by local technical staff
- Complete control of data rests within the City
- Hardware purchase and maintenance are the main costs
- No up/down costs for data transfer to and from on-premise hardware

# Disadvantages – On Premise Storage

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- Larger initial investment in infrastructure for current need and anticipated growth
- Some resources remain unused for long periods of time
- Complex to architect, deploy, maintain, and support
- Hardware needs to be refreshed periodically
- Costs for data center space to house the storage infrastructure
- Redundancy requirements drive up the costs substantially
- Downtime due to failures are reliant upon having spares or ability to get spares in a timely fashion



# Advantages - Cloud-based Storage

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- Customizable and expandable on-demand
- Pay for what you consume only versus purchasing infrastructure for anticipated growth that may not be consumed for long periods of time
- Potential reduction in licensing costs
- Maintenance and hardware upgrade costs are built-in to the overall price
- Provider becomes responsible for Service Level Agreements (SLA) and hardware replacements
- Potential reduction in costs for initial purchase
- Ideal in areas where IT staffing is an issue

# Disadvantages – Cloud-based Storage

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- Third-parties are handling confidential data
- Contracts are often difficult to negotiate for data return should there be a need to change providers
- Need to ensure redundancy and back-up of data is included in set up
- Compliance with legislation and regulation needs to be monitored
- Customization and integration with existing solutions can be difficult
- Lack of full control over data and processes
- May include an increase in circuit costs as well as other “hidden” costs

# Other Considerations?

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- Storage and bandwidth prices continue to drop fast
- Cloud-based services are attractive
  - Reduce licensing costs
  - Avoid adding IT staff unnecessarily
  - Allows for responsiveness to customer needs in a way never before possible
- How do we balance maximizing the benefits of existing platforms with cloud or hosted solutions?
- Not all data is equal with regard to requirements.

# Where do we go?

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- National Institute of Standards and Technology (NIST)
  - Promotes US economy and public welfare by providing technical leadership of the nation's measurement and standards infrastructure.
  - Development of standards for IT in industry, government and academic organizations.
- Cloud computing strategy should have a positive balance with regard to costs of IT while improving IT capabilities, securing data and offering innovation.
- Time to Completion - hardware procurement for on-site solutions takes time

# Where do we go?

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- Cloud services need to be secure, interoperable and reliable
- City needs to be able to move between providers easily while maintaining ownership of data
- Factors for cloud solutions include:
  - City policy
  - Technology requirements
  - Security of data, including vetting of employees handling City data
  - Information Technology standards
  - Costs of both on-premise and hosted solutions

# Hybrid Solution

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- Hybrid solutions offer a balance between both delivery models and adapt according to the needs of the City and the application being considered.
- Balance the life left in existing hardware and utilize on-site hardware until it is end of life/end of support.
- Maximize what we have today versus what we are moving to tomorrow.

# Hybrid Solution - Advantages

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- Flexible storage options that exist both on-premise and in the cloud
- Scalability to increase storage or application output on-demand
- Ability to maintain control over data when compliance and security cannot be compromised
- Solutions are not governed by skill level of IT staff or size of IT department
- Outages and time lost due to equipment failures can be mitigated
- More choice options for planning for existing and future IT needs
- Consolidation of vendor platforms

# What's Next?

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- Many choices exist for both on-premise and hosted storage
- Lower costs for both on-premise and hosted storage.
- Thorough vetting by project is needed to ensure requirements are met within cost.
- Considerations for types of data must be made before architecture can be designed for both on-premise and hosted solutions.



# Houston Police Department Body Worn Cameras Project

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- Procurement of 4,500 Body Worn Cameras
  - 4100 will be used for officers
  - 400 will be used as spares/replacements
- The project will be deployed to each division individually, starting with Central Patrol.
  - Rollout will take approximately 12-18 months.
- Cameras will be deployed to patrol/supervisory first responders, investigative first responders (IFR) up to Lieutenant level and all officers on uniformed extra job assignments.

# Request for Proposal

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- January 23, 2015 - Strategic Purchasing released the RFP from the City's e-bidding website.
- 372 prospective bidders downloaded the RFP
- March 16, 2015 - SPD delivered 12 proposals to HPD for evaluation
- March 23, 2015 - HPD began the evaluation process

# Where will the videos be stored?

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- Videos will be downloaded through a transfer station and then transferred to the HPD data center and stored on City owned storage.
- A duplicate copy of the video will be stored at the City's Disaster Recovery Center, separate from the primary data center location.

# Project Costs

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- Total project cost is \$7,963,360 for five years. (capital)
  - Servers will be purchased through DIR in the amount of \$236,109 using Asset Forfeiture funds.
  - Storage will be purchased in the amount of \$1,390,946 and will represent an on-site solution designed to cover storage needs for five years.
  - Purchase of body worn cameras, Video Evidence Management Systems (VEMS), accessories, software, maintenance repair and training are in the amount of \$6,332,747.

# On-Premise versus Hosted

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- A thorough evaluation was conducted by the evaluation team for both on-premise and hosted solutions for storage.
- Only three vendors out of twelve provided a hosted solution for storage.
- The final vendor selected offered pricing for both on-premise and hosted solutions.

# Cost comparison: On-Premise vs. Hosted

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	Base Proposal								Recommended Options			
Option 1	BWC	Hardware	Software	Support	Professional Services	Performance Bond	Storage	Subtotal	Network	Unattended Transfer	Video Review at Station	Total
Hosted and Operated by HPD. Storage on-site and managed by HPD.	\$ 3,111,270	\$ 434,500	\$ 1,201,500	\$ 154,477	\$ 776,000	\$ 150,000	\$ 1,630,613	\$ 7,458,360	No costs required	\$ 500,000	\$ 25,000	\$ 7,983,360
Option 2	BWC	Hardware	Software	Support	Professional Services	Performance Bond	Storage	Subtotal	Network	Unattended Transfer	Video Review at Station	Total
Hosted and Operated by HPD. Storage provided by 3rd Party Vendor.	\$ 3,111,270	\$ 434,500	\$ 1,201,500	\$ 154,477	\$ 776,000	\$ 150,000	\$ 9,250,000	\$ 15,077,747	\$ 1,440,000	\$ 500,000	\$ 25,000	\$ 17,042,747

Responses from RFP respondents show that compared to on-premise data storage, hosted storage would have an incremental cost of \$9.06 million over five years. Of this, \$7.62 million would be the incremental cost of cloud storage and \$1.44 million would be for the needed increases in bandwidth circuit costs for HPD's 24 locations.

# Conclusion

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- For this application and project, on-premise storage is the better option
- On-premise storage meets the technical requirements, security requirements and within the budget of HPD
- Consideration for potential, future hosted options for storage will be evaluated as HPD nears hardware replacement in 3-5 years

Questions?