STUDENT TECHNOLOGY FEE REQUEST FORM

Procedure for Submission: Form Updated: 9/05/17

1. Submitter must obtain required information from vendor(s). An official quote from the vendor must be attached. No website screen shots
2. This request must be reviewed, approved, and submitted by the requesting program's School Chair.
3. The School Chair may email this request to the Tech Fee Director. *Since some schools will have multiple requests, please rename request PDF files in the following format: Schoolname# (rank, 1 being the highest priority) example - SocialJustice1, SocialJustice2, etc. Please submit as one PDF file*

Dept. making request:	SERS, OTD Program	Requesting Faculty:	Dr. Alexia Metz	Date Submitted:	10/7/2019

IMPORTANT: Attach an official quote from the vendor.

List one item OR group (for use as a "package") per page.

Item Name	Vendor info. (name, address, Web site URL, phone #, email, etc.)	Part or Model #	Cost (each)	Qty	Total
Video Recording System	Intelligent Video Solutions W222N615 Cheaney Rd. Suite A Waukesha, 53186 WI, USA Phone: (855)-229-9699 Email: info@ipivs.com	please see attached quote	$7,945.00	1	$7,945

Course(s) where item(s) will be used	At least one course per term of the OTD didactic curriculum, including: OCCT7010; 7020; 8060; 7220; 8240; 8130, see attached course descriptions	Expected life of product (years)	Continually	# Students Impacted per Year	40
Location equipment or software will be used/stored	2102F	**Will Tech Fee needed for annual renewal or maintenance? What is the annual cost?**		Optional yearly tech service fee	

Provide a brief description of the technology requested*:

BEAM is a video recording system that allows users to record events that are then uploaded to a secure server. Recordings are taken on an IOS device, such as an iPad, and then videos are instantly loaded onto a server that educators and students can access, as assigned by a software adminstrator. The system is easy to use and allows the user to access recordings from remote locations. The product's license does not expire and can be used continually without a yearly fee. In addition, the initial product price includes tech support and training associated with the use of the product software.

Briefly describe how the technology will be used (function)*:

BEAM would be used by all students and faculty to record class-required competencies related to client care and professional skills in the OTD program. The set up would also be useful for data collection several students per year for required research projects. Faculty would be able to view recorded data and insert comments or feedback for students. Students would then be able to log onto the server at home or on campus and view feedback.

The OTD program would also make a description of the set up available to other programs in the college and be open to arranging shared use of the set up for wide student benefit.

A description of the set up can be found here: https://ipivs.com/products/mobile-video-capture-platform/#capture

Please see attached documentation, provided by Intelligent Video Solutions regarding user end technology requirements/specifications.

Provide a rationale that Tech Fee funds are appropriate for this request*:

Faculty members do not have a secure way to record videos for students that includes an option to insert comments or view feedback at a later date. Students in the OTD program, and other related programs, often times must perform a competency related to coursework in front of instructors. For example, students in OCCT8060 (Models of Practice VI) must perform a competency where they assist a fictional patient in putting on a sock with assistive technology while the professor observes and grades. The student receives feedback verbally immediately after the competency or at a later date in the form of written comments. Students are often nervous or under pressure when performing competencies in front of their instructors. Verbal feedback may not always be received by the student due to nerves. Written feedback received at a later date is not as effective as immediate feedback as the student may not be able to recall the performance in detail. A video recording with comments would be much more beneficial as the student could reflect on what they did during the competency and how to improve their performance. Thus, the BEAM video recording system would be an optimal tool for giving and receiving feedback. It would be utilized throughout the program and across courses to help students learn.

*Keep in mind that the committee members come from a variety of educational backgrounds and may not be familiar with department specific language. Please use concise, common terminology so that committee members reviewing this form will be able to fully understand the request.

- If you are submitting a request for computers, printers, scanners or software, you must consult with College Computing and the technology staff, to acquire a quote and to make sure that this equipment/software is supported by UT and compatible with existing technology.

Intelligent Video Solutions

W222N615 Cheaney Rd. Suite A,
Waukesha, 53186 WI, USA
Phone: (855) 229-9699
Email: info@ipivs.com

ADDRESS

University of Toledo - Occupational
Therapy Doctoral Program
2801 W. Bancroft MS 119
Toledo, OH 43606

SHIP TO

University of Toledo - Occupational
Therapy Doctoral Program
2801 W. Bancroft MS 119
Toledo, OH 43606

Quote Name	Created Date	Expiration Date
1910021427CR	Oct 02 2019	Apr 02 2020

Description	Quantity	Unit price	Total
University of Toledo - Occupational Therapy Doctoral Program Mobile Video Capture			
Server, Software Licensing, and Software Support Agreement			
10001 R1Y2S-K 1U Rackmount 2TB server, supports up to 5 VALT licenses/devices, VALT Base License Included	1	$4,375.00	$4,375.00
53016 BEAM BEAM Device License	1	$1,995.00	$1,995.00
90005 SSABL VALT Base License Annual Software Support Agreement	1	$500.00	$500.00
90008 SSAE VALT Enterprise License Annual Software Support Agreement	1	$125.00	$125.00
Professional Services			
95102 RCONF Remote Configuration Services	1	$500.00	$500.00
95203 PROJM Project Management Services	1	$100.00	$100.00
95202 RMTNG Remote Training Services	1	$250.00	$250.00
96014 SHIP Shipping	1	$100.00	$100.00

Estimate does not include any applicable sales tax that may be due.

Subtotal	**$7,945.00**
Total	**$7,945.00**

Pricing is valid through the expiration date specified above.
Changes to the quantities or items listed will require a revised quotation and may affect the final price.

Intelligent Video Solutions provides comprehensive warranty and software support for all products that we provide. For specific details on warranty, support, service level agreement and end user software license agreement please visit the following link on the IVS website: https://ipivs.com/support-information/

Intelligent Video Solutions and Customer will agree to a Project Plan and Timeline within 30 days after receipt of a purchase order. Any subsequent changes to the Project Plan may result in Change Orders and additional charges or credits. Once a Project Plan is agreed upon by Intelligent Video Solutions and the Customer, subsequent project milestone delays by the Customer may result in additional charges or overall project delays.

Accepted By

Accepted Date

Courses in which BEAM video recording would be used to capture students' performance of clinical/professional skills for providing feedback to enhance performance:

OCCT7010 Occupational Therapy Models of Practice I (5 credits)
    FALL I
    Examines the biomechanical model of practice including its musculoskeletal and kinesiological foundations. Includes assessments and interventions for prevention, adaptation, and compensation.

OCCT7020 Occupational Therapy Models of Practice II (5 credits)
    SPRING I
    An introduction to the nervous system, with emphasis on the neurological basis of human occupation and the effects of neurological conditions (disease, injury, and mental illness) on occupational performance. Explores neuroplasticity and neuro rehabilitation. Labs include neuroanatomy and clinical assessment.

OCCT7220 Occupational Therapy Advocacy II (2 credits)
    SUMMER I
    Applies teaching principles as students assume the role of educators to the community. Explores the role of the therapist in design, development, implementation, and evaluation of occupational therapy curricula. Integrates presentation of self and professionalism.

OCCT8060 Occupational Therapy Models of Practice VI (4 credits)
    FALL II
    Examines compensation-oriented models of practice including assistive technology, positioning, patient handling, and mobility. Presents occupational and non-occupational assessments and interventions for prevention, adaptation, and compensation.

OCCT8240 Occupational Therapy Advocacy IV (3 credits)
    SPRING II
    Examines leadership, management, and supervision of occupational therapy services in a dynamic health care system. Addresses legislative, regulatory, and payment issues affecting program development. Encourages leadership development.

Course in which at least some students could use BEAM video recording for data collection in their scholarly project

OCCT8130 Research in Occupational Therapy III (3 credits)
    FALL II
    Provides structure for student to begin data collection after obtaining official approval of project by major advisor and institutional review board. Involves individual faculty contact.

Client PC Requirements

Hardware Requirements

For the maximum number of camera that can be observed simultaneously during live observation, see the guidelines below (720P & 1080P is listed for each system type):

Image	Processor	Memory	720P	1080P
	Core i3	4GB	2	1
	Core i5	4GB	4	3
	Core i7	8GB	7	5

Software Requirements

1.) Flash Player 16.x or greater.
2.) One of the following validated browsers:

Image	Browser	Tested Version	Full Screen Features	Recommended 1-5	Notes
	Chrome	Latest Available	Yes	5	Flash is built and must be enabled
	Firefox	Latest Available	Yes	5	Flash must be installed
	Safari	Latest Available	No	4	Flash must be installed
	Internet Explorer	Must be 11+	No	2	Flash must be installed
	Microsoft Edge	Latest Available	No	2	Flash must be installed

Client PC Requirements by software version:

- 5.0
- 4.0

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- This page was last edited on 15 May 2019, at 16:31.

Network Requirements

Server to Camera(s) access:

```
a.  TCP 80 - http
b.  TCP 554 - rtsp video
```

Server to Media Server(s):

```
a.  TCP 8086 – Wowza
b.  TCP 8087 – Wowza
```

Client to Server (Non SSL):

```
a.  TCP 80 – http
b.  TCP 20100 – http nodejs
c.  TCP 1935 – ws video
d.  TCP 22 – SSH admin
e.  TCP 8088 – Wowza admin
f.  TCP 8000 - Wowza webserver
```

Client to Server (SSL + WSS):

```
a.  TCP 443 – https
b.  TCP 20100 – https nodejs
c.  TCP 444 – wss video
d.  TCP 22 - SSH admin
e.  TCP 8088 – Wowza admin
f.  TCP 8000 - Wowza webserver
g.  TCP 80 - http redirected to https (443)
```

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- This page was last edited on 16 July 2019, at 16:23.

Valt Technical Specifications

Contents

Introduction

This document is designed to be a reference for any person wishing to implement or is interested in the architecture of the Valt application. This document describes each application's architecture and sub-architecture, along with any associated interfaces and components.

Software Overview

Valt Software: This software is designed to enable users to easily record, review, and manage Audio and Video events in a secure and organized fashion. The software allows users to tag recordings with searchable information, as well as mark specific points within the video files, and tag those markers with searchable information. It has been designed to work with the latest IP camera technology.

Beam Software: This is an iOS application designed to work in conjunction with our Valt software, and is intended to provide a mobile capture and streaming component to our core Valt software. This software enables users to capture Audio and Video events using any iOS device. It allows these events to be streamed live to the Valt software platform, so users can view and initiate events from the iOS device onto the Valt software itself. Beam also allows users to capture content offsite, tag it with information, and automatically have that video upload to the Valt Server when network connectivity to the server is restored.

Server Side Software Architecture

Our software is built on the standard LAMP (Linux, Apache, MYSQL, and PHP) architecture. The software has been designed to work on the latest LTS version of Ubuntu Linux (Server Edition). There are 3 main components to the software application:

Web Server: This makes up the bulk of the application and consists primarily of PHP web pages being served up by the Apache web server.

Database: The database stores all the unique customer specific information.

Media Server: This portion of the application handles all the communication with the cameras and video streams being served out to the client PCs. It also handles all the recording and clip creation.
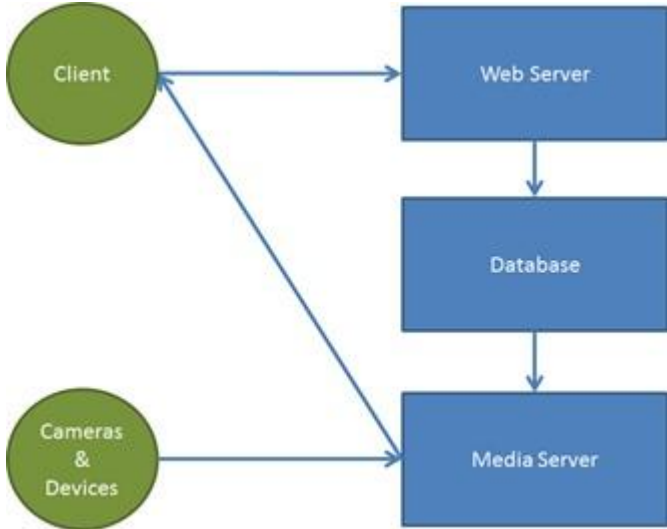

From a physical or virtual server perspective the entire server side software stack can be run on a single server. For applications requiring more than 50 cameras or consisting of different departments the software can be broken out and additional "Media Servers" can be added. These servers would only run the Media Server portion of the VALT application. This multi-server architecture allows for flexibility and scalability.

Single Server Example:
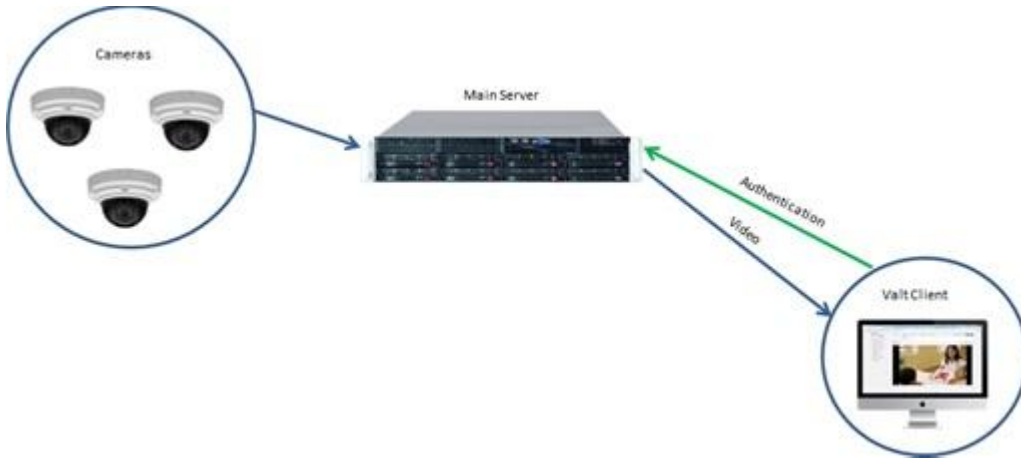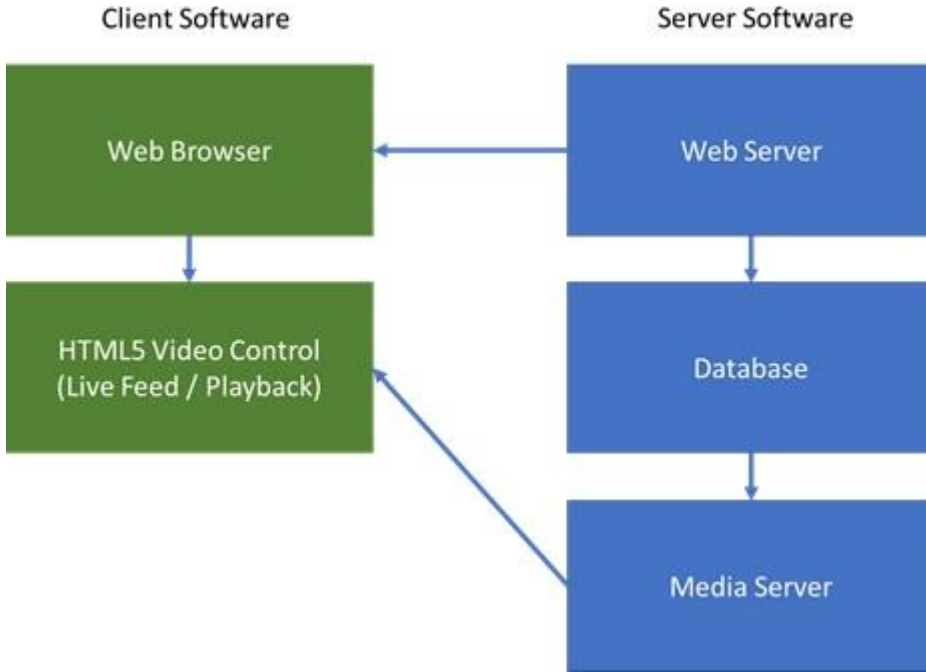

Multi-Server Example:
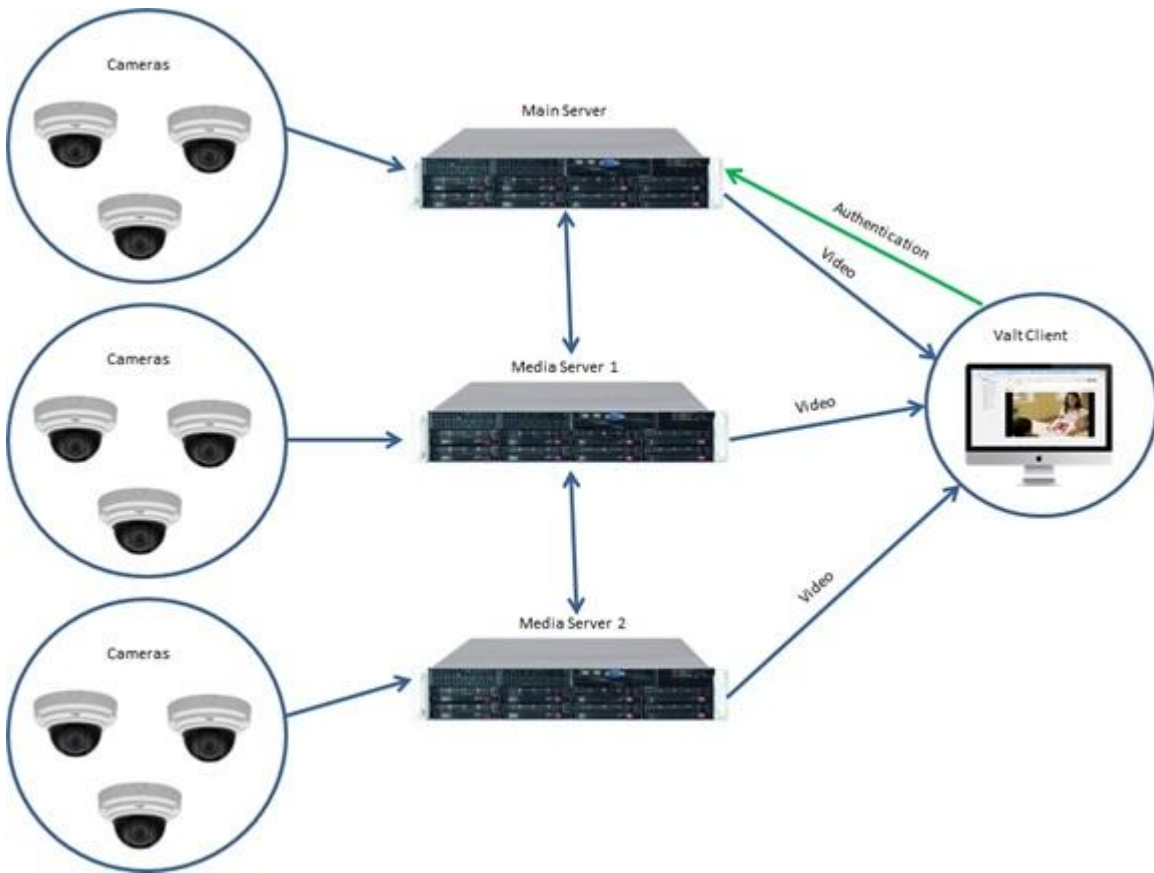
Client Side Software Architecture

The Valt client software is browser based. The software has been validated with the following web browsers:

```
•    Internet Explorer 10, 11, 12 (Depreciated)
•    Microsoft Edge
•    Chrome
•    Firefox
•    Safari
```

The client software consists of two primary components as shown below.

Client PC Requirements

The maximum number of cameras that can be viewed within a single browser tab is 9. Multiple tabs or instances of the application can be opened on the same computer. Here are some conservative client PC requirements for live observation:

Image	Processor	Memory	720P	1080P
	Core i3	4GB	2	1
	Core i5	4GB	4	3
	Core i7	8GB	7	5

Solution Architecture Overview

A complete customer solution is typically composed of some combination of the following components:

- Server & Storage
- IVS Valt Software
- Axis IP Cameras / Encoders

- Microphone Equipment
- Client Workstations / Laptops
- Optional Components
    - o   Talkback
    - o   Buttons / RFID Readers
    - o   iOS Devices running IVS Beam for Mobile Capture
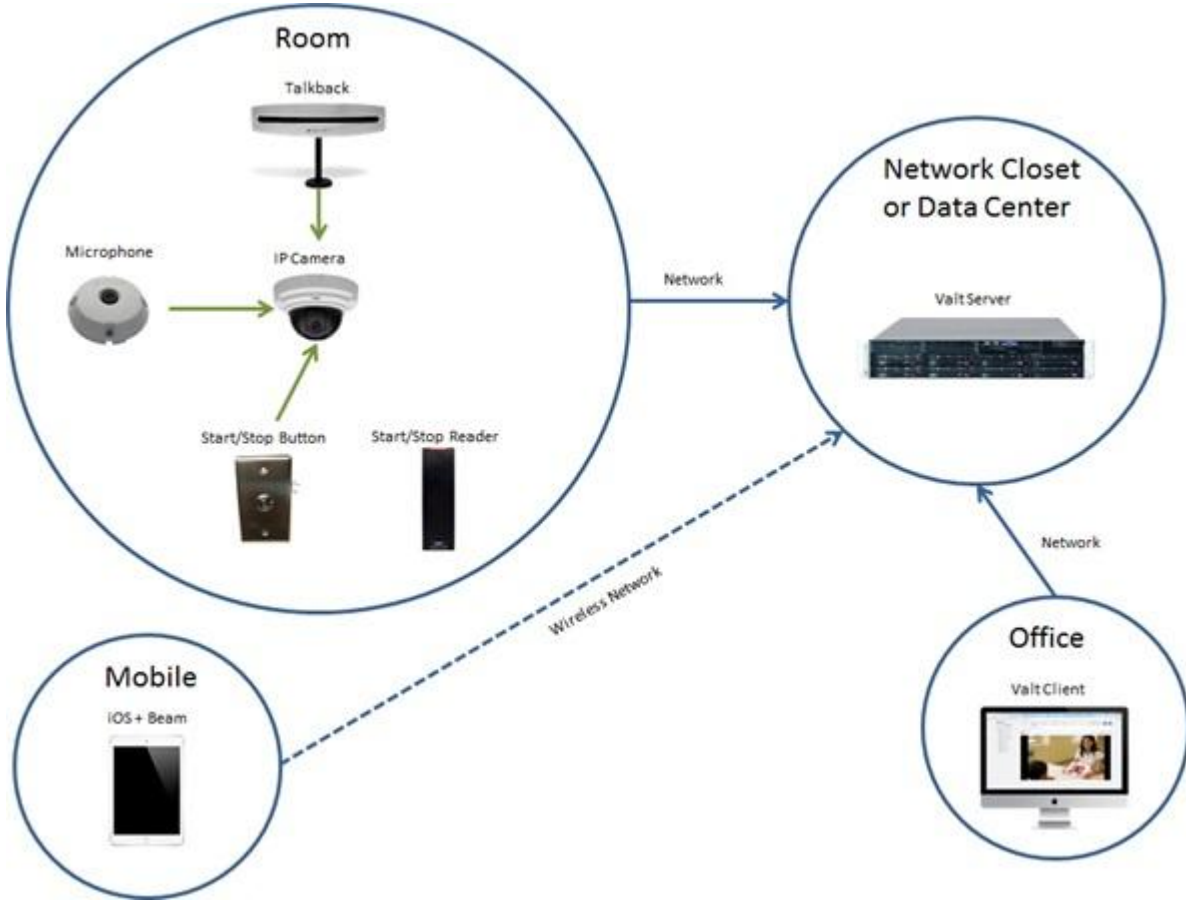
Solution Network Architecture

Below is a typical standard suggested network architecture diagram. We see this architecture often used in Law Enforcement & Simulation, as well as other environments, where security is important and segmenting access to only the necessary ports / devices is desired but in transit encryption is not a requirement.
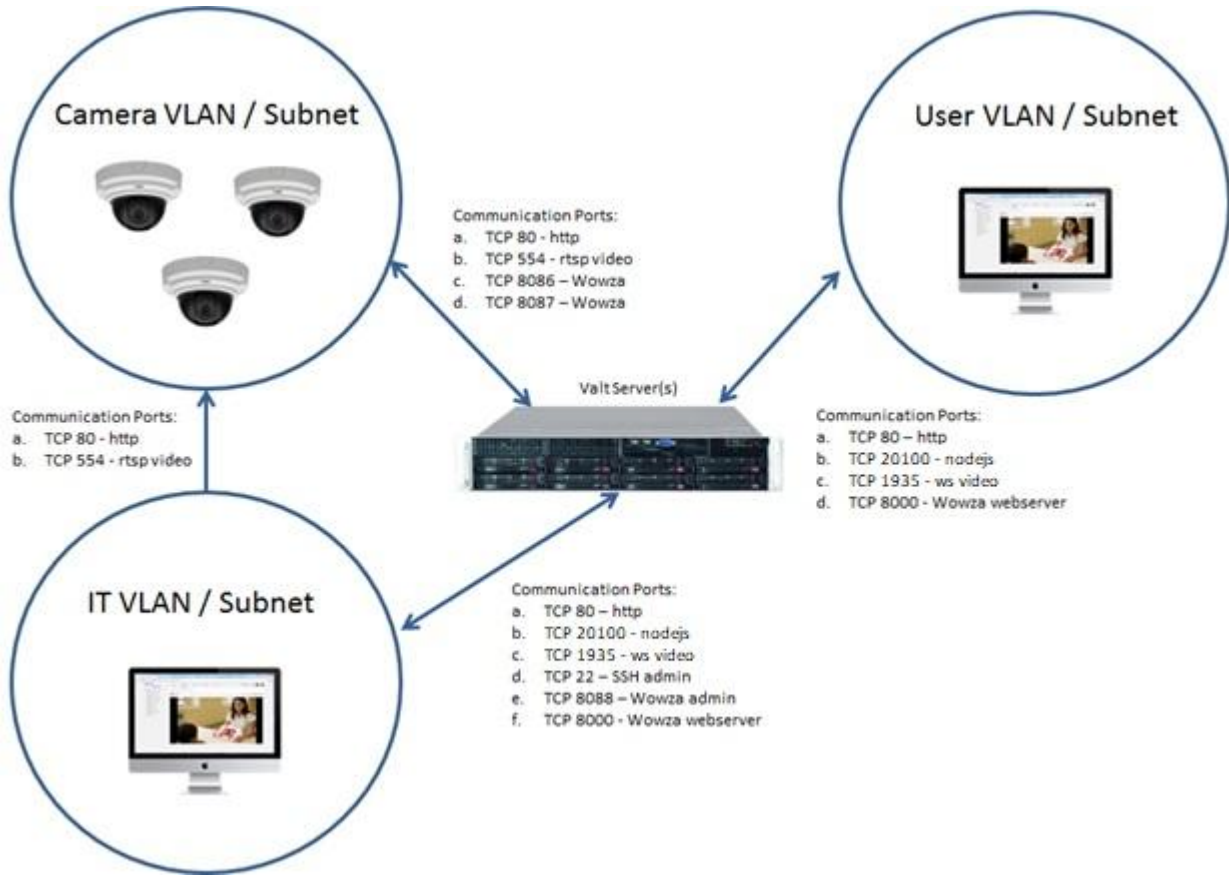
Camera VLAN / Subnet

Communication Ports:
a. TCP 80 - http
b. TCP 554 - rtsp video
c. TCP 8086 – Wowza
d. TCP 8087 – Wowza

User VLAN / Subnet

Valt Server(s)

Communication Ports:
a. TCP 80 – http
b. TCP 20100 - nodejs
c. TCP 1935 - ws video
d. TCP 8000 - Wowza webserver

Communication Ports:
a. TCP 80 - http
b. TCP 554 - rtsp video

IT VLAN / Subnet

Communication Ports:
a. TCP 80 – http
b. TCP 20100 - nodejs
c. TCP 1935 - ws video
d. TCP 22 – SSH admin
e. TCP 8088 – Wowza admin
f. TCP 8000 - Wowza webserver

If LDAP is being used, the server will also need access to the authentication server(s) as shown below. For LDAP integration using our software, we will also need a bind account and password with read-only access to LDAP.
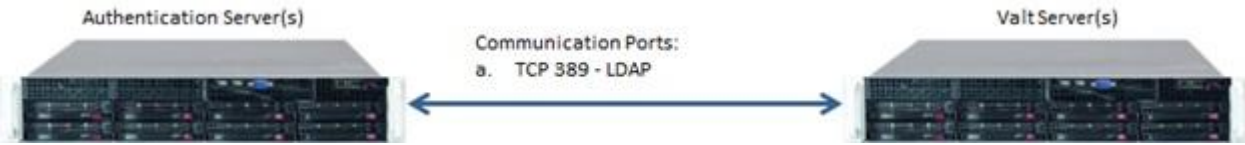

Authentication Server(s)

Communication Ports:
a. TCP 389 - LDAP

Valt Server(s)

Below is a diagram of a sensitive network environment, where in-transit encryption is a requirement. This type of network architecture is typical of environments that are using the system to capture / observe actual patient interactions within clinical training environments.

For SSL, we will need the customer to set up a DNS name for the server (example ivs-valt.mysite.edu). We will also need a wildcard or generated signed certificate that is compatible with apache and can be applied by an IVS engineer.
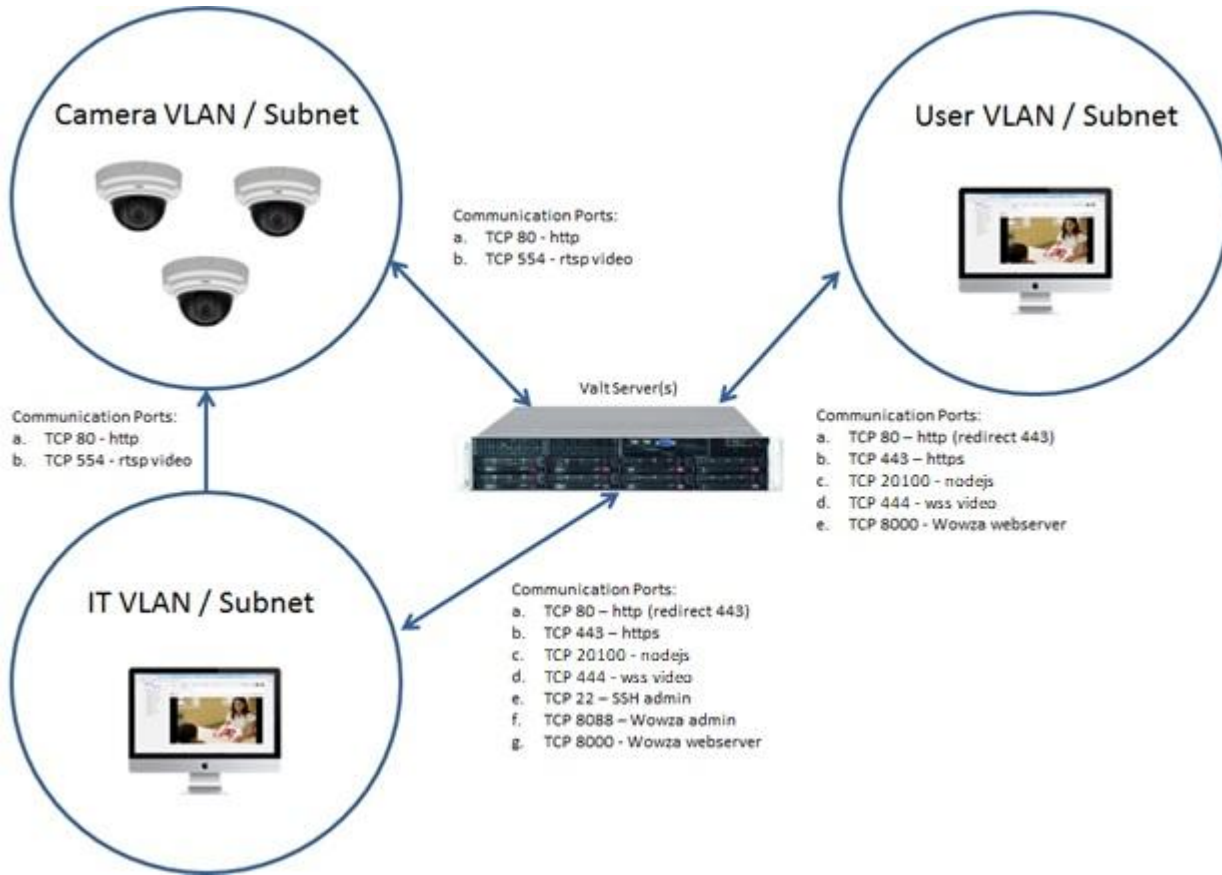
If LDAP is being used, the server will also need access to the authentication server(s) as shown below. For LDAP integration within our software, we will also need a bind account and password with read-only access to LDAP.
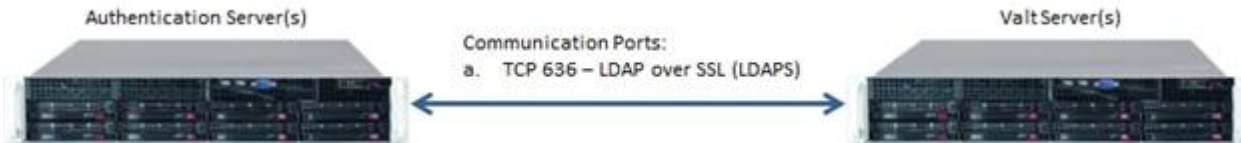

Bandwidth & Storage

Most of our customers record and stream the video events using our software in either 720P or 1080P resolution. Below is a breakdown of different estimate requirements under both resolution scenarios.

Cameras to Server: This is a persistent 1:1 connection for each camera added to our system. This estimate is assuming H.264 compression is set at 30% @ 30fps, with AAC 16 KHz 32kbit audio:

720P: 500Kbps – 1.8Mbps per camera depending on lighting, color, and scene activity. 1080P: 1.1Mbps – 2.8Mbps per camera depending on lighting, color, and scene activity.

Client to Server Live Observation: This is an on demand connection, and will only be used when clients are performing live observation via the software. This estimate is assuming H.264 compression is set at 30% @ 30fps with AAC 16 KHz 32kbit audio:

720P: 500Kbps – 1.8Mbps per client connection depending on lighting, color, and scene activity. 1080P: 1.1Mbps – 2.8Mbps per client connection depending on lighting, color, and scene activity.

Client to Server Review: This is an on demand connection, and will only be used when clients are performing video review via the software. This estimate is assuming H.264 compression is set at 30% @ 30fps with AAC 16 KHz 32kbit audio:

720P: 500Kbps – 1.8Mbps per client connection depending on lighting, color, and scene activity. 1080P: 1.1Mbps – 2.8Mbps per client connection depending on lighting, color, and scene activity.

Storage: This is the typical storage requirements we see in our applications. This estimate is assuming H.264 compression is set at 30% @ 30fps with AAC 16 KHz 32kbit audio:

720P: ~1GB per hour per camera also dependent on lighting, color, and scene activity. 1080P: ~1.8GB per hour per camera also dependent on lighting, color, and scene activity.

Software Architecture: Containers

Containers are used within our software to segment different objects from different users. The objects that can currently be segmented into containers are: User Groups, Templates & Rooms. Containers are often used in higher educational clinical training applications, where more than one department is sharing a single server or server cluster.

An example would be a university putting in an IVS system to record student / patient interactions for both their Psychology and Speech Pathology programs. Containers would allow them do designate 3 levels of administrators.

Global: This level would see all the Users Groups, Users, Templates, Rooms & Cameras on the IVS system.

Psychology: This level would only see User Groups, Users, Templates, Rooms & Cameras assigned to the Psychology container.

Speech Pathology: This level would only see User Groups, Users, Templates, Rooms & Cameras assigned to the Speech Pathology container.

There is no limit to how many containers / sub containers can reside within our system.
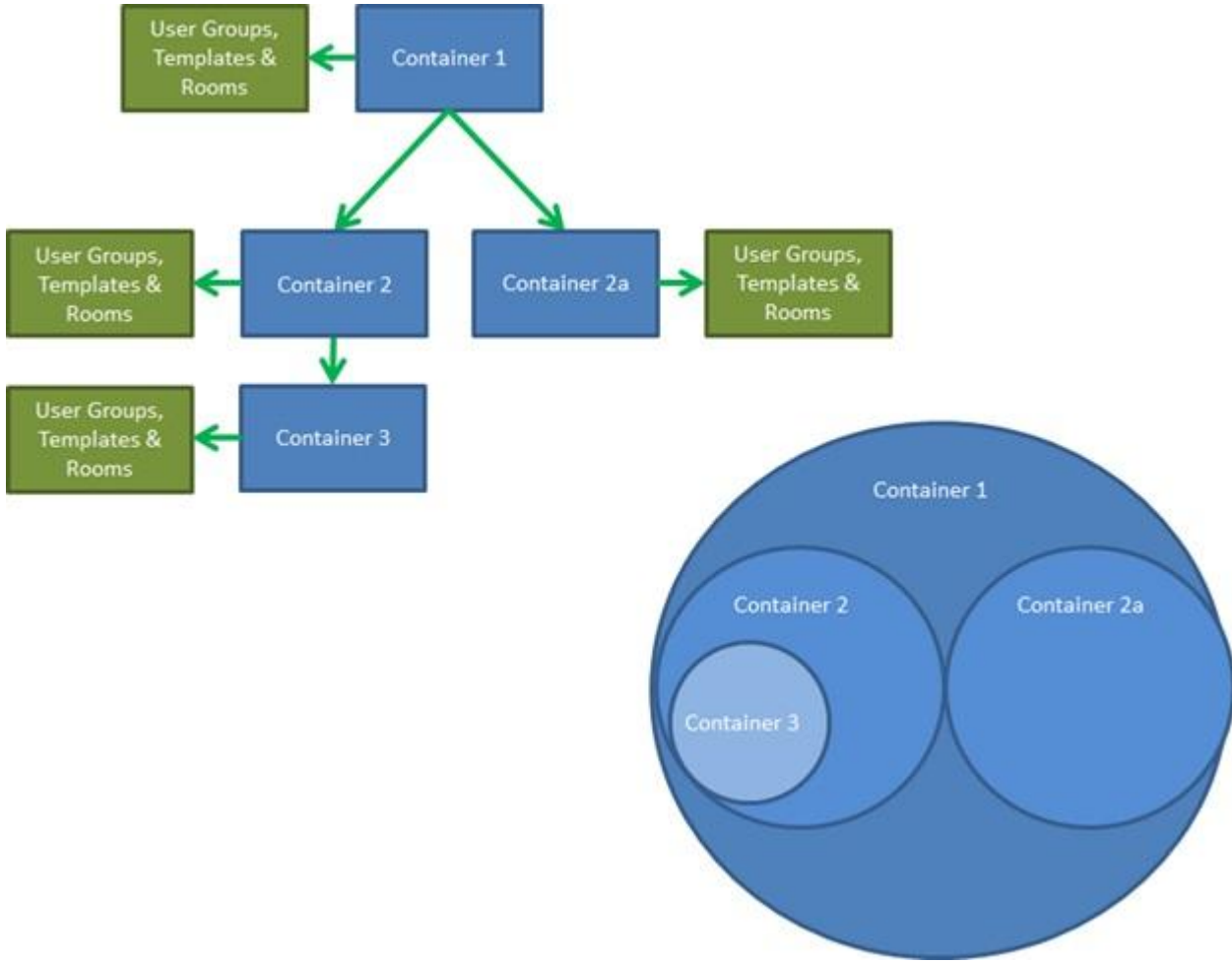
Software Architecture: Users & Groups

From a permissions perspective, the Valt software solution is very flexible, designed to be adaptable to the customer's workflow. The majority of permissions are defined at the "user group" level, with then "users" being added to the corresponding "user groups" inheriting the permissions. Some additional access permissions can be defined at the user level as well. For additional information about user and group permissions, visit Adding a User Group (http://ipivs.com/wikiAdding_a_User_Group).

See below for a matrix of permissions available in the Valt software:

Users & Groups Rights Table

Permission	Group	User
General	X	
General: Home	X	
General: Alert	X	
General: Change Password	X	
General: Password Rules	X	
General: Notifications	X	
Upload	X	
Upload: Sharing	X	
Upload: Author	X	
Upload: Retention	X	
Observe	X	
Observe: Recording	X	
Observe: Recording: Start	X	
Observe: Recording: Prepare	X	
Observe: Recording: Pause	X	
Observe: Recording: Pause: All Authors	X	
Observe: Recording: Pause: Resume All Authors	X	
Observe: Recording: Stop All Authors	X	
Observe: Recording: Sharing	X	
Observe: Recording: Evaluation	X	
Observe: Recording: Evaluation: View Option Values	X	
Observe: Recording: Evaluation: View Field Values	X	
Observe: Recording: Evaluation: View Total Values	X	
Observe: Recording: Change Author	X	
Observe: Recording: Retention	X	
Observe: Recording: Options	X	
Observe: Recording: Options: All Authors	X	
Observe: Recording: Add Markers	X	
Observe: Recording: Delete Markers	X	
Observe: Recording: Prepare	X	
Observe: Recording: Pause	X	
Observe: Recording: Pause: All Authors	X	
Observe: Recording: Pause: Resume All Authors	X	
Observe: Search	X	
Observe: Multi-Record	X	

Observe: Views	X	
Observe: Views: Recording	X	
Observe: Talkback	X	
Observe: PTZ	X	
Observe: PTZ: Control	X	
Observe: PTZ: All Authors	X	
Observe: PTZ: Presets	X	
Observe: PTZ: Add/Delete	X	
Observe: Lock	X	
Observe: Lock: Unlock all Users	X	
Observe: Edit Sharing	X	
Observe: Edit Sharing: Create Link	X	
Review	X	
Review: Markers	X	
Review: Markers: View All Authors	X	
Review: Markers: Add	X	
Review: Markers: Edit	X	
Review: Markers: Remove	X	
Review: Markers: Overlay	X	
Review: Tools	X	
Review: Tools: Clip	X	
Review: Tools: Redact	X	
Review: Delete	X	
Review: Download	X	
Review: Download: Audio	X	
Review: Download: Multiview	X	
Review: Change Author	X	
Review: Edit Information	X	
Review: Evaluation	X	
Review: Evaluation: View Option Values	X	
Review: Evaluation: View Field Values	X	
Review: Evaluation: View Total Value	X	
Review: Evaluation: Edit	X	
Review: Edit Sharing	X	
Review: Edit Sharing: Link	X	
Review: Change Author	X	

Review: Edit Retention	X	
Schedule	X	
Schedule: Add	X	
Schedule: Exceptions	X	
Schedule: Edit	X	
Schedule: Edit: All Authors	X	
Schedule: Delete	X	
Schedule: Sharing	X	
Schedule: Change Author	X	
Schedule: Retention	X	
Schedule: Control	X	
Schedule: View All Authors	X	
Reports	X	
Reports: Add	X	
Reports: Edit	X	
Reports: Delete	X	
Admin	X	
Admin: General	X	
Admin: General: Software Information	X	
Admin: General: Global Settings	X	
Admin: General: Media Servers	X	
Admin: General: Customization	X	
Admin: Templates	X	
Admin: Rooms	X	
Admin: Users & Groups	X	
Admin: Users & Groups: LDAP	X	
Admin: Users & Groups: LDAP: User Import	X	
Admin: Users & Groups: LDAP: Servers	X	
Admin: Users & Groups: LDAP: Sync Schedules	X	
Admin: Users & Groups: SSO	X	
Admin: Logs	X	
Admin: Help	X	
Admin: Media Servers	X	
Admin: Containers	X	
Admin: Update	X	
Admin: Multi-Delete	X	

Rooms	X	X
Video Access	X	X
Default Retention Rule	X	
I/O Record Name	X	
Max Record Duration	X	
Schedule View	X	
Reports View	X	
Search Results View	X	
Search Results Display Columns	X	
Filters	X	
Views	X	
Restricted Access	X	X
Expiration Date	X	X
Review List Period	X	
Email		X
Mobile PIN		X
Card Number		X
SSO/SAML IDP		X
Display Name		X
Control Type		X

Software Backups & Maintenance

Our software runs on Ubuntu 16.04 LTS. It does not come preconfigured with any automated backup software. From a redundancy perspective, our hardware does ship with different RAID levels for the different volumes (typically RAID1 mirror for OS and software and RAID5 for video storage volume). It is recommended to backup the MySQL database (v3). This database contains all the unique software settings and video pointers required to rebuild the OS volume. If you have an existing backup system to integrate with that is recommended, and if you do not wish to perform MySQL backups, a cronjob can be set up on the server.

Example:

0 0 * * * mysqldump -uroot -padmin51 v3 | gzip -c > /usr/local/valt/backup/v3_`date "+\%F_\%T"`.sql.gz

0 1 * * * find /usr/local/valt/backup/ -type f -mtime +7 -name '*.gz' -print0 | xargs -r0 rm –

Some customers also opt to create a backup of the video files. The video volume mount point for this is **/usr/local/WowzaStreamingEngine/content/valt_recordings**

Video can be moved from media server to media server at any time, so additional media servers can be added when you are running low on disk space. Where the video resides physically is transparent from an end user perspective.

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