**Technology Name:** *Enter technology name.* **Date:** *Enter a date.*

**Vendor:** *Enter vendor name.*

**Vendor Contact:**  *Enter vendor contact completing the questionnaire.*

## Vendor instructions: The IT Evaluation Process is a set of activities and procedures referring to the acquisition of new applications, technology, or technology devices. It is the goal of the UC Davis Health (UCDH) to ensure new applications, technology, and devices adhere to current Information Technology, Clinical Engineering, and Security standards to safeguard patient privacy, enable organizational efficiencies, and provide overall protection of UCDH’s technology assets.

## For the purpose of this questionnaire, the term “technology” refers to any system, device, application, software or appliance, used in the new technology under review. If a question does not apply to your product, enter N/A. Certain IT functional areas may request a conference call to receive clarification on answers if necessary. Contact your IT Sponsor should you have any further questions.

## Application Management

1. How many back versions of the technology are supported? (current release plus prior two releases)
2. How long has the most current release been on the market? What is the technology’s projected sunset date? Is a new project planned?
3. Is customer/technical support available for this technology?
4. What customer/technical support hours of coverage are available for this application?
5. What are the Regulatory or third-party factors to be accounted for in managing and maintaining application? (CAP, Joint Commission, FDA)
6. As related to accessibility do you have independent certification indicating compliance with the WCAG 2.2 guidelines or sections 504 and 508 of the Rehabilitation Act and the American Disability Act, and if so by whom?
7. As related to accessibility if not fully compliant, what is your roadmap to become complaint as addressed in the WCAG 2.2 guidelines or sections 504 and 508 of the Rehabilitation Act and the American Disability Act.
8. Does your system display, store, report, or transmit name or gender information?
9. Does your system require legal name(s)? (Y/N) If Yes, provide additional information regarding the use of legal name in the system.
10. Does your system have a lived (or preferred) name field? (Y/N) If Yes, provide additional information regarding the use of lived or preferred name in the system. If not, can this field be added?
11. Does your system have a gender field? (Y/N) If Yes, does this field allow woman, man and nonbinary options in all physical/hard copy or virtual/electronic options? If not, can the non-binary field be added?
12. Do your application/ clients able to tolerate 30ms latency? If not, please explain.
13. Do your application/clients able to tolerate the distance of 900 miles? If not, please explain.

**System Integration**

1. Can the new technology integrate with Epic’s EMR?
2. If yes to the above question for EMR integration, be specific with the type of data that can be sent or received (Registration-ADT, Orders, Results, and Transcriptions). If others, please specify.
3. Can the new technology be integrated with Non-EMR systems, devices existing databases or applications?
4. Does your Technology support Bi-Directional Data Integration? If not, specify which direction is supported-outgoing or incoming, typically from which system.
5. What type of communications protocols are used by the new technology for integration?   
   (TCP/IP, SOAP, HTTPS, sFTP) If others or proprietary, please specify.
6. What message structures are supported by the new technology for integration? (HL7 ver2, HL7 ver3, EDI, Fixed Length, and XML) Provide a list of all, if other or proprietary, please specify.
7. How is patient identified in your technology? Do you rely on HL7’s ADT? How is the patient linked to the correct device data? Please specify.
8. Does the technology support encryption of the data (data in motion)?

## Barcode Scanning and Printing

1. Devices which need to read barcodes to identify patients, orders, or specimens:
   1. How are patients identified in your system, and how is the data parsed?
      1. Examples:
         1. Patients are identified by a single ID (MRN), regardless of how often data is stored for that patient.
         2. Patients are identified by an MRN, and by a ‘Visit’ or ‘Encounter’ number, with potentially multiple data points per encounter.
         3. It is the individual specimens which are identified, then linked to an MRN or Encounter for the patient.
            1. Either by a Specimen ID accessioned in Epic, or
            2. An Order ID set in Epic.
      2. What patient and visit identifying information is obtained from the EHR?
         1. Name, DOB, Gender, etc.
         2. MRN
         3. Visit/Encounter number
         4. Order number
         5. Specimen number
   2. What type of ID numbers can be used when scanning a patient?
      1. MRN (one per patient)
      2. Visit/Encounter number (one per visit, multiple per patient).
      3. Order number (multiple per visit and per patient).
      4. Specimen ID
   3. What type of barcode symbols can be scanned?
      1. Linear (i.e code39, code128)
      2. Aztec
      3. Data Matrix
      4. PDF417
      5. ISBT128
      6. 2D
      7. Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. When scanning, can your system:
      1. Handle IDs with prefixes (strip out the prefix)?
      2. Reject IDs without the proper prefix (require prefixes)?
      3. Reject IDs which do not meet certain requirements (at least 12 digits long, or no more than 7 digits long)?
   5. Does the device require a certain amount of ambient light, or does it provide light when scanning?
   6. How does your device read the barcode symbol (photo, laser, etc.)?
   7. What is the minimum readable size of the barcode symbol for your device?
   8. What is the required white space around the barcode symbol?
2. Devices which print identifying barcodes for patients, specimens, or documents:
   1. How durable are the barcodes (do they stand up to liquids, solvents, heat, freezing, etc.)?
   2. What types of symbology is available (types of linear and 2D symbology such as 3 of 7, Aztec, PDF417, Data Matrix, ISBT128, etc.)?
   3. What are the largest and smallest symbol elements available?
      1. Is there a continuous range in between, or only certain steps are available?
         1. Example – TT fonts which can be set to any point including 10.5, vs. fonts with only 8, 10, 11, 12, and 14 available.
   4. What are the contrast limits (difference between black and white elements in the barcode)?
      1. For instance, in the past we’ve had to turn up the contrast on some printers to get labels the produce to scan properly.
   5. Are there any intervening factors which could affect readability (in OR, barcodes might need to be read after being exposed to blood or bodily fluids, etc.; while for years IP has used a system which required armband barcodes to be put under a frosted cover)?
3. For devices which scan patients or items:
   1. What options are available for end users when scanning fails?
4. What manuals and/or training are available to program the device?

## Imaging & DICOM

## 1. What type of content will be generated? (reports, images etc.)

## 2. File Format? PDF, JPEG, Text File, DICOM?

## - If DICOM, provide DICOM Conformance statement.

## - What is the average file size of the images?

## 3. How is the content acquired?

## 4. How & where will the content be stored?

## 5. How will the content generated be accessed/retrieved?

## Desktop PCs & Peripherals

1. Does the technology match the UCDH IT Technology Standards below?   
   Please provide details (Workstation configuration, OS, printing requirements, display requirements, peripherals)   
   • 64-bit (x64) processor

• 8 GB RAM minimum

• 100 GB available hard disk space minimum

• Windows 10 Enterprise 64-bit Compatible or Apple OS

• Modern Browser Compatible (Any Legacy Internet Explorer requirements?)

• Native Encryption Compatible

• McAfee Anti-Virus Compatible

1. Is the hardware supplied by H8 or Vendor? If vendor provided, will it also be supported by vendor?
2. Is there a need for desktop software or other client utilities? Are there any custom install command lines required for Centralized packaging and deployment?
3. Does your technology support mobile devices? (PDAs, tablets, Smart phones) If yes, provide specific details and list special configuration and required software.
4. Does the technology support a Central Authentication and Authorization Store such as Active Directory for local applications or ADFS/SAML 2.0 for SaaS based applications?

**Enterprise Messaging**

1. Does this technology reside within UCDH or external (e.g.: Cloud, Hosted, etc.)?
   1. If external, where are these services (e.g.: Company, Azure, AWS, etc.)?
2. Does this technology have a messaging or email capability?
   1. If so, by what means (e.g.: SMTP, SMS, etc.)?
   2. Will this communication be internal only, or include external recipients?
   3. Will this communication contain PHI/PII?
   4. Does it need to send on behalf of an @ucdavis.edu address?
3. Does this technology support encryption?
   1. If so, what type (e.g.: TLS, S/MIME, etc.)?
4. Does this technology have a Mail Transport Agent (MTA) or relies on UCDH services?
5. Does this technology have spam/malware/virus hygiene?
6. Does this technology have logging/auditing capabilities on the messaging/email component?

## Network/Telecom

## Wired Networking

1. Explain the data flow? Identify the starting point with location, the destination where data will be transmitted to, and how the data will be used? If the data traverses through multiple devices, provide a simple network diagram with the device names, locations, and connections (wired/wireless).
2. List all devices which will be installed in the UCDH network.
3. Does the technology require its own dedicated or proprietary network?
4. Is this technology software as a service (SAAS), platform as a service (PAAS), infrastructure as a service (IAAS), or any other type of cloud service? If no, move to question 7. If yes, answer questions 5, and 6.
5. Who is responsible for managing the cloud environment?
6. How do the customers access this cloud service? Is there a LAN-to-LAN VPN tunnel required or the service is available publicly?
7. Will this technology require static or DHCP IP address?
8. How many switch ports are required and what are the physical interface requirements? (Ethernet, fiber)
9. How much bandwidth does the technology requirements and what are the network latency requirements?
10. Does the technology provide for or require redundancy? Please be specific in the requirements.
11. Will there be data access/transmissions with any entities outside of UCDH? (Patients, Physicians, other businesses).
12. Explain in detail how the application will send and receive data? (e-mail, HTTP/HTTPS, FTP, telnet, secure mail, or other)
13. Is there a proprietary interface or TCP/IP communications via Ethernet (or other)?
14. Do the technology and devices need to be in the same subnet?
15. Does the technology depend on IP Multicast for any functionality? If so, can it use a UCDH assigned multicast group IP?
16. Will the technology be managed remotely? (Maintenance activities performed by a service person via a VPN connection or any other remote connection)

**Wireless (Wi-Fi) Networking**

1. What wireless authentication methods and encryption does the technology support?   
   (802.1x, MS-CHAP, PEAP, LEAP, WPA, WPA2)
2. Do you require your own wireless infrastructure, or can the technology use shared access points with UCDH’s existing 802.11a/bg/n Cisco infrastructure?
3. Can the technology run on a shared SSID or does it require its own dedicated SSID?
4. What radio frequencies does the technology support? Please provide specifics that include power, frequency, modulation techniques (Bluetooth, 2.4 GHz, 5GHz, 100 milliwatts, Wi-Fi)
5. Will the vendor accept a third-party wireless coverage survey or will the vendor require their own?
6. How much bandwidth does the technology require?
7. Provide the locations where these devices will be used.
8. Are there implementation requirements related to best practice configurations to use Cisco Wireless Controllers?
9. Has the technology been tested with AssureWave controller versions? Please specify.
10. What is the minimum receiving signal level (RX) requirements from the AP in order for the technology to operate successfully?

**Voice and Video Services**

1. Does the technology require voice services? (Voice Over IP, POTS, Digital, T1) If Yes, can the technology leverage our Call Manager version 10.x or NEC PBX?
2. Does the technology support or require SIP integration with Cisco call manager version 10, 11, or 12? If yes, please provide SIP configuration requirements. (Authentication, protocols)
3. Does the technology require voice communication lines? (POTS, Digital, T1) If yes, provide the requirements on how many POTS, Digital, or T1 lines? Location?
4. Is this a video solution? If yes, answer question 5 and 6.
5. Does this register to the gatekeeper or a SIP registrar?
6. Does this communicate with external video devices?
7. Does this product use webRTC?

## Data Management

1. What type of storage (Local, SAN, NAS) configuration and versions are required?
2. What is the estimated amount of storage needs?
3. Backup and Restoration - What data is stored and for how long? Online? Other media? Archived? Please provide specific details.
4. Are there any regulatory requirements regarding data retention? If so, how is this accomplished?
5. Does the technology have an archive and compliance function? If so, how is this accomplished?
6. Is replication required? If so, is it application based or storage server based? Please provide details (remote vs. local)
7. Is there a defined minimum performance requirement (IOPS, throughput, latency)? Please provide specifics details.
8. Does the technology support Tivoli Storage Manager backup client?
9. Does the technology have an integral data backup capability (Backup onto removable media like tape, disk)?
10. What database engine (SQL Server, Oracle, Cache, Sybase, DB2), is required?
11. What version of the DB Engine is certified and what version is recommended?
12. What is the initial database size requirements?
13. What is the estimated annual growth for an organization similar to UC Davis Health?
14. Does the product support Active/Active DB cluster implementation?
15. What are the Database administration expectations of UCDH versus support provided by the vendor?
16. Does the data stored contain PHI or PII?
17. Does the technology support encryption of the data (data at rest)? (either within the database or at storage level)
18. Are all Database related required licensing included in the product package or must be provided by UCDH?

## Server Technology

## 1. Is your application a fully hosted solution (SaaS) with no on-prem requirements for compute or storage? (If yes, indicate that and skip to question 12)

## 2. Since servers are required in some on-prem fashion, are they provided by the customer or vendor provided? If vendor provided, please describe why and skip to question 10.

## 3. Do you require physical servers (as opposed to virtualized servers) as part of the solution?

## 4. Do you support VMware for virtualization?

## 5. Will you support servers running in Microsoft Azure or AWS?

## 6. Do you require a public cloud service as part of the solution?

## 7. May we utilize platform services such as Azure SQL server instead of virtual machines?

## 8. Is there a requirement for any specialized hardware or PCI card to be installed in the server(s)?

## 9. What minimum system requirements for each server are required? What Operating Systems and versions are supported for each server (Windows, UNIX, Linux, server-based appliance)? Please provide the URL here inline , or the actual documentation for this response.

## 10. Will all server-based application processes run as services or does a user have to be logged in to the server itself for the application to function as though it were a desktop application? If yes, please provide details and the reason and include the steps to reboot the server(s).

## 11. Describe the required servers including the role they fill within the product and describe the architecture for this technology either inline or with supplemental documentation.

## Note: Describe the infrastructure both physically and logically. Describe your support model and the components that you expect to be supported by UCDH (Servers, databases) and which will be supported by the vendor. Include details about each application tier, any specialized hardware required and connections between application tiers.

Answer all the remaining questions even if the solution is fully hosted.

12. Based on all components of your application (web, app, db), what methods of high availability (HA) and/or disaster recovery (DR) are recommended or supported (i.e. will it run in a Microsoft cluster, can it be load balanced, can we have hot spares in a DR site, geo-redundant cloud configuration, etc..)? Is there additional licensing and or cost required for this option?

13. Does your application utilize a client-side application? If so, can the client side application be published in Citrix?

14. If any part of your server application is web based, what web application platform will the application/service use? (ex. Tomcat, JVM, IIS, Websphere, Azure function, etc..)

15. Does any part of your application require Java or a Java virtual machine (JVM) installation on the client or server to function?

16. Are there any hard-coded host names, user names or passwords in your application or required to be used to run or install your application? Hard-coded means they are expected by one or more application components and cannot be changed.

17. Are there any USB or other hardware-based license keys/dongles required for your application?

18. Can the application components be monitored with agent based or agentless monitors or do you monitor them?

**Disaster Recovery**

1. Is your solution used to provide medical care or directly involved in the administration of medical care to patients?
2. Is your solution:
   1. On-prem (i.e. the solution requires the installation of vendor-specified-equipment, physical and/or virtual, in UCDH’s data centers)
   2. SaaS (software as a service, where NO vendor-specified-equipment will be installed in UCHD’s data centers)
   3. Hybrid: On-prem and Cloud (the solution requires the installation of vendor-specified-equipment, physical and/or virtual, in UCDH’s data centers and also the use of public cloud infrastructure).

1. Recovery Time Objective (RTO) is defined as the maximum allowable time between and outage and the resumption of business operations.

If the solution is not available due to an outage, how long can the user department tolerate the loss of its use?

* 1. 15 minutes
  2. Up to 6 hours
  3. Up to 24 hours
  4. Up to 5 days
  5. Up to 30 days

1. Recovery Point Objective (RPO) is defined as the maximum amount of lost data that business can sustain due to an outage period.

If the solution is not available due to an outage, what is the maximum amount of lost data the user department can tolerate, measurable in time?

* 1. 15 minutes
  2. Up to 4 hours
  3. Up to 24 hours

1. Backup and Restoration: What data is stored and for how long? Online? Other media? Archived? Please provide specific details.

Note: Duplicate of question #3 – Data Management. Please review and add any relevant facts.

1. Are there any regulatory requirements regarding data retention? If so, how is it accomplished?

Note: Duplicate of question #4 – Data Management. Please review and add any relevant facts.

1. Does the technology have an archive and compliance function? If so, how is it accomplished?

Note: Duplicate of question #5 – Data Management. Please review and add any relevant facts.

1. Please describe the solution’s Disaster Recovery plan and it’s documentation
2. Please describe if you will help UCDH develop, maintain and test the solution’s Disaster Recovery plan and how often will this be done.
3. If Disaster Recovery is solely the solution vendor’s responsibility, please describe how you develop, maintain and test the Disaster Recovery plan and how often will this be done?

## IT Facilities

1. Does the technology use active or passive RFID technology? Provide specifics.
2. Does the technology require integration with building access or physical security systems?
3. Does the technology require digital video, WebEx or AV solutions?
4. Does the technology require integration with overhead paging, Vocera technology or PA system? Any other alarm routing (via nurse call, via wireless, via additional hardware, via pagers)? Please specify.
5. If technology is server based, is the server equipment vendor provided or UC provided? If vendor provided, is it rack mountable in existing UCDH Racks?
6. What are the power, space, and cooling requirements for the technology?
7. What are the cabling and cabling infrastructure requirements for the technology (CAT 6A, more than one cable, shielded)? Any other cabling? (KVM, STP) Please specify.
8. Is the vendor provided hardware OSHPD approved? If so, please provide the OPA or OPM

## Clinical Engineering (Bio Med)

1. If this is an FDA-regulated technology please supply 510K, PMA or other FDA authorization to market the device.
2. Provide a network diagram and / or data flow description end-to-end for this technology.
3. Does this technology send or receive any real-time data? (Waveforms, alarms) Please include latency requirements.
4. Are the data/waveforms in the above question cached or queued?
5. Can software or hardware not authorized by the technology manufacturer be installed on the technology?
6. Can UCDH apply OS security patches (Microsoft patches) without medical device manufacture validation?
7. Does the technology support anti-virus software? Which anti-virus software is recommended and describe any restrictions on the installation, use and update?
8. How frequently can the technology accept interfaced (inbound) data? Please provide specifics.
9. How frequently does the technology send data (outbound)? Please provide specifics.
10. Does the technology support IHE Integration Profiles (either directly or via an intermediary such as a gateway)? If yes, describe and provide IHE Conformance statements and Connection results.
11. Provide a completed copy of the NEMA MDS2 form HN1-2019.