The Rector and Visitors of the
University of Virginia

On behalf of its Medical Center

Request for Proposal #FJR-050318

Image Sharing Platform Services

Issued By:
Medical Center Procurement
Division of Supply Chain Management
University of Virginia Medical Center
Charlottesville, Virginia

May 3rd, 2018
A. GENERAL INFORMATION

Request for Proposal (RFP) Name: Image Sharing Platform Services

RFP Number: #FJR-050318

Issue Date: May 3, 2018

Brief Description: The Rector and Visitors of the University of Virginia, a Virginia public corporation, on behalf of its Medical Center (hereinafter “Medical Center”, “UVaMC”, “UH” or “University”) seek an experienced firm to provide equipment/goods/services to assist in the implementation, testing, training and support of a single platform for viewing and processing DICOM images sent to UVA medical center for import into PACS.

Pre-proposal Questions and Communications: Any questions and communications concerning this RFP must be sent to and through the Senior Contract Negotiator (SCN) listed below, or as otherwise indicated.

Optional Pre-proposal Conference: An optional Pre-proposal Conference will be held on Friday, 05/11/2018 @ 1:00 p.m. EDT at 1300 Jefferson Park Avenue, Room 1951, Charlottesville, Virginia 22908 (map may be viewed at this web site: http://www.virginia.edu/Map/). The purpose of the Pre-proposal Conference is to allow potential interested parties an opportunity to present questions and obtain clarification relative to any facet of this RFP. While attendance at this conference will not be a prerequisite to submitting a proposal, interested parties who intend to submit a proposal are strongly encouraged to attend. Vendors may bring a maximum of two (2) attendees to the conference. Bring a copy of the solicitation with you.

Firms planning to attend the Pre-proposal Conference should notify SCN either by email (fjr5w@hscmail.mcc.virginia.edu) or telephone (434-297-7842), no later than COB 5:00 p.m. EDT on May 7, 2018 of the names, titles, and phone numbers of the individuals who will attend.

Proposal Due Date: The due date for this proposal is 5:00 p.m., June 3, 2018. Proposals are to be sent using the contact information below. By mail, provide minimum of fourteen (14) copies of each proposal and a full electronic version of the RFP, either sent electronically or on CD ROM with the response. The University of Virginia (the “University”) may, at its discretion, accept late proposals if it is determined to be in the best interest of the University.

Negotiations: On site negotiations, if needed, will be held the week of June 11, 2018.

Site Visits: Site visits, if required, will be conducted during the weeks of June 25, 2018.

Expected Award Date: August 1, 2018
Term of Agreement: The term of a resulting Agreement or Purchase Order will be for three years, with the ability to renew on the same terms and conditions, for two additional one-year periods if mutually agreeable to the University and the Selected Firm. The Selected Firm and the University will mutually agree at least 180 days prior to each renewal period whether to renew the terms of the Agreement.

Refer all questions to: University of Virginia Medical Center
Department of Medical Center Procurement
1300 Jefferson Park Avenue, Room #1951
P.O. Box 800705
Charlottesville, VA 22903
Attention: Joe Rodish
Phone: 434-297-7842
Fax: 434-982-4354
Email:fjr5w@hscmail.mcc.virginia.edu

This Request for Proposal (RFP) has been posted on Procurement Services web site for your convenience. Addenda and attachments are posted if issued. The RFP can be downloaded at this web site: http://www.healthsystem.virginia.edu/internet/scm. It is the firm’s responsibility to ensure that the latest version of the entire RFP and related links are reviewed prior to submission of a proposal. We encourage you to check the web site frequently for any changes prior to the due date. Call Marjorie Chambers (434) 924-9374 if you have trouble accessing the RFP from the web. For questions about the content of the RFP, contact Joe Rodish listed above.

For ease of reference, each firm or individual receiving this RFP is referred to as a “firm” and the firm or individual selected to provide services for the University is referred to as the “Selected Firm.” This RFP states the instructions for submitting proposals and the procedure and criteria by which a firm may be selected.

Overview of the Medical Center:
1. UVaMC Locations and Services

The UVA Medical Center houses the outpatient and inpatient clinical portion of the University of Virginia Health System which also includes the Schools of Medicine and Nursing, the Claude Moore Health Sciences Library and the UVA Physicians Group (UPG). Inpatient and outpatient services are provided in a number of geographic locations which must be served by clinical and financial information systems. The Health System has routinely been included in rankings of high quality providers including Magnet recognition for superior nursing processes and quality patient, U.S. News and World Report’s Best Hospitals and Best Children’s Hospitals (7 nationally ranked specialties in 2016), and Best Doctors in America. Plans are underway for additional future facility and clinical program development which will be integral parts of the patient, family and clinician experience. The current and future array of services and sites include:

a. University Hospital (UH)

A full service, 10-story, 800,000 square foot academic medical center originally opened in 1989 offering the comprehensive array of inpatient and outpatient diagnostic, treatment and support services, serving a wide geographic region extending beyond Virginia into West Virginia, North Carolina, Maryland and beyond, including primary through quaternary care. It is staffed by more than 7,000 clinicians and staff, as well as over 1,000 volunteers. UH includes a Level I Trauma Center and a Level 4 Neonatal Intensive Care Unit. Ground and air transportation capabilities support and allow transport of patients from accident scenes, other hospitals and other locations. The inpatient services consist of approximately 600 beds. A hospital expansion project is underway that will renovate and expand the Emergency Department, expand interventional services and convert most of our semi-private patient rooms to private rooms. UH also has a 20 bed short stay unit, providing short term care for post procedure and observation patients.

b. UVA Children’s Hospital

UVA Children’s Hospital provides primary and specialty care in more than 30 specialties to children throughout Virginia. It is nationally ranked by U.S. News & World Report and includes a hospital-within-a-hospital at UVA Medical Center with
111 beds, a dedicated pediatric emergency department, a Neonatal Intensive Care Unit for infants, a Pediatric Intensive Care Unit for children younger than 18 and the UVA Child Health Research Center. The Battle Building, opened in 2014, consolidates outpatient children’s care at a single location in Charlottesville.

i. The 200,000-square-foot Battle Building at UVA Children’s Hospital is consolidating UVA's outpatient care for children. It brings together hundreds of doctors and healthcare staff devoted to caring for kids and families into a building designed to place children at ease and promote healing. Children can receive primary care as well as care from pediatric providers in dozens of specialties, including allergy, cardiology, hematology/oncology and teen health.

ii. Outreach Clinics – Physicians conduct Field Clinics throughout Virginia, providing pediatric subspecialty care in at least seven communities not able to support key subspecialties.

c. University of Virginia Outpatient Surgery Center

Located within the Battle Building, the Outpatient Surgery Center is comprised of twelve ORs and two procedure rooms as well as recovery room and related support services. A full array of anesthesia and surgical services is provided in this setting. Patients can be easily transported from the center to the UH if necessary for additional care or overnight stay if needed.

d. UVA Transitional Care Hospital

A 40 bed long term acute care hospital was established to expand the UH inpatient bed capacity and enhance operations and financial stability by relocating patients who require high intensity medical services with lengths of stay exceeding 25 days.

e. Emily Couric Clinical Cancer Center

The Emily Couric Clinical Cancer Center, located across the street from University Hospital, which provides the full array of services needed by patients with all kinds of cancer. The vision of those who planned the cancer center is that it will be “a place where families can come to be supported in their fight against cancer, knowing that they will receive the most advanced therapies possible. It is a place where their humanity will be valued, their individuality honored, and their intellectual, emotional, and spiritual struggle sustained.” The Emily Couric Clinical Cancer Center is designed to accommodate advances in such areas as genetic diagnosis and analysis, informatics, and molecular biology and is organized so that all disciplines and services can easily be brought to the patient to provide individualized care that is both sophisticated and tightly integrated. At the same time, the building is the center of a community that extends for hundreds of miles in all directions. The Emily Couric Clinical Cancer Center houses all outpatient services for adults diagnosed with cancer, including:

- Comprehensive services for patient-centered care
- Complete radiation-oncology treatment services
- Clinical trials office
- Complete patient and family services
- Clusters of exam and consultation rooms
- Telemedicine capabilities: Immediate and constant access to patient information is one of the most important conditions for the multidisciplinary care of cancer patients and is a foundation of success in this endeavor.

f. UVA-Health South Rehabilitation Hospital

A joint venture 40 bed rehabilitation hospital is located at Fontaine Research Park; this facility provides comprehensive rehab services for UVA and other patients needing such services who have been discharged by local hospitals.

g. Outpatient Services On Grounds
A wide variety of outpatient clinics are located in several sites in the vicinity of UVA. All are connected by enclosed walkways. The onsite clinics include:

- **Primary Care Center** – primary and specialty services located in a 125,000 square foot clinic adjacent to University Hospital; opened in 1977:
  - Dermatology
  - EEG and EP
  - Family Medicine
  - Heart and Vascular Center
  - Neurology
  - Gynecology
  - Pulmonary
  - Gamma Knife

- **West Complex** – an eight story 240,000 square foot facility constructed in 1960 and renovated over the past 20 years. Outpatient specialty services, in addition to administrative and office space, include:
  - Breast Care Center
  - Ophthalmology
  - Plastic Surgery
  - Kidney Center (Dialysis) and Kidney Center Clinic
  - Neurosurgery
  - Surgery Clinic
  - Urology
  - Transplant Clinic
  - Infectious Disease
  - Travelers Clinic

### Outpatient Services Off Grounds

A need for additional space as well as a desire to be more accessible and convenient for patients resulted in the development and expansion of services in sites off the main UVA grounds:

- **Fontaine Research Park** – subspecialty clinics, including Diabetes Education, Primary Care, ENT, PMR, Orthopedics, Hand Center, and Pituitary Clinic
- **Northridge** – a 60,000 square foot medical office building located about 4 miles west from UVaMC, constructed in 1989 and including primary and subspecialty clinics:
  - Cardiology and Thoracic Cardiovascular Surgery
  - Internal Medicine
  - Ophthalmology
  - Pediatrics
  - Women’s Center – obstetrics, gynecology, Midlife Center, mammography
- **Orange** – Medicine, pediatrics, some medical specialty clinics
- **Continuum Home Health & Home Infusion** – home health provides services in 15 localities and home infusion in Virginia and North Carolina
- **Provider Based Primary Care locations** – primary care practices located in communities surrounding Charlottesville operated as Provider Based Clinics, including Zion Crossroad Clinic, Stoney Creek Clinic, and Albemarle Family Medicine clinic
- **Regional Primary Care** – seven primary care offices owned and managed by UPG located primarily in rural regions surrounding Charlottesville including the Shenandoah Valley
- **Teledmedicine Program** – UVA Health System provides telemedicine services throughout Virginia, serving rural communities and prisons with specialty care not routinely available.

### UVA Imaging

A joint venture with Outpatient Imaging Associates (OIA) provides comprehensive imaging services at the Fontaine Research Park and Northridge. The UVA Department of Radiology provides medical staff for the centers, which provide accessible, patient-friendly services that are convenient for patients seen at UVA Clinics primarily at that location including Orthopedic Surgery and Physical Medicine and Rehabilitation.
j. **Partnerships and collaborations**

The MC has cultivated and values a distinct complement of partnerships and collaborations across the region. These include:

- **Novant Health UVA Health System** – a regional health system that includes three medical centers
- **Collaborations for specialty care with Bon Secours Health System**
- **Program of All-inclusive Care for the Elderly (PACE)** a collaborative with JABA and Riverside Health
- **Radiosurgery Centers with Riverside Healthcare**
- Management services and medical direction for the stereotactic radiosurgery and stereotactic body radiotherapy services at Winchester Medical Center
- **Collaboration with Hospice of the Piedmont to provide a 10-bed inpatient hospice unit at the UVA Transitional Care Hospital**
- **A pediatric liver transplant partnership with Children’s Hospital of Pittsburgh of UPMC**

2. **Customer Related Entities and Affiliates:**

- **Related Entities.** UVa Physicians Group (UPG), its majority owned subsidiaries listed below, and the University's majority owned subsidiaries listed below shall hereinafter be referred to as "Related Entities." UPG is the University of Virginia Physicians Group, a Virginia not-for-profit corporation that furnishes clinical services, including the practice plan for physician faculty at the University. The majority owned subsidiaries are: Community Medicine University of Virginia LLC, Virginia Urologic Foundation and University of Virginia Imaging LLC.

- **Affiliates.** Customer Affiliates include but not be limited to, health care providers, of whatever legal form, that UVA or the Related Entities owns or controls, or with which UVA or the Related Entities has entered into an agreement for the furnishing of health care services (or services directly in support of health care services) for consideration, or which are physician practices which refer patients to the University, whether under the University's existing organizational and network structure or under future arrangements. Examples include Riverside UVA Radiosurgery. However, the term "Affiliate" does not include a Health Care Software Vendor or an entity that furnishes primarily data processing services as, or predominantly in the nature of, a data processing service bureau.

**B. SCOPE OF GOODS & SERVICES**

I. **SCOPE OF GOODS AND SERVICES**

The University of Virginia Medical Center is seeking a firm to satisfy the resource needs necessary to provide a single platform for viewing and processing DICOM images sent to UVA medical center for import into PACS.

The proposed solution is required to answer the following criteria and demonstrate/describer their abilities to:

- Accommodate the current state based on the Background information (Section B.II) listed below;
- Have the ability for the requestor to view the images and decide to either store the images in UVA PACS for referral purposes and/or request an over-read by our specialized radiologist or decide to discard the images;
- Have the ability to expand (scalability) to accommodate growing demands of the business;
- Integrate with UVAMC'S Electronic Medical Record System (EPIC);
- Create a single worklist for Image Management;
- Eliminate requirements for redundant manual entry;
- **EPIC order is entered by the requestor;**
- Create a Standard work that is efficient and streamlined;
- Study Content Notification (SCN) is created for each study
- Eliminate storage of studies that are not required; and
- Ensure that all studies in UVA PACS are documented in EPIC
II. BACKGROUND/CURRENT STATE
Today’s Standard work for identifying and documenting outside images ingested into UVA PACS relies on manual entry and is prone to errors. Multiple systems are needed to complete this work and there is no single worklist to identify studies.

The current state is a web-based service that allows UVAMC to receive or send DICOM objects from its partner sites as well as to provide a rapid receiving solution for ad hoc requests from non-established sites, i.e. goodwill patient care situations. UVAMC does have several clients set up on site to help distribute load, but these are virtualized. The current service is being “sunsetted” by the incumbent service provider.

Since 2005, Radiology and Medical Imaging has been ingesting DICOM images from external facilities into our PACS.
- DICOM images are received into UVA PACS by either VPN direct connection (currently 80+ sites), or CD/DVD import.
- Total Volume ingested the past 12 months:

- This volume only includes studies that have been documented in EPIC. If the study is not documented in EPIC, users do not know the study exist in our PACS. Approximately 50% of the studies ingested are documented. This is caused by manual entry errors or outside sites not sending fax notification along with images.
- Documentation relies on sending sites either providing a CD/DVD or fax notification. Once CD/DVD or notification is received the end user creates an ancillary order in EPIC (this generates a accession number and provides patient MRN), locates the outside images in PACS and documents external MRN and accession number, then accesses PACS database admin and changes external demographic data to UVA demographic data. This information is inputted manually.
- Currently there is no systematic way to validate the demographic data on the images versus the data on the EPIC order. Therefore end users are required to double check their work, but errors are still identified and normally not discovered until the images are accessed by either healthcare worker or patient.

C. BASIS OF SELECTION
The Medical Center will evaluate proposals and, if a firm is to be selected, select the firm on the basis of:

1. The firm’s plan to assist the Medical Center to meet its goals and requirements as discussed in this RFP including its Section B: Scope of Goods and Services.
2. The firm’s relevant experience, qualifications and success in providing the goods and/or services outlined in this Request for Proposal.
3. The firm’s references from institutions of higher education, teaching hospitals, and clients who are comparable to the Medical Center.
4. The firm’s financial proposal.
5. The quality of the proposal, specifically, the provision, adequacy and completeness of your response.
6. The contractual terms that would govern the relationship between the Medical Center and the Selected Firm. The firm will be deemed to have fully accepted the Medical Center’s Contractual Provisions: http://www.medicalcenter.virginia.edu/scm/, unless specific modifications are requested in the firm’s written proposal, with an explanation as to why such modifications are required by the firm.
7. The firm’s Small, Woman-owned and Minority-owned (SWAM) businesses status and/or the firm’s plan for utilization of SWAM businesses.
8. Any other relevant factors as determined solely by the Medical Center.

D. CONTENTS OF PROPOSAL

Proposals should be prepared simply and economically, providing a straightforward, concise description of capabilities to satisfy the requirements of the RFP. Emphasis should be on completeness and clarity of content, and should be organized in the order in which the requirements are presented in the RFP. Firms should provide the following information:

1. A brief history of the firm and its experience, qualifications and success in providing the type of product requested.
2. A detailed description and the full specifications of the product/equipment/services proposed. Each firm should indicate in their proposal the firm’s ability to achieve / comply with each specification. In the event that the firm wishes to propose an alternate specification that, in any way, differs from the above specifications, the firm should detail their proposed change(s) and how the proposed change would compare to the listed specification. Proposals should be formatted in such a way to address each of the above specifications in a line-by-line process.
3. The estimated ship date of the product from the time of the order (i.e., 10 wks after order)
4. Information on the warranty associated with the product you are proposing and any extended warranty (include the price) that might be available.
5. The firm’s proposed price / fee for providing the Goods and Services, to include shipping charges (the University’s shipping terms are FOB Destination), and description of invoicing process.
6. The firm’s capacity for accepting electronic payments through Electronic Data Interchange (EDI) or Automated Clearing House (ACH) and any additional discounts that may result from paying electronically.
7. At least three references where similar goods and/or services have been provided. Include the name of the firm / organization, the complete mailing address, and the name of the contact person and their telephone number.
8. The firm’s Small, Woman-owned and Minority-owned (SWAM) businesses status and/or how the firm intends to utilize SWAM firms in regards to this particular procurement.
9. An authorized representative of the responding Firm shall sign proposals. All information requested should be submitted; the Medical Center may reject proposals that are substantially incomplete or lack key information.
10. Each copy of the proposal and all additional documentation submitted should be bound or contained in a single volume where practical. Responders shall provide minimum of ten (10) copies of each proposal and a full electronic version of the RFP, either sent electronically or on CD ROM with the response.
11. Ownership of all data, materials, and documentation prepared for the Medical Center pursuant to this RFP shall belong exclusively to the Medical Center. Once an award is announced, all proposals submitted in response to this RFP will be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by a firm as part of its proposal will not be subject to public disclosure under the Virginia Freedom of Information Act if the firm invokes the protections of Virginia Code Section 2.2-4342(F) in writing and follows its stated requirements prior to or upon submission of its proposal. A firm may not request that its entire proposal be treated as a trade secret or proprietary information. Nor may a firm request that it’s pricing be treated as a trade secret or proprietary information, or otherwise be deemed confidential. The Medical Center shall, upon receipt of any request under the Virginia Freedom of Information Act for materials that the Firm has identified as trade secrets or proprietary information in conformity with the requirements of Virginia Code Section 2.2-4342(F), notify the Firm that a request has been received, before responding to the request. Except as may be required by applicable law, the
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Medical Center shall not voluntarily disclose the designated trade secrets or proprietary information without prior written approval of the Firm.

12. Complete and return the information requested in Attachment 1, Firm Information. State point of contact information to include name, address, office telephone number, mobile telephone number, facsimile number and email address.

13. Provide the Medical Center with a written statement of any requested modifications to the Medical Center’s Contractual Provisions: [http://www.medicalcenter.virginia.edu/scm/](http://www.medicalcenter.virginia.edu/scm/) pursuant to C.6 above. Failure to provide such a written statement will be deemed as full acceptance of the Medical Center’s Contractual Provisions without exception.

The Issuing Office for this Request for Proposal and the location to return the response to is:

<table>
<thead>
<tr>
<th>U.S. Mail:</th>
<th>All Other Deliverers:</th>
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<tbody>
<tr>
<td>Medical Center Procurement</td>
<td>Medical Center Procurement</td>
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<tr>
<td>Division of Supply Chain Management</td>
<td>Division of Supply Chain Management</td>
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<tr>
<td>University of Virginia Medical Center</td>
<td>University of Virginia Medical Center</td>
</tr>
<tr>
<td>P.O Box 800705</td>
<td>1300 Jefferson Park Avenue, Room #1951</td>
</tr>
<tr>
<td>Charlottesville, Virginia 22908</td>
<td>Charlottesville, Virginia 22903</td>
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E. TERMS AND CONDITIONS

I. Awarded firms shall adhere to University and Medical Center Policies and procedures.

II. This solicitation and any subsequent award will be governed by:

   (a) The Selected Firm registering as a vendor with the University of Virginia Medical Center: [http://www.healthsystem.virginia.edu/alive/scm/procurement.cfm](http://www.healthsystem.virginia.edu/alive/scm/procurement.cfm)

   (b) In addition to the Medical Center’s Contractual Provisions: [http://www.medicalcenter.virginia.edu/scm/](http://www.medicalcenter.virginia.edu/scm/), the following Insurance provision will apply:

Insurance. The Medical Center will not execute an Agreement or authorize the provision of goods and services until the Firm satisfies the insurance requirements of the Medical Center. In no event should the Selected Firm construe these minimum required limits to be their limit of liability to the Medical Center. The Medical Center reserves the right to approve any insurance proposed by the Selected Firm. The requirements are as follows:

1. Automobile Liability insurance with a minimum combined single Limit of Liability for bodily injury and property damage of $750,000 per accident on all owned, hired, and non-owned vehicles operated by the Selected Firm’s employees;

2. Commercial General Liability insurance with a minimum combined single Limit of Liability for bodily injury and property damage of $2 million per occurrence, to include premises/operations, products/completed operations, and contractual liability coverage and list the Medical Center as an additional insured, the proper name is: “The Commonwealth of Virginia, and the Rector and Visitors of the University of Virginia, its officers, employees and agents.”;

3. Workers compensation coverage, (i) with Employer’s Liability coverage of at least $100,000 and (ii) which meets all statutory requirements.

4. The Selected Firm will provide the Medical Center with a valid Certificate of Insurance evidencing all required coverage with its proposal, which shall remain in force throughout the terms of any resulting Agreement. The Selected Firm shall only utilize insurers that hold at least an “A-“rating with A.M. Best Company. The Selected Firm shall notify the Medical Center in writing 30 days prior to the termination of any such insurance coverage for any reason whatsoever. The Selected Firm agrees to take no action that prohibits the utilization of this
insurance or limits the liability of the Selected Firm for property damage or personal injury in conjunction with
goods or services provided under this Agreement.

5. For clinical services, the contractual medical malpractice insurance limit requirement is $2,000,000.

6. For professional services, the Professional Errors & Omissions Liability insurance limit requirement is $1 million
   per claim.
ATTACHMENT 1
FIRM INFORMATION

Full Legal Name:_________________________________________________________________
(Company Name as it appears with Federal Taxpayer ID Number)

Address:_______________________________________________________________________

Telephone Number:_____________ Fax Number:______________________________

Web Address:______________________________

eMail Address:______________________________

DUNS Number:______________________________

SWAM Information:

Is your firm certified with the Commonwealth of Virginia’s Department of Minority Business Enterprises (DMBE): YES___ NO____

Minority-Owned YES___ NO _____

Women-Owned YES___ NO _____

Small –Owned YES___ NO _____

Your firm’s point of contact for this proposal:

Name:_______________________________________________

Address:____________________________________________

Office Phone:________________________________________

eMail:_____________________________________________
Greetings:

The quality of service the University of Virginia is able to deliver to its customers is directly related to the excellent support we receive from you and many other outstanding suppliers of goods and services. Without you, we would not be able to fulfill our educational, health care and research missions. An important part of our procurement program involves our commitment to doing business with small, women- and minority-owned (SWaM) businesses. As one of our most important vendors, we look to you to help us achieve this objective.

We conduct substantial business with small firms. We have a particular institutional focus on developing long-term business relationships with minority-and women-owned businesses. We count on our majority firms to help us achieve our goal.

I seek your assistance in two areas. First, to the extent practical, I ask that you involve small, women-and minority-owned businesses in the delivery of services you provide to UVa. The office of Procurement and Supplier Diversity Services is ready to assist you in identifying qualified diverse business partners. Second, I seek your help in reporting your results through our quarterly subcontracting reports. The terms and conditions previously provided to your organization outlined this process.

This effort is important to us. We depend on you in so many ways – this is another way that we can partner with your company to make things better.

Sincerely,

Colette Sheehy
Vice President for Management and Budget
ATTACHMENT 3 (A)
CURRENT INFORMATION TECHNOLOGY ENVIRONMENT
REVISION DATE: 3/9/18

1. LEGACY SYSTEMS AND NETWORK TOPOLOGY

Software Applications:

A. UVaMC supports and maintains Epic Systems applications and has extensive inbound and outbound interfaces to many disparate systems. Epic applications:

   a. EpicCare EMR (inpatient and ambulatory)
   b. Cadence
   c. Prelude
   d. Grand Central
   e. Resolute Hospital & Professional Billing
   f. ASAP
   g. Beacon
   h. HIM
   i. Kaleidoscope
   j. My Chart
   k. Radiant
   l. Stork
   m. Cupid
   n. Optime & Anesthesia
   o. Beaker Lab & Pathology
   p. Home Health
   q. Phoenix
   r. Willow
   s. EpicCareLink

B. Other major clinical & administrative applications supported:

   a. Hyland OnBase Scanning & Image Management System
   b. TeleTracking Transfer Center
   c. 3M 360 Encompass for coding and CDI
   d. For Pharmacy – Pyxis, Talyst
   e. For OR – Microsystems Sterile Processing Management, TrackCore, Stryker, Omnicell, Capsule, Vocera, Endora, High Jump
   f. Sunquest Blood Bank
   g. Cardiology – Agfa Impax, TraceMasterVue, PaceArt, Xcelera
   h. Mosaiq Radiation Oncology
   i. TheraDoc Infection Control System

C. UVaMC uses PeopleSoft for general ledger, asset management, purchasing, accounts payable, inventory, expense, human resources, payroll, benefits, performance management and e-procurement. Payroll, Epic Rev Cycle, UPG GL, and SOM GL interface into the general ledger. UVaMC uses Taleo for recruiting and Kronos for time, attendance, and 24x7 scheduling. UVaMC also uses Hyperion for budgeting. In the future, the Medical Center will use WorkDay for human resources, payroll, benefits, performance management and recruiting.

D. Analytics and Reporting / Enterprise Data Warehouse. UVaMC uses several reporting tools for analysis and reporting. Their primary reporting system uses a SQL Server-based (version 2016) data warehouse. It is used by multiple entities within the University of Virginia, including the Medical Center, the University Physicians Group, and the School of Medicine. Reports are delivered as dashboards, OLAP cubes, various file formats and feeds, and reports in Excel spreadsheets. The reporting tools interfaced with the data warehouse include Tableau, SSRS, SAP Crystal Reports, and Webi.

E. University Physicians Group (UPG), a private, non-profit organization provides billing, collections and business operations for 21 clinical departments of the Medical School and 18 primary care satellite practices. UPG supports and maintains SCR for budget, Epicor for general accounting, UltiPro for payroll/personnel, and OnBase Accounts Payable application.
F. HYLAND’S ONBASE APPLICATIONS ARE USED TO SCAN, RETRIEVE, AND VIEW IMAGES. POINTER INFORMATION AS APPROPRIATE IS INTERFACED INTO EPICCARE SO THAT ACCESS TO SCANNED IMAGES CAN BE LAUNCHED FROM EPICCARE. ONBASE RECEIVES DATA FROM EPICCARE, VARIOUS DEPARTMENTAL SYSTEMS, AND OTHER LOOSE MATERIAL GENERATED OR RECEIVED INTO THE MEDICAL CENTER. OTHER ONBASE APPLICATIONS IMPLEMENTED ARE FINANCIAL SCREENING, PATIENT WINDOW, EOB SCANNING AND CORRESPONDENCE, ACCOUNTS PAYABLE, AND HOME HEALTH.

G. InterSystems Ensemble is our Interface Engine. UVAMC has over 250 interfaces in place.

H. CareStream PACS (Picture Archive Communications System) application is used to store and distribute Radiology images and other limited departmental images to the Enterprise. Currently, there are in excess of 65 Modalities from various vendors providing images to the PACS. It receives HL7 data from EpicCare.

2. Hardware/Software and Data Communications

UVaMC’s Computing Environment

Applications for use within the Medical Center must be capable of functioning within the following environments:

A. Desktop Operating System:
   - Windows 10 Enterprise (Apple Macintosh is not supported)

B. Current Desktop Hardware:
   - Processor: Intel i5 3.2Ghz
   - RAM: 8GB DDR3
   - NIC: Integrated Intel Gigabit
   - Hard Drive: 256 GB Solid State Drive
   - Video: On board video supporting dual-monitor configurations

Minimum Specifications for Reuse of existing PCs:

Note: this pertains to redeployment of PC to another location or for another purpose, such as for home use

   - Minimum processor: 2.2 Ghz dual core
   - Minimum memory: 4GB
   - Minimum disk: 120GB

C. Current Desktop Software Suite:

   - Microsoft Office 2013 Suite including Word, Excel, and Powerpoint
   - Microsoft Outlook 2013 email client
   - Microsoft Internet Explorer version 11
   - Adobe Acrobat Reader DC 2015
   - Symmantec EndPoint Protection v Antivirus version 12
   - Microsoft System Center 2012 r2 for desktop management
   - Adobe Flash Player 21
   - Wake on Lan 4.0
   - Epic Citrix and HyperSpace

D. Server Operating System
   - Microsoft Windows 2016/2012R2 Microsoft Hyper-V

G. Server Applications
   - Microsoft SQL 2016/2014Exchange 2013

H. Redundancy
   - F5 Network Load Balancing
• Microsoft Clustering

I. Current Server Hardware
• HP ProLiant BL460 G10 (Blade Server) or HP ProLiant DL380 G10 for installations that require physical PCI cards to be installed
  o Minimum Dual Processor with Quad core
  o Standard Dual Processor 16 Core
  o Minimum 8 GB RAM
  o ILO Card with Advanced License

• Data Storage
  o RAID5
  o RAID0+1
  o Raid 1

J. Midrange computing environment
• IBM Power 8/7+ with AIX 7.X

K. Storage Area Networks
• HP 3PAR 8200/7200

M. PACS environment
• CareStream PACS V12

N. Web Development Environment
• Internet and Intranet -- Apache web server running on Windows 2012 Server. All servers run mod_ssl.
• Application server technologies: ColdfusionMX 11, mod_perl, python and Plone. All production servers have a development counterpart.
• Database Systems for Development, School of Medicine, Applications and content management systems – Clustered Microsoft SQL Server 2008R2 running on Windows 2008R2 Server, mirrored system volume and SAN disk storage

3. Network Architecture
A highly available-highly scalable routed network architecture utilizing Multi-10Gigabit/Multi-Gigabit connectivity. The network follows the standard core, distribution, access model utilizing unique Layer 2 VLANs per closet with Layer3 functionality beginning at the Distribution. The Distributions are redundant using VSS (Virtual Switching System), with data closet connectivity provided via Etherchannel. Medical equipment devices such as CAT scanners, MRIs, and X-Ray equipment use it as their primary means of data communications. End stations are serviced by a highly fault tolerant network using Cisco 2960, 2960S, 3750-X, and 3850 Series Switches. This network environment is called the Secure Clinical Network.
Network Diagram - The following diagram is a simplistic view of the network.

4. Network Management
The HI&T Networking Team uses Orion as its primary monitoring tool with adjunct functionality provided by Wildpackets’ TimeLine System along with Plixer’s Netflow Systems.

5. Security Exhibit
Systems procurement will include review of the following requirements:

**UVA Medical Center (UvAMC) Security Requirements**
The term “System” shall mean computer equipment, peripheral equipment, system software, application software, or embedded or included third party software provided to UVaMC.

Systems containing EPHI (electronic protected health information) must meet or exceed all current regulatory requirements including those emerging from the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009.

The Vendor warrants their application software is free of any requirements that would, if followed, create a potential security risk, e.g., requiring accounts without passwords or with non-complex or widely published/generic passwords.

The Vendor will provide the System in a condition that allows it to be connected to the UvAMC network without exposing the network to risk of security compromise. The vendor will allow UVaMC to place a firewall between the system and the Internet without breach of contract.

The Vendor will participate in the UVaMC security evaluation and certification program and will perform any needed remediation before System is accepted and placed into production. The UVaMC security evaluation and certification program
is an ongoing process which periodically requires System security remediation. UVaMC reserves the right to modify, replace, upgrade, or remove any software or security practice as is deemed appropriate by UVaMC.

For Systems involving Application System Providers, the UVaMC Cloud Risk Assessment process must be completed before purchase of the System.

The Vendor accepts all terms defined within this document without voiding or negating any performance warranties.

I. Group Policy
All Windows based servers must be members of the Medical Center’s existing Microsoft Domain and utilize domain baseline group policy. Acceptable Business needs must be presented to enable features locked-down by this policy. Other operating systems must also run UVaMC standard baseline security standards. These are consistent with the Center for Internet Security (CIS) Critical Security Controls.

II. VPN Support Connectivity/Secure Data Transfer
Vendor access will be achieved using Cryptocard VPN tokens, Firepass SSL Web Access, Cisco client software, and Microsoft Remote Desktop.

Point to Point/Site to Site VPN’s are required to be limited to specific port(s) access as well as a finite number of vendor IP addresses.

The National Institute of Standards and Technology (NIST) Special Publication (SP) 800-52 Guides for the Selection, Configuration, and Use of Transport Layer Security (TLS) Implementations recommends using 256 bit encryption or stronger. Any data transferred via the Internet will be encrypted with no less than 256 bit encryption methods.

III. Encryption
As recommended by NIST SP 800-52 system does not prevent the use of hardware or software based full disk encryption technologies or must include data at rest encryption capabilities.

IV. Administrative Rights/Principle of Least Privilege
UVaMC adheres to the information security best practice of Least Privilege. This approach minimizes the privileges available to a user to those that are critical to performing specific tasks. This approach minimizes risk exposure for both UVaMC and the vendor, shows due diligence in protecting data and the UVaMC customer base, and demonstrates the separation of duties.

Initial Installation of System/Application
1. UVaMC staff will use their existing security access to assist the vendor/application administrator with the initial installation.

   Or

2. A local vendor/application administrator account will be created on the server with local administrator privilege. This account will only be enabled when a vendor/application administrator needs access to the system; it will be disabled at all other times. While the vendor/application administrator is working on the system his/her session will be monitored/reviewed by a UVaMC Technical Services staff member via Terminal Services or other technology to review the actions that are being performed. This is commonly referred to as the information security best practice of the “two man approach”.

Vendors must review their application to identify the least privileges required for their application to operate successfully. Services/processes will only be permitted to run with administrator privileges if the program cannot be successfully operated otherwise and UVaMC has determined that this operation does not impose a security risk. In such cases the account password to the service/process will be retained by UVaMC and the vendor/application administrator must contact UVaMC LAN staff to enable access.

Ongoing System/Application Support
1. Most modern application vendors supply administrative programs for their applications that run from the Application Administrator’s pc. In this case all necessary access is provided through this program and additional server privileges are not granted.
2. For applications that require direct server access to be managed, UVaMC will provide system access to a locked down desktop on the server on which only the necessary programs/access have been made available. This will provide the application administrator direct day-to-day access to managing/troubleshooting the application without the need for additional assistance from UVaMC Technical Services staff. If access is required to additional items that are not available then UVaMC Technical Services staff should be contacted for assistance or to review for possible addition.

V. Operating System Security Patches
Microsoft Security Patches are applied using Microsoft Windows Update Server. Test servers receive updates on their release on the 2nd Tuesday of the month. If no problems present themselves by the end of the following business day, production servers are then patched according to the scheduled downtime established for each server. This process normally occurs within 7 days of patch release from UVaMC. For all released patches to be installed, Vendors will provide approval within 7 days of Microsoft patch release or provide specific documentation as to why a specific patch cannot be installed and when and how the patch can be installed. UVaMC reserves the right to install patches at any time in order to maintain the overall security of the Medical Center and Health System.

Application vendor will test and approve all Microsoft Service Packs within 3 months of Microsoft release dates. All Microsoft Service Packs will be installed within 6 months of Microsoft release dates.

Other UVaMC approved operating systems will be patched on a monthly basis. Application vendor will test and approve all operating system and operating system vendor distributed patches for other modules within 30 days of release. UVaMC reserves the right to install patches at any time in order to maintain the overall security of the Medical Center and Health System.

VI. 3rd Party Software Patches
Vendors must report and provide security patch remediation to address all security issues with base products and 3rd party products as vulnerabilities are discovered/disclosed by UVaMC or 3rd party scanning tools. The primary application vendor must address and remediate any publicly known vulnerability that may exist with base product or 3rd party products that the primary application may utilize. These vulnerabilities must be addressed within 30 days of request from UVaMC. UVaMC reserves the right to install patches at any time in order to maintain the overall security of the Medical Center and Health System.

VII. Antivirus
UVaMC has implemented Symantec as the Antivirus solution on all servers and is placed into a managed policy. As new virus definitions become available they are applied to the servers. The Vendor agrees to allow UVaMC to add this software without being in Breach of Contract. Antivirus definitions are downloaded if available from Symantec, and updated on an hourly basis.

VIII. Passwords
All passwords are required to be complex, i.e., each should consist of at least eight (8) characters with upper and lower case letters, numbers, and/or special characters. Passwords must not be a word found in a dictionary. Vendors will provide documentation detailing the process for changing service account passwords. Password must not be in clear text while in network transit or while at rest within the storage of the application.

The Vendor warrants to the best of Vendor’s knowledge that all software and code delivered does not contain any Trojans, backdoors, time bomb code, time outs, or other lock-out features which will restrict UVaMC’s use of this system. Vendor further agrees that the System does not send any information back to the vendor without knowledge and consent of UVaMC.

IX. Authentication
Applications are required to authenticate against UVaMC Microsoft Active Directory. This can be accomplished by using integrated Windows authentication via normal desktop authentication, Active Directory Federation Services or by using LDAP Authentication against Microsoft Active Directory within the application.

X. Vulnerability Checks
UVaMC uses 3rd Party scanning software to perform security scans against servers in the DMZ and internal networks. This scanning includes, but is not limited to, port, operating system, application, and web application scanning. Servers residing on the DMZ will receive daily scanning, and servers within internal networks will receive not less than weekly scanning.

All servers must pass a security scan before they are added to the domain. Additional security scans are run immediately after applications updates and as part of an enterprise scheduled scan. Vulnerabilities will be reviewed and addressed with the vendor, preventative measures may be taken depending on the risk associated with the vulnerability. All Microsoft and 3rd Party patches must be installed as previously defined.

XI. Monitoring
UVaMC has implemented numerous monitoring systems including, but not limited to Microsoft System Center Operations Manager (SCOM), HP Insight Manager, Netbotz environmental monitoring and Integrated Research’s Prognosis. The Vendor agrees to allow UVaMC to add this software without being in Breach of Contract.

XII. Documentation
Vendor will supply UVaMC with detailed installation instructions as Microsoft Word documents or Adobe PDF files for all applications including 3rd party applications required by the primary application. Vendor provided documentation will be added to that developed by UVaMC.

Vendor will supply UVaMC with appropriate documentation on how to properly backup and recover the System.

To maintain proper Change Management, modifications to the System must be reviewed and accepted by UVaMC prior to implementation.

XIII. Backup and Recovery
Server data must be backed-up at least daily. Application vendor must provide adequate documentation for proper back-up and recovery processes. All backups will be monitored on a minimum daily basis. Failed backups will be re-processed if feasible.

System State Backup
UVaMC performs System State Level backups on a daily basis for all Windows server systems.

XIV. Databases
UVaMC Computing Services preferred database provider is Microsoft SQL 2016/2014 databases.

SQL servers are backed-up using one of two methods. The first involves configuring maintenance plans for all databases within the SQL Server followed by the back-up of the live SQL data to a flat file SQL Backup located on the server. UVaMC will then backup these files to the UVa backup system.

The second method, typically used by larger SQL implementations, involves using the advanced SQL client provided by the backup vendor. The advance option using the same SQL APIs that are used for the maintenance plan, the difference being that the data is backed up directly to UVa backup system, bypassing the production of flat files.

Non-SQL databases (e.g., Oracle, Access, MySQL, InterSystems Cache, and others) are to include a Vendor-provided export function that will export the data into a flat file format using a scheduled process.

XV. Operating System/Hardware Standards
UVaMC uses Microsoft Windows Server 2016/2012 R2 Hyper V Server to improve hardware efficiency and reduce hardware costs on Windows server systems. Servers that require an isolated OS environment and that do not have heavy I/O demands are good candidates for Virtualization.

UVaMC reserves the right to use Microsoft virtualization technology in order to more efficiently utilize physical server hardware. Specific I/O requirements may be requested by the vendor from UVaMC in order to properly evaluate.

UVaMC utilizes HP server hardware for Windows and Redhat server systems. Specific models of hardware must be reviewed and accepted by UVaMC in order to meet UVaMC standards.

UVaMC supports other Operating Systems as well, these include: AIX and RedHat.

XVI. Auditing
The Health Information Portability and Accountability Act (HIPAA) Security Rule § 164.308 Administrative safeguards (ii) (D) Information system activity review (Required) states: “Implement procedures to regularly review records of information system activity, such as audit logs, access reports, and security incident tracking”. Vendor application will provide the means by which UVaMC can monitor and audit for user access including successful and failed logins, as well as data access auditing as required by HIPAA or other regulations, legislation, and statutes.
XVII. Additional Requirements for Vendors Providing Support
All employees or agents will pass an industry-standard background check.
All vendor employees will have access removed immediately upon termination.
Vendor will be able to produce a list of who has physical and logical access to system.
Vendor will maintain antispyware hardware/software.
Vendor will provide documentation on how log files are reviewed.