JUSTIFICATION FOR AN EXCEPTION TO FAIR OPPORTUNITY

1. Contracting Activity: Department of Veterans Affairs
Office of Procurement, Acquisition, and Logistics
Technology Acquisition Center
1701 Directors Blvd Ste. 600
Austin, TX 78744

2. Description of Action: This proposed action is for a firm fixed-price delivery order issued under a National Aeronautics and Space Administration (NASA) Solutions for Enterprise-Wide Procurement (SEWP) V Government-Wide Acquisition Contract (GWAC) for International Business Machines (IBM) /Operational Decision Management (ODM) license renewal, software maintenance and support.

3. Description of Supplies or Services: The proposed action supports the VA Office of Information and Technology (OI&T), Enterprise Program Management Office (EPMO), Demand Management Division Tools and Open Source Division (DMDT&OSD), to acquire continued maintenance and support of existing perpetual licenses for IBM/ODM software and will include renewal of four existing licenses that will, with IBM's new policy, reflect a more flexible and agile licensing policy that supports VA licensing needs. IBM licenses this software brand under a system of [redacted] Processor Value Units (PVUs). If we cannot get these services then the VA would be forced to replace all of these licenses. A PVU is a unit of measure used to differentiate licensing of software on distributed processor technologies (defined by Processor Vendor, Brand, Type and Model Number). IBM continues to define a processor, for purposes of PVU-based licensing, to be each processor core on a chip (socket). A dual-core processor chip, for example, has two processor cores. Each software program has a unique price per PVU. Given this type of licensing, larger machines require more PVUs. IBM's revised licensing policy will allow a more flexible allocation of Processor Value Units (PVUs) between the tools based on actual use and demand. This is a change to the licensing model that allows the PVUs to be allocated across any of the products/tools acquired. This is not a trade up but an accommodation to allow VA to re-balance licenses between the tools that are currently in use where the manufacturer grants improved flexibility while receiving the same capabilities. This current acquisition provides the same capabilities as previously acquired and licensed through use of their current tool releases and versions extending the service maintenance agreement into additional years and providing access to patches and other incremental updates as they are released globally.

The IBM ODM software provides underlying core business rule identification functionality and storage capabilities crucial to the continued development and sustainment of VA's software architecture. The products being renewed reflect tools that create a separately standing repository of business rules. The business rules engine manages the input and sharing of the content of the repository and is called by the VA product that needs to reference the collection of business rules stored in

the repository. The business rule software provides for the decomposition of complex business processing or operational decisions to be itemized, documented and executed by the VA application that is automating the business function. The business rules tool provides a written language or lexicon for representing how the decision point should be described. The business rules tool provides a content-rich data repository for cataloging and referencing all decision points and business rules to be executed by the VA application. The business rules repository is accessed through the business rules engine software through application programming interfaces (APIs) at the time each decision point and business rule must be executed by the software. This results in the business rules tool and repository being called many times in each program in order to complete the program's execution. It results in the program being more focused on the user interface for data processing, and the business rules tool being called every time the VA application must decide what to show the user and what to calculate as a decision on both data calculations and on programming logic to decide what to do next.

A business rule is a stated operational requirement of a behavior or action to be programmed into a software product, discussed from the point of view of the business process' owner. It is a definition of decision logic that describes what the software should do given a set of events, conditions, possible variables, and constant values, in order to return an expected output result or to make a decision where a decision branch must be taken. A business rule is a detailed statement that forms a decision that enforces a business requirement. As an example; the factors that decide veteran eligibility for 100% service connection status are placed into an "if-then-else" statement that is capable of referencing data necessary to determine the calculation and is callable by the VA product application's user interface. This allows for the business rules implementing business requirements to be isolated from the changes to the programming technology or database technology that has implemented the VA application. For example, a legacy application written in outdated programming technologies and databases can be re-engineered and rehosted into new technologies without impacting the repository of business rules that formulate what the VA application actually executes, providing the new technologies can continue to rely on the same APIs into the business rules tool and its repository. Because of this essential middle layer of business rules, the impact of a change in business rule processing technology/toolset is greater due to impact on both the VA application's database and the VA application's user interface technologies because a change to the business rules tool or repository will impact communications in both directions.

There is high volume use of the business rules software by the development team when documenting and maintaining business rules through all VA application software changes. All business operation changes or new processes result in additions and changes to the business rules repository. It is a database to be populated for the VA application to be operational and it results in a complex series of decision rules that must be deconflicted, indexed, and maintained for all decision points in the VA application through every change communicated by the business office or through VA policy statements. It results in thousands of entries broken

down representing every processing decision the VA application must make during its execution. It is also a toolset and a repository used during runtime use of the VA application in production to call into the repository as an integral step. The VA applications call into the business rules tool and repository to execute each business rule. It is a high use decision management process constantly calling the repository to make decisions.

IBM ODM perpetual software licenses makes VA software applications compliant with the VA Enterprise Architecture by isolating business process rules embedded in the software so that the business processes can be recorded, maintained, implemented, and accessible in a separate repository. There is one production copy of the repository of business rules for each VA application using the software. It is managed and maintained by the product development team each time the execution of the software and the business office functional requirements are updated to reflect new or changed software execution requirements. The renewed software maintenance is required to ensure the aforementioned software licenses remain operational and VA is made available all software updates to the business rule tool. This maintenance support includes software maintenance and telephone/web support for 24x7 support and updates. The period of performance is a July 30, 2018 to July 29, 2019 with three, one-year option periods. The total estimated value of this proposed action, inclusive of the option periods, is [redacted]

4. Statutory Authority: The statutory authority permitting an exception to fair opportunity is 41 U.S.C. 4106(c)(2) as implemented by the Federal Acquisition Regulation (FAR) Subpart 16.505(b)(2)(i)(B) entitled, "Only one awardee is capable of providing the supplies or services required at the level of quality required because the supplies or services ordered are unique or highly specialized."

5. Rationale Supporting Use of Authority Cited Above: Based on market research, as described in paragraph 8 below, it has been determined that limited competition is available for this procurement. The IBM ODM software licenses are the only software that can continue to build upon VA's existing IBM based systems and their proprietary data repositories that contain business process rules. The software licenses create a unique data repository within each VA-built software application dependent upon business rules management capability. The repository is used in real time by the VA application in order to execute the application. Compatibility to existing vendor-proprietary repositories, which are called upon on demand during execution of critical VA applications, is required. No other brand name item is compatible or interoperable with the existing repositories. This is because all of the existing repositories that store various business process rules were created through IBM proprietary technical data and can only be accessible and functional through brand name IBM software. Acquiring a different business rules management tool other than the IBM ODM software would require extensive re-engineering of existing repositories as well as VA application interfaces to the repositories, the development and requirements management processes for managing the repositories, and the role-based access to the tools. Re-engineering of existing repositories and

repositories to be changed would be a major revision to VA custom-built applications.

Replacement of a business rules engine impacts both VA applications being prepared for production as well as VA products in production. These tools are used both during development efforts and during run time of VA product execution. Replacing this product brand would not just impact the development methods of the product, but also all VA applications that are dependent upon its production use. Of the VA applications dependent upon this acquisition, there are five major comprehensive national multi-application systems that automate VA's capability to determine enrollment, eligibility, benefits allocation, veterans direct payments, third-party billing systems, and other financial and patient administrative determinations. Each of these major systems would require multiple national releases in order to compensate for a change in their middle tier layer of business requirements processing if required to replace this tool set and the VA applications' business rules repositories. Estimated duplicated cost for these efforts would exceed [redacted] dollars per VA system with a total estimated duplicated cost of approximately [redacted] million. The basis of the estimate is subject matter expert knowledge and the numbers of business requirements that have been captured and documented across these large critical systems, and the number of discrete business rules that have been decomposed from their stated business requirements. As an example, the VA application Enrollment has several hundred high level business use cases, which are then broken down into discrete operating requirements, which are then broken down into many more discrete business rules for how the Enrollment application behaves and reaches decisions. The full content of the processing logic for those business rules would require redefinition by a new tool. This redefinition would result in introducing high risk to the accuracy of the financial calculations, policy enforcement, correct programmatic operational execution of the software, and all decisions reached by the programming logic that the VA product uses to automate the business offices and operational processes impacted.

Planning for a reengineering of all VA applications that are currently in production as well as under development due to replacement of the business rules software and repository would require the VA applications to set aside all mandated functional improvements and expansions in order to dedicate the next 1-2 years on replacing the business rules engine and repository contents used. Therefore, no additional business capabilities would be possible during this timeframe and business offices would be required to wait until completion of the reengineering effort to be provided any corrected or additional features. This is an unrealistic constraint placed on these VA applications, as there are requirements on Access to Care and other VA benefits and enrollment policies that must be implemented by VA according to legislatively mandated deadlines. The CIO cannot communicate to its customers that all functional or business requirements are to be discontinued while it makes a technology change to these VA applications. At the same time, migrating the middle tier of any one of the VA applications cannot gradually over a longer period of time increase the execution complexity of the VA application, and the development efforts to reprogram the VA application to understand it is executing with two tools and two

repositories concurrently. Replacement of the middle tier of the VA application will result in a requirement to fully re-test all functions within these VA applications, all data filing execution steps, and all financial audits on these VA applications. This results in a 100% re-execution of all test cases and test data against both the old and the new business rules tool and repository in order to perform regression testing to identify differing results. This significantly increases the need for additional manpower, schedule time, and automated testing solutions in order to perform this additional testing. Elimination or migration of the content of these repositories and discontinuing of the use of the IBM ODM software to process the business rules during VA application execution would require major reengineering efforts that would seriously jeopardize VA's architecture and required deliveries of new functionality and system improvements for multiple high profile, high risk, and high budget program initiatives such as such as Veterans Benefits Management System (VBMS), Patient Enrollment System Replacement (ESR), Rules Based Processing System (RBPS), Benefits Enrollment Platform (BEP), Health Acquisition Center (HAC), Memorials Services, Financial Services Center, Veterans Benefits Handbooks, Chapter 33, and others in health, benefits, and corporate business lines. New and existing patient eligibility determinations, applications for care, applications for memorial services, calculations of VA field budgets due to workload at facilities, financial transaction among VA and to other external offices through electronic data interfaces would all be impacted if errors resulted as a result of the change in middle tier technology. Critical financial systems would be impacted by the efforts to re-platform the middle tier due to the complex and comprehensive series of system to system interfaces that exist between VA applications and systems. Section 8 provides in depth details as to the duplicated costs, impacts, and challenges that would occur in moving to another alternate product. Only IBM or an authorized reseller can provide the necessary software maintenance and updates because of the propriety source code required to develop and implement software updates. This code is also needed to ensure all services provided are properly configured. Competing for new software would not result in savings, and the purchase of IBM brand name software maintenance is more advantageous to the Government.

6. Efforts to Obtain Competition: Market research was conducted, details of which are in the market research section of this document. This effort did not yield any additional sources that can meet the Government's requirements. It was determined, however, that limited competition is viable among authorized resellers for this IBM brand name software licenses and maintenance support. In accordance with FAR 5.301 and 16.505(b)(2), this action will be synopsized at award on the Federal Business Opportunities Page (FBO) within 14 days of award of the order. The Justification will also be posted with the solicitation of the NASA SEWP V GWAC website in accordance with FAR 16.505(a)(4)(iii)(a)(1).

7. Actions to Increase Competition: Although the Government is limiting competition as a result of specifying a brand name, there are authorized resellers of these products on the NASA SEWP V contract. Competition for this requirement among these vendors is anticipated. Furthermore, in order to remove barrier to

competition for future acquisitions, the agency will work with the program office to perform additional market research to consider alternate software solutions with regard to both open source and other for fee business rule engine software. Discovery work will also continue in regards to business rule repository data standards that potentially can lessen the impact in the future of data migration among business rule tools. Currently, multiple proprietary data formats are used and the market place continues to explore adoption of data standards to increase open data and open architecture standards.

8. Market Research: The Government's technical expert conducted market research by reviewing similar software and services in February 2018. Specifically, the Government's technical experts reviewed software from Drools, Red Hat JBOSS, and InRule and determined that none of these brands provided the ability to process business rules from the existing repositories. Each business rule product implements proprietary database architecture and would require the organization to conduct data migration of large repositories between tools. Additionally, these other products individually introduce other constraints in their business rule development process that limits VA's ability to substitute the product for our existing solution. The user interface and the decision strategy are different from tool to tool. The rules creation technologies of each potential replacement product analyzed did not support all the existing development platforms in use in VA due to the variations in and the number of programming technologies in use in VA. Programming technologies in use in VA include but are not limited to Java, JavaScript, ASP, MUMPS, Cache, Ruby, Delphi, C#, C++, Microsoft .NET, Erlang, Groovy, Go, and Swift.
InRule is written in Microsoft .NET and has strong integration with Microsoft technologies and environments. However, it has been solely associated to Microsoft technologies and was not found to support non-Microsoft programming solutions. This does not provide a compatible platform to VA's products that are not written in Microsoft .NET.

Red Hat JBOSS introduces a new business rules engine as well as a new business process management solution dependent significantly upon Drools. Any migration would include a need to deconstruct and reengineer the business rules, which use a very different framework. The impact of such a migration would effect the critical financial systems which includes Veterans eligibility and payments. There would be many challenges to deconstruct and reengineer the business rules, which are outlined in section 5. Drools proprietary rules-creation scripting and authoring language did not provide a complete language/lexicon that would allow our rules to be re-entered in a new repository when using the Drools user interface. Limitations in the lexicon would not only require the business rules to be redefined in the repository of the new tool, but also require the rewording of the business rule to accommodate the limitations between lexicons. This would require the rewording of all business rules to be revalidated with the respective VA business program offices to ensure that rewording of any business rule has not inadvertently introduce an adverse effect, incomplete or inaccurate definition of the business rule due to its rewording. This would incur

additional cost and time requiring the business offices involvement in a reengineering project.

Additionally, none of the products can provide connectivity or recognition of existing interfaces to the existing repository. Software architecture that employs a business rules engine is essential to establish the integration between a Business Process Management and a Business Rules Management platform that is based upon processes responding to events or examining business judgments that are defined by business rules. Compatibility and compliance to both the application database-to-business rules interface and the business rules-to-user interface application must be maintained to use a repository-driven business rules middle tier. Other manufacturers' product solutions would require a significant effort for migration and must be scheduled as a reengineering effort for each project. In addition, the technical experts confirmed that the source code required to issue the updates is proprietary to IBM. Therefore, no other contractor has the capability of developing and issuing software updates and fixes for the existing IBM software necessary to support existing requirements. The source code and capabilities are not open source nor do end user license agreements extend the right to alter the IBM products. Based on the above, only IBM/ODM software licenses and maintenance support meet all of the Government's requirements.

The Contract Specialist (CS) conducted market research in April 2018 by using the NASA SEWP V GWAC market research tool to determine what vendors are capable of meeting the requirement. In addition to issuing a Request for Information on NASA SEWP V GWAC, which resulted in responses from two Service Disabled Veteran-Owned Small Business, Four Points Technology and i3 Federal. Both businesses stated they can provide the requirement. Based on this market research, the CS found resellers of IBM ODM software capable of meeting the full requirement.

9. Other Facts: N/A