# Project Overview

## The Office of the Chief Information Officer (OCIO), Computing Unit, is facing a situation where three of the ten IBM sysprogs (system administrators) responsible for supporting the OCIO IBM mainframe platform have retired in this biennium. Furthermore, out of the 10 full-time equivalent (FTE) positions within the IBM sysprog mainframe unit, an additional 6 FTEs are expected to retire over the next 5 years.

## We have encountered challenges in recruiting experienced IBM mainframe sysprog personnel to replace those who retire due to it typically taking an average of 5 years for new staff members to attain proficiency in supporting IBM mainframe operations and the software products running on the IBM z/OS operating system (OS) platform. To address this issue, we are seeking managed services along with professional services from IBM and/or an IBM certified business partner that has a pool of staff experienced with supporting the IBM mainframe z/OS central processing complex (CPC) hardware, z/OS CPC supported storage arrays (disk and virtual tape), z/OS operating system, z/OS base control program (BCP) elements, z/OS BCP features, z/OS transaction servers (CICS), z/OS database (DB2) subsystems, and original equipment manufacturer (OEM) software products installed on the OCIO’s IBM mainframe to supplement existing staff.

## The objective of the requested services is to bridge the gaps left by retiring staff members. In the long term, our aim is to manage the IBM mainframe environment with fewer FTE sysprog mainframe staff, relying on managed services to supplement our expertise when needed to continue supporting the OCIO mainframe’s 99% uptime requirement. Managed services will be utilized to:

### Upgrade z/OS operating system, BCP software products, CICS, DB2, and OEM software product levels on each LPAR using a phased approach when new releases become generally available from IBM.

### Receiving and applying maintenance for the z/OS operating system, installed BCP software products, CICS, DB2, and OEM software products, testing in test environments, and deploying to production logical partitions (LPARs) and subsystems using a coordinated and phased approach.

### Facilitate z/OS CPC and storage array hardware upgrades when new hardware is acquired by OCIO, currently on a 4-year cycle.

### Providing technical responses within 4 hours of requests by staff when a mainframe problem has been flagged and assistance is requested to troubleshoot.

## Professional services will be utilized on an as needed basis for providing knowledge transfer and education to the unit’s remaining staffed sysprog FTEs to build up their mainframe administration knowledge base and skillset.

# SOW and Deliverables

## The scope of this solicitation is to provide managed services and professional services for the Office of the CIO Computing Unit for the next four (4) years beginning upon BOE approval of the contract in 2024 and ending no later than 48 months from the awarded contract’s start date.

## Outlined below are the required staffing functions which ensure the ongoing performance of the OCIO IBM mainframe’s 99% uptime and requirements for managed services. OCIO is seeking a vendor with a pool of experienced employed, contracted, and/or subcontracted staff to provide the following supplemental services as described in the project timeline. This will enable OCIO to select required services as needed depending on the timing and vacancies of OCIO staff levels, ongoing system support requirements, and project needs.

## The following are required support functions which ensure the ongoing performance of the Mainframe. Responding vendors must be a platinum level certified business partner or higher with IBM. The contract awarded vendor must be able to provide ongoing support without lapse in service due to recruitment and adhere to OCIO’s Service Level Agreements in the following areas:

### Mainframe Infrastructure Management:

#### Hardware Management: Monitoring and maintenance of mainframe hardware components, including servers, storage, and peripherals.

#### Capacity Planning: Ensuring the mainframe environment is optimized for performance and resource utilization.

#### Fault Detection and Resolution: Proactive identification and resolution of hardware and software issues to minimize downtime.

### Operating System and Software Support:

#### OS Maintenance: Patch management, upgrades, and configuration of the mainframe operating system (e.g., z/OS).

#### Software Installation and Maintenance: Managing software installations, updates, and license compliance.

#### Middleware Management: Supporting middleware components such as database systems, CICS regions, messaging queues, job schedulers, application servers, and automation software.

### Performance Monitoring and Tuning:

#### Continuous Monitoring: Real-time monitoring of system performance to detect bottlenecks or issues.

#### Performance Tuning: Optimizing configurations and settings to ensure maximum mainframe performance.

#### Capacity Management: Predictive analysis to ensure resources are adequate for future needs.

### Security and Compliance:

#### Security Auditing: Regular security audits and vulnerability assessments to identify and mitigate risks.

#### Compliance Management: Ensuring mainframes adhere to industry-specific compliance regulations (e.g., HIPAA, CJIS, FTI, PII).

#### Access Control: Managing user access and permissions to protect sensitive data.

### Backup and Disaster Recovery:

#### Data Backup: Regular backup and archival of critical mainframe data.

#### Disaster Recovery Planning: Developing and testing disaster recovery plans to minimize downtime in case of a catastrophic event.

### 24/7 Support:

#### Round-the-Clock Support: Providing 24/7 support for issue resolution and assistance.

#### A single point of contact for our users and administrators to report issues and seek assistance.

### Reporting and Analytics:

#### Performance Reporting: Regularly providing performance metrics and reports to assess system health.

#### Trend Analysis: Analyzing data to identify patterns and make informed decisions for optimization.

### Cost Optimization:

#### Cost Analysis: Regularly reviewing mainframe-related expenses to identify cost-saving opportunities.

#### Resource Consolidation: Evaluating resource usage and recommending consolidation or virtualization where applicable.

### Vendor Management:

#### Coordination with Mainframe Vendors: Managing relationships with hardware and software vendors to ensure timely updates and support.

#### License Management: Monitoring software licensing to ensure compliance and cost control.

### Training and Knowledge Transfer:

#### Providing training for in-house staff to enhance their understanding of mainframe operations and management.

# Goals and Objectives

## Cost Efficiency:

### Ensure cost-effective management of the mainframe environment.

### Optimize resource allocation to minimize unnecessary expenses while maintaining stability.

## Service Continuity:

### Safeguard uninterrupted mainframe operations to provide consistent support for core business functions.

### Develop robust disaster recovery and business continuity strategies to ensure continuous availability.

## Skills Supplementation:

### Supplement in-house capabilities by leveraging the expertise of the managed services provider.

### Foster knowledge transfer to maintain and enhance the mainframe environment's stability.

## Scalability and Flexibility:

### Maintain a flexible infrastructure that can adapt to changing business demands without compromising stability.

### Ensure the scalability of mainframe resources to accommodate growth while sustaining reliability.

## Enhanced Security and Compliance:

### Maintain and/or strengthen the security posture of the mainframe environment to safeguard against threats and vulnerabilities.

### Uphold compliance with industry and regulatory standards, prioritizing stability in security measures.

## Performance Optimization:

### Continuously optimize the performance of mainframe systems to meet stability requirements.

### Proactively identify and rectify any performance issues that may impact stability.

## Streamlined Operations:

### Streamline day-to-day mainframe operations to reduce the potential for errors or disruptions.

### Implement stable and efficient operational practices to sustain a reliable environment.

## Technology Modernization:

### Evaluate and participate in modernization strategies that enhance stability while aligning with business needs.

### Ensure that any technological changes are introduced smoothly without compromising stability.

## Reporting and Analytics:

### Implement robust reporting and analytics capabilities to monitor and assess the stability of the mainframe environment.

### Utilize data-driven insights to proactively address stability concerns and optimize performance.

# Compliance and Accountability Metrics

## OCIO’s standard business hours are 8:00 a.m. to 5:00 p.m. Monday through Friday (excluding State holidays). OCIO employees are subject to emergency callback for incidents occurring outside of standard business hours. Vendors must be able to maintain compliance with OCIO’s Incident Management Service Goals for incident and problem resolution requests.

### Two hours for issues classified as critical.

### Four hours for issues classified as high priority.

### One business day (during coverage hours) for issues classified as normal priority.

### Three business days (during coverage hours) for issues classified as low priority.

## OCIO and the awarded contract vendor will discuss an issue’s priority classification, however final classification will be determined by OCIO.

## Vendor’s ability to meet callback/service level requirements and the depth of its existing talent pipeline will be critical to meet all Service Level Agreements with agency partners. (add this to Critical Items on RFP Document)

# Current Hardware and Software

## The OCIO Computing IBM Mainframe comprises four Logical Partitions (LPARs), consisting of two LPARs designated for the OCIO Mainframe team’s testing purposes and two Sysplexed production LPARs designated for OCIO and customer agencies.  Customer agencies test, development, and production applications and subsystems process on the production LPARs. IBM mainframe application development is done by the OCIO mainframe customer agencies, not the OCIO mainframe team.

## To ensure the highest level of security and data integrity, it is imperative that data stored on the disk and tape storage platforms is encrypted both at rest and while in transit.

## Our mainframe tape storage system is configured in a grid pattern, with data replication from the Carson site to the Vegas site.

## For power distribution and cable connectivity, specific configurations are required:

### Power distribution at the Carson site should be configured with a top rack exit.

### Network, FICON, and other connectivity cables at the Carson site should be configured with a bottom rack exit.

### Power and other cable connections at the Reno and Vegas locations must be configured with a top rack exit.

## To ensure robust disaster recovery capabilities, the backup Disaster Recovery (DR) hardware is to be sized appropriately to the primary hardware. This sizing enables seamless DR failover, guaranteeing the continuity and resilience of our critical systems.

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| --- | --- | --- |
| **Description** | **Location:** | **Model #:** |
| 1 - TS7770 Virtual Tape Drive - Mainframe primary | Carson City | 3957-VED |
| 1 - TS7770 Virtual Tape Drive - Mainframe DR | Las Vegas | 3957-VED |
| 1 - DS8910 Disk Storage Array – Mainframe primary | Carson City | 5334-993 |
| 1 - DS8910 Disk Storage Array - Mainframe DR | Las Vegas | 5334-993 |
| 1 - z15 - Mainframe primary | Carson City | 8562-T02 (N03) |
| 1 - z15 CBU – Mainframe DR | Las Vegas | 8562-T02 (A01) |

# Technical Requirements

## Personnel are required to successfully pass NCJIS background check.

## OCIO Computer Operations is staffed 24x7x365 and is responsible for monitoring data processing and applications.  The Mainframe unit’s standard work hours are 8 a.m.-5 p.m. Pacific Time, Monday thru Friday.  Mainframe support personnel are required to respond and ready to resolve problem calls on nights, weekends, and holidays.

## Remote collaboration with onsite staff is done via Microsoft Teams.  Though most professional and managed services can be done remotely, Vendor is required to comply with and identify any needs when physical onsite support is required.

## All operating systems, product, and OCIO supported application upgrades and maintenance must be coordinated and approved in advance with the OCIO executive leadership and customer agencies.

## All disk and tape data are encrypted inflight and at rest.  All data is asynchronously replicated from the primary site to the DR site.

## Standard maintenance and outage window for the OCIO mainframe is typically scheduled from 11:30 p.m. Sunday through 6 a.m. Monday.  All planned system, subsystem, and product outages require prior approval from customer agencies and OCIO executive leadership.  Extended outage windows can be approved as needed.

## Test application, subsystem, and operating system product maintenance, upgrades, and deployments can be done during standard dayshift hours.  Development application, subsystem, and operating system product maintenance, upgrades, and deployments must be done outside of standard dayshift hours and coordinated with customer agencies and OCIO executive leadership.  Production application, subsystem, and operating system product maintenance, upgrades, and deployments are done during the standard maintenance window and coordinated with customer agencies and OCIO executive leadership.

## Established naming standards for datasets, batch jobs, volsers, product applications, subsystems, and so on must be followed and adhered to for billing and security compliance.

## Product, application, and systems support documentation must be maintained and available.

## Operating System, subsystems, and products are initially installed and vetted out in the Test LPARs prior to deployment to the Production LPARs.

# Staff Supplementation Areas

## The following areas of staff supplementation with managed services may be needed during the term of the contract for these IBM mainframe systems administration support areas and vendor is to be prepared to staff with experience in the following areas:

### Operating System and Hardware

#### z/OS (MVS)

#### JES2

#### Sysplex

#### zOS HW Configuration Management

#### UNIX

#### IPCS

#### TSO

#### ISPF

#### SDSF

#### SDSFaux

#### RRS (Resource Recovery Service)

#### SMP/E

#### DFSort

#### SMF

#### ICKDSF

#### HMC

### Storage

#### DFSMS

#### DFSMShsm

#### DFSMSrmm

#### TS7770 VTF

#### DS8910

#### DS8910 - SKLM encryption servers

### Security

#### RACF - Product Support

#### RACF - Administration

#### ICSF (Cryptography)

#### zSecure

#### SSL (security certificates)

#### Ported Tools for zOS Open SSH

### Mainframe Network

#### Communications Server (VTAM)

#### TCP/IP

#### CSSMTP

#### AT/TLS

#### Telnet

#### Managed File Transfer (MFT)

#### Web Server/Services

#### Ported Tools Supplementary Toolkit

#### Ported Tools HTTP Server

#### CIM Server

#### z/OSMF

#### Hummingbird / Open Text

### Print Services

#### VTAM Print Services (VPS)

#### VPS/PCL, VPS/TCPIP, VMCF/CICS

#### VPS Report Browse

#### PSF (print services facility)

#### AFP

#### PMF (print management facility)

#### Enhanced ACIF

#### Compatibility Fonts

#### AFP Font Collection

#### OGL/370

### Tivoli Monitoring

#### Tivoli Monitoring Services

#### Omegamon XE for z/OS

#### Omegamon XE for CICS

#### Omegamon XE for DB2 PE

### Other Performance & Monitoring

#### Resource Measurement Facility (RMF)

#### RMF III Gatherer/GPMSERVE

#### Workload Manager (WLM)

#### Health Checker z/OS

### Online Teleprocessing

#### CICS Transaction Server

### Productivity Tools

#### Application Performance Analyzer

#### Application Delivery Foundation for z Systems

#### IPCP

#### Fault Analyzer

#### File Manager

#### Debug Tool

#### PDTCC

#### Output Manager

#### SMFUtil

#### Ditto/ESA

#### FITS/FUTS

#### RDz / Idz

### Databases

#### DB2 for z/OS

#### DB2 Data Propagator

#### QMF Classic

#### DB2 Utilities Suite

#### DB2 Query Monitor

#### DB2 Administration Tool

#### DB2 Object Comparison Tool

#### DB2 High Performance Unload

#### DB2 Mgmt Clients Package

#### DB2 z/OS Application Connectivity

#### DB2 Net.Data

#### DB2 Performance Expert

#### DB2 SQL Performance Analyzer

#### UNICODE

#### WebSphere MQ

#### InfoSphere Data Replication

### Languages

#### Assembler

#### Enterprise COBOL

#### CA:Gen

#### Rational COBOL R/T for Z (EGL)

#### C/C++

#### REXX

#### System REXX

#### JAVA

#### XML Toolkit

#### APL2 Appl. Env.

#### Metal C runtime

### Automation

#### ZEKE - Product and Usage Support

#### ZACK

#### Oasis

#### AF/Oper - Product Support

### Application Support

#### ASF (NOMADS)

#### ASF/DCF (NOMADS)

#### ASF/DWF (NOMADS)

#### ASF/DLF (NOMADS)

#### ASF/SSF (NOMADS)

#### Life Cycle Manager (LCM)

#### FAENS (in-house built e-mail notification utilizing AF/Operator and ZACK automation)

### Miscellaneous

#### Mainframe Billing

#### CIMS Chargeback

#### SCRT

## Additional services or technologies not yet identified.