

Annex A

Statement of Work

Mainframe Reporting Tool

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1. Introduction

Shared Services Canada (SSC), the “Client” has a requirement to provision and implement a modern and optimized mainframe historical performance reporting toolset. The toolset will be used for monitoring and reporting system performance, capacity planning, storage planning, and resource accounting.

2. Requirements

2.1 Data Collection and Processing

Requirement Number	Requirement Description
1.	The tool must have the ability to process daily System Management Facility (SMF) volume produced by the Government of Canada’s (GoC) IBM mainframes as identified in Section 3 - Volumetrics.
2.	The data collection must start daily (including weekdays, weekends, and holidays) at midnight (EST) and should be completed before the start of the online regions (IE: 6 am (EST) finish time).
3.	The data collection, processing, and reporting must be able to function across multiple mainframes with the data stored in multiple locations.

2.2 Required Functionality

Requirement Number	Requirement Description
4.	<p>The tool must support the following SMF types and the subtypes for all SMF fields (IBM main hardware/software-related):</p> <ul style="list-style-type: none">• Type 30 — Common Address Space Work• Type 09 — VARY Device ONLINE• Type 11 — VARY Device OFFLINE• Type 22 — Configuration• Type 23 — SMF Status• Type 26 — JES2 Job Purge• Type 30 — Common Address Space Work• Type 70 — RMF - Processor Activity• Type 71 — RMF - Paging Activity• Type 72 — RMF - Workload Activity• Type 73 — RMF - Channel Path Activity• Type 74 — RMF - Device Activity• Type 75 — RMF - Page Data Set Activity• Type 77 — RMF - Enqueue Activity• Type 78 — RMF - Virtual Storage and I/O Queuing Activity• Type 80 — Security Product (RACF) Processing

	<ul style="list-style-type: none"> • Type 81 – RACF Initialization record • Type 82 – ICSF Record • Type 89 – Product Usage • Type 99 – System Resource Manager (SRM) Decisions • Type 100 – DATABASE 2 Statistics • Type 101 – DATABASE 2 Accounting • Type 110 – CICS Statistics Record • Type 111 – CICS Transaction Gateway • Type 113 – Hardware Capacity, Reporting, and Statistics • Type 115 – WebSphere MQ Performance Statistics • Type 116 – WebSphere MQ Accounting Data • Type 117 – Message Flow Accounting and Statistics Data • Type 118 – TCP/IP Statistics • Type 119 – TCP Connection Initiation Record • Type 120 – WebSphere Application Server • zVM Performance Toolkit • Security – ACF and TSS
5.	The tool must have the ability to filter data (such as Canadian statutory holidays, weekends, etc.) so low metrics can be excluded from peaks, medians and averages.
6.	The data collection, processing, and reporting must be able to function across multiple mainframes located in multiple locations.
7.	The tool must have the flexibility to represent data in intervals based on SMF collection Intervals (ie. 5, 15 minutes).
8.	The tool must be able to represent data on an hourly, daily, weekly, and monthly basis. The tool must also be configurable to delete old statistics automatically if they are greater than “x” days old “x” represents a value that can be entered or changed by the GoC.
9.	The data collection must reside on a Database accessible by SSC.
10.	The data reporting and presentation tools must run on either z/OS or Linux on Z (z/Linux). Note: Price must include all ancillary software to support the solution.
11.	The tool must be able to support any future SMF types within six months of the future SMF type’s being released.
12.	The tool must have a Command Line and a GUI interface.
13.	The tool must have role based security for customized views (ie. Admin, Report viewer).
14.	The tool must have incremental data collection based on a user-defined interval (e.g., allowing the collection of data on an hourly basis if required), including data collection for z/OS, DB2, and CICS.
15.	The tool must have an incremental update feature to allow regular interval reporting to the dashboards.

2.3 Desired Functionality

R1.	Desirable to have the ability to specify that data collection run on the zIIP specialty engine rather than on the GP engine.
R2.	Desirable to provide integration with other analytical tools (such as Splunk, Apache Spark, Elasticsearch).
R3.	Data Collection database <ul style="list-style-type: none"> - DB2 on z/OS - Any other Database on z/OS - Any Database on windows or linux

2.4 Optional Functionality

R4.	Tools that can incorporate data and provide statistical analysis of all SMF data. : <ul style="list-style-type: none"> • z/Linux • HTTP Server • Netview • Availability (uptime) • IDMS • ADABAS • ENDEVOR • Ability to do a time zone adjustment on CICS, WebSphere, and zVM statistics (i.e., convert GMT to EST). • AI/ML capabilities
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2.5 Reporting

2.5.1 Reporting Mandatory Requirements

All the requirements listed in this section are mandatory:

Requirement Number	Requirement Description
16.	Reporting based on user-identified intervals (e.g., 15 minutes); hourly, daily, weekly, monthly, and yearly intervals for CPU utilization; MIPS by type (by LPARs, workloads, and applications); LPARs, workloads for memory.
17.	Reporting based on user-identified intervals (e.g., 15 minutes); hourly, daily, weekly, monthly, and yearly intervals for DB2 details; CICS details; DASD usage; MQ details; and HTTP details.
18.	The reporting tool must allow for merging CICS, MQ and DB2 transaction level statistics by system name (CICS Region Name, CICS Transaction Name

	or DB2 Subsystem ID and Package Name), date, hour, and interval timestamp.
19.	Have a mechanism in which MIPS consumption can be automatically calculated based on the model number and engine type.
20.	Create customized reports based on client request as well as ad hoc reports and SQL queries for data extractions.
21.	Provide role based user access control for administrators and users to create and view reports. (ie. Admin, create, modify, etc).
22.	The tool must provide the functionality to allow it to integrate / publish to a website.
23.	Report distribution by email (i.e., with formats such as HTML, PDF, CSV, EXCEL, XML, etc.).
24.	Report on CEC level (processor busy LPAR), GP, zIIP, IFL, and ICF utilizations.
25.	<p>Have components or tables for the following statistics:</p> <ul style="list-style-type: none"> • CPU utilization by CEC, LPARs and MIPS consumptions on interval, hourly, daily and monthly GP, zIIP and IFL MIPS consumption. • LPARs MIPS consumption by workload type, service class type for GP & zIIP engines. • Central Storage reporting (e.g., Total Memory, CSA, SQA, Private Area) • Coupling Facility reporting • LOGREC reporting • Bulk Print statistics (e.g., lines, pages per printer per month) • Workload Manager (WLM) reporting, including WLM Goals and Performance Index reporting • CICS Transactions, CICS Transaction Gateway, • DB2 Threads (ie thread levels , etc) • Cryptography reporting • MQ components • Flash memory reporting
26.	The reporting function must have the ability to allow for a drill down capability.
27.	Reports generated must have the ability to be keep for 7 years.

2.5.2 Optional Reporting Requirements

Optional requirements will be considered as a beneficial for the toolset, please refer to the evaluation criteria in the annex.

	Additional points in the scoring grid will be granted to a tool that:
R5.	The tool is able to forecast MIPS consumption based on historical trends, including at the application level.

R6.	<p>Have components for the following statistics:</p> <ul style="list-style-type: none"> • Exception reporting • Service Level Agreement reporting / Key Performance Index reporting • Unix System Services (USS) reporting (OMVS) • RMF XP which gives statistics on AIX, Linux on system X, Windows, zLinux (some vendors might call it a CIM component) • FTP and XCOM statistics if not already part of the tool's TCPIP component • LPAR configuration reporting (e.g, LPAR ID's, weights, number of engines, the type of capping in effect, etc.) <p>For components we might use in the future:</p> <ul style="list-style-type: none"> • Omegamon CICS reporting • Systems, Applications, and Products (SAP) • IDMS • IBM DB2 Analytics Accelerator IDAA • ADABAS • IBM Content Manager ICM • Job Scheduler reporting to support one of ControlM, TWS, or CA7 • Dataset reporting (e.g., who allocated, updated, or deleted a dataset and when) • Sample component (i.e., where we could use it as an example on how to count metrics for obscure or in-house resources that are not found industry-wide) • Performance modeling (i.e., using historical statistics to predict how systems will run differently on a new machine that we do not have yet) • Dashboard or heat map feature (can run from a PC but the database has to be on the mainframe) • Console message statistical reporting (counts how many messages there were) • SMF collection reporting (to pinpoint if there are gaps in our collection of SMF)
R7	Have the ability to associate metrics (such as CICS transactions and batch jobs) to our specific clients' applications. (example end to end view on application usage).
R8	An Accounting feature that allows us to build and maintain accounting tables that associate SMF record metrics with organizational/accounting structure.
R9	Type 99 SMF records should be reported by a user defined interval (Minimum 2 sec interval).
R10	Report distribution by email which supports encryption is desirable.

3. Volumetrics

SMF usage is expected to increase year over year by 10%. The proposed tool must be able to handle the projected volumes over the term of the contract.

	Initial contract period					Option Year 1	Option Year 2	Option Year 3
	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Current SMF usage*	500	550	605	665	731	804	884	972
Planned growth*	10%	10%	10%	10%	10%	10%	10%	10%
Total*	550	605	665	731	804	884	972	1069

*Measured in millions of records

4. Support Requirements

4.1 Maintenance and Warranty

4.1.1 Service Desk and Web Portal

28.	The Contractor must provide a bilingual toll-free support line available on weekdays (excluding holidays), 8:00 a.m. – 5:00 p.m. EST, with wait times of no more than 15 minutes.
29.	The Contractor must provide a bilingual (French and English) web portal available 24 hours per day on weekdays (excluding holidays).

The Contractor’s Service Desk must act as the primary contact point for SSC’s clients to request services.

The service desk’s roles and responsibilities will be as follows:

- Act as the central point of contact for maintenance services.
- Have a single toll-free phone number to receive calls regarding service requests.
- Have the ability to invoke service escalations as required.
- Provide incident details and status updates.
- Provide services to SSC users in the official language of their choice (English or French).
- This must include a toll free number and can include a web front end if available.

4.1.2 Contractor Support

The Contractor must provide support personnel to work on issues remotely (e.g., by phone or email), available on weekdays (excluding holidays), 8:00 a.m. – 5:00 p.m. EST.

4.1.3 Hardware Compatibility

The tool must be able to process SMF data from current IBM mainframes and the tool's maintenance releases must be able to support future IBM mainframes within six months of the mainframes being released to market.

4.1.4 Training

The Contractor must provide a minimum of two training sessions covering tool installation, administration, security, and report creation and customization. Additional training sessions may be needed and would be offered for an additional cost as per pricing table Annex B.

4.1.5 Service Level Agreement

Level	Description	Frequency of Status updates	Response and Resolution Time
SEVERITY 1	When the environment, system, service, or product is not usable by any SSC personnel; operations are critically impacted; and no other option exists.	Contractor must issue a progress report every hour, until the problem is resolved.	Contractor to response within 1 hour Contractor to resolve within 4 hours
SEVERITY 2	When the environment, system, service, or product is not usable by a significant number of SSC personnel, and no other option exists for the majority of these users.	Progress report to be issued by Contractor every three (3) hours, until the problem is resolved.	Contractor to response within 2 hours Contractor to resolve within 8 hours
SEVERITY 3	When the environment, system, service, or product is usable, but the problem is only affecting some users and/or other temporary options exist.	Contractor must update the Incident Ticket at least once per business day; progress reports will be made to SSC upon request; until the problem is resolved.	Contractor to response within 24 hours Contractor to resolve within 48 hours
SEVERITY 4	When the environment, system, service, or product is usable, but the problem is only impacting some users.	Contractor must update the Incident Ticket as appropriate; progress reports will be made to SSC upon request; until the problem is resolved.	Contractor to response within 5 business days Contractor to resolve within 20 business days

- Note the times identified are measured against the normal work day of 8:00 AM – 5:00 PM (Est)

5. Growth Capacity

5.1 Capacity Upgrades

The Contractor must provide a solution that can offer up to a 10% increase year over year in SMF volume.

5.2 Technical Support Services

The Contractor must provide a per diem rate for optional specialized technical support services during the term of the contract (with a day being defined as 7.5 hours, weekdays only). Work may be performed on SSC premises or remotely, at the discretion of the SSC Technical Authority.

The SSC Contracting Authority shall reserve the right to terminate or change the requested work and the required skill sets upon written notification to the Contractor.

6. Technical Services

6.1 Resources Required During Installation

The technical support services required for the initial setup and implementation of the tool must be included in the contract costs.

6.2 Resources Required During Conversion & Integration

The Contractor must provide technical support services on a as and when needed basis during the conversion and integration phase of this installation. This will assist in the migration from the current tools to the Contractor's tool. This will be provided by the Contractor on a per diem basis as per pricing table Annex B.

7. Support and Maintenance

7.1 Priority Escalations

The Contractor must provide escalation contacts for SSC to engage in the event that there is an ongoing issue or service complaint, included in the contract at no additional cost.

7.2 Maintenance Reports

The Contractor must provide the Technical Authority with monthly incident reports for all SSC incidents within two weeks of the end of each month. The details that will be required in these reports will be defined with the Contractor during implementation but may include, but not limited to items such as:

- Incident start date and time
- Incident close date and time
- Severity
- Description
- Last update to the incident ticket
- Resolved type
- Incident type

7.3 Service Desk Support

The Contractor's Service Desk must act as the primary contact point for SSC's clients to request services.

The service desk's roles and responsibilities will be as follows:

- Act as the central point of contact for maintenance services.
- Have a single toll-free phone number to receive calls regarding service requests.
- Have the ability to invoke service escalations as required.
- Provide incident details and status updates.
- Provide services to SSC users in the official language of their choice (English or French).
- This must include a toll free number and can include a web front end if available.