HP CONTRACT – MASL AUDIT

FINAL REPORT

Chief of Audits: Juan R. Perez
Senior Audit Manager: Lynne Prizzia, CISA, CRISC
Senior Auditor: Franco D. Lopez, CPA, CIA, CISA

Intentionally Left Blank

ASSESSOR/RECORDER/COUNTY CLERK
AUDITOR AND CONTROLLER
CHIEF ADMINISTRATIVE OFFICE
CIVIL SERVICE COMMISSION
CLERK OF THE BOARD
COUNTY COMMUNICATIONS OFFICE
COUNTY COUNSEL
COUNTY TECHNOLOGY OFFICE
GRAND JURY
HUMAN RESOURCES
RETIREMENT ASSOCIATION
TREASURER-TAX COLLECTOR

TRACY M. SANDOVAL
GENERAL MANAGER/
AUDITOR & CONTROLLER
(619) 531-5413
FAX: (619) 531-5219

County of San Diego

FINANCE & GENERAL GOVERNMENT GROUP

1600 PACIFIC HIGHWAY, SUITE 166, SAN DIEGO, CA 92101-2422

January 6, 2014

TO: Mikel D. Haas, Chief Information Officer
        County Technology Office

FROM: Juan R. Perez
        Chief of Audits

FINAL REPORT: HP CONTRACT – MASL AUDIT

Enclosed is our report on the HP Contract – MASL Audit. We have reviewed your response to our recommendations and have attached them to the audit report.

The actions taken and/or planned, in general, are responsive to the recommendations in the report. As required under Board of Supervisors Policy B-44, we respectfully request that you provide quarterly status reports on the implementation progress of the recommendations. The Office of Audits & Advisory Services will contact you or your designee near the end of each quarter to request your response.

Also attached is an example of the quarterly report that is required until all actions have been implemented. To obtain an electronic copy of this template, please contact Franco Lopez at (858) 505-6436.

If you have any questions, please contact me at (858) 495-5661.

JUAN R. PEREZ
Chief of Audits

AUD:FDL:aps

Enclosure

c: Tracy M. Sandoval, Deputy Chief Administrative Officer/Auditor and Controller
    Brian M. Hagerty, Group Finance Director, Finance and General Government Group
    Andrew McDonald, Group IT Manager, Finance and General Government Group

INTRODUCTION

Audit Objective

As requested by the County Technology Office (CTO), the Office of Audits & Advisory Services (OAAS) completed an audit of HP Enterprise Services (HP) contract Minimum Acceptable Service Levels (MASL). The objective of the audit was to evaluate the adequacy of controls that ensure HP's compliance with MASL requirements.

Background

The Information Technology and Telecommunications Service Agreement (Agreement) outlines that HP will provide information technology (IT) and telecommunications services to the County of San Diego (County) with a high level of quality and performance that meets or exceeds MASL's requirements. MASLs were created as performance measures used to evaluate HP's delivery of IT services through measurable periodic reporting.

MASLs are used to monitor and measure performance of the County's key IT business requirements as performed by HP. The Agreement allows for the creation of new MASLs to reflect new or changed business requirements. The County expects continuous improvement in HP's provision of IT services, and where appropriate, to adjust MASLs to reflect continuous improvement.

Audit Scope & Limitations

The scope of the audit included verification of controls that ensure the accuracy of the 49 active MASLs outlined in Schedule 4.3 of the Agreement. The time period of the review focused on MASL reporting from October 2012 to March 2013.

This audit was conducted in conformance with the International Standards for the Professional Practice of Internal Auditing prescribed by the Institute of Internal Auditors as required by California Government Code, Section 1236.

Methodology

OAAS performed the audit using the following methods:

- Interviewed County and HP stakeholders to understand and assess risks in MASL performance.

- With assistance from the CTO, selected a judgmental sample of 21 MASLs to conduct detail audit testing.

- Conducted a walkthrough of HP's MASL reporting process to verify HP compliance with MASL requirements as required in the IT Service Agreement.

- Verified that HP accurately and correctly reports on MASL performance as required in the IT Service Agreement by corroborating MASL reports with underlying support.

- Verified that MASL failures were appropriately remediated.

AUDIT RESULTS

Summary

Within the scope of the audit, controls that ensure HP's compliance with MASL requirements are not adequate. Reporting issues were identified in each sampled MASL. To strengthen current controls and improve the effectiveness of HP's MASL reporting, OAAS has the following findings and recommendations.

Finding I:

Work Request MASL Reporting is Inaccurate
HP service level performance for MASLs 81 and 82 is not accurately reported. The budget and schedule performance of completed Work Requests (WR) are reported monthly in MASLs 81 and 82, respectively. Both MASLs use information outlined in WR Project Closure Agreements (PCAs) to calculate performance.[1] From October 2012 to March 2013, a total of five WRs were completed and reported under MASLs 81 and 82. Inaccuracies in MASL performance reporting were noted in these five WRs as outlined below.

MASL 81 – Budget versus actual labor costs metrics are reported monthly in MASL 81. As required in the Agreement, this MASL only reports the performance of HP labor as calculated by HP Project Managers (PM). The following issues were noted within the five reviewed WRs:

- Four of five WRs included items other than solely HP labor in budgeted and/or actual labor costs reported.

- A performance metric was incorrectly calculated and reported for one WR due to an input error by a PM.

- Transactions were incurred for all sampled WRs after the PCA was finalized.

  - Three WRs had more costs billed to the County than were outlined in the PCA.

  - Two WRs had less costs billed to the County than outlined in the PCA.

MASL 82 – Scheduled versus actual project duration is reported monthly in MASL 82. As required in the Agreement, duration metrics commence when the County authorizes HP to start work and ends when work is completed. Duration metrics should be calculated using County business days, which exclude holidays and weekends. The following issues were noted in the five WRs reviewed:

- The PMs of all WR reviewed did not calculate duration metrics using standard County business days.

---

[1] PCAs outline the final accounting of WR costs and schedule performance, along with other project milestones.

- WR start dates were reported inaccurately for three WRs. Start dates are not explicitly outlined in the PCA or MASL reporting and had to be obtained from the CTO.

After correcting the above inaccuracies, recalculation of MASLs 81 and 82 resulted in the same pass results as originally reported by HP. However, controls that ensure MASLs 81 and 82 are reported accurately are not effective because underlying support is not reported accurately. After reviewing the issues, HP indicated their processes need standardization to ensure the PMs are accurately and correctly reporting per MASL requirements. Additionally, not all HP costs are billed to the County until the monthly billing cycle is completed after project completion. HP plans to update their PCA process to consider actual costs incurred but not yet billed.

Recommendation: The CTO should ensure that HP implements effective controls to report MASLs 81 and 82 accurately, including:

1. Only HP labor is reported in budgeted and actual costs.

2. Transactions are not incurred for WRs after their PCA is finalized.

3. MASL reported data and calculations are accurate (e.g., business day duration, metrics, and data entry)

4. MASL WR start and end dates are reported in PCAs to allow for verification of reported durations.

Finding II: **Break-Fix MASL Calculations are Inaccurate**
The duration of time it takes for a Break-Fix (B/F) ticket to have services restored versus the MASL performance requirement is reported monthly in MASLs 41 to 55 by Help Desk ticket number and priority.[2] HP's Peregrine Help Desk ticket system calculates ticket duration for MASL reporting. MASL reports from January to March 2013 were selected for audit testing. Due to inaccuracies and limitations in Peregrine reports, audit work could not determine if MASLs were met. During the period under review, inaccurate Peregrine MASL calculations resulted in an excessive number of tickets reported that had:

- Performance durations with zero or negative elapsed time (see Table 1).

- Performance durations that could not be recalculated using only MASL reports (see Table 1).

---

[2] B/F Help Desk tickets are opened when a user reports an incident that affects the usability of an application or other HP supported service. Ticket priority (1-5) is predetermined based on the application or device.

Table 1. January to March 2013 MASL 41 - 55 B/F Tickets

MASL	Priority[3]	Total Tickets Reported	Zero or Negative Duration		Recalculated Durations	
			Count	Percent	Verified	Percent
41 - 43	1	20	15	75%	0	-
44 - 46	2	34	27	79%	0	-
47 - 49	3	376	257	68%	18	5%
50 - 52	4	268	6	2%	99	37%
53 - 55	5	3,219	15	0.5%	943	29%
	Total	**3,917**	**320**	**8%**	**1,060**	**27%**

OAAS was unable to recalculate duration for a majority of tickets because MASL reports do not outline ticket suspense time which is needed to recalculate and verify reported durations. Ticket details must be individually pulled and reviewed to isolate suspense time and verify reported MASL duration.

Out of 3,917 tickets reported, 2,705 tickets had durations that exceeded MASL thresholds. A judgmental sample of 15 tickets was selected to verify whether tickets which exceeded MASL threshold on recalculation actually failed their MASL. With assistance from HP, 10 of 15 tickets were identified which exceeded their MASL response time target even after considering suspense time.

Controls that ensure MASLs 41-55 are reported accurately are not effective due to the issue outlined in the finding. After review of the issues, HP indicated that ticket durations were incorrectly calculated due to a Peregrine system error which occurred during the period under review. HP is working on a solution and indicated the issue should be resolved by October 2013.

Recommendation: The CTO should verify that HP executes its plan to correct Peregrine B/F ticket duration computational errors affecting MASLs 41 to 55 reporting and includes ticket suspense time in MASL 41 to 55 reports.

Finding III: **System Availability MASL Reporting is Incomplete and Inaccurate**
Availability performance for network devices, application servers and infrastructure servers is reported monthly in MASLs 77, 78, and 79, respectively. Performance reporting for these MASLs is based on internal reports developed and maintained by HP and AT&T. MASL reports from January to March 2013 were selected for audit testing. Incomplete and inaccurate MASL performance reporting was noted as outlined below.

Completeness – A comparison of MASL 78 and 79 reported servers to the server inventory maintained in HP's Advanced Devices Management System (ADMS) identified servers that were missing from the MASL reporting (see Table 2).[4]

---

[3] Priority 1 is the highest level of priority for a Help Desk Ticket.
[4] MASL 78 reports within two categories (a & b) which segregate servers available 24/7 from servers available 12/5 (M-F), respectively.

Table 2. ADMS Servers Missing from MASLs 78 - 79

MASL	Jan 2013	Feb 2013	Mar 2013
MASL 78a	137	143	148
MASL 78b	114	120	122
MASL 79	158	169	170
Total Servers Not Reported	**409**	**432**	**440**
MASL Reported Servers	427	433	427
Total ADMS Servers	836	865	867

Currently, MASL 78 and 79 report on select production servers only and do not include Mainframe and AS/400 servers. After reviewing the issues, HP indicated that the tool that updates MASL 78 and 79 reporting had not been updated monthly, which resulted in incomplete MASL reporting. HP also indicated that by August 2013 MASL 78 and 79 reports will be complete.

Accuracy – A review of MASL 78 and 79 reports identified 10 servers which had excessive availability times reported.[5] HP indicated that an ongoing reporting system transition resulted in two systems erroneously aggregating server availability data for monthly reporting which affected overall MASL 78 and 79 calculations. The total number of servers affected by this issue could not be determined because only servers with unreasonable availability times could be isolated. MASL 77 also had a similar issue with devices that were erroneously reporting two days of excessive availability time due to a system configuration error.

Controls that ensure MASLs 77, 78 and 79 are reported accurately are not effective due to the issues outlined above. HP indicated they plan to correct the reporting process to ensure accurate reporting of system availability by the end of August 2013. Additionally, the accuracy issues should be resolved when HP finishes transitioning their reporting system by October 2013.

Recommendation: The CTO should verify that HP executes a plan to implement effective controls to ensure MASLs 77, 78, and 79 are completely and accurately reported. This plan should include the following:

1. HP has a process is in place to update server reports monthly in preparation of MASL reporting.

2. HP corrects the inaccurate availability time reporting issue by the end of October 2013 and that appropriate mitigating controls are in place until the reporting process is corrected.

Finding IV: **Backup Completion MASL Reporting is Incomplete**
Backup job completion success rates are reported monthly in MASL 30. This MASL is based on an HP internal report (BUR-450) which outlines backup job success and failure counts by server each month. MASL reports from January to March 2013 were selected for audit testing.

---

[5] For example, in January 2013, server ustlmcosd079 reported an availability time of 32 days (46,080 minutes) even though there are only 31 days (44,640 minutes) available in the month of January.

Outdated reporting tools led to incomplete reporting on MASL 30 performance.

A comparison of MASL 30 reported servers to the ADMS server inventory identified servers that were missing from MASL reporting including several production servers (see Table 3).

Table 3. ADMS Servers Not Reported in MASL 30

Server Environment	Jan 2013	Feb 2013	Mar 2014
Production	279	294	294
Disaster Recovery	3	3	3
Development	6	6	7
Staging/Pre-Production	6	6	8
Test	123	129	132
Test-Engineering	3	3	3
UAT/QC	1	1	0
Grand Total	**421**	**442**	**447**
MASL Reported Servers	415	423	420
Total ADMS Servers	836	865	867

Controls which ensure MASL 30 reports are complete are not effective due to the issue outlined above. After reviewing the test results, HP indicated the BUR-450 report did not include servers backed up by the local County HP team. These servers had not been added to the tool that updates the BUR-450 for MASL 30 reporting. HP stated they have implemented a solution to correct the issue which should be completed by the end of August 2013. Additionally, MASL 30 reporting requirements are general and currently require monthly reporting for production servers only. HP will need guidance from the CTO if servers from other environments should be included in monthly MASL reporting.

Recommendation: The CTO should verify HP executes its plan to correct incomplete reporting affecting MASL 30. Guidance should also be provided to HP concerning what server environments should be reported monthly.

Office of Audits & Advisory Services

Compliance   Reliability   Effectiveness   Accountability   Transparency   Efficiency

VALUE

DEPARTMENT'S RESPONSE

County Technology Office

MIKEL HAAS
Chief Information Officer

County of San Diego

1600 PACIFIC HIGHWAY, ROOM 300, SAN DIEGO, CA 92101-2472

Office of the CIO
Business Advisory Services
Communications
Enterprise Architecture & Technology
Financial & Contract Mgmt Services
Risk Management
Service Management

RECEIVED

12/17/2013
Ref: 13-IA-352

DEC 18 2013

OFFICE OF AUDITS &
ADVISORY SERVICES

TO: Juan Perez
        Chief of Audits

FROM: Mikel Haas, CIO
        County Technology Office

DEPARTMENT RESPONSE TO AUDIT RECOMMENDATIONS: MINIMUM ACCEPTABLE SERVICE LEVELS (MASLs) AUDIT

Finding I: **Work Request MASL Reporting is Inaccurate**

OAAS Recommendation: The CTO should ensure that HP implements effective controls to report MASLs 81 and 82 accurately, including:

1. Only HP labor is reported in budgeted and actual costs.

   Action Completed: The Project Closure Agreement was modified to show budgeted and actual HP Labor separated from other project costs (such as 3rd party labor). Only the HP Labor is used in the MASL calculations.

2. Transactions are not incurred for WRs after their PCA is finalized.

   Action Completed: It is agreed that the PCA represents final numbers and HP must ensure that no other charges are applied. CTO will review the second subsequent Chargeback total (at least one full month later) to further ensure that no late charges were applied

3. MASL reported data and calculations are accurate (e.g., business day duration, metrics, and data entry)

Action Completed: HP has created an additional QA review and these are double-checked by the CTO. Duration calculations have been simplified by using calendar days rather than business days to avoid errors related to counting County holidays.

4. MASL WR start and ends dates are reported in PCAs to allow for verification of reported durations.

Action Completed: The Project Closure Agreement was modified to include these dates, as well as the calculated durations.

Finding II: Break-Fix MASL Calculations are Inaccurate

OAAS Recommendation: The CTO should verify that HP executes its plan to correct Peregrine B/F ticket duration computational errors affecting MASLs 41 to 55 reporting and includes ticket suspense time in MASL 41 to 55 reports.

Action Plan: The CTO has verified that the HP has implemented and completed the action plan outlined below. .

1 .Created/ Escalated ticket to confirm the issue is addressed permanently
2. Identified the contacts information for our Peregrine support team.
3. Tested results of latest patch
4. Escalated to Peregrine Management
5. Applied code fix to Test environment
6. Reviewed Ticket data for remaining issues
7. Applied code fix to Production environment
8. Confirmed 100% ticket accurate

Finding III: System Availability MASL Reporting is Incomplete and Inaccurate

OAAS Recommendation: The CTO should verify that HP executes a plan to implement effective controls to ensure MASLs 77, 78, and 79 are completely and accurately reported. This plan should include the following:

1. HP has a process is in place to update server reports monthly in preparation of MASL reporting.

2. HP corrects the inaccurate availability time reporting issue by the end of October 2013 and that appropriate mitigating controls are in place until the reporting process is corrected.

Action Plan: The CTO has completed the actions outlined below to implement controls to ensure MASLs 77, 78 and 79 are accurately reported. :

1. Extracted the current server inventory from ADMS and categorizing appropriately as per current rule set
2. Identified report team members
3. Defined process the reporting team collects the information
4. Provided the update to include the current server list
5. Validated new reporting data
6. Deleted decommissioned server from current list.
7. Integrated process to server stand up and decommissioned documentation .New line item to be added to Server Stand Up: Create IMAC for eSLR Team to start monitoring production server.

Finding IV: Backup Completion MASL Reporting is Incomplete

OAAS Recommendation: The CTO should verify HP executes its plan to correct incomplete reporting affecting MASL 30. Guidance should also be provided to HP concerning what server environments should be reported monthly.

Action Plan: CTO has verified that HP has executed and completed the plan as outlined below. Guidance has also been provided to HP concerning what server environments will be reported monthly.

1. Identified servers missing from current report
2. Identified report team members
3. Defined update process to the reporting team
4. Updated the Report 450 to include missing servers
5. Trouble ticket with BUR Team to id DPA client configuration issues
5a. Submitted FRCR for new BUR servers to communicate to the Collector
6. Validated new reporting data
7. Integrated process to Data Protector server stand up

If you have any questions, please contact Joe Schlientz at (619) 531-4812 or myself at (619) 685-2397.

Regards,

Mikel Haas
Chief Information Officer

CC: Susan Green