Report to

Washington State Administrative Office of the Courts

AOC JIS Assessment – PSC 09632

Deliverable Two – JIS Applications Portfolio Inventory

Final Version for ACCEPTANCE

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1. EXECUTIVE SUMMARY

Apart from a limited set of exceptions, we find the JIS application portfolio and infrastructure to be sustainable in the near term. For the purposes of this assessment near term is defined as 18 – 24 months.

Sustainability			Able to avoid negative impact on application or users				Score 8 +
Maintainability			Able to keep application current in an existing state				Score 6 +
Extensibility			Able to increase the scope of the application				Score 5 +
	db	Language	Application	Sustain	Maintain	Extend	
Servers			Mainframe	9	9	8	
			Intel	8	8	7	
Network				8	8	8	
Mainframe	DB2	JAVA	Data Exchange (4)	7	6	6	Requires monitoring
			JINDEX (Data Exchange)	7	6	6	Requires monitoring
			eTicketing	7	5	3	Requires intervention
			Judicial **A**ccess **B**rowser **S**ystem	8	7	6	
			ACORDS	6	4	1	Poorly structured
			Court **A**utomated **P**roceeding **S**ystem	8	6	3	Performance Issues
		ODBC	Data Warehouse (2)	8	7	6	
		Natural/COBOL	**JIS** (DISCIS)	7	6	4	Long Term Consideration
		COBOL	**SCOMIS**	7	6	4	Long Term Consideration
Intel	DB2	Magic	**J**uvenile & **C**orrections **S**ystem	8	8	7	
	na	Delphi	**J**udicial **R**eceipting **S**ystem	6	4	1	Requires intervention
	SQL	BRIO	Data Warehouse	5	4	1	Software not supported
		na	Risk Assessment (COTS Package)	9	9	6	
	na	ColdFusion	Extranet Site	8	7	5	
	na		Internet Site	8	7	5	
				Relative Degree of Difficulty assuming no material changes			
				Normal Practices		7 - 9	
				Challenging		4 - 6	
				Difficult		1 - 3	

1.1. Information and Background

The Washington State Administrative Office of the Courts (AOC) ISD requested an independent assessment of the Judicial Information Systems (JIS) applications. The JIS suite of applications provide a mission critical service for the Washington State judicial system. The JIS is comprised of several separate applications with shared data sources.

As part of the assessment AOC required a review of the JIS Application portfolio. This deliverable is intended to describe the components analyzed, document the facts established and reflect the depth of the analysis completed and summary our findings.

As dictated by the limited duration and narrowly defined scope of this project, Sierra Systems did not perform an in-depth assessment of each application, nor proactively seek out to engage stakeholders outside of AOC. Facts have been established through group and individual interviews and through the review of various documents and previous reports provided to Sierra by AOC.

1.2. Approach and Methodology

Consistent with the AOC Statement of Work, Sierra Systems provided and followed a structured approach drawn from industry literature on methodologies suitable for a rapid analysis of a systems environment. This methodology (SEI's Architecture Tradeoff Analysis Method® - ATAM®) required the identification of business drivers, followed by key technical considerations, prior to conducting any research or analytical activities. This was completed during the first two days of the engagement and findings were discussed with AOC project sponsors to establish the framework for more detailed investigation.

A framework for analysis was established for three distinct areas:

Application Software, the information for each system is presented in the following categories:

- **Business Requirement Satisfaction** describes how the group interviewed believes the software/system meets the known or stated business needs on an ongoing basis. Including the approach to addressing required changes (*Musts*), such as systems defects, table changes or regulatory modifications, identifying and providing requested changes (*Needs*) where application functionality may not address a business requirement or desired changes (*Wants*) where changes in the applications might improve overall usability.
- **Development Processes** captures information about how changes are made to the system, for example methodology. Including current standards on design, coding, testing, and documentation as applied by individuals, teams and within or where applicable across applications.

- **Stability** is where comments on the complexity of the system are covered. The interview process attempted to identify and differentiate between fundamental technical considerations and concerns (brittleness) and system stability concerns created by causes outside of the control of the AOC, i.e. user error, network issues outside the AOC firewall
- **Sustainability** covers the comments on the long term maintenance and enhancement of the system from an architectural perspective. In this context the methodology relies on the professional judgment of the individual participants and depends upon a broad scope of expertise participating in the assessment of the environment, in this case the AOC JIS Applications and leverages their in depth understanding of the relevant applications to draw conclusions in this regard.
- **Suitability** deals with the applicability of software, process and code to other applications. Again drawing upon the expertise of the participants, the objective is identify the best practices in place and the degree of adherence, within the context of the preceding categories as applicable to the part of the framework focusing on Application Software.

Infrastructure is presented under three topics:

- Database
- Network
- Servers

Support is presented under three topics:

- Project Management Office
- Testing
- Help Service Center

Once this framework was established Sierra began a series of interviews (16 sessions) with large and small users groups (more than 60 individuals attended) including AOC ISD resources representing all facets of their business. The group sessions were from 30 – 90 minutes in duration, one on one interviews were also completed where additional investigation was warranted or where users made such a request.

2. JIS APPLICATION PORTFOLIO INVENTORY

2.1. Judicial Information System (JIS/DISCIS)

JIS is an application used by the district, municipal, and superior courts, including juvenile departments. The JIS system was developed as the DISCIS case management system for the courts of limited jurisdiction (CLJs. The rename to JIS occurred as more functionality was added for the superior courts. JIS provides a person-centric case management system. Superior courts, including the juvenile departments, use JIS to initiate case filing of cases for well-identified persons, to manage those persons, and to perform other, more recently mandated functions, e.g., DV Order management. (Although the superior courts use JIS to initiate many of their cases, they use SCOMIS as their primary case management system.) CLJs use JIS for all financial processing. Superior courts use JIS for financial processing, in conjunction with using JRS for receipting. JIS allows cross-court view-only model, as well as varying internal and public views based on security level.

Business Requirement Satisfaction

- There are a variety of ways to receive requirements.
- There is no consolidated tracking or management.
- The JIS Advisory Committee was disbanded.
- There is a large backlog of requests.
- New change requests are initiated in eService/RightNow.
- JIS/DISCIS Change Requests, as old as 1990, are stored in Rational ClearQuest and have associated hardcopy documentation.
- Some JIS change requests, circa 2000-2005, are lost or lack original documentation, because tools were replaced and processes changed with no transfer of the repository.
- Defect tracking done in eService/RightNow and effective.
- Legislation changes well identified and addressed.
- JIS provides some CLJ plea/sentencing functionality, but more is desired.
- For CLJ financial processing, JIS provides A/R and A/P processing, receipting, bail/bond processing, time pay and collections, and banking, including deposits, reconciliation.
- For superior court financial processing, JIS provides A/R and A/P processing, collections and LFO billing, and banking, including deposits and reconciliation. (Superior courts use the JRS application for receipting.)
- Inefficient processes– a transfer of a case from one court to another requires manual refiling of the case; courts use workarounds, e.g., creating "dummy" cases to support non-case events, such as search warrants.
- JIS, since it was initially developed for CLJs, was optimized for heads-down, high-volume data entry.

- There are application problems in correctly identifying people
- There are expectations for eParking.

Development Processes (Mainframe, COBOL/Natural, DB2)

- Design standards are generally followed but are dated.
- A systems development life cycle (SDLC) is followed but is dated.
- Standards are in place and are followed for External and Internal Design, Natural, JIS, the SDLC, and Quality Control are documented, but those standards are old.
- When changes are scheduled, the backlog of problem tickets or change requests is reviewed, and the scope may be increased, if there is no adverse impact.
- Program documentation is generally good for JIS. Higher-level documentation is needed to relate processes.
- There is insufficient documentation, or documentation is sometimes not well organized, to bring new technical staff up to speed quickly on code structure.
- Quality Control is provided with peer review of code and documentation and execution of unit test scripts.
- A lack of automated tools has stymied regression testing.
- Testing depth is scaled to the change—minor changes receive more focused testing; major changes, which impact large areas of the application or are high-risk, receive wide and deep testing by a team of testers.
- Configuration Management (CM) is tightly controlled; it includes check out and check in procedures, restricted CM authority, preparation and publication of release notes, and a published twice-monthly release schedule.
- For legislation changes, active involvement in analysis and evaluation with feedback to law makers.

Stability

- Stability has been enforced.
- Legislation changes addressed.
- Some code is brittle, most acceptable.
- Lots of rules and validations, application is rich but inflexible.
- Procedures are in place and are followed for responding to requests, including triaging, approving, and prioritizing.
- There is a library of how-to documentation for responding to routine user requests and system problems.

Sustainability

- Generally modular.
- Does not incorporate recent architectural approaches but language is not the limiting factor.
- Low growth rate
- Infrequent response time issues have resulted as the database has grown and typically result in the addition of new indexes; occasionally they result in a change to code to re-optimize the database access.
- Incremental additions to user interface are impacting usability.
- Field and array sizes are an issue as each court's volume of historic data grows, and as some courts are being consolidated.

Suitability

- There is no architectural model
- Some older code didn't utilize table-driven logic. Newer code is frequently table-driven.
- Integration requires screen scraping for external uses.
- Well suited to some of the bulk data entry tasks at some courts.

2.2. Superior Court Management Information System (SCOMIS)

SCOMIS is used by the superior courts as their case management system. The superior courts use SCOMIS in conjunction with JIS and JRS.

Business Requirement Satisfaction

- There are a variety of ways to receive requirements.
- There is no consolidated tracking or management of requirements.
- The JIS Advisory Committee was disbanded.
- There is a large backlog of requests.
- New change requests are initiated in eService/RightNow. Old Change Requests are stored in Rational ClearQuest and have associated hardcopy documentation. Some change requests, circa 2000-2005, are lost or lack original documentation, because tools were replaced and processes changed with no transfer of the repository.
- Defect tracking done in eService/RightNow
- Legislation changes well identified and addressed.
- SCOMIS does not include accounting; the court uses JRS receipting and JIS for the remainder of accounting.
- Calendaring within SCOMIS is basic
- The JIS Calendaring system (CAPS) was intended to provide calendar for the superior courts.
- Optimized for dedicated, trained heads-down data entry.

Development Processes (Mainframe, COBOL/Natural, DB2)

- Design standards are generally followed but are dated.
- A systems development life cycle (SDLC) is followed but is dated.
- Standards are essentially undocumented. The manual is old and of limited coverage.
- Program documentation is spotty.
- There is insufficient documentation to bring technical experts up to speed on code structure.
- Quality Control is provided with peer review of code and documentation and execution of unit test scripts.
- A lack of automated tools has stymied regression testing.
- Testing depth is scaled to the change—minor changes receive more focused testing; major changes, which impact large areas of the application or are high-risk, receive wide and deep testing by a team of testers.
- Configuration Management (CM) is tightly controlled; it includes check out and check in procedures, restricted CM authority, preparation and publication of release notes, and a published twice-monthly release schedule.

- For legislation changes, active involvement in analysis and evaluation with feedback to law makers.
- Limited documentation available, better at lower levels.

Stability

- Stability has been enforced.
- Legislation changes addressed.
- Lots of rules and validations.
- Procedures are in place and are followed for responding to requests, including triaging, approving, and prioritizing.
- There is a library of how-to documentation for responding to routine user requests and system problems.

Sustainability

- Generally modular.
- Does not incorporate recent architectural approaches but language is not the limiting factor.
- Overbooking of resources.
- Low growth rate

Suitability

- There is no architectural model
- Could be table driven.
- Newer code is frequently table-driven.

2.3. Court Automated Proceeding System (CAPS)

This application is currently in production and in use in one county, Yakima; it offers resource management and event scheduling for that superior court.

Business Requirement Satisfaction

- New system (July 2004), no outstanding features.
- Outstanding performance issues, requested one data exchange.
- Users express satisfaction with functionality
- Dissatisfaction with performance.

Development Processes (Mainframe, Java, DB2)

- Extensive automated test suite fallen out of use. Would like to fill in gaps.
- Standards for coding, UI. No standards for design.
- Java framework in place.
- Developed using agile methodology, code documentation is weak.
- Requirements documented. Release notes current.
- Technical bugs identified but no process for dealing with them until user encounters.
- Refactoring not done in SDLC.

Stability

- An incremental re-write achieved user satisfaction over 18 months
- Not yet deployed beyond the one court.
- Dissatisfaction with EJBs (Enterprise Java Beans).

Sustainability

- Performance issues seem to be distributed and can impact other applications/users beyond the one superior court's CAPS users.
- Java classes are sometimes extensive

Suitability

- Worked well for developing application incrementally for a single user community

2.4. Appellate Court Records & Data Systems (ACORDS)

Released in 2002, this system was a rewrite of the legacy ACORDS. It is the case management system for the Supreme and Appellate Courts.

Business Requirement Satisfaction

- Users generally content with functionality
- No enhancements allowed since 2006 Changes limited to data fixes, new codes.
- Calendaring suggested as an enhancement.
- Unknown backlog of requests past and present.
- No governance on request process. Older enhancement requests no tracked.
- eService used for problem reporting, BA triage, tracking in Rational ClearQuest.
- Requirements from old system, revisited in 98, kept up until 02 (not in consolidated form).

Development Processes (Mainframe, Java DB2)

- High level documentation on data and architecture, no comments in code.
- Process flows exist for Appellate court but not Supreme Court
- Defects more likely to be patched rather than fixed due to uncertainty about effects of change.
- No code reviews, agile process has been introduced

Stability

- Brittle. Reluctance to change, unsure of effects
- Incomplete test coverage.
- Testing tool (Rational Robot) is unsupported.

Sustainability

- Follows best practices – of 2002.
- Work-arounds now accepted practice.
- Classes of 20K lines.
- Contractors are reluctant to touch the code.
- Incomplete test suite, some areas not covered.

Suitability

- UI design based on user preferences.
- Performance tending to slow, not database. Presumed architectural (possibly EJB's).
- Major architectural overhaul is needed

2.5. Juvenile & Corrections System (JCS)

The latest product added to the JIS portfolio. It replaces JUVIS as the Juvenile Court case management tool. Implementation of this system for the Superior Court Juvenile departments was completed in the spring of 2006.

Business Requirement Satisfaction

- Well liked by end users, has decent performance, no defects and the enhancements are pretty much up to date. Users would like more data available through a data exchange.
- Good connection to user base, user committee structure. No formal governance.
- Reacts quickly to user requests.
- Probation, program management, risk assessment, adult misdemeanor, detention management functionality were scoped out and on hold.
- Other specialty courts are a new requirement.
- Response time is satisfactory.
- Data sharing opportunities exist with other departments.
- Needing to enhance usability with Data Warehouse.

Development Processes (Desktop, Magic, DB2)

- Active development and enhancement life cycle.
- Internal and external code control.
- Documentation current and complete.
- Componentized development.

Stability

- Good throughput on enhancement requests, zero outstanding defects.
- Almost no bugs.

Sustainability

- Web based UI, integrated with legacy through DB2.
- Natural / COBOL component captures events from SCOMIS.
- Develop components and integrate.
- Can write re-usable code.
- Supports creation of EJBs, Web Services or COM objects.
- Underwent rewrite under iterative development.
- New eDeveloper release (10.1), indicating support but lack of currency. Migration is planned.
- Behind on product releases. Magic is company eDeveloper is now uniPaaS.

Suitability

- Scalable application and architecture
- Different paradigm from COBOL, steep learning curve. Difficult to hire, consultants available.
- Not a lot of heads-down data entry – larger functional screens.
- Strong validations and business rules.

2.6. Judicial Receipting System (JRS)

A receipting system used by the County Clerk's offices (Superior Court) that uploads data nightly to JIS.

Business Requirement Satisfaction

- Users generally happy with functionality.
- Real time reporting on (unofficial) request list.
- Receipting is real time, posting is not real time.
- Internal support is organized, but reliant on external vendor.
- Most errors are 'user-error', indicating either a poor design (can't undo or fix, or unclear interface) or an inherently difficult application.
- Most changes result from new fees prescribed by legislature which require creation of new accounting buckets.
- Presence of Cash drawer functionality distinguishes this application.

Development Processes (Desktop, Delphi, local/DB2)

- No problem identification based on code (no Delphi experience).
- Support requires SOW for vendor with entailed overhead for approvals.
- No access to remote systems for support.
- No test plan.

Stability

- Fixes create problems.
- Installs fail - two counties identified as problematic.
- Took several months for application to settle in after last major upgrade in 2005/06.

Sustainability

- Local support required to implement fixes.
- No architectural model.
- No language skill set support on-site.
- Application is an overnight batch cycle. Not a significant user constraint.
- Trust money is not available until uploaded in a nightly batch process.

Suitability

- Supported by external consultants for language expertise. Not the product support group.
- Failures are locally catastrophic – blocking data exchange until recovered.
- PC based install, requiring local support, variation in platform.
- Manual initiated process.

2.7. Data Warehouse

Provides court users with access through the Brio and Hyperion reporting tools to restructured and summarized data for ad hoc queries and reports; the reporting tools are also used to provide report data to the ACORDS and CAPS applications. The data warehouse is currently being updated. The BRIO reporting is being replaced by Business Objects.

Business Requirement Satisfaction

- No proactive user engagement.
- User requests are addressed but major requests may be heavily filtered.
- No current change review agency.
- Need for cross CLJ and Superior Court queries, juvenile case load and revenue queries.
- Expecting better functionality from Business Objects interface.
- Manageable backlog of help desk requests.
- 100% coverage for Appeals, 50% for other courts.

Development Processes (Intel, Brio, MS SQL)

- Internal collaborative approach.
- Some design driven from external sources without input.
- Currently lacking in structured methodology.
- Single methodology across the architecture.
- ER Studio models, data dictionary.
- Business Objects has imbedded metadata documentation features.

Stability

- Legacy complexity.
- Growth will occur as new data types and sources are added (e.g. accounting data, external juvenile and non-court specific data).

Sustainability

- Replacing BRIO for user reporting– no longer supported.
- Consistent User Interface.
- Old system exposed users to SQL Outer Joins.

Suitability

- Moving to new tools.
- Searching on common Data Warehouse
- Separate warehouses for each of Appeal, CLJ, Juvenile and Superior courts.
- One warehouse based on view of transactional database.

2.8. Risk Assessment

Commercial Off the Shelf (COTS) application hosted at the AOC that provides risk assessment surveys for Superior Court Juvenile departments and District and Municipal Courts probation organizations. This is a tool from Assessment.com.

Business Requirement Satisfaction

- Vendor reluctance to change
- Users pay fees to vendors for changes
- Double data entry with the other applications

Development Processes (Desktop, MS SQL)

- No business analyst at this time.
- Risk of "poor" business outcomes with failure to employ applications.
- Failure to resource and keep current introduces "high risk" outcomes and decisions.

Stability

- Relatively stable.

Sustainability

- Legacy structures, redundant data.
- Research area does data-pulls using older technology. Should be migrated.

Suitability

- An older technology.
- Requires second hardware platform

2.9. Internet

Business Requirement Satisfaction

- Provides access to data as a "freedom of information" consideration.
- Currently degrading quality of service by not enhancing for filters and addressing user expectation.
- Moderate volume of change.
- No formal governance.
- Large volume of new small applications.

Development Processes

- User driven.
- Follows formal and informal processes to ensure proper disclosure.
- Legal and privacy regulations.
- Development standards undocumented – 3 people.

Stability

- Generally stable, couple of bigger problems recently.
- Highly reliant on technology for dissemination.

Sustainability

- Strong emphasis on user requests.
- Limited by JIS interface and legality.
- Danger of losing information in outdated, disorganized collection.
- AOC is looking for rapid deployment – user controlled.
- Cold Fusion tool is actively supported by the vendor – Adobe.

Suitability

- Tools are suitable for business need.
- Not prepared for Self-controlled Content Management.

2.10. eTicketing

An application that is used to receive and process electronic tickets and to send dispositions to DOL. Governance provided by a user work-group.

Business Requirement Satisfaction

- There is a set of outstanding requests, primarily from AOC rather than external.
- Formal governance (ETRIP) enforced by interaction with outside agencies (e.g. Department of Transportation).

Development Processes (zOS, Java/HATS, DB2)

- Writing both sides of the services. Perception is that this is a mismatch of the business and technical models of SOA.

Stability

- Relatively stable.
- Architectural faults make failure catastrophic rather than gradual.

Sustainability

- Design is transport using multiple layers of web services that include wrappers.
- Some steps are ugly (e.g. HATS is an unknown, screen scraping). There is an awareness of better alternatives.
- Scalability is unknown, but is growing.

Suitability

- Uses BizTalk.

3. INFRASTRUCTURE

3.1. Database

- Overall the database seems to be well maintained and well tuned. The DB2 database is regularly re-organized and run-stated. The queries are maintained and perform well overall, except for the odd ad-hoc query from one of the applications that will occasionally time out. This reflects on the particular SQL rather than the use of dynamic SQL in general and should be tunable.
- There is a significant amount of data in some of the tables – up to 500 million rows – and overall 0.6 terabytes of allocation space (about 0.3 terabytes of used data).
- There is a single review point to support application areas. A standardized approach is used. For DB2, the data schema changes are documented, but not the methodology. The MSSql follows industry best practices. Schemas are well documented, but no data dictionary (definitions).
- The DBMS software is kept current and is well supported. Data structures are integrated across applications, making retrieval simpler but more difficult for data entry and modification.
- Regular performance and problem monitoring support the current requirements for functionality, performance and availability. There is no architectural direction.
- Though these are logically common entities, different physical tables often exist specific to each application. Most other entities hang off of one of these.
- There is some Referential Integrity (RI), but it is limited.
- No business level triggers or other data layer business logic.
- Integration is achieved at the application and sometimes user level (e.g., a user establishes a person in one app and then goes to another to reference that person).
- Most issues are deadlock related.
- Database transaction response time averages about .17 seconds. Web applications are longer than average, but there are fewer transactions.

3.2. Network

Overview

The Administrative Office of the Courts (AOC) provides courts with access to JIS applications. The Local Area Network within AOC varies between 100Mb and Gigabit speeds using CISCO switches and routers. There are currently 272 courts connected via IGN/JIS/VPN/Read-only. There are 179 IGN connected courts. There are 87 courts with they're own unique circuit (most are frame-relay). There are 6 courts that have read-only access via a dial-up connection. Wide Area Network connectivity to the courts is primarily provided via T1 links. The AOC is currently migrating 77 courts to a VPN connection. Security is provided by various Firewalls with some F5 BIGIP devices providing additional protocol security and SSL acceleration. Support for the network is provided by a team of five staff with one member specializing in firewall maintenance.

Security

The two primary firewalls which provide access for the AOC are redundant and use fail over. Internal control is provided by VLANs and MAC addresses. Each device on the network is placed into a VLAN based on the physical MAC address of the device. The VLAN determines what access the device will have. Any devices with unregistered MAC address are placed in the public VLAN which allows internet access only. In addition, remote desktop access is not allowed anywhere within the core network. Independent 3rd party vendors have been brought in to perform intrusion security tests and according to the network staff no major issues were found.

ASSESSMENT: Good, generally following industry best practices.

Disaster Recovery

There is a disaster recovery plan in place which allows for failover to remote sites located in Renton and Philadelphia. This is provided by SunGard. This service provides the physical site, hardware and basic network connectivity. AOC has a detailed disaster recovery plan which is updated and tested twice a year in September and March. The network team has indicated that tests have gone well and network connectivity has been restored within the required timeframes. There are plans to expand access to the recovered site in the future.

ASSESSMENT: Very Good, following industry best practices.

Power

Power for servers and network devices is provided by a pair of redundant Liebert 65KVA uninterruptable power supply devices. In addition, there is a backup diesel generator to provide power in the event of extended outages. The UPS' and generator are tested weekly.

ASSESSMENT: Very Good, following industry best practices.

Network Monitoring/Capacity

The internal network runs on a mix of 100Mb and 1Gb connections. Network staff doesn't believe there are any internal bandwidth issues, however, their tools are limited to point in time snap shots and are not capable of trending. There are some issues with bandwidth to the external courts; network staff is the process of upgrading to higher bandwidth connections which are also cheaper than the existing connections. Network staff generally has no control over the networks at each court's site which makes to troubleshoot both performance and connectivity issues. Overall it is difficult to provide a consistent level of service in this environment.

ASSESSMENT: Good, some risk due to lack of control over local court networks. The addition of trending software would allow for better monitoring of peak networks loads and would provide good information for upgrade planning.

Patching/Upgrading

Network firewalls are patched on a regular basis to ensure all firewalls are kept up to date. Network switches are upgraded on a more ad hoc basis, for example switch ISO firmware is upgraded as needed. Maintenance/support contracts are purchased for critical equipment. Some network equipment has been declared to be end of life by the vendor. Some of these devices are critical or form part of the core network. While the equipment is still under support, no new fixes or patches are being developed and the vendor will be dropping support within the next year. Staff are aware of this and are working to get approval to purchase replacement equipment prior to the end of the support. There does not appear to be a formal equipment replacement plan in place.

ASSESSMENT: Good, However it is considered an industry best practice to have a formal equipment replacement/refresh strategy in place

3.3. Servers

3.3.1. Intel Servers

Overview

AOC runs six applications on Intel servers running the Windows operating system. The applications include; the data warehouse, the Juvenile and Corrections System, the Judicial Receipting System, a risk assessment survey system as well as extranet and intranet sites. These applications are run on relatively new IBM hardware. The loading on the server is considered to be acceptable by the staff and there is capacity for growth. There is some use of clustering for critical applications. Backups are done on the IBM Mainframe. Support for the Intel servers is provided by a team of four five staff; this team also provides support for other infrastructure type services (e.g. exchange, file services etc.). The staffing levels are considered adequate by the staff performing the work.

Disaster Recovery

There is a disaster recovery plan in place which allows for failover to remote sites located in Renton and Philadelphia. This is provided by SunGard Availability Services. This service provides the physical site, hardware and basic network connectivity. AOC has a detailed disaster recovery plan which is updated monthly and tested off-site, at the SunGard facilities twice a year, in September and March. Systems are restored from the tape backups. The server team has experienced some issues in bringing up servers on the hardware provided by SunGard. In some cases the Test-recovery timeframe requirements were not met. Note the test-recovery timeframe is more stringent, than publicized Distaste Recovery Times. This has been a challenge for several of the past tests as SunGard does not provide consistent Windows Server equipment for the test (the same would be true in the event of a real disaster). The team is investigating options (including server virtualization) that will lessen the dependence on specific hardware and which should help bring the recovery to within the required test timeframe. The Plan was audited and reviewed recently and passed with glowing remarks. The Disaster Recovery Plan is a compilation of work and input of all staff members. Review of the Windows Server Recovery section of the plan is done by a DR Primary staff member. The DR Primary role is rotated semi-annually, to include all team members' involvement.

ASSESSMENT: Very Good, following industry best practices. Note the fact that the testing is discovering issues with the disaster recovery plan is an indication that the testing is effective.

Performance Monitoring

The team uses monitoring and trending tools to track and trend CPU, memory and disk utilization. Note there was no review or evaluation of the tools themselves or the actual use of the tools.

ASSESSMENT: Good, following industry best practices

Patching/Upgrading

The team performs patching and upgrades as required within the identified change windows. The user community is warned of upcoming changes via email and has the opportunity to request a delay for business reasons. There have been cases where upgrades have been delayed due to application requirements (i.e. the application would not support the upgrade). Servers are under maintenance contracts. In the past there was a defined refresh/replacement cycle for servers. This practice has since been dropped in favor of a more ad hoc replacement strategy. There does not appear to be a formal equipment replacement plan currently in place.

ASSESSMENT: Good, However it is considered an industry best practice to have a formal server replacement/refresh strategy in place

3.3.2. Mainframe

Overview

AOC runs the majority of their court applications including ACORDS, CAPS, DISCIS, JABS, SCOMIS, the Data Warehouse, Date exchange services and the Electronic Ticketing Process and Disposition systems on their two IBM mainframe servers. These applications are run on current IBM hardware.

Disaster Recovery

There is a disaster recovery plan in place which allows for failover to remote sites located in Renton and Philadelphia. Recovery Services are provided by SunGard. This service provides the physical site, hardware and basic network connectivity. AOC has a detailed disaster recovery plan which is updated and tested twice a year in September and March. Systems are restored from the tape backups. The mainframe team has not experienced issues in restoring services on the disaster recovery provided servers and has been able to establish functionality within the specified recovery timeframes.

ASSESSMENT: Very Good, following industry best practices.

Performance Monitoring

The team uses monitoring and trending tools to track and trend CPU, memory, disk utilization and job completion times. Note there was no review or evaluation of the tools themselves or the actual use of the tools.

ASSESSMENT: Good, following industry best practices

Backup/Recovery

Backups for both the Intel and Mainframe servers are performed on the mainframe using a four drive tape library. Data is backed up to disk (virtual tape) and then to physical tape. Physical tapes are stored offsite in a secure location by a reputable national firm. The backup scheme consists of daily differentials with weekly full backups. Full restores are tested twice a year as part of the disaster recovery testing and there are frequent restores for specific files by users which also exercises the restore capability. There is concern by staff that the weekly full backups are exceeding the backup window and they are looking to upgrade the system. Also there does appear to be some issues with the restore from the virtual disk to the Intel servers. This has been brought to the attention of the vendor. As noted earlier, there does not appear to be a formal equipment replacement plan in place. Note there was no review or evaluation of the tools themselves or the actual use of the tools.

ASSESSMENT: Good, following industry best practices.

Patching/Upgrading

The team performs patching and upgrades as required within the identified change windows. The user community is warned of upcoming changes via email and has the opportunity to request a delay for business reasons. There have been cases where upgrades have been delayed due to application requirements. The servers are under maintenance contracts. The hardware has recently been upgraded with additional CPU, memory and specialty processors including the zIIP processor for JAVA applications and the zAAP DB2 processor. As a result of these recent upgrades the loading on the servers is considered to be acceptable by the staff. The recent upgrades have made a considerable difference to the overall performance but particularly for batch jobs.

ASSESSMENT: Good, However it is considered an industry best practice to have a formal server replacement/refresh strategy in place

Staffing

The IBM mainframe systems support team consists of two support analysts and a manager. The manager intermittently gets involved in system maintenance/support activities. The lead team member of 20 plus years has very recently retired. Interviews are being conducted to find a replacement. There appears to be no formal documentation process in place and processes/procedures are not well documented.

ASSESSMENT: Some risk. A senior person with a large body of knowledge has recently left the organization and much of this knowledge has not been well documented. There appears to be lack of formal documentation/change procedures. In addition, the manager is involved in performing systems maintenance tasks which is not consistent with Industry best practices.

4. SUPPORT

4.1. Project Management Office

Historically AOC has not had a formal Project Management Office (PMO). Recently AOC Executive established a PMO that is expected to be implemented incrementally over the next 24 – 36 months. Their focus is in four major areas:

Major project support

- For communications and portfolio management.

Enterprise Project for implementation and change management

- This is based on four stages of Initiate, Plan, Execute and Closure.
- One of the deliverables is a starter kit consisting of an on-line PM toolkit and training.
- They are currently deciding on the PMBOK version and elements to be included.

Resource management

- Is dealing with the problem of resource availability and ownership.
- The organization is currently in flux.

Quality Assurance

- Internal resourcing has not yet been established.

4.2. Testing

- Testing from user documentation, not formal requirements.
- Reasonable process.
- No warehouse testing environment, particularly for dependent applications.
- Mainframe has fair scripts for changes, but no full regression suite.
- Full Multi User Tests for new software support releases (Natural). In process of building one for SCOMIS.
- Automated scripts for ACORDS are started.
- They have Rational Robot for non-legacy.
- Work on a "Joint and Several" responsibility approach so no individual or group solely responsible for quality.
- There is no architectural documentation. They need good documentation at a higher level that covers interactions between functions within a system and between systems.

4.3. Customer Services

- Application requirements are ill defined and coming from multiple sources.
- There should be more user and support education.
- Development needs to follow a more integrated stream from requirements through to education.
- There are too many "fences" between AOC groups. The processes are not inclusive.
- The applications are not kept current with the business processes and work-arounds are put in place.
- The applications force work out to the user, where AOC is unable to respond.
- The change from 3270 to web interfaces is not done. Focusing on the "web" for everyone is not the answer.
- There are too many ways to do the same operation leading to confusion and errors.
- Succession of roles in the user community is an issue. New users come with a different expectation of technology and find the systems "dated".
- Lack of single user sign-on is seen as a nuisance.
- There are usability and throughput issues.
- There are challenges in the documentation. There are differences by application.
- There is a lack of integration between SCOMI S and other JIS applications. Have to navigate multiple systems to perform a single operation.

Appendix A. Acceptance & Signoff

Deliverable Two – JIS Applications Portfolio Inventory is herein submitted for approval.

This version has been reviewed by Sierra Systems resources and AOC Project team members and in all material aspects provides the required content and satisfies the intent for same as described in the original RFP 08-10, dated June 23, 2008, Sierra Systems' response, dated July 02, 2008 and the final contract, dated July 20, 2008.

Submitted	Recommended	Accepted
Shayne Boyd Consulting Director, Sierra Systems	Eric Kruger AOC ISD, Enterprise Architect	Gregg Richmond AOC ISD, Chief Information Officer
Date	Date	Date

Appendix B. List of AOC Interviewees

- SCOMIS - Maris, Celeste; Kemerer, Marilyn; Rankin, Rhonda; Baugh, Glen; Thompson, Fred; Opp, Fawn; Bailey, Ted; Murphy, Lori; Wittrock, Julie; Taylor, Beth
- DISCIS – Maris, Celeste; Kemerer, Marilyn; Rankin, Rhonda; Baugh, Glen; Thompson, Fred; Opp, Fawn; Bailey, Ted; Murphy, Lori; Wittrock, Julie; Taylor, Beth
- CAPS - Basi, Paramjeet; Crutcher, John; Thompson, Keri; Dean, Michael; Hjelm, Norm; McKown, Randy
- ACORDS - Basi, Paramjeet; Crutcher, John; Evans, Elaine; Padukiewicz, Maria
- JCS - Taylor, Beth; Yost, Ray; Williams, Les; Fuchser-Burns, Carol; Su, Juston; Peterson, Adam
- JRS - Winn, Janice; Baugh, Glen; Opp, Fawn; Grauman, Becky
- Data Warehouse - Guinotte, Gary; Bauer, Yun; McGrath, Beth; Wheeler, Tracey, Creighton, Jennifer
- Risk Assessment - Guinotte, Gary; Taylor, Beth
- Internet - Ferrell, Wendy; Neal, Virginia
- E Ticket - Thompson, Keri; McKown, Randy; Dean, Michael; Clark, Angie; Hjelm, Norm
- Database - Rathore, Tariq; OConner, John; Guinotte, Campbell, Wayne
- Network- Tingle, Kirby; White, Dale; Peck, James
- Server - Hjelm, Norm; Winslow, Christine; Peterson, Adam; Hansen, Steve; Fuchser-Burns, Carol; Thompson, Danielle
- PMO - Graham, Jody; Najarro, Manuel; Wyer, Kathleen
- Customer Services - Ford, Doug; Bailey, Ted; Aldous, Elaine; Winn, Janice; Jackson, Scotty; Jensen, Charlotte; Dosser, Cheree; Yates, AJ