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Governor

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An advisory opinion adopted by ITAB is an interpretation of NRS 242-124 requirements. This advisory opinion is not law; it is a recommendation. This advisory opinion is an official opinion of ITAB regarding the practice and opportunities of Information Technology Management in the EITS Division. EITS policies may restrict practice further in their setting and/or require additional expectations related to competency, validation, training, and supervision not currently included in this advisor.

OPINION

The ITAB board believes EITS should have three primary goals regarding IT services: (1) provide continuity of services with a framework that allows the State to grow and improve; (2) normalize the security of its' environment including processes that ensure it keeps pace with threats; and, (3) improve the efficiency of the IT environment through consolidation, improved governance, standardization and other methods to provide Citizens and State agencies with appropriate service delivery.

APPROVED: ITAB Board
DATE: 08/12/2012

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ORIGINATING COMMITTEE: ITAB

ADVISORY OPINION

The ITAB board believes EITS should have three primary goals regarding IT services: (1) provide continuity of services with a framework that allows the State to grow and improve; (2) normalize the security of its' environment including processes that ensure it keeps pace with threats; and, (3) improve the efficiency of the IT environment through consolidation, improved governance, standardization and other methods to provide Citizens and State agencies with the next generation of services.

STATEMENT OF SCOPE

Advise the EITS Division concerning issues relating to information technology, including, without limitation, the development, acquisition, consolidation and integration of, and policies, planning and standards for, information technology

RATIONALE

The ITAB Board has finalized four Priority documents. These recommendations are intended to assist EITS practitioners with their Strategic Planning efforts. This Advisory is the Board's official statement intended to encourage EITS to consider the direction received from its Strategic Planning Committee, the ITAB Board and any Professional Peer Analysis engagement in the development of its Strategic Direction, utilizing the following outlined recommendations.

SUPPORTING STATUTE

RECOMMENDATIONS FOR THE ADVANCEMENT OF CONTROLS AND EFFICIENTCIES FOR THE STATE OF NEVADA EITS

In accordance with Nevada Revised Statute Chapter 242, General provision 124

1. The ITAB Board shall:

(a) Advise the Division concerning issues relating to information technology, including, without limitation, the development, acquisition, consolidation and integration of, and policies, planning and standards for, information technology.

(b) Periodically review the Division's statewide strategic plans and standards manual for information technology.

(c) Review the Division's proposed budget before its submission to the Budget Division of the Department of Administration.

2. The Board may:

(a) With the consent of the Division, recommend goals and objectives for the Division, including periods and deadlines in which to achieve those goals and objectives.

(b) Upon request by a using agency, review issues and policies concerning information technology to resolve disputes with the Division.

(c) Review the plans for information technology of each using agency.

(Added to NRS by 1993, 1539)

It has been the Board's observation through our five official meetings with the State of Nevada's technology leadership and private sector subject matter experts that we can best assist EITS by bringing our cross discipline experiences to the fore to help understand to what level of success initiatives have been achieved. ITAB is particularly interested in experiences with consolidation, infrastructure standardization, Governance initiatives and efforts to effectively improve security environments. The ITAB Board, based on these shared expertise and our five official interactive meetings, offer the following initial recommendations to EITS.

1. Consolidation

Recommendation

The Consolidation Subcommittee provided the following recommendations to the ITAB Board on July 9, 2012. (Extracted and Reformatted from the ITAB Board meeting minutes of July 9, 2012.)

1. The Governance Subcommittee submitted their recommendations to ITAB that states they support Agency consolidation where appropriate and executed in a reasonable time where it would achieve improved State services and efficiencies.
2. The State's Strategic Planning Committee and EITS plan should evaluate when, where, how consolidation of IT functions would be beneficial, in conjunction with pilot agencies.
3. The Committee believes that Consolidation is accomplished over time and isn't necessarily defined as centralizing all technologies and administration in one place. The committee asserts that this discipline requires identifying the business opportunities where consolidation efforts would benefit State agencies by promoting improved efficiencies, standardization as well as consistency making the State more secure. Each of these opportunities may be identified over a period of time, tested, piloted and then adopted throughout the rest of the enterprise.

4. Consolidation, where appropriate, can only be accomplished through the shared vision and confidence of the State's Technology leadership and their concerns are managed.
5. There is little objection by the Committee regarding the consolidation of the technology infrastructure (Government IaaS) and may be accomplished early in the assessment process.
6. There appears to be no objection to global standardization of Security policy, administration and where appropriate, systems.
7. Strategic Sourcing must be considered as a viable alternative in all areas of Consolidation. (SaaS/IaaS/PaaS)
8. The EITS strategic plan should define the when, where, and how of Consolidation. The Committee suggests that some level of independent third party assessment of the current state of the State technology environment coupled with national experience may be beneficial in guiding the Technology Strategic Planning Committee's recommendations to the EITS planning process.
9. EITS and the Department of Public Safety will be consolidating operations this year and will be monitored as a vertical consolidation pilot. The Committee projects that once EITS has demonstrated some successes, the State's technical leadership may be willing to move some of their programs and systems under EITS's direct control.

Issues

1. NASCIO reports that national pilots attempting Consolidation and Modernization of Government federated environments have been failing at an exceptionally high rate.
2. State Technology Leadership agrees that the potential attributes of consolidation have considerable merit; however, few want to pioneer this concept without some assurance and experience in a proof of concept in such a high risk environment.
3. Concern is based on loss of control, denial of services through failures and reduced/restrictive capabilities.
4. It has been determined that state agencies are not quite ready to jump into consolidating large complex programs at this time. The technical community does seem to be interested in creating one statewide email system. But they believe even that has serious issues and costs involved. Agreement in use and configuration of business rules is difficult to obtain from multiple independent business units. Additionally there are inconsistencies in records management life cycle requirements as well as concern of e-discovery compliance.
5. In most public safety agencies, there is considerable complexity related to funding. Accounting can be extremely difficult. Merging public safety systems must address funds management compliance.

Explanation

1. The State has determined that in accordance with NRS 242, based on continuing due diligence, the observation and recommendations derived from the ITAB Board, the Technical Strategic Planning Committee and National trends, the practical "Consolidation" of infrastructure and systems resulting in tax dollars savings, the modernization of business applications and the standardization of security administration is essential and, to some level, inevitable.
2. Significant events in innovation specific to the evolution of technology will help justify many of these alternative structural changes forward as would:
 - Consideration of alternative processing structure during the budget planning process sparking Business Practice analysis and potential reengineering.

- Upgrading or modernization of critical business or ERP systems.
 - A catastrophic system failure or security breach.
 - Economic events or conditions as drivers.
 - Changes in business direction and community service needs.
3. Long range goals are essential. The growing technology needs of internal and external communities as well as intergovernmental/inter-local shared disciplines suggest that technology stewards must continually examine enterprise level opportunities in application modernization for aging environments, consistency in tools, hardware and infrastructure currency/stabilization and effective security. This approach typically has given peer organizations across the U.S. time to assess and plan for improvement.
 4. Consolidation efforts are often piloted within three different disciplines: (1) during an ERP effort; (2) through gradual migration of infrastructure; or (3) centralizing a vertical agency as a pilot project/ proof of concept. EITS has elected to pursue the 3rd option initiating a pilot program with Department of Public Safety which was approved by the last legislature.
 5. Centralized environments can be a single point of failure and a concern to clients dependent upon the system. Two components must be considered to ensure continuity of services. One is the modernization of systems so that the supporting infrastructure can manage a 24-hour service level. Secondly, system administration must be tuned with the needs of the serviced clients particular use patterns, usually facilitated through application modernization and appropriately managed infrastructure.

2. Security

Recommendation

Create an IT Strategy and or ISMS (Information Security Management System) via an appropriate adopted framework for the State of Nevada. Centralize all IT Security and Internal Control functions under the CIO and ensure that the Enterprise Architecture strategy includes “Security by design” for all systems/solutions.

Issues

While the State of Nevada has a dedicated IT Security team, this group under the CIO is limited in their ability to enforce policy and audit Internal Controls. Cyber-attacks including viruses, malware, denial of service, are more prevalent and sophisticated now than ever before. Businesses and Agencies require an equally sophisticated strategy to protect systems/data at multiple levels, not just at the perimeter. An ISMS would include a protection strategy for data, systems, network, and infrastructure. It should include operations monitoring strategy, and a security awareness program.

Explanation

Step #1 Create IT Strategy and/or ISMS (Information Security Management System) via adopted framework (e.g., ISO 27001 and 27002, NIST, COBIT)

IT Security Strategy may include the following disciplines:

1. Security Governance
2. Planning & Budgeting
3. Organization
4. Controls framework
5. Architecture & Engineering
6. Operations and Process
7. Communications, Education, and Awareness
8. Event detection and response (Advanced “Situational Awareness”)

9. Threat and vulnerability management
10. Risk and controls assessment

ISMS may include:

1. Security Policy
2. Security Management Plan (Scope, Perimeter, Gateways, Application, Data level, Desktop, etc.)
3. Asset Management
4. Physical Security (Perimeter Security)
5. Operations Management (Patch Management, constant monitoring)
6. Proactive Vulnerability Management (Ethical hacks, Data loss prevention tools, etc.)
7. Access Management
8. Incident Management
9. Business Continuity and Disaster Recovery
10. Compliance Management

Step #2 Conduct “current state” assessment of IT Security maturity level

1. In house or
2. Commission independent assessment/audit
 - Assess current state
 - Identify gaps
 - Set maturity targets
 - Plan improvements
 - Continuously improve the ISMS
3. Define desired maturity level (Gartner/NIST 1 – 6)
4. Define timeline to reach maturity levels
 - i. Example: level 2 in 2 years, level 4 in 4 years, etc.

Step #3 Create IT Security Governance Committee

1. Business Unit Owners
2. IT Security responsible for researching, assessing, and articulating solution risk levels to the ISGC
3. Present mitigating options
4. ISGC Accepts or rejects risk

3. Governance

Recommendation

The Governance Subcommittee makes the following recommendations to the ITAB Board.

1. EITS should be substantially involved in the vetting, prioritizing, implementing, and post-implementation reviewing of IT projects statewide.
2. The IT strategic plan should align with the State’s strategic plan, related to the Governor’s priorities.
3. EITS must implement processes to efficiently manage IT hardware, software, and equipment owned by the State through its life cycle.

4. EITS would benefit through the adoption structured governance programs and formal governance tools and policy. The Governance Subcommittee further supports consolidate where appropriate and at a reasonable time to achieve these recommendations.

Issues

1. EITS must complete a formal IT strategic plan including and articulating governance as a required discipline.
2. EITS should be strategically involved in the beginning of each technology business process, well before the purchasing request.
3. Currently, there is no designated project oversight. The former project oversight committee was discontinued some time ago. Now, once TIR (budget) is approved, there is no formal mechanism for EITS to assist in the status and management of State agency's technical projects.
4. The current overall process lacks review of expected benefits. There is a lack of standardized methodology or mechanisms for evaluating whether a project achieved the expected benefits. This lack of monitoring prevents an opportunity for continuous improvement.
5. There is limited formal asset management/real inventory process.

Explanation

1. Governance is better serviced through the involvement of a customer service project management group to focus on customer needs and operational needs translated into projects which are then tracked.
2. Cost benefit analyses typically assist in ascertaining the best and most beneficial direction for local and enterprise projects.
3. A program office with the responsibility to guide multi-discipline, multi- agency projects is a fundamental component in any initiative's success.
4. Structured Governance programs like ITIL and COBIT establish the framework required to ensure critical components of technology initiatives are addressed

4. Application Modernization/Life Cycle Management

Recommendation

Implement a DevOps suite of tools for automating release management from development through operations, and enable EITS to support large-scale Agile development efforts with frequent release cycles.

Issues

The state's core system for finance, human resources, and payroll is more than 12 years old and will soon need replacement. The cost of replacing the system could exceed \$20 million and will require a significant development effort.

The software infrastructure and expertise required to successfully implement a core system replacement needs to be established as an advance step in preparing for the effort.

Explanation

DevOps is an evolving technology sector emerging primarily from Release Management that also encompasses demand-, build-, and operations-management. The value proposition of a DevOps solution is to greatly improve EITS efficiency in developing and deploying software – thus enabling much greater release frequency while still maintaining quality and control over new releases.

Acquiring a DevOps solution in the next budget cycle will allow EITS to design and implement its processes as groundwork for the core system replacement. This will involve defining new roles and

workflow processes, training in new tools and methodologies, and updating many operational procedures. Building a knowledgeable, experienced EIT team based on current development projects and operations will be essential preparation for the core system initiative when it comes to fruition.

5. Citizen Enablement/Mobility

Recommendation

Select and implement a common Mobile Application Development Platform (MADP) for developing mobile Web-based applications (non-native), and develop a single, citizen-facing application for all agencies.

Issues

Mobile devices (e.g. smartphones, tablets, etc.) are rapidly becoming ubiquitous throughout Nevada and the country. Soon they will be the most common types of devices used by citizens to access the State's online services and content. Device Management and Security are essential consideration in these deployments.

The State's current Web presence is fragmented across agencies and lacks a cohesive user experience for citizens interacting with the state to meet their various requests/needs.

Explanation

The State has an opportunity to create a common mobile Web presence across agencies, and provide citizens with a single mobile application capable of delivering required State services. In order to create a common solution, EIT will need to take a leadership role in defining the architecture and platform to be used, and establish an application framework that all agencies can use to contribute their services and content.

EITS should select and implement a MADP to use for all mobile development. The selected MADP should be capable of developing Web mobile applications based on HTML5, and native-only development environments should be avoided. This will become the common, shared platform used by EITS developers as well as agency developers who wish to retain programming ownership of their *portion* of the mobile application.

In addition, EITS will need to establish a centralized program office to provide direction and coordination across agencies. For instance, the EIT S program office should manage user interface design standards, release planning, and integrated quality assurance testing.

6. Next ITAB Board meeting agenda

On September 24, 2012 the ITAB Board agenda will include EITS' Report on its Proposed Strategic Direction and hear from a Gartner research analyst regarding the state of the States. We will also include discussions related to Standards (Governance/Policy/System) and Security.

REFERENCES

Paul's PowerPoint/Gartner Attachments

RESOURCES

Governance Subcommittee meeting/State ITAB site 5 meeting minutes

[http://it.nv.gov/Governance/dtIs/ITAB/Information_Technology_Advisory_Board_\(ITAB\)/](http://it.nv.gov/Governance/dtIs/ITAB/Information_Technology_Advisory_Board_(ITAB)/)