

## Discussion Points

Organized “in but not of” the Department of the Treasury, the Office of Information Technology (OIT) provides information technology services to Executive Branch agencies. To that end, it oversees the mainframes, servers, networks, and databases that comprise the State's information technology infrastructure; operates the Garden State Network, a statewide integrated communications network; and runs the State's major data centers, including the Office of Information Technology Availability and Recovery Site (OARS). In addition, it manages the State's Internet environment and offers application development and maintenance, geographical information systems, data management services, and telephone services for all Executive Branch offices. State agencies, in turn, are responsible for the day-to-day management and operation of their agency-specific infrastructure components. The OIT has a recommended FY 2016 budget of \$163.4 million for 725 funded positions.

1. a. In recent years, the OIT has implemented several institutional changes intended to transform the office from a technology management-focused agency to an innovation leadership agency. One of the central changes was a **realignment of the OIT's governance structure** that the OIT announced in its May 2012 “NJOIT Dispatch” newsletter. Notably, the office was reorganized into two “service towers.” The “Technology Operations” service tower performs the routine operations of the State's information technology systems under the direction of a newly established Chief Operating Officer position. The “Technology Governance and Strategic Planning” service tower, in turn, is headed by the Chief Technology Officer and pursues technology outreach; statewide information technology policy, planning, and standards development; the reformation of the OIT's Project Management Office (Discussion Point #10 below elaborates on this point); enterprise security; and other innovation and directional responsibilities. In response to OIT Discussion Point #2 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT explained that the restructuring was a means to allow for a shift in the Chief Technology Officer's focus from managing the OIT's day-to-day operations to strategic planning and communication with client State agencies.

- **Questions:** Please comment on the OIT's experience with the new governance model that divided responsibilities between the Technology Operations “service tower” and the Technology Governance and Strategic Planning “service tower.” Has the reorganization provided the hoped-for impetus for transforming the OIT from a technology management-focused agency to an innovation leadership agency? Please indicate any successes the new governance model has produced that would not have occurred absent the reorganization. Has the OIT become aware of any deficiencies in the governance structure that might call for additional modifications? How much

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### **involvement does the Chief Technology Officer retain in running the OIT's day-to-day operations? How autonomous is the Chief Operations Officer?**

1. b. The 2012 realignment of the OIT's governance structure redefined the role of the Chief Technology Officer but did so in **temporarily departing from the OIT's statutory governance structure**. Specifically, P.L.2007, c.56 had established a nine-member New Jersey Information Technology Governing Board to head the OIT and vested in it the responsibility for statewide information technology policies, planning, standards, and general direction. The Chief Technology Officer, in turn, was to run the office's day-to-day operations and coordinate information technology operations across the Executive Branch. The restructuring transferred statutory New Jersey Information Technology Governing Board competencies to the Chief Technology Officer and statutory Chief Technology Officer Competencies to the newly created Chief Operating Officer position. But in response to OIT Discussion Point #2 the OIT pointed out that the board had never assumed its envisioned role. P.L.2013, c.253 ultimately sanctioned the OIT restructuring in January 2014 in eliminating the board and transferring its powers to the Chief Technology Officer.

- **Questions: Please present the legal authority for transferring New Jersey Information Technology Governing Board responsibilities, as set forth in P.L.2007, c.56, to the Chief Technology Officer prior to the January 2014 enactment of P.L.2013, c.253.**

**Answers: 1A.** The Chief Technology Officer's decision to delegate day-to-day oversight of OIT's internal operations to a Chief Operating Officer has brought the State significant benefits. The CTO made the change in part because the State's array of Information Technology systems has developed over decades into a complex, expanding and ever-evolving hybrid of centralized and distributed capabilities. Much of the centralized activity is handled through OIT's staff and systems. The COO's primary job is to focus on these core, mission-critical operations – ensuring reliability, effective maintenance and maximum efficiency for all dependent State capabilities. Having the COO oversee OIT's operations makes it easier for the CTO to impact the entire scope of State IT activities and systems.

The CTO is better able to focus attention on strategy, policy, and communications, which are becoming increasingly important as the key elements of State capabilities become ever-more extensive, dispersed, and technologically varied and complex. For example, enlisting the help of the Office of the State Treasurer and a national organization of government CIOs, the CTO spearheaded creation of a new white paper for best practices on Cloud procurement. Other states and localities are now using this model as a template for acquisition of the IT industry's most efficient and innovative Cloud service offerings.

The success brought by the two-tower strategy has led the CTO to expand the model into another level of management. In March 2015, OIT designated a Data Governance Officer.

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Her assignment is to find ways to help agencies more efficiently, effectively and securely manage the huge volumes of data that surge through State systems and networks each day.

The Data Governance Officer, who reports directly to the CTO, will help agencies manage data, serving as a resource and helping to guide the development of statewide policies, strategies and standards for data storage and governance. Sixteen other states also have realized the critical need for "Big Data" stewardship and named statewide data governance officers. A separate OIT manager reporting to the COO will oversee day-to-day operations supporting data infrastructure.

**Answers: 1B.** OIT does not comment on legal matters. OIT supported the Legislature's 2013 decision to eliminate the Information Technology Governance Board.

2. The new OIT governance structure also incorporates the Statewide CIO [Chief Information Officer] Collaborative Council, a new instrument intended to strengthen the **interaction and collaboration of the OIT's Chief Technology Officer with Executive Branch agency information technology directors**. The council meets quarterly and serves as a forum to share best practices, determine areas for growth and improvement, and seek ways to leverage core competencies among partner agencies. In reply to OIT Discussion Point #2 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis the OIT noted that the council had already increased the quality and quantity of the OIT's interactions with client agency information technology professionals, and identified agency-specific and State government-wide opportunities to provide higher-level technology services.

The council appears to encroach on the prerogatives of the Deputy Chief Technology Officers. To facilitate interoperability and the sharing as well as leveraging of technology, P.L.2007, c.56 authorizes the Chief Technology Officer to appoint up to six Deputy Chief Technology Officers with responsibilities for information technology management, planning, and budgeting within so-called Affinity Groups, or communities of interest that intersect several State agencies. There are currently five Affinity Groups: Administrative Services, Health and Social Services, Public Safety, Business and Community, and Workforce Enhancement. The Deputy Chief Technology Officers also serve as liaisons and customer service agents between the Executive Branch agencies and the OIT. The agency information technology directors, in turn, obtain guidance from their Affinity Group's Deputy Chief Technology Officer, but are accountable to their department heads.

- **Questions: Please describe the concrete accomplishments over the last two years from the Statewide CIO Collaborative Council facilitating the collaboration of the OIT with Executive Branch agency information technology**

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**directors. Given that the OIT has in the past had difficulties ensuring that State agencies implemented the OIT's directives, has the council helped improve not just the flow of information but also the implementation by State agencies of enterprise-wide OIT directives? In general, given that State agency information technology directors are accountable to their department heads, what means does the OIT have to ensure that its enterprise-wide views prevail over department-centric perspectives in case of conflicting priorities?**

- **How has the council's creation altered the role of the Deputy Chief Technology Officers, as they were to act as the OIT's liaisons and customer service agents in interfacing with client agency information technology directors? Are the Deputy Chief Technology Officers still functioning in that role?**

**Answers: 2.** The Collaboration Council exists to improve communication, and it has been an invaluable tool in achieving that end. The CTO created the Council in part because of agency input seeking improved dissemination of information about such topics as security, procurement, data privacy, and legal and policy requirements. The Council serves as a forum for exchanging ideas, for discussions of what works and what doesn't, and for creation of strategies to meet the challenges of rapidly advancing technology, growing IT demand, and constrained resources. One of the successes of the Council has been the creation of, and collaboration on, an assessment of disaster recovery preparedness. Disaster recovery is a critical concern for any IT manager. The Council helped create and disseminate an assessment that grows richer in detail and value to IT professionals each year.

The Deputies function as the OIT liaisons and customer service agents in interfacing with client agency information technology directors. The Council meetings encourage DCTO interaction with members of the IT community who are not part of the DCTO's affinity group. The meetings and resulting communications allow DCTOs to disseminate information to a wide audience when necessary.

3. The wealth of residents' financial and personal information that resides on State government computers attracts cybercriminals. State of Texas government computer systems, for example, face millions of attempted cyber-attacks every month, according to Karen Robinson, former State of Texas Chief Information Officer (cited in The Pew Charitable Trusts' October 2, 2014 "Cyberattacks on State Databases Escalate" article). Only a miniscule fraction of the attacks succeed, but any single breach can cause enormous damage. Moreover, the Privacy Rights Clearinghouse specifies that from 2005 through September 12, 2014, some 148.4 million records were stolen in 690 publicly disclosed breaches of computer networks at all levels of government in the United States. Those whose records were accessed improperly face an elevated identity theft risk. For that reason N.J.S.A.56:8-163 mandates that public entities disclose any breach of security of digital records to potentially affected New Jersey residents.

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Hackers may attack an organization's computer network directly through queries on a web page until the database malfunctions and accepts an injection of malicious code. Alternatively, hackers may exploit human error through a scamming technique called phishing, whereby targeted victims are duped into clicking on an infested attachment or web link that is included in an e-mail. A related scamming practice, pharming, redirects users from a legitimate website that has been manipulated to a false, legitimate-looking, but ultimately infested website. The phishing and pharming malware then grants the hacker access to the computer, and if the computer is used for work, also to the employing organization's network and databases. Phishing e-mails coupled with human error represent the greatest threat to cybersecurity. Greg Henderson of the SAS Institute observed that in 95 percent of cases in which an organization is compromised through internet crime the hackers had successfully researched and targeted specific executives who then opened a phishing e-mail (cited in the November 14, 2012 USA Today "Lack of Security Policy Cited in S.C. Breach" article).

The **OIT's Statewide Office of Information Security bears central responsibility for cybersecurity for the Executive Branch of State government.** The office's mission is to develop and implement an Enterprise Information Security Management Framework to protect the confidentiality, integrity, and availability of data and information technology systems. The office is also to develop a governance model for information security to ensure compliance with appropriate risk management requirements, enhance the information sharing and analysis between various levels of government and the private sector, develop a comprehensive enterprise-wide security awareness and training program for employees, and provide information security resources and updates to citizens through the operation of the one-stop NJ Info Secure website (<http://www.state.nj.us/njinforesecure/>).

To stay abreast of the latest cyber threats New Jersey participates in the Multi-State Information Sharing and Analysis Center (MS-ISAC), a division of the non-for-profit Center for Internet Security, as the OIT noted in addressing OIT Discussion Point #15 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis. The MS-ISAC focuses on cyber threat prevention, protection, response, and recovery for the nation's state, local, territorial and tribal governments. All 50 states are members. The center gathers information on cyber threats to critical infrastructure from and shares the information among its members. Its 24-hour watch and warning center provides real-time network monitoring, dissemination of early cyber threat warnings, vulnerability identification and mitigation, along with education and outreach.

- **Questions:** Please list each breach of computerized State records since January 1, 2010 and the number of records potentially accessed without authorization. What cost has the State incurred in responding to each breach, breaking out the cost of any technology upgrade, expert review, credit

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- monitoring services for those affected, and litigation initiated against the State by those affected? Does the State carry data breach insurance protection? If applicable, please indicate the status of any litigation in which the State defends itself against charges brought by residents whose personal data have been improperly accessed. Has the State ever brought suit against software companies whose faulty code created the conditions for a cyber-attack to succeed?
- Please describe the activities and accomplishments of the Statewide Office of Information Security. Has the office developed and implemented a comprehensive security awareness and training program for Executive Branch employees? If so, please indicate which employees must attend the end-user education program, the number of attendees to date, and at what intervals employees must attend. What is the frequency of any information technology security audits? Does the State have an information technology recovery plan and, if so, at what intervals does the State test it? Has the office developed and implemented an Enterprise Information Security Management Framework to protect the confidentiality, integrity, and availability of data and information technology systems? If so, please describe the framework. If not, by what date does the office anticipate the framework's development and implementation? Has the office developed and implemented a governance model for information security to ensure that appropriate risk management requirements are met? If so, please describe the governance model. If not, by what date does the office anticipate the governance model's development and implementation?
  - Please present the organizational structure of the Statewide Office of Information Security, detailing the number of subdivisions, if any, the hierarchy, and the number of employees within each job title category. Is the office's chief administrator the Chief Information Security Officer? Is there a separate Chief Privacy Officer? If so, please explain the division of competencies between the office's chief administrator and the Chief Privacy Officer. What is the office's revised FY 2015 budget and its recommended FY 2016 budget?

### **Answers: 3.**

The State has deployed significant resources and developed extensive strategies for combating cyber-criminals who attempt breaches. OIT does not comment publicly on breach prevention because disclosing information on this topic could diminish the effectiveness of these resources and strategies and diminish the value of the significant State investment in their deployment.

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OIT knows of no residents who have pursued litigation against the State alleging improper accessing of personal information, nor has it ever been informed of any State lawsuits resulting from possible links between faulty code and cyber-attacks. OIT is working with the Division of Risk Management and underwriters to objectively determine the business value of various cyber-liability/insurance options.

SOIS and others in the IT community have tightened security across all State networks. OIT has created a security plan and related architecture to drive security improvements at all agencies, departments and authorities. OIT is working with Federal contacts, national cyber security professionals, and the Multi-State Information Sharing Analysis Center to strengthen New Jersey's cyber security. In partnership with the Office of Homeland Security and Preparedness and the State Police, OIT continues to enhance the cyber security capability at the State's Fusion Center. Twenty-four-hour-a-day monitoring for threats is now in place. Security audits by State and Federal agencies occur annually.

The State has an employee security training program and online training available to all agencies. The training is available to any State employee who has access to a computer. As of March 2015, more than 30,000 state employees had taken the online training. OIT has an IT Disaster Recovery Plan, and it is regularly reviewed and updated. The State of New Jersey completed a Cyber Security Strategic Plan that is a roadmap for communicating the State's cyber-security strategies, objectives and tactical methods. It addresses security controls and provides recommendations for improvements and essential expansion. To guide the implementation of the plan, the State also developed a Security Framework that details tactics that are based on the National Institute of Science Technology (NIST) Cybersecurity Framework and international standards. This framework is a comprehensive information security model that ensures the overall security of information. The framework not only focuses on technological issues, it also addresses other principal elements (e.g. people, processes, and business strategies) that affect cyber-security.

In the area of governance, a cyber-security committee representing departments and agencies meets monthly to review and discuss security initiatives and to address the growing threat to the State of New Jersey's information technology infrastructure and critical assets. SOIS has helped ensure that policies, standards and procedures were published and made available to departments and agencies. These policies are shared, as prudent, with members of the public and private sector.

The Statewide Office of Information Security is organized as follows: Chief Information Security Officer, Manager, and 13 other employees. Functional areas are Governance; Security Architecture; Prevention and Protection; and Incident Report and Response and Threat Monitoring.

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- 1) **Governance, Security Awareness, Risk and Compliance** – two employees
- 2) **Security Architecture** – one employee
- 3) **Prevention and Protection** – seven employees
- 4) **Incident Report and Response, and Threat Monitoring** – three employees

The State has a Chief Information Security Officer who reports to the State's Chief Information Officer (The Chief Technology Officer). The Chief Information Security Officer also serves in the capacity of Chief Privacy Officer.

The FY 2015 budget continued to provide funding to support security operations within OIT's base budget. The proposed FY 2016 budget includes a \$3 million line item for "Cyber Security and Data Protection" to support the ongoing build-out of the State's front-line security framework, including the acquisition of software and hardware tools. This expenditure is dictated by stricter Federal security requirements and the need to reduce the high risk posed by cyber-criminals who use ever-more sophisticated weapons to probe State systems and attempt to exploit vulnerabilities. OIT is committed to safeguarding the private, sensitive data of all New Jersey citizens.

4. Only 24.5 percent of State Chief Information Officers (SCIO) were extremely or very confident in their states' abilities to protect against external cyber threats, as indicated in the "2014 Deloitte-NASCIO [National Association of State Chief Information Officers] Cybersecurity Study, State Governments at Risk: Time to Move Forward." Next to concerns about the growing sophistication of cyber-attacks, shared by 61 percent of SCIOs, two of the three most often identified **barriers to effective cybersecurity** were internal: insufficient funding (cited by 75.5 percent of SCIOs) and a scarcity of qualified cybersecurity professionals (cited by 59 percent of SCIOs).

On average, State governments expended about one percent of their information technology budgets on cybersecurity, reported a NASCIO policy analyst in the "Cybercrime: 'It's Just a Matter of Time'" article in the July/August 2013 edition of The Council of State Governments' Capitol Ideas magazine. The percentage for banks and other industries approximated ten percent. For the federal government it is about 11 percent, according to Michael Cockrill, the Washington State Chief Information Officer (cited in the October 2, 2014 "Cyber-attacks on State Databases Escalate" article published by The Pew Charitable Trusts).

Budget restrictions also contribute to difficulties in attracting and retaining qualified cybersecurity professionals. Some 90 percent of SCIOs viewed their agencies' salaries as uncompetitive with the private sector in a labor market in which demand exceeds supply. For example, the private sector pays cybersecurity professionals twice as much or more than the State of Washington does, according to Michael Cockrill. But uncompetitive compensation models are not the only talent attraction and retention obstacle. Some 67 percent of SCIOs

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were also critical of the absence of defined career paths and opportunities for cybersecurity professionals. Whatever the causes, states react to the talent shortage by developing cybersecurity expertise in-house through training and contracting for cybersecurity services from the private sector.

But the outsourcing of information technology functions gives rise to new dependency-related security risks. It opens up new access points for cyber-attacks on contractor networks and transfers control to contractors over many aspects of data privacy and security (OIT Discussion Point #13 below elaborates on this point in the context of cloud-based computing). Dependency-related security risks echo through the Deloitte-NASCIO cybersecurity study finding that 81 percent of SCIOs were only somewhat confident in the cybersecurity practices of third-party contractors and 6.3 percent not very confident.

In New Jersey, the operation of outdated legacy administrative information technology systems adds to cybersecurity vulnerabilities. Notably, the OIT replied to OIT Discussion Point #1 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis that the legacy systems' continued use complicated the achievement of the highest cybersecurity standards (OIT Discussion Point #6 below addresses plans for the legacy systems' replacement).

- **Questions: Does New Jersey's annual cybersecurity spending suffice to achieve the highest cybersecurity standards? Does New Jersey currently not implement any recommended best practice(s) due to budgetary constraints? Please specify the amount of the OIT's actual FY 2014 cybersecurity expenditures and their anticipated FY 2015 and FY 2016 amounts. For each of the three fiscal years, what is the percentage of cybersecurity spending relative to the OIT's actual, anticipated, and requested budgets? What amount would the OIT have to expend to achieve the highest cybersecurity standards? What elements of the State's cybersecurity defenses would any additional funding strengthen?**
- **Does the OIT experience difficulties in attracting and retaining qualified cybersecurity professionals? If so, what are the barriers? Is the OIT able to overcome the limitations of the State's compensation and civil service rules to compete successfully for cybersecurity talent? Does the OIT offer defined career paths and opportunities to cybersecurity professionals? What strategies does the OIT employ to meet its cybersecurity objectives in the face of any talent shortages? Does the OIT develop its own talent? Does it bring in and sponsor professionals from overseas? To what extent does the OIT contract with private firms for cybersecurity services?**

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- **Not limited to cybersecurity vendors, is the OIT confident in the cybersecurity practices of its contractors? What cybersecurity requirements, if any, must contractors meet? Does the OIT monitor and test contractors' compliance with any cybersecurity requirements?**

**Answers: 4.** The State follows best practices in its maintenance of IT security and will continue to do so. When there is potential for meaningful gains in security, OIT will adopt mature, proven solutions and strategies, and it will request additional resources as necessary. As stated, the proposed FY 2016 budget includes a \$3 million line item for Cyber Security and Data Protection. OIT has been able to find security personnel to meet its current needs. The Information Security Officer Program is explained in the Cyber Security Strategy Plan.

5. The "2012 Deloitte-NASCIO [National Association of State Chief Information Officers] Cybersecurity Study, State Governments at Risk: A Call for Collaboration and Compliance" highlighted a common **organizational barrier to effective cybersecurity** in State governments. Notably, the study reported that many State Chief Information Security Officers felt deprived of authority to ensure that all state agencies were actually implementing adequate cybersecurity measures. This perceived lack of control was a by-product of the federated information technology governance model that most states, including New Jersey, deploy in the management of information technology resources. Under the model, a central information technology office is responsible for providing overall direction and managing centralized services that are shared by several state agencies. Individual state agencies, in turn, administer their own information technology resources and are supposed to implement any directive issued by the central information technology office. Whether individual agencies actually comply with central directives, though, is frequently unascertained.

New Jersey is emblematic in this regard, given that, in its FY 2011-2012 answer to OIT Discussion Point #15, the OIT did not reply affirmatively to the OLS' question whether, to the best of the OIT's knowledge, State agencies were following existing data security policies and procedures. The OIT merely stated that State agencies were aware of them. Two years later, however, in response to OIT Discussion Point #15 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT updated that State agencies were now following established data security policies and procedures. Moreover, the OIT reported that it communicated continually with State agency cybersecurity professionals regarding adherence to the policies and procedures, and that, in conjunction with the New Jersey Office of Homeland Security and Preparedness in the New Jersey Department of Law and Public Safety, it had initiated a survey of State agencies to measure cybersecurity practices. The OIT informed further that all proposed State agency information technology projects and major upgrades had to pass the OIT's System Architecture Review, which evaluates proposed projects' business and technical requirements, including security controls. Lastly,

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the OIT pointed out that State agencies were responsible for scanning their assigned systems at least quarterly.

- **Questions:** Please report the findings of the OIT and New Jersey Office of Homeland Security and Preparedness survey of State agencies that was intended to measure their cybersecurity practices. What metrics were assessed? Are State agencies following established cybersecurity policies and procedures? Please list all instances of noncompliance with the cybersecurity policies and procedures that the survey revealed. Has the OIT become cognizant of any additional noncompliance events since the survey? Do State agencies report budgetary constraints as an inhibitor in implementing the OIT's recommended policies and procedures? What punitive consequences does noncompliance entail? At what interval do the OIT and Office of Homeland Security and Preparedness conduct the survey to reassess State agency cybersecurity practices? In the last two years, which State agencies have failed to scan their assigned systems at the required intervals?

**Answers: 5.** The OIT and New Jersey Office of Homeland Security and Preparedness Survey measured performance in eight categories:

1. Essential Functions
2. Implementation
3. Leadership and Delegation
4. Facilities
5. Communications
6. Vital Records
7. Training and Exercise
8. Program Management.

For obvious reasons, survey results and steps taken to eliminate vulnerabilities are and will remain confidential. Maximum effectiveness of security measures only can be maintained when cyber-criminals are kept as ignorant as possible of State preparations and tactics.

6. In response to OIT Discussion Point #1 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT identified five deficiencies the State encumbers in running antiquated legacy administrative information technology systems: 1) the difficult replacement of retiring employees versed in the operation and maintenance of now-obsolete computing programs and systems; 2) the crowding out of investments in modern systems and project development as limited resources are funneled into the legacy systems' operation and upkeep; 3) a restricted technological scope for improvements in service delivery to the public; 4) inefficiencies that make it impossible or costly to plan and innovate; and 5) difficulties in practicing the highest cybersecurity standards.

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Aware of the risks and limitations inherent in the use of outdated information technology programs and systems, the State has embarked on a **multi-year initiative to rebuild the State's core information technology infrastructure**, as the State Treasurer testified during the Department of the Treasury's budget hearing before the Senate Budget and Appropriations Committee on April 26, 2012. The Asbury Park Press had reported in its September 6, 2011 article "Christie Pitches Computer Upgrade" that the initiative represented an anticipated \$60 million investment distributed over five years. Responding to OIT Discussion Point #12 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT stated that it had expended \$10.5 million on infrastructure updates and upgrades in FY 2012 and that a \$13.8 million FY 2013 allocation was intended to pay for core information technology infrastructure refresh and upgrades. The scheduled FY 2013 investments had storage (\$6.5 million), server (\$4.0 million), network (\$2.9 million), and data center (\$400,000) components. The OIT anticipated future investments in, among other priorities, a new e-procurement system for State government, a new budget management system, a new employee time-keeping system, and a new uniform electronic messaging system for the Executive Branch of State government.

The initiative's elements and financing plan are not readily apparent from the OIT's budget displays, which do not delineate specific "special purpose" and capital projects. However, as the table below indicates, there has been a steep increase since FY 2011 in the annual appropriations to the OIT's Services Other Than Personal account, which pays for services provided by outside vendors, and the OIT's Additions, Improvements and Equipment account, which covers contractual line of credit debt service obligations. Line of credit financing allows State agencies to pay for their short-term (three years) equipment needs, such as computers, furniture, and vehicles purchases. The table excludes the amounts the OIT expended on Services Other Than Personal and Additions, Improvements and Equipment out of federal and dedicated funds that State agencies transferred to the OIT to pay for billable OIT services.

<b>Office of Information Technology</b> <b>Services Other Than Personal and Additions, Improvements and Equipment Appropriations</b> <b>from General State Resources</b> <b>FY 2011 to FY 2016</b> <b>(in \$000)</b>						
Account	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015 Budget Authority	FY 2016 Recommend ed
<b>Services Other Than Personal</b>	\$8,697	\$10,164	\$15,895	\$19,255	\$23,628	\$25,128
<b>Additions, Improvement s and</b>	<u>\$6</u>	<u>\$0</u>	<u>\$1,500</u>	<u>\$6,148</u>	<u>\$17,537</u>	<u>\$27,377</u>

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<b>Equipment</b>						
<b>TOTAL</b>	<b>\$8,703</b>	<b>\$10,164</b>	<b>\$17,395</b>	<b>\$25,403</b>	<b>\$41,165</b>	<b>\$52,505</b>

- Questions:** Please provide the project list constituting the Administration's multi-year initiative to rebuild the State's core information technology infrastructure to which the State Treasurer alluded during the April 26, 2012 Senate Budget and Appropriations Committee budget hearing on the Department of the Treasury. For each project on the list, please indicate the actual or anticipated cost, implementation status, and expected completion date. Please describe any complication the OIT has encountered in implementing the initiative and the impact of the complication on project completion. What is the age of any legacy administrative information technology programs and systems that: a) are being retired as part of the initiative, and b) will remain in place after the initiative's conclusion?
- Please relate the initiative's anticipated total cost and its cost allocation by fiscal year. What amount has been spent on the initiative to date? In what budget lines in the Governor's FY 2016 Budget are the amounts displayed that sustain or are recommended to sustain the initiative? Is the steep rise since FY 2011 in the annual appropriations to the OIT's Services Other Than Personal account and Additions, Improvements and Equipment account attributable to the initiative? If not, for what reason(s) have the accounts' appropriations increased so markedly?

**Answers: 6.** The plan to replace and/or upgrade the State's core systems is indeed a multi-year initiative. In recognition of fiscal constraints, OIT's requests for this initiative continue to be confined only to the most critical needs. OIT has prioritized projects that cannot be postponed because they are vital to maintaining the reliability and viability of systems that provide core capabilities for the public safety, social service, education and business needs that taxpayers require and expect. The list evolves each year as the State completes projects and additional systems reach the end of their useful lives. Funding for these requests, including debt service on the lines of credit used for purchases, appears in the budget line "Additions, Improvements and Equipment" referenced above. The list always includes projects involving the following core elements: data centers, networks, storage (including backup and archive), and servers. The State expended the FY 2013 line of credit totaling \$13.8 million by February 2015. The allocated amounts for lines of credit are \$27.93 million for FY 2014, \$31.327 million for FY 2015, and (recommended) \$26.075 million for FY 2016. Between FY14 and FY15's open lines of Credit, OIT is in the process of spending the balance of \$30.3 million. These funds are on target to be fully expended by November 2015.

The list of projects for which these funds were expended or dedicated includes the following:

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1. **Data center outfitting with equipment racks and cabling, intelligent power infrastructure, and a data center information management system.** State data centers were at capacity, delaying major projects. This ongoing upgrade is allowing projects to move forward without the purchase of outside data center capacity. This is the most efficient way to meet rapidly expanding demand in the near term because it builds upon existing infrastructure. In addition, aging data center infrastructure is a proven threat to reliability and security and, therefore, must be upgraded.
2. **Network upgrades to data center switching, Wide Area Network (WAN) routers.** Volume and service demands continue to grow. The State needs the capability provided by this equipment to meet both existing and future demand.
3. **Storage upgrades to mainframe and distributed system storage, distributed system backup, and implementation of a new distributed system file server and archiving platform.** This technology is crucial both to improving State capabilities and to ensuring that systems meet citizen expectations for improved quality and reliability of existing services.
4. **Server upgrades for hosting agency applications, monitoring tools, and a replacement for database hosting servers.** The only alternative to this in-house maintenance and upgrade would be to purchase outside services at additional expense, which is not possible with existing resources.

Details of the line of credit spending plans are included below:

**Discussion Points (Cont'd)****Line of Credit – Spending Plans****FY 2014 Line of Credit Spending Plan – \$2.5 Million Balance Unspent**

<u>Item Description</u>	<u>Amount</u>
2nd UPS @ Hamilton	\$1,500,000
3 Remote Power Panels (RPP)	<u>\$1,000,000</u>
<b>Balance Unspent of FY14 Line of Credit</b>	<b><u>\$2,500,000</u></b>

**FY 2015 Line of Credit Spending Plan – \$31.327 million**

<u>Item Description</u>	<u>Amount</u>
Enterprise Application Hosting	\$15,977,000
Enterprise Messaging	\$500,000
Alternate Data Center Expansion	\$3,850,000
IBM Mainframe Refresh	<u>\$11,000,000</u>
<b>Total FY15 Line of Credit</b>	<b><u>\$31,327,000</u></b>

**FY 2016 Line of Credit Proposed Spending Plan – \$26.075 million**

<u>Item Description</u>	<u>Amount</u>
Management Tools	\$2,000,000
Enterprise Application Hosting	\$17,650,000
Hamilton Generator & Back-up Power	\$4,300,000
Fire Detection & Suppression	\$1,000,000
Alternate Data Center Expansion	<u>\$1,125,000</u>
<b>Total FY16 Line of Credit Request:</b>	<b><u>\$26,075,000</u></b>

## Discussion Points (Cont'd)

7. The Executive Branch incurred \$127 million in **information technology equipment, maintenance, and consultant services expenditures** in FY 2012, \$149 million in FY 2011, \$251 million in FY 2010, and \$292 million in FY 2009; according to the OIT's replies to OIT Discussion Point #3 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis and OIT Discussion Point #1 in the OLS FY 2011-2012 Department of the Treasury Budget Analysis.

The Governor's FY 2016 Budget proposes to continue a language provision on page F-5 requiring that the OIT approve all departmental purchase requests for information technology and telecommunications equipment, maintenance, and consultant services. In its review, the OIT is to ascertain that purchase requests comply with statewide policies and standards as well as the department's approved Information Technology Strategic Plan. One of these policies is a **partial moratorium on the procurement of information technology equipment, maintenance, and consultant services** that has been in place since December 2006. Exempt from the moratorium are purchases: a) by the OIT; b) for ongoing projects whose disruption would increase future costs or trigger a significant loss of investment; c) for projects that are primarily paid for with federal or dedicated funds; d) for projects mandated by the federal government, State law or a court order; e) that avert that failing equipment or software will deteriorate or halt mission-critical business functions; and f) of emergency maintenance, repairs, and supplies under \$2,500. In addition, the Office of Management and Budget may review purchase requests between \$36,000 and \$99,999 and must approve those of at least \$100,000 (see Joint Office of Management and Budget and Office of Information Technology Circular Letter 12-13-OMB/OIT, Moratorium on Procurements of Information Technology (IT) Hardware, Software and Related Services). Responding to OIT Discussion Point #3 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT affirmed that it was unaware of the moratorium significantly affecting the quality of services provided by State agencies. It also did not anticipate the moratorium to significantly impact service quality in the future.

- **Questions: Is the OIT aware of any cases in which the partial moratorium on the procurement of information technology equipment, maintenance, and consultant services has eroded the quality of services provided by State agencies? If so, please describe the cases. Please indicate in which areas the OIT expects the continuation of the moratorium in FY 2016 to adversely impact program performance and service delivery. If continued over several years, would the current annual investment level be sufficient to maintain the performance of information technology systems? If not, what average annual investment level does the OIT recommend?**
- **Please specify the actual amount of Executive Branch expenditures on information technology equipment, maintenance, and consultant services in FY 2013 and FY 2014 as well as the projected amounts for FY 2015 and FY 2016.**

**Discussion Points (Cont'd)**

**Please provide the number and value of each Executive department's requests for information technology equipment, maintenance, and consultant services procurements in FY 2013, FY 2014, and FY 2015 as well as the number and value of procurements approved by the OIT.**

**Answers: 7.** OIT is not aware of any circumstance where the centralized management controls had a significant negative impact on State agencies, and no significant negative impacts are anticipated in the future. However, upgrades of outdated computer systems will continue to be needed. Details of state spending on IT are in the charts below:

<b>Office of Information Technology – Program Management Office – External Purchase Unit Approved Purchases Summary by Department: 07/01/2014 – 04/08/2015</b>				
<b>Department</b>	<b>Procurements Reviewed</b>	<b>Document Amount</b>	<b>Procurements Approved</b>	<b>Document Amount</b>
Agriculture	14	\$1,441,852.48	14	\$1,441,852.48
Banking & Insurance	9	\$506,379.97	8	\$502,740.10
Board Of Public Utilities	10	\$309,632.53	9	\$303,944.11
Casino Control Commission	10	\$69,578.40	10	\$69,578.40
Children And Families	54	\$1,925,700.70	50	\$1,800,219.57
Civil Service Commission	28	\$1,537,143.07	28	\$1,537,143.07
Community Affairs	32	\$1,276,399.93	28	\$1,217,167.23
Corrections	111	\$2,843,478.98	109	\$2,828,109.00
Education	63	\$4,424,421.16	60	\$4,243,005.01
Environmental Protection	109	\$4,881,444.03	104	\$4,559,450.33
Health	124	\$12,498,722.05	115	\$11,188,285.03
Higher Education	1	\$5,395.98	1	\$5,395.98
Human Services	122	\$24,723,191.93	111	\$20,206,422.89
Labor	79	\$8,295,461.59	80	\$8,303,865.39
Law & Public Safety	307	\$16,090,788.55	292	\$15,530,197.77
Military & Veterans Affairs	21	\$932,330.99	21	\$932,330.99
Motor Vehicle Commission	101	\$14,770,091.80	83	\$13,743,916.53
N.J. State Parole Board	26	\$1,271,977.98	24	\$1,237,629.57
Office Of Homeland Security	71	\$42,555,670.51	70	\$42,284,095.51
Public Employment	5	\$188,761.99	3	\$176,132.31
State	3	\$143,684.33	3	\$143,684.33
Transportation	56	\$5,072,700.16	53	\$4,917,774.91
Treasury	160	\$14,080,172.53	149	\$13,879,023.31

## Discussion Points (Cont'd)

<b>Totals:</b>	<b>23</b>	<b>1516</b>	<b>\$159,844,981.64</b>	<b>1425</b>	<b>\$151,051,963.82</b>
<b>NET UNSPENT = 5 percent</b>					<b>\$8,793,017.82</b>

## FY14:

Office of Information Technology – Program Management Office – External Purchase Unit Approved Purchases Summary by Department: 07/01/2013 – 06/30/2014				
Department	Procurements Reviewed	Document Amount	Procurements Approved	Document Amount
Agriculture	24	\$1,263,612.26	23	\$1,256,009.10
Banking & Insurance	13	\$174,572.17	14	\$179,313.17
Board Of Public Utilities	13	\$600,799.43	12	\$531,969.43
Casino Control Commission	8	\$210,468.50	8	\$210,468.50
Children And Families	81	\$3,668,065.90	80	\$3,664,436.60
Civil Service Commission	26	\$2,683,118.47	24	\$2,626,960.90
Community Affairs	59	\$2,466,337.23	58	\$2,378,865.93
Corrections	155	\$4,583,554.64	149	\$4,348,490.30
Education	85	\$5,386,260.65	76	\$4,470,531.96
Environmental Protection	110	\$5,174,814.09	107	\$5,026,703.94
Health	179	\$14,340,570.50	175	\$14,300,933.13
Human Services	152	\$30,119,989.52	143	\$23,948,249.47
Labor	95	\$8,317,731.16	94	\$7,825,063.96
Law & Public Safety	413	\$31,709,445.83	398	\$30,820,877.10
Military & Veterans Affairs	49	\$953,308.55	47	\$928,993.17
Motor Vehicle Commission	107	\$16,118,819.95	93	\$12,745,888.38
N.J. State Parole Board	17	\$448,965.49	17	\$448,965.49
Office Of Homeland Security	45	\$2,203,340.47	43	\$2,146,385.91
Public Employment	2	\$55,486.30	2	\$55,486.30
State	7	\$194,526.09	7	\$194,526.09
Transportation	69	\$8,074,078.25	66	\$7,932,816.17
Treasury	214	\$18,341,885.98	200	\$18,007,837.27

**Discussion Points (Cont'd)**

<b>Totals:</b>	<b>22</b>	<b>1923</b>	<b>\$157,089,751.43</b>	<b>1836</b>	<b>\$144,049,772.27</b>
<b>NET UNSPENT = 8 percent</b>					<b>\$13,039,979.16</b>

**FY13:**

<b>Office of Information Technology – Program Management Office – External Purchase Unit Approved Purchases Summary by Department: 07/01/2012 – 06/30/2013</b>				
<b>Department</b>	<b>Procurements Reviewed</b>	<b>Document Amount</b>	<b>Procurements Approved</b>	<b>Document Amount</b>
Agriculture	16	\$1,398,565.05	16	\$1,398,565.05
Banking & Insurance	20	\$586,247.19	20	\$586,247.19
Board Of Public Utilities	9	\$108,585.95	9	\$108,585.95
Casino Control Commission	10	\$268,061.39	9	\$254,004.56
Children And Families	77	\$7,153,150.02	76	\$7,150,505.52
Civil Service Commission	32	\$700,597.73	26	\$474,269.47
Community Affairs	34	\$1,651,840.52	33	\$1,647,760.52
Corrections	96	\$7,724,176.29	95	\$7,716,995.66
Education	74	\$2,702,244.74	66	\$2,464,670.89
Environmental Protection	118	\$4,060,222.13	112	\$3,978,761.77
Health	158	\$9,183,263.51	154	\$8,894,281.65
Human Services	159	\$27,114,063.75	146	\$26,125,652.59
Labor	83	\$8,272,798.55	81	\$7,903,546.94
Law & Public Safety	360	\$19,321,482.12	342	\$18,692,652.58
Military & Veterans Affairs	30	\$553,081.50	29	\$532,067.53
Motor Vehicle Commission	139	\$25,764,577.09	132	\$23,082,181.06
N.J. State Parole Board	26	\$1,319,717.49	25	\$1,316,093.22
Office Of Homeland Security	59	\$3,356,803.01	56	\$3,350,154.89
Public Employment	2	\$71,760.00	2	\$71,760.00
State	2	\$2,036,991.25	2	\$2,036,991.25
Transportation	54	\$5,204,845.57	53	\$5,202,071.05
Treasury	166	\$23,909,726.30	153	\$23,534,456.73

**Discussion Points (Cont'd)**

<b>Totals:</b>	<b>22</b>	<b>1724</b>	<b>\$152,462,801.15</b>	<b>1637</b>	<b>\$146,522,276.07</b>
<b>NET UNSPENT = 4 percent</b>					<b>\$5,940,525.08</b>

8. The Governor's FY 2016 Budget proposes to continue a language provision on page F-5 requiring that the OIT approve all departmental purchase requests for information technology and telecommunications equipment, maintenance, and consultant services. In its review, the OIT is to ascertain that purchase requests comply with statewide policies and standards as well as a department's approved Information Technology Strategic Plan.

Supported by the OIT's Project Management Office, the OIT's **Project Review Board** exercises the review, approval, and monitoring functions for large-scale information technology projects pursuant to N.J.S.A.52:18A-232. Section 46 of P.L.2013, c.253 newly clarified that the Governor sets the monetary threshold at and above which the Project Review Board assumes oversight responsibilities. As of the writing of the FY 2013-2014 OIT Discussion Points the limit was \$5 million with the Project Management Office assuming jurisdiction for projects valued at less than \$5 million. Composed of representatives from the OIT, the Office of Management and Budget, and the Purchase Bureau in the Division of Purchase and Property, the board has the authority to continue, hold or stop a project but has no additional authority to hold an agency accountable. Replying to OIT Discussion Point #8 in the OLS FY 2011-2012 Department of the Treasury Budget Analysis, the OIT stated that the Project Review Board met quarterly. Two years later, the OIT noted in response to OIT Discussion Point #4 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis that the board monitored 16 projects at that time, all of which the board had begun to monitor prior to FY 2012. The board did not reject any projects in FY 2012 or FY 2013.

- **Questions:** **Has the role or composition of the Project Review Board changed in the last two years? Is the monetary threshold at and above which the board reviews, approves, and monitors an information technology project still \$5 million? How many projects does the board currently monitor? How many new projects did the board begin monitoring in FY 2013, FY 2014, and FY 2015? How many projects did it reject in FY 2013, FY 2014, and FY 2015?**

**Answers: 8** The Project Review Board's (PRB) role has not changed. The threshold for projects has not been adjusted. Projects are selected based on needed levels of OIT engagement. The portfolio originated with 10 projects (FY13), then grew to 18 in FY14. The (FY15) portfolio currently contains 15 projects with two project cancellations; three project holds, and one added project. Temporary personnel limitations constrained the growth of the portfolio; three (of the allocated four) project managers have recently been hired. To date, the PRB's role has not included shutting down any projects.

## Discussion Points (Cont'd)

9. Among the capital budget requests submitted to the New Jersey Commission on Capital Budgeting and Planning at the commission's November 21, 2014 meeting, the OIT requested \$3.0 million in FY 2016 funding for the acquisition and implementation of a "mature, industry standard [information technology] **project management tool.**" The investment would allow the OIT to more effectively manage departmental information technology projects. The OIT justified the capital request as follows: "The **past two years have been witness to major project struggles that have incurred unplanned costs that total millions of dollars.** With more effective project management capabilities that will more proactively identify risks and that are intended to be used in conjunction with more formal project oversight, cost overruns can be mitigated and projects can be completed more timely."

- **Questions: What new information technology project management system is the OIT considering acquiring? Has the OIT secured funding for the new project management system? If applicable, please indicate the budget line in the FY 2016 Governor's Budget that subsumes funding for the new project management system as well as the requested FY 2016 amount. Does the OIT foresee additional future costs for the new project management system?**
- **Please identify the information technology projects that over the past two years have experienced major difficulties producing "millions of dollars" of cost overruns that the OIT alluded to in its FY 2016 capital budget requests. For each project thus identified, please detail the original and current cost estimate, the projected original and current project completion date, and provide a description of the difficulties encountered. To what extent would the requested new project management system have averted or mitigated the difficulties?**

**Answers: 9.** To manage its project management needs, OIT obtained licenses for a software package as bundled under a March 2014 procurement and expects that funding for implementation will be forthcoming. Additional funds will likely be sought (FY 2017 and beyond) to carry the usage from only the OIT PMO to PMOs across agency boundaries.

The information technology projects where advanced project management tools might have helped to identify cost and other issues earlier include MATRX (Motor Vehicle Automated Transaction System, Motor Vehicle Commission) and CASS (Consolidated Assistance Support System, Department of Human Services).

To help prevent future cost overruns, the OIT PMO Quality Gate Process builds in checkpoints to monitor the health of a project and provide opportunities to stop and correct that project if it goes off track. These checkpoints can lead to corrective action, visibility to amendments and / or extensions that lead to cost overruns, or even project cancellation.

## Discussion Points (Cont'd)

10. In answering OIT Discussion Point #5 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT described the **new approach its Project Management Office (PMO) had adopted to evaluate proposed information technology projects**. The new evaluation method expanded the analysis horizon from the acquisition stage to a project's complete lifecycle encompassing not only a new program's or system's initial impact but also its implications for maintenance, upgrades, and eventual replacement. The OIT expected the new process to yield a more accurate assessment of a project's lifetime impact on OIT resources and greater cost efficiencies from ensuring that a project was compatible with and leverage-able across the State's existing information technology infrastructure.

At the time, the OIT still had to fully institutionalize the lifecycle evaluation method. Although the new framework had been instituted in FY 2013, the OIT still sought to establish all the attendant best practices in portfolio and project management so as to improve the OIT's project planning, management, and cost estimation. Furthermore, the OIT still planned to more clearly define expectations for vendor project management and customer relationship management in the Request for Proposal template for information technology procurements.

The PMO assists the Project Review Board in reviewing, approving, and monitoring information technology projects that exceed \$5 million in estimated costs and conducts the reviews for projects falling under that threshold. In addition, the PMO coordinates multi-agency information technology initiatives and guides in-house staff on application development and implementation, engagement management, project management and control, risk assessment and mitigation, cost estimation, and integrated planning. The PMO, however, does not actively manage information technology projects. In response to OIT Discussion Point #9 in the OLS FY 2011-2012 Department of the Treasury Budget Analysis, the OIT indicated that in FY 2011 the PMO had 13 staff members, conducted 147 detailed project reviews, and reviewed and processed approximately 1,000 external procurements.

- **Questions:** Please indicate whether the PMO has fully developed and implemented the lifecycle project evaluation method. Has the PMO established new best practices in portfolio and project management so as to improve the OIT's project planning, management, and cost estimation? If so, please describe the best practices. Has the OIT more clearly defined expectations for vendor project management and customer relationship management in the Request for Proposal template for information technology procurements? Are any additional actions necessary to fully institutionalize the lifecycle project evaluation method?

## Discussion Points (Cont'd)

- **In general terms and by means of specific examples, please comment on the PMO's experience with the lifecycle project evaluation method. Have there been any demonstrable successes and improvements? Has the PMO discovered any shortcomings in using the new process and what remedies has the PMO deployed? How many employees does the PMO have in FY 2015 and is it budgeted to have in FY 2016? Is the workforce sufficient in number and expertise to adequately implement the new evaluation approach?**
- **How many detailed project reviews did the PMO conduct in FY 2014 and how many procurements did it review and process?**

**Answers: 10.** The project lifecycle evaluation method has been identified; the OIT PMO is developing the documentation with input from the NJ Project Management User Group (PMUG). The PMO has identified best practices and is communicating them through monthly meetings with the PMUG. OIT has developed an appendix for RFPs detailing project management expectations. As OIT reviews an RFP, the appropriate sections from this appendix are recommended for inclusion in the RFP.

Currently, the PMO is staffed with 11 people including three project managers, and one business analyst.

11. In December 2010, the OIT contracted with several outside vendors for the provision of quality assurance and project management consulting services for information technology projects (State Contract No. T-2599 for "Quality Assurance/Project Management Services for IT Projects"). The contract runs for three years with three optional extension periods of up to one year, the first of which expired on November 30, 2014. Contractors are engaged on an as-needed basis for projects ranging from feasibility studies to post-implementation reviews, according to Request for Proposal 09-X-20029 for "Quality Assurance/Project Management Consulting Services Relating to Information Technology Projects for the State of New Jersey." In replying to OIT Discussion Point #6 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT stressed that the contracts did not represent an outsourcing of work previously performed by its Project Management Office, as the latter never had, or was intended to have, the specialized knowledge needed for all possible projects. The contractors therefore filled project-specific gaps in OIT in-house expertise.

As to the contracts' actual use, the OIT reported in addressing OIT Discussion Point #6 that eleven projects at a cost of roughly \$6.2 million had been referred to the contractors since December 2010. The use of the contract was not automatic for any specific project category, but contractors tended to be hired for large-scale projects requiring multi-agency coordination or projects with a significant public-facing impact. The exception was the federally funded Broadband Technology Opportunities Program, for which the federal government mandated the use of contractors.

## Discussion Points (Cont'd)

**Questions:** Please indicate a) the number of information technology projects for which the State engaged the quality assurance and project management consulting services vendors selected under State Contract No. T-2599, and b) the total amount the State has expended thereon. Please list the concerned projects. Does the OIT continue to use the contractors primarily for large-scale projects requiring multi-agency coordination and projects with a significant public-facing impact?

- Please assess the contractors' performance and cost-effectiveness. Given that the contract is in the second of at most three permitted one-year extension periods, does the OIT intend to prolong the contract for one final year this December? In light of the contract's expiration on November 30, 2016, at the latest, does the OIT plan to issue a new Request for Proposal for quality assurance and project management consulting services or cease contracting for the services?

**Answers: 11a, 11b.** To date, 14 projects have engaged the quality assurance and project management consulting services vendors selected under State Contract No. T-2599. Five contracts are pending. To date, the contracts awarded total \$42,963,363 – and \$23,506,811 of this total has been submitted for payment. The projects that have used or are currently using this contract are:

- Broadband Mapping (Office of Homeland Security)
- Broadband Technologies Opportunity Programs (Office of Homeland Security)
- Document Imaging Management System (Department of Human Services)
- PARCC – Partnership for Assessment of Readiness for College and Careers (Department of Education)
- Teacher Certification Information System (Department of Education)
- Mobile Unit Driver's License and Registration Transactions (Motor Vehicles Commission)
- EDISON (Treasury)
- EProcurement (Treasury)
- Health Information Technology (Department of Health)
- Motor Vehicle Surcharge (Treasury)
- Unemployment Insurance Modernization (Department of Labor and Workforce Development)
- Tax Modernization (Treasury)
- WIC (Department of Health)
- Race to the Top, NJ EASEL (Department of Education)

## Discussion Points (Cont'd)

OIT continues to use the contractors primarily for large-scale projects requiring multi-agency coordination and projects with a significant public-facing impact. Agencies have provided positive feedback about their use of services under this contract. From the PMO perspective, when the contractors have followed project management best practices, they have been successful. It is recommended that for the best possible outcome, the contractors continue to report to the hiring Agency, but also have an additional reporting relationship to the OIT PMO. OIT does plan to seek permission to enact the third contract extension. OIT plans to issue a new Request for Proposal for quality assurance and project management consulting services.

12. In cooperation with Executive Branch agency information technology directors, the OIT had developed the **"State of New Jersey Information Technology Strategic Plan for Fiscal Years 2008 through 2010."** The plan articulates goals, objectives, and strategies in six information technology areas: governance, statewide efficiencies, enterprise architecture, e-government, security, and information technology workforce management. In addressing OIT Discussion Point #7 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT stated that following the September 2011 resignation of the previous Chief Technology Officer, the new OIT leadership had originally decided to maintain the existing strategic plan as the technical foundation for OIT's work. In January 2013, the OIT then initiated the development of a new strategic plan. The document would retain technical elements from the previous plan but also would add elements designed to enhance State technological development in recognition of the OIT's transformation from a technology management-focused agency to an innovation leadership agency. Overall, the new plan was intended to drive the adoption of shared services throughout the Executive Branch, improve State government service delivery, foster the adoption of innovative practices, and facilitate the adherence to industry best practices.

- **Questions: Has the OIT adopted a successor to the "State of New Jersey Information Technology Strategic Plan for Fiscal Years 2008 through 2010?" If so, please provide a copy of the new strategic plan and outline the most important changes relative to the previous plan. If there is no new strategic plan, by what date does the OIT expect the completion thereof and is the FY 2008 through FY 2010 strategic plan still guiding information technology strategies and action plans today?**

**Answers: 12.** The CTO received strategic planning input from agencies in 2013 and 2014. OIT incorporated this data as it created a strategic plan. The new plan will be in place until 2016.

## Discussion Points (Cont'd)

13. The judicious **implementation of cloud-based computing** carries the potential of improved cost-effectiveness and organizational performance. For that reason the OIT has examined cloud-based computing models for integration into the State's information technology infrastructure. Specifically, the OIT replied to OIT Discussion Point #1 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, that it would "methodically adopt mature, proven" cloud-based solutions whenever doing so would yield "significant gains in meeting State government priorities for capability, security and cost." But the OIT did not furnish any specific example of the State's use of cloud-based services or comment on the scale of the State's reliance thereon.

Cloud-based computing is a form of outsourcing. It enables users to store, manage, and process data and run related application software remotely on a vendor's external servers via the internet. This practice contrasts with traditional on-premise computing where data are stored on and programs run from an organization-owned local server or a personal computer's hard drive. Advocates contend that cloud-based computing lowers an organization's information technology expenditures. Central to that contention is that an organization only pays for the services it actually uses on a cloud provider's servers. This allows the organization to achieve economies of scale and scalability that are difficult to attain under the traditional information technology sourcing model of purchasing hard- and software and then actively operating and maintaining it in-house. In addition, advocates claim that the flexibility inherent in on-demand cloud-based information technology services enhances an organization's administrative capacity and service quality. This is so because cloud-based computing allows an organization to readily change service consumption levels and upgrade to more advanced technologies and programs. Conventional practices, to the contrary, are more inelastic, as the high upfront acquisition cost of new technologies and programs locks organizations into their existing information technology. Depending on the strength of an organization's in-house information technology staff and data security systems and protocols, cloud providers may also offer organizations more sophisticated security measures and technical support.

But the outsourcing of data and application services to cloud providers also gives rise to dependency-related risks. The internet infrastructure may fail and cause service interruptions. Cloud providers may be unable to deliver the contracted services. Then there is the issue of cybersecurity. Cloud-based computing requires organizations to store data on cloud providers' external servers. Not only does this practice open up new opportunities for cyber-attacks but organizations also relinquish control to cloud providers over many aspects of data privacy and security.

- **Questions: What conditions must procurements of cloud-based computing services meet to receive OIT approval? Does the OIT have any formal policies, procedures, tests, best practices, and guidelines that apply uniquely to the**

## Discussion Points (Cont'd)

- cloud-based computing procurement decision-making process? Are mission-critical data authorized for storage on external cloud provider servers? If so, what identity management, access control, and data security standards must cloud providers meet?**
- **Please list the cloud-based computing services for which State government currently contracts and each service's using agency. What mission-critical data and software application services, if any, are subject to cloud-based computing outsourcing contracts? Please indicate State government's actual FY 2014 cloud-based computing expenditures and its projected FY 2015 and FY 2016 outlays. Does the OIT expect to procure more cloud-based computing services in the future?**
  - **Has the OIT found in examining cloud-based computing options and deploying such solutions that they actually do, or have the potential to, lower costs and enhance State government's administrative capacity and service quality? Has cloud-based computing already led to the reassignment or reduction of positions in the OIT or State government information technology departments? Is it conceivable that cloud-based computing will cause a downsizing of the workforce of the OIT or State government information technology departments?**

**Answers: 13.** OIT continues to utilize the business case and architectural review processes for all acquired services – including those based in the “Cloud.” Cloud-based services must be secure, cost-effective and reliable. Procurements must meet State guidelines, and agencies must justify procurements by delineating the taxpayer needs that will be met by a Cloud-based service. Security requirements are included in procurement agreements.

Certain types of Cloud-based services can be obtained through the State's Software as a Service (SaaS) cooperative agreement. Agencies and vendors can review the standard agreement to understand procurement requirements. This provides improved communication of requirements, speeds procurements while maintaining standards, and ensures a level playing field for bidders.

Other types of Cloud-based services must still be obtained through the RFP process without a more standardized contract. The State is working on a cooperative agreement that can be used for other types of Cloud-based services.

Toward this end, the CTO and others involved with New Jersey IT procurement have been working for more than a year with other states on the development of standardized processes and agreements for purchases of all Cloud-based services. New Jersey's Department of the Treasury and OIT have been leaders in this effort to make government

## Discussion Points (Cont'd)

purchasing of Cloud-based services more efficient, effective and successful. One initial benefit has been publication of a best-practices guide (by Government Technology through the Center for Digital Government). The guide includes a matrix of practical contract terms and conditions developed through meetings and consultations with a variety of government and vendor stakeholders. The matrix includes best-practice approaches to security, data protection, disaster recovery, and other concerns.

Also as a result of that NJ leadership effort, the National Association of State Procurement Officers is working to develop an RFP process that will result in a national cooperative agreement for government purchases of Cloud-based IT services.

Such a procurement vehicle will become increasingly important as more of the best and most economical IT services are delivered via the Cloud. Solutions that were once specialized and customized products are now commodities that the State may be able to purchase at lower costs – both short and long term – than past offerings. OIT recognizes that many factors must be considered when determining true costs. However, the best argument for choosing Cloud-based solutions may be how well they can meet the rapidly growing demand for IT services. Cloud-based solutions are often available significantly more quickly than on-premise solutions to meet immediate needs without large initial startup costs and development time. Similarly, usage can be scaled back when demand falls. Cloud-based solutions can be used to competitive advantage – allowing the State to switch more easily between solution providers to obtain lower costs or improved capabilities.

OIT stands ready to work with agencies to determine the best possible solutions to State IT needs, whether those solutions reside on-site, in the Cloud, or in some combination of both.

14. P.L.2014, c.33 designated the **New Jersey Big Data Alliance (NJBDA)** as the State's advanced cyber infrastructure consortium. Two of the six major initiatives that the law enumerates as possible consortium activities potentially affect the OIT: the organization of events that promote "Big Data" education and collaboration across State government, academia, and industry; and the development of an advanced cyber infrastructure plan for New Jersey in collaboration with the OIT and the Rutgers Discovery Informatics Institute.

Cyber infrastructure and "Big Data" are related concepts from the world of data-intensive, high-performance computing. "Big Data" refers to gargantuan data sets whose size and complexity overwhelm the abilities of commonly used computers, database management systems, and statistics software. Cyber infrastructure, in turn, is an information technology ecosystem that allows for the processing and analysis of the gigantic data sets. It comprises advanced computing systems, data storage systems, instruments and data repositories, visualization environments, and people, all linked together by software and high-

## Discussion Points (Cont'd)

performance networks. The processing and analysis of "Big Data" by powerful computers makes possible the detection of otherwise undetectable patterns, trends, and associations. These findings ultimately improve research productivity and allow for the optimization of data-driven decision-making and resource allocations.

The NJBDA is a partnership of the state's higher education institutions that seeks to identify and close gaps in the statewide stock of advanced information technology equipment and related workforce talent so that the State's academic, commercial, and governmental entities can reap the potential benefits of "Big Data." In addition, the NJBDA intends to build awareness of the specialized advanced computing equipment housed at educational institutions throughout the state and facilitate the sharing of this equipment across universities, industry, and government.

- **Questions:** Please describe the scope and depth of the OIT's interactions with the New Jersey Big Data Alliance. Has the OIT begun to collaborate with the alliance and the Rutgers Discovery Informatics Institute on a statewide advanced cyber infrastructure plan? If so, please present the timeline for drafting, adopting, and implementing the plan.

**Answers: 14.** OIT is a founding member of the New Jersey Big Data Alliance (NJBDA). The OIT role is as an adviser. The expectation is the OIT will guide and counsel the universities that drive this effort. An OIT representative participated in the initial meeting in December 2013 where the NJBDA was conceptualized and also attended the First Annual NJBDA symposium held in 2014.

15. As discussed in OIT Discussion Point #14 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT had considered updating its data governance policies for years. In November 2013, the OIT's Data Governance Office then published the "**The State of New Jersey Data Governance Framework Strategic Plan.**" The document describes the goals, objectives, principles, practices, standards, methodologies, and tools to be used in collecting, storing, managing, controlling the privacy of, and providing access to data across the Executive Branch of State government. A key objective of the framework is the creation of an integrated data management environment spanning across all Executive Branch agencies. The OIT holds that integrated data management is superior to letting each agency manage its own data in that it not only fosters the sharing and accessibility of information across the Executive Branch but also enhances data quality and usability. Rising data quality, in turn, has the potential to lift the performance of State government in creating the conditions for more informed operational and policy decisions. Conceptually, the OIT envisioned achieving data integration in part through the standardization of data definitions

## Discussion Points (Cont'd)

and formats across the Executive Branch and the establishment of universal reference data that serve as common identifiers across different databases.

The plan also outlines a new data governance structure for the Executive Branch that assigns decision rights and accountabilities for data management-related processes. A Data Governance Executive Committee composed of executive management representatives sets data governance policies, which the OIT's Data Governance Office implements. Each Executive Branch agency, in turn, designates a Data Steward who makes agency-specific decisions on data definitions, access, and use. Composed of all Data Stewards and Data Governance Office representatives, the Enterprise Data Stewardship Council drafts data governance policies for approval by the Data Governance Executive Committee, resolves data definition disputes, prioritizes enterprise data asset initiatives, and provides general guidance to information architecture and data management efforts. Lastly, Domain Data Stewardship Committees provide for governance over the data elements of a specific domain and consist of Data Governance Office representatives and Data Stewards from concerned agencies.

- **Questions:** Please provide a status update on the implementation of the New Jersey Data Governance Framework Strategic Plan and indicate by which date the OIT anticipates the new data governance structure to be fully operational. Have all Executive Branch agencies formally designated their Data Stewards? Have the Data Governance Executive Committee, the Enterprise Data Stewardship Council, and the Domain Data Stewardship Committees all been created? How often do they meet? Please detail the composition of the Data Governance Executive Committee and list the actual or envisioned Domain Data Stewardship Committees. If the new data governance structure is operational, does its performance meet OIT expectations?
- Has the Data Governance Executive Committee already adopted data management policies intended to improve data quality and further the construction of the integrated data management environment? If so, please summarize the policies and comment on the extent of State agency compliance therewith. If the policies have not yet been adopted, please indicate the anticipated adoption date.
- Please comment on the technical and physical elements of the planned construction of an integrated data management environment. Is the data management environment operational? If not, please indicate the project milestones that must still be reached, including a timeline. What is the project's anticipated total cost?

## Discussion Points (Cont'd)

**Answers: 15.** NJOIT is working with agencies to develop a Draft of "The State of New Jersey Data Governance Framework Strategic Plan" for review and comment, and it has been receiving and compiling Agency feedback. A Data Governance Framework has not been finalized.

In March 2015, the State designated a new Chief Data Officer (CDO). As part of her role, the CDO is charged with developing an enterprise approach and a plan for statewide information management that agencies can use. This will include a data governance framework as a foundational element of the strategy.

Continuing close collaboration with the agencies is critical and will allow the State to increase the reliability of common data assets, enable appropriate access to data for those who have a legitimate business need, and secure and safeguard the data with which we have all been entrusted.

16. An enterprise data warehouse is a dynamic database environment dedicated to providing a single, comprehensive view of the enterprise and a reliable source of consistent information for financial and strategic decision-making for the enterprise as a whole. In response to Discussion Point #48 in the OLS FY 2009-2010 Department of the Treasury Budget Analysis, the OIT stated that fiscal constraints had hampered the structured development of the State's **enterprise data warehouse environment**. Instead, the OIT had developed the environment dynamically and opportunistically. For that reason, the OIT described the data warehouse as an aggregation of dozens of separate initiatives built incrementally over time when it addressed OIT Discussion Point #13 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis. But the OIT did not expand the data warehouse haphazardly. Expansions occurred in an orderly, consistent manner using common tools and methodologies and referencing reusable technologies and data. The OIT also emphasized that the data warehouse met the needs of the constituent projects and sponsors. But the office pointed out that the hardware platform hosting the data warehouse environment would soon need to be refreshed and that the need to update the worn-out, outdated equipment would represent an opportunity to select a better functioning, more cost-effective data warehousing platform. The OIT already had replied to Discussion Point #48 in the OLS FY 2009-2010 Department of the Treasury Budget Analysis that the hardware platform needed to be refreshed in about two to three years.

- **Questions: Please detail any steps the OIT has taken in the last two years to further develop the enterprise data warehouse environment. How does the OIT intend to finance any expansion of the data warehouse in FY 2015 and FY 2016? Please explain whether the hardware platform hosting the data warehouse is still in need of being refreshed. If it has already been refreshed, please indicate the timing and cost of that action and project the length of time that will lapse until the next such action will become necessary. If the hardware platform has**

## Discussion Points (Cont'd)

**not been refreshed, please share by which date the OIT expects such an action to be necessary, the initiative's anticipated cost, its expected benefits, and the likely impact of delaying the refreshing of the hardware platform. Does the data warehouse currently meet the needs of State government?**

**Answers: 16.** In 2015, OIT purchased hardware that would support an enterprise data warehouse environment. This hardware is in the process of being installed and configured.

In the meantime, OIT continues to educate agencies on the benefits of an Enterprise Data Warehouse (EDW) environment and to assist them in the identification and design of data sources. The office of the Chief Data Officer (CDO) will be working closely with the Agencies to establish a unified enterprise approach to managing data and enable information sharing as appropriate.

In advance of launching a true EDW environment, OIT continues to be instrumental in driving stakeholders toward enterprise information sharing solutions. Over the past two years, OIT has worked closely with diverse stakeholder groups across the State to design and deploy enterprise data solutions benefiting multiple agencies. Some examples include:

**OMB Cash Flow** – In order to better manage the State's cash position, OMB engaged a third party to develop a tool to help them with analysis and projections. OIT was responsible for acquiring and preparing the data required by the tool, and initially managing the data feed. As the project progressed, OIT was able to provide substantially more support than originally requested including detailed requirements gathering, data collection, analysis, modeling and mapping, data enrichment and transformation development, user interface design, and database administration.

**Recidivism Database** – The Department of Corrections, State Parole Board and Juvenile Justice Commission frequently respond to requests for information from both internal and external sources regarding offenders released to the community. All three agencies maintain their own systems of offenders' details. As a result, it was difficult to have a unified view of an offender or calculate a true recidivism rate based on a specific group or population. OIT worked closely with the three agencies to distill common business requirements, aggregated the data from multiple sources, and enabled standard and ad hoc reporting capabilities.

**PMIS History** – The Civil Service Commission maintains the Personnel Management Information System (PMIS), which contains employee personnel history dating back over 40 years. Agencies had been requesting access to this data and the ability to write ad-hoc inquiries as necessary to complete their missions. OIT was able to deliver this capability to the agencies in early 2015.

Enterprise Information Projects in development or about to kick-off include:

## Discussion Points (Cont'd)

**NJ EASEL** – The State created an aligned system of early education data through the NJ-EASEL (New Jersey Enterprise Analysis System for Early Learning). The NJ-EASEL project will seek to link the Department of Education Statewide Longitudinal Data System (NJ SMART), the Department of Children and Family Licensing System, foster care system (NJ SPIRIT), Home Visiting system, Head Start/Early Head Start program data systems, the Department of Human Services Workforce Registry (New Jersey Registry for Childhood Professionals, a component of the Grow NJ Kids data system) and child care system (CASS), the Department of Health Early Intervention System (NJEIS), and other state early learning and development data collections within the parameters of state and federal privacy laws. A project plan has been created and the kick-off meeting is scheduled for April 2015.

**NJ-ISE – New Jersey Information Sharing Environment for Public Safety** – This initiative has been piloted and is awaiting next-stage approval. It will enable the free flow of information in support of statewide law enforcement, homeland security, and emergency management missions to prevent, mitigate, respond to, investigate and recover from all man-made and natural hazards. It will provide secure access to information and actionable intelligence for participating agencies, across the public and private sectors, to better assure the safety and security of New Jersey communities. It will also provide network, data, and application services in a trusted Internet-based federation, in conformance with the national standards for information sharing and safeguarding. NJ ISE for Public Safety will optimize investment through the use and reuse of business and technological frameworks that have been effectively implemented in relevant state and national initiatives.

17. In December 2013, the United States Department of Commerce lifted the one-and-a-half year partial suspension of “**The State of New Jersey Broadband Network**” project. The OIT has since resumed the project, albeit with a revised scope and a September 2015, rather than an August 2013, deadline. The partial suspension and project revisions cascaded from a midstream change in the objective of the federal program funding the network’s construction.

In September 2010, the OIT originally accepted a \$39.6 million matching fund award from the United States Department of Commerce for the building of “The State of New Jersey Broadband Network” through the National Telecommunications and Information Administration (NTIA) Broadband Technology Opportunities Program (BTOP). Funded by the American Recovery and Reinvestment Act of 2009, the federal program was to construct several regional interoperable high-speed public safety broadband networks across the nation. The OIT was to use its federal grant award, as well as the State’s \$11.6 million matching contribution, to deploy an interoperable 700 MHz high-speed public safety broadband network in the Northern Jersey Urban Area Security Initiative region, which covers the counties of Bergen, Essex, Hudson, Middlesex, Morris, Passaic, and Union. If successful, the project was to enable 167 local, county, and State law enforcement agencies

## Discussion Points (Cont'd)

and 224 fire departments to use the network. The network was to allow paramedics to stream critical patient data to hospital personnel; give law enforcement officers field access to records management systems for criminal, fingerprint, and mug shot information; provide firefighters with access to building blueprints and infrastructure diagrams; and improve situational awareness at incident command posts through video applications. In addressing OIT Discussion Point #4 in the OLS FY 2011-2012 Department of the Treasury Budget Analysis the OIT stated that it intended to meet the \$11.6 million matching fund requirement through an in-kind match in the form of the value of 77 tower sites that were supposed to house the network's radio access equipment.

In May 2012, the United States Department of Commerce partially suspended all BTOP-funded projects following the enactment of the federal Middle Class Tax Relief and Job Creation Act of 2012. The act altered the BTOP's objective from constructing several regional interoperable high-speed public safety broadband networks across the nation to building a single nationwide network. The law appropriated \$7 billion to that purpose and charged the newly established First Responder Network Authority, an independent authority within the NTIA, with the program's administration. The nationwide initiative is to incorporate, to the extent feasible, the NTIA's previous efforts at creating several regional interoperable public safety networks. In support of the nationwide initiative the 2012 law also appropriated \$135 million for a State and Local Implementation Grant Program, of which New Jersey received \$2.7 million after identifying \$680,000 in matching funds. Subsequent quarterly performance progress reports for broadband infrastructure projects that the OIT filed with the NTIA suggest two changes in "The State of New Jersey Broadband Network" project scope. Instead of implementing an interoperable high-speed public safety broadband network in the Northern Jersey Urban Area Security Initiative region, the OIT now appears to: a) construct a smaller broadband network in the Route 21 Paterson-Newark corridor as a pilot project; and b) identify and prepare government-owned sites statewide for the planned nationwide network.

- **Questions: Please outline the changes in "The State of New Jersey Broadband Network" project scope from the plan for which the OIT received the original federal Broadband Technology Opportunities Program grant award. How does the revised scope of work affect the project budget?**
- **Please report on the project's current implementation status and indicate the expected project milestones that must still be reached, including a timeline. By what date does the OIT anticipate the project's completion?**
- **Given that the quarterly performance progress reports for broadband infrastructure projects that the OIT has filed with the National Telecommunications and Information Administration suggest that the federal grant award would be used to prepare government-owned sites statewide for**

## Discussion Points (Cont'd)

**the planned nationwide public safety broadband network, is it reasonable to expect that "The State of New Jersey Broadband Network" now serves as a building block en route to the construction of the statewide component of a nationwide broadband network? If so, please present an estimate of the construction costs of a statewide network and the share thereof that will be borne by the federal government and the State. By what date does the OIT expect to have a statewide network completed and in service?**

### **Answers: 17.**

Following the December 2013 approval of the State's Broadband Plan and acquisition of the Spectrum License Agreement, New Jersey's Office of Homeland Security and Preparedness (OHSP) took on the project implementation phase. The OIT resources in the planning stages were transferred to OHSP. OIT now plays a support role, as requested by OHSP, in assisting the project team to create the network connectivity for the project.

18. The OIT has been pursuing a three-phased strategy to **consolidate the State's shared information technology infrastructure**. In the first phase, the office strives to physically co-locate mission-critical information technology equipment to reduce the number of data centers and energy consumption, and to improve information technology disaster recoverability. Phase 2 involves the use of the procurement review process to optimize the information technology infrastructure through platform consolidation or virtualization. Phase 3 calls for service integration across affinity groups to improve service delivery and internal processes. To that end, the OIT intended to draft Service Level Agreement (SLA) templates that would specify the provision of OIT technical support services to client agencies.

Replying to Discussion Point #42 in the OLS FY 2009-2010 Department of the Treasury Budget Analysis, the OIT noted that Phase 1 progress in migrating equipment to a central location was slow due to a lack of available computer room floor space at OIT facilities. Nevertheless, as indicated by OIT responses to OIT Discussion Points #10 in the OLS FY 2011-2012 Department of the Treasury Budget Analysis and #11 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT has since consolidated several State agency data centers in the OIT data center and advanced, in part, the consolidation of call center systems, such as the consolidation of the Division of Pensions and Benefits call center system into the Department of Labor and Workforce Development call center system. But the previously anticipated relocation of print operations and related equipment from the OIT HUB data center has stalled, as the OIT stated in responding to OIT Discussion Point #11 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis. As a stopgap measure, the office planned to disconnect some of the printing equipment from the HUB data center's

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power supply system so as to ease a power constraint and enable the installation of a single electronic messaging platform serving the entire Executive Branch (NJDeliverE). The new electronic messaging platform would replace the disparate and obsolete e-mailing systems previously used by Executive Branch agencies.

In its response to Discussion Point #42 in the OLS FY 2009-2010 Department of the Treasury Budget Analysis, the OIT also listed several successes in Phase 2 of the consolidation strategy. Two years later, in addressing OIT Discussion Point #10 in the OLS FY 2011-2012 Department of the Treasury Budget Analysis, the OIT conveyed that it continued to use the procurement review process to optimize the information technology infrastructure through platform consolidation and virtualization. As examples of virtualization, the OIT cited the continued expansion of the State government-wide storage area network and the use of the State government-wide hosting platform, which minimized the proliferation of standalone servers. As an example of platform consolidation, the office cited the ongoing consolidation of e-mail services in the State government-wide e-mail infrastructure. Another two years later, in replying to OIT Discussion Point #11 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT reported that it was in the middle of consolidating the Executive Branch voice infrastructure and deploying server backup equipment at a Trenton downtown facility to support local agency backups to a centralized virtual tape library.

Concerning Phase 3 of the consolidation strategy, the OIT indicated in answering OIT Discussion Point #10 in the OLS FY 2011-2012 Department of the Treasury Budget Analysis that it had abandoned SLAs in favor of performance indicators and that service integration across affinity groups was advancing with an emphasis on the areas of eligibility determination, fraud detection, and Health Information Technology. Two years later, in responding to OIT Discussion Point #11 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT stated that it was still fine-tuning the existing performance indicators.

- **Questions:** Please provide an update on the progress over the last two years of the following projects related to the consolidation strategy for the State's shared information technology infrastructure: a) the relocation of print operations from the HUB data center or any other approach used to reduce the physical space requirements of print operations; b) the consolidation of call center systems; c) the installation of a single electronic messaging system for all Executive Branch agencies; d) the consolidation of the Executive Branch voice infrastructure; and e) the deployment of server backup equipment at a Trenton downtown facility to support local agency backups to a centralized virtual tape library.
- Apart from the projects enumerated above, please describe the progress the OIT has made in the last two years in implementing: a) Phase 1 of the

## Discussion Points (Cont'd)

**consolidation strategy for the State's shared information technology infrastructure (the physical collocation of mission-critical information technology equipment); b) Phase 2 of the consolidation strategy (the use of the procurement review process to optimize the information technology infrastructure through platform consolidation or virtualization); and c) Phase 3 of the consolidation strategy (service integration across affinity groups). Have performance indicators served as a satisfactory tool to specify and ensure the provision of OIT technical support services to client agencies?**

**Answers: 18.**

**A)** The State issued an RFP for the outsourcing of print operations from the Hub data center. A contract has been awarded, but a vendor has filed a protest, delaying implementation.

**B)** Agencies and OIT plan continued consolidation of call center systems. In addition to the Pensions/Labor project, OIT has consolidated several small call centers onto the Shared Communications Services platform. OIT currently supports the following Agency Call Centers: Board of Public Utilities; Civil Service Commission; the Department of Human Services Intoxicated Driver Program and the Office of Child Support Services; the State Operators; and OIT NCC (OIT Help Desk) . In addition to Call Center services, OIT offers basic Voice Services, which are in the final stages of migration for 30 Office of Public Defender (OPD) sites. We also provide services to the Economic Development Authority and the Juvenile Justice Commission. The Department of the Treasury's Division of Taxation operation is the next potential candidate for consolidation of call center services.

**C)** The installation of a single electronic messaging system for all Executive Branch agencies is well underway. To date, the following 12 departments and agencies are using the NJDeliverE State Messaging System:

- \* Civil Service Commission
- \* Community Affairs
- \* Corrections
- \* Environmental Protection
- \* Governor's Office
- \* Highlands Commission
- \* Juvenile Justice Commission
- \* Military and Veterans Affairs
- \* Motor Vehicle Commission
- \* Office of Information Technology
- \* Transportation
- \* Treasury

## Discussion Points (Cont'd)

The NJ DeliverE team expects more than 10 agencies will be added to the system in 2015.

**D)** The consolidation of the Executive Branch voice infrastructure has begun with the establishment of a Voice Core infrastructure at OIT's Hamilton data center.

**E)** OIT has completed the first phase of the deployment of server backup equipment at the Trenton downtown facility to support local agency backups to a centralized virtual tape library. OIT is backing up Department of the Treasury servers. Several more agencies will be able to take advantage of this service in 2015, including the Governor's Office, Banking and Insurance, and Community Affairs.

19. In answering OIT Discussion Point #17 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT provided status reports on two long-term projects: **the migration of the legacy Garden State Network (a statewide integrated communications network) to the Next Generation Services Network (NGSN) and the consolidation of servers.**

The OIT related that the construction of the statewide dark fiber-based NGSN was nearing completion. The new network would consist of three rings of fiber-optic cable — one each in the northern, southern, and central parts of the state. While the northern and southern rings were already finished, the construction of the central ring was scheduled to begin in the third quarter of 2013. The final migration from the legacy Garden State Network to the NGSN, in turn, was expected to occur by 2015 and yield a significant increase in bandwidth capacity and support for internet protocol-based services. The migration may affect the following network services that the OIT provides to its client agencies and entities: internet services, wide area network (WAN) access, aggregation and backbone services, network infrastructure security and access control, data center infrastructure, e-commerce application hosting, secured remote access and extranet services, internet protocol-based mainframe access and unified communications, and Voice over Internet Protocol (VoIP) as well as video services.

The OIT also stated that it had advanced the consolidation of virtual servers that supported Executive Branch agency websites and web-based applications. First, the OIT had installed updated equipment for its Windows-based server virtualization environment. Next, it began the consolidation of virtual servers on the 20 Windows-based physical servers. As of the drafting of its discussion point response, the OIT had consolidated 149 of 523 virtual servers on the 20 Windows-based physical servers. The other virtual systems were still located on physical servers running IBM and Oracle operating systems. Physical limitations at the data centers, however, constrained the operation of additional physical servers that would allow for further migrations to the Windows-based virtualization environment.

## Discussion Points (Cont'd)

- **Questions:** Please report on the status of the migration of the Garden State Network to the Next Generation Services Network (NGSN). Has the migration been completed? If not, please indicate the project milestones that must still be reached, including a timeline. Please describe the expected technical benefits of the NGSN relative to the Garden State Network and explain how these benefits are to facilitate State and local government operational improvements. What is or was the project's total cost?
- Please comment on the current status of the project to consolidate virtual servers on Windows-based physical servers. Have all virtual servers been migrated? If not, please indicate the project milestones that must still be reached, including a timeline. Has the OIT developed and implemented a solution that would allow for further migrations of virtual servers to the Windows-based virtualization environment notwithstanding the physical limitations at the OIT data centers that previously constrained the operation of additional physical servers? Please describe the technical benefits of the server consolidation and explain how these benefits are to facilitate State and local government operational improvements. What is or was the project's total cost?

**Answers: 19.** Work on the Next Generation Services Network is in abeyance. Current needs do not require immediate capacity expansion. OIT will continue to monitor network demand to ensure that required capacity is provided through current channels in Fiscal 2016.

20. In its July 2010 audit report on OIT's Billing and Contracting for Telecommunications Services, the Office of the State Comptroller commented on the assignment to employees of **State-issued cellular wireless devices** (cell phones, blackberries, tablets, etc.). At the time of the audit, each State agency established its own internal policies although each individual assignment had to be based upon the need to have constant communication and a determination that the benefits of the assignment justify the costs (Office of Information Technology, Circular Letter No. 04-06-OIT, Assignment and Use of Cellular Wireless). Agencies were to document an assignment's justification and maintain "appropriate records" of all device issuances. The State Comptroller found, however, that agencies' recordkeeping varied vastly and that out of a random sample of 518 devices, 426 devices, or 82 percent, did not have any documentation justifying their assignment. To alleviate this shortcoming, the State Comptroller recommended the development of a uniform policy governing the issuance of wireless devices that required agencies to assess and document the costs and the benefits of assigning a device.

Subsequently, the OIT updated wireless device management policies in FY 2013 and FY 2015. But the updated policies do not appear to address the State Comptroller's concerns about a

## Discussion Points (Cont'd)

lack of control over the assignment of individual devices. Under the current policy, individual wireless device assignments continue to have to be based upon the need to maintain constant or immediate communication and a determination that the benefits of the assignment justify the costs. Moreover, agencies continue to remain responsible for establishing their own internal policies for the issuance and use of wireless devices, but the policies must now include minimum OIT requirements concerning periodic reviews of usage and termination reports, an annual inventory of wireless devices, the need for appropriate approvals before a device is issued, a mandate that the agency notify the OIT when a wireless device is no longer in use, and rules requiring the reimbursement by employees of costs resulting from a device's improper use. But agencies retain their prior exclusive jurisdiction over the review of individual cellular device assignment requests, while the OIT continues to perform no control function and to have no access to each assignment's supporting documentation (Office of Management and Budget and Office of Information Technology, Circular Letter No. 15-04-OMB/OIT, Assignment and Use of State Owned Cellular Wireless Devices). In responding to OIT Discussion Point #19 in the OLS FY 2013-2014 Department of the Treasury Budget Analysis, the OIT contended that its continued noninvolvement with control functions reflected its imperfect knowledge, as an outsider, of the job responsibilities of thousands of State employees. As a result, it was not in a position to ably assess whether a specific employee's job performance would benefit from the assignment of a wireless device. State agencies were better placed to perform that task. The OIT emphasized, however, that it: a) provided ample policy guidance to State agencies for the determination of which employees should be supplied with State-owned wireless devices, b) regularly reminded each State agency's designated Telephone Coordinator of the need to keep accurate records and conform with State phone policies, c) provided clear guidelines on the acceptable use of wireless devices, and d) followed up on any complaints it received of improper usage of State-owned wireless devices.

In reply to OIT Discussion Point #19, the OIT also reported that 19,917 cellular devices were issued in FY 2013, a 10.8 percent increase over the 17,981 devices issued in FY 2012. The Department of Children and Families and the Department of Human Services accounted for more than half of the increase. Expenditures for cellular wireless devices totaled \$8.5 million in FY 2012 and the OIT estimated them at \$6.0 million for each of FY 2013 and FY 2014.

- **Questions: Please indicate whether, to the best of the OIT's knowledge, State agencies are complying with the statewide minimum requirements for the issuance of cellular wireless devices as set forth in Office of Management and Budget and Office of Information Technology, Circular Letter No. 15-04-OMB/OIT, Assignment and Use of State Owned Cellular Wireless Devices. Is the OIT aware of State agencies actually having improved their documentation of justifications for the issuance of individual wireless devices since the release of the 2010 audit by the State Comptroller?**

## Discussion Points (Cont'd)

- **Please report for FY 2014, FY 2015, and FY 2016 the actual or projected: a) number of State-issued cellular wireless devices, and b) budgetary outlay for supporting the devices. Please provide a breakout of the number of cellular wireless devices issued in FY 2015 by State agency.**

**Answers: 20.** OIT's management of cellular devices is dictated by the following policy: Circular Letter 13-05-OIT section V: ". . . devices will be made available to State employees where the benefit of the technology substantially enhances their job performance, or they are required to maintain constant and/or immediate contact with their work locations, supervisors, subordinates, clients or other State offices and entities. . . . All requests for wireless devices must be based upon a cost-benefit justification, and should only be issued where the business need justifies the cost (monetary or service delivery impact)."

The OIT policy provides clear guidance on acceptable usage, including limits on personal phone calls, restrictions on pay-per-use services, and bans on downloads of ringtones, games and other applications unneeded for business purposes.

OIT follows up on complaints it receives of improper usage of State-owned wireless devices. However, the primary OIT role is to require minimum standards and to ensure that all agencies are fully aware of the policies.

OIT figures based on fiscal years indicate that in:

**Calendar 2013:** State managed 20,065 wireless devices

**Calendar 2014:** State managed 21,287 devices

**Calendar 2015:** State managed 21,189 devices \*

*\*As of April 2015*

Wireless devices or plans can be broadband for tablets or routers, Wi-Fi devices, or air-cards used for network connectivity. Phones could be a basic phone, or a Smartphone or Droid that enables the use of Apps for business purposes. They could also be Blackberries.

In April 2014 the statewide count of wireless devices was 21,287, and in April 2015 it was 21,189. OIT has no current estimate of future growth in the use of wireless devices.

### State provided Wireless Devices or Plans in use, by agency:

Agriculture	153
Banking & Insurance	166
Chief Executive	129
Children & Families	6,412
Community Affairs	555
Corrections	421

## Discussion Points (Cont'd)

State Parole Board	442
Education	322
Environmental Protection	1,666
Health	1,166
Human Services	1,501
Labor	300
Civil Service Commission	63
L&PS – Homeland Security	126
L&PS – State Police	1,807
L&PS – All Other	1,742
Council on Local Mandates	1
Military & Veterans Affairs	206
OIT	384
OIT – Emergency Loaners	146
State	62
Transportation	1,366
Motor Vehicle Commission	521
Treasury	1,416
* Based on information provided from the cellphone database of OIT-managed devices	
TOTAL	21,073

21. The Office of Emergency Telecommunications Services (OETS) in the OIT plans, designs, implements, and coordinates the Statewide 9-1-1 Emergency Telephone System. The system is a network comprised of municipal and county public safety answering points that handle calls for emergency assistance from police, fire, and ambulance services. The Emergency Preparedness and 9-1-1 System Assessment, created by P.L.2004, c.48 (N.J.S.A.52:17C-17 et seq.), funds OETS operations, among other initiatives. Customers pay the \$0.90 assessment in each billing cycle for their cell or landline phones. In all, OETS' recommended FY 2016 appropriation is \$14.0 million. Of that sum, the OETS would disburse \$13.1 million to maintain and operate the Statewide 9-1-1 Emergency Telephone System and \$900,000 for its administrative expenses.

In recent years there has been sustained interest in upgrading New Jersey's 9-1-1 system to a so-called "**Next Generation**" 9-1-1 system, which would allow for the processing of emergency services requests sent via e-mail or text message. The current system only supports emergency reports received by telephone. The upgrade's cost would fall on the

## Discussion Points (Cont'd)

State and local governments. Whereas the OETS is responsible for the network infrastructure, individual public safety answering points manage their "Call Taker" systems.

The OETS still has to secure funding for 9-1-1 network infrastructure upgrades. But, in 2011, the OIT issued a Request for Information with responses due on December 30, 2011 that solicited information on "Next Generation" 9-1-1 network offerings that would: a) assist in the development of a formal Request for Proposal; b) prepare for budgeting and funding; and c) provide direction in policy development, notably public safety answering point consolidation initiatives. Currently, there is no active contract concerning the installation of a "Next Generation" 9-1-1 system nor a Request for Proposal therefor.

The financing of the system upgrade's cost to municipal and county public safety answering points is also unresolved. But Assembly Committee Substitute (2R) for Assembly Bills Nos. 3461 and 3544 addresses this issue. The legislation requires 9-1-1 service facilities to be equipped, within three years following the bill's enactment, with a "Next Generation" 9-1-1 system approved by the OETS. The bill increases the 9-1-1 System and Emergency Response Fee by ten percent for 36 months to support the initiative. The legislation, however, does not provide funding to the OETS for 9-1-1 network infrastructure upgrades.

- **Questions: Please comment on the status of and financing plan for the OETS' planned installation of a Statewide "Next Generation" 9-1-1 network. What has been the outcome of the 2011 Request for Information concerning the installation of such a network? How many responses did the OETS receive? What did the responses indicate regarding the cost of implementing a "Next Generation" 9-1-1 network in New Jersey? Have the responses assisted the OETS in formulating a Request for Proposal? Has a Request for Proposal been issued? If so: a) how many bids has the OETS received; b) to whom has the OETS awarded the contract; c) what is the estimated project cost; and d) what is the project's anticipated completion date?**

**Answers: 21.** Preparation for an RFP for Next Generation 9-1-1 system has begun. Financing of the network likely will require action by the Legislature. The 2011 RFI resulted in 11 respondents. The RFI did not produce any valid cost estimates.