



State IT Workforce: Under Pressure

January 2011

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Background & Approach

The predicted shortage in the state information technology (IT) workforce has been discussed and debated for over a decade and states have been confronted with numerous challenges when it comes to identifying gaps in a changing IT workforce. As more baby boomers reach retirement status, knowledge management and succession planning have become critical for state CIOs to consider. At the same time, recruiting and retaining younger employees pose unique challenges and opportunities for states to align new priorities.

Despite slight increases in state revenues, the forecast for state budgets still remains grim due to the recession that began in late 2007 and early 2008. Balancing tight state budgets and finding strategies for savings has become paramount to state CIOs, but it has also created obstacles for recruiting and retaining the most talented IT personnel. A wave of state layoffs, furloughs, hiring freezes and lack of salary increases has exacerbated this situation.

A major concern for state CIOs is the significant number of state IT employees who are eligible for retirement or have been eligible, but have postponed retirement due to the economic downturn. *State IT Workforce: Under Pressure* was designed to gain insight into the current landscape and survey innovative techniques that states use to recruit both entry level and highly skilled personnel.

The responses reflect recent state IT workforce trends and perspectives from the view of the state CIO. NASCIO was able to benchmark data from the 2007 survey research product, *State IT Workforce: Here Today, Gone Tomorrow?*, against the most recent data to capture a better understanding of how the fiscal crisis has affected the state IT workforce.

In 2007, state CIOs had offered anecdotal evidence that states could face a potential shortage of government IT workers in the near future due to anticipated retirements of baby boomers and a waning interest in government IT employment from the younger generation. To revisit this looming issue, in November 2010 NASCIO conducted a web-based survey for state CIOs to assess the landscape of the state IT workforce. The results of that survey are listed in aggregate here and are intended for NASCIO members to use as a tool in identifying and addressing state IT workforce trends.

The online survey was completed by the state CIO or other senior official of the state IT organization. In order to allow for maximum state participation, states were given approximately a month to respond and forty states, the District of Columbia and one territory responded to the survey request. The survey had an excellent participation rate and indicates that the workforce shortage has not yet been fully witnessed and may have been delayed. However, it is important that state CIOs continue to make succession planning, recruitment and retention of a multi-generational workforce a priority for successful human resource management.

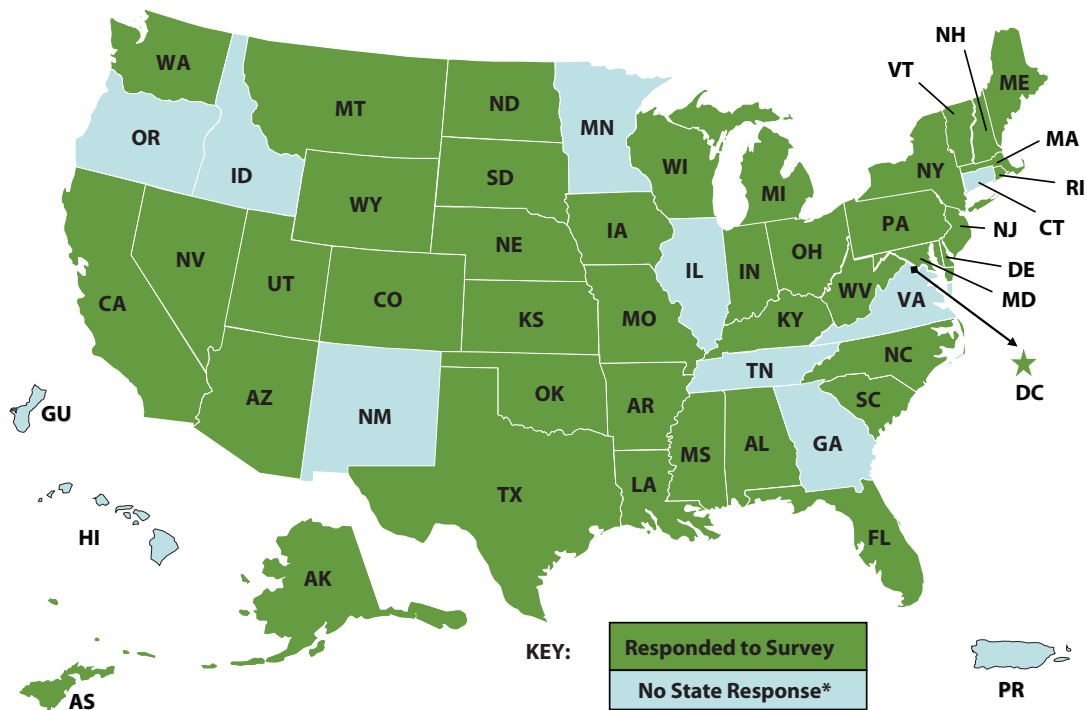
Survey Participants

Forty states, the District of Columbia and a U.S. territory responded to the survey by November 24, 2010. Because an overwhelming majority of states responded - participation included a wide distribution in geography, population, and budget.

The survey respondents are listed below in alphabetical order:

- | | | |
|-------------------------|--------------------|--------------------|
| 1. Alabama | 15. Louisiana | 29. North Dakota |
| 2. Alaska | 16. Maine | 30. Ohio |
| 3. American Somoa | 17. Maryland | 31. Oklahoma |
| 4. Arizona | 18. Massachusetts | 32. Pennsylvania |
| 5. Arkansas | 19. Michigan | 33. Rhode Island |
| 6. California | 20. Mississippi | 34. South Carolina |
| 7. Colorado | 21. Missouri | 35. South Dakota |
| 8. District of Columbia | 22. Montana | 36. Texas |
| 9. Delaware | 23. Nebraska | 37. Utah |
| 10. Florida | 24. Nevada | 38. Vermont |
| 11. Indiana | 25. New Jersey | 39. Washington |
| 12. Iowa | 26. New Hampshire | 40. West Virginia |
| 13. Kansas | 27. New York | 41. Wisconsin |
| 14. Kentucky | 28. North Carolina | 42. Wyoming |

Figure 1: Survey Respondents



Results taken from the NASCIO November 2010 State IT Workforce Survey
 *Some states may not have responded to due CIO transitions

Source: NASCIO May 2010

Key Survey Findings

The results of the State IT Workforce survey reflect the following key points:

- Hiring freezes and elimination of vacant positions continue to be the greatest challenge for state CIOs when developing, supporting and maintaining IT services for state government.
- Nearly two-thirds of respondents said that they anticipate having to reduce IT staff.
- Consistent with results from the 2007 State IT Workforce survey – nearly a quarter of state CIOs predict that between 21 percent and 30 percent of state IT employees will be eligible for retirement within the next five years.
- Over a majority of the state CIOs reported that the recession has caused many state workers to postpone retirement.
- Slightly more than half of the states continue to have difficulty recruiting new employees to fill vacant IT positions, but data suggests the continuing high unemployment rate has reduced the burden for filling entry level positions.
- What key factors attract new IT employees to civil service positions:
 - Benefits Package
 - Job Stability
 - Pension/Retirement Plan
- An overwhelming 78.6 percent of state CIOs confirmed that state salary rates and pay grade structures present a challenge in attracting and retaining skilled IT talent.
- The top 5 skills and disciplines that present the greatest challenge in attracting and retaining state IT employees are:
 - Security
 - Project Management
 - Architecture
 - Application and Mobile Application Development and Support
 - Analysis and Design
- Less than a quarter of respondents stated that their state performs an IT workforce assessment.

Detailed Survey Results

Survey results are presented in the same order as the survey instrument. This section highlights particular areas of interest from the survey results, as well as observations on those results and their implications for NASCIO members.

SURVEY SECTION I.

Assessment of Current State IT Workforce Landscape

1. What state personnel action has created the greatest challenge to your ability to develop, support and maintain IT services for state government? (See Figure 2)

Of the 42 survey respondents, nearly half of the state CIOs chose that the greatest challenge has been the elimination of vacant positions and hiring freezes in the states. Each of those choices received a response rate of **23.8 percent**.

With no surprise, nearly one-third of the responses were attributed to a combination of factors facing the state IT workforce. The “Other” category, which received **31 percent** of the responses, predominately consisted of a mix of impediments such as furloughs, hiring and pay freezes, elimination of vacant positions and changes in the retirement system.

States Respond:

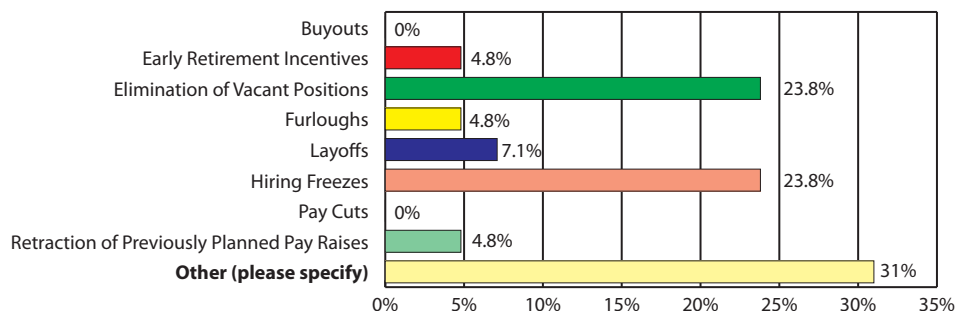
“Budget impacts have resulted in hiring freezes, furloughs, elimination of vacant positions and retraction of previously planned pay raises. The combination, along with changes in our retirement system and the age and service longevity of our most experienced staff.”

“Combination of lack of available skill sets and loss of vacant positions.”

“A rigid union environment combined with a rigid hiring process.”

The survey options such as buyouts, early retirement incentives, furloughs, layoffs, pay cuts and retraction of previously planned pay raises had lower response rates, but it is evident that a combination of factors are affecting the states ability to develop, support and maintain IT services. State CIOs need to prepare and respond to the unique mixture of these hindrances in their state as they leverage what resources are available to them.

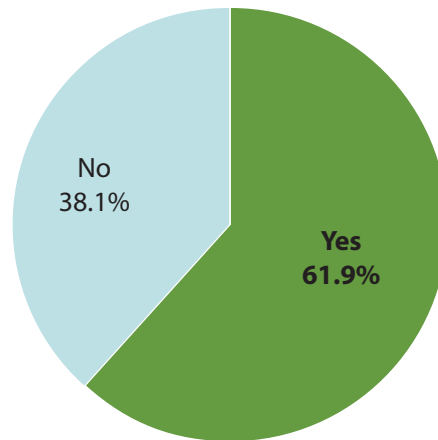
Figure 2: Personnel actions creating challenges to IT



2. Nearly two-thirds of state CIOs have reported that they anticipate IT budget cuts in 2011. Do you anticipate having to reduce the IT staff of your state CIO organization?
(See Figure 3)

Recent state government employment changes have been less drastic for both full-time equivalent and part-time employees due a relatively high unemployment rate in the United States. Surprisingly, six states showed increases of 4.0 percent or higher in full-time equivalent employment, led by Illinois with a 6.2 percent increase. Some of these increases in the states may be attributed to managing federal funds the states have received through the American Recovery and Reinvestment Act. On the other end of the spectrum, four states showed decreases of 4.0 percent or higher in full-time equivalent employment, led by Maine with a 6.8 percent decrease. These estimates come from the Census Bureau's Annual Survey of Government Employment and Payroll.¹

Figure 3: Do you anticipate IT staff reductions in 2011?



While many states have reduced IT staff due to consolidation efforts, many of the states have anticipated having fewer staff in 2011 due to hiring freezes and eliminating vacant positions. **61.9 percent** of the state CIO responses validated the assumption that they will be reducing the number of IT staff in the state CIO organization.

The results for this question fall in line with the most recent *CDW IT Monitor*, which is a bi-monthly indicator that tracks the direction and momentum of the U.S. IT marketplace. The report indicated that only 10 percent of state IT departments expect to add staff, a five point decrease from the previous *Monitor*.²

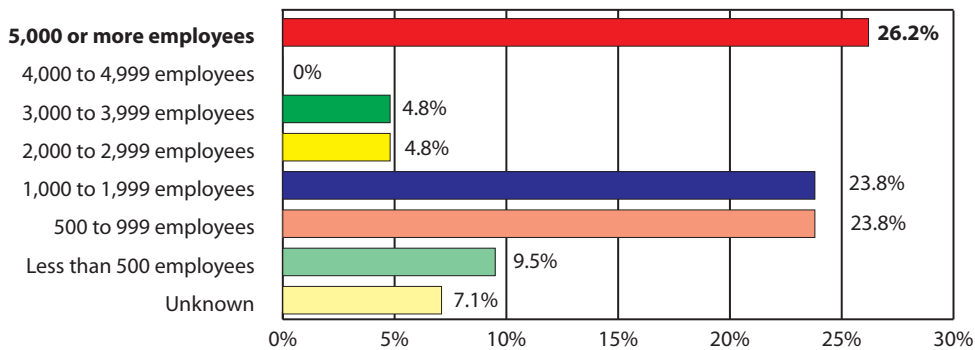
2.1 If so, by what approximate percentage?

Of the percentages given, some respondents indicated that the numbers may be estimates. When all responses were averaged, the percentage of employees by which state CIOs anticipate having to reduce IT staff by was **10 percent**, with the lowest reported at **2 percent** and the highest at **20 percent**.

3. Approximately how many total full time IT employees does your state have in the executive branch of government? (See Figure 4)

When states were asked how many total full time IT employees their state has in the executive branch, it was no surprise that there was a great deal of variation due to the diverse set of regional, socio-economic and demographic variances. Each state's IT needs may vary due to the number of public employees and the population in that region. The overwhelming majority of states responded that they currently have between 500-1,999 full time IT employees. Of that combined data set, **23.8 percent** responded that they have between 500-999 employees – with an equal amount of respondents, **23.8 percent**, stating they have between 1,000 to 1,999 employees. Despite the great deal of states falling into the 500-1,999 employees range, the single largest state response was for IT organizations that currently have 5,000 or more employees. Of the 42 responses, **26.2 percent** of the states have 5,000 or more full time IT employees in the executive branch of government.

Figure 4: Number of full-time executive branch IT employees



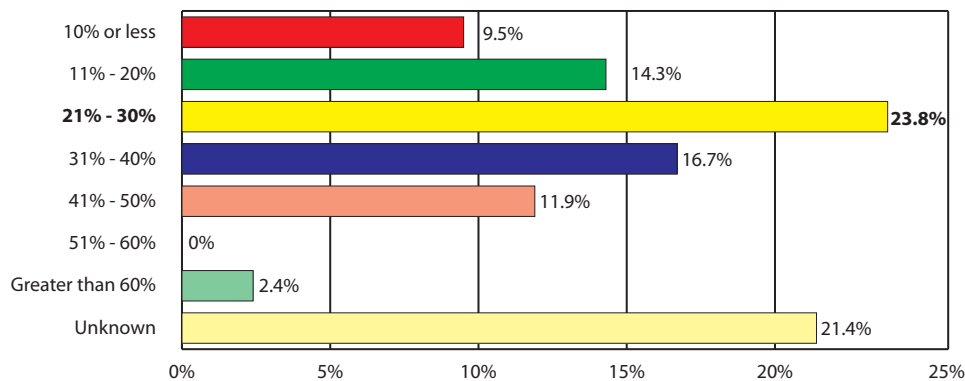
SURVEY SECTION II.

Assessment on the Impact of Retirement in the IT Workforce

1. What percentage of your state IT employees will be eligible for retirement within the next five years? (See Figure 5)

Virtually all organizations face a loss of institutional and expert knowledge with the departure of retiring employees. While many state IT employees have delayed retirement due to the current fiscal conditions in United States, it is inevitable that the baby boomers will be looking to retire in the next five years.

Figure 5: State IT employees eligible for retirement in the next five years



NASCIO asked the same question in its 2007 survey *State IT Workforce: Here today, Gone Tomorrow?*. The results of the 2007 survey are quite similar to the 2010 survey results. In 2007, the percentage of state IT employees that were eligible for retirement within a five year period was estimated to be **27 percent**.³ The recent survey responses fall in line with prior assumptions with the greatest number of respondents suggesting that they anticipate between **21 percent to 30 percent** of the state IT workforce will retire or will be eligible to retire in the next five years. With a great deal of state employees expected to retire, this is a key sign that this challenge has just been delayed due to the fiscal woes over the past few years. The vital expert knowledge that veteran staff will take with them will need to be replaced and State CIOs will need to be prepared for a new generation of IT employees. Conversely, retirements offer the state CIO an opportunity to bring in new employees with new skill sets and fresh ideas.

2. The recession has caused many state workers to rethink their retirement strategy. What change, if any, have your retirement-eligible IT employees made regarding their retirement? (See Figure 6)

Overwhelmingly, the majority of state CIOs have witnessed retirement-eligible IT employees choosing to postpone retirement – with **52.4 percent** of the states saying that postponement had become a major strategy for IT employees. There were also a few responses on the opposite end of the spectrum - with **11.9 percent** of employees seeking early retirement due to either personal circumstances or incentives that the state may have provided.

States Respond:

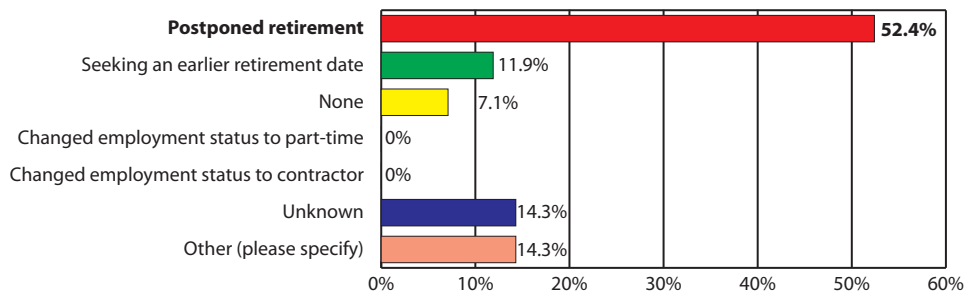
“Many have postponed retirement, while many others have sought an earlier retirement date – based on their personal circumstances. Changes proposed for the coming year in our retirement system are likely to increase the number of individuals who retire.”

“Forced retirement due to layoffs.”

“Staff had postponed retirement because of the economy, but now are looking at retirement because of the possibility of more furlough days, higher contributions toward retirement and health premiums.”

One of the major reasons states may not be able to slow this massive migration of baby boomers towards retirement is the fact that most of the states are not offering incentives to IT employees who postpone retirement. In addition, states have increasingly been focusing on reducing benefits available to new hires and attempts to ease current employees out of costly health and pension plans.⁴

Figure 6: Recession-caused changes to retirement strategies



3. Have the number of retirements or expected retirements substantially altered the way in which your state delivers IT support and services? (See Figure 7)

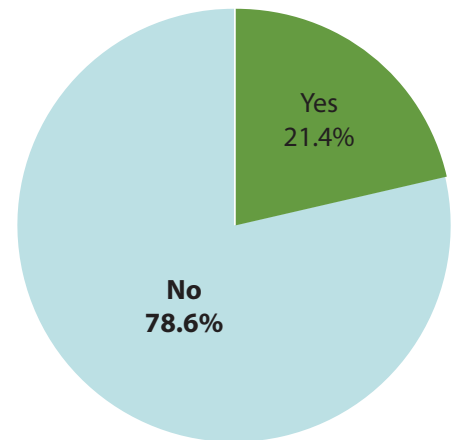
When states were asked if the number of retirements or expected retirements has substantially altered the way in which their state delivers IT support and services, **78.6 percent** of the states said that it did not alter IT support and services. The results are a dramatic increase over the 2007 survey results that indicated that **56.5 percent** of the state CIOs felt that IT support and services will be uninterrupted.

3.1 If so, please specify in what ways?

States were asked if the number of retirements, or anticipated retirements, have caused them to reconsider the way in which they deliver IT support and services. Of the **21.4 percent** of respondents that indicated that anticipated retirements had caused reconsiderations, responses included exploring more cross-boundary collaboration opportunities, including public-private partnerships and consolidating certain services.

Increasing the use of contract employees, outsourcing services, upgrading old legacy systems and moving away from older applications and services were also frequently cited among state responses. Another strategy state CIOs considered for bridging the knowledge gap is re-hiring former state employees to perform certain tasks on a contractual basis due to their unique knowledge of existing systems and applications.

Figure 7: Have IT support and services been affected by retirements?



States Respond:

“While our services have not altered, we have had to become more creative in addressing knowledge gaps left by these retirements”

“We are increasingly looking for consolidation and shared services opportunities to reduce staffing requirements.”

“The combination of hiring freezes and retirement eligible employees postponing their retirements has slowed some adoption of new technology while also allowing some legacy applications to remain supportable, but overall IT support and services have not been altered.”

SURVEY SECTION III.

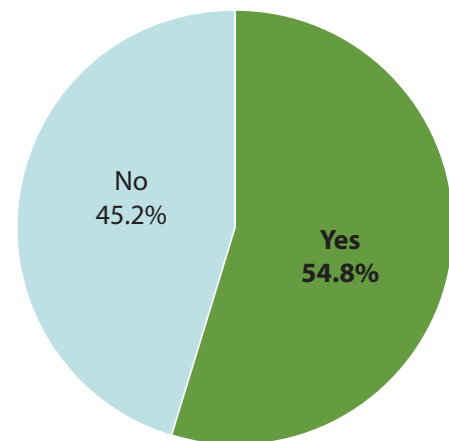
State IT Personnel Recruitment and Retention

1. Is your state having any difficulty recruiting new employees to fill vacant IT positions? (See Figure 8)

When states were asked if they were having difficulty recruiting new employees to fill vacant IT positions, a majority indicated that they were experiencing difficulty. **54.8 percent** of respondents responded “Yes” while **45.2 percent** responded that they were not. These numbers reflect a stark contrast from the 2007 survey results that indicated **80.4 percent** of state CIOs were having difficulty with recruiting new employees to fill vacant positions.

Many of the 2010 comments from the states attribute the **25.6 percent** decrease to the high unemployment rate and an increase in qualified entry level IT applicants. While entry level classifications requiring little experience were easy to fill, it was noted that the experienced technical positions were often challenging to fill.

Figure 8: Is your state having difficulty recruiting new IT employees?



States Respond:

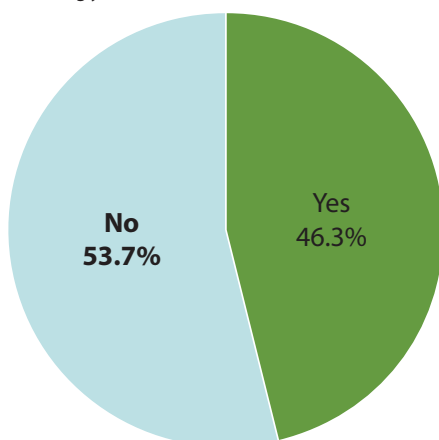
“Not difficult recruiting new employees. It is difficult to find candidates with the preferred set of qualifications to work for state wages.”

“Only for certain positions requiring specific, hard to find IT skills.”

“With the hiring freeze that has been in place for more than two years, the state has relatively few vacancies and therefore little difficulty recruiting.”

2. Is a shortage of qualified candidates for state IT positions hindering your state's ability to achieve its strategic IT initiatives? (See Figure 9)

Figure 9: Is a shortage of qualified IT candidates hindering your IT initiatives?



While the 2010 responses closely resemble the results from the 2007 survey, this question garnered a mixed reaction from the states. When asked if a shortage of qualified candidates for state IT positions was hindering their state’s ability to achieve its strategic IT initiatives, states were almost evenly split in their responses. Only a slim majority indicated that this shortage was not hindering their ability to achieve these initiatives, even though states indicated in the previous question that they are experiencing difficulty in the recruitment of new employees to fill current vacancies. The major difference between the results from 2007 and 2010 is that there has been a shift towards CIOs indicating that the shortage of qualified candidates has, albeit narrowly, become less of a problem.

Based solely on the variation in responses between 2007 and 2010, it would appear that the overall impact of a qualified candidate shortage, thus far, is proving to be minimal to over half of the states regarding their ability to achieve strategic IT initiatives. Taking into account the current unemployment rate may also shed some light on the shift that state CIOs have seen in candidates applying for state IT positions.

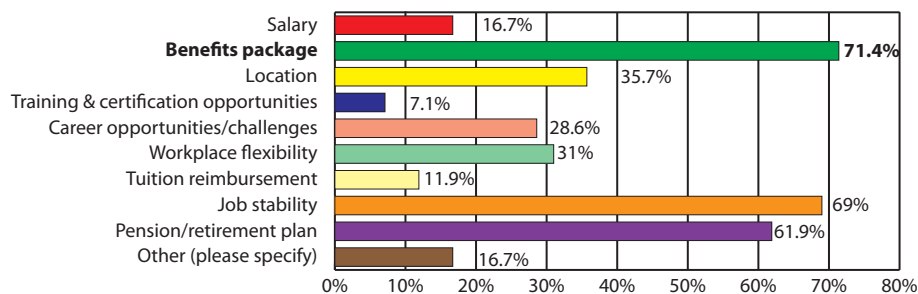
3. What attracts new IT employees to work for your state? Select all that apply.
(See Figure 10)

States were asked to indicate what attracts new IT employees to work for them and were allowed to select all answers that applied. Not surprisingly, a large percentage (**71.4 percent**) indicated that their benefits package was the leading incentive in attracting incoming state employees. It is well-known that a comprehensive benefits package is one of the primary drivers behind applying for a state government job. This high response rate indicates that these benefits continue to be attractive to potential and incoming employees, as well as to current employees.

While the benefits package is commonly regarded as the key advantage in state government employment, job stability garnered a **69 percent** response rate, coming in as the second highest incentive for new state IT employees. This response is not surprising since the economic downturn has led to layoffs and job loss in both the private and public sector.

Another incentive for new IT employees, which received a rather high response rate, is the prospect of a generous state pension system and retirement plan. With a **61.9 percent** response rate, the pension systems and retirement plans that states provide for employees remains one the main incentives for IT candidates.

Figure 10: What attracts new IT employees to work for your state?



States Respond:

Incentives for Potential Employees-

“Emphasize career challenges and opportunities.”

“Quality of life issues. Many have stated the desire to quit traveling extensively.”

“Employee work location requirements with spouse of family – gaining related work experience and training.”

Hindrances for the States-

“The benefits were a major factor, but those are now possibly at risk of being eliminated. That will make hiring more difficult.”

“With furloughs, layoffs and salary freezes - the few benefits we had to working government are gone.”

“With the current budget crisis, much of this is changing. Benefits are becoming more costly, training has slowed and job stability is questionable.”

Nearly one-third of all respondents indicated that workplace flexibility is an incentive for new IT employees, which typically goes against the general perception of state governments having a rigid structure. The ability to work during alternative hours, condensed work weeks, and other perks of a flexible workplace are more often generally associated with the private sector, rather than government employment. While the high response rate is most likely attributed to allowing employees more control over their personal time, it may also include the ability to change roles within government. One of the states that have successfully implemented an innovative work schedule is Utah, who implemented a four day work week in 2008.⁵

Two areas that seemed to receive little attention as a way to attract new personnel were “Training & certification opportunities” with a **7.1 percent** response rate and also “Tuition reimbursement” at **11.9 percent**. These numbers may reflect state challenges associated with funding such programs, but state CIOs should be candid with potential IT personnel on existing and potential opportunities. While cost may be a factor, industry training and preferred certifications have become more practical to attend with online curriculums and training readily available.

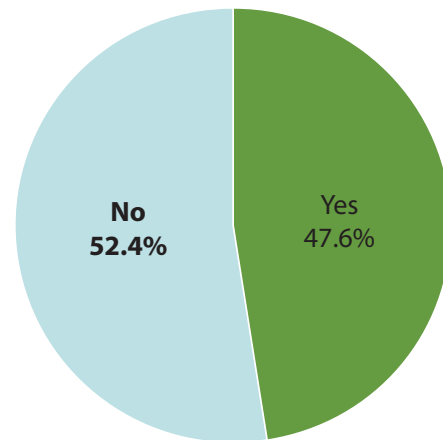
4. Does your state's civil service system affect your ability to acquire the skilled IT personnel that you need? (See Figure 11)

4.1. If so, please specify why?

States were asked if their state's civil service system affected their ability to acquire needed skilled IT personnel. A slim majority, **52.4 percent**, indicated that their civil service system does not affect their ability to acquire these staff; however, this is far from an overwhelming majority. The results also show that **47.6 percent** of respondents indicated that their civil service systems have an effect on their ability to acquire needed IT personnel. Of those that did respond “yes,” responses varied in the ways in which their system affects this ability.

The recent results are somewhat consistent with data from the 2007 NASCIO survey *State IT Workforce: Here Today, Gone Tomorrow?*, but in 2007 a slim majority of respondents said the civil service has affected their ability to acquire skilled IT professionals. Among the common reasons cited by states regarding the negative impact of the civil service system included a too-rigid hiring process, systems take too long to hire eligible employees and often end with employees seeking other employment due to the lengthy process. This problem is commonly thought to be, albeit with a few exceptions, a nationwide dilemma faced by state governments. The split response rate in 2007 and in 2010 seems to indicate that widespread hiring impediments caused by civil service systems may not be as universal as generally assumed.

Figure 11: Does your state's civil service system affect your ability to acquire skilled IT personnel?



States Respond:

“Hiring process is very cumbersome, very long and drawn out. We cannot pay at market rates.”

“No flexibility in salary – no opportunity to pay for performance – no opportunity to reward employees with opportunities to work from alternate locations.”

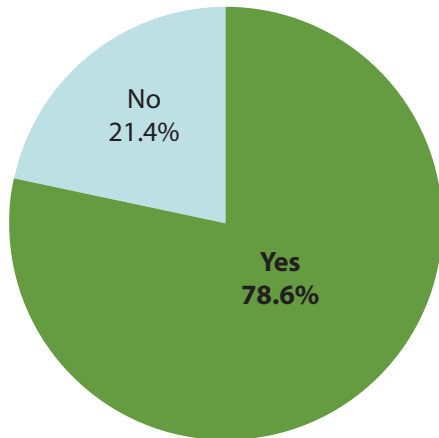
“The folks who screen applications have no idea whether someone is or is not qualified and we never know who we didn’t get to see because the recruitment folks won’t share that info with us.”

States also cited that the typically lower salary that state workers may earn makes it difficult to retain current workers or lure future workers from the private sector. While a few respondents did note that their state has processes in place that allow them to compete with the private sector for skilled IT workers by exempting them from their traditional civil service system, most states indicated that inflexible hiring and pay systems impact their ability to attract new state IT workers. State CIOs should consider working more closely with the states human resources department to facilitate innovative strategies and become familiar with state regulations, procedures, and protocols. By vetting initial strategies, the state CIO will be better able to convey the needs of an IT organization when human resources begin the hiring process for IT personnel.

5. Do your state's salary rates and pay grade structures present a challenge in attracting and retaining IT talent? (See Figure 12)

5.1. If so, please specify how your state plans to overcome this challenge?

Figure 12: Do your state's salary rates and pay grade structures present a challenge in attracting & retaining skilled IT talent?



States gave a very predominate response when asked if their state's salary rates and pay grade structures present a challenge in attracting and retaining IT talent. All but nine states indicated that there is a challenge when states want to offer competitive wages for attracting and retaining IT talent. However, when asked how they plan to address this issue, states did not give much indication that this challenge is being addressed in a specific manner. While some states did indicate that they are actively working to expand their entry-level recruiting efforts or are currently doing a market and pay analysis, many are still primarily in the planning or abstract stages of dealing with this issue. Some states responded that a re-design of their state's current job classifications had been recently completed or was in the process.

Innovative Legislation Helps the State of New York Meet IT Workforce Needs:

"Legislation passed last year created 500 new IT positions for a maximum five year term to allow state agencies to bring in IT employees with specialized skills at higher than entry level salaries without competitive examination. These employees will have one opportunity to take and pass a competitive civil service exam at a level commensurate with their salaries. It is intended to enable the state to reduce its reliance on IT staff augmentation contractors."

Answers for overcoming these challenges primarily indicated an emerging interest in innovative recruitment strategies, re-addressing current job classifications and placing studies or surveys into the field to adequately identify market salaries. Many states indicated that they will continue to emphasize the generous benefits and retirement packages that states can offer potential employees as a way to supplement a lower starting salary.

States Respond:

"Due to pay freezes, we have fallen far behind the private sector."

"This is not going to be easy. We can offer flexibility but more and more, benefits and stability are being eroded."

"We are currently working with the department of personnel to re-evaluate every IT job."

"Generally, the work/life balance offered by state employment is attractive enough to attract and retain individuals who have developed appropriate skill levels."

It is important to note that this question only focused on pay grades and salary rates specifically, and not on overall benefits packages, which may have contributed to the overwhelmingly high response rate. However, it is well-known that state government salaries are often lower than the private sector, especially in highly technical positions. State pay grades are generally below the marketplace in highly competitive and demanding IT positions. This commonly held assumption will vary depending on regional locations as well. For instance, a job at a prominent private sector IT firm may pay a considerably higher salary, but these private sector firms may also require employees to relocate. Depending on the region, a state government IT job may be among the higher paid positions in the area.⁶

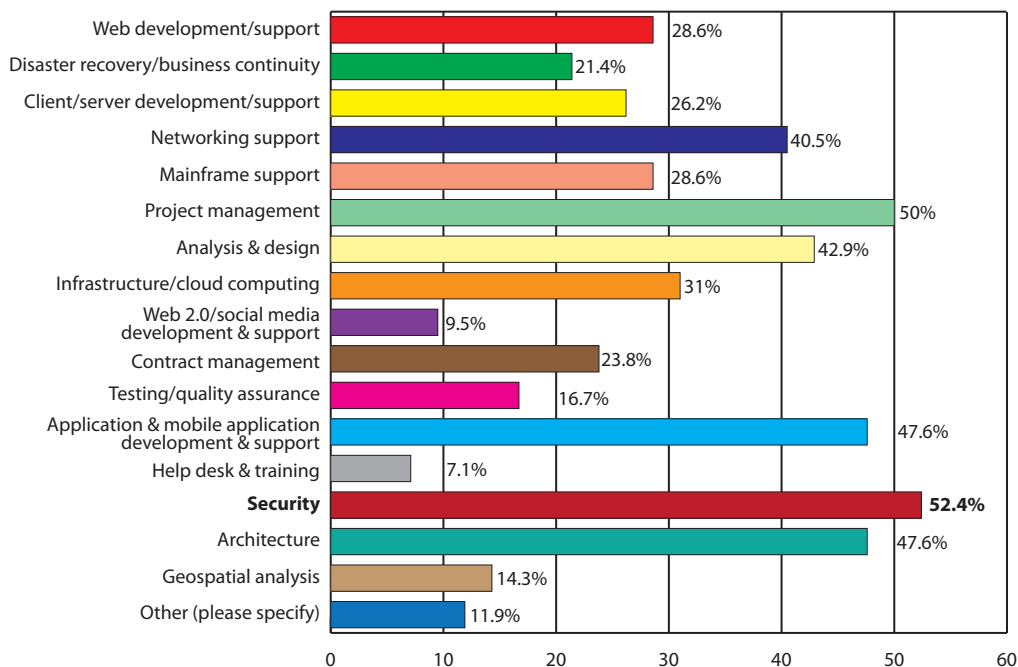
6. What skills and disciplines present the greatest challenges in attracting and retaining IT employees? Select the Top 5 that apply. (See Figure 13)

When states were asked to select the top 5 skills and disciplines which present the greatest challenges in attracting and retaining employees, the top responses seemed to be quite consistent with the 2007 survey results.

The role that garnered the largest response rate was “Security,” with well over half of states—**52.4 percent**—responding that this was among the greatest challenges they face. Security has increasingly been a challenge to states as threats have multiplied and have become sophisticated.⁷ State CIOs have recognized this discipline as one that needs careful attention, and the survey results reflect how security is going to continue to be a topic of concern.

The second highest response was “Project Management,” which **50 percent** of states indicated as a role that is difficult to fill. The ability to deliver IT projects on time and within budget is a key to success. Identifying qualified project managers who can fulfill this role will continue to be a top challenge for state CIOs.

Figure 13: What skills & disciplines present the greatest challenges in attracting & retaining IT employees?



In addition to state CIOs, the federal government has experienced challenges in finding qualified personnel to fill project management positions. In an effort to address this issue, United States Chief Information Officer Vivek Kundra has released a *25 Point Implementation Plan to Reform Federal Information Technology Management*. The plan lays out a timeline for designing a formal IT program management career path. In an effort to overcome the challenges of finding, recruiting, and hiring top IT program managers, the Office of Personnel Management (OPM) will work with Office of Management and Budget (OMB) to provide agencies with direct hiring authority for IT program managers. State challenges directly reflect that of the federal landscape, therefore state CIOs should consider these steps to create a career path that will:

- Attract and reward top performers
- Establish integrated, multi-disciplinary program teams with key skills before beginning major IT programs
- Require program managers to share best practices at the close of each program
- Launch a technology fellows program
- Encourage mobility of program managers across the government⁸

The third and fourth highest response rates were tied at **47.6 percent**, with states reporting that “Architecture” and “Application and Mobile Applications Development” are among their top challenges. The increased use of smartphones by state employees and citizens to access email, conduct online transactions, access business applications and a myriad of other purposes has created more demand for skilled IT employees with an expertise in mobile applications development.⁹

Table 1:

Comparison of Total percentage of Responses:

2007		2010	
Project Management	63.0%	Security	52.4%
Security	58.7%	Project Management	50.0%
Architecture	47.8%	Architecture	47.6%
Mainframe Support	47.8%	Application and Mobile Application Development and Support	47.6%
Application Development and Support	43.5%	Analysis and Design	42.9%
Networking Support	41.3%	Networking Support	40.5%
Web Development/Support	41.3%	Infrastructure/Cloud Computing	31.0%
Client/Server Development/Support	26.1%	Web Development/Support	28.6%
Analysis and Design	23.9%	Mainframe Support	28.6%
Geospatial Analysis	23.9%	Client/Server Development/Support	26.2%
Other	19.6%	Contract Management	23.8%
Disaster Recovery	13.0%	Disaster Recovery/Business Continuity	21.4%
Testing/Quality Assurance	13.0%	Testing/Quality Assurance	16.7%
Help Desk and Training	8.7%	Geospatial Analysis	14.3%
		Other	11.9%
		Web 2.0/Social Media Development and Support	9.5%
		Help Desk and Training	7.1%

Finally, the fifth highest response was that of “Analysis and Design,” with **42.9 percent** of respondents stating this as a top challenge in attracting and retaining IT employees. The demand for these IT skills is an increase from the 2007 survey results, moving up in priority from **23.9 percent**.

While several skills increased in demand - certain disciplines, such as “Mainframe Support” and “Web Development/Support,” decreased significantly. “Mainframe Support” decreased almost **20 percent** from 2007 to 2010. The data suggests that several skill sets have become less of a challenge to fill for state CIOs, but this shift may also be attributed to disciplines that may have taken higher precedent for current state initiatives.

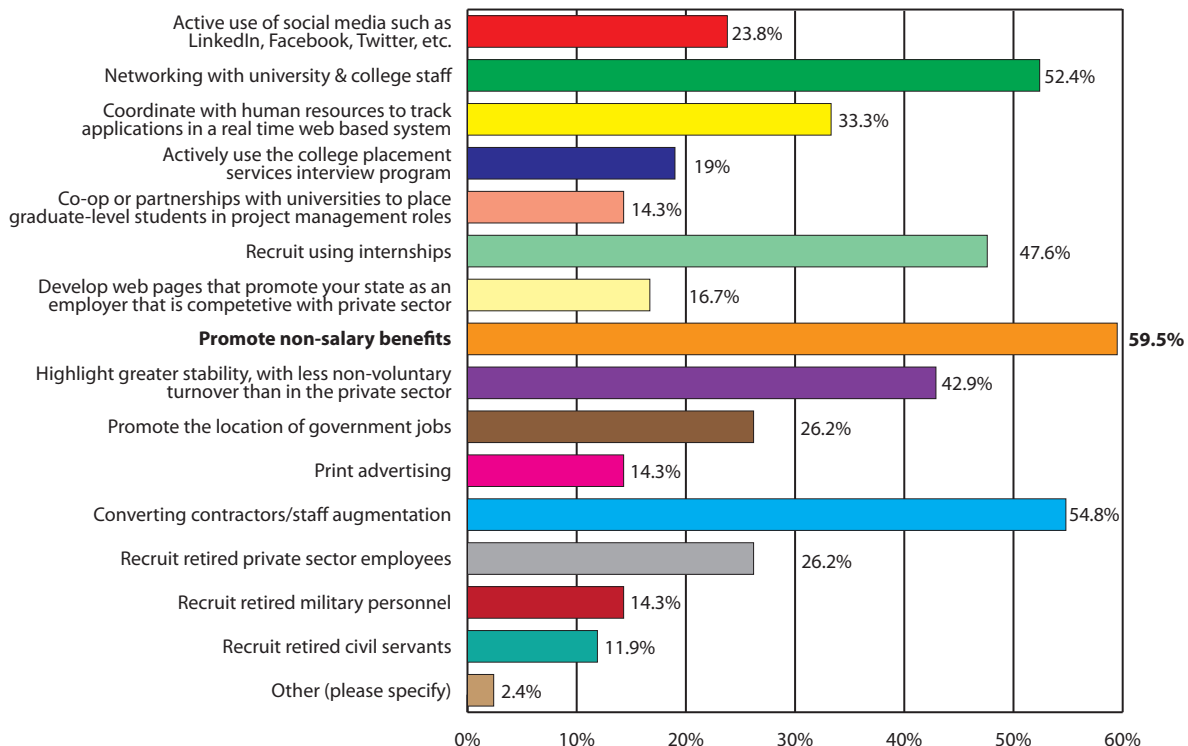
SURVEY SECTION IV. Future IT Staffing and Delivery Structure

1. As a result of the ever-changing workforce, current economic conditions and constantly increasing expectations, what efforts has your state made in attracting a highly qualified IT workforce?(Select all that apply) (See Figure 14)

States were asked to identify all of the ways in which their state has recruited qualified IT employees. While the number one tactic that states continue to use to attract qualified IT personnel was promoting “Non-salary benefits” – **59.5 percent** of respondents – “Converting contractors/ staff augmentation” came in a very close second with **54.8 percent** of the respondents stating that they have used this strategy for recruiting purposes. Prospects from converting contractors can be attractive for both retired and current private sector employees who wish to make a career change. Contractual employees for state IT departments often work alongside their state employee counterparts every day and state CIOs have reported success in “converting” contract employees to state employment. In doing this, they are not only bringing in skilled professionals—they are gaining employees that already have hands-on knowledge of their specific work process and environment.

Ranking third place is “Networking with university and college staff,” which has been a traditional venue for attracting top talent. **52.4 percent** of the state CIOs have used high schools, universities and technical schools as resources for potential civil servants, and states must pursue different avenues in courting this untapped talent pool. This can be done indirectly through

Figure 14: What efforts has your state made in attracting a highly qualified IT workforce?



plugging in with high school guidance offices, university career centers and by posting job advertisements on university career websites and job lists.

Internships and cooperative education programs continue to drive students, primarily at the college or technical school level, to government employment. By allowing students to get a foot in the door early, they gain a greater understanding of civil service, and obtain the experience that is often necessary for even entry-level positions. The survey ranked “Recruiting using internships,” at **47.6 percent**, as the fourth most popular effort that that CIOs are using to attract qualified workers. For select urban areas state CIOs could also consider recruiting from programs like Year Up, which is a one-year, intensive training program that provides urban young adults, ages 18-24, with a combination of hands-on skill development, college credits, and internships.

Some of the other techniques that states are using to entice new employees are the use of social media, state web pages that promote benefit packages that are competitive with the private sector, emphasis on location, highlight greater stability with less non-voluntary turnover and quicker review process so that applications can be tracked in real time.

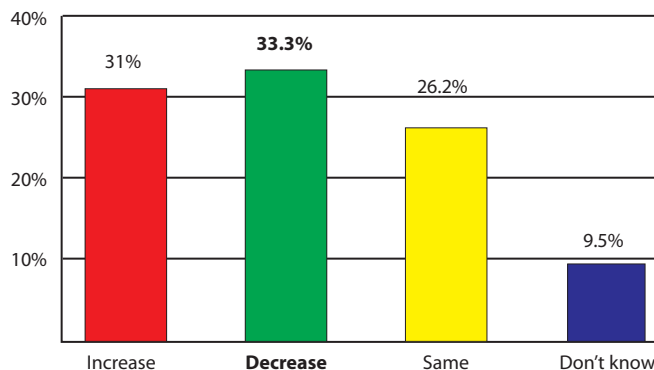
Whether states are reaching out to students, recent graduates, current or retired private sector employees, retired public servants or military personnel—states nationwide can agree that taking steps to ensure qualified state IT job applicants will augment state IT services is essential.

2. Has there been a change in the number of contracted IT positions within your state government over the past five years? (See Figure 15)

States were asked whether there has been a change in the number of contracted IT positions within their state government over the past five years. While no response garnered a runaway majority, most states indicated that there had been a decrease (**33.3 percent**). However, **31.0 percent** indicated an increase in these positions, while **26.2 percent** indicated that the number had stayed the same, and **9.5 percent** of respondents said they did not know.

Given anecdotal evidence, the high response to decreased contract positions is consistent with what we might have expected during a time when budget and cost controls are paramount. The reported decrease in contracted positions could be attributed to several factors. For instance, this includes a time in which many states are suffering from dire fiscal stress and are facing major budget constraints. When faced with making cuts, states must consider the feasibility of reducing their merit workforce and contracted employees may often be the first to be let go. Also, states may have converted contract workers to full merit state employees, which would also decrease the number of contracted workers.

Figure 15: Has there been a change in the number of contracted IT positions within your state government over the past three years?



3. Does your state perform an IT workforce assessment? (See Figure 16)

Despite the results that **76.2 percent** of states still do not perform an IT workforce assessment, state CIOs who do use this valuable asset can leverage the information to identify gaps in skill sets. Of the states that do use an IT workforce assessment, there seems to be a mix between internal assessment and the use of an external consultant.

States Respond:

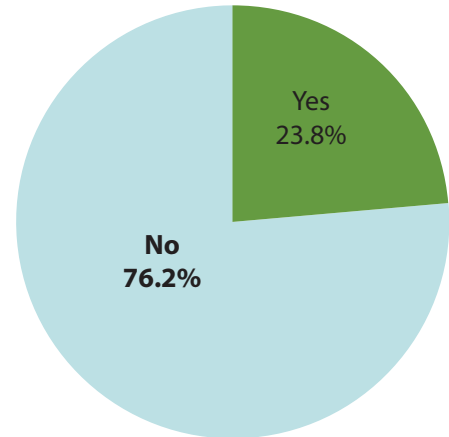
“Completed first assessment this year. Using results to develop training and organizational strategies.”

“We use this tool to identify the gaps in skills as we move through IT consolidation.”

“The IT workforce assessment was the basis for the development of the IT in-sourcing legislation and efforts to establish ‘dual track’ career paths for IT employees.”

“The IT workforce assessment was first conducted last year. It has not been factored in our IT workforce strategy, but as it continues to mature it will be a foundational data point to understand workforce strategy.”

Figure 16: Does your state perform an IT workforce assessment?



IT workforce planning and development is vital for state CIOs to be able to keep up with the high pace of technological change. Constantly changing mandates from Governors, state policies, federal policies and agency requirements make a challenging environment to maintain the needed skill sets. If current, using the state's enterprise architecture framework and "target" environment can help the CIO plan for the near term skill set needs. As states continue to consolidate IT resources and institute enterprise wide-programs, it is imperative to continually assess the current landscape and seek IT skill sets that may be needed in the future.

Creating a Sound Strategy for the IT Workforce

Predictions of a state IT workforce shortage appear to be evident, however the circumstances and timing are still in question. From the survey results we can attest that the economic conditions have forced retirements to be postponed and this has only delayed the inevitable. A “retirement tsunami” may hit the state workforce sooner and harder than the federal service, compounding the factors that created a hindrance to recruiting the most talented personnel.¹⁰ Pension plans, which were once a major incentive for public employees, have come under scrutiny, salaries continue to lag in comparison to private sector salaries, and civil service hiring is perceived as being less expedient than desired.

This national survey highlights the state government IT workforce challenges from the current state CIO perspective. Now more than ever, state governments are relying on state CIOs to provide dependable information technology business solutions, serve citizens and enable the delivery of agency services. These services are developed, implemented and supported by an aging IT staff that may face a critical shortage in the next few years due to retirement.

As state budget woes continue to cripple the shrinking state IT workforce, it is imperative for state leaders and CIOs to:

- Assess the processes your state uses for recruitment, retention and succession planning for state IT personnel
 - Identify gaps in skills
 - Develop strategic training and organizational strategies
 - Coordinate with human resources departments to clarify goals
 - Use an IT workforce assessment as part of your overall IT evaluation
- Use strategic augmentation of IT employees and implement innovative strategies that will make for a more seamless transition when developing a qualified and multi-generational workforce of the future
- Conventional recruitment strategies such as student outreach and internships may still be very effective, but consider the following innovative approaches¹¹:
 - Recruit seasoned IT workers that may have retired from the military, civil service or private sector
 - Promote non-salary benefits packages and the stability of a civil service position
 - Convert contractors who may already have a great deal of experience working with your state
 - Promote, if applicable in your state, benefits such as flexible hours and flexible work locations to give personnel a better sense of control over their time. Federal initiatives such as "The Telework Enhancement Act of 2010" provide states with a model policy framework to better leverage technology, promote effectiveness and achieve cost savings.
 - Use social media, such as LinkedIn, Facebook and Twitter to announce vacancies and promote the interesting and challenging state IT work environment

APPENDIX I – Additional Resources

- 1) The National Association of State Personnel Executives (NASPE) has several publications and research available on this and other topics. These can be found at: www.naspe.net.
- 2) Year Up's mission is to close the opportunity divide by providing urban young adults with the skills, experience, and support that will empower them to reach their potential through professional careers and higher education. Potential interns and employees can be found at: www.yearup.org/index.htm.
- 3) The 25 Point Implementation Plan to Reform Federal Information Technology Management that was released by U.S. Chief Information Officer Vivek Kundra can be found at: www.cio.gov/pages.cfm/page/White-House-Forum-on-IT-Management-Reform.
- 4) Most States have career information delivery systems (CIDS), which may be found in secondary and postsecondary institutions, as well as libraries, job training sites, vocational-technical schools, and employment offices. A wide range of information is provided by the US Department of Labor at: www.bls.gov/oco/oco20024.htm.
- 5) The Partnership for Public Service is a nonprofit, nonpartisan organization that works to revitalize our government by inspiring a new generation to serve and by transforming the way government works. They have released several publications at: www.ourpublicservice.org/OPS/publications/.
- 6) Generation Shift provides some modern resources for governments to consider when seeking potential candidates and even mentions the State of Missouri's use of a virtual recruitment center, Second Life. Further information can be found at: www.genshift.com/government-20/5-ways-government-is-using-social-media-to-recruit-the-next-generation/.
- 7) The Center for State and Local Government Excellence has compiled a collection of best practices, principles, and lessons learned from state and local pension plan changes that have been negotiated over the past 10 years. You will find an interactive map with state and local government examples at: www.slge.org/index.asp?Type=B_BASIC&SEC=%7BED445E61-FF4D-4990-ABC7-4018FAA0A16D%7D&DE=%7B6A466EC1-4BDD-4B5B-A3A4-24CE69FFA289%7D.
- 8) In September 2010, the Virginia Department of Human Resources Management released a report titled Telework and Alternate Work Schedules. The report can be found at: www.reform.virginia.gov/docs/scheds/TeleworkAndAlternateWorkSchedules9302010.pdf.
- 9) The "Working 4 Utah" initiative has seen increased state savings by extending state government service hours Monday through Thursday and closing state administrative offices on Fridays. Information on this innovative work week can be found at: www.utah.gov/governor/news_media/article.html?article=1724.

- 10) As part of the strategic workforce plan, the State of Michigan seeks to identify and implement initiatives to address shortterm staffing projections and changing organizational needs, The Michigan Department of Technology, Management and Budget's strategic plan can be found at:
www.michigan.gov/itstrategicplan.
- 11) Each year, Computerworld conducts a salary survey to compare variations by industry, role and geographic locations. An interactive smartmap can be found at:
www.computerworld.com/s/article/9174032/Salary_Survey_2010.
- 12) The "Telework Enhancement Act of 2010" was signed into law last year and has substantially changed the status of telework throughout federal government. Instead of a stove-piped approach with each agency developing its own telework policies and procedures, the legislation sets forth a government-wide framework which both endorses and encourages the use of telework. Further background on this federal initiative can be found at:
<http://www.businessofgovernment.org/report/implementing-telework-lessons-learned-four-federal-agencies>.

APPENDIX II – Acknowledgements

State IT Workforce: Under Pressure is a survey research product that was coordinated by NASCIO staff. NASCIO would like to offer a special thanks to the state CIOs for their participation, responses and leadership throughout the creation and development of this survey.

NASCIO would also like to offer a special thanks to Chad Grant, NASCIO Policy Analyst, for his work on this project, and Doug Robinson, NASCIO Executive Director, and Sam Hearn, AMR Graphic Designer, for their guidance, editorial revisions and other assistance regarding this publication.

Please direct any questions or comments about *State IT Workforce: Under Pressure* to Chad Grant at cgrant@amrms.com or (859) 514-9148.



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APPENDIX III – Endnotes

- ¹ Bureau of Census, Annual Survey of Government Employment and Payroll, 2009. www.census.gov/govs/apes/how_data_collected.html.
- ² CDW IT Monitor, Bi-monthly Updates, January 2011. www.cdwitmonitor.com/index.php.
- ³ “State IT Workforce: Here Today, Gone Tomorrow?” NASCIO, September 2007. www.nascio.org/publications/surveys.cfm.
- ⁴ “Activists Seek New Tactics to Break Old Pension Deals”, Stateline, January 2010. <http://www.stateline.org/live/details/story?contentId=540089>.
- ⁵ "Book of the States," Jeff C. Herring, 2010. <http://knowledgecenter.csg.org/drupal/content/utahs-four-day-workweek-win-win-situation>
- ⁶ “Salary Survey 2010”, Computerworld, 2010. www.computerworld.com/s/article/9174032/Salary_Survey_2010.
- ⁷ “State Governments at Risk: A Call to Secure Citizen Data and Inspire Public Trust” NASCIO and Deloitte, September 2010. www.nascio.org/publications/.
- ⁸ “25 Point Implementation Plan to Reform Federal Information Technology Management”, OMB, December 2010. www.cio.gov/.
- ⁹ “Security at the Edge: Protecting Mobile Computing Devices – Part II: Policies on the Use of Smartphones in State Government,” NASCIO, March 2010. www.nascio.org/publications/documents/NASCIO-SecurityAtTheEdge2.pdf.
- ¹⁰ Cho, Y.J, and Lewis, G.B. (2009). The Aging of the State Government Workforce: Trends and Implications. American Political Science Association, Toronto, September.
- ¹¹ The Workforce Evolution: Recruiting and Retaining State IT Employees," NASCIO, April 2008. www.nascio.org/publications/