IT Trends in the States: Priorities, Risks and Perspectives

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Executive Director
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More focus on enterprise cybersecurity models; cyber talent and workforce crisis remains

CIO as broker business model: evolution from owner-operator to more managed services and multi-sourcing initiatives

Digital government: user centric design, focus on streamlining experiences, citizen IAM

More interest and use of artificial intelligence (AI), RPA, chatbots as adoption grows and benefits realized

State IT organization transition continues: more consolidation, hybrid models and unification initiatives

22 new governors in 2018. 18 new state CIOs appointed in 2019 to date (August 2019).
Core Values

**COURAGE**
We boldly take action on our convictions. We have the moral strength to venture, persevere, and withstand difficulty. We are entrepreneurial and embrace change to better ourselves and the people we serve.

**INNOVATION**
We foster new ideas. We challenge the status quo and continuously ask, “How can we do this better?” Then we take action and make a difference through novel processes and technology.

**INTEGRITY**
We do the right thing in the right way. We communicate with openness, honesty, and authenticity, and are accountable for our actions. We deliver on our promises and adhere to an ethical code. We are good citizens in the communities in which we live and work.

**RESPECT**
Our people matter. We value, encourage, reward, and recognize them. We choose to be positive and create meaningful connections every day. We are considerate, helpful, kind, and patient in all situations.

**SERVICE**
We provide value and strive to delight. We seek to understand the needs of our fellow team members, partners, customers, and Coloradans, and then exceed their expectations. We are committed to serving people serving Colorado.

**TEAMWORK**
We work together toward a common purpose, having fun along the way. We foster a collaborative, creative, and inclusive culture. We create an empowering environment where everyone can contribute and reach their full potential.
By the numbers

❖ Enterprise provider of IT
❖ ~1,000 employees in 71 locations
❖ Serve more than 31,000 state employees in 1,300 locations across the state
❖ Support more than 1,100 applications
❖ 300+ active projects in flight
❖ Resolve 336,000 Service Desk tickets annually
❖ Deflect ~8.4 million security events daily
STATE CIO TOP 10 PRIORITIES
2019 Strategies, Management & Process Solutions

1. Security and Risk Management
2. Cloud Services
3. Consolidation/Optimization
4. Digital Government
5. Broadband/Wireless Connectivity
6. Budget, Cost Control, Fiscal Management
7. Customer Relationship Management
8. Data Management and Analytics
9. Enterprise IT Governance
10. Identity and Access Management

Source: NASCIO State CIO Ballot, November 2018
Wildly Important Purpose (WIPP)

CUSTOMER DELIGHT
What would you consider your top priorities/goals as a CIO?

- **64%** Ensure IT systems comply with security and regulatory requirements
- **60%** Improve IT relationships with the business
- **58%** Create and drive IT strategy that aligns to overall state objectives
- **48%** Improve IT governance
- **40%** Improve portfolio management and project delivery metrics
Ransomware, social engineering, and phishing are the top cyber threats for states

Please choose the prevalence of the following cyber threats in your state for the next year. (49 respondents)

<table>
<thead>
<tr>
<th>Threat Level</th>
<th>2018</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average threat</td>
<td>35%</td>
<td>33%</td>
</tr>
<tr>
<td>Somewhat higher threat</td>
<td>43%</td>
<td>43%</td>
</tr>
<tr>
<td>Very high threat</td>
<td>16%</td>
<td>29%</td>
</tr>
</tbody>
</table>

Source: 2018 Deloitte-NASCIO Cybersecurity Study
Secure Colorado

• Prepare: Statewide policies, procedures, and plan
• Protect: 2-Step Verification, CIS Top 20 Critical Controls
• Prevent: Quarterly training, blogs, tips and tricks
• Example: SamSam Virus Attack 2018

“If there is a playbook for bouncing back from a ransomware incident, it might resemble the one the Colorado Office of Information Technology developed last year when that state’s transportation agency had its own run-in with the SamSam virus.”

StateScoop, March 22, 2019
What major barriers does your state face in addressing cybersecurity?

- **82%** Increasing sophistication of threats
- **71%** Inability to attract and retain top-tier security and privacy talent
- **47%** Lack of adequate funding
- **43%** Inadequate availability of security professionals
- **31%** Emerging technologies
- **31%** Lack of support from business stakeholders
Cybersecurity Maturity in the States is Improving...

<table>
<thead>
<tr>
<th>Characterize the current status of the cybersecurity program and environment in state government.</th>
<th>2013</th>
<th>2015</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed security awareness training for workers and contractors</td>
<td>78%</td>
<td>87%</td>
<td>88%</td>
<td>98%</td>
</tr>
<tr>
<td>Adopted a cybersecurity framework based on national standards and guidelines</td>
<td>78%</td>
<td>80%</td>
<td>95%</td>
<td>94%</td>
</tr>
<tr>
<td>Established trusted partnerships for information sharing and response</td>
<td>75%</td>
<td>80%</td>
<td>83%</td>
<td>92%</td>
</tr>
<tr>
<td>Adopted a cybersecurity strategic plan</td>
<td>61%</td>
<td>74%</td>
<td>83%</td>
<td>85%</td>
</tr>
<tr>
<td>Acquired and implemented continuous vulnerability monitoring capabilities</td>
<td>78%</td>
<td>80%</td>
<td>79%</td>
<td>81%</td>
</tr>
<tr>
<td>Created a culture of information security in your state government</td>
<td>73%</td>
<td>74%</td>
<td>83%</td>
<td>79%</td>
</tr>
<tr>
<td>Developed a cybersecurity disruption response plan</td>
<td>45%</td>
<td>52%</td>
<td>69%</td>
<td>69%</td>
</tr>
<tr>
<td>Documented the effectiveness of your cybersecurity program with metrics and testing</td>
<td>47%</td>
<td>52%</td>
<td>57%</td>
<td>63%</td>
</tr>
<tr>
<td>Using analytical tools, AI, machine learning, etc. to manage cybersecurity programs</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>44%</td>
</tr>
<tr>
<td>Obtained cyber insurance</td>
<td>n/a</td>
<td>20%</td>
<td>38%</td>
<td>42%</td>
</tr>
</tbody>
</table>

Source: NASCIO 2018 State CIO Survey
Survey question: Identify the top barriers that your state faces in addressing cybersecurity challenges.

but persistent challenges remain...

Budget, talent and threats top three since 2010

1. Lack of sufficient funding
2. Inadequate cybersecurity staffing
3. Increasing sophistication of threats

Source: 2018 Deloitte-NASCIO Cybersecurity Study
<table>
<thead>
<tr>
<th>Business Model</th>
<th>Introduce</th>
<th>Maintain</th>
<th>Expand</th>
<th>Downsize</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-owned-and-operated data center(s)</td>
<td>0%</td>
<td>35%</td>
<td>14%</td>
<td>52%</td>
</tr>
<tr>
<td>Outsourcing service model</td>
<td>15%</td>
<td>26%</td>
<td>57%</td>
<td>2%</td>
</tr>
<tr>
<td>Managed services model</td>
<td>10%</td>
<td>23%</td>
<td>65%</td>
<td>2%</td>
</tr>
<tr>
<td>IT shared services model</td>
<td>0%</td>
<td>22%</td>
<td>75%</td>
<td>2%</td>
</tr>
<tr>
<td>“As-a-service” models (e.g. SaaS, PaaS, IaaS, etc.)</td>
<td>14%</td>
<td>12%</td>
<td>75%</td>
<td>0%</td>
</tr>
<tr>
<td>State IT staff</td>
<td>0%</td>
<td>69%</td>
<td>10%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Evolving Business Model: CIO as Broker

Source: 2018 NASCIO SURVEY | State CIO as a Communicator
Which automaker do you equate with your IT infrastructure?

- We plan to run it into the ground before we buy anything new (0.39)
- We don't really serve our purpose and we have no idea what it does (0.23)
- We don't be anymore (0.31)
CIO Business Models

What are the three strategic or operational issues that are driving the increase in the use of brokered services?

- 53% Cost effectiveness
- 45% Modern capabilities
- 43% Quality of services
- 43% Business outcomes
- 37% Access to qualified resources and services
- 35% Flexibility
- 27% Transition to digital government
- 16% Current funding or recovery model inhibits investment
- 2% Other
<table>
<thead>
<tr>
<th>Sourcing Stage</th>
<th>Operating Mode</th>
<th>Role Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 5</td>
<td>Service Brokerage</td>
<td>CIO as Broker</td>
</tr>
<tr>
<td>Fully Integrated Shared Services Platform</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 4</td>
<td>Shared Services, Multiple Suppliers</td>
<td>CIO as Architect</td>
</tr>
<tr>
<td>Integrating Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 3</td>
<td>Services Governance</td>
<td>CIO as Administrator</td>
</tr>
<tr>
<td>Managed Portfolios</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managed Services Silos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Based Initiatives</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Does your organization have a strategy to migrate legacy applications to the cloud?

- **41%** Yes, cloud migration strategy in place
- **37%** No, but cloud migration strategy in development
- **22%** No cloud migration strategy planned
Cloud First

CBMS (Colorado Benefits Management Systems) Transformation

- **Making it easier for county workers:**
  - Better integration with county systems and a modern front end = better user experience

- **Making it easier for OIT and partners**
  - Modular approach = ability to make changes faster

- **Reduce long term costs**
What categories of services are your top priorities for migration to the cloud? (select up to 5)

<table>
<thead>
<tr>
<th></th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E-mail and collaboration</td>
</tr>
<tr>
<td>2</td>
<td>Disaster recovery</td>
</tr>
<tr>
<td>3</td>
<td>Office productivity software (e.g. word processing)</td>
</tr>
<tr>
<td>4</td>
<td>Program/business applications (e.g. Licensing, Unemployment Insurance, Workers Compensation etc.)</td>
</tr>
<tr>
<td>5</td>
<td>Enterprise Resource Planning (e.g., finance, budget, procurement)</td>
</tr>
<tr>
<td>6</td>
<td>Citizen relationship management</td>
</tr>
<tr>
<td>7</td>
<td>HR/payroll/time and attendance</td>
</tr>
<tr>
<td>8</td>
<td>Storage</td>
</tr>
<tr>
<td>9</td>
<td>Identity Management</td>
</tr>
<tr>
<td>10</td>
<td>Security services/monitoring</td>
</tr>
</tbody>
</table>
Are you planning to move to an off-premise Mainframe-as-a-Service solution in the next 2-3 years?

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>18%</td>
<td>Yes, already complete</td>
</tr>
<tr>
<td>20%</td>
<td>Yes, planned</td>
</tr>
<tr>
<td>27%</td>
<td>Yes, considering</td>
</tr>
<tr>
<td>29%</td>
<td>No</td>
</tr>
<tr>
<td>6%</td>
<td>Unsure</td>
</tr>
</tbody>
</table>

Source: NASCIO 2018 State CIO Survey
Advancing Digital Transformation

• Develop and implement Phase I of Digital Transformation Plan

• Areas of focus:
  o Chatbots
  o Blockchain
  o Artificial Intelligence
  o myColorado mobile application
What emerging IT area will be most impactful in the next 3-5 years?

57% | Artificial Intelligence/robotic process automation
27% | Internet of Things (IoT)
8% | Connected/Autonomous Vehicles
4% | Blockchain
2% | Unmanned Aerial Systems (UAS)
2% | Other

Source: NASCIO 2018 State CIO Survey
Lots of Projects = Many Opportunities

**RUNNING**
- KSO (Keep Systems On) Technologies
- Backup Colorado
- Digital Trunked Radio (DTRS) DeCORum
- Voice & Data Services
- ....

**TRANSFORMING**
- Agency Apps
- Colorado DRIVES
- CORE
- myColorado mobile app
- ....

**GROWING**
- Enterprise Apps
- Secure Colorado
- Email
- Accessibility
- CBMS Transform
- 2-Step Verification
- ....
Tips for Doing Business with Colorado

• Register on ColoradoVSS - state’s vendor self service portal that allows vendors to review and respond to solicitations of all types of goods and services (e.g., RFPs, RFIs, ITNs, Documented Quotes, etc.)
(https://codpa-vss.cloud.cgifederal.com/webapp/PRDVSS2X1/AltSelfService)

• Vendors must be registered in ColoradoVSS in order to receive notifications of upcoming solicitations and to bid on those solicitations
Tips for Doing Business with OIT

• Read our Playbook - gives insight into what OIT is planning for the coming year
  (oit.state.co.us/about/playbook)

• Read our agency Five-Year IT Roadmaps - gives insight into our work with our customers
  (oit.state.co.us/about/itroadmaps)

• Visit our Vendor Services web page
  (oit.state.co.us/financial/procurement)