

Annual Report 2017



Arkansas
Department of
information
Systems



Empowering the Citizens of
Arkansas Through Technology

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July 2017: Arkansas Governor Asa Hutchinson joined DIS Director Yessica Jones, Eric Saunders (Department of Education) and Glen Rose Superintendent Tim Holicer at a Flip the Switch Ceremony announcing the completion of a two-year project to upgrade the state's K-12 school districts to high-speed broadband.

From the Director



DIS Director Yessica Jones

It was an honor for me to lead the Arkansas Department of Information Systems during a year of great achievement that saw the successful completion of a two-year project to upgrade the Arkansas Public School Computer Network (APSCN) to high speed broadband.

This DIS-led project transformed APSCN from outdated technology of the past to a highly secure, all fiber, high speed broadband network built to provide the hundreds of thousands of students and teachers across the state with the connectivity speed needed for digital learning today and into the future.

The APSCN broadband upgrade catapulted Arkansas from the bottom of the nation in K-12 connectivity to become one of only nine states to connect 100 percent of its K-12 schools to high speed broadband delivered across an all fiber wide area network.

The project was a huge financial win for the state, for the school districts and for the taxpayers of Arkansas, and we aren't finished. DIS has now set its sights upon upgrading the non-K-12 portion of the state network that serves state agencies and other organizations in the public sector in a similar fashion.

In 2017, critical steps were taken by DIS to safeguard sensitive citizen and government data when it partnered with a notable cybersecurity firm to conduct a thorough assessment of the state's information security program. The assessment helped formulate action plans to fortify the state's ability to defend against and respond to modern cybersecurity threats.

DIS launched an initiative to maximize the capacity of the state's data center assets by creating a unified IT infrastructure environment. When achieved, government IT will become more streamlined and centralized, costs and energy consumption will be reduced, and we also anticipate it to improve service delivery and efficiency across executive branches.

I was also pleased to announce Dr. Richard Wang, executive director of the Institute for Chief Data Officers at the University of Arkansas at Little Rock, as the state's new chief data officer. Data is considered a strategic asset of the state and I look forward to working in partnership with Dr. Wang to achieve project outcomes beneficial to the people of Arkansas.

None of these accomplishments would have been realized without the hard work and dedication of an incredible team of technology professionals at DIS. I am proud of the work they do each day to empower the citizens of Arkansas through technology.

About DIS:

The Arkansas Department of Information Systems (DIS) is a cabinet level agency of Arkansas state government and is the premier information technology products and solutions provider for the state.

DIS provides over \$80 million in IT products and solutions to approximately 300 state agencies, boards and commissions, K-12 public schools, business and administrative departments of higher education, cities and counties, and public safety organizations across the state.

DIS is the engine that keeps public systems operational. It is responsible for managing the private state network dedicated for the sole use of over 1,500 governmental sites throughout the state. DIS works 24/7/365 to ensure that the network is constantly available to these sites responsible for delivering public services to the citizens of Arkansas. Some examples include systems for motor vehicle registrations, driver's license renewal, child support information, unemployment insurance claims, public financial and food assistance programs, electronic offender tracking and management, and the public school computer network financial management software.

Another vital aspect of our job is to manage the Arkansas Wireless Information Network (AWIN) which is an interoperable, wireless, digital, public safety radio communications network. In the event of a disaster, DIS works with the Arkansas Department of Emergency Management (ADEM) to restore statewide communications to more than 28,500 first responders and other public safety organizations across the state.

DIS services include:

- Internet Connectivity
- Secure Data Center Hosting
- Virtual Private Cloud for Public Sector
- Data Analytics
- Voice over Internet Protocol (VoIP)
- Audio & Video Conferencing
- Voicemail & Email
- Tape, Data Storage and Backup Services
- Network Security
- Windows Desktop Support
- Application Development
- Business Continuity
- Disaster Planning and Recovery
- Systems Integration

Our certified IT professionals are committed to excellence and offer products and services in the following categories:



Vision

To Lead and Optimize Technology Resources for
Arkansas's Public Sector

Mission

Empowering the Citizens of Arkansas Through
Technology

Values

Technology Leadership, Customer Service, Quality
Results and Efficiency

Decision Drivers

People - Cost - Reliability - Security

DIS Strategic Goals

Build and Maintain a Quality Workforce

Optimize Enterprise IT Services

Improve Cybersecurity Performance

**Provide and Enhance the Best IT Services to
the Public Sector**

Champion IT Governance

2017 Awards and Recognitions



DIS Receives Inaugural Governor's Digital Transformation Award

DIS was named the winner of the 2017 Governor's Digital Transformation Award at the inaugural Arkansas Digital Government Transformation Awards ceremony, September 14, 2017, in Little Rock.

DIS received the award alongside the Arkansas Department of Education (ADE), its state agency partner, for the high speed broadband upgrade of the Arkansas Public School Computer Network (APSCN).

The awards recognized the achievements of Arkansas government offices at the state and local levels that used technology to drive innovation and make positive, measurable changes in the state. More than 20 government offices entered 31 nominations for awards in several categories.

DIS also received an Honorable Mention for the Efficiency award for its time management system. The system replaced a legacy mainframe system that resulted in a 70 percent reduction in the administrative workload. The new system syncs with state systems and provides a single source of employee data.

The Arkansas Digital Government Transformation Awards were sponsored by the Arkansas Information Consortium (AIC) in partnership with the Information Network of Arkansas Board, the Arkansas Secretary of State's Office, the Department of Information Systems, the Office of Transformation, and the Governor's Office.

DIS Leaders Receive Top 50 Awards

DIS Director Yessica Jones and Chief Security Officer Frank Andrews were named winners in the 2017 StateScoop 50 Awards, which highlight the best and brightest in the state IT community, at the National Association of State Chief Information Officers' midyear conference.

Jones was selected from a field of 31 state chief information officers (CIOs) and governors to receive a 2017 Golden Gov: State Executive of the Year award. Andrews was chosen as a winner from among 15 other nominees in the State Cybersecurity Leader category.

StateScoop engages top leaders from across government, academia and the tech industry to discuss ways technology can improve government, and to exchange best practices and identify ways to achieve common goals.



45 Years of Service

DIS employee John Lambert observed an incredible 45-years of service with the state of Arkansas in 2017.

Lambert works as a software engineer in the Arkansas Administrative Statewide Information System (AASIS) office.

He has been employed with DIS since 1995. Prior to joining DIS, Lambert worked for the Department of Human Services.



DIS Employee Receives Leadership Award from Tech Society



Krissy Cross (right) and DIS co-worker Jason Black are all smiles during the Flip the Switch Ceremony to observe the completion of the K-12 high speed broadband upgrade.

DIS field support technician, Krissy Cross, received the 2016 Leadership Award from the Arkansas Society for Technology in Education (ARKSTE), during the annual Hot Springs Technology Institute Conference, June 14-15, 2017, in Hot Springs, Arkansas.

The award recipient is nominated by a peer for demonstrating leadership in information technology and education across the state of Arkansas, said ARKSTE President Andy Martin, technology director, for the Cabot School District.

Cross worked extensively on a two-year project to upgrade K-12 public schools, education cooperatives and charter schools across Arkansas to high-speed broadband on the Arkansas Public School Computer

Network (APSCN) managed by DIS.

Cross is the fifth recipient from DIS to receive the award since 2004. Other DIS recipients include Becky Rains (2010), Dana Thompson (2009), Debbie Martin (2006) and Rick Martin (2004) respectively.

“I learned very quickly of Krissy’s leadership abilities,” said DIS Director Yessica Jones. “She sets a high standard for herself and dedicates herself fully to serving our K-12 customers and working in partnership with them.”

ARKSTE is a professional educational organization for Arkansas’s technology leaders and is an affiliate organization of the International Society for Technology in Education (ISTE). In addition to the leadership award, ARKSTE also presents an annual Making it Happen award and an Unsung Hero award.

“It was an honor to be in the group of past recipients from DIS and other amazing people in the Arkansas K-12 school system. I’m just a girl doing her job and loving her customers.”

Krissy Cross

2017 Major Initiatives and Accomplishments

Public School Computer Network Upgraded to Broadband

Internet connectivity in the state's K-12 school system has been catapulted to the top of the nation upon completion of a two-year project to upgrade the Arkansas Public School Computer Network (APSCN) to a highly secure, all fiber, high speed broadband network delivering internet speeds 40 times faster than the previous network.

Governor Asa Hutchinson announced the historic achievement for the state's K-12 school system during a Flip the Switch ceremony, in July 2017, at Glen Rose School District, in Malvern. Arkansas became one of only six states in the nation to achieve at least 100 kilobits per second (kbps) per student in 100 percent of its school districts. In fact, the state doubled that figure which meant that Arkansas students had access to a minimum of 200 kbps per student.

The new APSCN provides students, teachers, faculty and other education professionals in public schools, charter schools and education-service cooperatives of all sizes and geographic locations with high-speed broadband connectivity.

When the governor directed the build out of the network, only 58 percent of Arkansas districts were meeting the federal target.



"In 2015, when I issued the directive to connect all our schools, I didn't know exactly how it would look. But, I knew for sure, that information systems and the education department would get the job done. They did, and the final product looks grand. Not only are we leading the way, we surpassed the federal goals and set a standard for the rest of the nation."
--Governor Asa Hutchinson

Arkansas Broadband Snapshot

455,314

Total students meet the minimum recommended bandwidth goal.

\$33.4 million

E-rate funds leveraged by Arkansas

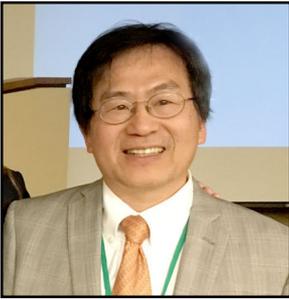
735

School have fiber infrastructure

\$69.6 million

Was made available for Wi-Fi upgrades in all districts

State Creates Chief Data Officer to Lead Management of Data Assets



Dr. Richard Wang

The position of chief data officer (CDO) is on the rise in the public and private sector across the nation to help organizations and governments value data across the enterprise. The CDO is responsible enterprise wide data and information strategy, governance, control, policy development, and effective exploitation.

Act 912 during the 2017 General Assembly created the position of CDO under DIS. Dr. Richard Wang, executive director of the Institute for Chief Data Officers at the University of Arkansas Little Rock and director of the

MIT Chief Data Officer and Information Quality Program, was selected to fulfill the responsibilities.

Responsibilities outlined in the legislation included:

- Provide master data management by facilitating standardization, deduplication, sharing and integration of critical data between systems and state agencies
- Establish and promote data architecture management by developing an integrated set of specifications and documents that define the blueprint for managing data resources
- Provide data quality management
- Provide data governance
- Support open data exchanges based on standardized and published application programming
- Utilize business intelligence that includes embedded business intelligence and advanced analytics that maximize the value of data in this state in order to facilitate access to and the analysis of data
- Direct and oversee the Data and Transparency Panel

Key Accomplishments

- ◇ Facilitated the signing of a Public Safety Interagency Data Exchange Agreement
- ◇ Held first Data and Transparency Panel (DTP) meeting
- ◇ Held inaugural State CDO Forum
- ◇ Launched creation of statewide data catalog
- ◇ Conceived framework for project plan toward data specifications and standards

DIS Enters Enterprise Licensing Agreement with Microsoft

In support of transforming government and identifying efficiencies for the state, DIS held discussions with Microsoft aimed at entering into an enterprise license agreement on behalf of the state.

An analysis of the use of Microsoft products by state agencies found that a majority use the company's software or other products and that Microsoft products were procured at the agency level.

This practice does not effectively leverage the state's buying power which could yield sizeable discounts. The better practice, in the best interest of the state, is to consolidate the EAs licenses. Consolidated EA licenses with Microsoft is not a new concept. There are currently 42 states with standardized licensing on Microsoft Office 365.

Business Benefits

Best pricing and discounts	Single payment vs multiple transactions
Reduce the cost of IT computing	Streamlines license management
Maximize software expenditures	Single platform for agency collaboration

Operational Benefits

- 24/7 technical support & training
- Eliminates staff performing upgrades & patches
- Simplified IT management & operations
- Standardized products facilitate advanced knowledge & expertise

Security Benefits

- Centrally managed single sign-on across devices
- Comprehensive intelligent protection against today's advanced attacks
- Data classification based on sensitivity & persistent data protection
- Visibility & control over shared data to reduce the risk of a data breach



DIS Procures Pricing and Contracts for Dark Fiber Transport

DIS issued an Invitation for Bid (IFB) through the Office of State Procurement, November 9, 2016, to obtain pricing and contract(s) for dark fiber transport services. The deployment of the dark fiber will create a High Speed Optical Network accommodating speeds of 10, 40, and 100 Gigabit Ethernet. This will encompass two fiber rings connecting the state's two data centers and other state buildings equipped with emergency power and with a need for bandwidth.

The fiber rings will be capable of self-healing so that, in the event of a fiber cut or other service disruption, connectivity can be re-routed to travel in the opposite direction. One fiber ring will connect three state locations and is expected to be completed in June 2017. The second fiber ring will connect five state locations and two data centers. The second ring may be completed in phases.

DIS Leads Effort to Assess State's Cybersecurity Risk

DIS, on behalf of the state, engaged Kroll Cybersecurity LLC, a security risk management company specializing in cybersecurity investigations, to conduct a Cybersecurity Risk Assessment (CSRA). The emphasis of the CSRA was upon the state's ability to defend against and respond to modern cybersecurity threats affecting information assets, to mitigate the risk of a security breach, and to obtain necessary cyber insurance coverage.

The CSRA consisted of three phases:

- Phase one was an evaluation of 20 state agencies selected by DIS. Onsite vulnerability and penetration assessments were conducted to evaluate cybersecurity threats.
- Phase two was a post assessment that identified remediation recommendations and advice to most effectively reduce security risks in terms of the state's ability to obtain competitive cyber insurance policies.



DIS Leads Effort to Assess State's Cybersecurity Risk (Cont.)

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- Phase three provided underwriting to identify and review the cybersecurity resiliency of the state from an insurance point of view, and designed, proposed and implemented an insurance program to address the state's cybersecurity insurance goals.

A CSRA report identified several strengths regarding the state's security controls, processes and technology solutions that are currently in place. Strengths included:

- Existence of a chief information security officer (CISO) to oversee the state's information security program.
- Presence of a security team at DIS who monitor malicious activity on the state cloud network.
- Performance of vulnerability scans on the servers hosted by DIS and for state agencies that request the service. Many agencies also utilize DIS for backup and disaster recovery services for its critical systems.



At a Glance

190 million attacks per day from the internet are stopped by the intrusion prevention system (IPS)

100 million connections per day are blocked by +1,000 firewalls

10 million attempts per day to breach network firewalls are denied

6.9 million security events (approx.) are mitigated by cloud-based security solutions on the K-12 network

5-6 million events correlated daily by the security incident event management (SIEM) system

319,000 emails categorized as threats and 25,000 marketing/social networking emails are blocked daily by filters

+70,000 attacks daily from outside the network are blocked by other security devices (hardware, software and people)

DIS Upgrading State Agencies to Voice over Internet Protocol (VoIP)

Since 1999, most state agencies have been served by the Centrex traditional telephone system with phone lines connected by physical cables from a telephone company central office based switching system. This system typically rides on copper-based legacy phone lines and is fast being replaced with Voice over Internet Protocol (VoIP). Numerous agencies remain on the traditional phone system that is fast becoming cost prohibitive, obsolete and in need of replacement.

DIS began a major initiative in 2017 to convert these agencies from Centrex to VoIP.

2017 Centrex/VoIP Statistics

- 8,500 phones on the DIS-hosted VoIP solution.
- 4,000 additional phones approved for conversion.
- Approximately 40 agencies and the governor's office with the DIS VoIP system
- 12,000 phones are currently on the Centrex system.

The DIS-Hosted VoIP Solution

The state has an established installation of Cisco VoIP infrastructure that is currently being utilized by many state agencies. The system is stable and redundant across both state data centers as well as within each data center. Trained state employees manage, install and troubleshoot the system. This offers agencies a turnkey solution because DIS can provide network hardware, wiring, and phones; DIS will become knowledgeable about the organization's network; DIS will coordinate with vendors on an agency's behalf.

Efficiencies Gained from DIS VoIP Compared to Centrex

- Cost savings opportunities as costs for inbound toll-free, long distance, and telephony costs continue to drop.
- DIS-hosted VoIP means a large investment in hardware that will be obsolete in a few years is no longer required.
- Adds, moves and changes are conducted by DIS at no charge after initial station installation charge.
- Physical moves on network can be done by agency staff.
- Agencies moving to VoIP with Session Initiation Protocol (SIP) have traditionally seen a decrease in long distance cost due to a combination of using the IP protocol to transmit calls, elimination of local dial tone cost, and a lower per minute rate for what is charged as long distance.
- DIS VoIP allows for call mobility or single number reach which can include an office phone and any number of other devices such as cellphones, home phone or other VoIP phones as desired. This empowers users to decide when and where they can be reached and simplifies the process of communicating as nDIS VoIP enables business continuity by providing extension mobility where an extension can be active in multiple locations or by giving the user the ability to login to a phone to direct calls to that station.
- Voicemails are accessible anywhere a user has access to email.



The Arkansas Wireless Information Network (AWIN) is an interoperable communications radio network that covers more than 95 percent of the state population through the use of 132 transmitter sites and over 34,000 mobile and portable radios, representing nearly 1,000 public safety agencies. AWIN is monitored 24-hours a day, seven days a week, 365 days per year to ensure that it is available whenever a first responder needs the system. The AWIN staff is highly trained and dedicated to ensuring the system is available every second of every day. AWIN affords the public safety community in Arkansas more than 99 percent network reliability.



At a Glance

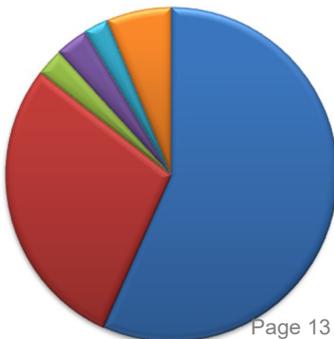
33,105 radios in service

99.67% system availability

236,251 average calls per day

\$6.3M annual operating budget

- Education
- EMS
- Fire
- Hospital
- Law
- Other



- City
- County
- Federal
- Other
- Private
- State

DIS Launches Technology-Focused Internship Program

Five university students enrolled in an information systems or computer science-related field of study were selected to gain hands on, real world job experience through a summer internship program launched by DIS in 2017.

Groundwork for creating the program involved researching current internship programs in other state agencies and the governor's office. It also required becoming knowledgeable about the Fair Labor Standards Act (FLSA) that establishes minimum wage, overtime pay, recordkeeping, and youth employment standards affecting employees in the private sector and in federal, state, and local governments.

DIS internships offered students the opportunity to gain career-related experience, practical job-related knowledge and the potential to earn academic credit. One of the goals of the internship program for DIS is to facilitate recruitment and future workforce planning.

*"I would love to become a permanent part of DIS."
Dustin House
Arkansas Tech University*

*"My station at DIS is with the UNIX support tech where I believe is a great place to learn something new every day. Therefore, I would like to thank DIS for organizing an invaluable internship experience."
GemGem Liengsupa
Arkansas Tech University*



DIS Director Yessica Jones welcomes the five university students on their first day as interns at DIS.

*"The internship opportunity at DIS is helping me a lot in preparing myself for the real world challenges."
Mahesh Neelam
University of Arkansas at Little Rock*

A Future Look

DIS Lays Groundwork for IT Infrastructure Optimization

Phase one of a project to unify the state's data center assets began in 2017 with an assessment of the IT infrastructure across state agencies.

The assessment, conducted by Gartner, Inc., found that the state's decentralized approach to managing IT infrastructure was accompanied by numerous risks and challenges. Gartner's recommendation was for the state to move to a consolidated, shared services environment to establish more effective security practices, to eliminate the use of outdated, end of life equipment and unsupported hardware and to address capital improvements.

Gartner estimated infrastructure consolidate would require an initial \$12 million investment over the next two years to implement key solutions vital for success. A portion of the funds would be used to establish a program management office (PMO) specifically for the project to be responsible for:

- Planning, managing and providing ongoing oversight over agencies' data center consolidation efforts
- Oversight of internal DIS projects and an enterprise IT change management process/service desk self service capabilities
- Oversight of an IT financial management solution to enable proper cost allocation and rate setting

Other major project components include:

- Establishing State Data Center-West (SDC-West) the state's primary data center. Eliminating the physical data center in the MAC building and replacing it with a commercial co-location data center, located at least 100 miles from Little Rock, outsourced as a service from a third party vendor, by December 2020.
- Conducting network infrastructure upgrades to enable secure access from agencies to SDC-West.
- Establishing the co-location facility and public cloud connectivity to major cloud providers

By year four, the program is expected to deliver recurring annual savings of \$5.4 million. The six-year projected net savings is estimated between \$11.5-\$14.5 million.



