IT Optimization Summit
Instilling Intellectual Curiosity into Ohio’s IT Leadership
February 16, 2018
IT Optimization Summit
Instilling Intellectual Curiosity into Ohio’s IT Leadership

LEVERAGING NEW TOOLS AND TECHNOLOGIES

WELCOME
Stu Davis

DATA ANALYTICS
Nate Huskey & Derek Bridges

INTELLIGENT AUTOMATION
Derek Bridges, Deven Mehta & Spencer Wood

CONTINUOUS IMPROVEMENT THROUGH AGILE ADOPTION
Brian Lee & Mark Walker

ADJOURN
Consolidation of Services and Refocusing the IT Organization

Through our focus on consolidation and the collaboration with State agencies, Ohio has:

- Saved over $160M in IT operations in the last three years
- Consolidated critical infrastructure (data centers, networks, compute, storage/operations).
- Reduced IT hardware spend by 98% and IT maintenance and repairs by 88%
- Driven more than 800% efficiency gains through migration from a “physical asset” orientation to a “virtual cloud” model
- Positioned for an “asset free” future.

The IT Optimization program has:

- Consolidated five agency mainframes down to one running agency and has expanded to local government workloads
- Driven a ten-fold increase in consolidated and virtualized servers (6,200+)
- Migrated of more than 22,000 users from Centrex to a hosted VoIP solution that counts more than 44,000 state and local government users as customers, with more to come

Results: In four years’ time, the State ‘flipped’ IT spend from 80% infrastructure focused (2011) to 60% enterprise applications focused (2016) that drive value to Ohio’s customers and constituents and make Ohio a better place to live, do business and work.
Driving Enterprise Culture, Collaboration and Cloud Adoption

Driving an enterprise perspective has resulted in:

- Twenty-six agency CIOs organized to open up lines of collaboration across the State
- Fostering the sharing of ideas, opportunities, innovation, shared solutions and services across agency CIOs and the lines of business
- Inclusion of representatives from each line of business that provide a self-sustaining enterprise IT direction for Ohio that drives meaningful change and repeatable results.

Results: Numerous “firsts” for the state and in the public sector including: consolidation of email, servers and storage, data centers; implementation of numerous enterprise shared services all with a cloud and mobility first perspective. Ohio has migrated 87% of all compute, storage, and applications to Ohio’s private and commercial cloud solutions.
Innovation and Positioning for the Future

Ohio is leading the nation in addressing challenges facing our State:
- National Leadership in driving data driven decision making using data analytics
- Harvesting and unifying State data from more than 1,600 applications and 4PB of operational data to solve public problems such as infant mortality, Opioid abuse, criminal justice and transportation optimization.
- Embracing a digital future that includes intelligent automation, machine learning and robotic process automation, digital citizen engagement and paperless processes.

Enterprise Shared Services are the core of what we do:
- Enterprise document management
- Timekeeping
- ePayment engine
- eLicensing
- Project prioritization
- Identity access and management
- Grants management
- IT service
- Management
- Disaster recovery services
- Data visualization, and business intelligence

Results: The State is now reinvesting IT savings sustainably – taking money that used to be spent on infrastructure and reinventing itself through new systems, cloud everything, digital engagement and abandonment of decades old processes, systems and ideas.
Protecting State Assets and Data
Ohio’s centralized cybersecurity functions has raised the state’s cybersecurity defenses for state assets (systems, applications and data) from cyber threats is a table stakes requirement:

Ohio’s 1,600 systems present a prime target for malicious actors and our defenses must outpace their efforts. We are:

- Driving a layering of enterprise solutions including vulnerability management, security information and event management (SIEM),
- Including cloud access security broker (CASB), web filtering, penetration testing, mobile device management, file system and database encryption, and end point protection.
- Moving to a unified identity, access and fraud framework to both drive digital constituent engagement
- Adopting the highest standards of credential management in the public sector.

Results: The State now maintains a comprehensive and coordinated defense, reaction and resolution capability that aligns with the threats public sector entities face every day, 24x365.
## STATE CIO TOP 10 PRIORITIES for 2018 – NASCIO

**Strategies, Management Processes & Solutions**

<table>
<thead>
<tr>
<th>NASCIO CIO Priority</th>
<th>CIOs</th>
<th>Ohio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security &amp; Risk Management</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Cloud Services</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Consolidation/Optimization</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Digital Government</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Budget, Cost Control, Fiscal Management</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Shared Services</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Broadband/Wireless Connectivity</td>
<td>✓</td>
<td>In Process</td>
</tr>
<tr>
<td>Data Management &amp; Analytics</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Enterprise IT Governance</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Agile &amp; Incremental Software Delivery</td>
<td>✓</td>
<td>In Process</td>
</tr>
</tbody>
</table>
STATE CIO TOP 10 PRIORITIES for 2018 – NASCIO
Technologies, Applications and Tools

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<tr>
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</thead>
<tbody>
<tr>
<td>Cloud Solutions</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Legacy Application Modernization/Renovation</td>
<td>✓</td>
<td>In Process</td>
</tr>
<tr>
<td>Security Enhancement Tools</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Identity &amp; Access Management</td>
<td>✓</td>
<td>In Process</td>
</tr>
<tr>
<td>Business Intelligence &amp; Business Analytics</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Data Management</td>
<td>✓</td>
<td>In Process</td>
</tr>
<tr>
<td>Enterprise Resource Planning</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Disaster Recovery/Business Continuity</td>
<td>✓</td>
<td>In Place/Ongoing</td>
</tr>
<tr>
<td>Customer Service/CRM</td>
<td>✓</td>
<td>In Process</td>
</tr>
<tr>
<td>Networking</td>
<td>✓</td>
<td>In Process</td>
</tr>
</tbody>
</table>
Data Analytics

Nate Huskey – Dept of Health and Derek Bridges – Dept of Administrative Services
90% of the data in the world today has been created in the last two years alone.

88% of data is ignored. Most organizations analyze 12% of the data they have.

80% estimated amount of unstructured enterprise data.

33% of data will pass through a cloud by 2020.

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*Forbes, "Big Data: 20 Mind-Boggling Facts Everyone Must Read" (2015)*

*Forbes, "The Big (Unstructured) Data Problem" (2017)*
The State provides access to cloud compute and storage for analytical projects as part of a hybrid cloud/on-prem strategy.

The State provides access to pre-qualified firms with expertise in data analytics & machine learning across 14 functional domains.

The State has a highly secured hosted analytics platform inside the State data center featuring industry leading tools for secure data sharing and analytical workloads.

Visual analytics and interactive dashboards are provided out of an enterprise service based on Tableau software.

The State supports the tools and hybrid data platform, supports data staging and curation, and provides scope and procurement services.

Taking Ohio to where it needs to be in the 21st Century by embracing technology *(H.B. #49 Sec. 125.32)*
To unlock State data that drives meaningful social change to make a difference for Ohioans – fixing communities, restoring hope to those most in need, identifying inefficiencies, creating jobs and economic growth, adjusting policies, and predicting and preparing for otherwise unexpected events.
Descriptive Analytics
- Explains what happened
- Dashboards, reports, data
- Identify clusters based on some variables

Diagnostic Analytics
- Explains why something happened
- Data discovery and correlations
- Understand causes

Predictive Analytics
- Explains what will happen
- Forward-looking KPI’s and insights
- Predict behavior of this set at a future point in time

Prescriptive Analytics
- What should the business do?
- Suggest best actions to meet a desirable outcome
- Typical of streaming, machine-learning, & AI
IT Optimization Summit
Data Warehousing and Data Analytics

Data Warehousing
- Business Users, Data Analysts
- Structured, processed data sources
- Highly modeled for optimal business value
- Data profile with known business value
- Engineered for fast query retrieval

Data Analytics
- Data Scientists, Data Analysts
- Structured, unstructured, streaming, and raw data sources
- Data profile with unknown or known business value
- Relative low-cost storage

Better Together
Ohio Data Analytics

Outputs
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Guiding Principles

Data is a Strategic Resource
Data is a State Shared Asset
Analytical & Research Purposes
Preserving Privacy & Confidentiality
Data is Governed by Accountable Entities
Data is Reusable
Data is Interoperable

Aligns with Am. Sub. H. B. No. 49, Sec. 125.32.A
Aligns with DP-001 – Data is a State Shared Asset, & Am. Sub. H. B. No. 49, Sec. 125.32.B
Aligns with Am. Sub. H. B. No. 49, Sec. 125.32.A
Aligns with DP-004 – Data Security, Am. Sub. H. B. No. 49, Sec. 125.32.C.2 & Sec. 125.32.D
Aligns with Am. Sub. H. B. No. 49, Sec. 125.32.C.1 and 125.32.D
Aligns with Am. Sub. H. B. No. 49, Sec. 125.32.D
Aligns with Am. Sub. H. B. No. 49, Sec. 125.32.D
“Expand and enhance predictive models and profiling models to determine those at-risk for infant mortality in Ohio and design targeted interventions”

- State of Ohio Infant Mortality RFP
Which mothers and infants are most at risk of infant death?

Which families are most likely to benefit from targeted interventions?

Which families are most likely to participate in targeted interventions?

Which intervention programs yield the best return on investment?

Evaluating Efficacy of State Intervention Programs

Identifying Mothers at High Risk of Infant Mortality and Constructing Their Profiles

Predicting the Characteristics of Mothers Most Likely To Benefit From An Intervention Program

Predicting Which Intervention Program(s) At-Risk Mothers Should be Enrolled In

Identifying Mothers Most At-Risk of Having a Baby that will Require a NICU Admission
## MILESTONES AND CHECK-INS

<table>
<thead>
<tr>
<th>Collaboration with State Experts to build data understanding</th>
<th>Data documentation obtained, weekly touchpoints with SMEs</th>
<th>All data accessed, validated, bi-weekly touchpoints with Policy Staff and Data Experts</th>
<th>Milestone Checkpoint with Executive Steering Committee</th>
<th>Milestone Checkpoint with Executive Steering Committee</th>
<th>Final readout to executive leadership</th>
</tr>
</thead>
</table>

## ACTIVITIES

- **MOBILIZATION**
- **DATA DISCOVERY**
- **ANALYTICS RECORD**
- **SEGMENTATION AND PROFILING**
- **MODELING**
- **TARGETED INTERVENTION ROADMAP**

<table>
<thead>
<tr>
<th>DEC 2017</th>
<th>JAN 2018</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
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</thead>
<tbody>
<tr>
<td>IT Optimization Summit</td>
<td>Infant Mortality Project Proposed Timeline</td>
<td></td>
<td></td>
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</tbody>
</table>
IT Optimization Summit
Launching a Project

1. Commission Project
   - Subject Area
   - Problem Statement
   - Analysis Dimensions
   - Desired Outcomes
   - State Agency Sponsor
   - State Participants
   - Pragmatics
   - Problem Identification & Prioritization
   - Data Sharing Agreements

2. Assemble State Team
   - Sponsorship and Oversight
   - Project Manager
   - Program / Policy Experts
   - Intervention Specialists
   - Data Analytics Leaders
     - Agency Systems/Data SMEs
   - Agency System Providers (as required)
   - Contribute to State Data Lake

3. Assemble State Data
   - State Agencies and Systems
   - Data Taxonomies and Volumes
   - Data Anonymization & Handling
   - Engagement – Policy, Business, Technology

4. Solicit Expert Firms (if needed)
   - Develop Exploratory Project Work Solicitation
   - Let to Pre-Qualified Contractors
   - Evaluate / Award Proposals
   - Commission Work
   - Evaluation and Project Prep

5. Execute Projects
   - Progress Reporting & Course Corrections
   - Evaluate Ancillary & Additional Analysis
   - Validate Findings, Recommendations
   - Design, Implement and Measure Interventions
   - Collaborative Problem Solving

Exploratory Project
Agency Onboarding
Ohio DAS
Agency Onboarding
Questions or next steps?

Contact Derek Bridges at derek.j.bridges@das.ohio.gov or OhioDataAnalytics@das.ohio.gov
Intelligent Automation

Derek Bridges, Deven Mehta & Spencer Wood
Dept of Administrative Services
Continuous Improvement through Agile Adoption

Brian Lee – Dept of Public Safety and
Mark Walker – Dept of Taxation
IT OPTIMIZATION SUMMIT UPCOMING SCHEDULE:

March 1: Leveraging Cloud (Platform & Software)
- Cloud Experience & Salesforce: Ed Carr, Scott Brock, Chris Bowsher
- MS CRM Dynamics: James Gregory, Deval Parikh, Bright Thomas
- Agile vs Traditional Software Development – Matt Curren
- Cloud Governance – Michael Carmack

March 22: Leveraging Existing Enterprise Solutions/Tools
- Skype & Video Conferencing – Michael Carmack & Eric Schmidt
- OneDrive – Greg Buskirk
- SharePoint – Deven Mehta
- ServiceNow – Renee Evans
- Enterprise Document Management – Glen Coleman
- Ohio Digital Experience – Derek Bridges
Thank You!