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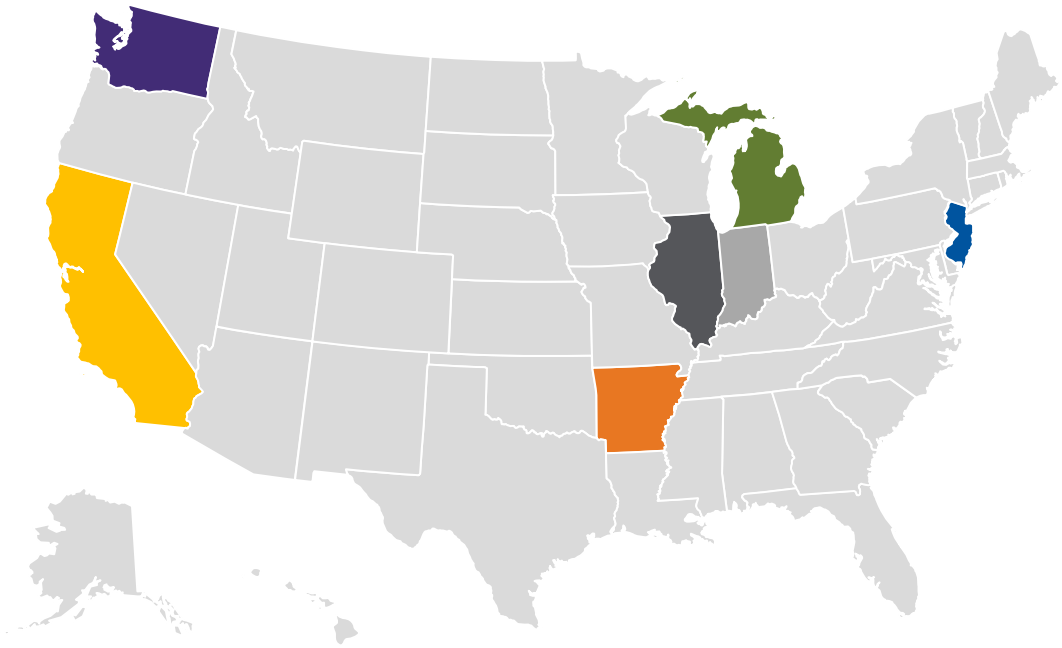
Building a Centralized Data Warehouse

Advanced Communications Committee
June 10, 2016

Optum enterprise data warehouse implementations



ARKANSAS (since 2015)
Serves DMS and DHS.

CALIFORNIA (since 2008)
Serves 7 different agencies.

ILLINOIS (since 1999)
Serves 9 agencies.

INDIANA (since 2013)
Serves Medicaid and Social Services.

MICHIGAN (since 1995)
Used by 10 different agencies, includes Master Person Index.

NEW JERSEY (since 1997)
Serves two departments and X agencies.

WASHINGTON (since 2010)
Serves Health Care Authority and Department of Health and Social Services.

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Arkansas Medicaid Enterprise DSS

10 years of data 362 million claims $35 billion in paid claims

344 tables, 297 reports plus ad hoc

Enhance Data for Fraud Waste and Abuse Detection

Implementing an automated federal reporting system

Implemented Episode Groups for predictive health care models and quality measures

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Building Enterprise Business Intelligence

Common Identifier	• Extracts, transforms, cleanses, loads, maintains data • Uses “Master Client Index” to link individuals across programs
Child Placement	• Shared data between DHS and courts for abuse, neglect, foster care cases • Increased family reunifications by 34%
Parent Locator	• Child support agency has access to other data sets • Allows location and pursuit of parents not paying child support
Care Coordination	• Master Client Index allows behavioral and acute data put in client view • Allows near real time care coordination and alerting on changes in status • Calculates prediction of risk for clients, allows selection for intervention

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Special Report: Arkansas Legislative Audit
Potential Benefits of a Centralized Data Warehouse

Special Report
Arkansas Legislative Audit

Potential Benefits of a Centralized Data Warehouse for the State of Arkansas
November 6, 2015

INTRODUCTION

This report is issued to inform the Legislative Joint Auditing Committee (LJAC) of potential benefits of centralized data warehousing and to recommend steps that can be taken to introduce centralized data warehousing to Arkansas state government. Separate from the centralized *processing* of data (as achieved in the Arkansas Administrative Statewide Information System [AASIS]), **centralized data warehousing** is the collection, storage, and streamlining of data in a single repository. A centralized data warehouse allows state and local entities to share data as appropriate and authorized and allows data to be more easily accessed and safeguarded, as well as more efficiently distributed to those making government policy decisions.

As technology has evolved from "pen and pad" to iPad®, the amount of data produced worldwide has grown and continues to grow at a staggering rate (see image at right). This massive amount of data that comes from a variety of sources and is too large and complex to be efficiently stored, managed, or utilized using conventional means is known as **big data**.

Rapid Growth of Data in Digital Universe
- Doubling in size every two years
- Unstructured data explosion

2013 4.4 ZB → 2020 44 ZB

ZB = Zettabyte. See **Exhibit I on page 2** for definition.

Source: EMC Digital Universe with Research and Analysis by International Data Corporation (IDC) 2014 (http://www.emc.com/leadership/digital-universe/2014iview/executive-summary.htm)

Big data obtained from mobile and web technologies have long been used by businesses to follow consumer habits and enhance marketing efforts. For example, when individuals search for a product online and an ad for that product then appears on their social media page, they have seen big data analytics at work. **Big data analytics** is the process of examining big data to uncover trends, connections, and other useful information. Despite such use in the realm of business for quite some time, state governments have only recently begun harnessing the potential of the data within their own systems. As stated in the September 2014 issue of *State Legislatures Magazine*,

> *Although the term 'big data' sounds vaguely sinister – like a relative of Big Brother or Big Government – it is an unfair rap. At least in the case of state governments, it is being used to increase public safety, uncover fraud, save money, create efficiencies, and improve health and human services, among other things.*

In large measure, centralized data warehousing can make finding the proverbial needle in the haystack of big data both possible and practical, creating valuable information assets for state government.

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Benefits identified in study

- Appropriate and authorized access to large data sets for reporting and analytics
- Long-term reduction in costs for IT security, infrastructure and backup
- Improved quality and accuracy of data
- Sharing of data among state and local entities
- Greater efficiency through reduction of duplicate efforts

Recommendations

- Feasibility study to identify requirements and costs
- Create Chief Data Officer through legislation

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What Optum experience tells us

"Appropriate and authorized access"

Data and program management

- Sharing data **can** improve performance and program integrity
- Return on investment increases exponentially as additional data sources are added and linked
- Requires data governance structures that allow sharing data in ways that protect the individual agencies interests
- Common path of evolution in states

What Optum experience tells us

"Long-term reduction in costs"

Technology and security management

- Physical location
- Technical platform
- Software platforms
- Staffing: Insource vs. Outsource

What Optum experience tells us

"Improved quality and accuracy of data"

Data normalization

- Requires consistent management
- Requires deep knowledge of data anomalies and sources
- Requires strong effective data governance
- Live feeds/APIs vs. data extracts — complexity vs. timeliness

What Optum experience tells us

“Sharing of data”	**Governance, security and use cases** • Federal and possibly state restrictions on sharing and use • Loss of control of data and its interpretation • Most effective when both parties benefit from sharing
“Greater efficiency”	**Staffing and system costs** • Requires consistent investments in software, technology and training • Can be offset by use of funding sources

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Thank you.

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