

Project Child HANDS

Child Care Subsidy and Early
Education:

Helping Analyze Needed Data Securely

Presentation to the
Governor's Early Childhood
Advisory Council



May 31, 2012



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What is it?

- A system for cross-agency linking of early childhood data for policy analysis and program evaluation
- A system that is:
 - Compliant with Federal and State Privacy Laws
 - Does not require new authorizing legislation
 - Does not require new “data center” establishment (low cost)
 - Easily expanded to include additional data partners
 - Uses compatible technologies with other state data initiatives (e.g. VA Longitudinal Data System)

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Where did it come from?

U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation (Cooperative Agreement HHS-90YE0106)

Tracking Care Assistance Program Data and Effects

- Federal program administered through state Block grants
- Work support program with increasing emphasis also on children's development
- Eligibility based on work, training and income status
- Lose work, lose child care assistance
- Birth through age 12

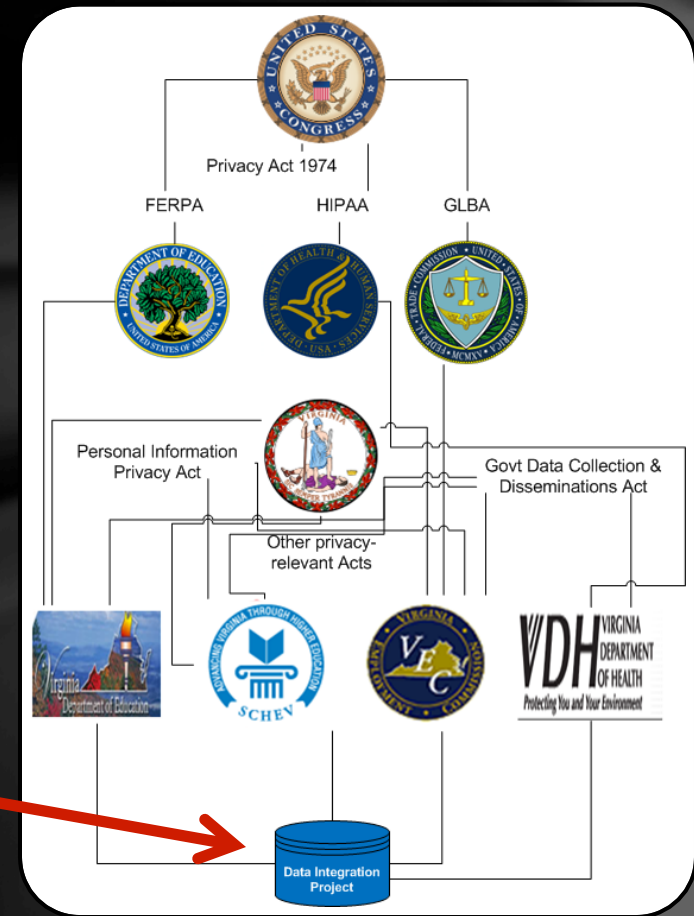
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Technical Approach Driven by Implementation Environment

Public Sector Statutory and Regulatory Heterogeneity

- Multiple levels of statutory law
- Multiple implementations of regulatory law at each level of statutory law
- Most conservative interpretation of regulatory law becomes de facto standard

Trying to get all of this into a single system is where multi-million dollar cost-overruns come from!



Choice of Solution Models

Instead of Identified Consolidation, De-identified Federation

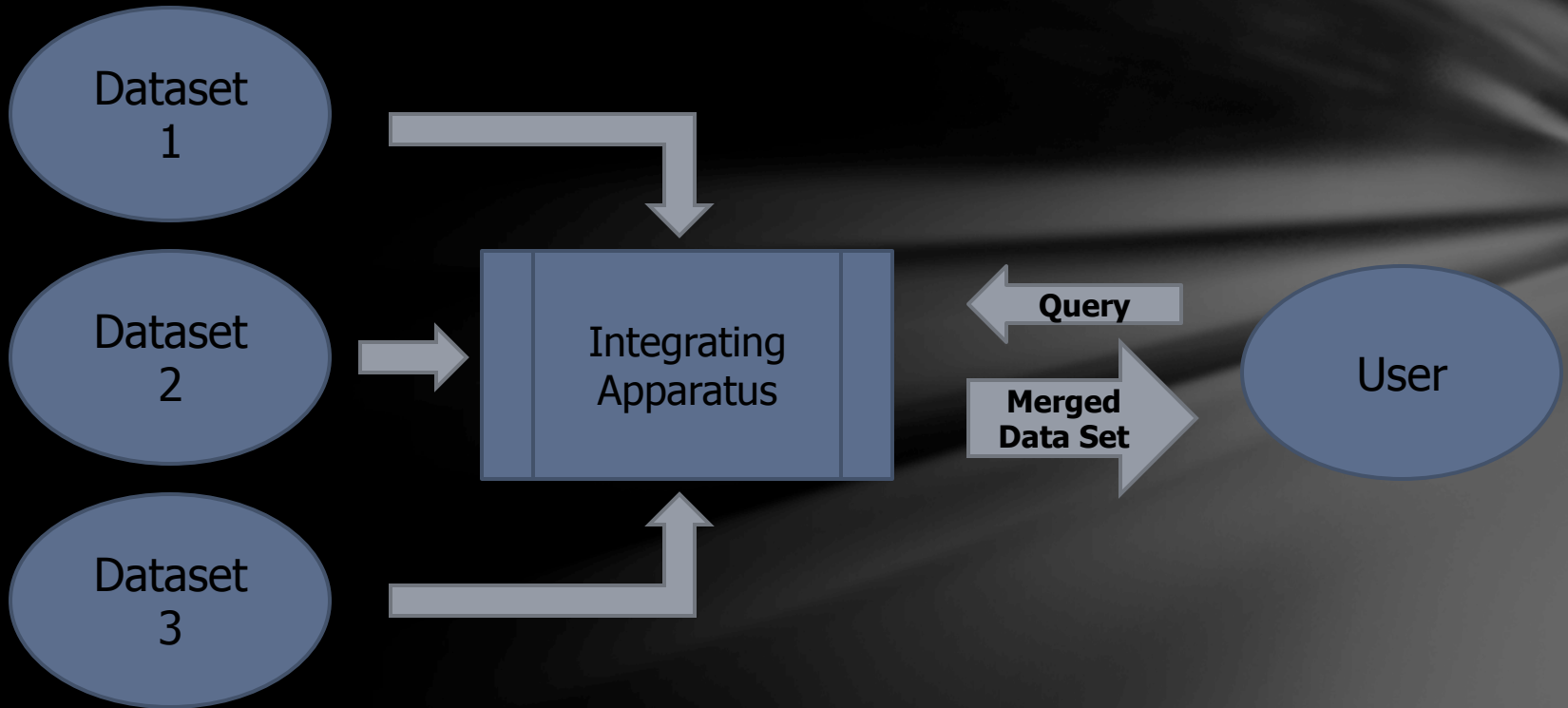
Consolidated Data Systems (Warehouse)

- Expensive (to both build and maintain)
- Too difficult to “program” the multiple levels of federal and state statutory and regulatory privacy requirements – must have laws in place to allow for centralized collection
- Lack of clear data authority, per data system, between state agencies and between state and local-level agencies – participation is not compulsory

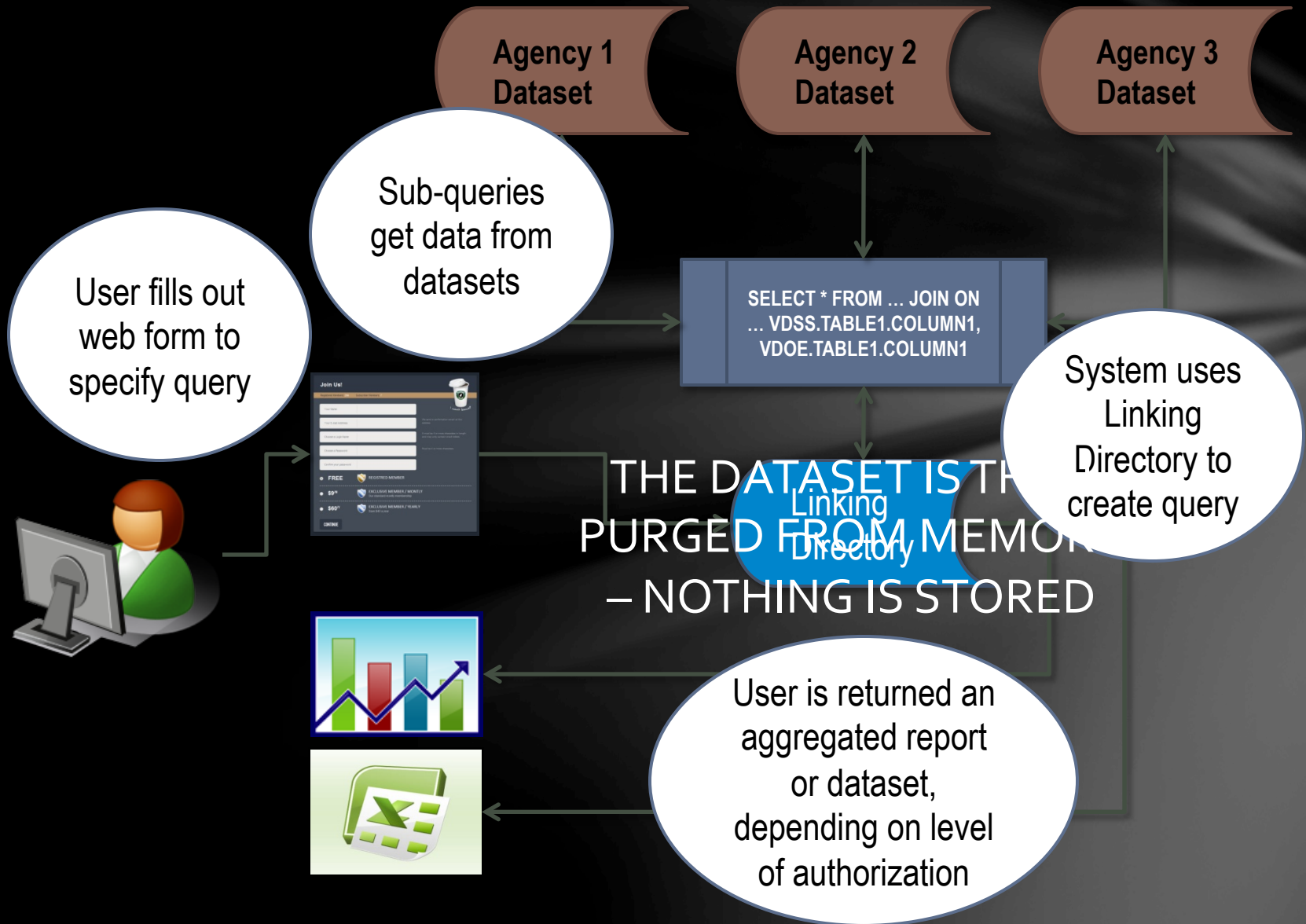
Federated Data Systems

- System that interacts with multiple data sources on the back-end and presents itself as a single data source on the front-end
- Cheaper (much less central technology and personnel needed)
- Data authority issues minimized – federation allows for the maintenance of existing privacy protection rules and regulations
- Much less has to be programmed -- significantly reduced development time and cost

What is a Federated Data System?



HANDS Federated Process – Data Sets are not Retained



What does the system create?

A Multi-Agency Data Set of De-Identified Virtual Child Records Or Program Records

VDOE - Student Record Collection (SRG)	RESPONSIBLE DIVISION NUMBER
	RESPONSIBLE SCHOOL NUMBER
	SERVING DIVISION CODE
	SERVING SCHOOL/CENTER CODE
	ENTRY DATE
	RACIAL/ETHNIC CODE (PRE 2010)
	GENDER CODE
	BIRTH DATE
	GRADE LEVEL CODE
	KINDERGARTEN HALF-DAY FLAG
	PRIMARY DISABILITY CODE
	DISADVANTAGED STATUS FLAG
	COUNTRY OF BIRTH CODE
	HOME LANGUAGE CODE
	IMMIGRANT STATUS FLAG
	MIGRANT STATUS FLAG
	GIFTED CODE
	GIFTED REFERRAL FLAG
	TITLE I CODE
	AGGREGATE DAYS PRESENT
	AGGREGATE DAYS ABSENT
	RETENTION FLAG
	KINDERGARTEN READINESS ASSESSMENT FLAG
	SCHOOL CHOICE STATUS CODE
	SUPPLEMENTAL EDUCATION SERVICES CODE
	PK EXPERIENCE CODE
	PK WEEKLY TIME CODE
	RESIDENCE ZIP CODE
	UNEXCUSED ABSENCES
	FOSTER CARE FLAG
	ETHNIC FLAG (2010-)
	RACE CODE (2010-)
	LEP STATE CODE
RECEIVING ESL SERVICES CODE	
PROJECTED LEP STATE CODE	
DATE OF BIRTH	
STUDENT GENDER	
ETHNICITY	
PRIMARY DISABILITY	
DISTRICT NAME	
SCHOOL NAME	
READING FIRST SCHOOL	
SES (% FREE/REDUCED LUNCH)	
TITLE I SCHOOL	
TITLE I TARGETED ASSISTED SCHOOL	
CLASS GRADE	
SERVICES - ENGLISH AS A SECOND LANGUAGE	
SERVICES - TITLE I	
SERVICES - ONE-ON-ONE TUTO	
SERVICES - OTHER	
SERVICES - NONE	
SERVICES - OTHER	
SERVICES - OTHER NAME	
SCORES AVAILABLE	
ASSESSMENT FORM (A,B, OR C)	
ASSESSMENT DATE	
GROUP RHYME AWARENESS	
INDIVIDUAL RHYME AWARENESS	
GROUP BEGINNING SOUND AWARENESS	
INDIVIDUAL BEGINNING SOUND AWARENESS	
ALPHABET RECOGNITION - LOWERCASE	
LETTER SOUNDS	
SPELLING-TOTAL SCORE	
CONCEPT OF WORD: POINTING	
CONCEPT OF WORD: WORD ID	
CONCEPT OF WORD: WORD LIST	
CONCEPT OF WORD: TOTAL	
PREPRIMER WORD LIST	
PRIMER WORD LIST	
FIRST GRADE WORD LIST	
ENTRY LEVEL SUMMED SCORE	
IDENTIFIED BELOW BENCHMARK	

VDOE - Student Record Collection (SRG)

VDOE - Phonological Awareness Literacy Screening (PALS)

VDOE - Division of Learning Programs Help and Information Network (DOLPHIN)	PROGRAM NAME
	ADDRESS_1
	ADDRESS_2
	CITY
	ZIP_CODE
	PHONE
	LICENSE_TYPE
	EXPIRATION_DATE
	ADMINISTRATOR
	BUSINESS_HOURS
	CAPACITY
	AGES
	CRITICAL VIOLATIONS PREVIOUS YEAR
	ECERS-R-INDOOR SPACE
	ECERS-R-FURN. FOR ROUTINE CARE
	ECERS-R-FURN. FOR RELAX
	ECERS-R-ROOM ARRANGEMENT
	ECERS-R-SPACE FOR PRIVACY
	ECERS-R-CHILD-RELATED DISPLAY
	ECERS-R-SPACE FOR GROSS MOTOR
	ECERS-R-GROSS MOTOR EQUIP.
	ECERS-R-GREETING/DEPARTING
	ECERS-R-MEALS/SNACKS
ECERS-R-NAP/REST	
ECERS-R-TOILETING/DIAPERING	
ECERS-R-HEALTH PRACTICES	
ECERS-R-SAFETY PRACTICES	
ECERS-R-BOOKS AND PICTURES	
ECERS-R-ENCOURAGING CHILD TO COMM	
ECERS-R-USING LANG T DEV RATION	
ECERS-R-INFORMAL ASSESSMENT/PLAN	
ECERS-R-FITNESS/ACTIVITY	
ECERS-R-ART	
ECERS-R-MUSIC MOVEMENT	
ECERS-R-LOCKS	
ECERS-R-SAND/WATER	
ECERS-R-DRAMATIC PLAY	
ECERS-R-NATURE/SCIENCE	
ECERS-R-MATH/NUMBER	
ECERS-R-USE OF TV, VIDEO, COMPUTERS	
ECERS-R-PROMOTING ACCEPTANCE OF DIVERSITY	
ECERS-R-SUPERVISION OF GROSS MOTOR	
ECERS-R-GENERAL SUPERVISION	
ECERS-R-DISCIPLINE	
ECERS-R-STAFF-CHILD INTERACTION	
ECERS-R-INTERACTIONS AMONG CHILDREN	
ECERS-R-SCHEDULE	
ECERS-R-FREE PLAY	
ECERS-R-GROUP TIME	
ECERS-R-PROVISIONS FOR CHILDREN W/ DISABILITIES	
ECERS-R-PROVISIONS FOR PARENTS	
ECERS-R-PROVISIONS FOR PERSONAL NEEDS/STAFF	
ECERS-R-PROV FOR PROFESSIONAL NEEDS/STAFF	
ECERS-R-STAFF INTERACTION AND COOPERATION	
ECERS-R-SUPERVISION AND EVAL. OF STAFF	
ECERS-R-OPPORTUNITIES FOR PROFESSIONAL GROWTH	
CLASS-POSITIVE CLIMATE	
CLASS-NEGATIVE CLIMATE	
CLASS-TEACHER SENSITIVITY	
CLASS-RESPECT FOR STUDENT PERSPECTIVES	
CLASS-BEHAVIOR MANAGEMENT	
CLASS-PRODUCTIVITY	
CLASS-INSTRUCTIONAL LEARNING FORMATS	
CLASS-CONCEPT DEVELOPMENT	
CLASS-QUALITY OF FEEDBACK	
CLASS-LANGUAGE MODELING	
CLASS-SE	
CHILD CARE PAYMENTS TOTAL	
CHILD CARE FIRST PAYMENT DATE	
CHILD CARE LAST PAYMENT DATE	

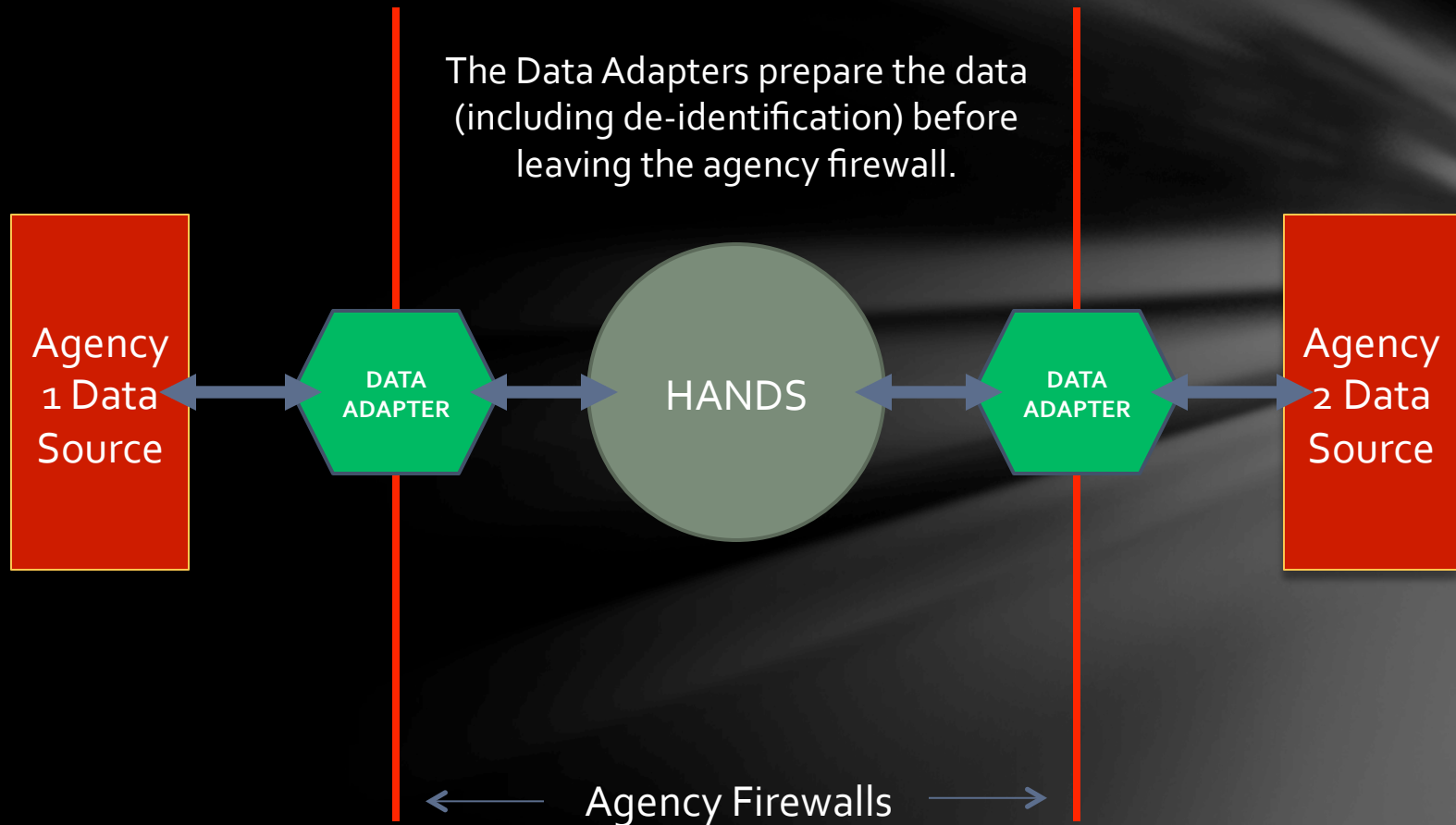
EDS - CC Payments

VDOE - Quality Rating and Improvement System (QRIS)

VDOE - Virginia Client Information System (VACS)	CLIENT BIRTHDATE
	LOCALITY FIPS
	PROGRAM CATEGORY
	SUBSIDY TYPE
	SUBSIDY ELIGIBILITY TYPE
	CLIENT SEX CODE
	CLIENT RACE CODE
	PARENT INCOME
	PARENT INCOME SOURCE
	PARENT EMPLOYMENT TYPE
	PARENT OCCUPATION TYPE
	SEX OF CHILD
	RACE OF CHILD
	DATE OF BIRTH
	PLURALITY
	HOSPITAL OF BIRTH
	PLACE OF BIRTH
	COUNTY OF BIRTH
	PLANNING DISTRICT OF RESIDENCE
	ZIP CODE
	RACE OF MOTHER
AGE OF MOTHER	
MOTHER'S PLACE OF BIRTH	
MOTHER'S EDUCATION	
RACE OF FATHER	
AGE OF FATHER	
FATHER'S PLACE OF BIRTH	
FATHER'S EDUCATION	
INFORMANT	
ATTENDANT	
DATE RECORD FILED	
LIVE BIRTHS, NOW LIVING	
LIVE BIRTHS, NOW DEAD	
BIRTH ORDER	
LESTIMACY	
WEIGHT AT BIRTH	
DATE LAST LIVE BIRTH	
DATE LAST OTHER TERMINATION	
DATE LAST NORMAL MENSES	
APGAR 1 MINUTE	
APGAR 5 MINUTES	
PHYSICIAN'S ESTIMATE OF GESTATION	
MONTH OF PREGNANCY PRENATAL CARE BEGAN	
NUMBER OF PRENATAL VISITS	
HISPANIC ORIGIN OF MOTHER	
HISPANIC ORIGIN OF FATHER	
MOTHER TRANSFERRED PRIOR TO DELIVERY	
INFANT TRANSFERRED	
MEDICAL HISTORY FOR THIS PREGNANCY	
TOBACCO USE DURING PREGNANCY	
AVERAGE NUMBER OF CIGARETTES PER DAY	
ALCOHOL USE DURING PREGNANCY	
AVERAGE NUMBER OF DRINKS PER WEEK	
WEIGHT GAINED DURING PREGNANCY (LBS)	
OBSTETRIC PROCEDURES	
EVENTS OF LABOR AND/OR DELIVERY	
METHOD OF DELIVERY	
CONDITIONS OF THE NEWBORN	
CONGENITAL ANOMALIES OF CHILD	
SOURCE OF PRENATAL CARE	
METHOD OF PAYMENT	
HEROIN USED	
METHADONE USED	
MARIJUANA USED	
COCAINE USED	
AMPHETAMINES USED	
OTHER DRUGS USED	

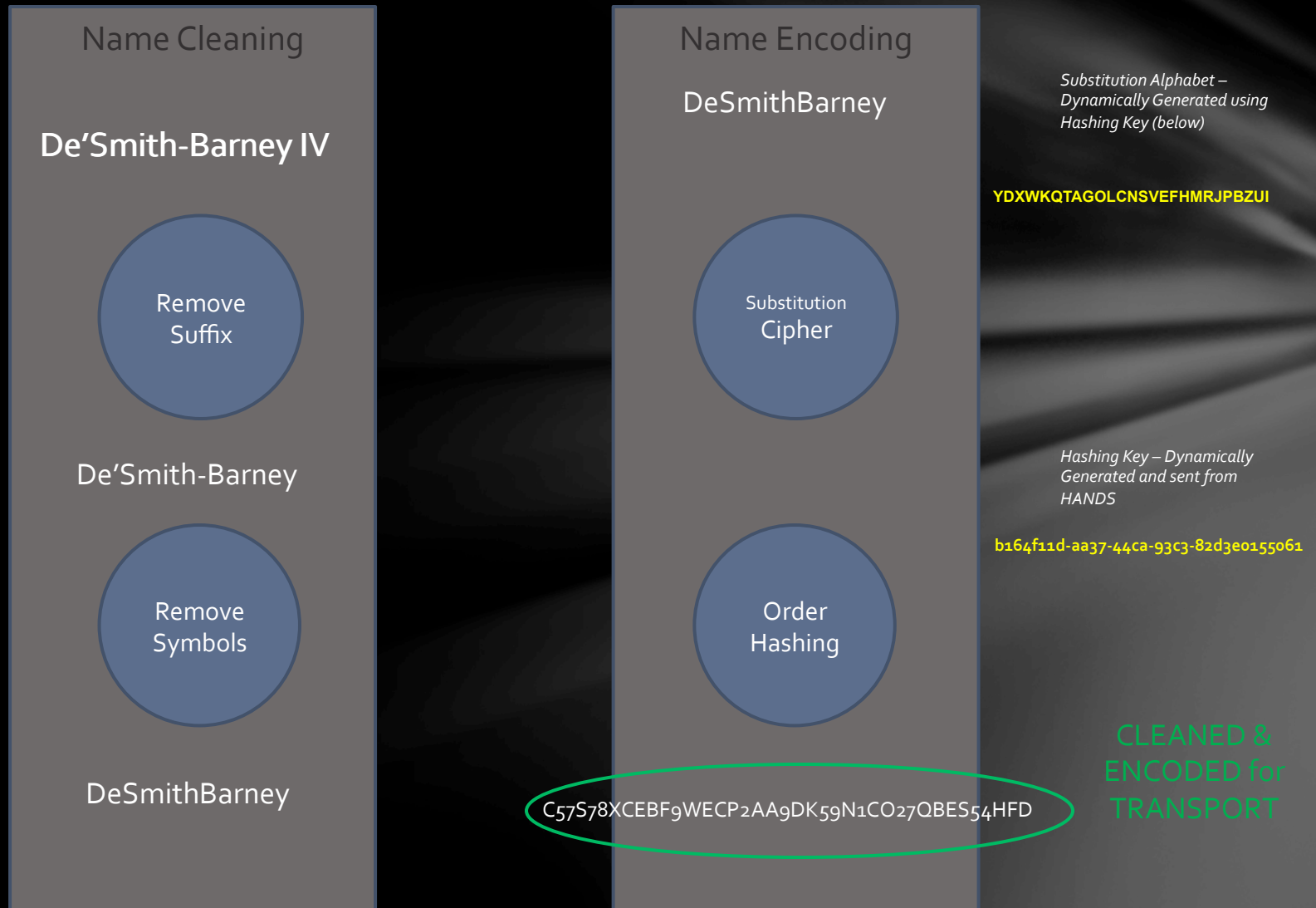
VDOE - Vital Records Birth

How Does De-Identification Work in the HANDS System?



Getting Data Ready for "De-Identified Federation"

What the Data Adapter Does



Probabilistic Linkage Process (Creating a Linking Directory)

(After we have a unique person index for each agency dataset)

Blocking

m and u Parameter Calculation

Matching-Column Weight
Calculations

Match Scoring

Linkage Determination
and addition to
Linking Directory

- Linkage Determination – A Cutoff score needs to be set for each blocked comparison, below which a link is not accepted as a real “link”
- The best method of establishing this cutoff is for the system operator to work with a content-area expert to determine the peculiarities of data for that content-area
- In some data sets it may be very unlikely that a birthdate was entered incorrectly, while in another, it may happen very regularly – a computer can not automatically know this
- Once these cutoffs are set, they don't need to be changed unless something drastic occurs to change the nature of the dataset

What do we get after creating the Linking Directory? HANDS Linking in Action!

Data being linked and pulled from multiple agency Data Adapters.

This used to take MUCH LONGER.

Welcome aaron.schroeder@vt.edu! [[Log Out](#)]

Left sidebar menu:

- HANDS
- HANDS_LINK
- Tables
 - CHILD_IDS_DEMOGRAPH:
 - CHILD_IDS_DMGS

Main area:

Output	Expression	Aggregate	Alias	Sort Type	Sort Order	Grouping	Criteria	Or...	Or...
<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>			

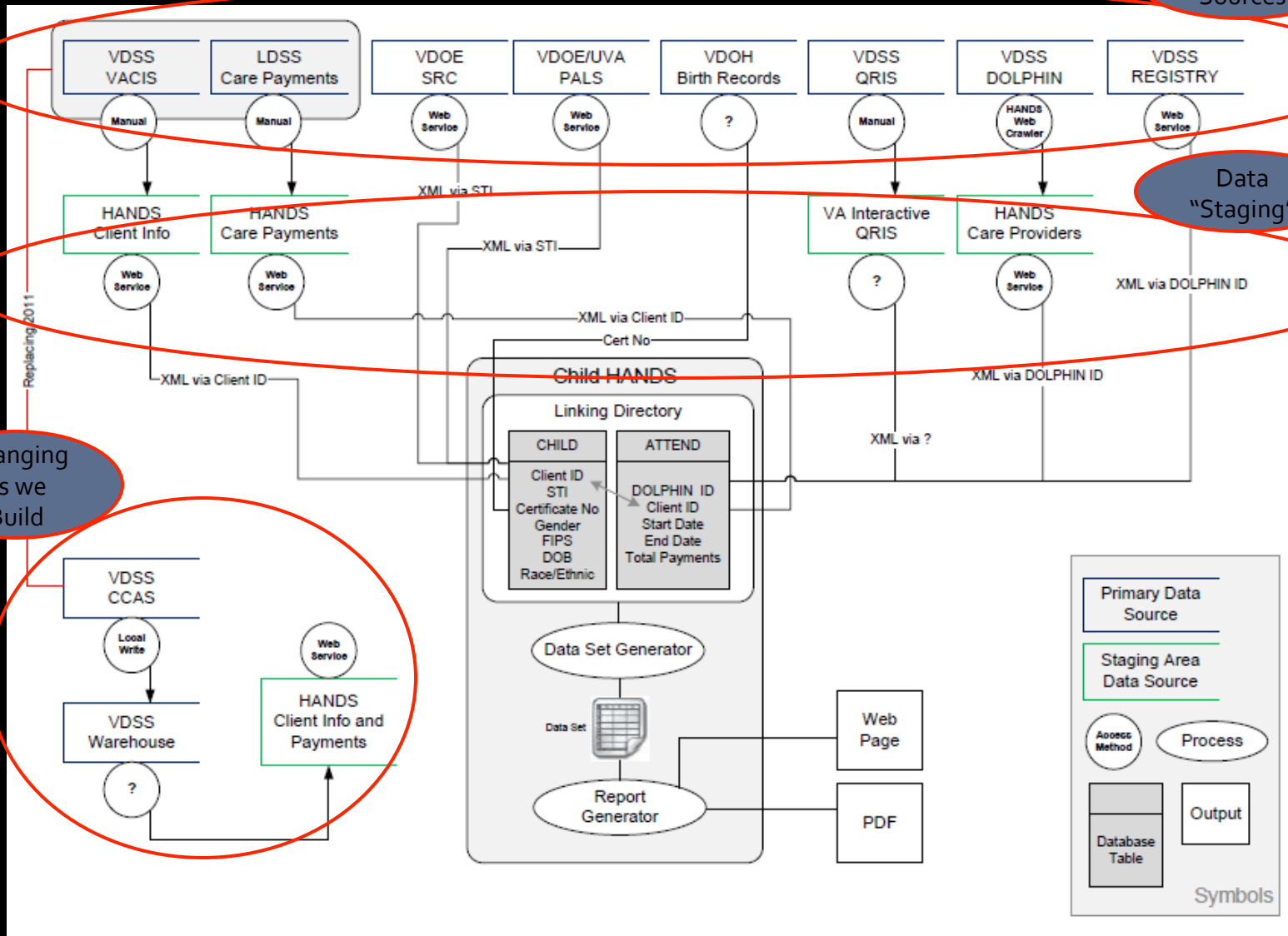
Bottom right buttons: Refresh Reconnect Execute query

Child HANDS: Initial Data Systems for Integration

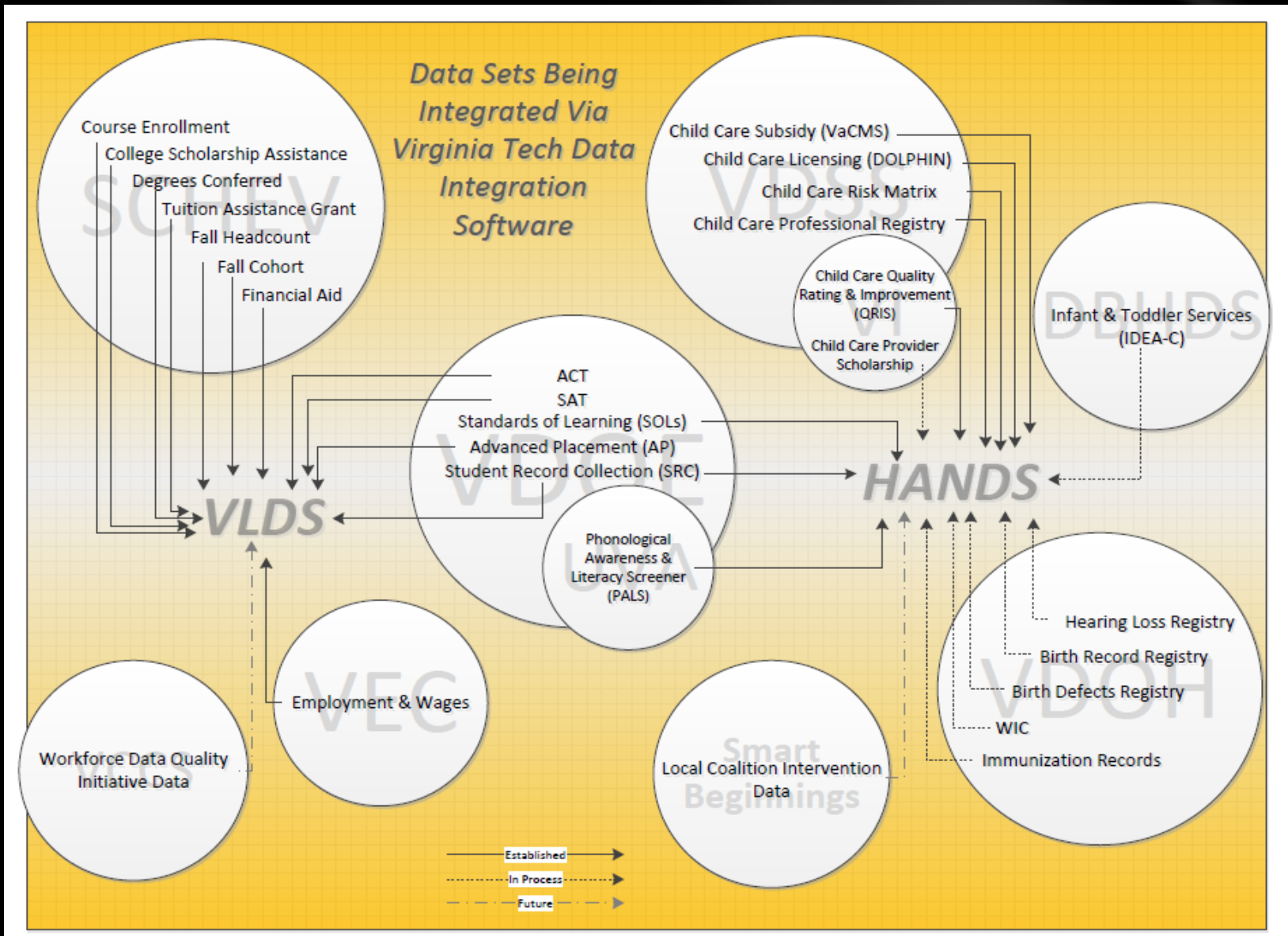
Data Sources

Data "Staging"

Changing as we Build



Child HANDS and the Virginia Longitudinal Data System



Project Child HANDS in Action

Initial Research Study

Initial Questions To Drive Development

1. What type of care are parents choosing with subsidy dollars?
2. What is the quality of the child care?
3. How are their children doing in Kindergarten?

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Initial Research Questions Data Sources

What type of care are parents choosing with subsidy dollars?

- Data: Subsidy records (VDSS, local)
 - VA Client Information System
 - Payments to child care providers

What is the quality of the child care?

- Data: Quality indicators (VDSS, VECF)
 - Licensing status, violations (DOLPHIN)
 - Program quality overall (VSQI)

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Initial Research Questions Data Sources

How are their children doing in Kindergarten?

- Data from Student Record Collection (VDOE) and University of Virginia PALS Office
 - Attendance (SRC)
 - Retention (SRC)
 - Special services/IEP placement (SRC)
 - Phonological Literacy Awareness Screening (PALS; UVA)

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Initial Research Study

Research Study: Five Localities (Wave I)

Time period: 2006 – 2010

Sample

- From *five* localities, subsidy children = 6009
- Youngest were infants (n = 1230); Oldest 16 by end of study period (n = 26)
- 1862 with birth date between '9/30/2001' and '9/30/2004'

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Initial Research Study

Subsidy to Licensing Match

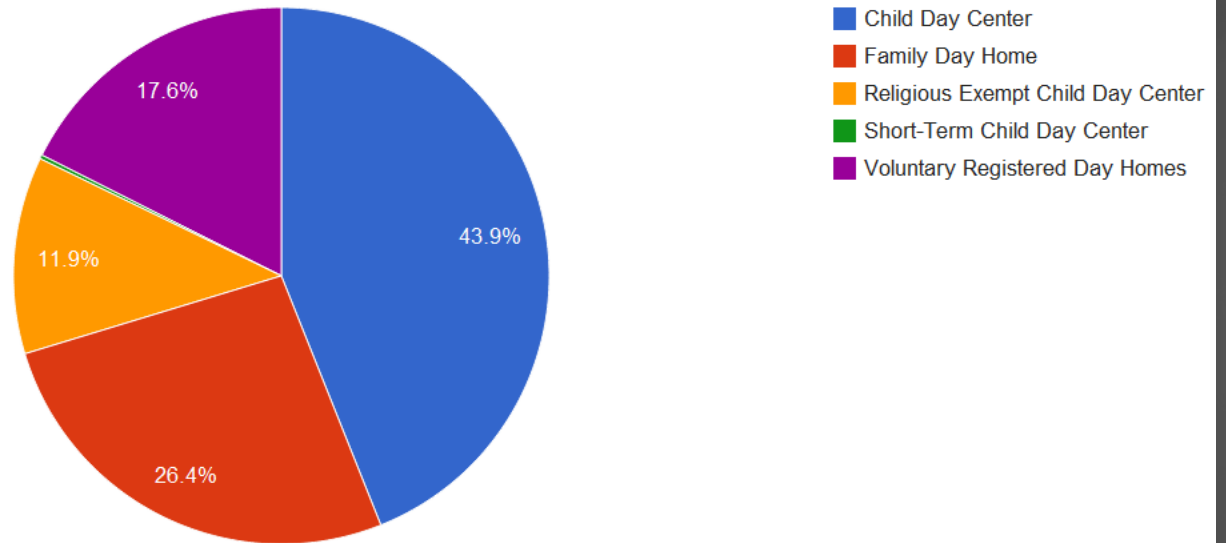
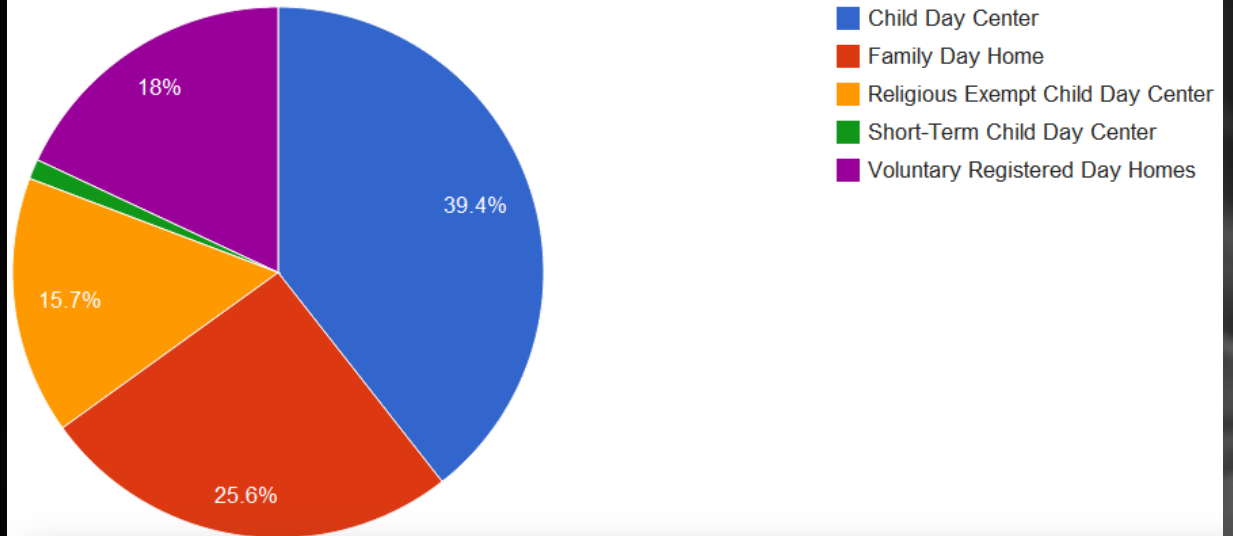
- 888 vendors received subsidy payments during study time period
- 452 matched to licensing data (51%)

This match accounts for 72 % of the total Wave I children receiving subsidy during that time

VA Licensed Programs

REPRESENTATIVE
SAMPLE

Wave I Programs



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Initial Research Study

Research Q 1: What type of care were parents choosing for their children with subsidy dollars?

- Substantially more parents (72.5%) enrolled their children in licensed child care compared to FFN (27.5%)
- Equally child care centers (44 %) and family child care homes (44%), with 11% in religiously-exempt placements.

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Initial Research Study

Subsidy Use Patterns

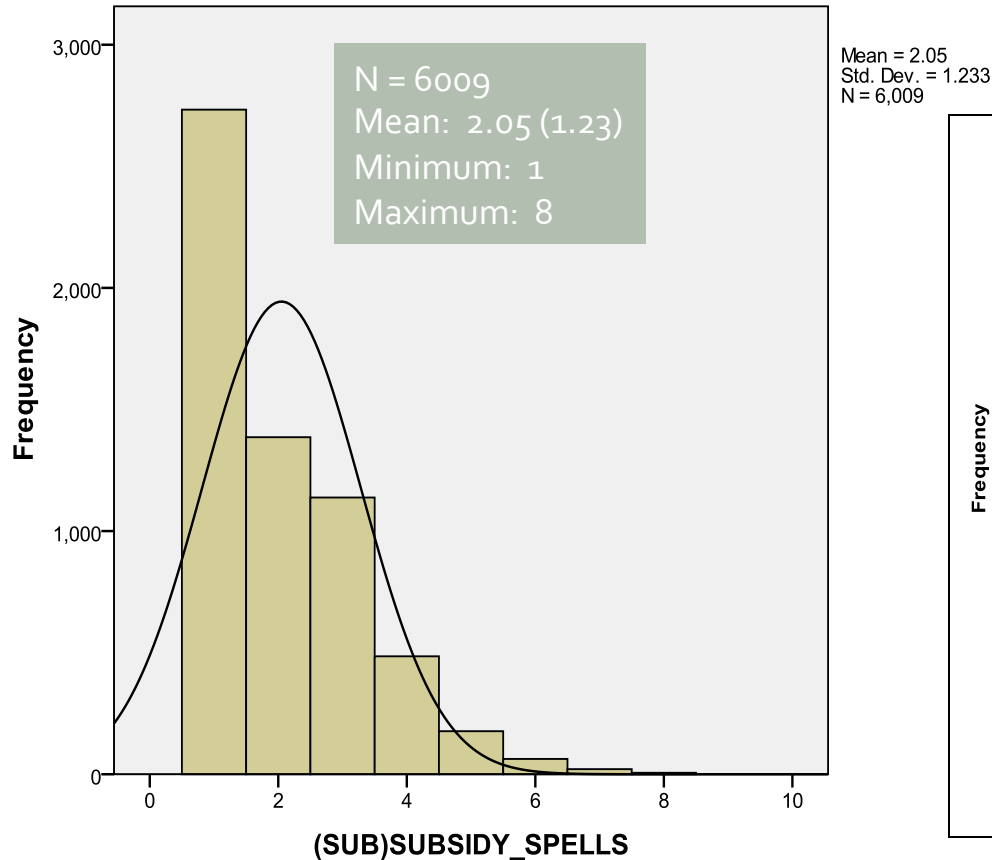
- The more subsidy spells, the more likely a child enrolled in multiple programs.
- Children with more subsidy spells were slightly more likely to have longer spells.
- The most common pattern: a single spell of about 9 months in the same program

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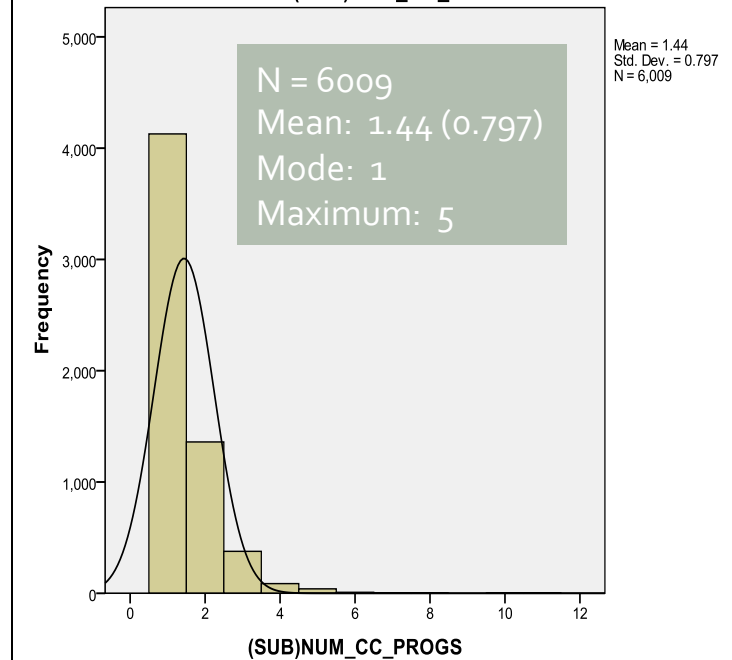
Initial Research Study

Subsidy Use Patterns, 2007 - 2010

(SUB)SUBSIDY_SPELLS



(SUB)NUM_CC_PROGS



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Initial Research Study

Q2: What is the quality of care?

Quality Type	Quality Indicator	Data Source
Licensed or not	VA Child care license	VDSS DOLPHIN
License violations	Number and type of licensing violations	VDSS Risk Assessment Matrix
Center Environment	Classroom Observations	VSQI (VDSS and Virginia Interactive)
Staff Qualifications	Transcripts, professional Development records	Early Childhood Professional Registry (in development)

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Initial Research Study

Subsidy to Kindergarten Match

- 8/1/2006 - 7/31/2010
- Kindergarten in academic years 2006-07, 2007-08, 2008-09, and 2009-10
- 1862 with birth date between '9/30/2001' and '9/30/2004'
- **1703 successfully matched to school records (91 %)**

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Initial Research Study

Research Q3: How did children who used subsidy fare in Kindergarten?

- Children who had longer continuous spells of subsidized care attended more days of public elementary school
- Children who had longer care spells scored higher on fall Kindergarten PALS screener
- Accounting for greater attendance, this group of children was more likely to meet fall Kindergarten PALS benchmarks.

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Initial Research Study

Preliminary Conclusions

- Project Child HANDS matching algorithms are capturing a very high percentage of eligible matches; supports use of the system.
- Preliminary results examining child care subsidy patterns indicate longer continuous spells of care predicts better school readiness in domains we can measure.
- If findings are replicated and robust, policy implications may be to allow longer care spells, more independent of parental employment.

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Initial Research Study

Examples of Other Policy or Evaluation Questions

1. What are the social service trajectories and school outcomes of children born with special health care needs? (Hearing loss, birth defects)
2. What impact does early intervention have on school outcomes?
3. What interventions or programs are most helpful to children and families involved in child protective services?

Bringing Service and Research Dollars into Virginia

With proper infrastructure support, Project Child HANDS, together with the SLDS, has the potential to bring active foundation and other funding into the Commonwealth.

Example: Project LAUNCH (SAMHSA RFP SM-12-009)
Cooperative Agreements for Linking Actions for Unmet Needs in Children's Health
(Up to \$850,000 per year, 5 years, no match)

Example: **Managing and Learning from Activities in Payment and Delivery System Reform**
(Robert Wood Johnson Foundation)