NATIONAL DATA EXCHANGE

The Right Information In the Right Hands Right Now

N-DEx

What Do YOU Need To Know?

2011 NAJIS Conference
09/20-23/2011
New Orleans, LA

Endorsements & Support

- Global Justice Information Sharing Initiative (GLOBAL) Advisory Committee (GAC)

- CJIS Advisory Policy Board
  - State, local, tribal, and federal representatives share management of administration and operation of the System.

- Partnerships (Criminal Justice Associations)
  - International Association of Chiefs of Police
  - National Sheriff's Association
  - Major Cities Chiefs
  - Major County Sheriff's Association
  - American Probation and Parole Association
  - Association of State Correctional Administrators
  - Interstate Commission for Adult Offender Supervision
  - Corrections Technology Association

- Partnerships (Industry)
  - IJIS Institute

CJIS Systems

INTEGRATED AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM (IAFIS)

NATIONAL CRIME INFORMATION CENTER (NCIC)

NATIONAL DATA EXCHANGE (N-DEx)

UNIFORM CRIME REPORTING PROGRAM (UCR)

LAW ENFORCEMENT ONLINE (LEO)

NATIONAL INSTANT CRIMINAL BACKGROUND CHECK SYSTEM (NICS)

- *Governed by the CJIS APB – state and local representatives share management of administration and operation of the System*

- *The N-DEx system is managed within the framework of the CJIS System of Services and identified within the CJIS Systems User Agreement*

- *Participating agencies and users must adhere to the CJIS Security Policy*

What is N-DEx

- **N-DEx is a central repository that allows criminal justice agencies (CJAs) to submit and share data nationally**

- **The system stores vast amounts of data from local, state, tribal, regional and federal criminal justice agencies**

- **The N-DEx system shares the following report data:**
    - **Service Call**
    - **Incident (Case)/Arrest**
    - **Missing Person Occurrence**
    - **Booking/Holding/Incarceration**
    - **Pretrial Investigation**
    - **Presentence Investigation**
    - **Supervised Release**
    - **Warrant Investigation**

- **N-DEx offers tools and services designed with the analyst and investigator in mind**

- **Provides no-fee access to national data in real time**

The system's principal goal is to enhance the Nation's ability to fight crime and prevent terrorism

What Does the N-DEx System Do?

The N-DEx provides centralized, "one-stop shopping" for criminal investigators, analysts and criminal justice professionals.

ARREST

Incarceration

Federal Case Data

TRAFFIC CITATION

National Information Sharing

Detect relationships between:

– **People**

– **Vehicle/property**

– **Location/phone**

– **Criminal Activity**

Link information across jurisdictions

"Connect the dots" between data that is not seemingly related

Share contact information of individuals engaged in Discovery/Analysis

Support multi-jurisdictional task forces

Graphically depicts search results of N-DEx data and relationships

N-DEx Data:
Law Enforcement
&
Corrections

Law Enforcement Report Types

- **Service Call Report:** A report about a call for service received from a Person alerting an authority of a situation.

- **Missing Person Report:** A report about details surrounding the activity perpetuated by a Person's whereabouts being unknown.

- **Arrest Report:** A report about an action taken by law enforcement to detain an individual with the intention of seeking charges against the Person for a specific Offense(s) and a record is made of the detention; includes juveniles taken into custody but merely warned and released without being charged.

- **Incident Report:** A report about an occurrence or event requiring response, often involving one or more Offenses committed by the same offender, or group of offenders acting in concert, at the same time and place.

- **Warrant Investigation Report:** A report that documents efforts to serve a warrant and effect arrest of a subject.

Corrections Report Types

- **Booking Report:** A report about a booking, which may include information about holding and incarceration.

- **Incarceration Report:** A report about a confinement of a subject as sentenced by a court. May include information about booking.

- **Holding Report:** A report about a confinement or detainment of a subject prior to court disposition. May include information about booking.

Corrections Report Types

- **Pre-Sentence Investigation Report:** A report created post conviction, but prior to sentence, that assesses a subject's probability of risk to the community in the form of future criminal behavior, the harm the offense caused and the need for restitution or cost. Also assessed is the defendant's need for treatment to correct characteristics, conditions, or behavioral patterns that limit motivation or ability to obey the law and the availability and suitability of rehabilitative programs.

- **Pre-Trial Investigation Report:** A report created prior to trial that assesses the likelihood that a subject will fail to appear in court and the danger to the community posed by a subject.

- **Supervised Release Report:** A report that documents the specific conditions placed upon a subject as imposed by a court or supervising agency along with a subject's efforts to comply with the conditions, e.g., treatment to correct characteristics, conditions, and/or behavioral patterns that limit motivation or ability to obey the law and the availability and suitability of rehabilitative programs.

N-DEx Capabilities

N-DEx Capabilities

The following capabilities are contained within N-DEx (all users within the CJA are given these capabilities):

- **Search** – provides users with the capability to utilize the N-DEx as an investigative tool to locate data and relationships. Through the search results, users are provided with a link to the Visualization feature within the N-DEx that presents the results in a graphical format.

- **Subscription / Notification** – enables users to register for information about entities. Users can subscribe to information related to specific entities, regardless of whether the data currently exists in the N-DEx. Users can also specify how and when to receive those notifications.

- **Collaboration** – provides users with the capability to cooperate and collaborate with other N-DEx users by forming groups to share information generated within the N-DEx, such as reports, search results, visualizations or information introduced from outside the N-DEx. Additional collaboration capabilities include: the ability to establish discussion forums in which members may share ideas and information, document storage and retrieval, and administer and manage group members and data.

Search Capabilities

- **Google-like Interface**
  - Users can freely enter words, yet if desired, target to specific types of searches (Persons, places, things, entire document etc.)
  - No limits on what can be searched, more controls on what is searched
  - More control of results sets by utilizing filters
  - Highlights search "matches
  - Employs techniques such as synonyms, sounds-like
  - Dropdown menus are available for targeting specific attributes

- **Improved Search Results**
  - Integrated Person View
  - Dynamic Summary Results and Detailed Views

- **Easy Use – Minimal Training**
  - N-DEx incorporates familiar industry standards look & feel
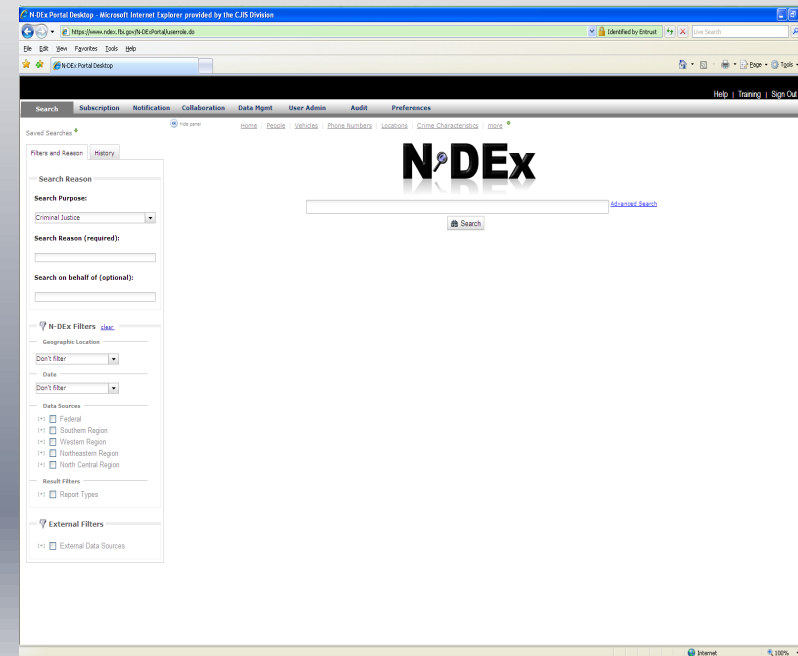
Visualization

Three different types of visualization charts are available in N-DEx:

- An association chart shows the relationships between different entities.

- A timeline chart is an arrangement of the data based on its date and time settings. It shows a chronology of events over a period of time.

- Geo-Visualization uses geospatial capabilities to locate incidents and entities and displays them on a map.
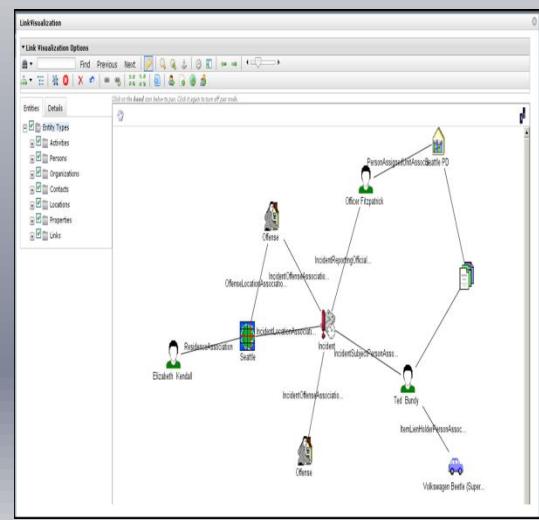
Association Chart
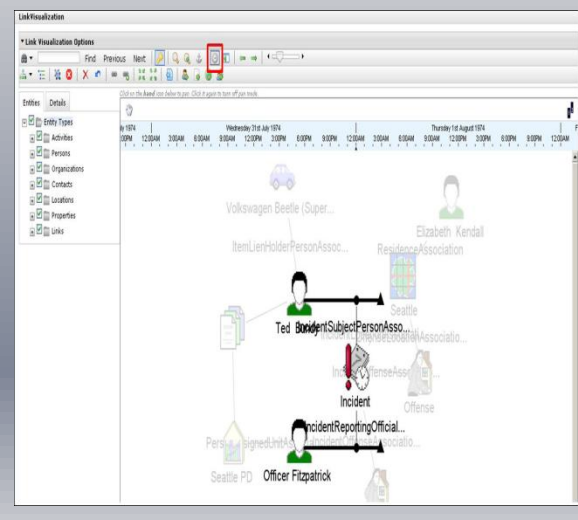
Timeline Chart
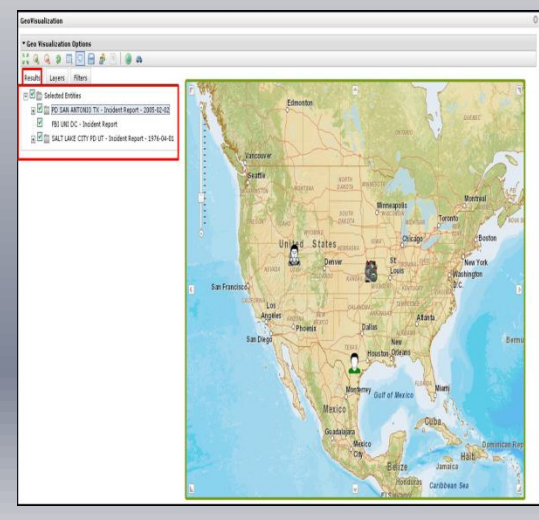
Geo-Visualization Chart

Subscription/Notification

- **Set up subscriptions based upon:**
    - Person (subject of interest)
    - Location
    - Property (vehicle, gun, phone)

- **Receive notification when someone else is looking for the same information**
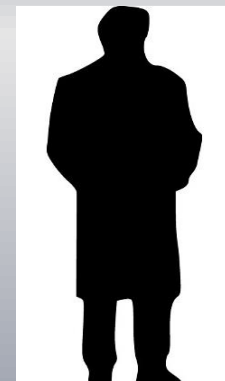
- **Changes to existing records**

Collaboration

- **Provides an online forum to share photos, videos, reports, statements and other information.**

- **Allows sharing of information in an interactive and secure environment.**

- **Establishes discussion forums.**
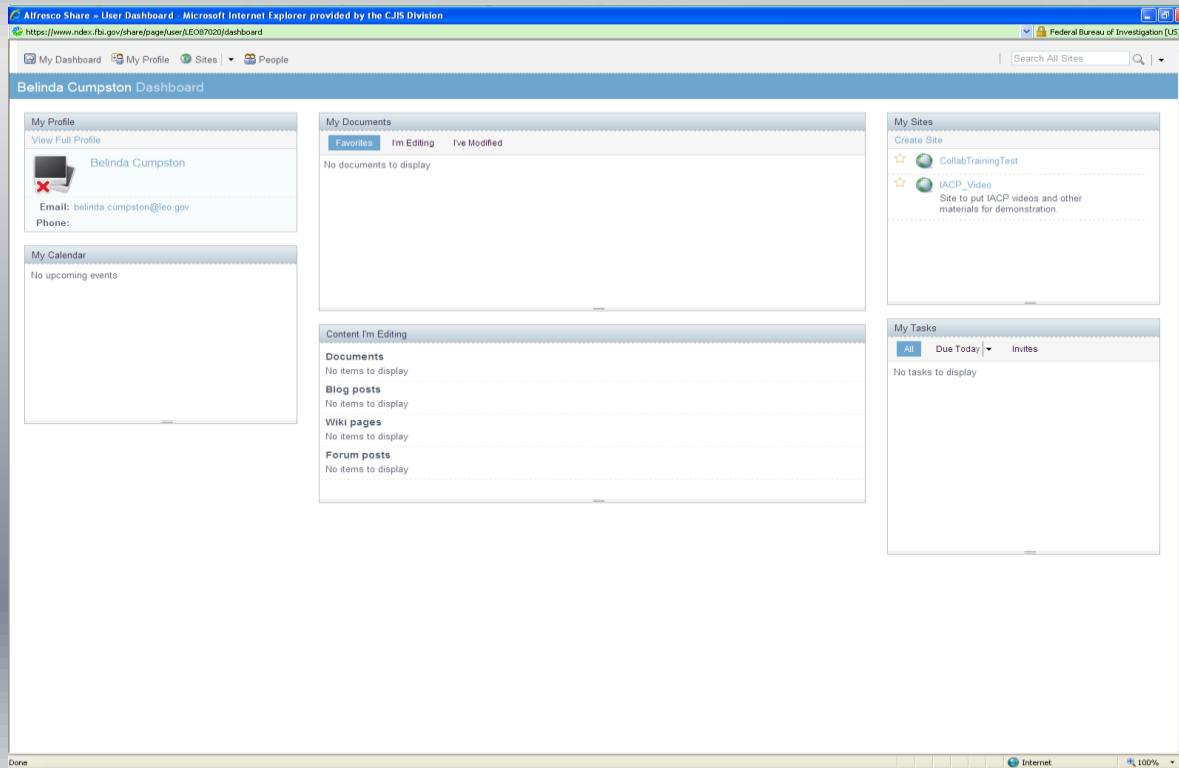
N-DEx
Participants

Current N-DEx Participants

- N-DEx is receiving data from **34 systems** representing over **3,987** agencies
- Local, state, tribal and other federal agency data available to users through N-DEx access
- Current data available in N-DEx as of September 11, 2011 - **114,882,029 records**

➤ **Federal**
  ➤ FBI
  ➤ ATF
  ➤ BOP
  ➤ DEA
  ➤ AFOSI
  ➤ U.S. Marshal
  ➤ JABS

➤ **Regional**
  ➤ California Bay Area (ARIES)
  ➤ California - San Diego (ARJIS)
  ➤ California - Los Angeles (IRIS)
  ➤ Southern California (SoCal LInX)
  ➤ Virginia - Hampton Roads (LInX)
  ➤ West Virginia - Harrison Co
  ➤ Illinois – Chicago PD (CLEAR)
  ➤ Washington D.C. - Metro Police Department
  ➤ Washington - Northwest Region (LInX)

➤ **Local**
  ➤ Georgia – Marietta Police Department
  ➤ Colorado (El Paso SO)

➤ **State**
  ➤ Alabama (ULTRA)
  ➤ Arkansas (NLR PD)
  ➤ Delaware (DELJIS)
  ➤ Kansas (KIBRS)
  ➤ Kentucky (KSP)
  ➤ Michigan (Mi-DEx)
  ➤ Missouri (Mo-DEx)
  ➤ Nebraska (NCJIS)
  ➤ New Jersey (NJ-DEx)
  ➤ New York (NY-DEx)
  ➤ Ohio (OLLEISN)
  ➤ Oregon (O-NIRBRS)
  ➤ Tennessee (CRMS)
  ➤ Texas (T-DEx)
  ➤ Wisconsin (WIJIS)

➤ **Tribal**
  ➤ Oneida Indian Nation

Searchable N-DEx Records

Component	Source	Record Description	Data Volume
ATF	NFORCE	•Subject of Interest •Open & Closed cases	95,015
BOP	ITSLIST	•Federal inmate authorized call lists	2,469,369
	ITSLOG	•Federal inmate authorized call logs	11,176,241
	SENTRY	•Federal inmate biographical & activity records through out incarceration	1,520,249
DEA	NADDIS	•Subjects of interest w/phone numbers, locations and associates •Open cases	3,285,903
JABS - Joint Automated Booking System	JABS	•Booking Data •Images	3,644,686
FBI	FBI ECF Data	•Open and closed case records, including narratives	192,419
	FBI UNI Data	•Subjects of interest with phone numbers, locations and associates •Open and Closed cases	479,860
US Marshals Service	WIN	• Warrant Service Records • Case Records	446,849

Searchable N-DEx Records

Component	Source	Record Description	Data Volume
Air Force OSI	I2MS	•Incident/Case	5,790
Alabama Criminal Justice Information Center	ULTRA	•Incident/Case	197,204
Arkansas	North Little Rock PD	• Incident/Case	56,582
California – Bay Area	ARIES	•Incident/Case	94,390
California – San Diego	ARJIS	•Incident/Case	1,552,845
California – Los Angeles	IRIS	•Incident/Case	3,367,512
Southern California	SoCal LInX	•Incident/Case	5,102,051
Colorado	El Paso Sheriffs Office	•Incident/Case	1
Washington, DC	DC Metro PD	•Incident/Case	78,494
Delaware	DELJIS	•Incident/Case •Narratives	687,621
Georgia	Marietta PD	•Incident/Case	933,773
Illinois	Chicago PD	•Incident/Case	3,092,398
Kansas	KIBRS	•Incident/Case	1,543,658
Kentucky State Police	KYOPS	•Incident/Case •Arrest	1,254,690

Searchable N-DEx Records

Component	Source	Record Description	Data Volume
Michigan	MI-DEx	•Incident	4,403
Missouri State Highway Patrol	MO-DEx	•Incident/Case •Narratives	105,681
Nebraska	NCJIS	•Incident/Case	129,009
New Jersey State Police	NJ-DEX	•Incident/Case •Vehicle •Citation •Narratives	2,561,647
New York	NYDEx	•Incident	43,263
New York	Oneida Indian Nation	•Incident/Case	125
Ohio State Highway Patrol	OLLEISN	•Incident/Case •Arrest	4,777,992
Oregon	O-NIBRS	•Incident/Case	877,985
Tennessee	CRMS	•Incident/Case	4,903,899
Texas	T-DEx	•Incident/Case •Narratives	46,386,429

Searchable N-DEx Records

Component	Source	Record Description	Data Volume
VA – Hampton Roads	LInX	•Incident/Case •Citation •Arrest •Narratives •Photos	6,727,295
Washington - Northwest Region	LInX	•Incident/Case	7,036,615
West Virginia	Harrison Co.	•Incident/Case •Narratives	3,496
Wisconsin Department of Justice		•Incident/Case •Citation •Narratives	40,815

Projected N-DEx Participants

- **N-DEx has commitments from the following participants:**

➢ **Federal**
  - ➢ DHS
  - ➢ DoD (D-DEx)
  - ➢ ATF (NICS Denial File)

➢ **Regional**
  - ➢ Washington D.C. – National Capital Region (LInX)
  - ➢ Missouri – St. Louis (Crimematrix)
  - ➢ Pennsylvania – Southeastern (LEJIS)
  - ➢ Louisiana - New Orleans Police Department
  - ➢ California – Santa Clara (SBISS)
  - ➢ New Mexico – Rio Grande (LInX)
  - ➢ Florida – Southeast (LInX)
  - ➢ Florida – Tampa Bay Security Network (COPLINK)
  - ➢ Texas – Gulf Coast Region (LInX)
  - ➢ Virginia - Southwest Virginia TaskForce
  - ➢ Virginia – Roanoke Area Criminal Justice Information Network
  - ➢ Louisiana – Jefferson Parrish Coplink

➢ **State**
  - ➢ Illinois – State Police (I-CLEAR)
  - ➢ Indiana – DOC
  - ➢ Massachusetts (SWISS)
  - ➢ Nebraska – DOC
  - ➢ Nevada – DOC
  - ➢ Oklahoma (SIBRS)
  - ➢ Oklahoma - DOC
  - ➢ West Virginia – DOC
  - ➢ Iowa (I-CJIS)
  - ➢ Nevada – Attorney General's Office
  - ➢ Maine – State Police
  - ➢ North Carolina – CAPTURES

➢ **Local**
  - ➢ West Virginia – Fairmont PD
  - ➢ Utah – Murray PD

Data Ownership

The data owner - the Criminal Justice Agency (CJA)

- Retains control over their data
- Controls dissemination of their data submitted to N-DEx

The CJA decides:

- What data to share
- Who can view the data

N-DEx
Data Sharing Control/ Access Levels

The data owner controls dissemination of their data submitted to N-DEx by assigning levels of sensitivity that protect investigative equities.

Green (Unrestricted):

- **Data is shareable and viewable**

Yellow (Controlled):

- **Data is viewable as "pointer-based" data. Pointer-based data consists of only record-owning agency Point of Contact (POC) information.**

Red (Restricted):

- **Data item is not viewable to any N-DEx user**
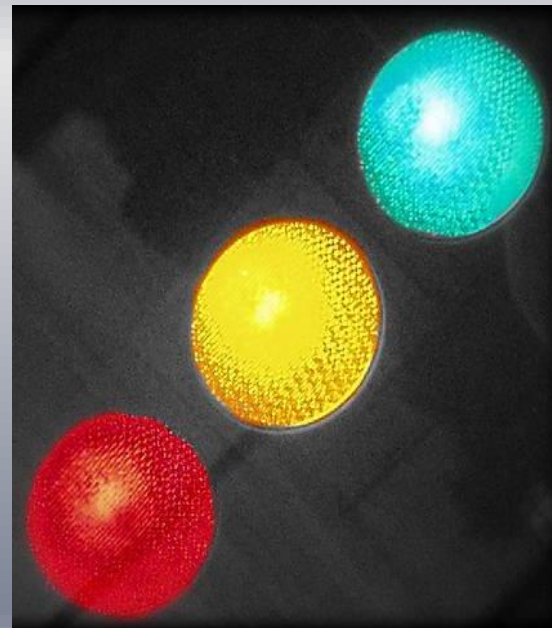
Agency Configurable Data Sharing Templates Will be Implemented in 3 phases.

- **Interim Phase** – *Date:July 2011*
  - **N-DEx Program Office staff configures agency type sharing rules for contributing/record owning agencies**

- **Second Phase** – *Target Date: Build 3.5 Fall 2011*
  - **Implement Interim Phase into current Data Management Tool to allow contributing/record owning agencies to configure basic rules**

- **Third phase** – *Target Availability Date: Prior to February 2012*
  - **Implement additional agency type capabilities into Data Management Tool**
  - **Implement simplified capabilities for rules based on data element and dissemination criteria**
  - **Implement the ability to set an expiration date for sharing rules**

Group	Sharing Level	
☐ Owning Agency	Green	
☐ Law Enforcement Agencies	Green	Customize
☐ Prosecuting/District Attorneys	Green	Customize
☐ Pretrial Service Agencies	Green	Customize
☐ Correctional Institutions	Red	Customize
☐ Probation/Parole Offices	Red	Customize
☐ Regional Dispatch Centers	Yellow	Customize
☐ Other Criminal Justice Agencies	Green	Customize
☐ Courts/Magistrates	Green	Customize

Search Look & Functionality

Simple Search

People Targeted Search

Search Results
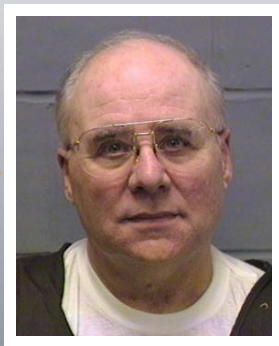# People and Documents

Integrated Person Entity View

Part of the Success

N-DEx Detects Relationships
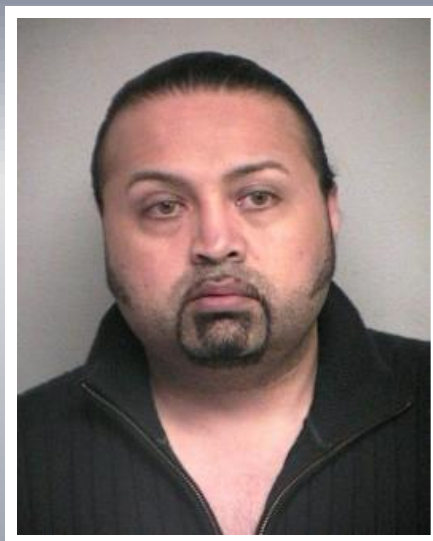
AKA: "G-MONEY"

Between _people_ who are connected

N-DEx Detects Relationships

Traffic Citation
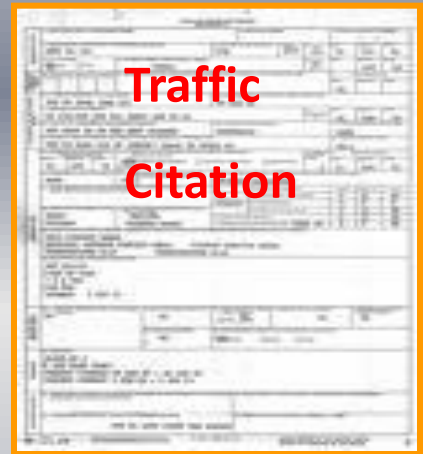
Between <u>vehicles or property</u> that are connected

N-DEx Detects Relationships

Traffic

Citation
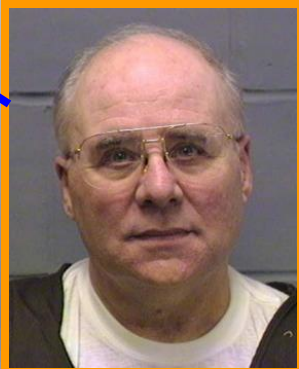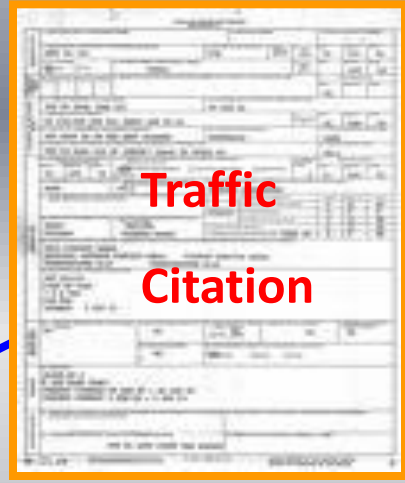
Between <u>locations</u> that are connected

N-DEx Detects Relationships

When crime characteristics are similar

Operational Metrics

- N-DEx user currently have access to:
  - Approximately 700 million people / places / things

- N-DEx currently has about a 15% resolution / correlation rate.
  - Confirms that the same people show up in multiple documents.

Step 1

- **Discuss with your agency's CJIS Systems Agency (CSA) their plan for N-DEx implementation**

    - **Administration of N-DEx**
    - **NCIC/III access**

- **Execute a Criminal Justice Agency (CJA) User Agreement with the appropriate signatory authority of the CSA providing access**

- **Forward a copy of the executed CJA User Agreement to the N-DEx Program Office**

    FAX: 304-625-3456
    EMAIL: N-Dex@LEO.GOV

- **Identify personnel with roles and responsibilities as part of agency participation**
    - **CSO**
    - **N-DEx Agency Coordinator**
    - **Users**
    - **Management of user access, data, training, and notification**

- **Define Connectivity and Develop Data Submission and/or Access Methods**
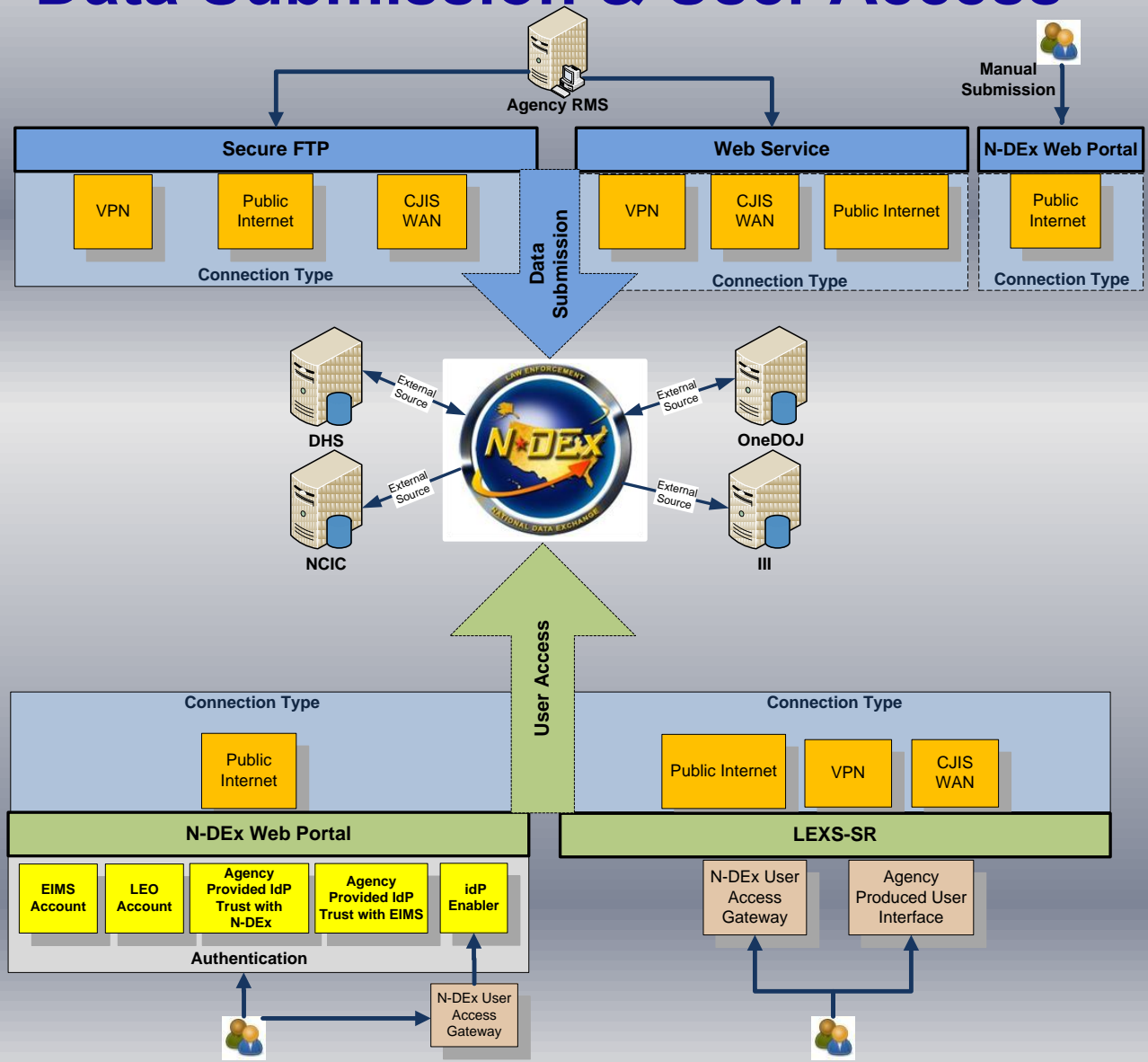
N-DEx Business Transactions

- N-DEx transaction types
  - **Submit Data**
    - **Purpose:** Find out who else has info like mine without having to ask specific questions.
    - Send stream of information to N-DEx for analysis.
    - Setup email account so N-DEx can notify you of interesting findings.
  - **Search**
    - **Purpose:** Find information about a specific item.
    - Search via N-DEx Portal (single sign on)
    - Search via N-DEx Web Services
  - **Subscribe**
    - **Purpose:** Tell N-DEx to notify you if anyone sends data about a specific person/place/thing

Connection Types
"Data Submission & User Access"

Agency RMS

Manual Submission

Secure FTP			Web Service			N-DEx Web Portal
VPN	Public Internet	CJIS WAN	VPN	CJIS WAN	Public Internet	Public Internet
Connection Type			**Connection Type**			**Connection Type**

Data Submission

DHS — External Source

OneDOJ — External Source

NCIC — External Source

III — External Source

User Access

Connection Type	**Connection Type**		
Public Internet	Public Internet	VPN	CJIS WAN

N-DEx Web Portal	**LEXS-SR**

EIMS Account	LEO Account	Agency Provided IdP Trust with N-DEx	Agency Provided IdP Trust with EIMS	idP Enabler

Authentication

N-DEx User Access Gateway

N-DEx User Access Gateway

Agency Produced User Interface

Interfaces

- **N-DEx use interfaces to perform a transaction.**
- **N-DEx Interfaces**
    - **Portal**
    - **Web Services**
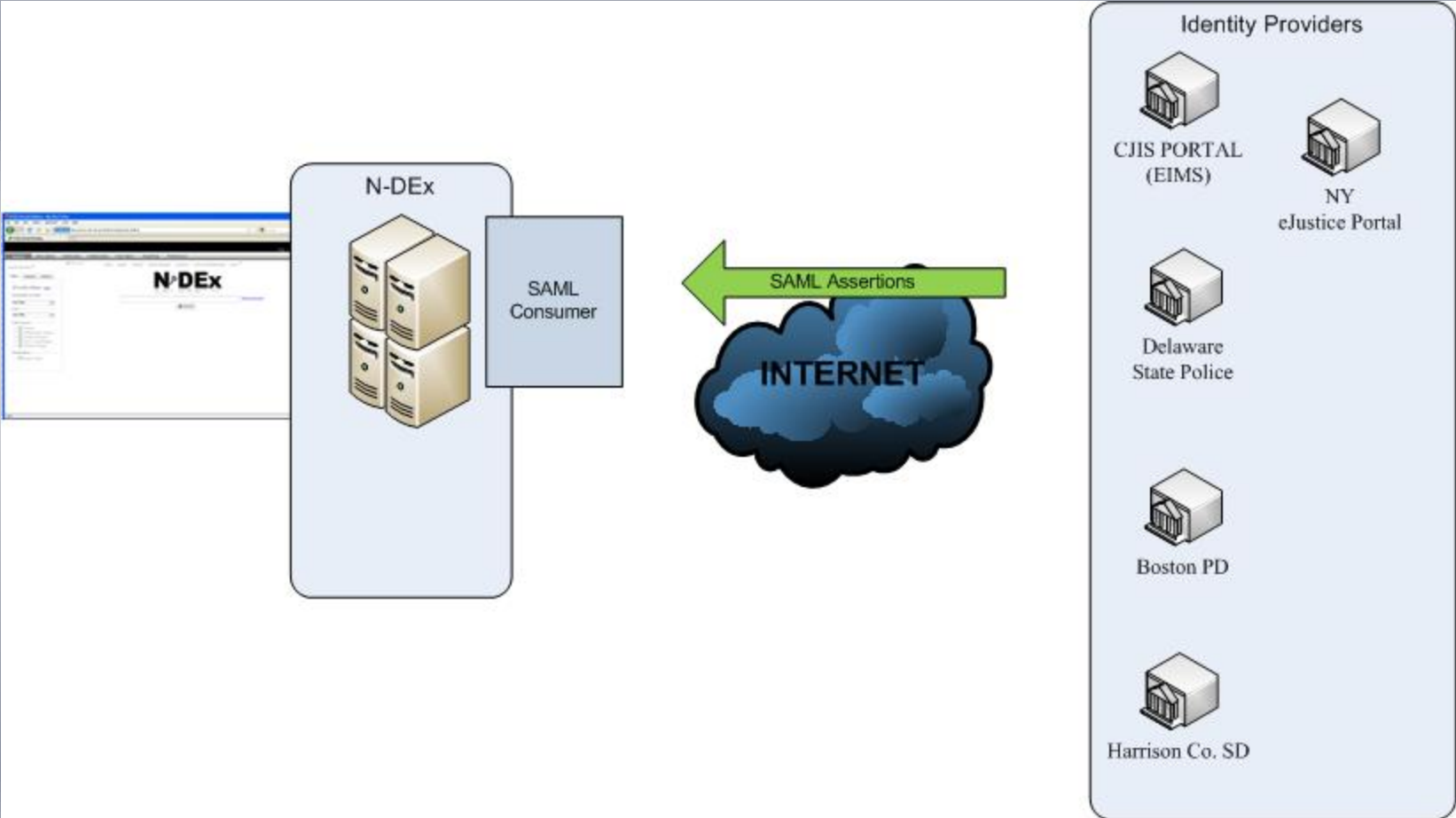   - **SFTP**

N-DEx Portal

N-DEx Portal

- Available on the internet at www.ndex.fbi.gov
- No special networking solutions needed
- No need to get any new accounts.
  - N-DEx integrates via single sign on from one of your existing identity management systems.
- Allows users to:
  - Search
  - Submit
  - Analyze
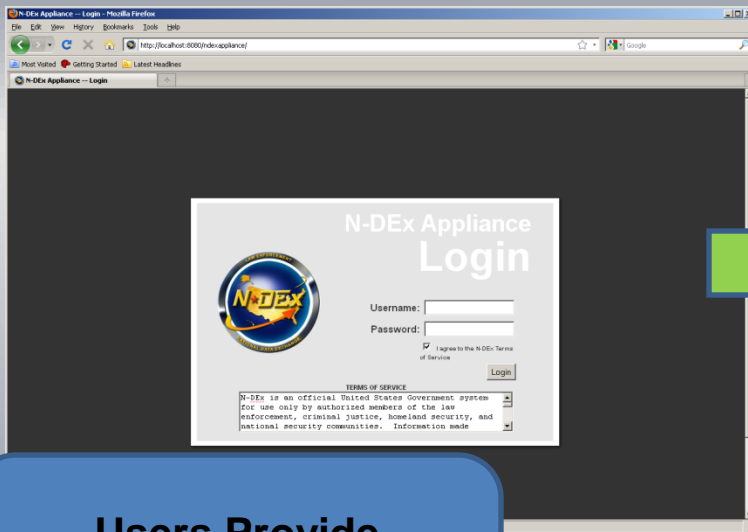 - Subscribe

Portal Access - Concept

How to use it – Portal Access

- Example - Delaware State Police
  - Use Credentials from their NCIC message switch

Users Provide Account Info from NCIC Message Switch

Common Identity Management Solutions

- N-DEx can integrate with many common identity management solutions.
    - Microsoft Active Directory
    - LDAP
    - Relational Database User Stores
    - NCIC Message Switch User Stores
    - Etc
- N-DEx can bring software and services to help integrate.

Portal Access – Mechanics

- Uses SAML 2.0
- GFIPM 2.0 for the user attributes
- Attributes are
  - gfipm:2.0:user:GivenName
  - gfipm:2.0:user:MiddleName
  - gfipm:2.0:user:SurName
  - gfipm:2.0:user:FederationId
  - gfipm:2.0:user:EmployerORI
  - gfipm:2.0:user:EmailAddressText
  - gfipm:2.0:user:TelephoneNumber
  - gfipm:2.0:user:LocalId

Portal Access – SAML Assertion

N-DEx Web Services

- Web Services allow your agency to integrate N-DEx data and functionality into your existing information system assets.
- Web Service Transactions allow users to:
  - Search
  - Send Data Stream
  - Subscribe (Coming Soon)

How to Use it – Web Services

N-DEx services can be integrated into
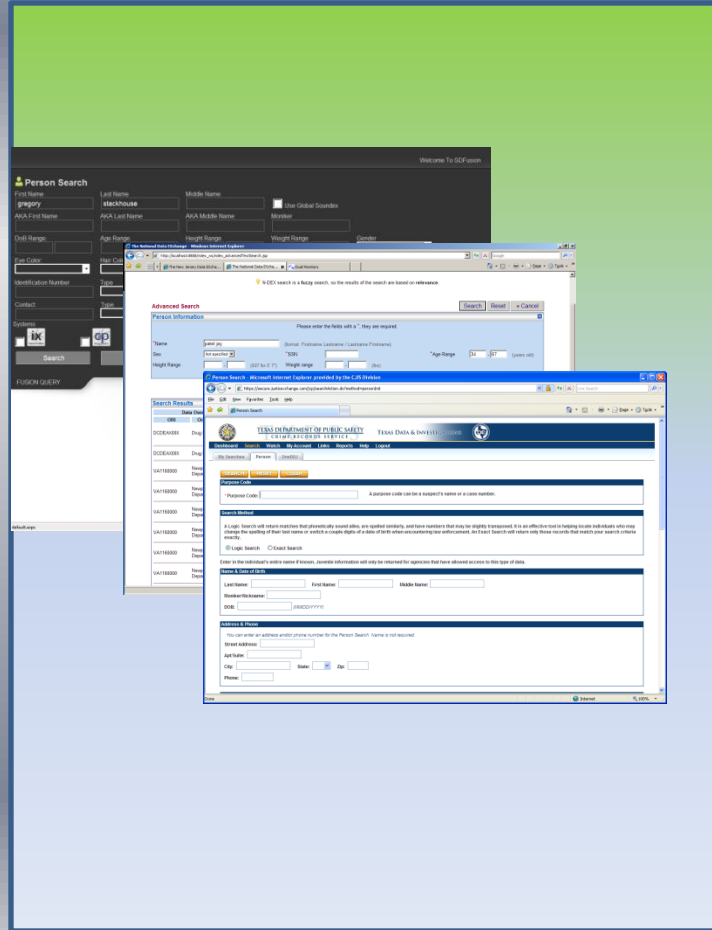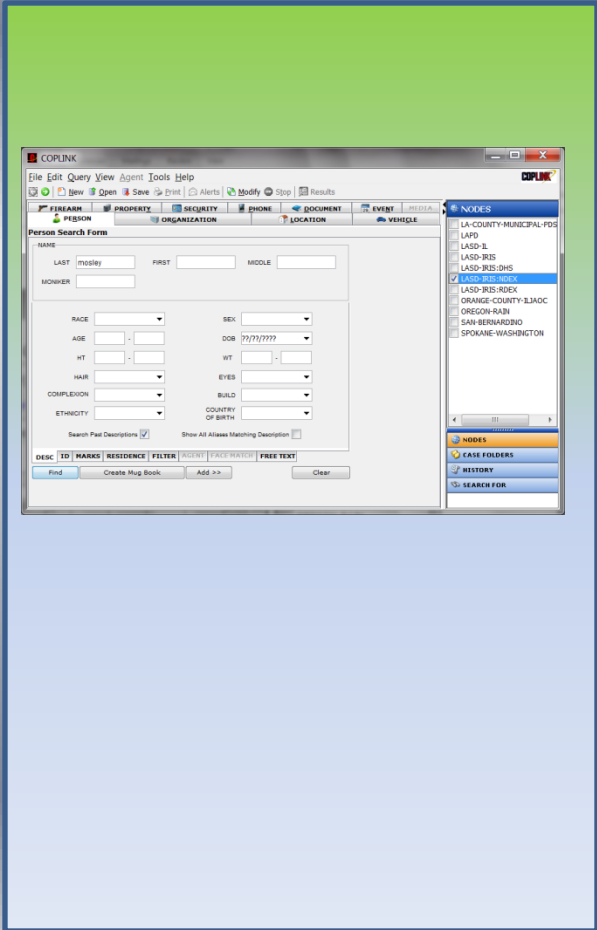
Other Systems

- LPR
- LInX
- In-House Systems

Data- Map It to Submit It

- Data must be formatted in one of the N-DEx acceptable formats.

- The format is XML (NIEM/LEXS conformant)

- N-DEx has an entire team dedicated to helping agencies format their data.

  - Element – to – Element mapping support

  - Software Engineering / Development support

- Many Vendors have modules for publication in the N-DEx format

N-DEx Supplied Tools

- For Query
  - SOAP Interfaces
  - RESTful Interfaces
  - Java API
- For Data Submission
  - Software Development Services
  - Data Mapping Services
  - ConTesA
- For Portal Access
  - User Access Gateway Software

What is LEXS?

- Originated from Law Enforcement needs, but designed for *broad audience*

- A *family of schemas* for information sharing
  - **Publication & Discovery (LEXS-PD)**
    - For publishing and updating data from a source to a consumer
  - **Search & Retrieval (LEXS-SR)**
    - For system-to-system federated searches (including link analysis) and result drill-downs
  - **Subscription & Notification (LEXS-SN) [LEXS 4.0]**
    - For users to indicate they wish to receive updates on data that match a particular search, modifications to specific data, or searches by other users on data that match a particular search
    - For system-to-system subscriptions

- A *generic paradigm* for information sharing – the *"data item"*
  - **Focused on "connecting the dots" (data fusion and entity analytics)**
  - **Single interface for heterogeneous data (e.g. investigative files, call logs, watch lists)**
  - **Supports needs of computers and humans**
    - Structured data for automated processing
    - Unstructured data and display instructions for humans

- An *extensible framework* for creating interoperable IEPDs
  - **Example: N-DEx Incident/Arrest "extends" LEXS to for incident-specific data, yet OneDOJ will be able to process & display N-DEx data *without system modification***
  - **Significant mitigation of IEPD Consistency and Polyglot problems**

Problem #1: IEPD Consistency

Definition:

Two groups ***independently*** developing IEPDs for the ***same purpose*** may (nay, *will*) create ***incompatible*** IEPDs.

Result:

Small-scale interoperability between ***coordinating*** partners, but not large-scale interoperability between independent community members (i.e., the ***ultimate promise of standards***)
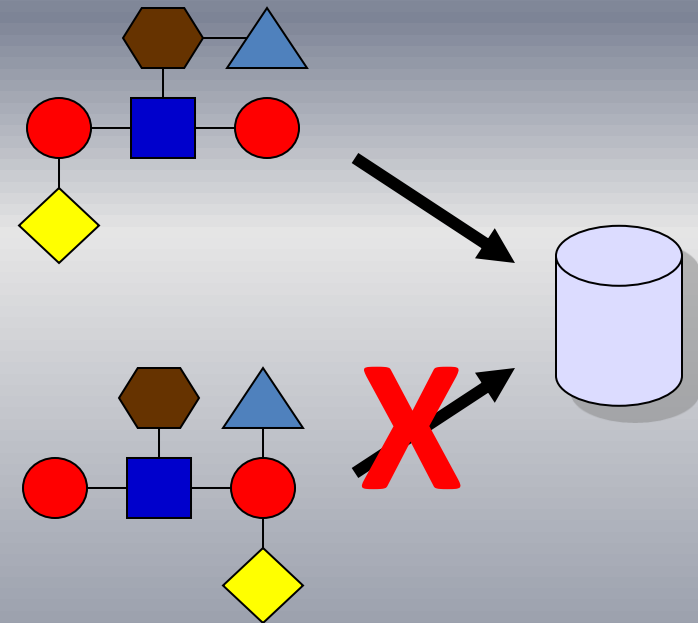
Problem #2: Polyglot

Definition:

An organization that exchanges data with ***multiple partners*** must simultaneously support multiple ***distinct IEPDs***.

Result:

Cost and expertise are ***limiting factors*** in the attempt to create ***robust, rich networks*** of information exchange – instead, sharing is ***disjointed*** and/or ***shallow***
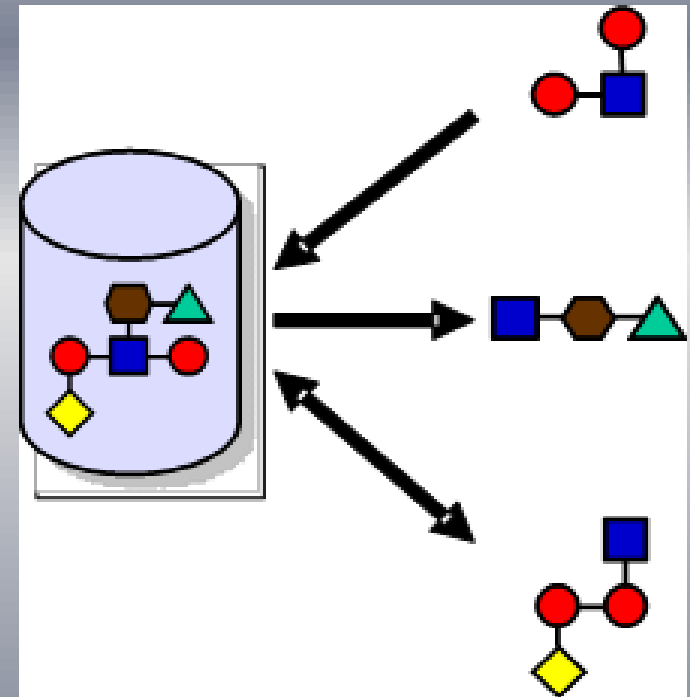
How do NIEM and LEXS relate?

- LEXS is *based on* NIEM
  - All schemas are based on NIEM building blocks
  - Follows NIEM Naming and Design Rules (NDR)
  - All LEXS-based IEPDs are NIEM IEPDs

- LEXS *builds upon* NIEM to add functionality
  - Provides message-level structures
    - Publish
    - Search/retrieve
    - Subscribe/notify
  - Provides structures for organizing data items
  - Defines metadata for messages and data items
  - Extends NIEM to add data not currently in NIEM

LEXS Data Item Structure

- Package
  - Package Metadata
    - Identification, contact information, etc.
  - Digest
    - Foundation of run-time interoperability
    - Standardized structured entities, roles, associations
  - Structured Payload
    - Based on independently created schemas
    - Provides framework for extensibility
    - Can be ignored if not recognized/understood/implemented by consumers
  - Narrative
    - Unstructured (text) data
  - Linkages [LEXS 4.0]
    - Provides linkages between objects in the package, such as between Digest and Structured Payload, or between Digest and Attachment Summary
  - Rendering Instructions
    - Provided as XSLT or pre-rendered (e.g., PDF) attachments
    - Can reference content in un-recognized structured payloads
    - Foundation of interoperable display (human understanding)
  - Attachment Link [Attachment Summary in LEXS 4.0]
    - Provides separation of Data Item from multimedia content
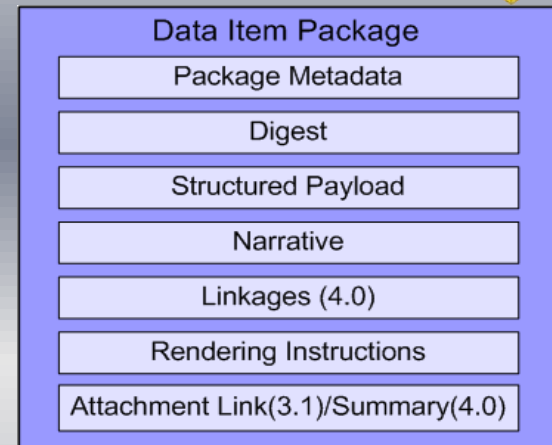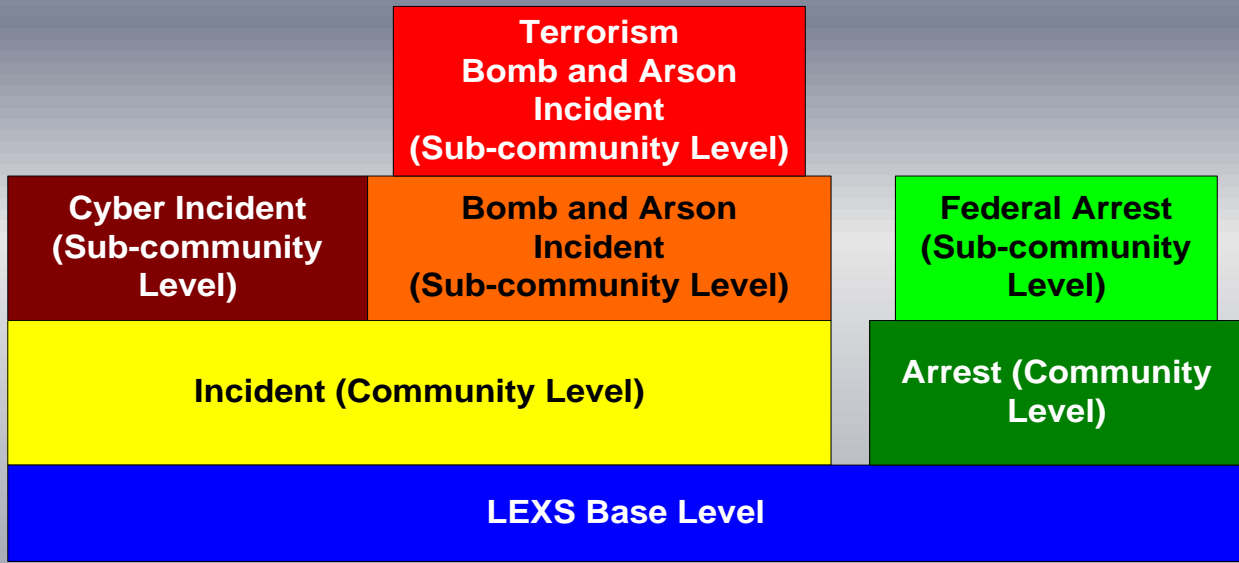
Data Item Package

Data Item Package
Package Metadata
Digest
Structured Payload
Narrative
Linkages (4.0)
Rendering Instructions
Attachment Link(3.1)/Summary(4.0)

LEXS Extensibility

Participation Steps in N-DEx

- Discuss with your agency's CJIS Systems Agency (CSA) their plan for N-DEx implementation

  - Administration of N-Dex
  - NCIC/III access

- Execute a Criminal Justice Agency (CJA) User Agreement with the appropriate signatory authority of the CSA providing access

- Forward a copy of the executed CJA User Agreement to the N-DEx Program Office

    FAX: 304-625-3456
    EMAIL: N-Dex@LEO.GOV

- Identify personnel with roles and responsibilities as part of agency participation
  - CSO
  - N-DEx Agency Coordinator
  - Users
  - Management of user access, data, training, and notification

- Define Connectivity
  - Web Service/Secure SFTP
  - Work through an aggregator

- Develop Data Submission and Access Methods

- Identify Sharable Data
  - Service Call
  - Incident (Case)/Arrest
  - Missing Person Occurrence
  - Booking/Holding/Incarceration
  - Pretrial Investigation
  - Presentence Investigation
  - Supervised Release
  - Warrant Investigation

- Map data to an N-DEx IEPD

  - IEPD ID #425 - Law Enforcement National Data Exchange (N- DEx) Incident/Arrest (IA) Information Exchange Package Documentation (IEPD) v. 2.1
  - IEPD ID #539 - Law Enforcement National Data Exchange (N-DEx) Incarceration/Booking/Probation/Parole (IBP2) V.2.1

- Validate Data Submissions and Mapping

  - ConTesA https://contesa.ittl.gtri.org/contesa

Questions?

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