

**ANSI/NIST XML  
Post-March 08 Draft  
Meeting**

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# Scope of A/N XML Part 2

- Discussed at Workshops in April and December 2005 and September 2007
  - Agreed to making Part 2 an XML version of Part 1
    - Part 1 is not open for amendments
  - Agreed to proposed structure by XML Work Group Chair (Gerry Coleman), utilizing NIEM ansi-nist namespace proposed by NIEM A/N Liaison (Patrice Yuh)

# Expanded Use of NIST Standard

Standard created originally for law enforcement purposes and used chiefly for law enforcement

- A/N-I 1-2007 reflected expanding role of the NIST standard to exchange biometric data
- Today, comments from the Department of Homeland Security (DHS) and the Terrorist Screening Center (TSC) request changes for their needs to exchange biometric data

# Summary of DHS comments from DHS-OCIO 3

- “The paradigm created here is that the Part 1 identifies certain logical requirements and the Part 2 is simply the XML-ization of that exact same set of requirements. This approach is probably the cleanest approach in terms of honouring consistency between the different parts of the standard,”
- “...but there should be a case made that XML-zing Part 1 in-and-of-itself does not deliver significant value to the existing or future user base.”
  - “The value of Part 2 is also enabling the future user base to move toward a modern messaging framework that is not entangled with the legacy design of Part 1.”
  - “...should be likened to the move between EDI and XML.”
    - “...decouple data from the envelope/message, transaction and command layers of the stack.”

## 202.3 Conformance (1 of 3)

Systems claiming conformance with this standard shall implement the transmitting and/or receiving of record types as defined by this standard. Systems claiming conformance are not required to implement every record type specified herein. **At a minimum, they must be capable of transmitting and receiving Type-1 records.** However, in order for a transaction to be meaningful, there must be at least one additional type of record included. The implementer must document the record types supported in terms of transmitting and/or receiving. Those record types not implemented shall be ignored by the conforming system receiving a transaction.

## 202.3 Conformance (2 of 3)

Implementers are expected to extend this standard by supplying substitution elements for the abstract elements <itl:UserDefinedFields>, <itl:RecordImage>, <itl:RecordMinutiae>, <itl:DomainDefinedDescriptiveText>, and/or <itl:OtherDescriptiveText>. The substitution elements must be created in a separate user-declared namespace. The content of the substitution elements must be well-formed XML and should follow NIEM rules for extending the National Information Exchange Model. Implementers may modify the xmlns: and import attributes to reference user-defined namespaces and extension schema. The minOccurs and maxOccurs attributes in the ITL constraint schema version of ansi-nist.xsd may be modified to facilitate use of NIEM ansi-nist elements in user-defined blocks.

## 202.3 Conformance (3 of 3)

Implementers may not introduce new elements except within the substitution elements described above, nor may they change the order or structure of elements defined by the standard.

The root element,

<itl:NISTBiometricInformationExchangePackage>, may be included as a payload in a larger package.

All required elements must be present in a conforming instance document even if the standard's schema do not strictly enforce the requirement.

# Request for Change to Conformance in DHS-OCIO-7 (and 10)

- ‘Perhaps this specification could either be
  - (a) relaxed in terms of conformance rules to support some of the less-prescriptive/rigid data exchange scenarios or
  - (b) extended to support several logical tiers of conformance, the highest of which would be the current definition of conformance; perhaps we could distinguish “transaction/exchange conformance” from “data conformance.” ’

# DHS Issue with Single Root Element (DHS-OCIO-9 and 11)

- Having a single root element versus decoupling of the message transaction layer and the data layers

# DHS Record Type-1 Concerns (DHS-OCIO-12, 14, 17, 18)

- Requirement of Type-1 records problem for some applications

# TSC's Specific Issues with Type-1 (1 of 4)

## Data redundant for TSC use; make optional?: (1 of 2)

- <ansi-nist:TransactionDate>
  - (1.005, DAT; TSC-2)
- <ansi-nist:TransactionDestinationOrganization>
  - (1.007, DAI; TSC-3)
- <ansi-nist:TransactionOriginatingOrganization>
  - (1.008, ORI; TSC-4)
- <ansi-nist:TransactionControlIdentification>
  - (1.009, TCN; TSC-5)
- <ansi-nist:TransactionMajorVersionValue>
  - (1.002, VER; TSC-8)
- <ansi-nist:TransactionMinorVersionValue>
  - (1.002, VER; TSC-9)

# TSC's Specific Issues with Type-1 (2 of 4)

## Data redundant for TSC use; make optional?: (2 of 2)

- <ansi-nist:TransactionCategoryCode>
  - (1.004, TOT; TSC-11)
- <ansi-nist:TransactionContentSummary>
  - (1.003, CNT; TSC-12-TSC-15)
  - <ansi-nist:ContentFirstRecordCategoryCode>
  - <ansi-nist:ContentRecordCount>
  - <ansi-nist:ContentRecordSummary>
    - <ansi-nist:ImageReferenceIdentification>
    - <ansi-nist:RecordCategoryCode>

# TSC's Specific Issues with Type-1 (3 of 4)

## Device specific; make optional?:

- `<ansi-nist:NativeScanningResolutionValue>`
  - (1.011, NSR; TSC-6)
- `<ansi-nist:NominalTransmittingResolutionValue>`
  - (1.012, NTR; TSC-7)

# TSC's Specific Issues with Type-1 (4 of 4)

## Remove optional field?:

- `<ansi-nist:TransactionPriorityValue>`
  - (1.006, PRY; TSC-10)

# High-Level Element for Each Logical Record Type? (TSC-16)

- For Types- 3, 4, 5, 6, 7, 8, 10, 13, 14, 115, 16, 17 and 99
  - Draft standard has them all under PackageImageRecordType.
  - Want the system to know what type of image is in a record before going through another level.

# DHS Issue with Resolution Requirements (DHS-OCIO-15)

- Type-3 through Type-6
  - Allow for unknown resolution of fingerprints

# TSC Type-10 Issues

TSC: “For many of the facial records that TSC have, we only have the JPEG image with no image metadata other than those in the JPEG header.”

- `<ansi-nist:CaptureDate>`
  - (10.005, PHD; TSC-17)
  - May be missing (whole or part), may be classified
- `<ansi-nist:CaptureOrganization>`
  - (10.004, SRC; TSC-18)
  - May be classified

# DHS-OCIO-16 and 19 and TSC-19

- Use of GIFs
  - Use of GIFs in user-defined record types

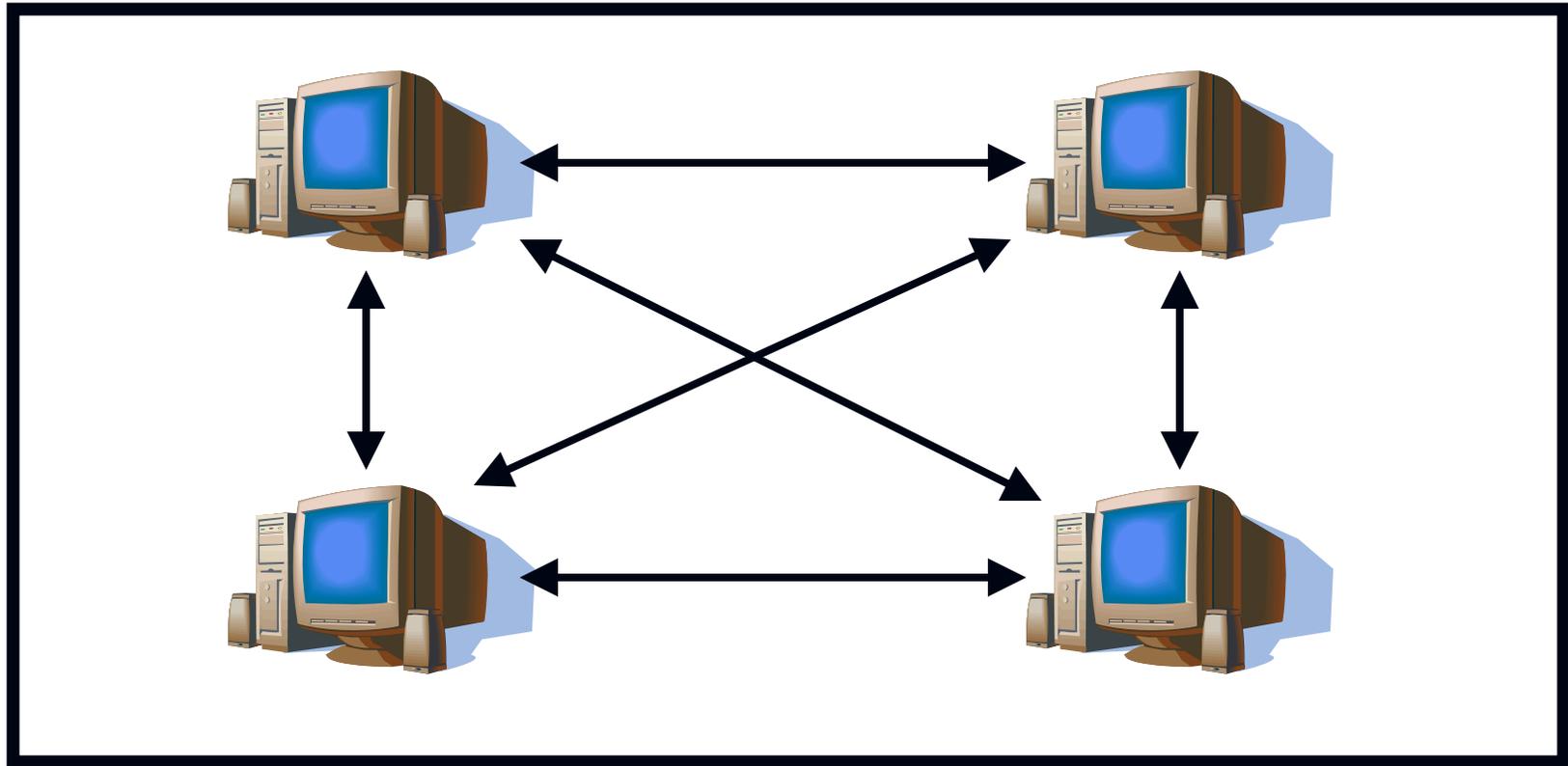
# As We Discuss Options, Consider...

- Do your operations include a need for interoperability with legacy users and data?

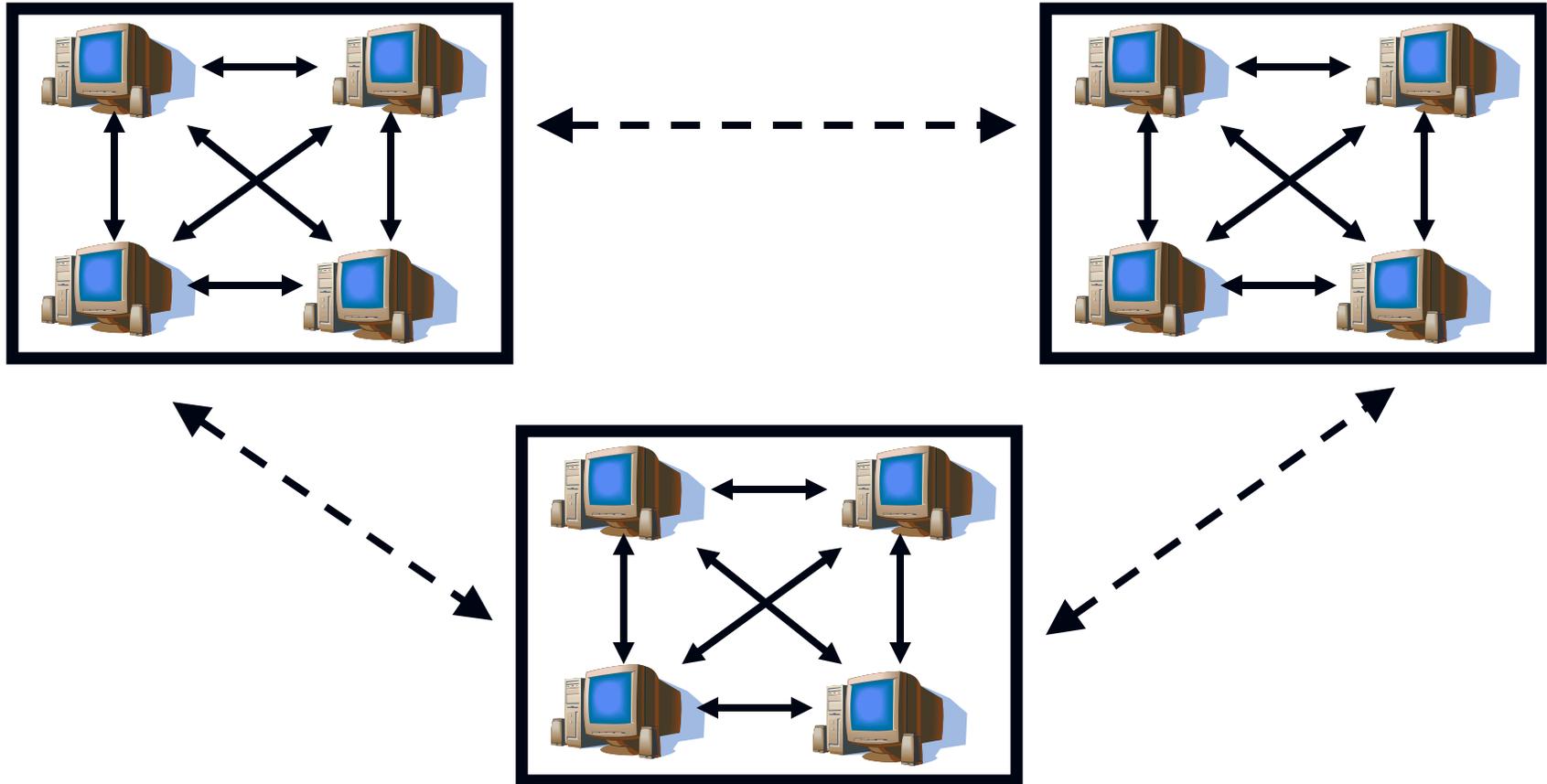
Is the value of smaller data packages greater than the value of interoperability?

Is the value of smaller data packages greater than the cost of conversion between different versions of biometric packages?

# Internal Data Exchange



# Internal v. External Data Exchange



# Options

- 1 – Part 2 is an XML version of Part 1
- 2 – Part 2 differs from Part 1 by removing Record Type-1
- 3 – Part 2 differs from Part 1 by making Part 1 requirements optional, such as Type-1 records and mandatory fields
- 4 – Multiple levels of conformance
- 5 – If meta-data not needed, use ANSI INCITS and/or ISO/IEC standards for exchanging data

# Options

- 1 – Part 2 is an XML version of Part 1
  - Pro: Assists a large number of legacy users of the NIST standard convert between formats
  - Con: Creates some extra overhead for new and future users of the XML version of the NIST standard
    - But users such as DHS & TSC will still be able to use the standard with some redundancy and use of bogus data where meta-data is missing or classified
    - Comment sections can also be used to explain this

# Options

2 – Part 2 differs from Part 1 by removing Record Type-1

- Pro: Efficient design – Data is redundant for some new users' applications where biometric data is part of larger package
- Con: Problematic for Part 1 conversion and users who are using both formats

# Options

- 3 – Part 2 differs from Part 1 by making Part 1 requirements optional, such as Type-1 records and mandatory fields
  - Pro: More flexible for different users needs
    - Users such as FBI can more heavily rely on their profile (e.g. EBTS) to make optional A/N XML fields or Type-1 mandatory
  - Con: Lack of interoperability – May be problematic if users conforming to different profiles wish to exchange data
  - May decide to make all or some mandatory fields optional

# Options

- 4 – Multiple levels of conformance
  - Pro: More flexible for different users needs
    - Users such as FBI can specify in their profile (e.g. EBTS) which level of conformance is required
  - Con: Lack of interoperability – May be problematic if users conforming to different levels wish to exchange data
  - Could address different levels of conformance in a separate document

# Options

- 5 – If meta-data not needed, use ANSI INCITS and/or ISO/IEC standards for exchanging data
  - Pro: Fits needs of some users while not making changes that negatively impact legacy users of the NIST standard
  - Con: Lack of interoperability –May be problematic if users of different standards wish to exchange data

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