



Assured Labeling in Multilevel Security Environments

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Outline



- 1. Terminology**
- 2. What is assured labeling?**
- 3. What can assured labeling provide?**
- 4. Detriments of labeling**
- 5. Ongoing Research**



Terminology (CNSSI 4009)



- **Domain**
- **Access Control**
- **Security Label**
- **Multilevel Security**
- **Assurance**
- **Security Incident**



What is Assured Labeling?



- **Metadata that is:**
 - Tamper-proof
 - Trusted
 - Persistent
- **Bound to the data it represents**
- **Consists of (not limited to):**
 - Sensitivity/Security label
 - Access rights
 - Information provenance/history



What Can Assured Labeling Provide?



- **Trust in information and information sources**
- **Traceback throughout information lifecycle**
- **Access criteria**

- **Ingest for machine reasoning**
 - **Cyber-speed decision making**
 - **Increased accuracy**
 - **Improved information control**



Detriments of Labeling



- **Data bloating, bandwidth, processing**
- **Complexity of metadata management**
 - **Detachment/Reattachment**
 - **Storage**
 - **Security Metadata Facet Access Management**
- **Defining the Inferential Trust Boundary**
- **Data type independence**
- **Determining data type labeling components**



Ongoing Research



- **Security labeling automation**
- **Cryptographic binding of metadata**
- **Provenance formulation, security assertions, and management**
- **Pervasive access control**
- **Cryptographic document tearlines**



References



- **CNSSI 4009:**
http://www.cnss.gov/Assets/pdf/cnssi_4009.pdf

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