Electronic Educational Data Security: System Analysis & Teacher Training

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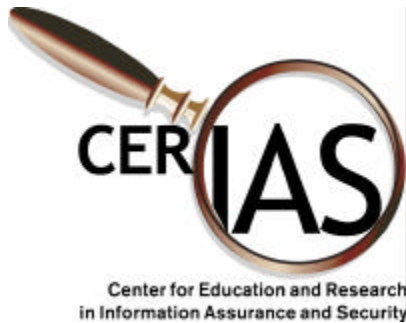
# Indiana Assessment System of Educational Proficiencies

- 1997 Amendments to IDEA

  Access & Accountability for All

- Development of Alternate Assessments
  - Electronic Data Collection Systems
  - Integration of Multimedia Technology
  - Continuous Access for Better Decisions
 - Interpretable Information
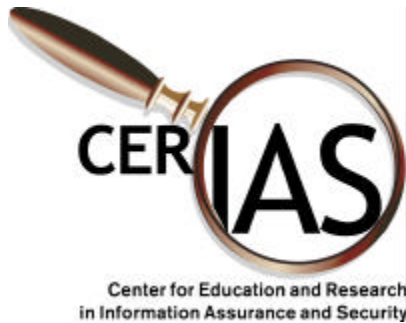
Problems with Data Security

- First Attempt to use this type of system on a wide scale basis

- Parents concerned about confidentiality of information

- Legal issues with collection and storage of sensitive data
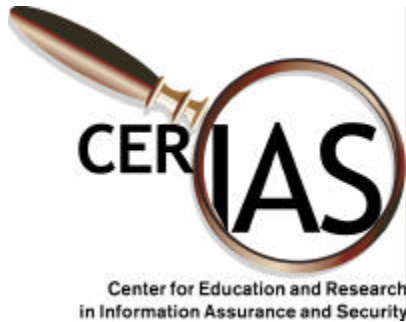
Collaboration with CERIAS

- Stakeholder group assembled to address concerns
  - **Teachers**
  - **Parents**
  - **Adminstrators**
  - **Legal Consultants**
  - **CERIAS Staff**
  - **SOE Researchers**
  - **State Consultants**
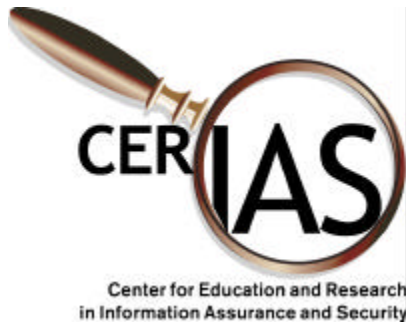
Confidentiality Reminders

- **Educational records are maintained by an educational agency and are directly related to a student.**

- *IASEP* **is an educational record.**

- **Personally identifiable information includes a student's name, names of a student's parent(s) and family member(s), and identifiers such as personal characteristics and social security number.**

- **Parents have the right to review all educational records until a student reaches the age of 18 years. At this time, the right transfers to the student.**

- **There must be parental consent to disclose educational records to a third party.**

- **Parents must be informed of their rights annually.**
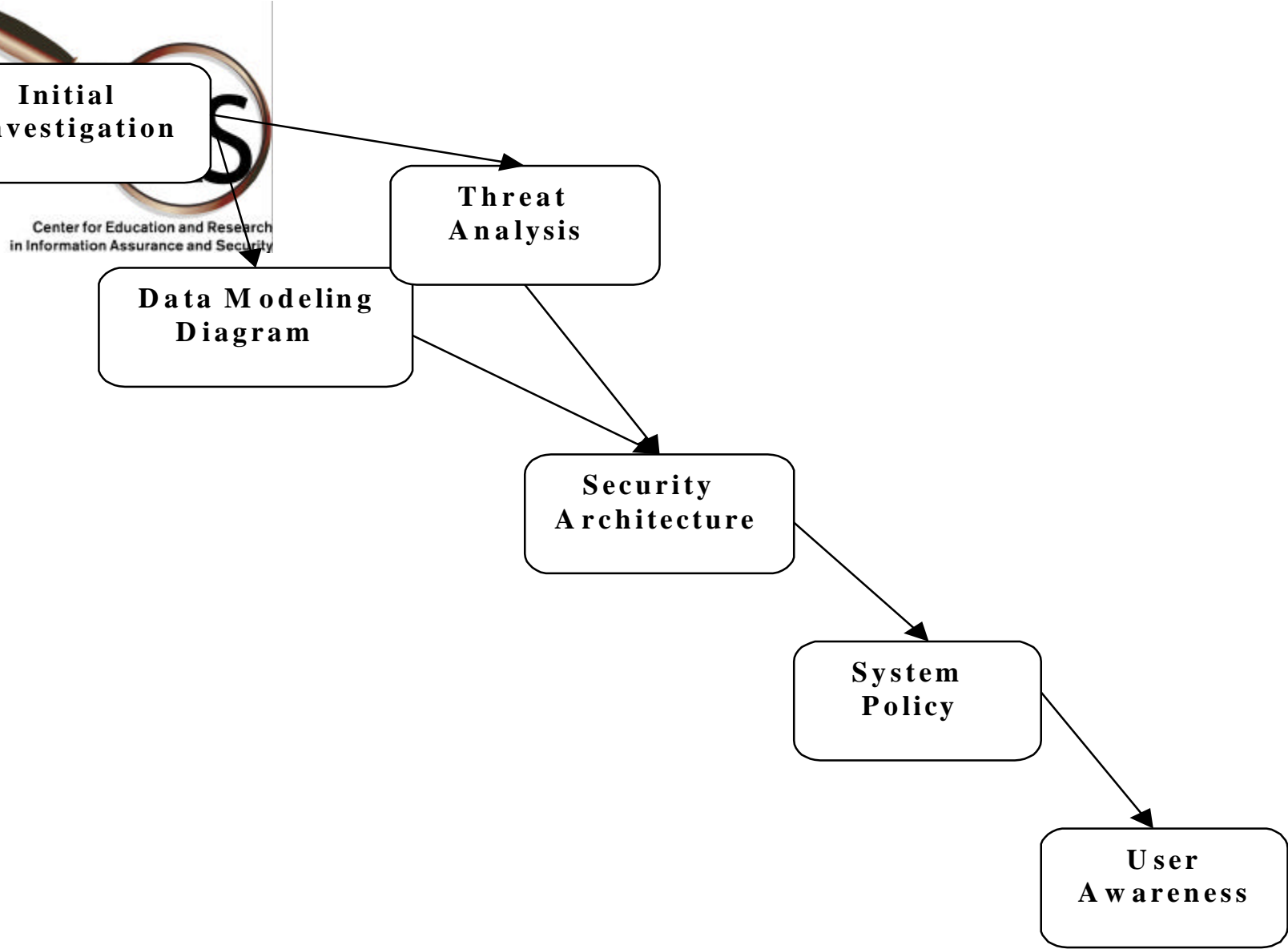
Initial Investigation

Data Modeling Diagram

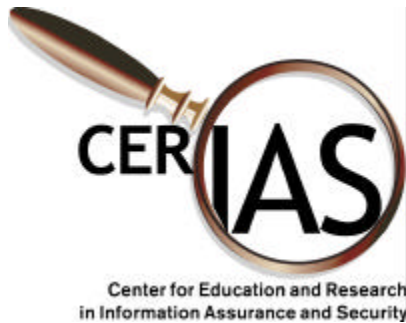**Threat Analysis**

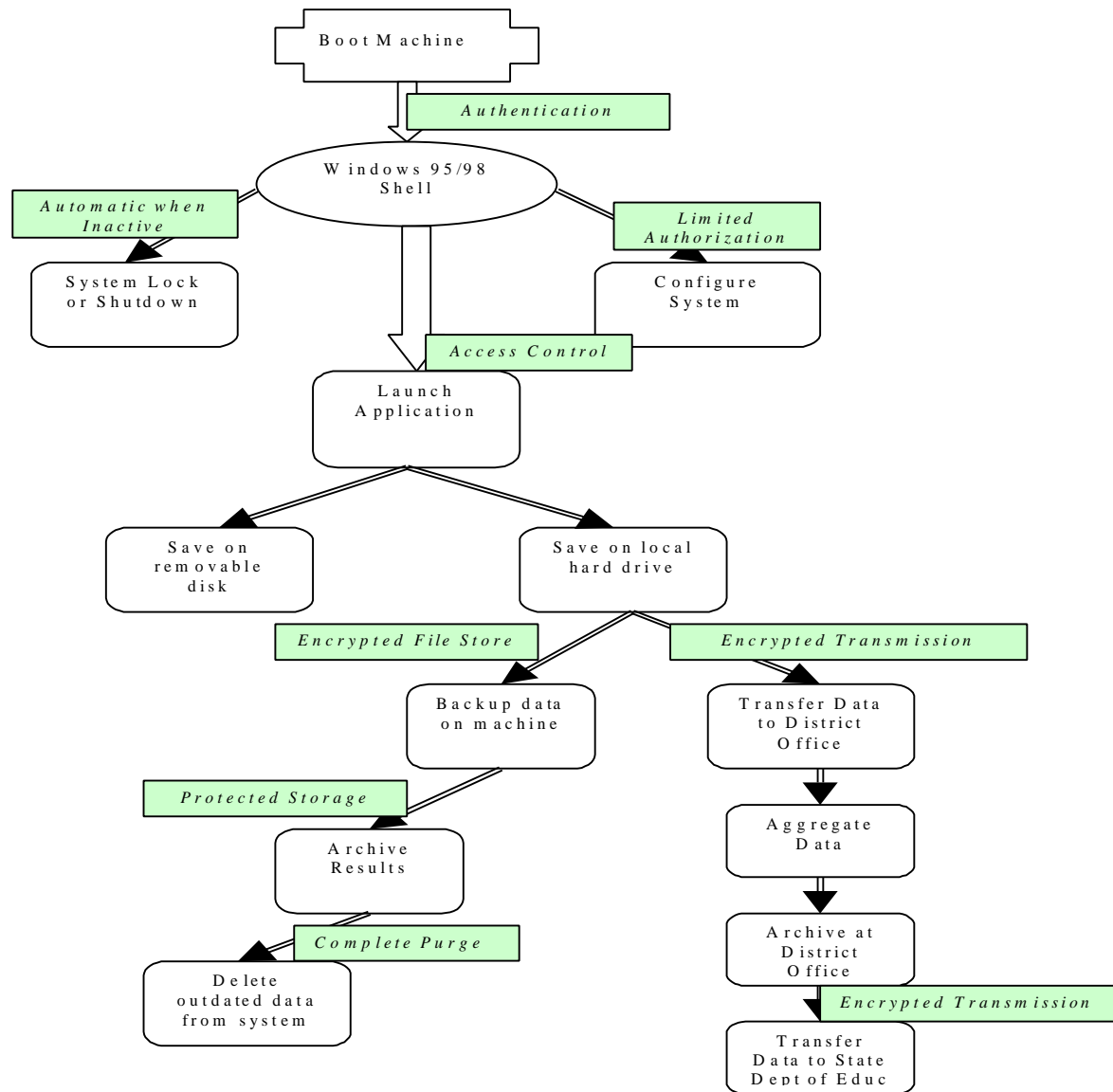**Security Architecture**

System Policy

User Awareness

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Threats

SAMPLE THREATS
What can go wrong in the data flow process?
(Miller, 1999)

		Prob. Occur	Conseq. Occur
I.	**Threats because of physical security in the classroom.**		
A.	Laptop is stolen. Data are released. The asset is lost.	High	High
B.	Shoulder surfing leads to compromise of system passwords.	Low	Medium
C.	Password sharing leads to compromise of system passwords.	High	Medium
II.	**Threats because of vulnerability in operation system.**		
A.	A Windows vulnerability is discovered and service pack issued	Low	Low
B.	Misconfiguration in system leads to unauthorized access	Medium	Medium
IV.	**Threats because of user error.**		
A.	Laptop or server crashes or programs are broken	High	Medium
B.	Users change the laptop configuration	High	Medium
C.	Laptop is used for unintended purposes and virus or trojan is introduced.	High	Low

CER IAS

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Boot Machine

Authentication

Windows 95/98
Shell

*Automatic when
Inactive*

*Limited
Authorization*

System Lock
or Shutdown

Configure
System

Access Control

Launch
Application

Save on
removable
disk

Save on local
hard drive

Encrypted File Store

Encrypted Transmission

Backup data
on machine

Transfer Data
to District
Office

Protected Storage

Aggregate
Data

Archive
Results

Archive at
District
Office

Complete Purge

Encrypted Transmission

Delete
outdated data
from system

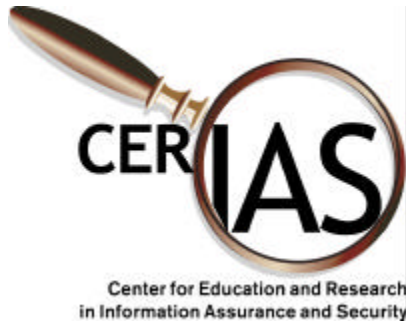Transfer
Data to State
Dept of Educ

*Denotes Security
Control*

Figure 2: IASEP Security Architecture
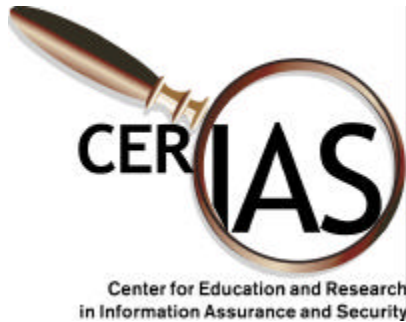
Teacher Training

- User Error the Greatest Threat to Security

- Teachers are Unaware of the Consequences of Practices

Teachers, Cont.

- Development of Training Video to Assist in the Reduction of User Error

- Development of a Comprehensive Data Security Protocol to Advise Educators on Security Issues