Evidence Integrity Techniques

The techniques of evidence integrity consist of cyclic redundancy check, hashing, digital signatures, time stamp, and watermark.

Integrity Model

Clark-Wilson's integrity model comprises of several rules, procedures such as Transformation Procedures (TP), Integrity Verification Procedures (IVP), Constrained Data Items (CDI) and Unconstrained Data Items (UDI). There are also rules governing the integrity in Clark-Wilson Model, which includes C1, C2, C3, C4, and E4 that could be applied throughout the study. However, it should be noted that this study does adopt in its entirety the Clark-Wilson's model, but just a part of it. The enforcement rules noted above do not apply to our study appropriately. The enforcement of validity, separation of duty, user identity and initiation do not conveniently fit into our study, thus have been excluded.

Transformation Procedure

This contains the processes that will take a system from one valid state to another, which could be applied to this project. These include; Imaging, Write-Protection, Hashing, and Extraction.

Integrity Verification Procedure (IVP)

These are the procedures that test the CDIs to conform integrity. The procedure here is a comparison where Hash value of the whole image is taken and preserved, same is also done to extracted logs. At the end of the investigation, the hashing procedures are repeated on same entities and a comparison is made of the initial and final fingerprints. The emergence of the slightest difference implies that alteration has occurred on the initial contents; which also implies that integrity had been compromised.

METHODOLOGY

The model proposed is abstracted describes and explication of the preservation phase of the forensic evidence methodology (Mark, 2002). This methodology is particularly suitable for the log integrity enforcement considered. This phase principally explains the activities of ensuring that potential digital evidence; log files in our case are adequately secured and preserved from alteration.

Stage 1

Stage 1: Integrity Application

Stage 2: Integrity Verification

Stage 3: Integrity Validation