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Title:

Building BRAINS: Brand and Reputation Analysis using In-Network Semantics

Abstract:

Recent years have seen a spate of cyber attacks targeting commercial enterprises. While the exact modus operandi of individual attacks vary, from one incident to another, the recurring motif seems to be the stealth of user data. Hence, the term data breach. Enterprises often assess the monetary risk associated with a data breach in terms of the number of individual records compromised; thereby putting a dollar value on the cost of the breach. However, each data breach incident impacts an enterprise's brand value, or reputation, for which there are no standard assessment methods. We propose a systematic framework to assess the risk to the brand image of an enterprise in the wake of a data breach incident. More importantly, we rely on the lexical semantics found in web-traffic, observed at a vantage point in the network, to build a near real-time model to contextualize significant events, topical variation along an event timeline, and study their impact on associated fiscal indicators (such as stock price). Our goal is not simply to quantify the brand-risk as an abstract number, but to form a comparative baseline from analogous historical events (over 1800 major data breaches in the past decade), across various industry verticals — such as retail and finance — to provide a basis for future assessments.