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Large in-memory cyber-physical security-related analytics via scalable coherent shared memory architectures

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Abstract

Abstract:

Cyber-physical security-related queries and analytics run on traditional relational databases can take many hours to return. Furthermore, programming analytics on distributed databases requires great skill, and there is a shortage of such talent worldwide. In this talk on computational intelligence within cyber security, we will review developments of processing large datasets in-memory using a coherent shared memory approach. The coherent shared memory approach allows programmers to view a cluster of servers as a system with a single large RAM. By hiding the actual system architecture under a software layer, we proffer a more intuitive programming model. Furthermore, the design of applications is “timeless” since hardware upgrades require no changes to the software. The advantages of shared memory are countered by some disadvantages in that race conditions can occur; however, in many of these cases, we can provide models that protect us against such problems. Exemplars include sensemaking of Twitter feeds, the processing of Smart Meter datasets, and the large scale simulation of the caching of files at disparate points around the globe.

Document Sections

- I. Introduction
- II. Analytics and the Security Problem
- III. Real Time feeds-Twitter
- IV. LARGE DATA ANALYTICS AND STORAGE STRATEGIES FOR Smart Meter Data Processing
- V. Global Data Infrastructure Simulator

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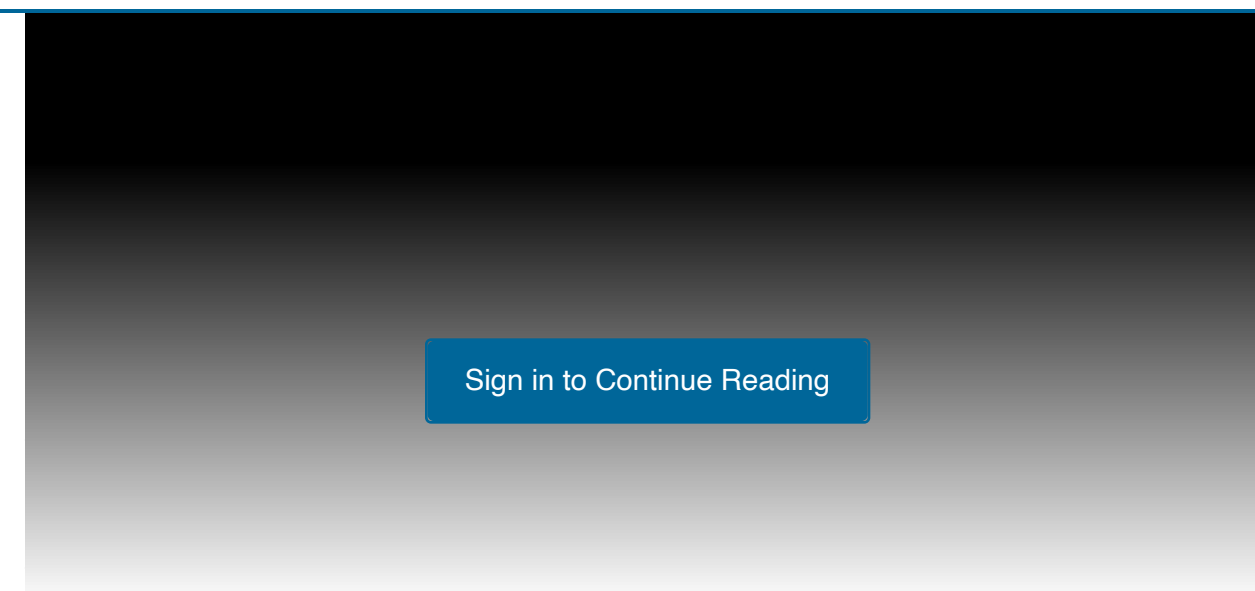
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