Toward A Dynamic Architecture for Cloud Monitoring and Analysis based on Complex Event Processing

A Centralized CEP Architecture

- Based on a single CEP engine
- The CEP engine may become bottleneck
- The CEP engine represents a single point of failure

A Dynamic CEP Architecture For Cloud Monitoring and Analysis

- Dynamic switching between different CEP architectures
- Algorithm for the Dynamic CEP Architecture

Centralized CEP Architecture vs. Design I (Sc1, Sc2, Sc3) vs. Design II: An Experimental Comparison

A Distributed CEP Architecture: Design I

- CEP Worker per VM or per node?
- Assign a CEP Worker to only pertinent metrics
- Selection algorithm

A Distributed CEP Architecture: Design II

- Build a new CEP Manager for the new group

Conclusion

- Experimental evaluation of CEP architectures for Cloud monitoring and analysis:
  - Precision / Recall
  - Performance indicators (Load, RAM) of the CEP Manager machine
  - Performance indicators of the Cloud machines
- Novel dynamically switching CEP architecture for Cloud monitoring and analysis:
  - Load / RAM of the CEP machine
  - Network traffic conditions of the Cloud

Future Work

- Implement and evaluate the dynamic CEP architecture
- Apply the dynamic architecture in the context of security analysis

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