Methods to enhance contentdistribution for verly large scale online communities

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- Large scale online distribution systems have to deal with:
 - Variable workloads
 - Spontaneously demanded data
 - Viral propagation
 - Popularity changes over time
 - Availability
 - Energy consumption
 - Total Cost of Ownership (TCO)
- An ideal system adapts to workload variations saving energy and ensuring availability



Objectives

- To develop a dual model of data distribution with self-adaptive properties:
 - Provide load-prediction models automatic selection, configuration and updating
 - Leverage access patterns, workload history and social data to improve content organization
 - Reduce traffic pressure employing a P2P-based proxy network



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Users+Data+Adaptability



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Proposed Architecture



Contributions & publications

Contributions

- Predictive data grouping based on content affinity
- Data placement based on workload and access pattern prediction
- Apply autoregressive models to predict the behavior of data groups

Publications

- Juan M. Tirado, Daniel Higuero, Florin Isaila, Jesus Carretero.
 Analyzing the impact of events in an online music community. Workshop on Social Network Systems, Eurosys 2011
- Juan M. Tirado, Daniel Higuero, Florin Isaila, Jesus Carretero.
 Predictive data grouping and placement for cloud-based elastic server infrastructures CCGRID 2011. 29% acceptation rate
- Juan M. Tirado, Daniel Higuero, Florin Isaila, Jesus Carretero, Adriana Iamnitchi. Affinity P2P: A self-organizing content-based Iocality-aware collaborative peer-to-peer network. Computer Networks, Volume 54, Issue 12, Pages 2054-2070. 2010. (Impact Factor: 1.2)



Thanks for you attention!



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