TU Clausthal

Diplomanden- und Doktorandenseminar
des Instituts für Informatik

Architecture and Methods for Flexible Content Management in Peer-to-Peer Systems

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The operation of dedicated content repositories is a change in perspective of content lifecycle management: their application largely promises both technical and financial benefits. Today, centrally managed static client-server architectures are the prevailing design approach for content repositories. However, systems built according to this paradigm inherently lack flexibility regarding the support of different content models and functional properties (for example, dynamic reconfiguration) as well as non-functional aspects (for instance, scalability).

A decentralised approach based on the peer-to-peer architecture paradigm is proposed in this talk to overcome these drawbacks. Peer-to-peer architectures promise a more flexible architecture pattern migrating into more and more application domains. In spite of the fact it has been nearly a decade that popular peer-to-peer systems appeared as an auspicious paradigm for distributed computing, successful operation is still associated with basic file sharing applications; most of these (monolithic) systems miss sophisticated data management features for concurrent usage as required by content repository systems.

In this talk, the applicability of the peer-to-peer paradigm for the implementation of content repository functions is investigated, and an architecture and methods to enable flexible content management in peer-to-peer systems are presented. Research challenges originate in terms of (i) reflecting different characteristics and relationships of content, (ii) supporting an adequate content repository model both at functional and non-functional level, for example, to ensure reliability and consistency properties, and (iii) coping with peculiarities of a heterogeneous, dynamic peer-to-peer environment.

As a result, this talk introduces solutions that narrow the tradeoff between requirements of content repositories and inherent properties of peer-to-peer systems.

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12:15 Uhr in Raum 106, IfI, Julius-Albert-Straße 4