USC | IMSC
A NATIONAL SCIENCE FOUNDATION ENGINEERING RESEARCH CENTER

Peer-to-Peer Streaming

information management

Kerena

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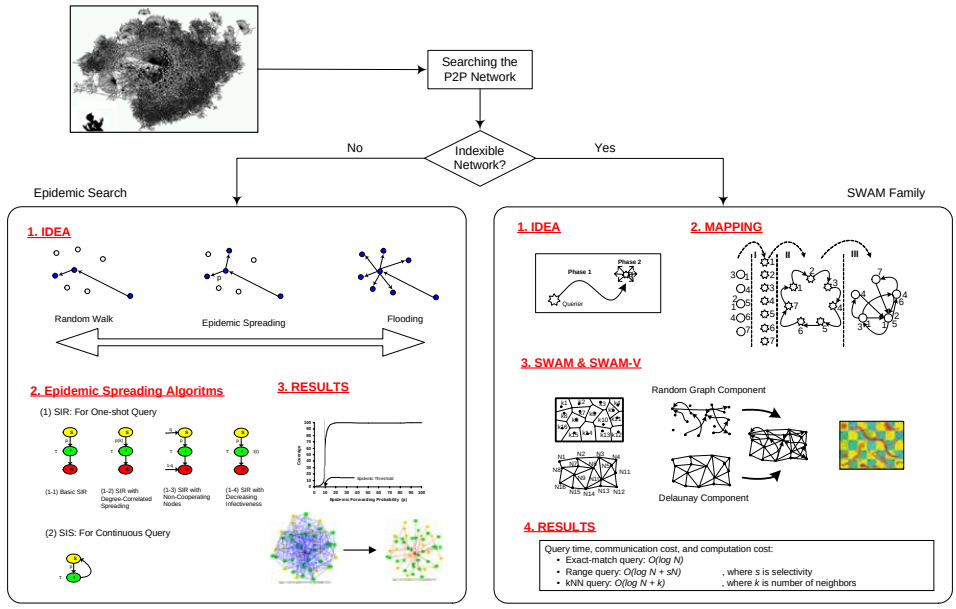
Goal: To study, design, and develop a peer-to-peer stream-sharing framework that enables applications such as distance collaborative learning and virtual reality film-making, on a large scale.

Role: Kerena stream-sharing framework allows real-time sharing of dynamic media content among remote participants, a key enabling technology for *2020Classroom* and *ImmersiNET* projects at IMSC.



Accomplishments:

- Publication:
  - ✓ Farnoush Banaei-Kashani, Cyrus Shahabi. *SWAM: A Family of Access Methods for Similarity Search in Querical Data Networks*, Submitted for review.
  - ✓ Farnoush Banaei-Kashani, Cyrus Shahabi. *Searchable Querical Data Networks*, International Workshop on Databases, Information Systems and Peer-to-Peer Computing in conjunction with VLDB'03, September 2003.
  - ✓ Farnoush Banaei-Kashani, Cyrus Shahabi. *Criticality-based Analysis and Design of Unstructured Peer-to-Peer Networks as "Complex Systems"*, Third International Workshop on Global and Peer-to-Peer Computing (GP2PC) in conjunction with CCGrid'03, May 2003.
  - ✓ Farnoush Banaei-Kashani, Cyrus Shahabi. *Brief Announcement: Efficient Flooding in Power-Law Networks,* Twenty-Second ACM Symposium on Principles of Distributed Computing (PODC'03), July 2003.
- Simulation Test-bed:

  GlobeStream is a general-purpose and modular simulation environment that is developed to explore self-configuration and information discovery in peer-to-peer communication frameworks.

Uniqueness: Traditional modeling and analysis approaches are either oversimplifying or overcomplicated. The *complex system theory* provides a set of conceptual, experimental, and analytical tools to think about, measure, and analyze peer-to-peer networks.

Five-Year Plan:

	Year 1	Year 2	Year 3	Year 4	Year 5
Unindexible:	Experimental Study of All Variations of SIR	Theoretical Analysis of All Variations of SIR	Experimental Study of SIS and All of its Variations	Theoretical Analysis of SIS and All of its Variations	
Indexible:	Proposing and Analysis of Another SWAM instance with less constraints as compared to SWAM-V	Study, design, and implementation of distributed query processing within P2P networks based on the studied search mechanisms; this is a comprehensive framework for data management within P2P streaming networks			