

DISTRIBUTED MONOTONICITY

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AGENDA

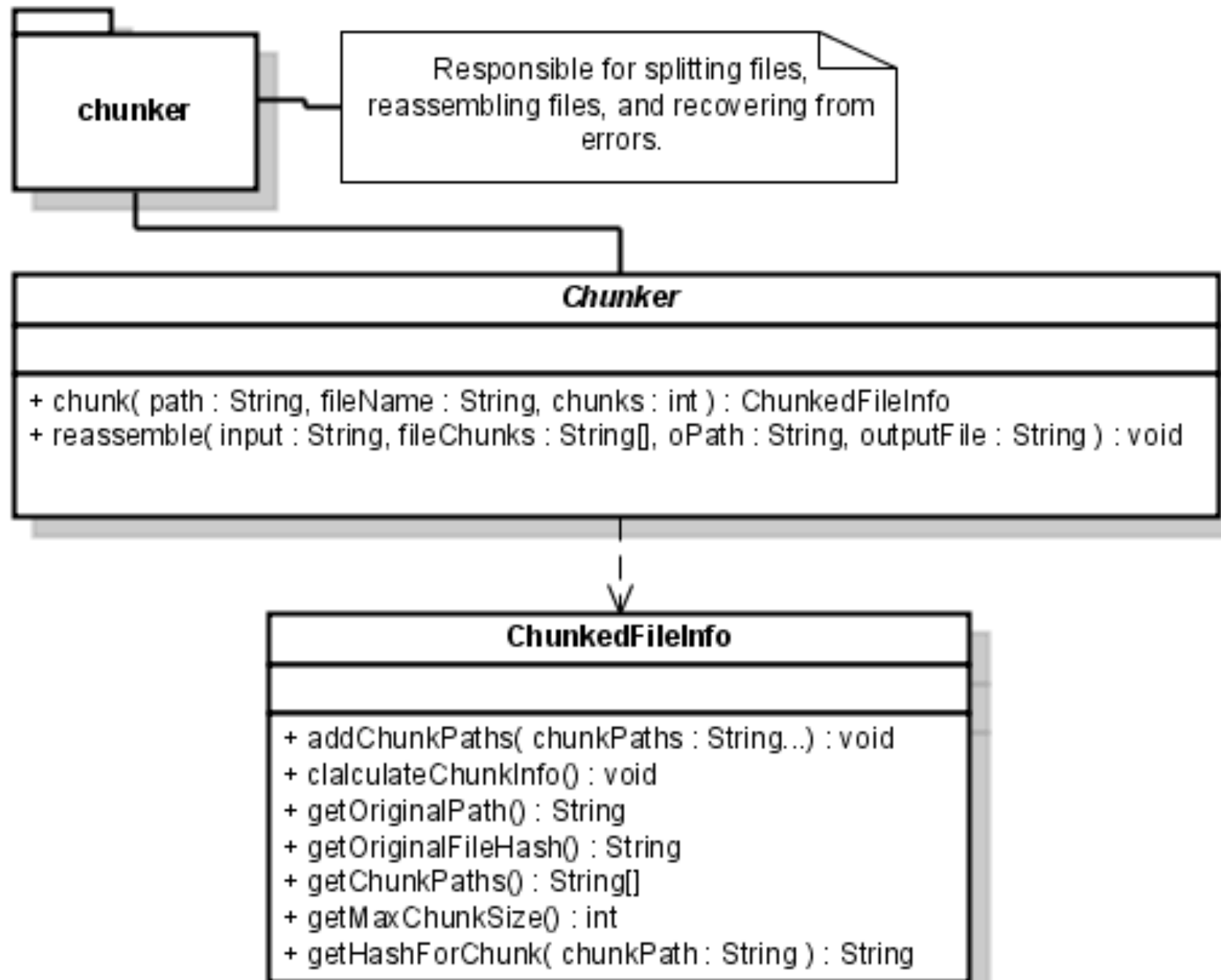
- Overview
- Design
- Progress
- Demonstration

OVERVIEW

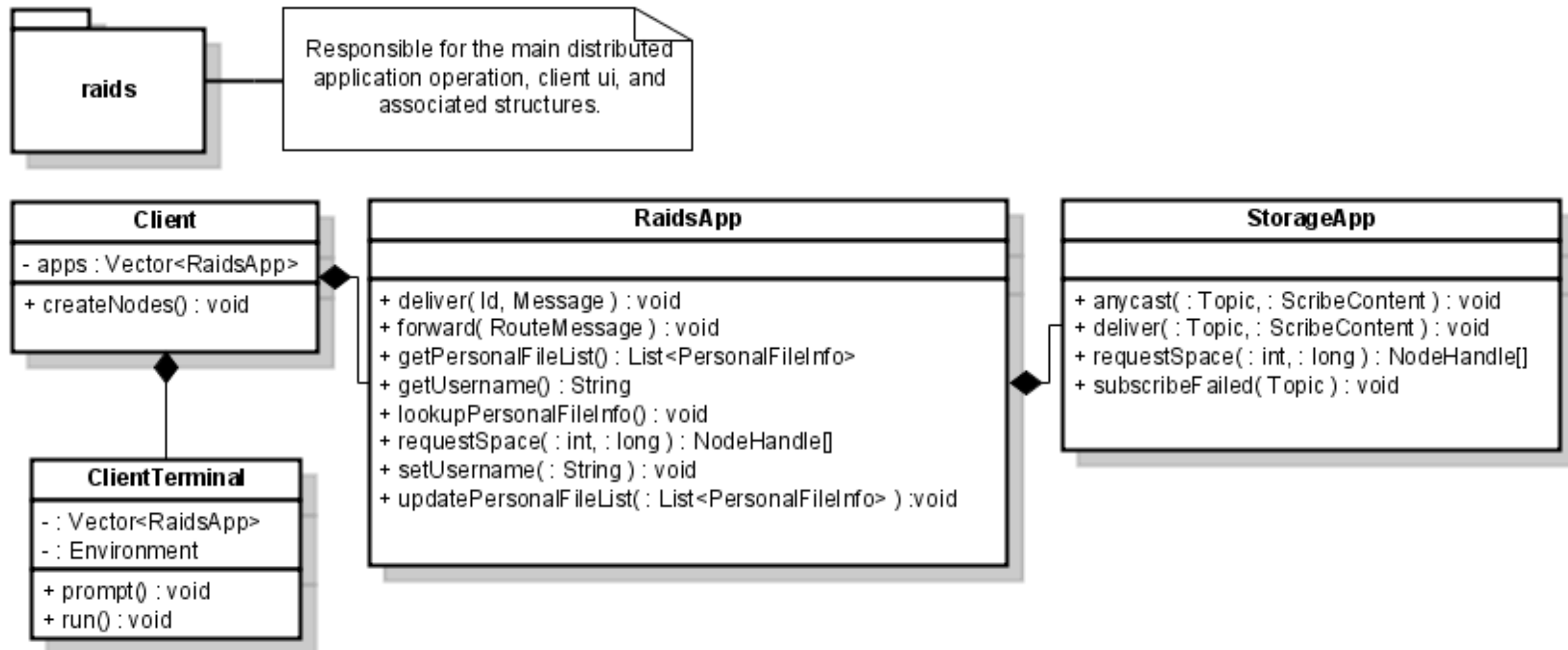
- We plan on building a distributed backup system.
- The system will offer a RAID-like data redundancy on a distributed system of computers.
- We are using FreePastry, an open Source Peer-to-Peer System Framework, to handle file tracking, reliable redundancy across the “cloud”, efficient routing, and network maintenance chores.

FREE PASTRY

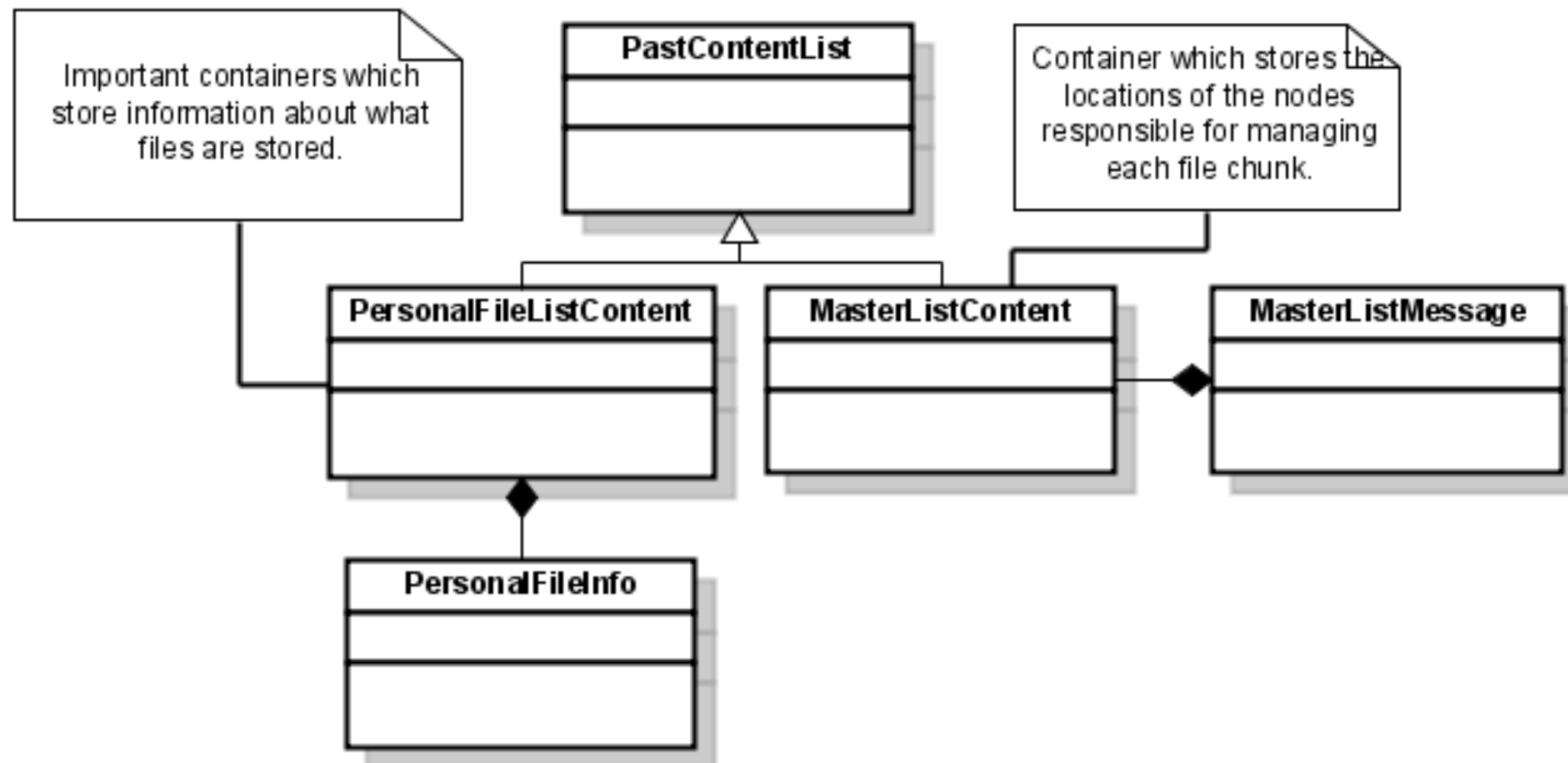
- PAST is an add-on Distributed Hash Table for Pastry.
 - Allows for the easy storage and retrieval of information
 - User's backed-up personal file information
 - Master nodes' list of backed-up file pieces
- Pastry provides uniform Application and Message interfaces which can be "installed" onto Pastry nodes.
 - StorageApp application
 - StorageRequest message
 - MasterListMessage message
 - HeartbeatMessage message



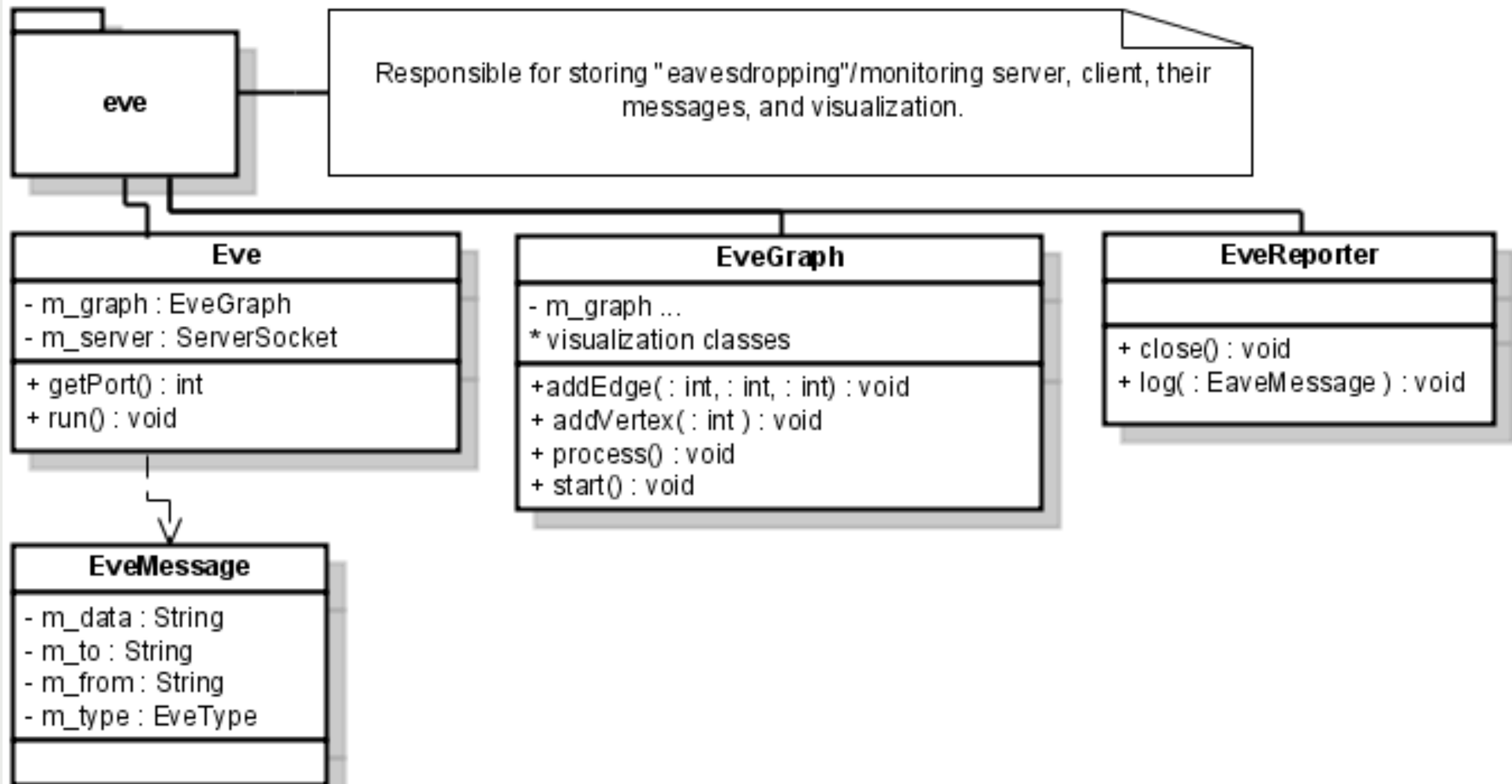
PACKAGE DESIGN - CHUNKER



PACKAGE DESIGN - RAIDS



PACKAGE DESIGN - CONTAINERS



PACKAGE DESIGN - EVE

FEATURES

- DHT Storage capability
- Chunks and reassembles files
- Recovers from chunk loss
- Offers multiple node connectivity on a single VM or across multiple PCs
- Multicasts storage availability requests
- Runs lease-like Heartbeat messages between nodes
- Visualizes network makeup and message routing

COMING SOON

- Transfer files directly to Nodes
- Distribute Master Node List which will:
 - Specify Masters and Division Groups
 - Initialize Heartbeat monitoring
- Fault Tolerance
 - Recover from Node failure by re-distributing the file components
 - Handle Rejoining Users
- Visualize more complex interactions between Nodes

DEMONSTRATIONS

- Data Manipulation and RAID Operation
 - File chunking and reassembly.
 - File chunk destruction and data recovery.
- Network Creation and Storage
 - DHT storage and retrieval of custom data structures.
 - Multiple Nodes per JVM
- User Interface
 - Runs the local debug client.
 - Allows dynamic node access.
- Eve Visualization

DEMONSTRATION

QUESTIONS?

LINKS

- Team Website:

<http://www.cs.rit.edu/~jjp1820/distributed/>

- FreePastry:

<http://www.freepastry.org/>