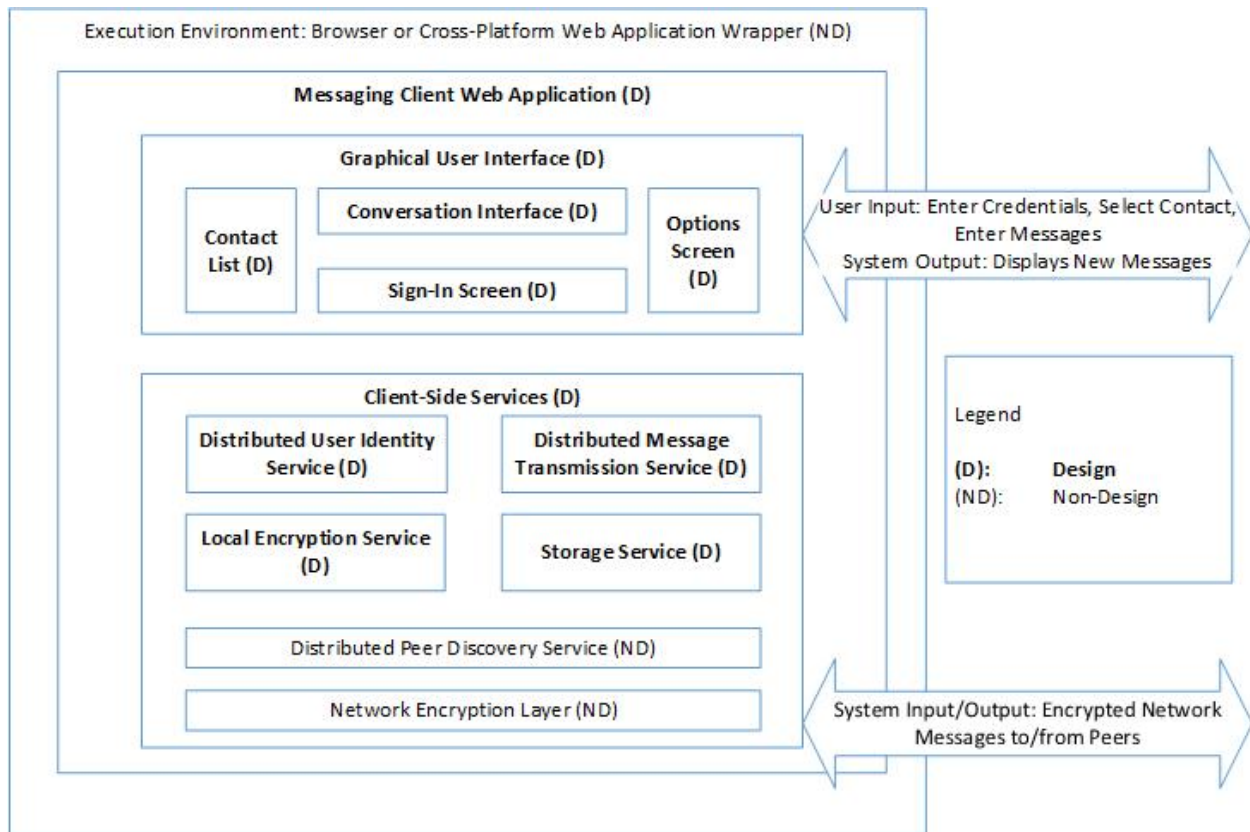## 1.3   Block Diagram

Figure 1: Block diagram of project components and inputs/outputs

Our high-level application design, outlined in the block diagram in Figure 1, consists of a tiered architecture. The 3 tiers are the Graphical User Interface tier, the Client-Side Services tier, and the Execution Environment tier.

The topmost tier consists of the Graphical User Interface (GUI) module and its various components. This tier is responsible for handling all user input such as logging in, selecting contacts, typing messages, and changing options, as well as displaying output from the system such as new messages received or contact availability status. The GUI tier also communicates to services in the Client-Side Services tier below in order for the system to execute actions based on user input, and display information based on system output.

The middle tier consists of the Client-Side Services module and the various services that it provides to the GUI tier above it. The Distributed User Identity Service maintains the contact list and profile information for the user, the Distributed Message Transmission service sends/receives messages during a conversation, the Local Encryption Service and Storage Service interact with storage mechanisms on the Execution Environment to persist user data between sessions in a secure manner.

The lowest tier consists of the Execution Environment module, which can be either a Web Browser, because our application is built as a Client-Side Web Application using only web technologies such as HTML and JavaScript, or a Cross-Platform Web Application Wrapper library that allows us to port the Web Application easily onto multiple Mobile platforms.