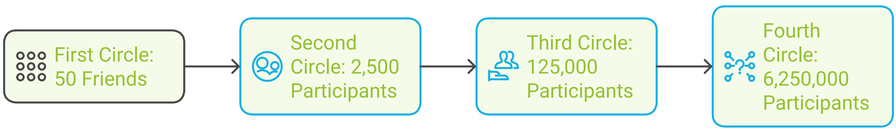
Network Growth and Connection Structure

This document explores the decentralized network model of Exodus 2.0, highlighting its growth dynamics and connection structure. By examining a user-centric growth example and the mathematical underpinnings of a complete graph, we illustrate how personal relationships foster a robust network of collaboration and mutual aid. The significance of these connections is emphasized, showcasing how they empower participants and promote sustainable social innovation.

Network Growth Example

In the decentralized network of Exodus 2.0, each participant forms direct and peer-to-peer connections with others in their "circle of trust," based on personally confirmed relationships. Let's consider a growth model for a user starting with 50 friends in their "first circle" and each of those friends inviting 50 new participants into the network, following the principle of 'friend of a friend'. Here's the growth pattern for four degrees of separation (or four "handshakes"):

- **First circle:** 50 friends
- **Second circle:** Each friend invites 50 friends (50 x 50 = 2,500 participants)
- **Third circle:** Each of the second circle participants invites 50 friends (2,500 x 50 = 125,000 participants)
- **Fourth circle:** Each of the third circle participants invites 50 friends (125,000 x 50 = 6,250,000 participants)



Thus, by the fourth handshake, a total of **6,377,550** participants are connected through the user's reference network, distributed across the four circles.

Complete Graph and Connection Possibilities

The Exodus 2.0 registry forms a complete graph at every level, meaning each participant is directly connected to all others in the network within the same circle, and these connections represent possibilities for cooperation and mutual aid. The number of edges (or connections) in a complete graph is calculated as:

$$\text{Edges} = \frac{n(n-1)}{2}$$

Where n is the number of participants in the graph.

Example for the Third Circle (125,000 participants):

$$\text{Edges} = \frac{125,000 \times (125,000-1)}{2} = 7,812,499,500$$

This results in **7.8 billion** possible connections within just the third circle of participants.

Significance of Connections

Each edge in this complete graph represents an opportunity — for collaboration, assistance, or shared initiatives. As the network grows, these connections become the foundation for decentralized, self-organizing social structures without the need for centralized control. Exodus 2.0 allows for this growth to happen naturally, leveraging the strength of personal relationships and the power of mutual trust.

This structure ensures that as the network expands, each new participant becomes equally empowered to contribute and benefit from the system, creating a sustainable and highly scalable environment for cooperation, resource sharing, and social innovation.

Exodus 2.0 is open source, free for copying, modification, and redistribution. It is designed to empower communities to self-organize, cooperate, and assist each other, offering an alternative to centralized social networks.