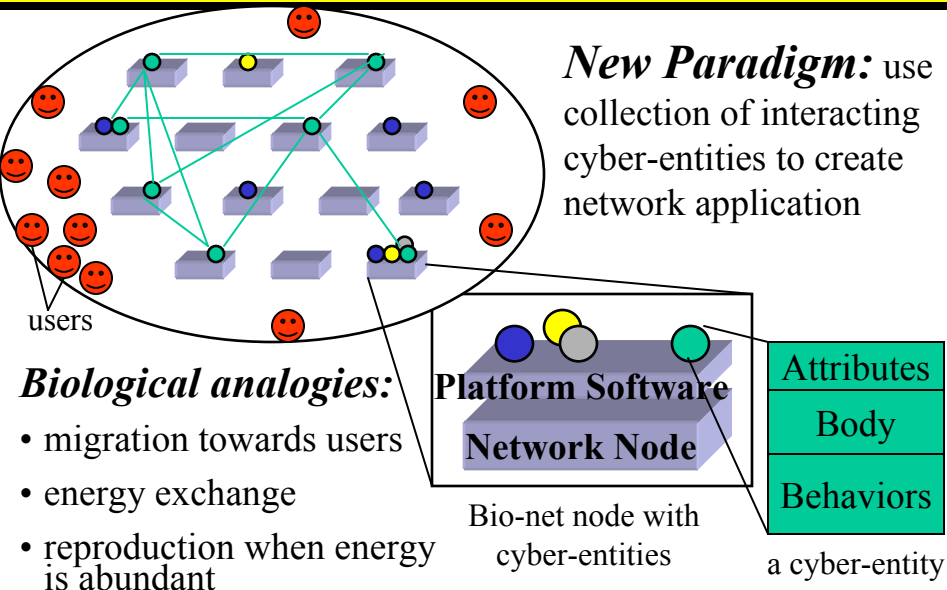


Bio-Networking Architecture



New Ideas and Impact

- Observation: large scale biological systems scale, adapt, and survive
- Bio-Networking Architecture applies biological concepts (e.g., decentralization, emergent behavior, energy, evolution, diversity, natural selection) to network applications (e.g., information dissemination and sensor nets).
- Applications constructed using the Bio-Networking Architecture meet the key requirements of NGI (adaptable, evolvable, secure, survivable, scalable and simple).
- Bio-Networking Architecture implements decentralized peer to peer discovery mechanisms that adapt to dynamic and/or catastrophic environments (e.g., disaster recovery networks).

Current Project Status

- Feasibility study through simulations showed the Bio-Networking Architecture adapts to and evolves in a dynamic environment
- Mathematical analysis showed that the Bio-Networking Architecture is stable under a wide range of conditions
- Designed distributed discovery mechanisms to search for cyber-entities and applications in a dynamic environment
- Designed a platform software, and currently implementing and measuring the platform software performance.
- Designed a mechanism for cyber-entities to collaborate and provide applications, and currently implementing the mechanism.

Schedule

