

What the Assassins' Guild taught me about Distributed Computing

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These people know something...



Photo courtesy of Joe Foley

Live Action Role-Playing = Distributed Computing

- The imaginary world is simulated through actions in the real world.
- Execution is often distributed due to complexity
 - Physical size
 - Number of people
 - Time sensitivity
 - Game complexity

Example: simulating an economy by exchanging cards representing bulk trade goods

Challenging Network Conditions

- Small computational capacity
- Small working memory
- Slow communication
- Partially synchronous execution
- Poor connectivity
- Byzantine failure
- Differing incentives

The Tea Impossibility Result

How does this man know if he's just been poisoned?

- No distributed algorithm exists such that:
 - Tea is homogenous
 - Ingredients are secret
 - Ingredients can be added
 - Effects fit on a slip of paper under a cup



Photo courtesy of MITAG

Recovery of Destroyed Tunnel State

What happens if a janitor tears down the envelope?

- Layered defensive design
 - Long-term prevention
 - Short-term prevention
 - Error Tolerance
 - Monitoring
 - Narrowed Scope



Photo courtesy of MITAG

Consensus in Ranged Combat



How do they agree without stopping to discuss?

- Exploit belief and asymmetry in consequences
 - Physical projectile, Shooter calls, halt for dispute

Conclusions

- Similar problems, very different solutions
 - Ecological analysis
 - Layered defensive design
 - Mitigation of failure consequences

Can the ideas be transported?