Day 1: failures
Agenda

failure assumption
failure detection
  * Heartbeats
  * Timeouts

Heartbeat Caveat & advancements

Heartbeat Gotchas

Web scale Infra

Social
6-8 pm
GIF 4??
response time = n/w time + s2 processing time

async = infinite to process request or infinite to send request

in async env. you can't detect a failure

- congestion
- physical distance
- size of data
- bandwidth
- availability of s2
Time Out = How long to wait until a failure has occurred

Heartbeat = msg to detect failures
if you set a timeout on when to receive a response
Traffic Variations

peak

fluctuation in latency

probability distribution

[Diagram with symbols and arrows]
Threats

Thread issue:
1. Race conditions (live locks/deadlocks)
2. Hanging thread (bugs, errors in threads)
3. Errors in threads

Heartbeat thread may not be indicative

Heartbeat
Today

failure assumptions

Timeout / heartbeats

1. adopt to dynamic workloads
2. Threads
3. scaling
4. planet scale heartbeats