Mobile Access Queuing

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Kingda Ka

Kingda Ka

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Kingda Ka: Recap

- Guests
  - Dissatisfied with experience
  - Unlikely to return to park
- Park
  - Attendance begins to decrease
  - Revenue decreases

Overview

- Electronic queuing in theme parks
- Current solutions: FastPass and Lo-Q
- Mobile Access Queuing
- Demonstration
- Prototype: UC Davis Quad
- Future Directions & Lessons Learned

Waiting the Old Fashioned Way

- Problem:
  - Three to four hours per day spent in line
  - Total number of attractions visited limited
  - Guests became exhausted, left the park early
  - Guests not spending time shopping, eating
    - *"We paid over $50 a person to wait in lines all day"*
    - *"I'm tired of waiting hours in line for a 2 sec. ride."*
    - *"We were only able to go on two rides all day."*

Era of the Electronic Queue

- Solution:
  - Reserve your position in the queue
    - Parks maintain information about ride queues
    - Guests receive return time when queuing
  - Return when it is your turn
    - Wait in minimal line before riding
  - Queue for another a ride and enjoy your day

Current Solutions

- Parks have jumped on the electronic queue
- Several solutions developed by leading theme park chains
- Two most popular:
  - Disney's FastPass
  - Six Flags' Lo-Q
- Universal, Paramount, and Busch following

FastPass

- Used by Disney theme parks world wide
- Guests insert their admission tickets to reserve their position in an attraction queue
- Benefits
  - Free of charge, simple to use
- Disadvantages
  - Times are printed, guests must approach attraction to make reservation

Lo-Q

- In use at five Six Flags parks
- Guests rent a Q-bot pager for around $10
- Find reservation point to queue
- Advantages
  - Dynamic updates, multiple reservation points
- Disadvantages
  - Additional fee, must find reservation points

Mobile Access Queuing (MAQ)

- Allows guests to access attraction information based on location
- View available queues sorted by location
- Dynamically enqueue and dequeue
- Queues adjust for weather, staffing, and mechanical issues

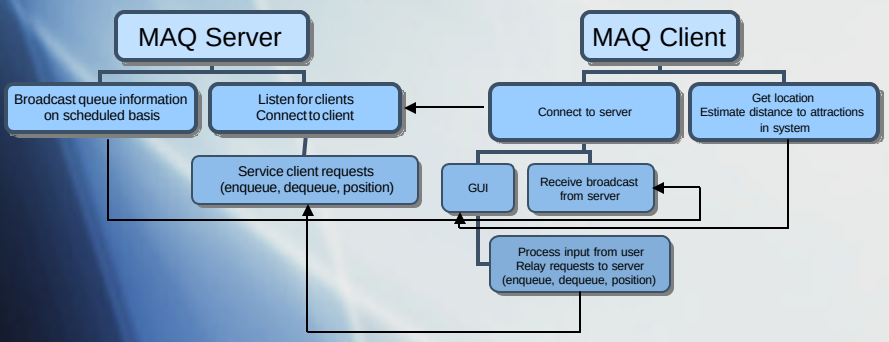
Benefits to Location-Awareness

- Reduce time spent finding attractions
  - Optimize park experience
  - More time to eat and shop
- Decrease chances of getting lost in park
- No need for reservation and entry points
  - Queue from anywhere in the park
  - Dequeue automatically inside of the attraction

MAQ: A Look Under the Hood

- Client/Server Infrastructure
  - Centralized server administered by park
  - Multiple clients used by park guests
- Intel Placelab used for client positioning
  - Extension of APViewer used for position estimation
  - Distance calculated between estimated position and attractions

MAQ Architecture



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MAQ: Environment

- Park runs centralized server
  - Broadcasts information over 802.11 connection
- Intel Placelab uses multiple access points
  - Each attraction could feature an access point
  - Each attraction could maintain its own queue

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MAQ: Demonstration

- Client/Server interaction
- Enqueue, Dequeue, Position, GUI features
- Location features disabled to show multiple clients

MAQ: Prototype

- UC Davis Quad
  - Three “attractions” populated in the system
    - Memorial Union
    - Shields Library
    - Kemper Hall – help test distance
- Location awareness features
  - Positioning of attractions
  - Dynamic dequeue

MAQ: Prototype

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Future Directions

- Client hardware
  - PDA, cellular phone, pager, watch
- Extend into other queuing applications
  - Ski resorts, cruise ships, restaurants, etc.

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Lessons Learned

- Location aware technology
  - Intel PlaceLab provides location estimates
- Java Virtual Machine compatibility
  - Jeode, CrEme, J9, etc.
- Design tradeoffs

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Questions?