

Dispatch Queues

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Introduction

Queues

Dispatch Queues

Serial Queues

Concurrent Queues

What is a Queue?

- Line
- Data Structure
- First In, First Out (FIFO)



What is a Dispatch Queue?

- Queue
- Store blocks of code
- Dispatch queue types
 - Serial queues
 - Concurrent queues
- Execute on other threads



Serial Queues



Serial Queues



Serial Queues



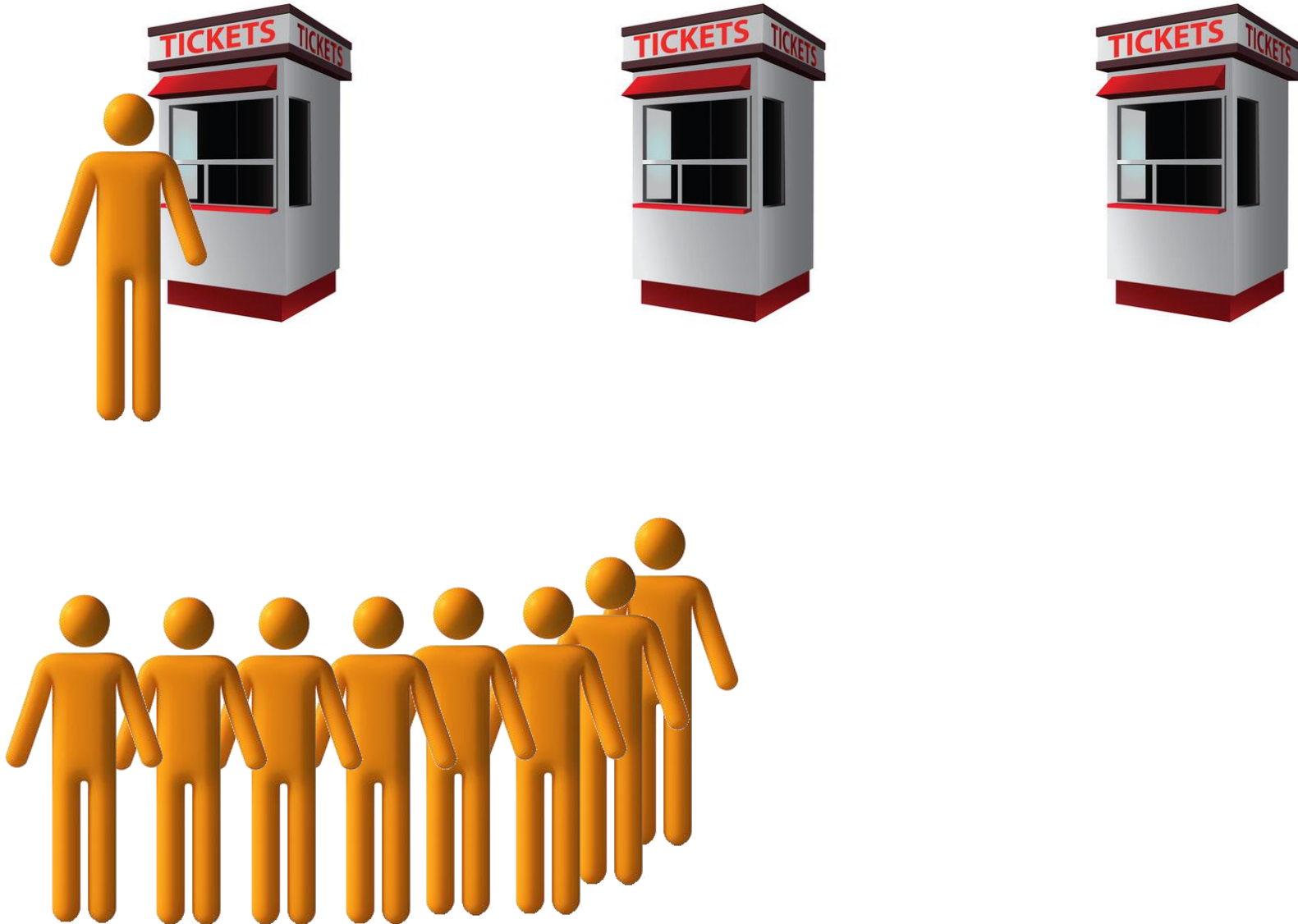
Serial Queues

- Create your own serial queues
- Execute code on background threads
- Tasks execute serially with respect to other tasks in the queue
- Used to serialize access to a shared resource
- Definitive execution order

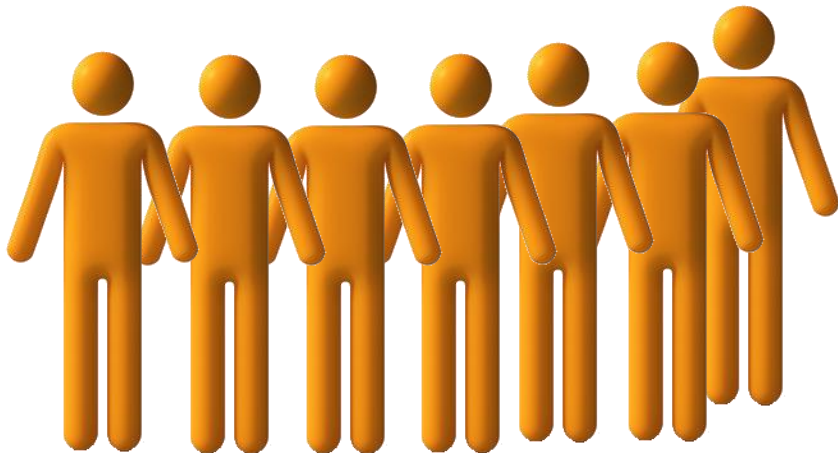
Concurrent Queues



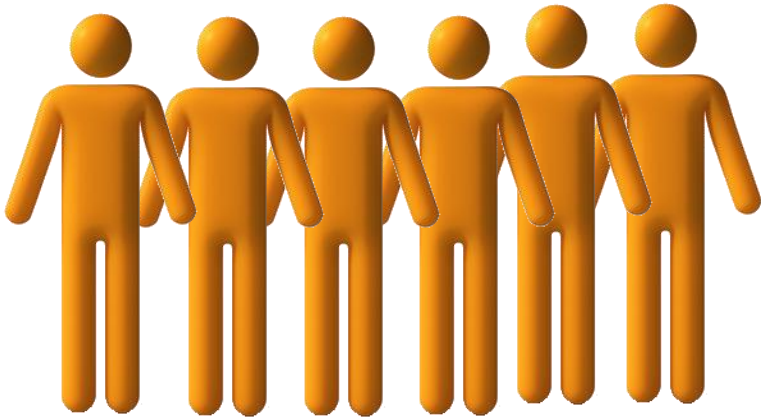
Concurrent Queues



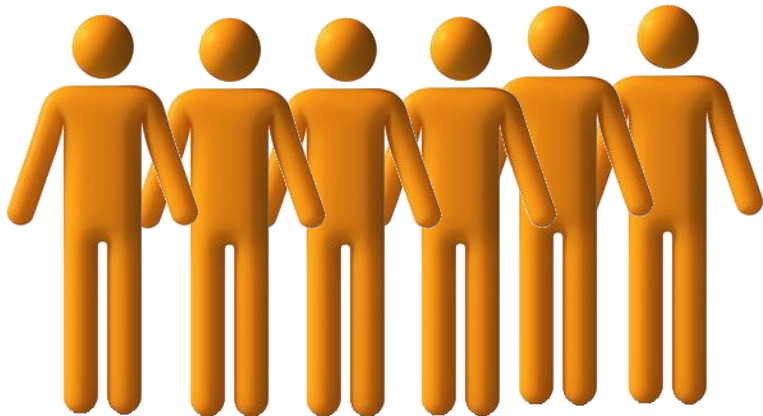
Concurrent Queues



Concurrent Queues



Concurrent Queues



Concurrent Queues

- Call `dispatch_get_global_queue` function to get reference to queues
- Four global concurrent queues for each app
 - `DISPATCH_QUEUE_PRIORITY_HIGH`
 - `DISPATCH_QUEUE_PRIORITY_DEFAULT`
 - `DISPATCH_QUEUE_PRIORITY_LOW`
 - `DISPATCH_QUEUE_PRIORITY_BACKGROUND`
- Execute code on background threads
- Tasks execute concurrently with respect to other tasks in the queue
- Number of tasks executing concurrently is managed by the system

Adding Tasks to a Queue

```
dispatch_queue_t queue;
```



```
queue = dispatch_queue_create("net.bricewilson.ticketQueue", DISPATCH_QUEUE_SERIAL);
```

```
dispatch_async(queue, ^{
```

```
    // do some work
```

```
});
```

```
dispatch_queue_t queue = dispatch_get_global_queue(DISPATCH_QUEUE_PRIORITY_DEFAULT, 0);
```

```
dispatch_async(queue, ^{
```

```
    // do some work
```

```
});
```

Adding Tasks to a Queue




```
dispatch_queue_t queue;  
queue = dispatch_queue_create("net.bricewilson.ticketQueue", DISPATCH_QUEUE_SERIAL);  
dispatch_async(queue, ^{  
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dispatch_async(queue, ^{  
  
    // do some work  
  
});
```



Summary

- Role of dispatch queues in iOS concurrency
- Create and use serial queues
- Use the four concurrent queues available to every app
- Add items to a queue with the `dispatch_async` function
- Use serial queues with concurrent queues to solve specific problems