A Hitchhiker's Guide to Azure Mobile Apps
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This presentation is dedicated to Bill Fink
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Agenda

- Why Azure Mobile Apps?
- Mobile Architecture
- Common Data Access
- Customization
- Dynamic Data
- Client Code
- Identity and Permissions
- Scaling
- API Scripts
- Notifications
Why Azure Mobile Apps?

• Integrate with
  • Web Apps
  • Logic Apps
  • API Apps
• All features of Web Apps
Why Azure Mobile Services?

• Frees you from plumbing code
• Handles API Changes
• Cross-Platform solution
• Choose JavaScript or .NET
Mobile Architecture

- Phone
- Tablet or PC
- REST API
- Data

- iPhone
- iPad
- Android
- JavaScript
Pieces of Azure Mobile Apps

- Client Code
- Identity
- Permissions: READ, INSERT, UPDATE, DELETE
- SQL Server table

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Creating a Mobile App
Creating a Mobile App
REST

https://Giard.azurewebsites.net/Tables/Table1
https://mymobileapp-code.azurewebsites.net/Tables/Table1
• GET, PUT, POST, DELETE, PATCH
• Extend GET with oData Query syntax

The first ten million years were the worst. And the second ten million... they were the worst too. The third ten million I didn’t enjoy at all. After that I went into a bit of a decline...

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## REST

<table>
<thead>
<tr>
<th>HTTP Verb</th>
<th>Action</th>
<th>SQL</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET</td>
<td>Read Data</td>
<td>SELECT...</td>
</tr>
<tr>
<td>POST</td>
<td>Create Data</td>
<td>INSERT...</td>
</tr>
<tr>
<td>DELETE</td>
<td>Delete Data</td>
<td>DELETE...</td>
</tr>
<tr>
<td>PUT or PATCH</td>
<td>Update Data</td>
<td>UPDATE...</td>
</tr>
</tbody>
</table>
REST

Client

VERB (POST)
Data (JSON)
Request

Response

Endpoint
REST

Client

VERB (GET)

Endpoint

Request

Response

Data (JSON)

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# oData Query Syntax

<table>
<thead>
<tr>
<th>Extension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$filter</td>
<td>WHERE clause</td>
</tr>
<tr>
<td>$inlinecount</td>
<td># items in table</td>
</tr>
<tr>
<td>$orderby</td>
<td>SORT clause</td>
</tr>
<tr>
<td>$select</td>
<td>Columns to return</td>
</tr>
<tr>
<td>$skip</td>
<td>#records to skip</td>
</tr>
<tr>
<td>$top</td>
<td>#records to return</td>
</tr>
</tbody>
</table>

.. ./Tables/Table1?$filter=state eq IL

.. ./Tables/Table1?$filter=state eq IL&$orderby=LastName
Dynamic Schema

• Automatically adds columns if matching data submitted
• Useful during development
• Turn off during production
Permissions

Change permissions

Insert permission
- Allow anonymous access
- Authenticated access only
- Disabled
  - Allow anonymous access

Delete permission
- Allow anonymous access

Read permission
- Allow anonymous access

Undelete permission
- Allow anonymous access

Save
Discard

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Demo
Identity – Single Sign-On

Client → Sign In

Twitter or Facebook or Google or Microsoft → TOKEN

Request → Azure Mobile App API
Identity

Your mobile service was created.
Now let's connect it to an app.
function insert(item, user, request) {
    item.CreatedBy = user.userId;
    request.execute();
}

function read(query, user, request) {
    query.where ({CreatedBy: user.userId});
    request.execute();
}
Scaling
Scaling
API Scripts

API Definition

dgtumobile

Save × Discard

API definition lets you configure the location of the Swagger 2.0 metadata describing your API. This makes it easy for others to discover and consume your API. Note: the URL can be a relative or absolute path, but must be publicly accessible.

API definition location

URL of API definition (e.g., http://www.yoursite.com/apidefinition.json)

BABEL FISH

The Babel fish is small, yellow, leechlike, and probably the oddest thing in the universe. It feeds on brain wave energy, absorbing all...
API Scripts

**<Mobile Service URL>/api/<API Name>**

*Example:*

https://giard.azure-mobile.net/api/MyApi

```javascript
exports.post = function(request, response) {
  // Use "request.service" to access features of your mobile service, e.g.:
  // var tables = request.service.tables;
  // var push = request.service.push;

  response.send(statusCodes.OK, { message: 'Hello World!' });
};

exports.get = function(request, response) {
  response.send(statusCodes.OK, { message: 'Hello World!' });
};
```

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Mobile Apps in .NET
public class TodoItemController : TableController<TodoItem>
{
    protected override void Initialize(HttpContext controllerContext)
    {
        base.Initialize(controllerContext);
        MobileService4Context context = new MobileService4Context(Services.Settings.Schema);
        DomainManager = new EntityDomainManager<TodoItem>(context, Request, Services);
    }

    // GET tables/TodoItem
    public IQueryable<TodoItem> GetAllTodoItems()
    {
        return Query();
    }

    // GET tables/TodoItem/48D68C86-6EA6-4C25-AA33-223FC9A27959
    public SingleResult<TodoItem> GetTodoItem(string id)
    {
        return Lookup(id);
    }

    // PATCH tables/TodoItem/48D68C86-6EA6-4C25-AA33-223FC9A27959
    public Task<TodoItem> PatchTodoItem(string id, Delta<TodoItem> patch)
    {
        return UpdateAsync(id, patch);
    }
}
Demo
Push Notifications

Your mobile service was created.
Now let's connect it to an app.
Push Notifications

```javascript
var payload = 
    '<?xml version="1.0" encoding="utf-8"?><toast><visual><binding template="ToastText01">' + 
    '<text id="1">Sample Toast</text></binding></visual></toast>';
var push = request.service.push;

push.wns.send(null, 
    payload, 
    'wns/toast', 
    { 
        success: function (pushResponse) { 
            console.log("Sent push:", pushResponse);
        }
    });
```
Push Notifications

Azure Mobile Services

Notification Hub

Push Service
- APN (Apple)
- GCM (Google)
- WNS (Windows 8)
- MPNS (Windows Phone)

tinyurl.com/PushNoti

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Push Notification on Windows 8 & WP8

1. Create Mobile Service
2. Write Client App
   1. Associate app with store
   3. Register notifications channel in OnLaunched (App.xaml.cs)
   4. Enable Toast notifications (Package.appxmanifest)
3. Update service to send Push Notification

tinyurl.com/Win8Push

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So Long and Thanks!

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