Accelerating Adaptive UI with Serverless Cloud Backend

Presented by:
David Atkins – Principal Solution Architect
Dan Mitchell – Principal Sales Engineer
A Tale of Two Companies

**DigiCom**
- Medium-sized IT parts distributor
- Online customer ordering
- All inside sales, no field presence
- Few CSRs handle customer issues
- Commercial OpenEdge-based ERP

**ServiTech**
- Medium-sized field services company
- Lots of CSRs handle customer requests
- CSRs dispatch requests to technicians
- Techs work remote, using own devices
- CRM & Service System are .NET/MSSQL

**DigiCom + ServiTech = DigiServ**
Challenges:

- Post-merger joint CSR team downsized 75%
  - How do they support volume and diversity of inbound service requests?
- DigiCom needs access to ServiTech backend system
  - To deliver inventory/shipping notifications to field technicians
- ServiTech needs remote access to DigiCom backend system
  - Techs need to research and order replacement parts from the field
- Field techs need modern mobile apps
  - To leverage device features like geolocation, camera, messaging, push notifications...
- Growth strategy is aggressive diversification of products sold and serviced
  - How best to maintain ever more complex and numerous technician assignment rules?
API Service Platform

Systems of Record & Advanced Business Logic
What You Will See Today

- User system down
- Live Chat to schedule service
- Technician assigned
- Technician notified
- Technician Acknowledges
- Contact Customer
- Order needed parts
- Needed part out of stock
- Stock replenished via web app
- Technician notified
- Service completed
- Customer Acknowledge
Field Service Demonstration
API Service Platform

Systems of Record & Advanced Business Logic

Hardware Customers

Service Customers

Intelligent, unified user experience

CSR

Technicians

Inventory Worker
The Progress *Cognitive-first* Platform

Adaptive Experience
- NativeScript
- Progress® Kendo UI®
- Progress® Telerik®
- Progress® NativeChat
- Progress® Labs

Cognitive Cloud
- Progress® Kinvey
- Progress® DataRPM®
- Progress® Corticon®
- Progress® Sitefinity®
- Progress® OpenEdge®

Connected Data
- Progress® DataDirect®

Systems of Record
- Big Data
- Internet of Things
Demo Step 1: WHAT DID YOU SEE: Chat Bot, mBaaS, Biz Rules, MSSQL and SMS
Demo Step 1: WHAT DID YOU SEE: Chat Bot, mBaaS, Biz Rules, MSSQL and SMS
Intelligent Chat Experience

AI powered, goal driven conversation experiences

- Reduce cost and overload of your contact center
- Increase revenue with new social media and web customer communication channels
- Retain and delight more customers with better customer experiences
- Digital leadership makes you competitive, relevant and cutting edge
Intelligent Chat Experience

Declarative based Cognitive Flow

Synonym based training
Intelligent Chat Experience

UNDERSTANDING

<table>
<thead>
<tr>
<th>Entity</th>
<th>Abandoned Sessions</th>
<th>Understanding Ratio</th>
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</thead>
<tbody>
<tr>
<td>zipcodes</td>
<td>19</td>
<td>96% (53 of 55)</td>
</tr>
<tr>
<td>device</td>
<td>5</td>
<td>85% (71 of 84)</td>
</tr>
<tr>
<td>issue</td>
<td>3</td>
<td>81% (56 of 69)</td>
</tr>
<tr>
<td>serviceDate</td>
<td>1</td>
<td>99% (41 of 41)</td>
</tr>
<tr>
<td>confirmServiceDetails</td>
<td>0</td>
<td>100% (44 of 44)</td>
</tr>
<tr>
<td>SMS</td>
<td>0</td>
<td>0% (6 of 1)</td>
</tr>
</tbody>
</table>

INTERACTIONS

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Demo Step 1: WHAT DID YOU SEE: Chat Bot, mBaaS, Biz Rules, MSSQL and SMS
Backend as a Service
Backend as a Service

Integration
Orchestration
Security
Compliance
Disconnection
Notifications
Scalability
Reliability
Backend as a Service

Integration
Orchestration
Security
Compliance
Disconnection
Notifications
Scalability
Reliability
Kinvey Cloud Service Accelerators

Leverage more than 20 integrated, configurable and secure serverless cloud services to reduce development, integration, maintenance and operations costs.
function onRequest(request, response, modules) {
    var urlString = 'http://corticon-demo.dnsalias.com:8858/axis/corticon/execute;
    var executeRequest = {
        "Objects": [],
        "name": "WorkAssignment"
    };
    executeRequest.Objects.push({
        "date": request.body.date,
        "device": request.body.device,
        "serviceType": request.body.serviceType,
        "metadata": {
            "type": "Request"
        }
    });
    var opts = {
        url: urlString,
        method: 'post',
        headers: {},
        json: true,
        body: executeRequest
    };
    modules.request.request(opts, function(err, resp, body) {
        if (err) {
            response.body = err;
        } else {
            response.body.suggestedTech = body.Objects[0].assignedTech;
            response.body.skillLevel = body.Objects[0].minLevel;
            response.complete();
        }
    });
}
Backend as a Service - Data Connectivity

Use Kinvey Data Store
Fetch and save data from Kinvey’s scalable cloud-based data store

Use a Data Service
Connect this collection to a Data Service from the Service Catalog
Backend as a Service - Data Connectivity
Backend as a Service – MSSQL Service Appointment Data

```sql
-- Script for SelectTopNRows command from SSMS

SELECT TOP (1000) [appointmentID],
       [status],
       [tech_id],
       [address]
FROM dbo.APPOINTMENTS
```

<table>
<thead>
<tr>
<th>appointmentID</th>
<th>status</th>
<th>tech_id</th>
<th>address</th>
<th>city</th>
<th>state</th>
<th>zip</th>
<th>date</th>
<th>cellphone</th>
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<td>100</td>
<td>100 Main St.</td>
<td>Schenectdy</td>
<td>NY</td>
<td>12345</td>
<td>2018-09-27</td>
<td>97883104</td>
</tr>
<tr>
<td>2</td>
<td>33</td>
<td>300</td>
<td>999 Winding Road</td>
<td>Schenectdy</td>
<td>NY</td>
<td>12345</td>
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<td>39</td>
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<td>12345</td>
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<td>NY</td>
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<tr>
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<td>3</td>
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<td>Schenectdy</td>
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<td>12345</td>
<td>2018-10-05</td>
<td>97883104</td>
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</table>
### Backend as a Service - Data Connectivity

#### InnovTourDemos

**Development**

**Dashboard**

<table>
<thead>
<tr>
<th>ID</th>
<th>acl</th>
<th>_kmd</th>
<th>status</th>
<th>techId</th>
<th>address</th>
<th>city</th>
<th>state</th>
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</thead>
<tbody>
<tr>
<td>11258109</td>
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<td>&quot;ect&quot;: &quot;2018-10-16T04:37:37.51: 3&quot;</td>
<td>100</td>
<td>&quot;100 Main St.&quot;</td>
<td>&quot;Schenectady&quot;</td>
<td>&quot;NY&quot;</td>
<td></td>
</tr>
<tr>
<td>5925939</td>
<td>()</td>
<td>&quot;ect&quot;: &quot;2018-10-16T04:37:37.51: 3&quot;</td>
<td>100</td>
<td>&quot;100 Main St.&quot;</td>
<td>&quot;Schenectady&quot;</td>
<td>&quot;NY&quot;</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>()</td>
<td>&quot;ect&quot;: &quot;2018-10-16T04:37:37.51: 1&quot;</td>
<td>200</td>
<td>&quot;555 Rough Road&quot;</td>
<td>&quot;Schenectady&quot;</td>
<td>&quot;NY&quot;</td>
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<tr>
<td>33</td>
<td>()</td>
<td>&quot;ect&quot;: &quot;2018-10-16T04:37:37.51: 1&quot;</td>
<td>300</td>
<td>&quot;999 Winding Road&quot;</td>
<td>&quot;Schenectady&quot;</td>
<td>&quot;NY&quot;</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>()</td>
<td>&quot;ect&quot;: &quot;2018-10-16T04:37:37.51: 1&quot;</td>
<td>100</td>
<td>&quot;100 Main St.&quot;</td>
<td>&quot;Schenectady&quot;</td>
<td>&quot;NY&quot;</td>
<td></td>
</tr>
</tbody>
</table>
function onRequest(request, response, modules) {
  var twilio = modules.twilio('AC763735715038ad4911ab667e8659265', '8de096ac18462b44855999bde197cb3');
  var bodyMsg = request.body.bodyMsg;
  var sendTo = request.body.sendTo;
  //hard coded to the number from Twillo
  var sendFrom = '7175468988';

  //Send an SMS text message
  twilio.sendMessage({
    to: sendTo, // Any number Twilio can deliver to
    from: sendFrom, // A number you bought from Twilio and can use for outbound communication
    body: bodyMsg // body of the SMS message
  }, function(err, responseData) {
    if (err) {
      return response.error(err);
    } else {
      modules.logger.info(responseData);
      response.body = {sentSMS: true}
      return response.complete(200);
    }
  });
}
## Operations - errors raw

<table>
<thead>
<tr>
<th>Time</th>
<th>statusCode</th>
<th>responseBody</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 3rd 2018, 10:51:08.742</td>
<td>401</td>
<td>(&quot;error&quot;:&quot;InvalidCredentials&quot;, &quot;description&quot;:&quot;Invalid credentials. Please retry your request with correct credentials.&quot;,&quot;debug&quot;:&quot;Authorization token invalid or expired&quot;)</td>
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<tr>
<td>August 3rd 2018, 10:25:45.731</td>
<td>401</td>
<td>(&quot;error&quot;:&quot;InvalidCredentials&quot;, &quot;description&quot;:&quot;Invalid credentials. Please retry your request with correct credentials.&quot;,&quot;debug&quot;:&quot;Authorization token invalid or expired&quot;)</td>
</tr>
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<td>August 3rd 2018, 10:25:43.704</td>
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<td>August 3rd 2018, 10:25:41.167</td>
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</tr>
<tr>
<td>August 3rd 2018, 10:25:15.600</td>
<td>401</td>
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</tr>
</tbody>
</table>

## Operations - requests raw

<table>
<thead>
<tr>
<th>Time</th>
<th>statusCode</th>
<th>url</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 10th 2018, 08:42:35.877</td>
<td>304</td>
<td>/user/kid_ZJk02vOUp/g/`count</td>
</tr>
<tr>
<td>August 10th 2018, 08:42:33.879</td>
<td>200</td>
<td>/user/kid_ZJk02vOUp/g/`count</td>
</tr>
<tr>
<td>August 10th 2018, 08:42:33.815</td>
<td>200</td>
<td>/appdata/kid_ZJk02vOUp/g/mycache/`count</td>
</tr>
</tbody>
</table>
Demo Step 1: WHAT DID YOU SEE: Chat Bot, mBaaS, Biz Rules and SMS
Empower business users to manage business rules

- Empower subject matter experts
- Reduce burden on development teams
- Industry leading performance & scalability
### Business Rules

#### Rule Statements

<table>
<thead>
<tr>
<th>Ref</th>
<th>ID</th>
<th>Post</th>
<th>Alias</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Info</td>
<td>Request</td>
<td>Battery service requires a level 1 or higher tech</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Info</td>
<td>Request</td>
<td>Hard Disk service requires a level 2 or higher tech</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Info</td>
<td>Request</td>
<td>Hard Disk service on laptops requires a level 3 or higher tech</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Info</td>
<td>Request</td>
<td>Video Card service requires a level 3 or higher tech</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Info</td>
<td>Request</td>
<td>Motherboard and Video Card service on laptops requires a level 4 or higher tech</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Info</td>
<td>Request</td>
<td>Motherboard service on servers requires a level 5 or higher tech</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Info</td>
<td>Request</td>
<td>Keyboard service on laptops and servers requires a level 2 or higher tech</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Info</td>
<td>Request</td>
<td>Motherboard service on desktops requires a level 1 or higher tech</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Info</td>
<td>Request</td>
<td>Motherboard service on desktops requires a level 3 or higher tech</td>
<td></td>
</tr>
</tbody>
</table>

---

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### Business Rules

<table>
<thead>
<tr>
<th>Conditions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request.device</td>
<td>-</td>
<td>-</td>
<td>'Laptop'</td>
<td>-</td>
<td>'Laptop'</td>
<td>'Server'</td>
<td>('Laptop', 'Server')</td>
<td>'Desktop'</td>
<td>'Desktop'</td>
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<tr>
<td>Request.serviceType</td>
<td>'Battery'</td>
<td>'Hard Disk'</td>
<td>'Hard Disk'</td>
<td>'Video Card'</td>
<td>{ 'Motherboard', 'Video Card'}</td>
<td>'Motherboard'</td>
<td>'Keyboard'</td>
<td>'Keyboard'</td>
<td>'Motherboard'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actions</th>
<th>Post Message(s)</th>
<th>Request.minLevel</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

If the **device** type is a **laptop** AND the **service type** is **motherboard** or **video card** replacement then the minimum technician **skill level** required for that service task is **4**
Business Rules
The Industry Standard for Data and Application Connectivity

- 9 of the top 10 BI vendors embed DataDirect
- Long history of industry standards leadership
- Patented hybrid integration approach
  - cloud / on-premise / both
- Best-in-class performance, scalability and security
Demo Step 1: RECAP WHAT YOU SAW: Chat Bot, mBaaS, Biz Rules, MSSQL and SMS
Demo Step 2a: WHAT DID YOU SEE: Native Mobile App and mBaaS
Demo Step 2a: WHAT DID YOU SEE: Native Mobile App and mBaaS
Mobile App Development – What is the Challenge?

- “Swift” for Apple
- “Java” for Android
- Develop the same app twice
- Try to keep apps looking the same and code in sync
Mobile App Development – What is the Answer? NATIVESCRIPT!

• Create truly native iOS and Android apps from a single codebase in JavaScript, TypeScript or Angular

• No need to write bridging code. All native functionality is available from single codebase.

• Get native performance and user experience
NativeScript Development – Javascript and HTML
Mobile App Deployment – What is the Challenge?

- App Store deployment – must have a Mac
- Settings for App in Store
- Icons and App Store Images
NativeScript Sidekick to Streamline Development AND Deployment

Mobile App Deployment – What is the Answer? NATIVESCRIPT SIDEKICK!
NativeScript - Native Device Functionality

Status: Acknowledged
Service Type: 100
Service Date: 2018-09-27T00:00:00.000Z
Customer #: 4
Customer Name: Forge Power Tools
Address:
  100 Main St.
  Schenectady
  NY
  12345
Phone: 9788310468
Email: datkins@progress.com

Call Customer

(978) 831-0468
Massachusetts

Last spoke:
  Yesterday 7:42 AM
  0 hr 0 min 0 sec

Add call     Dialpad     End call
Speaker      Mute       Bluetooth
NativeScript - Native Device Functionality
NativeScript - Native Device Functionality
Demo Step 2a: WHAT YOU SAW: Native Mobile App and mBaaS
Create native iOS and Android apps with JavaScript

Open source framework for building truly native mobile apps with Angular, Vue.js, TypeScript, or JavaScript.

Get Started

Build Native Mobile Apps Your Way
Demo Step 2b: WHAT DID YOU SEE: Native Mobile App and mBaaS
Kinvey Cloud Service Accelerators

Leverage more than 20 integrated, configurable and secure serverless cloud services to reduce development, integration, maintenance and operations costs.
### Backend as a Service - OpenEdge Data

<table>
<thead>
<tr>
<th>ItemNum</th>
<th>ItemName</th>
<th>Manufacturer</th>
<th>ManufacturerSKU</th>
<th>VendorSKU</th>
<th>Price</th>
<th>OnHand</th>
<th>Category1</th>
<th>Category2</th>
<th>Detail1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Asoos Motherboard ABC123</td>
<td>Asoos</td>
<td>MB12345</td>
<td>AcmeMB12345</td>
<td>199.95</td>
<td>127</td>
<td>Computer parts</td>
<td>Motherboards</td>
<td>4 DIMM slots - max RAM 640</td>
</tr>
<tr>
<td>2</td>
<td>GigaBite Motherboard XYZ007</td>
<td>GigaBite</td>
<td>MB967</td>
<td>AcmeMB55555</td>
<td>299.95</td>
<td>127</td>
<td>Computer parts</td>
<td>Motherboards</td>
<td>6 DIMM slots - max RAM 960</td>
</tr>
<tr>
<td>3</td>
<td>GTX 1050</td>
<td>GoFarce</td>
<td>GTX1050</td>
<td>GTX1050</td>
<td>159.95</td>
<td>12</td>
<td>Computer parts</td>
<td>Video Cards</td>
<td>2GB GDDR5</td>
</tr>
<tr>
<td>5</td>
<td>Sculpt Comfort Keyboard</td>
<td>Mirco Soft</td>
<td>L3V-0001</td>
<td>Sculpt Comfort</td>
<td>79.99</td>
<td>20</td>
<td>Computer parts</td>
<td>Input Device</td>
<td>USB 2.0</td>
</tr>
</tbody>
</table>
Backend as a Service - Data Connectivity

- Data Source
  - Cloud Caching
  - Permissions
- Use Kinvey Data Store
  - Fetch and save data from Kinvey’s scalable cloud-based data store
- Use a Data Service
  - ItemDataJSDoSSvc
    - Service Object: IT Item
    - Active
- Collection Preferences
  - Name / Type: ItemDataJSDoSSvc
  - Description: RapidData Progress Data Service to pull IT Item
  - Service Object: IT Item
Demo Step 2b: WHAT YOU SAW: Native Mobile App and mBaaS
Demo Step 3: WHAT DID YOU SEE: Responsive Web and Push Notifications

Rest Service Layer

Progress®
OpenEdge®

Progress®
Kinvey
(Push notification)

Asoos Motherboard is now in stock! Shipping now, will arrive tomorrow before 10:00
Demo Step 3: WHAT DID YOU SEE: Responsive Web and Push Notifications
Web Development – What is the Challenge?

- Many Tools and Technologies to Choose From
- Connectivity to Multiple Data Sources
- Standard Development Framework
Web Development – What is the Answer? Kendo UI Builder!

• Graphical Development based on current standards
• Built-in OpenEdge, REST and OData data source integration
• Model-based code generation to simplify customization
Kendo UI Builder – Standards Based
Kendo UI Builder – Simplified Screen Creation
Demo Step 3: WHAT YOU SAW: Responsive Web and Push Notifications

Rest Service Layer

Progress® OpenEdge®

Progress® Kinvey

(Push notification)

Alert
Asoos Motherboard is now in stock! Shipping now, will arrive tomorrow before 10:00
Intelligent, unified user experience

API Service Platform

Systems of Record & Advanced Business Logic

Hardware Customers

Service Customers

CSR

Technicians

Inventory Worker
The Progress **Cognitive-first** Platform

Adaptive Experience
- NativeScript
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Connected Data
- Progress® DataDirect®

Systems of Record
- Big Data
- Internet of Things
DigiCom + ServiTech = DigiServ

Challenges:

- A large number of CSRs from ServiTech were let go after merger
  - Self-service scheduling through conversational chatbot interface
DigiCom +ServiTech = DigiServ

Challenges:

- A large number of CSRs from ServiTech were let go after merger
  - Self-service scheduling through conversational chatbot interface
- DigiCom needs direct access to ServiTech system
  - Kinvey enables ‘2-speed dev’, no-code integrations and SMS/Push…
Challenges:

- A large number of CSRs from ServiTech were let go after merger
  - Self-service scheduling through conversational chatbot interface
- DigiCom needs direct access to ServiTech system
  - Kinvey enables ‘2-speed dev’, no-code integrations and SMS/Push…
- ServiTech field techs need remote access to the inventory system
  - Kinvey enables ‘2-speed dev’, no-code integrations and SMS/Push…
DigiCom + ServiTech = DigiServ

Challenges:

- A large number of CSRs from ServiTech were let go after merger
  - Self-service scheduling through conversational chatbot interface
- DigiCom needs direct access to ServiTech system
  - Kinvey enables ‘2-speed dev’, no-code integrations and SMS/Push…
- ServiTech field techs need remote access to the inventory system
  - Kinvey enables ‘2-speed dev’, no-code integrations and SMS/Push…
- Field techs need mobile apps that support geolocation…etc.
  - {N} app uses native device features, seamlessly integrated by Kinvey
Challenges:

- A large number of CSRs from ServiTech were let go after merger
  - Self-service scheduling through conversational chatbot interface
- DigiCom needs direct access to ServiTech system
  - Kinvey enables ‘2-speed dev’, no-code integrations and SMS/Push…
- ServiTech field techs need remote access to the inventory system
  - Kinvey enables ‘2-speed dev’, no-code integrations and SMS/Push…
- Field techs need mobile apps that support geolocation…etc.
  - {N} app uses native device features, seamlessly integrated by Kinvey
- DigiServ wants to expand the diversity of products they service
  - Corticon tech assignment business rules are agile and manageable