

Mobility Matters

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www.mi-corporation.com

The logo for Mi-Corporation, featuring the word "Mi-Corporation" in a bold, blue, sans-serif font. The "i" in "Mi" is stylized with a circular graphic element around it.

Mi-Corporation

Mobility Summit
2015

Positively impacting the world

In the last year...

- We gave you
 - Data Replication
 - Mi-Enterprise Apps
 - ~~Mobile Inspection Software by Mi-Corporation~~ Mi-Analytics
 - Fully server independent iOS/Android forms
 - Enhanced JavaScript model
 - A phone capable app
 - Easier customer creation
 - Improved Active Directory Support
 - Intel 2 in 1 support
 - And many other features...

In the last year...

- And you gave us
 - A cleaner / safer environment
 - Improved public transportation
 - Safer bridges
 - Security in our homes and businesses
 - Fire safety
 - Oil & natural gas safety
 - Clinical trial monitoring
 - Healthier children and smiles
 - And much much more...

Some stats



- 2014 was the magic year
 - There are now more mobile internet users than desktop users
- 80% of Internet users own a smartphone
 - Yet only 64% of US population owns a mobile phone
 - 1.25 billion smartphones by 2018
 - PER YEAR
 - Put another way, that means 1 in 6 people in the world will buy one that year



ZOINKS!

Some Stats



- 47% of Internet users own a tablet
- Mobile B2C commerce was ~\$84 BILLION in US in 2014
- 51% = # of people in this room
Googling to see if I made this all up



What makes for good mobility?

- Keys to a good mobile solution
 - Data
 - Experience
 - Improvement



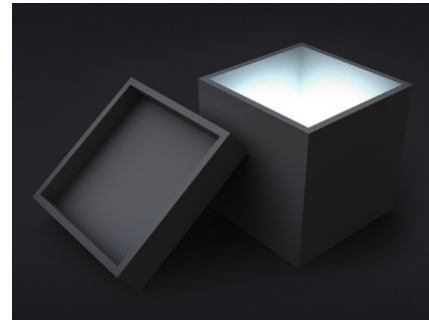
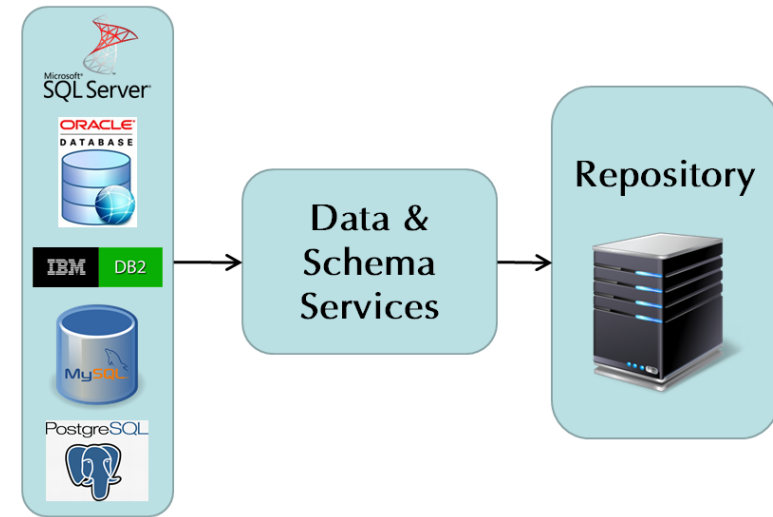
Data

- Mobility without data makes no sense
- At its heart, a useful mobile app captures and/or displays information
- Depending who you ask data generation may be as much as 18 million times the size of the Library of Congress digital archive
- 1 trillion gigabytes of data will be transferred across the world (2015)
 - 142 gigabytes per person alive
 - 390+ megabytes per day
 - More than 50% created from “wireless” devices
 - And Verizon/AT&T are surprised when people want larger plans...

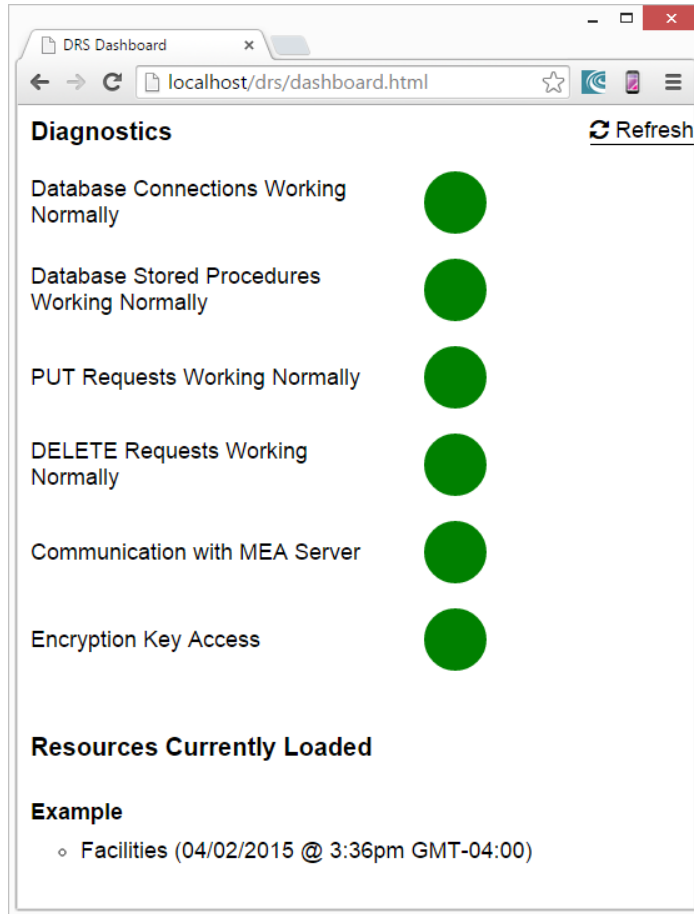


Data

- Some of that data should be yours
- Data Replication to mobile devices
 - Same back end for any data source
 - Same accessibility for any mobile device
 - Works across forms and apps
 - Provides data offline
- Peers are using it
 - Facilities
 - Products
 - Inspectors
- Black box mystery



Until now...



DRS Dashboard

localhost/drs/dashboard.html

Diagnostics

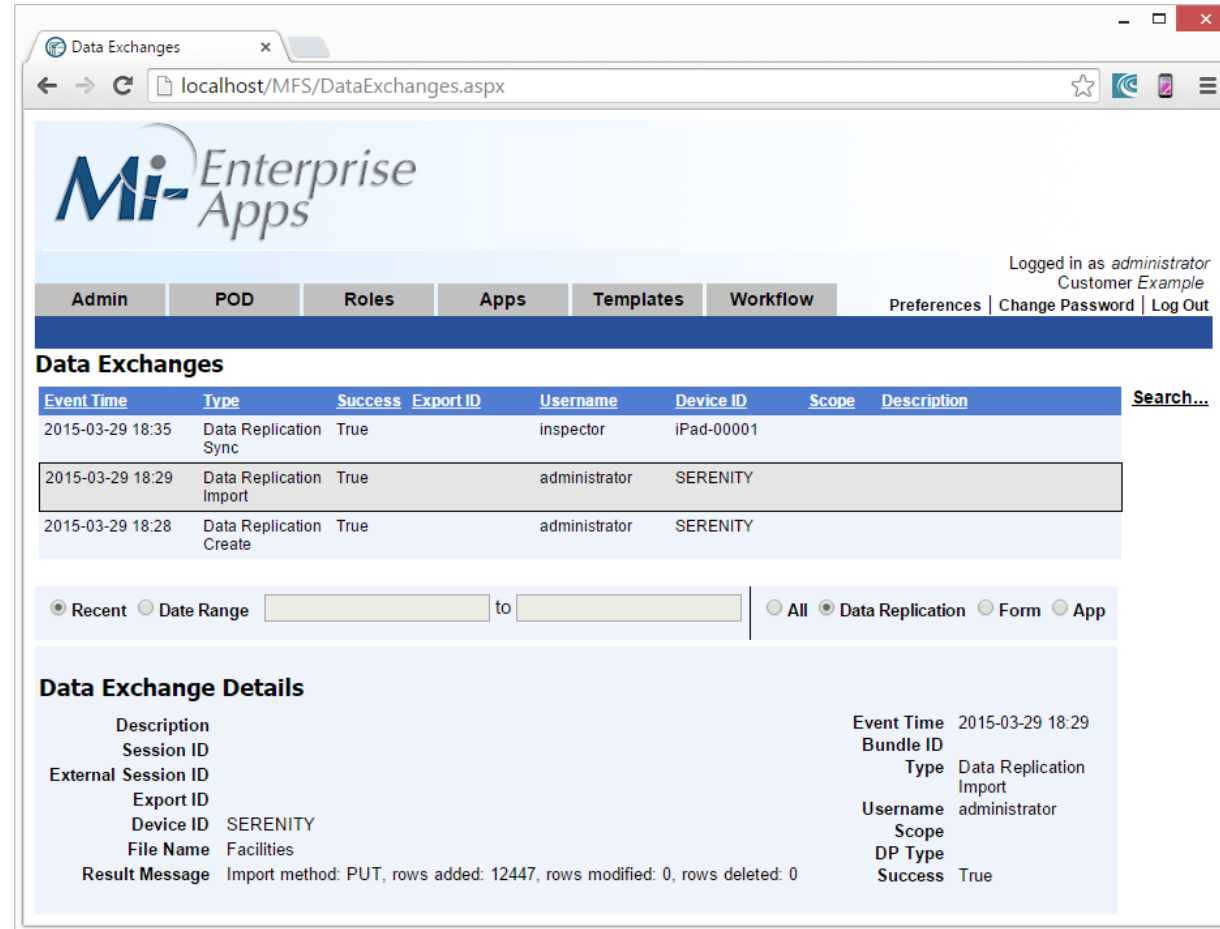
Refresh

- Database Connections Working Normally
- Database Stored Procedures Working Normally
- PUT Requests Working Normally
- DELETE Requests Working Normally
- Communication with MEA Server
- Encryption Key Access

Resources Currently Loaded

Example

- Facilities (04/02/2015 @ 3:36pm GMT-04:00)



Data Exchanges

localhost/MFS/DataExchanges.aspx

Mi-Enterprise Apps

Logged in as administrator
Customer Example

Admin | POD | Roles | Apps | Templates | Workflow | Preferences | Change Password | Log Out

Data Exchanges

Event Time	Type	Success	Export ID	Username	Device ID	Scope	Description	Search...
2015-03-29 18:35	Data Replication Sync	True		inspector	iPad-00001			
2015-03-29 18:29	Data Replication Import	True		administrator	SERENITY			
2015-03-29 18:28	Data Replication Create	True		administrator	SERENITY			

Recent Date Range to All Data Replication Form App

Data Exchange Details

Description	Event Time	2015-03-29 18:29
Session ID	Bundle ID	
External Session ID	Type	Data Replication Import
Export ID	Username	administrator
Device ID	Scope	
File Name	DP Type	
Result Message	Success	True
		Import method: PUT, rows added: 12447, rows modified: 0, rows deleted: 0

Exports too

The screenshot shows the 'Data Exchanges' page in the Mi-Enterprise Apps application. The page header includes the Mi-Enterprise Apps logo and the user 'administrator' logged in for 'Customer Example'. A navigation menu contains 'Admin', 'POD', 'Roles', 'Apps', 'Templates', 'Workflow', 'Preferences', 'Change Password', and 'Log Out'. The main content area is titled 'Data Exchanges' and features a table with columns: Event Time, Type, Success, Export ID, Username, Device ID, Scope, and Description. Below the table are filters for 'Recent' (selected) and 'Date Range', and radio buttons for 'All', 'Data Replication', 'Form' (selected), and 'App'. A 'Data Exchange Details' section provides specific information for the selected event.

Event Time	Type	Success	Export ID	Username	Device ID	Scope	Description
2015-03-30 09:44	Session Export	True	PDF	inspector	SERENITY	Server	Sycamore Building - 03/30/2015
2015-03-30 09:44	Session Export	True	XML	inspector	SERENITY	Server	Sycamore Building - 03/30/2015
2015-03-30 09:44	Session Export	True		inspector	SERENITY		Sycamore Building - 03/30/2015
2015-03-30 09:30	Session Export	True	CSV	inspector	MAL	Client	Sycamore Building - 03/30/2015

Recent Date Range [] to [] All Data Replication Form App

Data Exchange Details

Description	Sycamore Building - 03/30/2015	Event Time	2015-03-30 09:44
Session ID	1	Bundle ID	
External Session ID	SERENITY_635633054582971522	Type	Session Export
Export ID	XML	Username	inspector
Device ID	SERENITY	Scope	Server
File Name	c:\exports\Building Inspection.xml	DP Type	XML
Result Message	XML processed	Success	True

Search

The screenshot shows a web browser window with the URL `localhost/MFS/DataExchanges.aspx?Action=Search`. The page header includes the Mi-Enterprise Apps logo and a navigation menu with items: Admin, POD, Roles, Apps, Templates, Workflow, Preferences, Change Password, and Log Out. The user is logged in as administrator for Customer Example.

The main content area is titled "Search for Data Exchanges" and contains the following search criteria:

- Type:** A group of checkboxes for Session Export, App Data Bundle, Mi-Analytics Import, Data Replication Create, Data Replication Delete, Data Replication Import, and Data Replication Sync. There are "Select All" and "Clear All" buttons.
- Session ID:** A range selection from "to".
- External Session ID:** A text input field.
- Datapath Type:** A dropdown menu.
- Bundle ID:** A range selection from "to".
- Description:** A text input field.
- Export ID:** A text input field.
- Scope:** A dropdown menu.
- User Available:** A list box containing "administrator" and "inspector".
- Selected:** An empty list box.
- Event Time:** A range selection from "to".
- Success:** A dropdown menu.
- Device ID:** A text input field.
- File Name:** A text input field.
- Result Message:** A text input field.

A "Search" button is located at the bottom of the form.

Closing the loop

- Current usage pattern (client)
 - Write code to subscribe to resource
 - Write code to sync resource
 - Setup a background sync methodology
 - Write code to query data
 - Write code to unsubscribe (maybe)
- Future usage pattern (client)
 - Define needed resource in Designer



New and different data

- Data classifications

- Nominal

- This fruit is an apple

- Ordinal

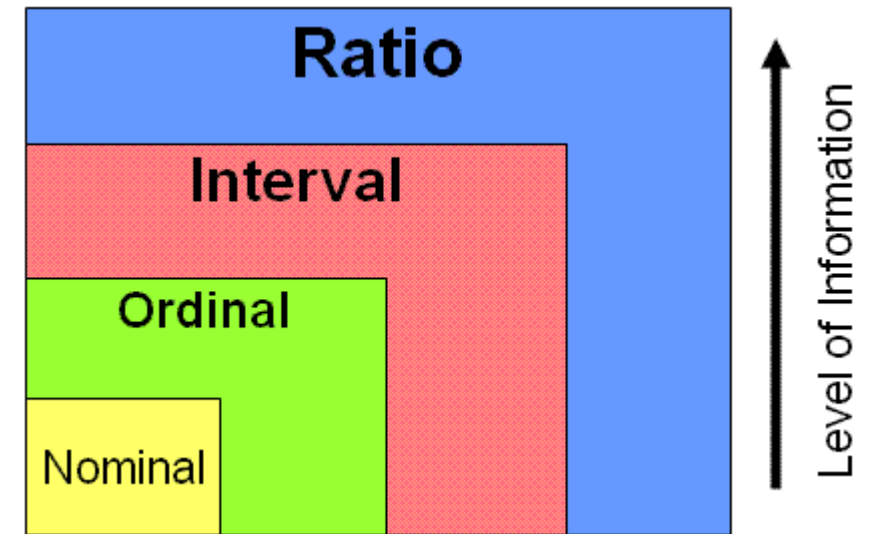
- I give this movie 3 stars (out of 5)

- Interval

- It's currently 80 degrees outside

- Ratio

- Twice as many vehicles traverse bridge 2 compared to bridge 1

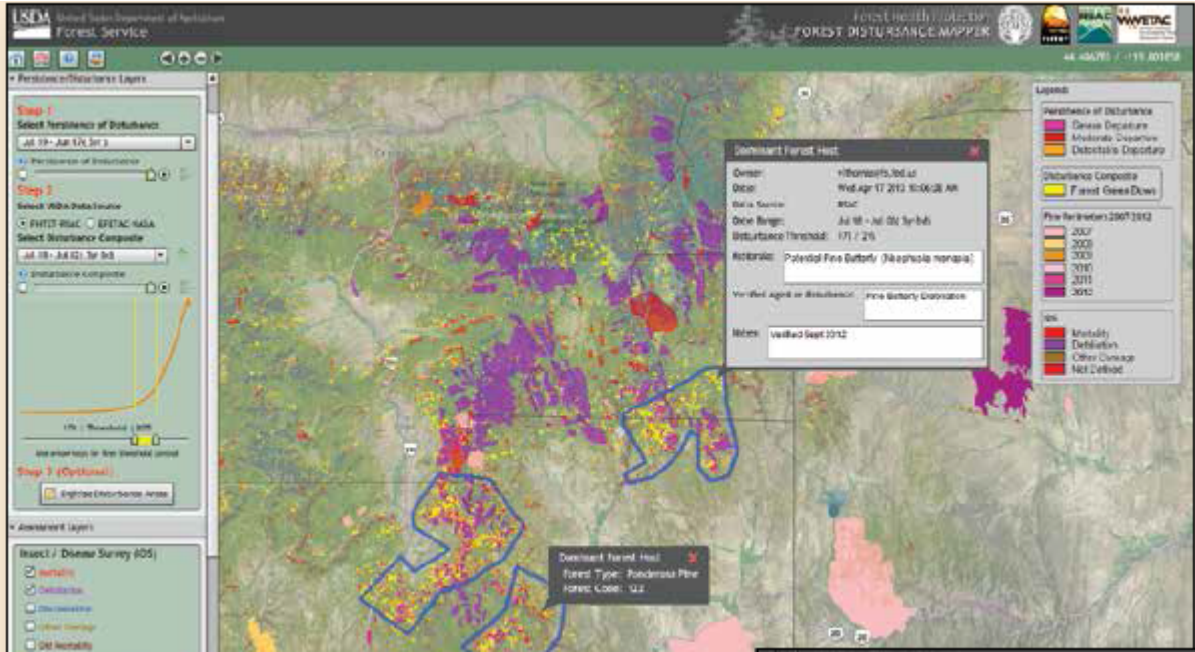
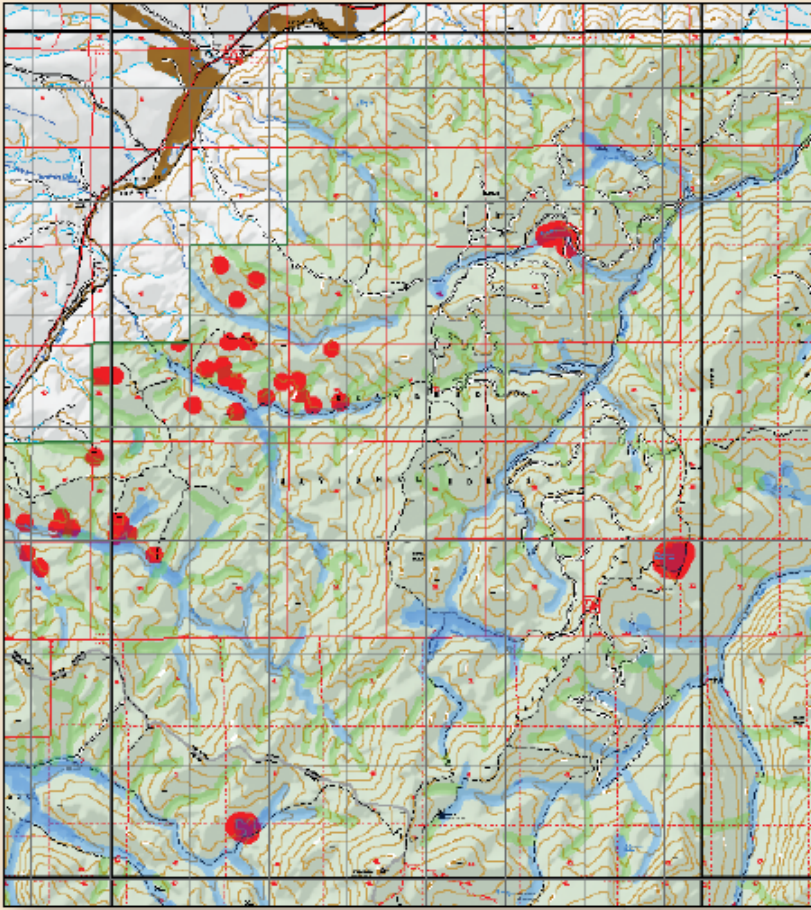


Data attributes

- The value of the data
- Who recorded it?
- When did they record it?
- Why did they record it?
- Where were they when they recorded it?
 - 74% of people used geolocation aware apps in 2012



The mapping nation



Our GIS

- We're bringing the power of GIS to Mi-Forms

The screenshot shows the Mi-Forms application interface. At the top, there is a menu bar with 'File', 'View', 'Tools', 'Forms', and 'Help'. Below the menu bar, there are two tables: 'Inspections To Do' and 'Inspections Done'. The 'Inspections To Do' table has columns for Name, Address, City, State, Zip, Latitude, and Longitude, with two rows of data. Below this table are five buttons: 'Add', 'Edit', 'Complete', 'Re-Center', and 'Delete'. The 'Inspections Done' table has the same columns and one row of data. Below this table is a 'Center' button. There is a checkbox for 'Show Current Location' with 'Yes' selected and 'No' unselected, and an 'Add Current Location' button. At the bottom, there is a map showing a geographical area with roads and a blue dot indicating the current location. Below the map is a 'Directions' button and a text box with navigation instructions.

Name	Address	City	State	Zip	Latitude	Longitude
DoubleTree	4810 Page Cre	Durham	NC	27703	35.882679	-78.842604
Current Location					35.8805	-78.8493

Name	Address	City	State	Zip	Latitude	Longitude
Mi-Corporation HQ	4601 Creeksto	Durham	NC	27703	35.882257	-78.847929

Show Current Location Yes No **Add Current Location** **Center**

Directions

Start at Location 1 (0.00mi)
Go east on Creekstone Dr toward Page Creek Ln (0.34mi)
Turn left on Page Creek Ln (0.07mi)
Finish at Location 2, on the right (0.00mi)

Data in conclusion

- You now know just how much data is flowing around the world
- We want you to contribute to that data avalanche
- You want data to drive your mobile app
- We want to provide visibility in to that data
- You want to capture new types of data
- We want to provide you the ability to do so

The Experience

- Poor user experience is the leading cause of Enterprise Mobile App Failures
- User interface is the main source of user frustration
- Developers struggle with user interface and user experience



What can we do to improve Experience?

- Invest in UI/UX
 - *“For developers and manufacturers, the advantages of creating usable products far outweigh the costs. The rule of thumb: Every dollar invested in ease of use returns \$10 to \$100.”*
- Establish UI/UX consistency
- Don't astonish the user
- Target your device set & environment
- Rate your own usability
 - Satisfaction
 - Effectiveness
 - Efficiency



The form experience

- Good practices

Patient Filter Patient List

S

Simon, Sam
Smothers, Tommy
Struthers, Sally

Incident Date (on or before today)

0 4 / 3 0 / 2 0 1 6

Incident Date (on or before today)

0 4 / 3 0 / 2 0 1 6

Last Name

Smith

Cal Date

Apr 18, 2016

Mr

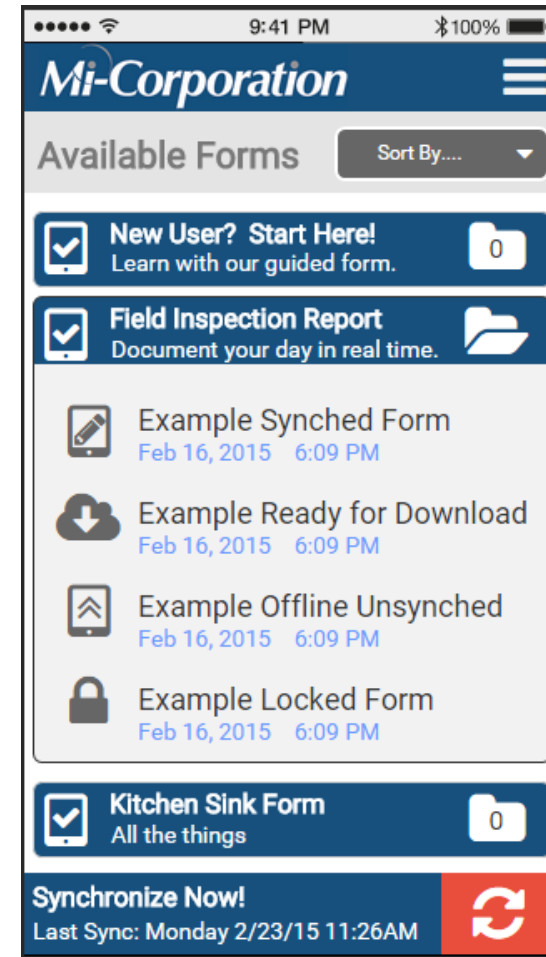
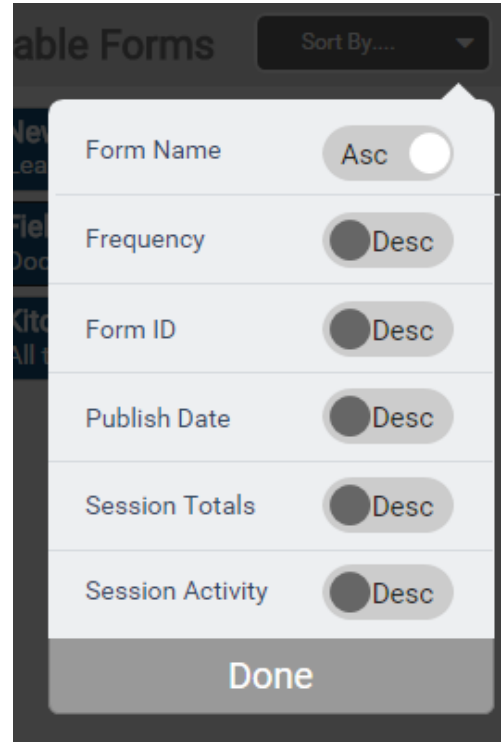
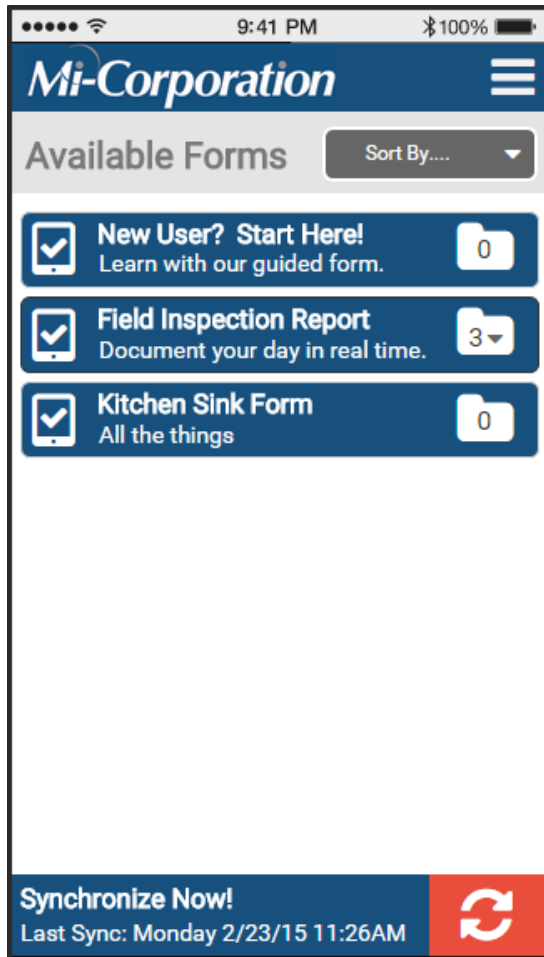
Clear

January	15	2013
February	16	2014
March	17	2015
April	18	2016
May	19	2017
June	20	2018
July	21	2019

The app experience

- You depend on us for a good experience
- Took our own advice
- Investing in the UI/UX experience
- Streamlined top to bottom experience
 - Navigating forms
 - Filling forms
 - Configuring application

iOS / Android Mi-Forms UI/UX



iOS / Android Mi-Forms UI/UX

Form Title
Session Descriptor

Employee Name
First Name Last Name

Office Address
Street Address

City Zip Code
City Zip Code

Contact Numbers
Office Phone Mobile Phone

GPS Field
Tap to set GPS location

Facility Type
Select an option

Client Information

Text Field

123-3_ _ _ Last Name

Calendar

dd/mm/yyyy

dd/mm/yyyy

March 2015

Mo	Tu	Wed	Thu	Fr	Sa	Su
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Tap 25 to select active calendar.

Checkbox Group A

Unchecked
 Checked
 Checked

Item 1
Item 2
Item 3
Item 4
Item 5

GPS Field

N 51° 30' 12.11" , W 0° 7' 39.45"

iOS / Android Mi-Forms UI/UX

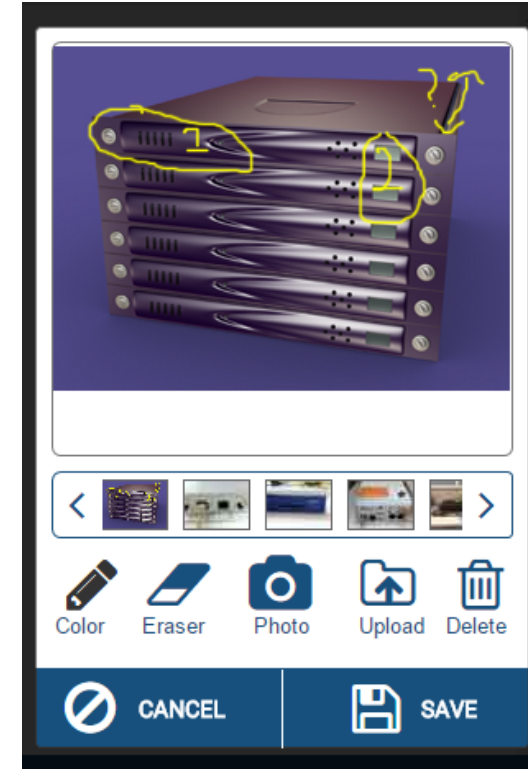
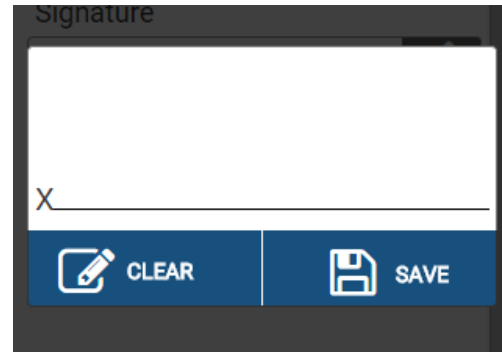
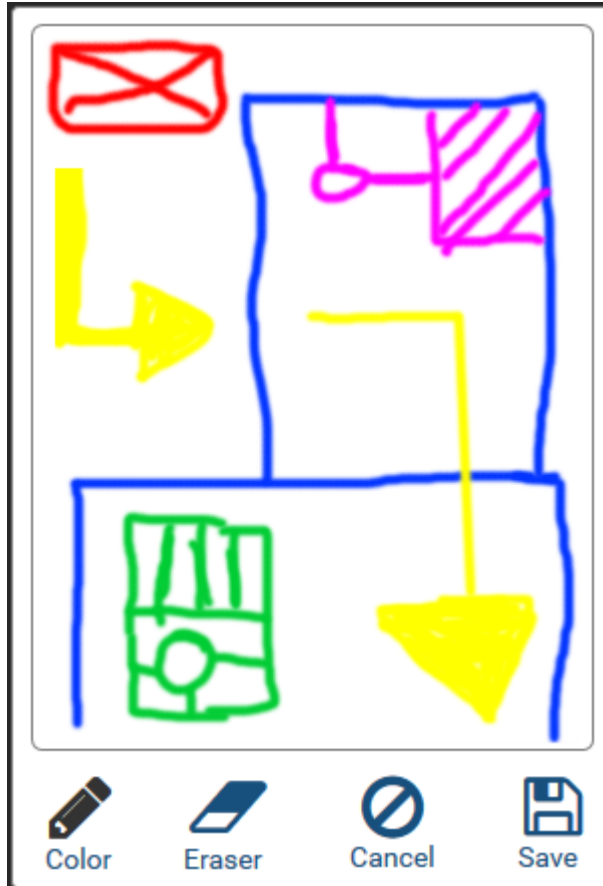
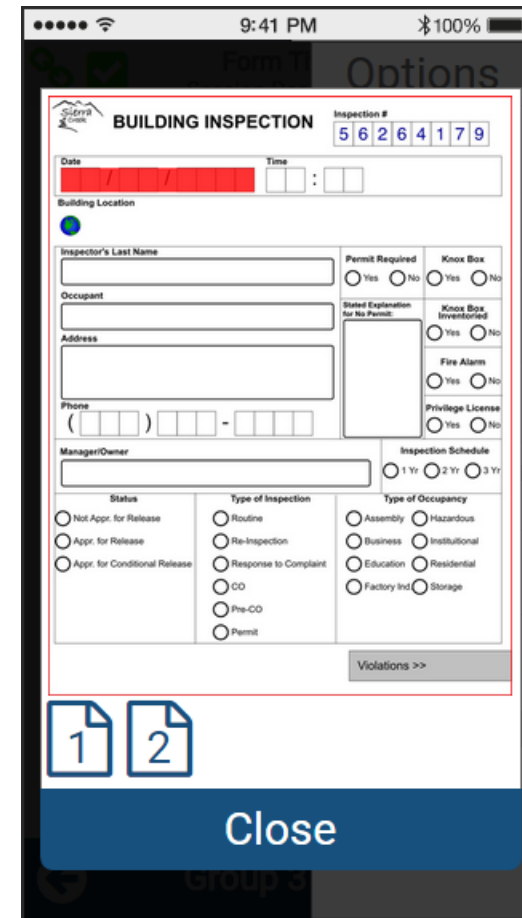
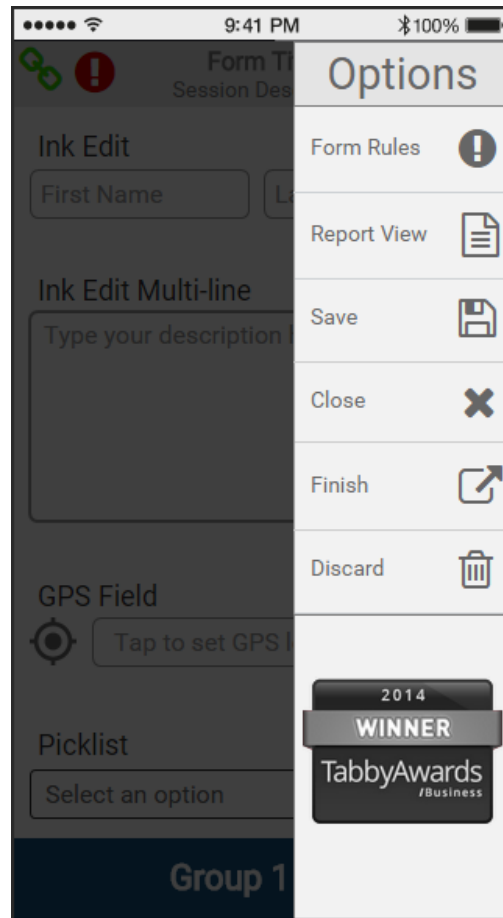
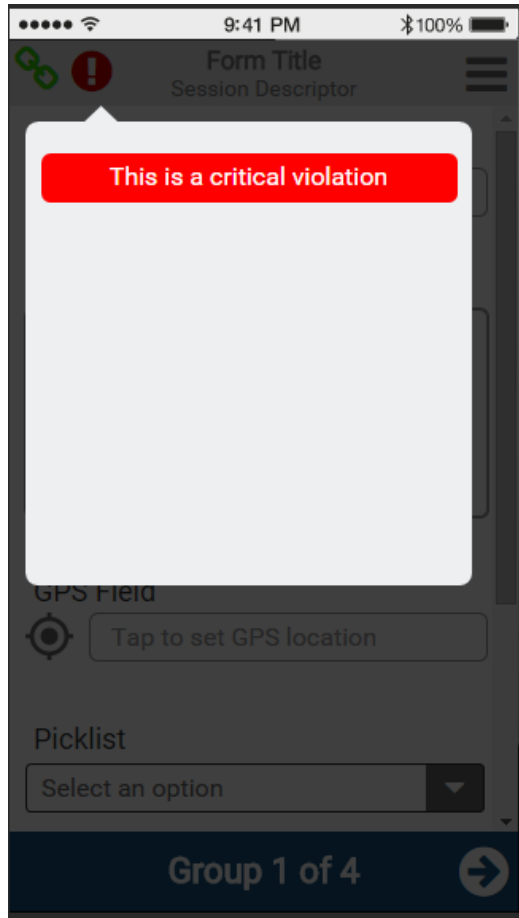


Image Annotation



iOS / Android Mi-Forms UI/UX



iOS / Android Mi-Forms UI/UX

- To see it in action, come to our demo tables

Improvement

- Improve our business process
 - What data did we capture?
 - Allow it to come from many sources
 - Standardize where it exists
 - Make it open to integration
 - Show it to us
 - Make it pretty
 - Make it accessible
 - See it in real time



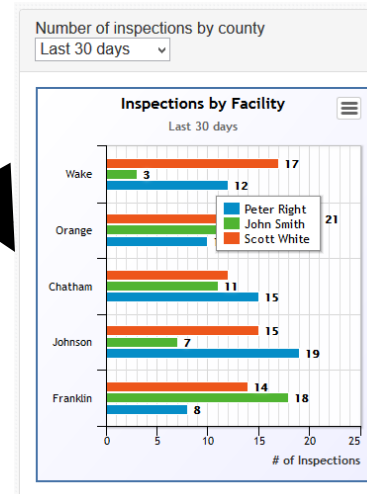
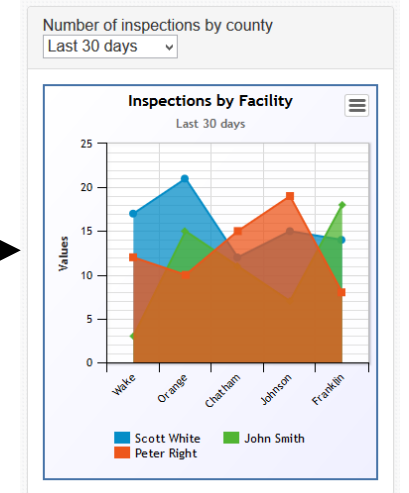
Analytics

- Mi-Analytics



Number of inspections by county
Last 30 days

County	Peter Right	John Smith	Scott White	TOTAL
Wake	12	3	17	32
Orange	10	15	21	46
Chatham	15	11	12	38
Johnson	19	7	15	41
Franklin	8	18	14	40
TOTAL	64	54	79	197



Improvement

- Improve mobile process
 - What do users really need?
 - What do we know about our data capture?
 - Is our design (our experience) working?
 - Where are users running into roadblocks?
 - And is the app telling us about problems to come?



What do users really need?

- Analysis is key
 - *"I need to be able to capture my expenses while I am on the road, so that filing my expense reports is quicker when I get back."*
 - We could give them
 - An expense report entry system that is likely way too complex to be accessible on a mobile device. It will take too long to be useful and there are too many data points to be entered.
 - We could instead rewrite in line with real needs
 - *"I need to be able to capture my expenses as I spend money on business activities and have them logged into an expense report system."*
 - The important action is capturing the expenses as they are incurred and not having to re-enter them when I file the expense report.
- Job shadows, surveys, define guidelines within your solutions

What do we know about our data?

- Who / When / What
 - Where / Why
- More than we think we know
 - How long?
 - How much?
 - How accurate?
 - How many steps?
 - How easy?



Example

- Real life Virginia Department of Agriculture example
 - Marketplace Registration form submitted on 4/15
 - Sequence of events
 - Form opened
 - Form closed ~21 minutes later
 - Form opened ~151 minutes later
 - Form closed ~1 minute later
 - Form submitted to server ~1 minute after that
 - Total time: 22 minutes
 - No corrections!
 - Took the user 7 seconds to type in a contact's name
 - This user has submitted 5 forms in the last month (4 marketplace registration)

Mi-Forms

File View Tools Forms Help Pages: Page 1

VIRGINIA DEPARTMENT of AGRICULTURE and CONSUMER SERVICES
OFFICE OF PESTICIDE SERVICES

Marketplace Registration Inspection

Inv # **1** Investigator Name *Prefill* Date *Prefill* 0 4 / 1 5 2 0 1 5

County Code Filter Business License Number **2** Page 2 ->

Facility Name

Lookup

Trading As/DBA/Alternate

Lookup

Address

Lookup

City *Lookup* State Zip Code *Lookup*
V A

Phone Number () *Lookup*

Same as Database

Person Interviewed **3**

Title of Person Interviewed **4**

Page **5**

What did that tell us?

- Which forms should be prioritized
- Which sections of those forms should be improved
- How the user actually collects data
- The ability to validate whether changes help or harm



Are the users running into roadblocks?

- Do your users tell you everything that's going on?
 - No
- Do you monitor your server's logs to see if there are errors?
 - Sometimes
- Can we prevent future problems with proper early warning?
 - Yes



Let's make it happen

- Mi-Corporation “Mobility Analytics and Metrics”
 - Consolidate existing metrics from forms / apps
 - Add new metrics from existing data (e.g. time on page)
 - New framework for reporting your own analytics
 - Visualization
 - Notification and reporting
 - Intelligent recommendation
 - Integration with Mi-Analytics
 - Integration with other popular analytic platforms

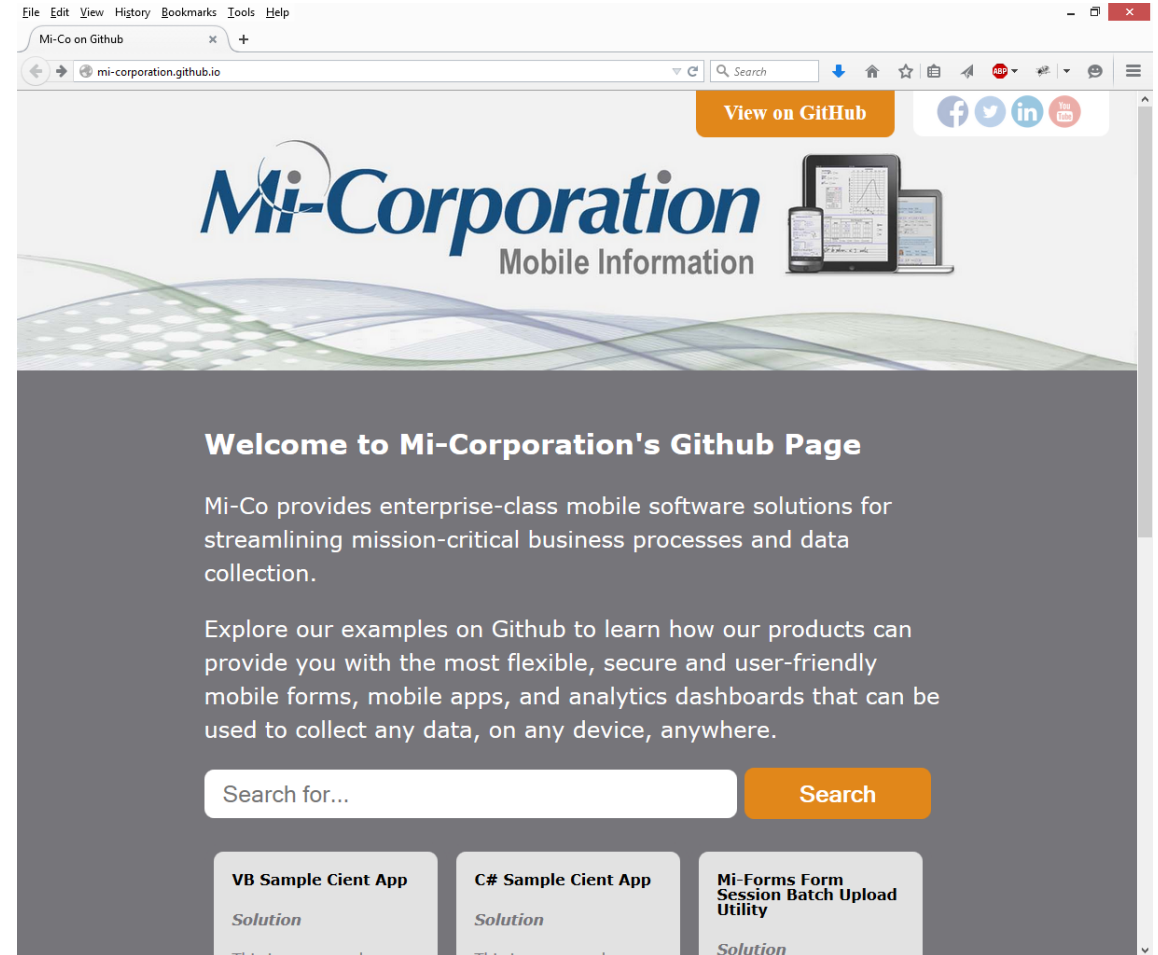


Improvement

- Improvement should be the goal of any app designer
- Goal should be to improve quickly and intelligently
- To do so you need validated analytics

Collaboration

- We all have good ideas
- Openness of ideas helps everyone
- Good online collaboration tools
- Mi-Corporation's GitHub page
 - <https://mi-corporation.github.io>
 - Example Mi-Forms SDK projects
 - Example complex forms
 - Example Mi-Enterprise apps implementations
 - Example Mi-Analytics stored procedures



In Conclusion

- Mobility matters

Questions?

- Questions, comments?
- Please remember to send questions and feature requests to:
support@mi-corporation.com
- Visit our demo tables