

## Florida International University FIU Digital Commons

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GIS Center

FIU Libraries

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2015

### dPanther FIU

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# dPanther FIU

A Platform for Digital Archives and  
Projects



Zhaohui Jennifer Fu

Boyuan (Keven) Guan

## Outline

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1. What is dPanther
2. dPanther key components
3. Technical architecture
4. What dPanther can do
5. Core Development and Content Teams
6. dPanther User Community
7. Applications empowered by dPanther



## What is dPanther?

dPanther is a **digital platform and framework** designed under service oriented architecture (SOA) with comprehensive GIS capabilities integrated.

# dPanther Framework



## PROJECTS

- Walk Smart Route Planner
- BIKE Route Planner
- USDA mobile application
- Transportation Outreach Planner
- Faculty Residence Map
- Geo-Portal (Geo-spatial Metadata)
- 24 active web GIS applications

### Web GIS

- System Migration to Division of IT (2014-2015)
- Expansion to Audio-Visual IT and production
- Digital Scholar Studio + existing GIS labs – IT Space for student users

### dPanther IT Platform

- Coral Gables Virtual History
- St. Augustine Colonial Heritage
- dPanther.fiu.edu (user community)

### Digital Library



## FUNCTIONALITY

- Mobile GIS
- Field Data Collection / Manipulation
- Data Visualization Over Map
- Network Analysis and Routing
- Demographic Reporting and Visualization
- **Crowd Sourcing Tools**

- 100 TB storage, existing and filled
- adding another 120 TB in 2015-2016 cycle
- a suite of 22 database, web, map, and file image and physical servers
- Library IT and DoIT Team

- SoBEK open source system
- Geo-spatial web services for visualization
- Helix server to support Audio-Visual streaming

## About dPanther – Key Components

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1

### SOBEK

Open source digital collection system developed by UF

2

### ArcGIS Server

Product from ESRI

3

### Image Server

A server software designed to process large image format (HD image, tif, JPEG200) on the server side and allow client application to access the image by passing request parameters. Currently using IIPImage Server

4

### Video Steaming Server

Similar to Image Server but designed to handle Video

## About dPanther – Key Components

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5

### Indexing server

Solr / Apache

6

### Web Service (WCF 4.0) site

Windows Communication Foundation, from Microsoft.NET framework 4.0, is designed for cross developing platform distributing system

7

### Rich client applications

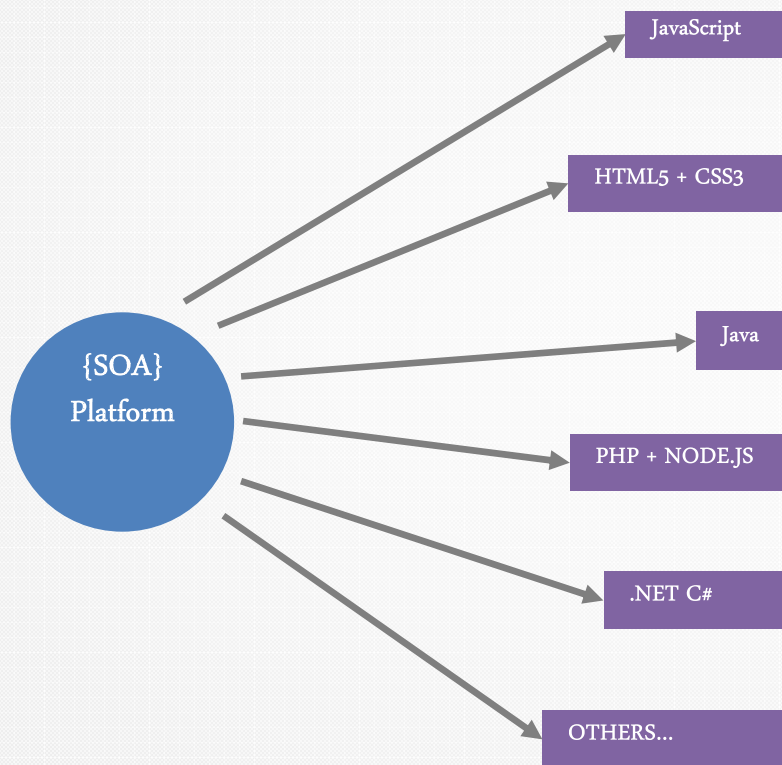
Rich client side logic  
AJAX for server side data communication

8

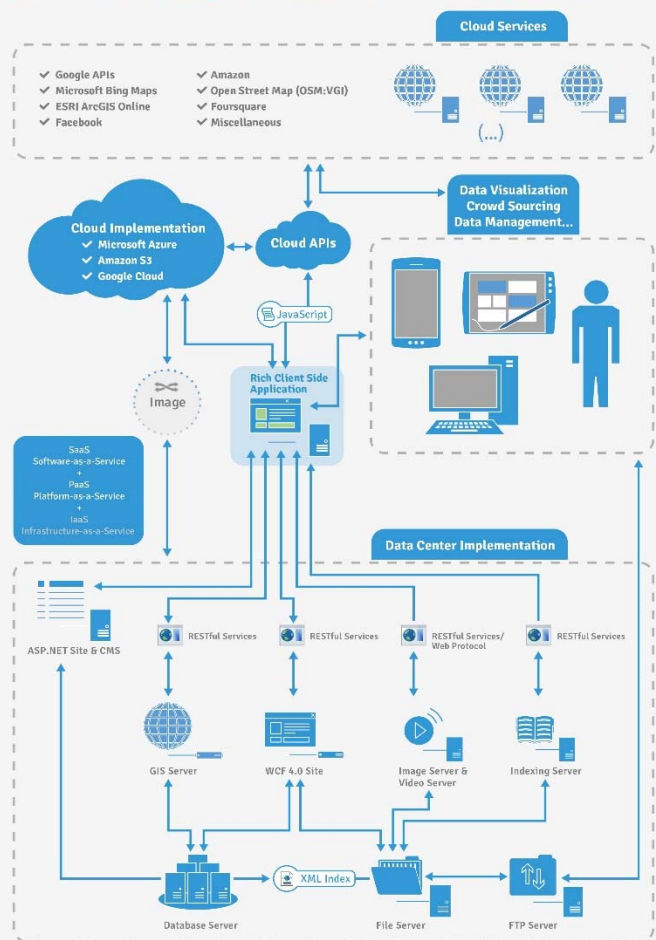
### Cloud APIs integration

Google APIs, Facebook APIs, Foursquare APIs, Bing Maps APIs, ArcGIS Online

# About dPanther – Conceptual Technical Architectur



## dPanter Conceptual Technical Architecture V2.0





# What dPanther Can Do



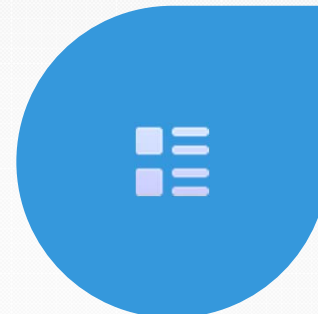
## User Management

- .NET authentication
- LDAP authentication
- OAuth authentication  
(Facebook, Tweeter, Google+, etc.)



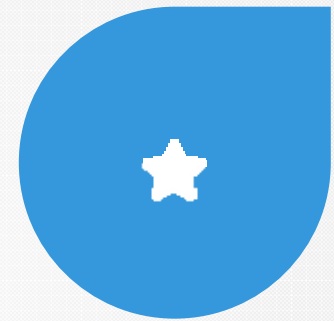
## Digital Collection Repository

- Physical Storage
- Aggregation Group
- FTP / Web interface



## Metadata Search Engine

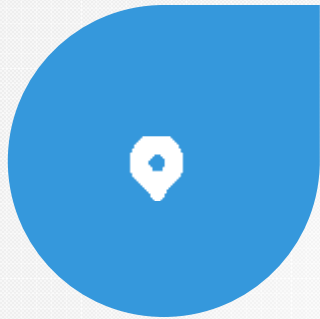
- Solr Indexing
- Faceted Search
- Advanced Search
- Cross Collection Search
- Geo-Search
- Time-Bar-Search
- Full-text Search



## Rich Client Application

- Virtual Tour
- Collection display
- Historical Map display
- 3D Object

# What dPanther Can Do



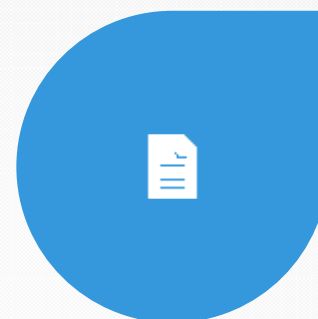
## Web GIS

- Multiple Base Map Options
- Customizable Network Model
- Online GIS Analysis
- GIS Data visualization



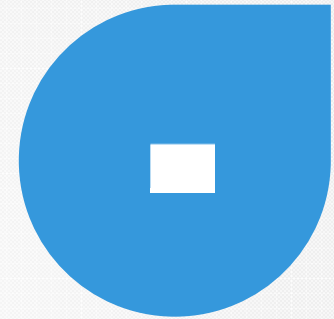
## Work Flow Tracking

- Data QA / QC
- Track User Foot Print
- Management Reports
- Statistical Reports
- ...



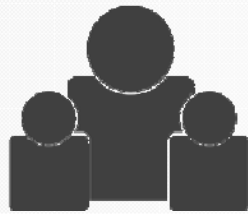
## Data Visualization

- GIS data visualization
- Online GIS processing
- Data Aggregation
- Hot Map
- ...



## Crowd Sourcing

- Traditional Data collection (structure)
- Usage Data collection (Clicking data)
- \*Sensors Data Collection (Internet of Things)



## Team of dPanther

FIU GIS Center

FIU DCC

FIU Library Systems

FIU Division of IT

dPanther User Community

## Team of dPanther

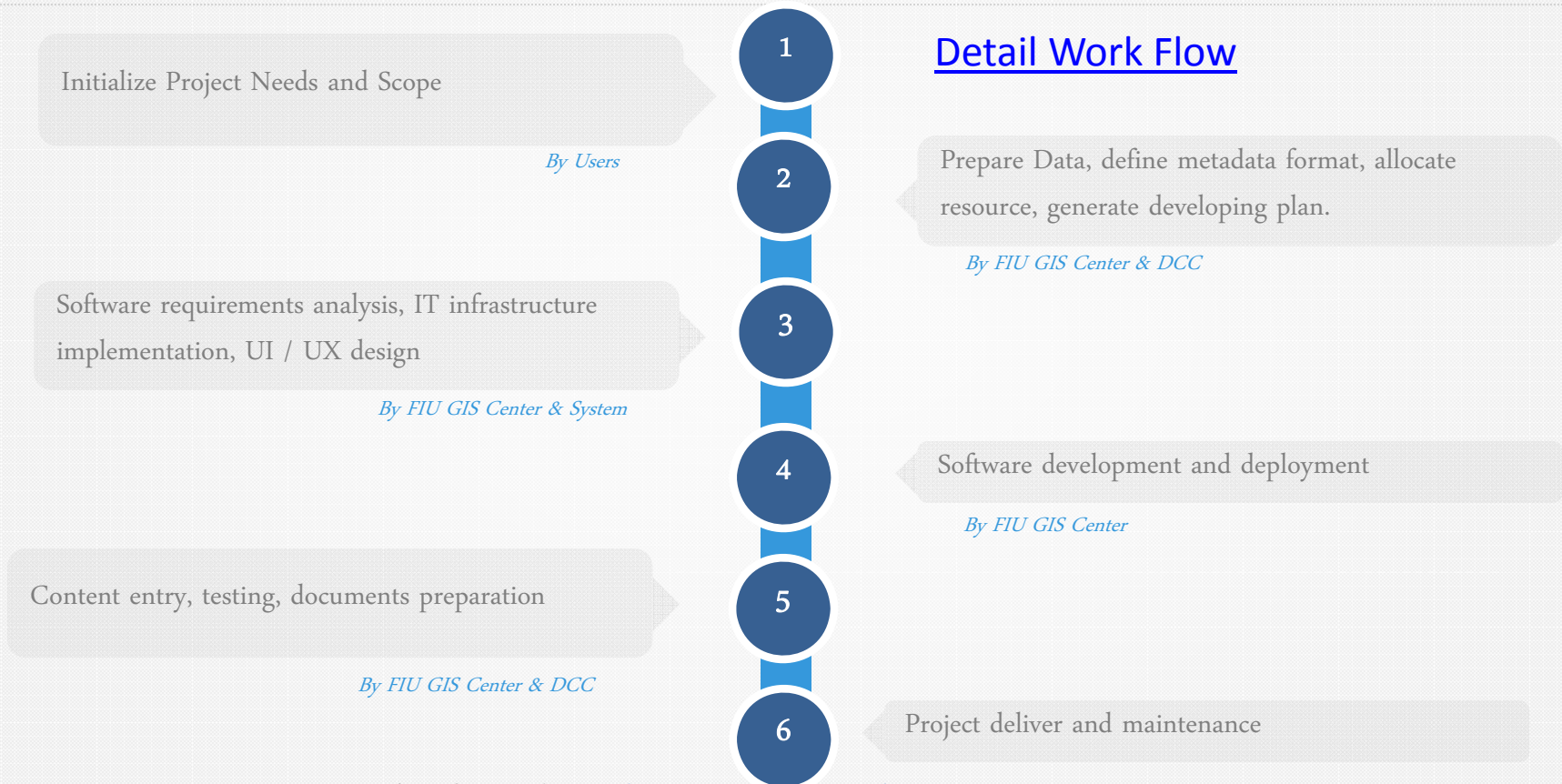
**User Community**  
Content Ingestion  
User feedback  
Usability testing

**FIU GIS Center**  
Software Development  
System Configuration

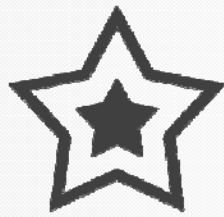
**FIU DCC**  
User Coordination  
Training  
Digital Production

**FIU Library System / DoIT**  
IT Infrastructure

# Work Flow of a dPanther Project



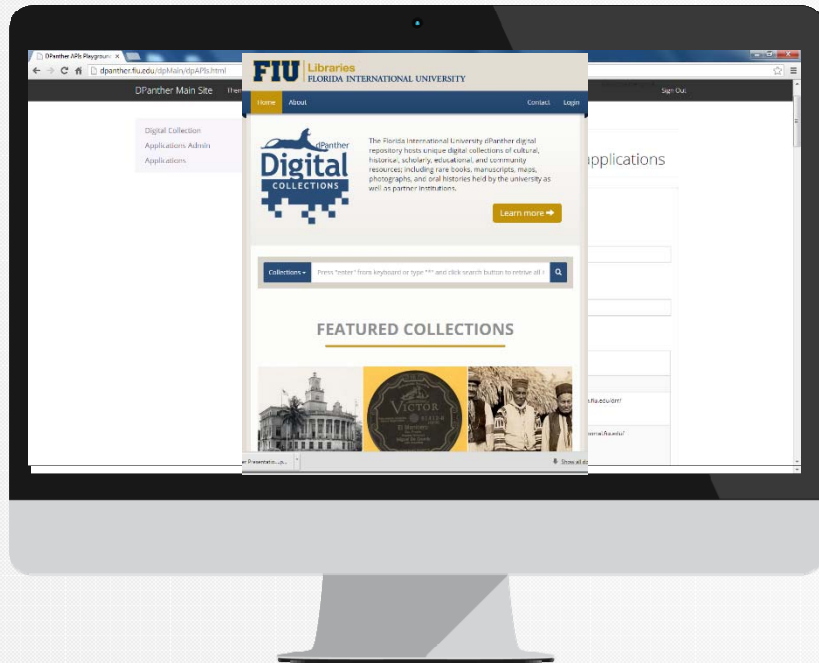
## Detail Work Flow



Applications empowered by **dPanther**

# Application Empowered by dPanther

dPanther Main Application: <http://dpanther.fiu.edu>



- Digital Collection Repository
- Comprehensive search function
- Online metadata editing
- GIS data management



- Google Map APIs
- Bootstrap
- Solr Indexing

## Application Empowered by dPanther

### St. Augustine Colonial Heritage



- Geo-tagged digital files
- Historical map overlay
- Temporal sliding bar
- Faceted search

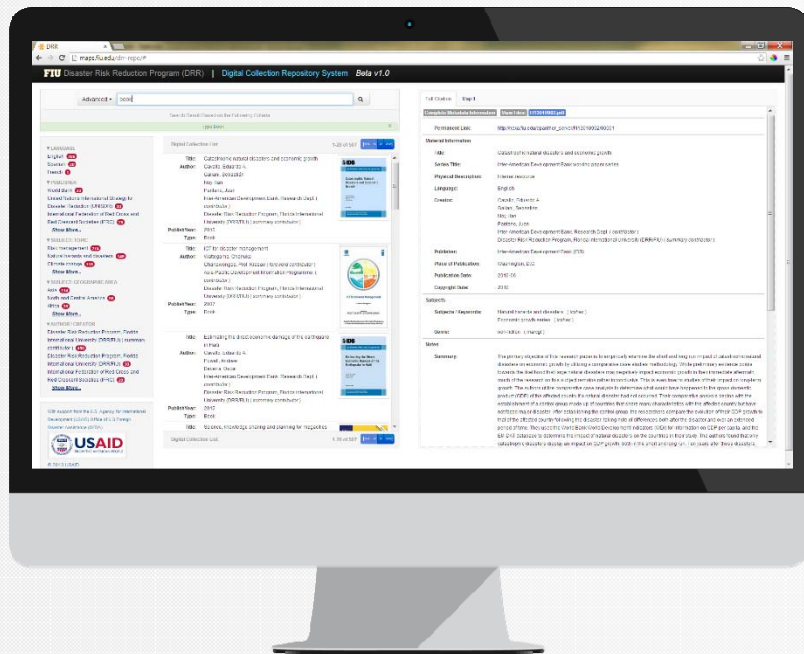


- SOBEK
- Google Map APIs
- Sentra EXT JS
- Bootstrap
- IIPImage Server
- Solr Indexing
- ArcGIS Server



# Application Empowered by dPanther

## Disaster Risk Reduction



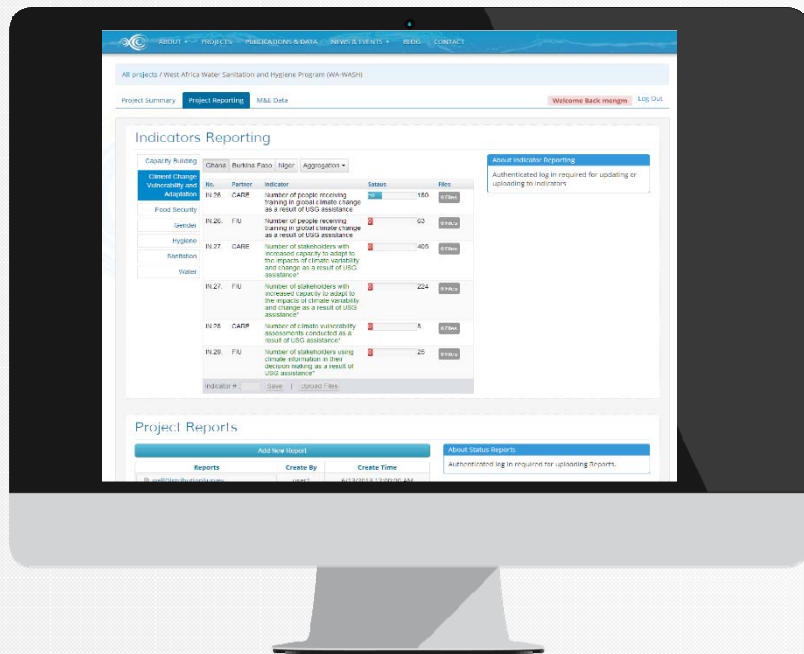
- Digital Collection Repository for DRR
- Comprehensive search



- SOBEK
- Google Map / Earth APIs
- Bootstrap
- IIPImage Server
- Solr Indexing

# Application Empowered by dPanther

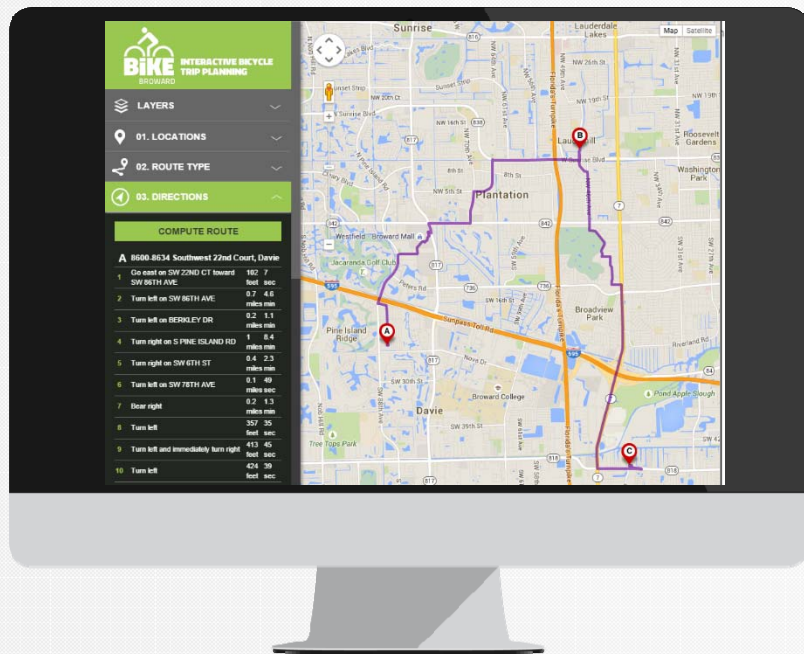
## WA-WASH



- CMS
  - Management Information system
  - Work Flow Tracking
  - Survey Data Collection
  - Online Reporting
  - User Management
- 
- Microsoft Active Directory (ALDP)
  - Google Map APIs
  - Sentra EXT JS
  - Bootstrap
  - JQuery
  - Microsoft .NET

# Application Empowered by dPanther

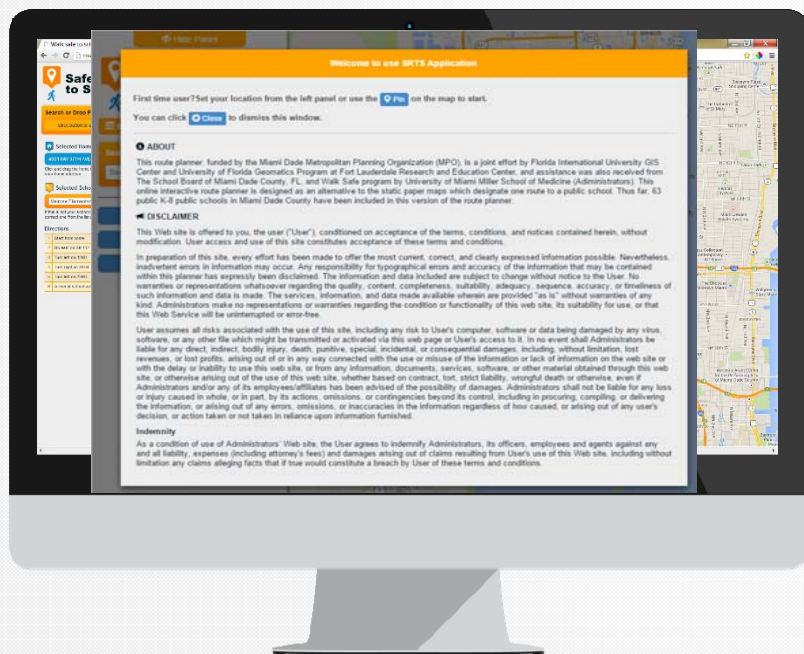
## BIKE



- Online Bicycle Route Generation Application
  - KML Export
  - Pintable Map
  - Real-time Navigation
  - Customizable Network Model
  - Responsive Design for Mobile device
- 
- ArcGIS Server
  - ESRI RESTful Services
  - ArcGIS Link
  - Google Map APIs
  - PHP
  - Mootool
  - HTML5 + CSS3

# Application Empowered by dPanther

## WalkSmart



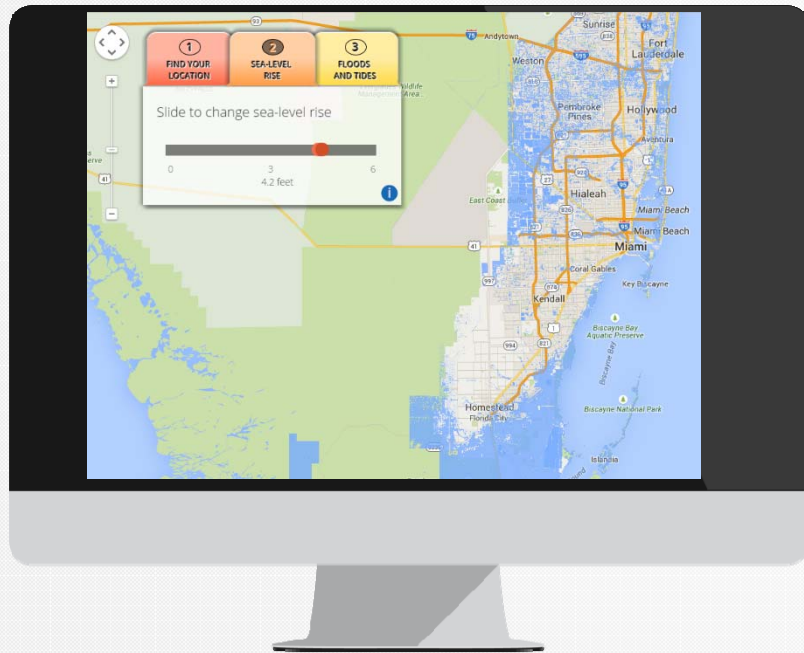
- Online Bicycle Route Generation Application
- KML Export
- Pintable Map



- ArcGIS Server
- ESRI RESTful Services
- ArcGIS Link
- Google Map APIs
- JQuery

# Application Empowered by dPanther

## Sea Level Rise



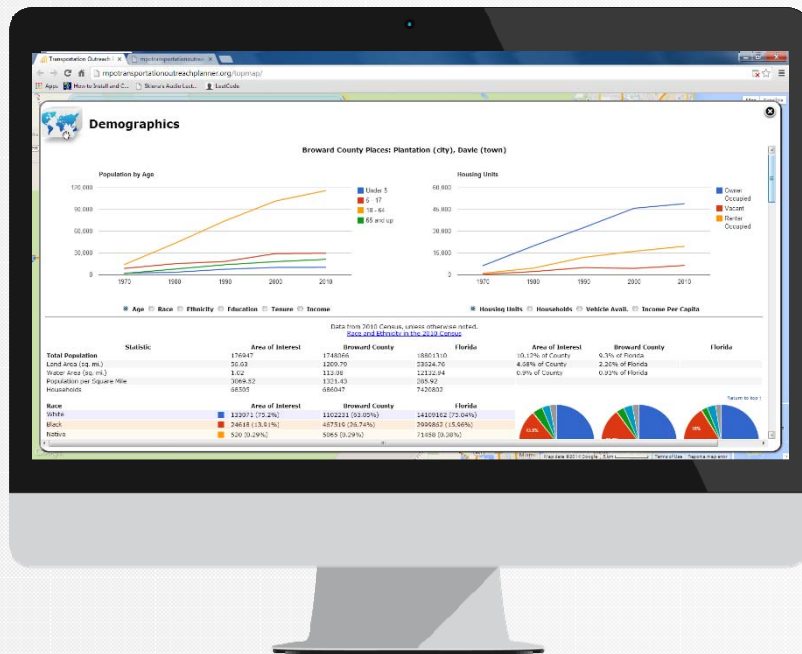
- Sea level rise data visualization
- Web GIS function



- HTML5+CSS3
- Google Map APIs
- ArcGIS Server APIs
- Mootools

# Application Empowered by dPanther

## Transportation Outreach Planner



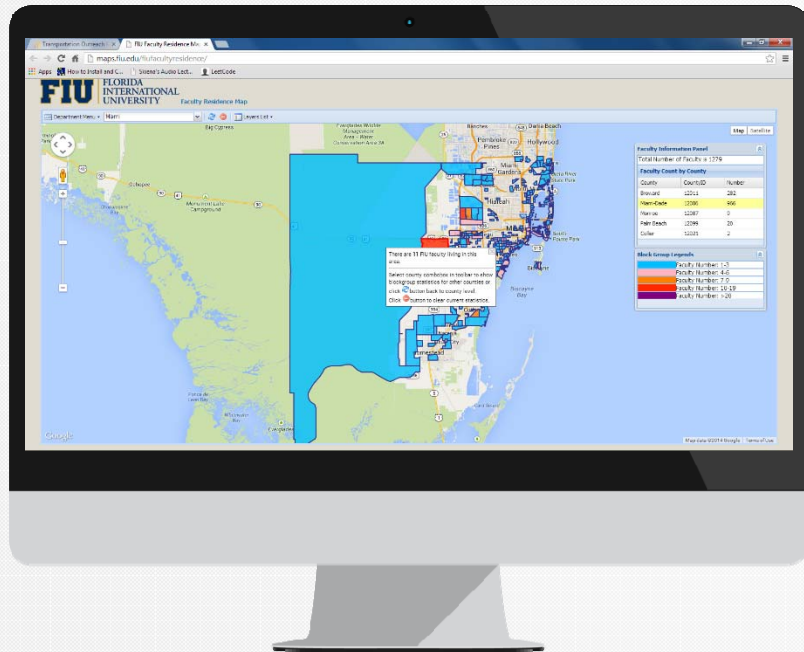
- Census Data Visualization
- Online Report Generation



- MySQL + PHP
- Mootool
- Google Visualization

# Application Empowered by dPanther

## FIU Faculty Density Map



- Online GIS data visualization
- Online GIS process



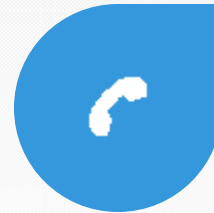
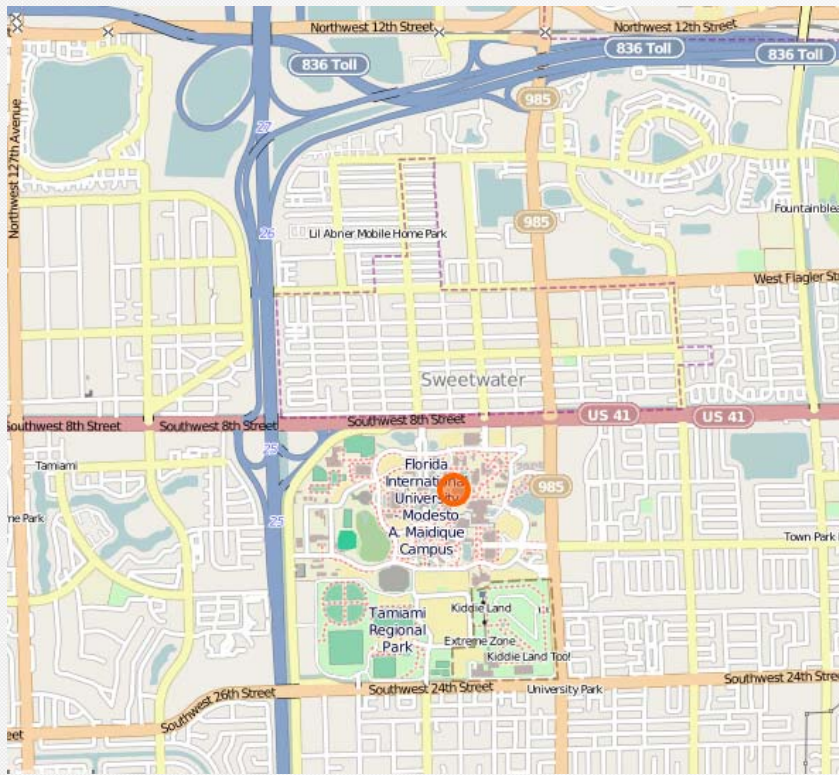
- ArcGIS Server
- ESRI RESTful Services
- ArcGIS Link
- Google Map APIs



## CONTACTINFO



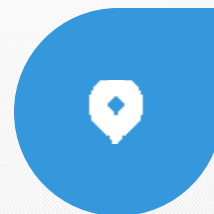
# CONTACTINFO



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THANK  
YOU!