Systems of Interaction

Taking your business to the mobile era,…
While making your information systems a source of innovation
– Part 1

Jerry Cuomo

IBM Fellow, VP, WebSphere CTO

Mobile re-inventing everyday Live
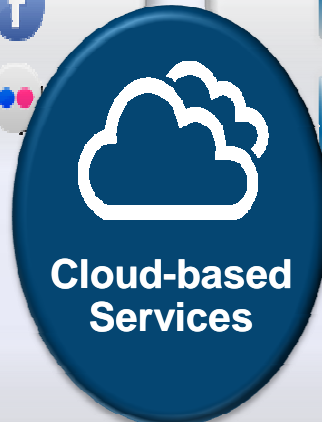
Systems of Interaction

Systems of Interaction

Systems of Engagement

Systems of Record

CRM	HR
DB	ERP

Continuous client experience

Cloud-based Services

Partner value chain

Internet of Things

Types of Interactions

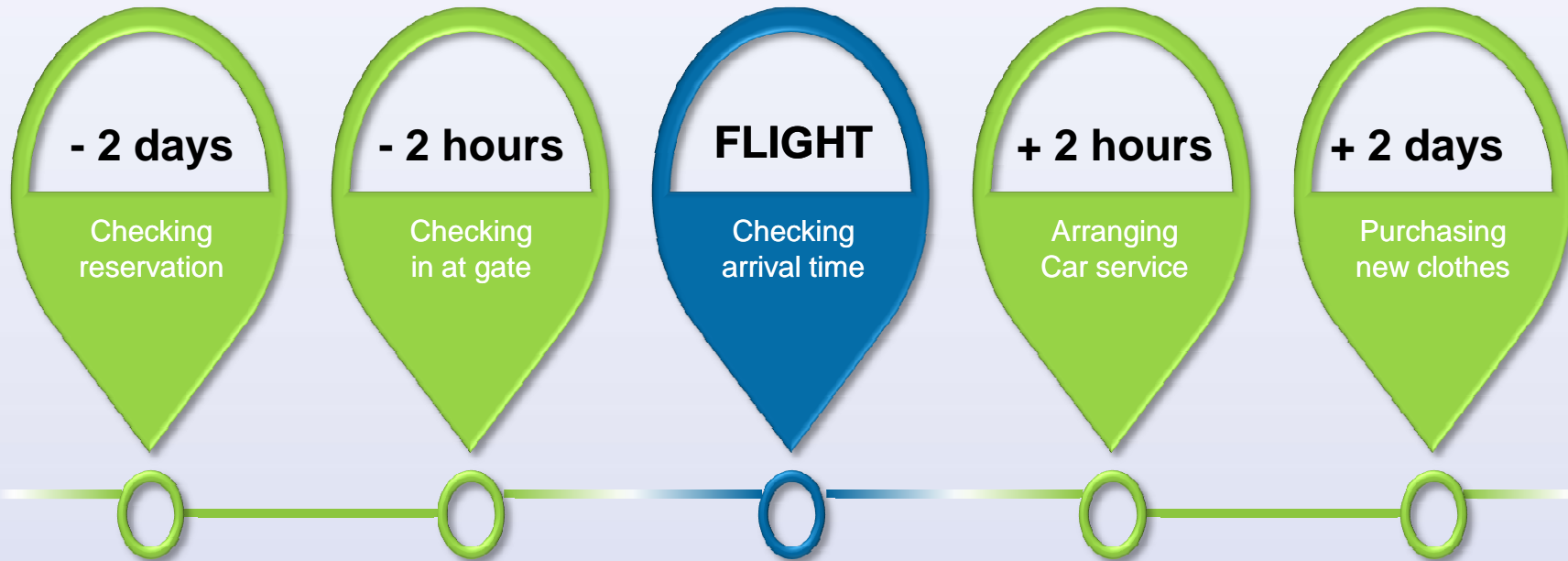**Time and Location**   **Social and Behavior**   **Multi-channel**

Style   Soldier   Survivor

The power of context

Extended Transaction Scope

Time and Location   Social and Behavior   Multi-channel

- 2 days	- 2 hours	FLIGHT	+ 2 hours	+ 2 days
Checking reservation	Checking in at gate	Checking arrival time	Arranging Car service	Purchasing new clothes

Airline example based on user time

Insights driving actions

Time and Location **Social and Behavior** **Multi-channel**
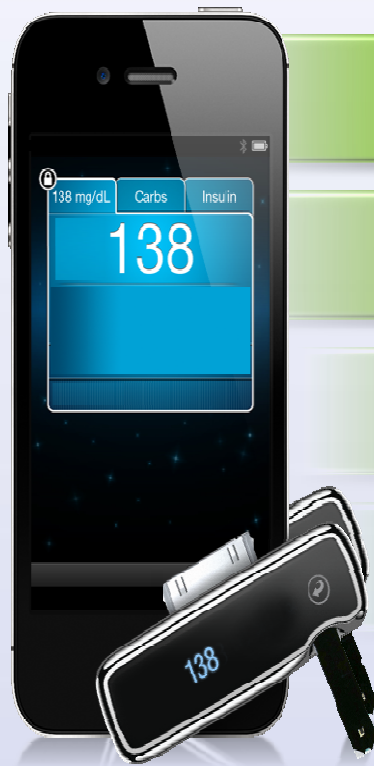
Credit card program example

360° experience

Time and Location   Social and Behavior   **Multi-channel**

Diet

Exercise
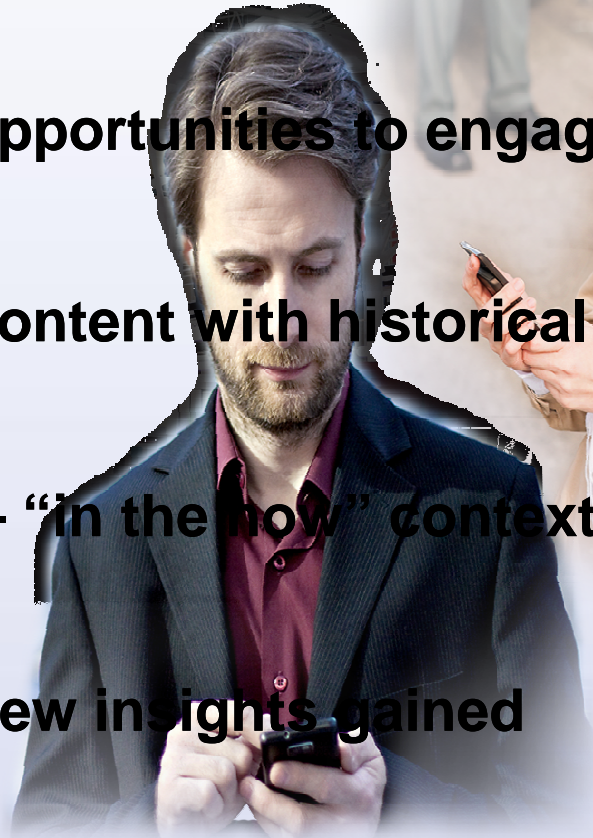
Status

Insights

138 mg/dL   Carbs   Insulin
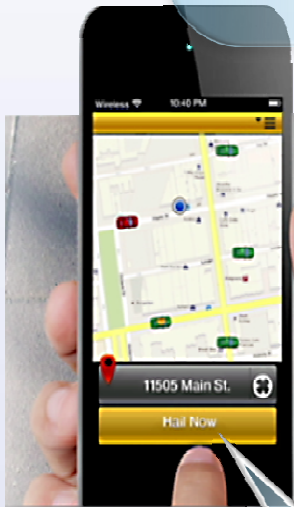
138

138

Blood glucose check

Systems of Interaction

Detect – opportunities to engages users

Enrich – content with historical data and trends

Perceive – "in the now" context

Act – on new insights gained

Systems of Interaction

Detect — hail now!

Enrich — personalized favorite destinations

Perceive — location, traffic, proximity, direction
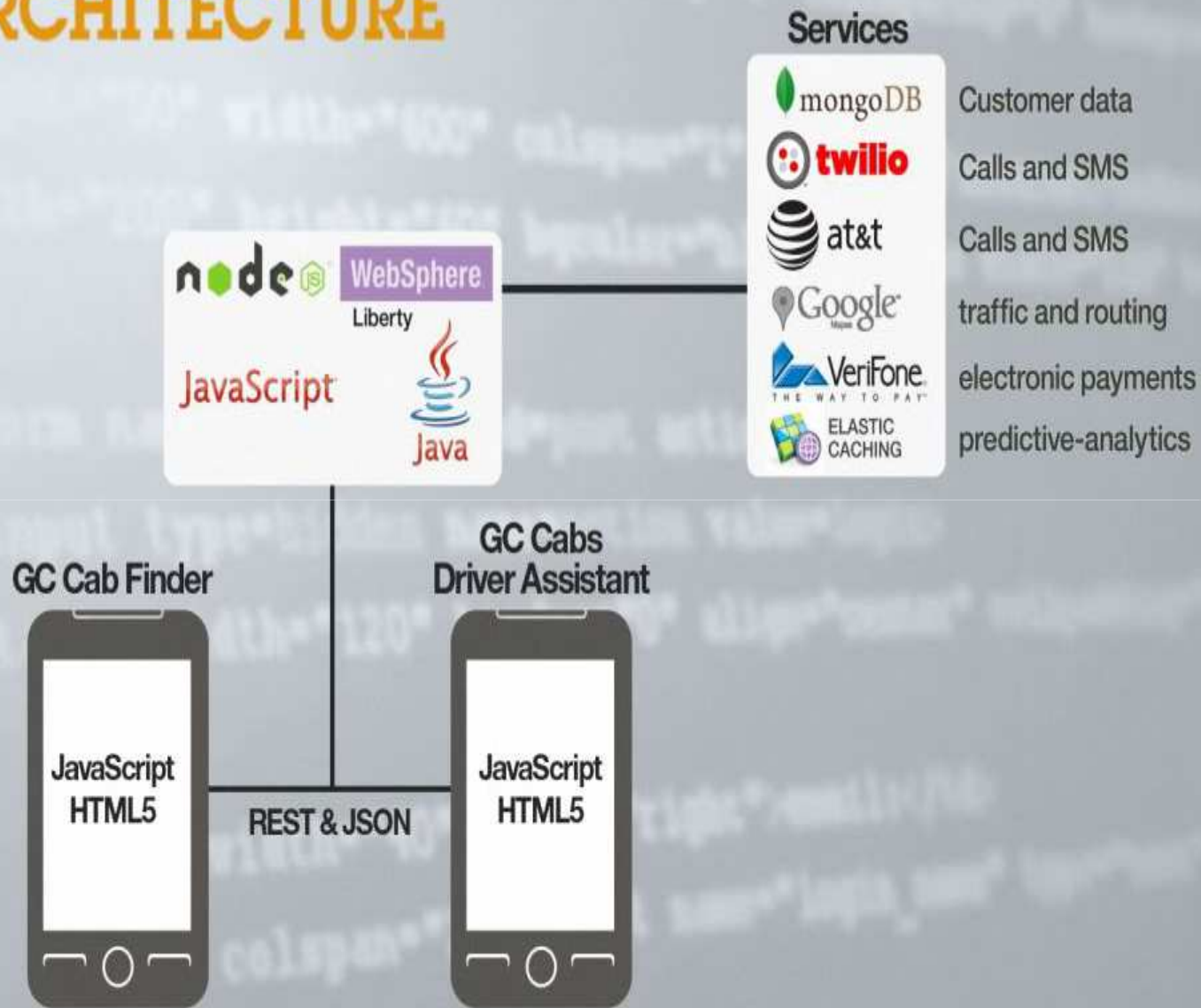
Act — arrival, payment

OPEN ARCHITECTURE

node JS WebSphere
Liberty

JavaScript Java

GC Cab Finder

GC Cabs
Driver Assistant

JavaScript
HTML5

JavaScript
HTML5

REST & JSON

OPEN ARCHITECTURE

Services

node js   WebSphere
          Liberty

JavaScript   Java

mongoDB — Customer data
twilio — Calls and SMS
at&t — Calls and SMS
Google — traffic and routing
VeriFone THE WAY TO PAY — electronic payments
ELASTIC CACHING — predictive-analytics

GC Cab Finder

JavaScript
HTML5

GC Cabs Driver Assistant

JavaScript
HTML5

REST & JSON

OPEN PLATFORM

Technical Preview

BlueMix
deploy applications for mobile and the cloud

⑦ Help Center   IBM.

IDE

The Integrated Development Environment (IDE) provides a number of standard development tools that aim

Sandbox

The Sandbox is delivered as an compressed file. It provides the following

Standard Development Tools:

Derby

Java (Liberty)

Provide the easiest way to develop web applications for WebSphere.

Mobile (Worklight)

Quickly create a mobile application platform for smartphones and tablets.

JavaScript (Node.js)

Easily build fast, scalable network applications.

Cloud Explorer

Easily and quickly use all kinds of cloud services in your project.

Quick Sta

What is ICAP?   IDE and Sandbox Overview   Cloud Explorer & Service Bindings

Join developer community.

- ICAP Fourm
- File a bug
- Feature Request

- erview
- Key concepts in ICAP
- Quick start with ICAP
- Reference

OPEN PLATFORM

Improve the entire process
from hail to payment

GC
CABS

| DETECT | ENRICH | PERCEIVE | ACT |

BUILDING THE APP IN WORKLIGHT

DETECT | ENRICH | PERCEIVE | ACT

New **geo-location** capabilities, available in Worklight, are able to better **detect** opportunities for interactions

BUILDING THE APP IN WORKLIGHT

DETECT ENRICH PERCEIVE ACT

Worklight's location-based triggers, eliminates network chatter, by pushing interaction data to the mobile client. Reduces network usage and saves battery life.

BUILDING THE APP IN WORKLIGHT

DETECT   ENRICH   PERCEIVE   ACT


```
var acqPolicy= {
    Geo: {enableHighAccuracy: true,
timeout: 10}};

var triggers;
for (var geofence in fences)
    triggers.Geo[geofence.id] = {
        type: "Entering",
        area: geofence.pts,
        callback: callbackFunction,
        transmit: {event:
geofence.event}});

WL.Device.startAcquisition(acqPolicy,
triggers, failureFn);
WL.Client.setEventTransmissionPolicy({maxIn
terval: 10}};
```

Code Snip-it to form a geo-fence, between the driver and the passenger,
to secure the payment process

BUILDING THE APP IN WORKLIGHT

| DETECT | ENRICH | PERCEIVE | ACT |

With rapid revision, we must guarantee, **Continuous quality**.

This ensures a **consistent** experience, **regardless** of device type.

MANAGE AND CONSUME APIs

DETECT | **ENRICH** | PERCEIVE | ACT

Our system **is enriched** by data from a variety of sources. This is all about integration.

Manage and consume data feeds, from partners, with information such as payment and traffic data.

MANAGE AND CONSUME APIs

DETECT **ENRICH** PERCEIVE ACT

Virtual Editions

OAuth Support

DATAPOWER

WORKLIGHT

IBM API MANAGEMENT

twilio
at&t
Google
VeriFone
THE WAY TO PAY
hadoop

Using our **OAuth** support, we can consume these data feeds, and offer developers a **hassle-free way** to implement **secure access** to APIs.

"IN THE NOW" INFORMATION

DETECT | ENRICH | **PERCEIVE** | ACT

… paying

dynamic style of queries

"a location"

"in a specific area"

moving, walking, running

"a direction"

real-time data sources form the **glossary of terms,** used in our business rules

"IN THE NOW" INFORMATION

DETECT ENRICH **PERCEIVE** ACT

Decision Center 🏠 HOME ▦ LIBRARY ⚙ WORK   Robert ▾

GC Taxi Cab > Summer Release > Change Driver Rating and Proximity Rules >

Taxi positioning rule

Undo Redo Preconditions Details End Edit

if

'the hail request' is in 'the area' *where*

      count of unsatisfied 'hail requests' over last 30 min is greater than 3

then

  call all available 'taxi cabs' within 5 miles radius into the 'uncovered area'

IBM

Creating business rules that combine taxi location, with real-time data sources; such as traffic and weather

"IN THE NOW" INFORMATION

DETECT ENRICH **PERCEIVE** ACT

A map illustrating **customers** waiting for taxis.

HAIL CAB
HAIL CAB
HAIL CAB

The longer they wait, the larger their **dots**-grow on our map.   We can **analyze** the region where customer are growing **impatient** …

"IN THE NOW" INFORMATION

DETECT   ENRICH   **PERCEIVE**   ACT

… and generate a business rule, to **notify** drivers and positions them **closer-to** customers.

This **improves** response time and also drives additional fares, which means more transactions.

"IN THE NOW" INFORMATION

DETECT   ENRICH   PERCEIVE   ACT

Decision Manager enables **collaboration** between developer and business

Decision Center   HOME   LIBRARY   WORK

Jerry ▾

Pricing >

📅 Summer Release ▾ ⭐

Take Snapshot   Create New   Timeline   🔍 Search this release

Activities   Rules   Snapshots

All ▾   Due Date   Name   Type   Filter

⭐ **Change Driver Rating and Proximity Rules** ⭐
1. Create driver rating table

Due Date: **Apr 24, 2013**
Owner: **Paul**

Release   Stream

Created by Paul
Apr 8, 2013

▾ **Goals**
1. Specify Driver Rating Table
2. Define Proximity Rule

Decision Service ...   Pricing

Due Date   Apr 22, 2013

Status   Complete

▾ **Approvers**

Jerry   Approved Changes ✅

ANALYZE USAGE DURING INTERACTION

DETECT | ENRICH | PERCEIVE | **ACT**

automatically process a payment, when the user reaches their destination…

DESIGNING A SYSTEM OF INTERACTION

| DETECT | ENRICH | PERCEIVE | ACT |

Mobile **re-inventing**… everyday life

New Announcements for Systems of Interaction

1 — Put **Mobile** First

- IBM Worklight V6
- Mobile cloud Services
- IBM WebSphere Datapower v6
- IBM CICS TS Feature Pack for Mobile Extensions V1.0
- IBM mobile solutions for business process management

2 — **Reinvent** Your Business Design and Processes

- IBM Blueworks Live
- IBM Business Process Manager v8.5
- IBM Operational Decision Manager v8.5
- IBM Intelligent Investigations Manager and IBM Patient Care and Insight
- Industry Solutions for BPM
- IBM Rational Developer Family of IDEs v9

3 — Adopt a **Flexible and Secure** Integration Model

- IBM MessageSight
- IBM Integration Bus v9
- IBM Explorer for z/OS v2.1
- IBM CICS Transaction Server for z/OS v5.1
- Enterprise COBOL for z/OS V5.1

4 — Be Insight and **Data** Driven

- IBM PureApplication System v1.1 and new Patterns
- DB2 with BLU Acceleration / PureData System for Hadoop
- IBM SmartCloud Monitoring-Application Insight v1.1

5 — **Build** on Open Architecture

- IBM API Management v2.0
- IBM WebSphere Application Server v8.5.5
- MQ TT Standard – Oasis
- Project Beijing
- IBM SmartCloud Orchestrator v2.2

Systems of Interaction

Taking your business to the mobile era…
While making your information systems a source of innovation
– Part 2

Jerry Cuomo

IBM Fellow, VP, WebSphere CTO

CNN Money

"Sprint has been assembling a team of impressive technology partners to help build its Velocity connected car platform, but starting Wednesday it's **bringing in a ringer**... IBM MessageSight...

Gartner

Leader quadrant in Business Process Management Suites "**market share leader** in application infrastructure and middleware software for 12 consecutive years."
Worklight momentum moves IBM to **leader quadrant**

OVUM

API management should be a key element of enterprises' social, mobile, and cloud strategy

FORRESTER

IBM **leads the pack** in the Forrester Wave for Enterprise Mobility
Five-Year Risk-Adjusted **ROI** of IBM Worklight is **363%!**
Leader in the Forrester Wave for BPM Suites
BPM suites Take Center stage in The age of digital disruption

SIIA CODiE AWARDS

Best Mobile Development Solution 2013

MYPRIVATEBANKING research

Ranks Capital One **top mobile banking app** – built on Worklight

IBM Pure Application System v1.1 up to **2.6x lower** cost/core, up to **6.6x better** price performance, up to **4x less** labor

"IBM Announces Platinum Sponsorship of the New OpenStack Foundation"

"IBM and 10gen Collaborate to Bring Mobile to the Enterprise."

"IBM to Acquire SoftLayer to Accelerate Adoption of Cloud Computing in the Enterprise"

"IBM and Pivotal to Accelerate Open Cloud Innovation with Cloud Foundry"

...Including WebSphere Liberty buildpack

32

LOB

Angela – Business User

Responding immediately to changing business
Shift away from IT to self-reliant Business organization

Dave – Business Developer / Data Analyst

Responsiveness to Angela by rapidly composing business apps
Shift towards minimal coding with domain specific services

Jane – Domain Specialized Developer

Rapidly construct reusable domain vertical function
Shifts towards domain specialization, producing SOE apps leveraging Backend Services

Bob – Backend Service Developer

Needs a platform to create and operate standardized, scalable SOE and SOR services
Shifts from creating & configuring middleware services to composing frameworks with DevOps

Fred – Platform Operations

Needs software defined infrastructure to provide and manage the platform (on or off premise)
Shifts from traditional IT operation to creating orchestration and automation services

Andrew – Infrastructure Operations

Needs cross infrastructure management and administration tools. Ability to expose standardized IaaS
Shifts from server consolidation and virtualization to exposing standardized infrastructure services

IT

Key concepts

Cloud enabled Business Transformation
Enterprise business transformation by adoption of Social, Mobile, Analytics and Cloud

API Marketplace
API-accessible business services made available to third-party innovators composing solutions

Cloud Operating Environment
Fabric, composition, marketplace & services for born-on-the-cloud solutions and integration to traditional middleware

Software Defined Environment
Dynamic next generation infrastructure for deploying cloud service & enterprise data centers

IaaS+PaaS
- Enterprise-class set of Platform Services
- Flexible Infrastructure-as-a-Service based on SoftLayer
- Integrated Systems Based on Pure Application System

35

Business and BPM cloud services

IBM BPM on Cloud

Get up and running with BPM quickly for enhanced time to value with a managed, secure BPM environment in the cloud

BlueworksLive

Discover, document, automate critical business processes collaboratively and securely

API Marketplace

Company	APIs	Most Popular
Twitter	3 + 101	Twitter API
Google	96	Google Maps API
Yahoo	51	Flickr API
XIgnite	43	XIgnite Realtime Stock Quotes API
Microsoft	33	Microsoft Bing Maps
AOL	30	MapQuest API
Amazon	23	Amazon Product Advertising API
Orange	19	Orange Location
eBay	18	eBay API
Ericsson	16	Ericsson Web Maps
New York Times	14	New York Times Article Search
Yandex	10	Yandex Search API
AT&T	9	US Yellow Pages API
Salesforce.com	8	Salesforce.com CRM API
USA Today	8	USA Today News API
Facebook	8	Facebook API
Rackspace	6	RackSpace Cloud Servers API
Telenor	6	Telenor Payment
InfoChimps	5	InfoChimps Twitter
Deutsche Telekom	5	Deutsche Telekom Send SMS API
SingTel	5	SingTel Messaging API
T-Mobile	5	Developer Garden API
Telefonica	5	BlueVia Location API
Pearson	3	Longman Dictionary API
Vodafone	3	Vodafone Geolocation
Verizon	2	Verizon NavBuilder LocationKit

Angela
Business User

Dave
Business
Developer/ Data
Analyst

Bob
Backend
Service
Developer

API Growth Over Time

5,000 APIs: Facebook, Google and Twitter Are Changing the Web – Adam DuVander, Feb, 62012

http://www.programmableweb.com/

38

IBM WebSphere Cast Iron Live – Web API Services

DevOps Dashboard
for easy assembly of new APIs and to
secure and manage APIs from an IT Ops
perspective

**Business Ops
Dashboard**
with analytics and
controls to publish
APIs, document APIs,
set quotas, manage
communities and
monitor service levels

create

manage

socialize

**Application Developer
Portal**
with Self-Service
registration and with
hooks into social
communities

Mobile cloud services

Jane
Domain
Specialized
Developer

Mobile

 Mobile Application Management

 App Distribution

 Push, geo-triggers, passes, encrypted storage, offline synch accelerate mobile construction

 Application Container

 Feedback management

 Crash analysis & performance

 Quality assurance

Development

 Client SDK
SDK for omni-channel

 Cross platform application tools

Management

 Integrated development dashboard

 Analytics

 Security

APIs & Data

 Domain specific database schemas

 API management

 Connectivity

 Location

Cloud Code

 Scripted Logic
Elastic execution

 Extension Mechanism

 Marketplace

Expanding our mobile portfolio with new capabilities

125+ patents for wireless inventions in 2012, bringing the total to 270

1H 2012

1H 2013

Worklight
IBM acquired:
IBM Worklight

IBM INTERACTIVE
Named leader in interactive design

urban{code}
IBM acquired:
Urban Code DevOps Platform

//CODiE//
2013 SIIA CODiE WINNER
Worklight named 'Best Mobile Development Solution'

IBM announced:
IBM MessageSight

Emptoris
IBM acquired:
Emptoris Rivermine Telecom Expense Management

IBM announced:
IBM Endpoint Manager for mobile devices

IBM announced:
IBM MobileFirst

developerWorks Labs
IBM announced:
IBM mobile cloud services

tealeaf
an IBM Company
IBM acquired:
Tealeaf CX Mobile

IBM announced:
Managed Mobility and MAPM Services

IBM announced
IBM Security Access Manager for Cloud and Mobile

IBM announced:
IBM Connections Mobile

2H 2012

IBM Worklight: A mobile application platform

Speeding the development, integration and management of mobile applications and infrastructure

Accelerate Development
- Web, hybrid, and native development: open, flexible, standard-based, multi-screen/omni-channel
- Functional testing
- Development lifecycle tools and integration

Facilitate App Security and Trust
- Server-enforced authentication
- App authenticity and user-app-device binding
- Secure and syncable on-device storage
- App version enforcement

Enable User Engagement
- Unified push and SMS notifications
- Geolocation and context collections and intelligence
- Mobile-friendly integration

Support Mobile Analytics
- Efficient acquisition of analytics data
- Development, operational, and business analytics
- Offline and online event management integration

//CODiE//
2013 SIIA CODiE WINNER

**"Best Mobile Development Solution"
voted by SIIA members, 2013 CODiE Awards**

IBM MessageSight appliance for Mobile and M2M

Simplifies "Internet of things", connected car, and mobile

Designed for millions things, millions of events, very dense, very green technology

m2m engineered for wireless, with low latency, reliable delivery and quality of service

93x faster, 10x less battery, 8x lower bandwidth versus HTTPS

1 rack does 273M messages/sec, 21M concurrent connections (like 1,000 web servers)

**IBM
MessageSight**

IBM Messaging
Appliance

Enterprise

Wireless

Introducing IBM BlueMix

Bob
Backend Service Developer

IBM initiative to develop an open Cloud Operating Environment

IBM and partner cloud services

Integrated DevOps with both Browser and Eclipse-based tools

Come, experiment with Beta at http://bluemix.net

IBM BlueMix

Check In Code

Lifecycle Management (JazzHub)

Check In Code

Create & Manage Services

Web IDE (Eclipse Orion)

Application Composition Environment

Eclipse IDE

Explore Services

Explore Services

Test/Run

Application Runtime

Test/Run

Runtimes & Frameworks
node | java | WebSphere Liberty | ruby | Worklight

Services
Middleware | Application | Data | Operational | Mobile | External

Patterns and the PureSystems

Andrew
Infrastructure Operations

Fred
Platform Operations

PureFlex
New Models
Flex System
Infrastructure
Delivering Cloud Infrastructure Services

PureApplication
New Models
Application Platform
Delivering Cloud Application Platform Services

PureData
New Analytics Model
Data Platform
Delivering Big Data Platform Services

Patterns and the PureSystems

Andrew
Infrastructure
Operations

Fred
Platform
Operations

Data Management

Information Server 9.1
Compute Node Pattern

Solutions

WebSphere Commerce 7.0
WebSphere Transformation Extender
w/Launcher 8.4.1
SAP Business Suite*

Software Delivery and Lifecycle

Collaborative Lifecycle
Management*
Rational App Developer*

Asset and Facilities Management

IBM Maximo Asset
Management 7.5

Business Analytics & Data Warehousing

Business
Intelligence 2.0

Social Collaboration

IBM Domino

Security, Risk Management Compliance

QRadar SIEM*
QRadar Log Manager*
IBM Security Access Mgr*

Business Process Mgmt

BPM 8.5
ODM 8.5
WAS 8.5.5

App Infrastructure

Mobile Development and Connectivity

Mobile Application
Platform 6.0

Connectivity, Integration and SOA

IBM Castiron 6.4   IBM API
Management 2.0
IBM DataPower Gateway Appliances
(XG45, XI52) 5.0, 6.0

PureApplication

* IBM intends to deliver these new
software patterns in the future

46

Bluemix Demo

Bob
Backend Service Developer

Fred
Platform Operations

47

Angela the Marketing executive wants to be
able to see sentiment analysis for her brand
based on Twitter.

IBM CoE | *hello.js — Coding | IBM SocialCRM

BlueMix   Welcome, davidb@us.ibm.com [Logout]   IBM.

Home   Applications   Services   My Apps   Dashboard   Account   Documentation   Help

Services > MongoDB

MongoDB is an open source document database, and the leading NoSQL database.

Ad hoc queries

MongoDB supports search by field, range queries, regular expression searches. Queries can return specific fields of documents and also include user-defined JavaScript functions.

Indexing

Any field in a MongoDB document can be indexed (indices in MongoDB are conceptually similar to those in RDBMSes). Secondary indices are also available.

Replication

MongoDB supports master-slave replication. A master can perform reads and writes. A slave copies data from the master and can only be used for reads or backup (not writes). The slaves have the ability to select a new master if the current one goes down.

Load balancing

MongoDB scales horizontally using sharding.[9] The developer chooses a shard key, which determines how the data in a collection will be distributed. The data is split into ranges (based on the shard key) and distributed across multiple shards. (A shard is a master with one or more slaves.) MongoDB can run over multiple servers, balancing the load and/or duplicating data to keep the system up and running in case of hardware failure. Automatic configuration is easy to deploy and new machines can be added to a running database.

File storage

MongoDB could be used as a file system, taking advantage of load balancing and data replication features over multiple machines for storing files. This function, called GridFS, is included with MongoDB drivers and available with no difficulty for development languages (see Language Support for a list of supported languages). MongoDB exposes functions for file manipulation and content to developers. GridFS is used, for example, in plugins for NGINX and lighttpd

Aggregation

MapReduce can be used for batch processing of data and aggregation operations. The aggregation framework enables users to obtain the kind of results for which the SQL GROUP BY clause is used.

Entitlement Options

Developer	Free	Disk	1 GB
Production	$25 per month	Memory	100 MB
Production Pro	$100 per month	System Status Updates	
Enterprise Production	$500 per month	Mobile System Notification	
		System Redundancy	
Add to ethanm ▾		SSD Storage	

53

IBM CoE   *hello.js – Coding   IBM SocialCRM   +

Orion Content / Sample HTML5 Site / hello.js *

Save   Line 77 Col 1

hello.css
hello.js
index.html

```
1
2   var mongoDB = require('mongodb');
3   var https = require('https');
4
5   var express = require('express');
6   var app = express();
7
8
9   var mongo = {"hostname":"localhost","port":27017,"username":"", "password":"","name":"","db":"db"}
10
11  var generate_mongo_url = function(obj){
12      obj.hostname = (obj.hostname || 'localhost');
13      obj.port = (obj.port || 27017);
14      obj.db = (obj.db || 'test');
15
16    if(obj.username && obj.password){
17      return "mongodb://" + obj.username + ":" + obj.password + "@" + obj.hostname + ":" + obj.port + "/" + obj.db;
18    }
19    else{
20      return "mongodb://" + obj.hostname + ":" + obj.port + "/" + obj.db;
21    }
22  }
23  var mongourl = generate_mongo_url(mongo);
24  var connection = null;
25  var collection = null;
26  var mongodb = require('mongodb');
27
28  mongodb.connect(mongourl, function(err, conn) {
29                              connection = conn;
30                              if (err) {
31                                  console.log(err);
32                              } else {
33                                  conn.createCollection("test", function(err, coll){
34                                      collection = coll;
35                                      if (err) {
36                                          console.log(err);
37                                      }
38                                  });
39                              }
40                  });
41
42  app.get('/', function(req, res) {
43    res.set('Content-Type', 'text/html');
44    var cnt = req.param("count") ? parseInt(req.param("count")) : 10;
45    if (collection) {
46      var options = { "hostname": "stream.twitter.com",
47                      "path"    : "/1.1/statuses/sample.json",
48                      "method"  : "GET",
49                      "Connection": "Keep-Alive",
50                      headers : {"Authorization":  "Basic " + new Buffer("YOUR_ID_HERE:YOUR_PASSWORD_HERE").toString('base64')}
51                  }
52      res.write("<UL>");
53      var request = https.request(options, function(response) {
54                              response.on('data', function(chunk) {
55                                          if (cnt > 0) {
56
```

Orion I20130528-2230   Bugs | Privacy | Terms | Copyright

55

ace.etc12.cloud/index.html?demo=true — BlueMix   Reader

IBM CoE   *hello.js – Coding   IBM SocialCRM

BlueMix   Welcome, davidb@us.ibm.com [Logout]   IBM.

Home   Applications   Services   My Apps   Dashboard   Account   Documentation   Help

My Apps

Create app

Name	State	Runtime	Framework
coedemo	▶ Running	node08	node
developertest	▶ Running	ruby18	sinatra
ethanm	▶ Running	node08	node
pulseplus	■ Stopped	node08	node
socialmedia	■ Stopped	ruby18	sinatra

Total: 5   ◀ 1 ▶   10 | 25 | 50 | 100 | All +

Services You Might Like

hadoop

Hadoop
★★★☆☆

Social Analytics

ET Social Analytics
★★★★☆

Twitter

#ibmcloud

IBMCloud   4h
@IBMcloud
f/earlier: Where is enterprise cloud headed this year? - by IBM #SmartCloud VP Craig Sowell (@iconictimes) ibm.co/U2m55I #IBMcloud
Expand

Lauren C. States   4h
@Lauren_States
Hear Barclays discuss workload integration in a private cloud - register for Pulse 2013 today ibm.co/YkAW4H #ibmcloud
Expand

IBM Cloud Français   12h
@IBMCloudFR
IBM reconnu comme l'une des
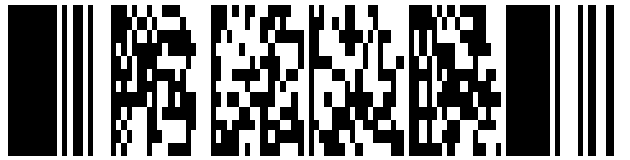
56

The Mobile Device is The Bank

Proactive Banking

Pass

Checking
01-234532-1

Current Balance
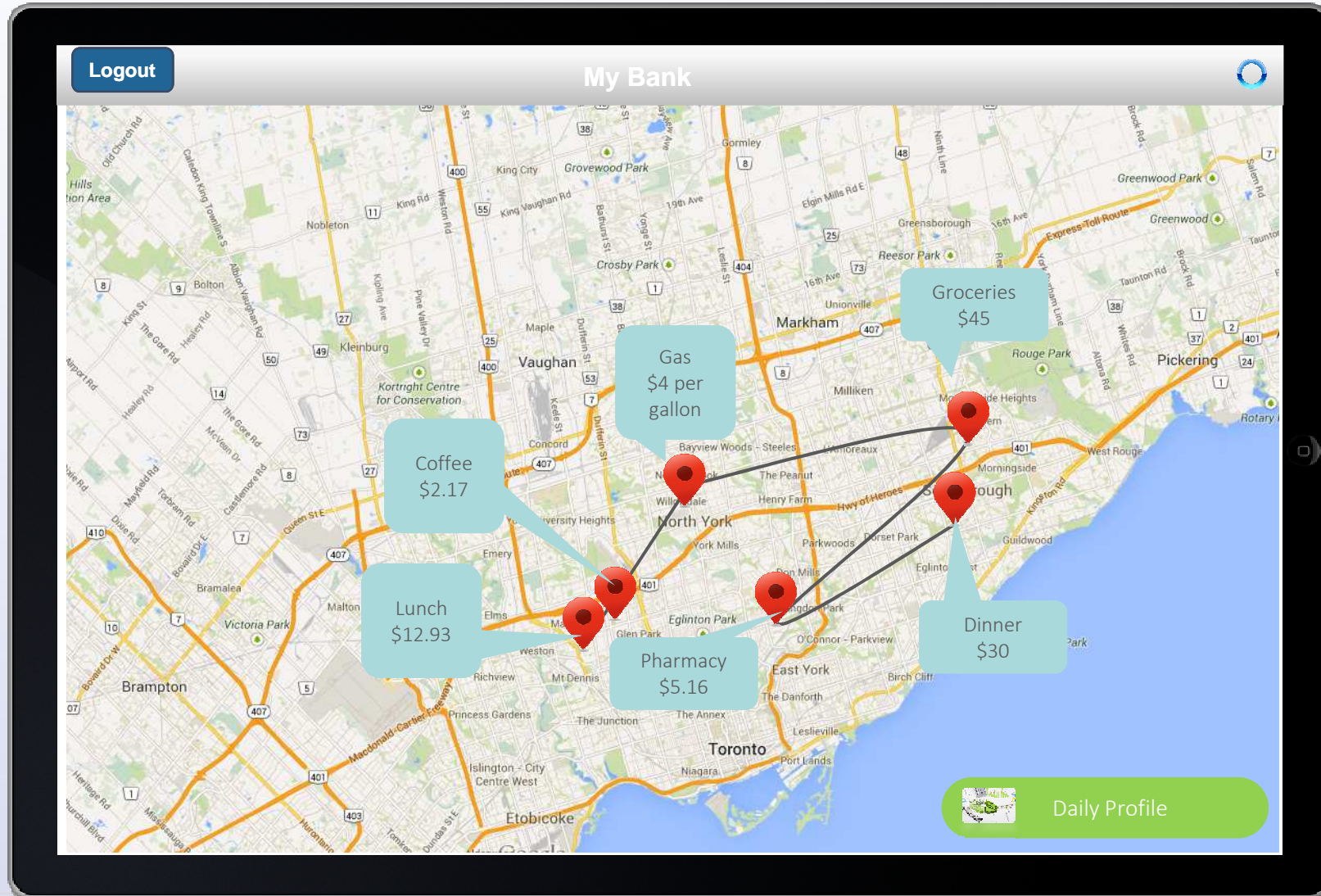CA$1,000.23

Last Transaction
Tim Horton's Coffee

Date / Time
8/8/13

Amount
CA$12.34

Created by IBM - Sample

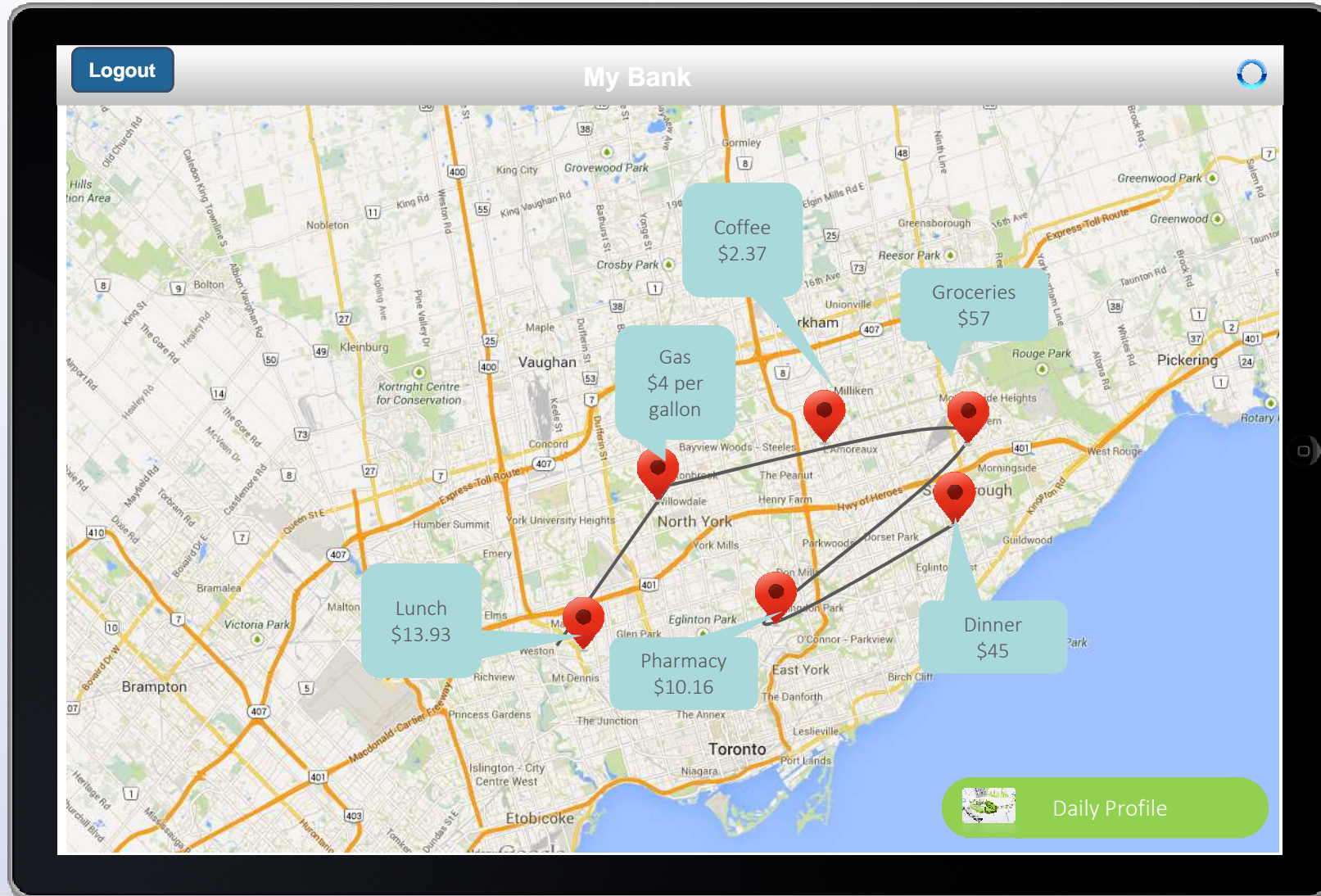Passbook requires iCloud and an iPhone
or iPod touch with iOS 6 or later.

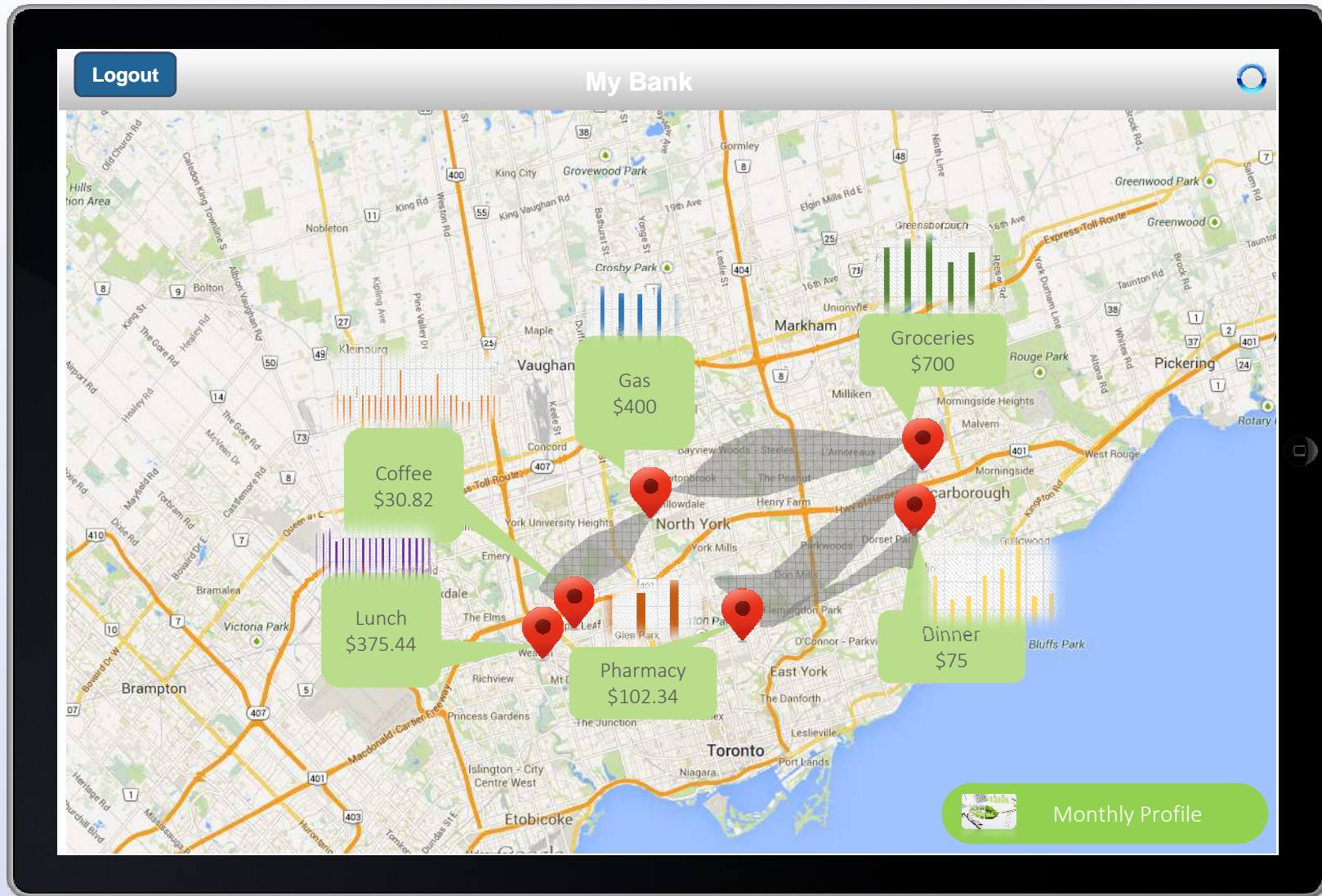About Passbook

Customer Geographical Spending Profile Day 1

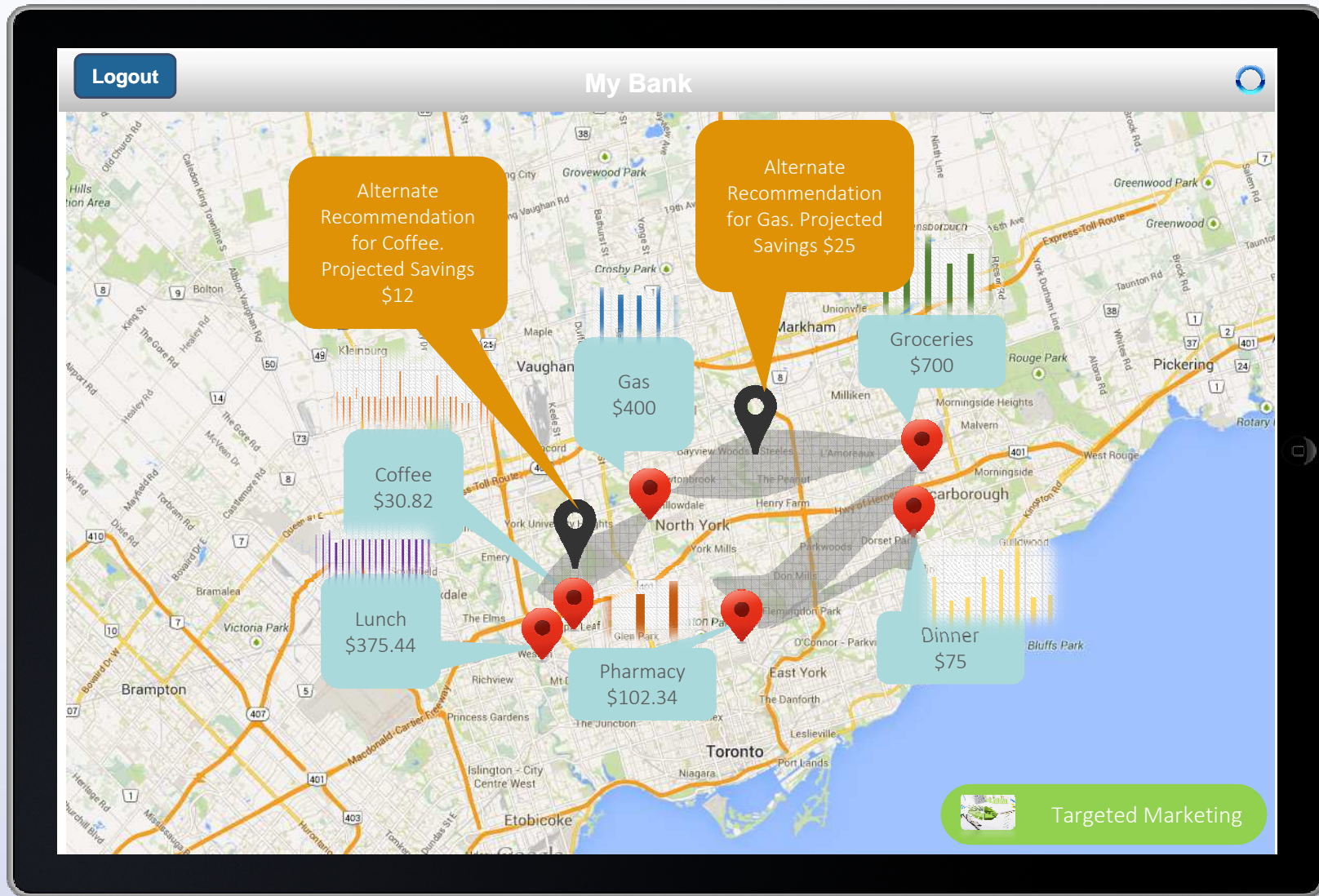# Customer Geographical Spending Profile Day 2

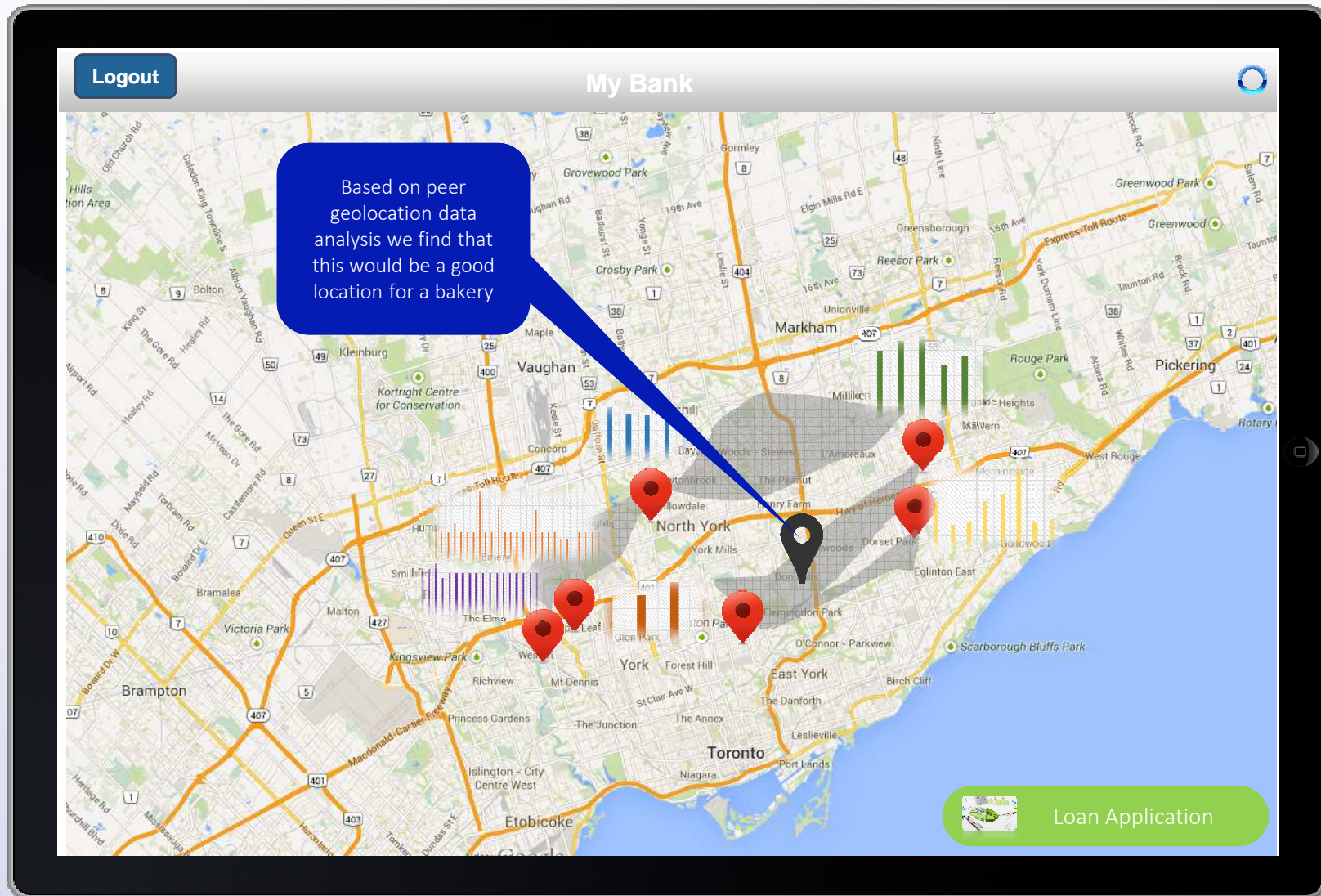# Customer Aggregated Geographical Spending Profile: Month

GeoAnalytics Based Recommendations

Peer GeoAnalytics Based Business Recommendations

Fraud Detection

Peer GeoAnalytics Recommendations