# Mobile App Analytics

Nils Meyer

**02. Dezember 2014**

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# CA helps drive the Application Economy

## CA DEFINED THE APM MARKET

Enterprise Customers
**1,000+**
Across the World

APM Market
**14 years**
Dominance

Patents
**80+**
Focused on APM Innovation

## ACTUAL CUSTOMER USE CASES

Telco A captures
**144 Billion**
Metrics a Day

Online Tax Company
**2.5 Million**
Concurrent Customer Sessions

Leading Technology Vendor
**25,000**
Agents/JVM Deployed


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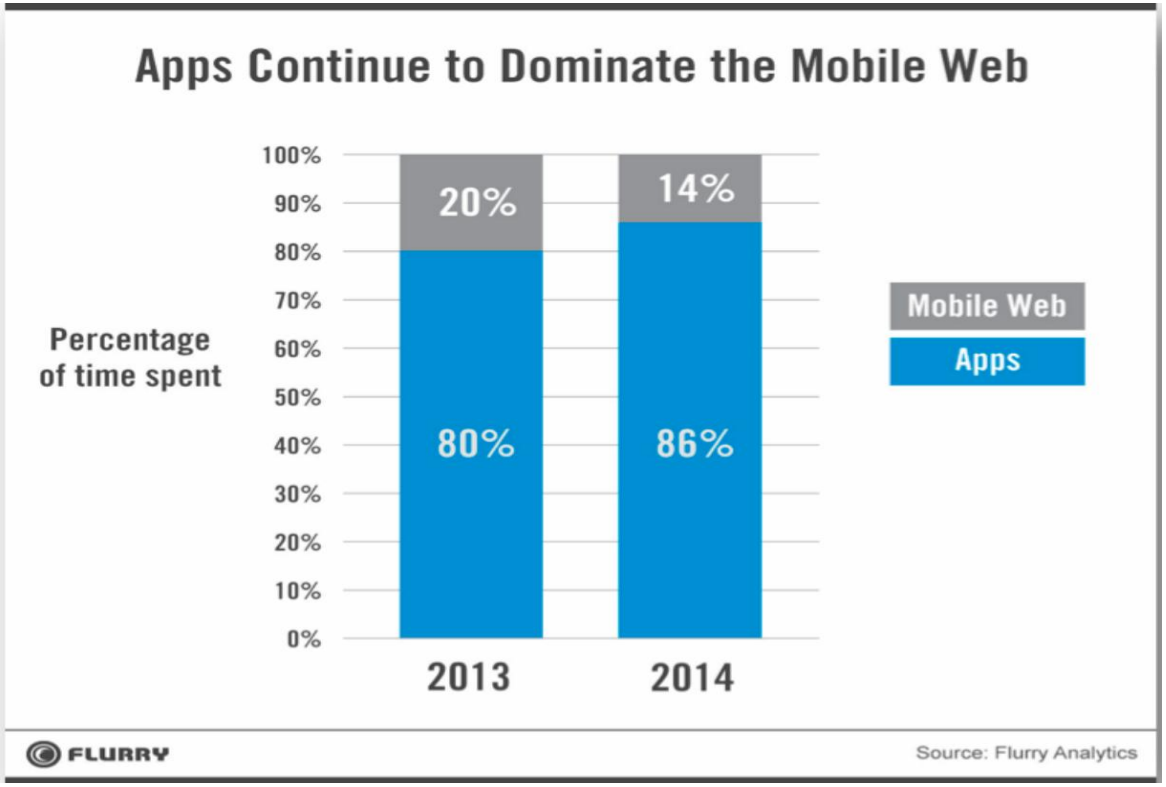
# Native apps continue their rule…



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# The World in 2014 as we know it…

Number of Mobile App downloads as of July **150B+**

**33** Average # of Mobile App downloads per phone

Number of apps in App Stores **3,000,000+**

**$ 26B+** App Store revenue in 2013

http://www.phonearena.com/news/The-average-global-smartphone-user-has-downloaded-26-apps_id47160



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# Great, We Have Installs! But wait…

**19%** Never run your app more than once…

User who will never reach **5** runs of your app: **45%**

**94%** No longer running your app after 30 days!

## Our job is far from done…

http://swrve.com/lp/new-players-report/?utm_source=blog&utm_medium=internal&utm_campaign=new-players-report



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# Achieving and Maintaining Engagement…

**15** Number of Mobile Apps used regularly per week

Users demanding good app performance **65%**

**82%** deleted an app due to crashes or poor performance

## Tougher than ever!

http://techcrunch.com/2011/12/18/app-ocalypse/
http://mobilemarketingmagazine.com/brits-app-attention-span-shorter-than-ever


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# CA Mobile App Analytics Goals

- Delight customers
  - Deliver great experiences, Improve with analytics
  - Provide world-class support
- Proactive problem resolution
  - Alerts on early signs of trouble
  - Accurate understanding of issue
- Deliver high value
  - Understand behavior, Apply real-time intelligence
  - Fail fast, iterate quickly


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# Mobile Challenges: Answer Key Questions

## Visualise, Understand Impact and be Proactive

**Who** is using our apps?

**Where** and **When** are they being used?

**What** are my users doing with our apps?

**What** is their experience like?

Can I **Help** users get more value?



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THIS IS THE AGE OF THE
APPLICATION ECONOMY
AND IT'S ALL ABOUT THE
USERS

MOBILE APP ANALYTICS

TIXCHANGE

Duncan B.
LOGOUT

- ANALYTICS
  - OVERVIEW
  - PERFORMANCE
  - CRASHES
  - USAGE
  - STATS
  - SESSIONS
- APPS
- ALERTS
- HELP

LAST 7 DAYS | LAST 30 DAYS | LAST 90 DAYS | CUSTOM... | DAY

## Hot Spots by Location

PROBLEM DETECTED | THRESHOLD EXCEEDED

## TIXCHANGE Active Daily Users

DAILY | MONTHLY

**4** Avg DAU

**19** Avg MAU

**91%** DAU:MAU

## TIXCHANGE Average Request Latency

EDIT ALERT

AVERAGE, IN MS

## TIXCHANGE HTTP Requests

**3.4**
Avg per Session

## TIXCHANGE HTTP Errors

EDIT ALERT

**0.5**
Avg per Session

## Current Hot Spots

**CRASH REPORT**
The App *'TIXCHANGE'* crashed
*17 hours ago*

**HTTP RESPONSE TIME THRESHOLD EXCEEDED**
**37.2s**
9.0s threshold
*a day ago*

**CRASH REPORT**
The App *'TIXCHANGE'* crashed
*2 days ago*

**HTTP RESPONSE TIME THRESHOLD EXCEEDED**
**37.2s**
9.0s threshold
*2 days ago*

**CRASH REPORT**
The App *'TIXCHANGE'* crashed
*2 days ago*

**CRASH REPORT**
The App *'TIXCHANGE'* crashed
*2 days ago*

## Flagged Sessions

- 11-20-2014
  TIXCHANGE - iPhone - WiFi
- 11-20-2014
  TIXCHANGE - iPhone - WiFi
- 11-20-2014
  TIXCHANGE - iPhone - WiFi
- 11-20-2014



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MOBILE APP ANALYTICS

- ANALYTICS
  - OVERVIEW
  - PERFORMANCE
  - CRASHES
  - USAGE
  - STATS
  - SESSIONS
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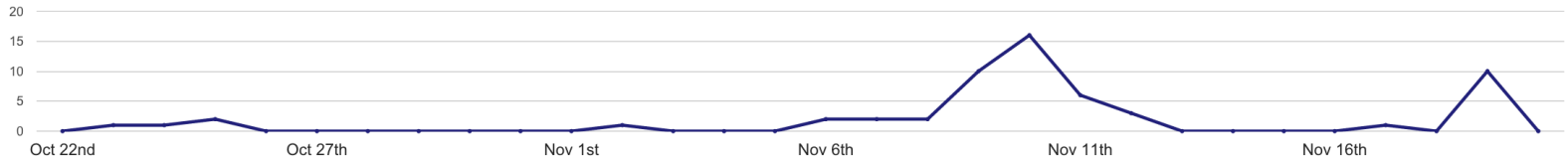
- HELP




| 57 | 9 | 29% | Oct 23 7:00am | Nov 19 4:00pm |
|---|---|---|---|---|
| Crashes | Affected Users | of All Users | UTC +00:00 First Occurrence | UTC +00:00 Last Occurrence |

## By Platform

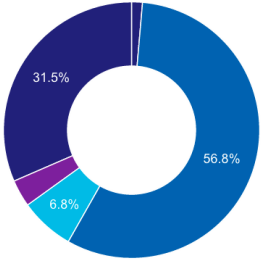
IOS

## By Device

APPLE

## By Carrier

VERIZON WIFI BELL UNKNOWN WIFI AT&T




## List of Crash Types

Find Crashes

| APPS | PLATFORM | COUNT | CRASH TYPE | % OF AFFECTED USERS | TOTAL AFFECTED USERS | FIRST OCCURRENCE | LAST OCCURRENCE |
|---|---|---|---|---|---|---|---|
| TIXCHANGE (v55) | iOS | 8 | SIGABRT Unknown (Unknown:0) | 100% | 2 | Nov 10th, 2014 10:20:05pm UTC +00:00 | Nov 19th, 2014 4:35:26pm UTC +00:00 |
| TIXCHANGE (v55) | iOS | 14 | SIGSEGV Unknown (Unknown:0) | 100% | 2 | Nov 10th, 2014 11:27:11pm UTC +00:00 | Nov 19th, 2014 3:41:21pm UTC +00:00 |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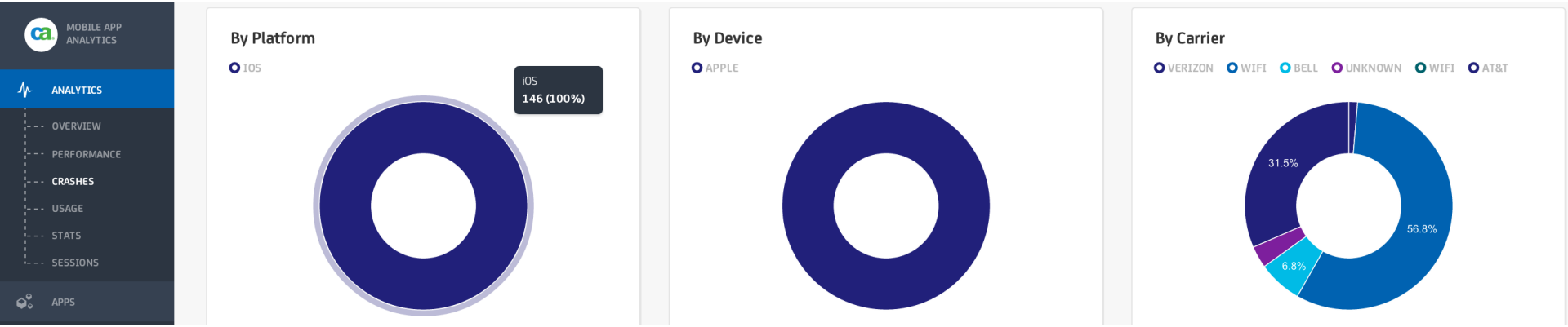


## List of crash incidents

| DATE | APP NAME | APP VERSION | CRASH TYPE | PLATFORM | PLATFORM VERSION | DEVICE MAKE | DEVICE MODEL | CONNECTION TYPE |
|---|---|---|---|---|---|---|---|---|
| Nov 10th, 2014 10:20:05pm UTC +00:00 | TIXCHANGE | 55 | SIGABRT | iOS | 8.1 | Apple | iPhone | AT&T |
| Nov 10th, 2014 11:23:41pm UTC +00:00 | TIXCHANGE | 55 | SIGABRT | iOS | 8.1 | Apple | iPhone | AT&T |
| Nov 19th, 2014 3:43:05pm UTC +00:00 | TIXCHANGE | 55 | SIGABRT | iOS | 8.1 | Apple | iPhone | WiFi |
| Nov 19th, 2014 3:44:40pm UTC +00:00 | TIXCHANGE | 55 | SIGABRT | iOS | 8.1 | Apple | iPhone | WiFi |
| Nov 19th, 2014 3:51:38pm UTC +00:00 | TIXCHANGE | 55 | SIGABRT | iOS | 8.1 | Apple | iPhone | WiFi |
| Nov 19th, 2014 4:05:35pm UTC +00:00 | TIXCHANGE | 55 | SIGABRT | iOS | 8.1 | Apple | iPhone | WiFi |
| Nov 19th, 2014 4:25:15pm UTC +00:00 | TIXCHANGE | 55 | SIGABRT | iOS | 8.1 | Apple | iPhone | WiFi |


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Stack Trace

```
Incident Identifier: TODO
        CrashReporter Key:   TODO
        Hardware Model:      iPhone6
1
        Process:         CrashTest [1045]
        Path:            /var/mobile/Applications/5A41EF98-CC88-41C3-B832-6ADD75634D38/CrashTest.app/CrashTest
        Identifier:      com.ca.CAMobility.CrashTest
        Version:         1.0
        Code Type:       ARM
        Parent Process:  launchd [1]

        Date/Time:       2014-03-18 15:12:27 +0000
        OS Version:      iPhone OS 7.1 (11D167)
        Report Version:  104

        Exception Type:  SIGABRT
        Exception Codes: #0 at 0x3be741f0
        Crashed Thread:  0

        Application Specific Information:
        *** Terminating app due to uncaught exception 'NSRangeException'
reason: '*** -[__NSArrayI objectAtIndex:]: index 23 beyond bounds for empty array'

        Last Exception Backtrace:
        0   CoreFoundation                    0x3112ef03 <redacted> + 130
        1   libobjc.A.dylib                   0x3b8bfce7 objc_exception_throw + 38
        2   CoreFoundation                    0x31065331 -[__NSArrayI objectAtIndex:] + 176
        3   CrashTest                         0x000912b3 -[ViewController arrayExceptionAction:] + 94
        4   UIKit                             0x339936c7 -[UIApplication sendAction:to:from:forEvent:] + 90
        5   UIKit                             0x33993663 -[UIApplication sendAction:toTarget:fromSender:forEvent:] + 38
        6   UIKit                             0x33993633 -[UIControl sendAction:to:forEvent:] + 46
        7   UIKit                             0x3397ed7b -[UIControl _sendActionsForEvents:withEvent:] + 374
        8   UIKit                             0x3399307b -[UIControl touchesEnded:withEvent:] + 594
        9   UIKit                             0x33992d4d -[UIWindow _sendTouchesForEvent:] + 528
        10  UIKit                             0x3398dca7 -[UIWindow sendEvent:] + 758
        11  UIKit                             0x33962e75 -[UIApplication sendEvent:] + 196
        12  UIKit                             0x33961541 <redacted> + 7120
        13  CoreFoundation                    0x310f9fe7 <redacted> + 14
        14  CoreFoundation                    0x310f94af <redacted> + 206
        15  CoreFoundation                    0x310f7c9f <redacted> + 630
        16  CoreFoundation                    0x310627a9 CFRunLoopRunSpecific + 524
        17  CoreFoundation                    0x3106258b CFRunLoopRunInMode + 106
        18  GraphicsServices                  0x35fbf6d3 GSEventRunModal + 138
        19  UIKit                             0x339c1891 UIApplicationMain + 1136
```

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LOGOUT
ILS
CRASH DETAILS

MOBILE APP ANALYTICS

TIXCHANGE

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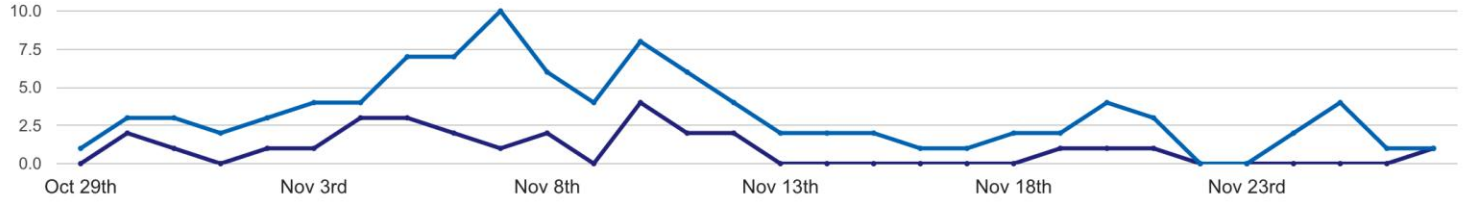
LOGOUT

- ANALYTICS
  - OVERVIEW
  - PERFORMANCE
  - CRASHES
  - USAGE
  - STATS
  - SESSIONS
- APPS
- ALERTS
- HELP

LAST 7 DAYS | LAST 30 DAYS | LAST 90 DAYS | CUSTOM... | DAY

## Users

NEW USERS ACTIVE USERS

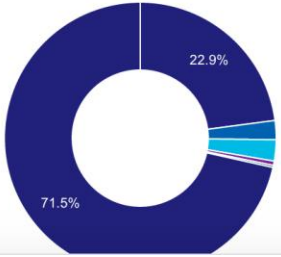



## Users By Platform

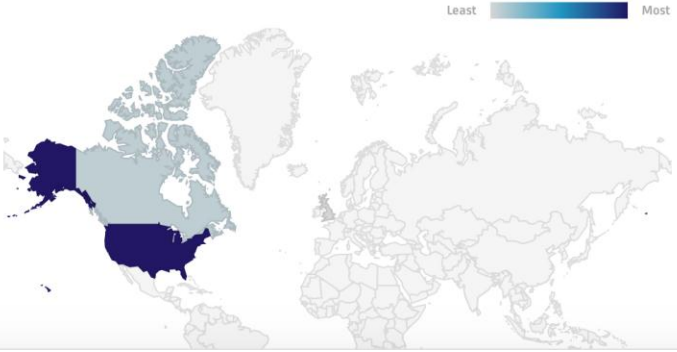
IOS

## By Carrier

AT&T BELL UNKNOWN
VERIZON WIFI WIFI




## User Activity



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MOBILE APP ANALYTICS

- ANALYTICS
  - OVERVIEW
  - PERFORMANCE
  - CRASHES
  - USAGE
  - STATS
  - SESSIONS
- APPS
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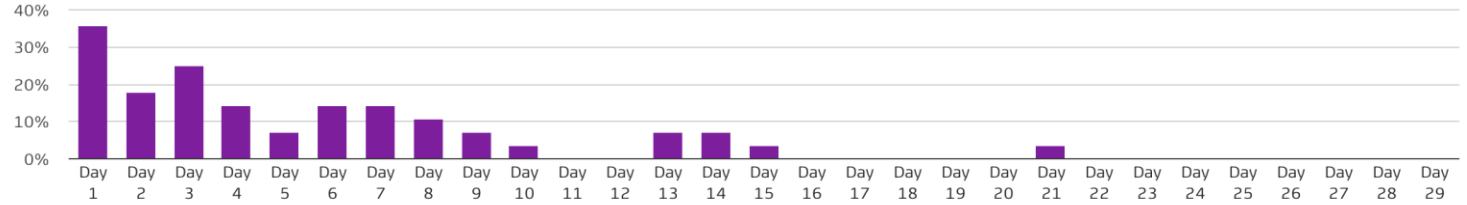
- HELP

## Sessions

SESSION LENGTH DISTRIBUTION

AVERAGE SESSION LENGTH

## User Retention




| Initial | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Day 8 | Day 9 | Day 10 | Day 11 | Day 12 | Day 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|



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MOBILE APP ANALYTICS

TIXCHANGE

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LOGOUT

- ANALYTICS
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- HELP

LAST 7 DAYS | LAST 30 DAYS | LAST 90 DAYS | CUSTOM... | DAY

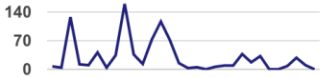
## Average Request Latency

EDIT ALERT

12.1s
Avg per Request

## HTTP Requests

3.2
Avg per Session




## HTTP Errors

EDIT ALERT

0.5
Avg per Session

## CPU Use

SET ALERT

0.2%
Avg per Session

## Memory Use

SET ALERT

3.6%
Avg per Session

## Startup Time

4.1s
Avg per Session

## Current Hot Spots

HTTP RESPONSE TIME THRESHOLD EXCEEDED
48.5s
9.0s threshold
*2 days ago*

HTTP RESPONSE TIME THRESHOLD EXCEEDED
37.2s
9.0s threshold
*2 days ago*

HTTP RESPONSE TIME THRESHOLD EXCEEDED
44.9s
9.0s threshold
*2 days ago*

HTTP RESPONSE TIME THRESHOLD EXCEEDED
37.0s
9.0s threshold
*2 days ago*

HTTP RESPONSE TIME THRESHOLD EXCEEDED
45.1s
9.0s threshold
*2 days ago*

HTTP RESPONSE TIME THRESHOLD EXCEEDED

# APM 9.7 Beta screenshot

Time Window: Live | Change Start Time: | (0) | admin (Logout) | Help

Home | Console | Investigator | Tools | Management

## Business Transactions

| Status | Name | R/T(sec) | Errors |
|---|---|---|---|
| | Shop - View Product via iOS 8 | 1.212 | 0 |
| | Shop - View Product via Androi | 1.16 | 0 |
| | Shop - View Product | 1.558 | 0 |
| | Shop - View Product via iOS 7 | 1.102 | 0 |
| | Shop - View Item | 0.109 | 0 |
| | Shop - Add Item To Cart via iO | 0 | 0 |
| | Shop - Add Item To Cart via iO | 0 | 0 |
| | Account - Sign On via iOS 7 | 0 | 0 |
| | Shop - Landing Page | 0.002 | 0 |
| | Shop - Add Item To Cart | 0 | 0 |

Page 1 of 2 | Displaying 1 - 10 of 14

## Application Components

| Status | Name | R/T(sec) | Errors |
|---|---|---|---|
| | TIXCHANGE Web | 0.477 | 0 |
| | TIXCHANGE Services | 0 | 0 |
| | Introscope WebView | 0.134 | 0 |
| | CA Styles R5.1.2 | 0 | 0 |
| | labs | 0 | 0 |
| | maa | 0 | 0 |
| | nextgenapm | 0 | 0 |
| | ProductLineInterface | 0.232 | 0 |
| | InventoryService | 0.199 | 0 |

Page 1 of 1 | Displaying 1 - 9 of 9

## Risks from Other Tiers

| Status | Risk Type |
|---|---|
| | Backend Calls |
| | CPU |
| | Memory |

## Active Alerts

68 Total

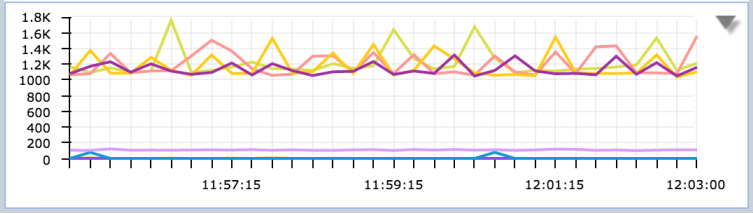
| | |
|---|---|
| Danger | 0 |
| Caution | 4 |
| Normal | 64 |

Worst 10

| Status | Alert Name |
|---|---|
| | Struts - Average Response Ti... |
| | By Business Service\|TIXCHAN... |
| | Business - Shop_ Average Re... |
| | Business - Summary Alert |
| | Individual Client Operation Er... |
| | Individual Client Service Resp... |
| | Individual Server Service Ave... |
| | Individual Client Operation Av... |
| | Individual Client Operation St... |

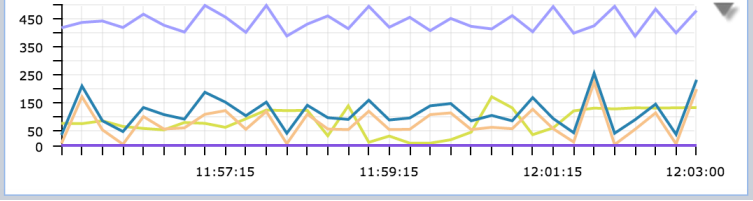
## 25 Slowest BTs: Average Response Times (ms)

Displaying Top 25




## 25 Slowest Frontends: Average Response Times (ms)

Displaying Top 25



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# APM 9.7 Beta screenshots

Time Window: Live  Change Start Time:  (0) | admin (Logout) | Help

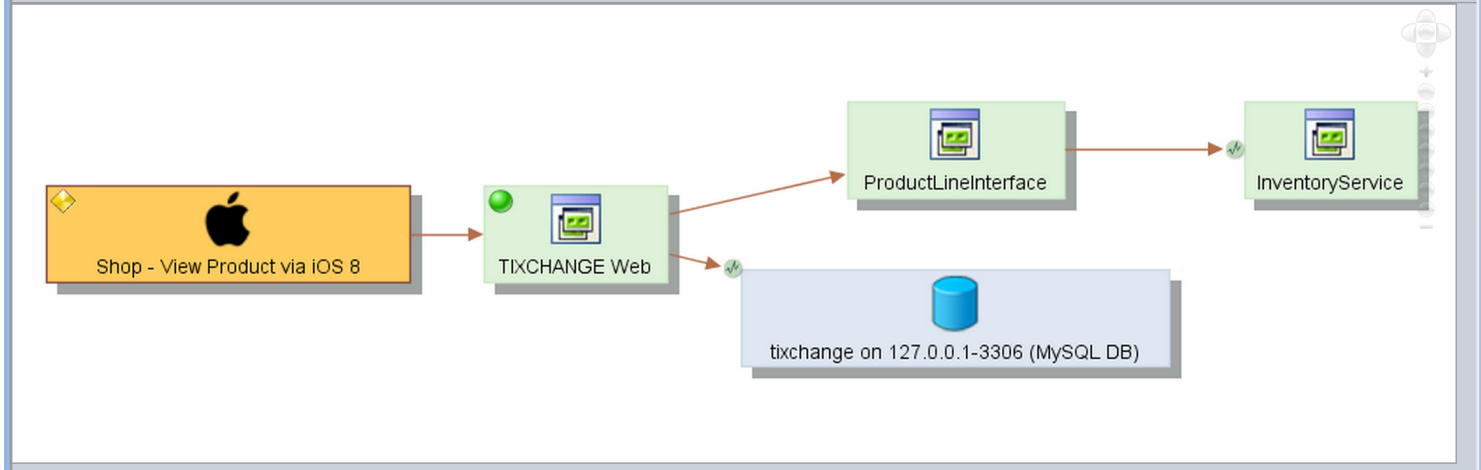
Home | Console | Investigator | Tools | Management

By Business Service > TIXCHANGE > Shop - View Product ...

Triage Map | Metric Browser | Analysis Workbench

- By Business Service
  - TIXCHANGE
    - Account - Sign On
    - Account - Sign On via iOS 7
    - Account - Sign On via iOS 8
    - Cart - View Cart
    - MMProgressHUDViewController via
    - Shop - Add Item To Cart
    - Shop - Add Item To Cart via iOS 7
    - Shop - Add Item To Cart via iOS 8
    - Shop - Landing Page
    - Shop - View Item
    - Shop - View Product
    - Shop - View Product via Android 4
    - Shop - View Product via iOS 7
      - Health
    - Shop - View Product via iOS 8
- By Frontend

Overview




Locations for Shop - View Product via iOS 8

| Status | Agent | Host | Response Time | Concurrent | Errors | Responses | Stalls |
|---|---|---|---|---|---|---|---|
| | TIXChange-Web | tix-uswest1c-01 | 1229 | 0 | 0 | 4 | 0 |
| | TIXChange-Web | tix-uswest1a-01 | 0 | 0 | 0 | 0 | 0 |



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# APM 9.7 Beta screenshots

Time Window: Live | Change Start Time: | (0) | admin (Logout) | Help

Home | Console | Investigator | Tools | Management

*SuperDomain* > tix-uswest1c-01 > Tomcat > TIXChange-Web (*Supe... > Business Segment > TIXCHANGE > Shop - View Product ... > Health | Mount Agent...

Triage Map | Metric Browser | Analysis Workbench

- Struts
- Tomcat
- apmmom-uswest1c-01
- tix-uswest1a-01
- tix-uswest1c-01
  - Tomcat
    - TIXChange-Service (*SuperD
    - TIXChange-Web (*SuperDom
      - EM Host
      - EM Port
      - Java Version
      - Launch Time
      - ProcessID
      - Virtual Machine
      - Agent Stats
      - Backends
      - Business Segment
        - TIXCHANGE
          - Shop - Landing Pag
          - Shop - View Item
          - Shop - View Produc
          - Shop - View Produc
          - Shop - View Produc
          - Shop - View Produc
            - Health

Overview | General | Traces | Errors | Search | Metric Count

| Status | Timestamp | Duration | Description | UserID |
|---|---|---|---|---|
| | 11/26/14 22:27:22 GMT+000 | 1249 | /jtixchange_web/shop/viewProduct.shtml | |

Summary View | Trace View | Tree View

Agent: *SuperDomain*|tix-uswest1c-01|Tomcat|TIXChange-Web
Timestamp: 2014 Nov 26 22:27:22
Duration: 1249 ms

Zoom

(milliseconds) 0 100 200 300 400 500 600 700 800 900 1000 1100 1200

Business Segment|TIXCHANGE|Shop - View Product via iOS 8|Health (1249 ms)

URL: /jtixchange_web/shop/viewProduct.shtml
x-apm-bt.Application Name: TIXCHANGE
x-apm-bt.Carrier: AT&T
x-apm-bt.Connection: 3g
x-apm-bt.Device: 2b6f0cc904d137be2e1730235f5664094b831186
x-apm-bt.Identifier Version: 1.0
x-apm-bt.Location: 47.6202268,-122.3490379
x-apm-bt.OS Version: iOS/8.1
x-apm-bt.Tenant: 4F2504E0-4F89-9B0C-0305E82C2301



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# Key Advantages

## EASE-OF-USE, QUICK TIME TO VALUE

Simple sign-up, ‘no touch’ app wrapping

## ON-PREMISE, SAAS AND FREEMIUM OPTION

Check out TRIALS.CA.COM

## 360º MOBILE INFRASTRUCTURE MONITORING

App, network, servers, database, mainframe, synthetic

## COMPREHENSIVE SOLUTION FOR ENABLING MOBILITY

Dev, test, operations, support



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# Mobile App Analytics

Nils Meyer

**02. Dezember 2014**

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