



IPRO 312: Widget Applications to Enhance the Tru2Way Consumer Experience

Sponsored by Comcast





Applications on Open Platform





Memory Error!

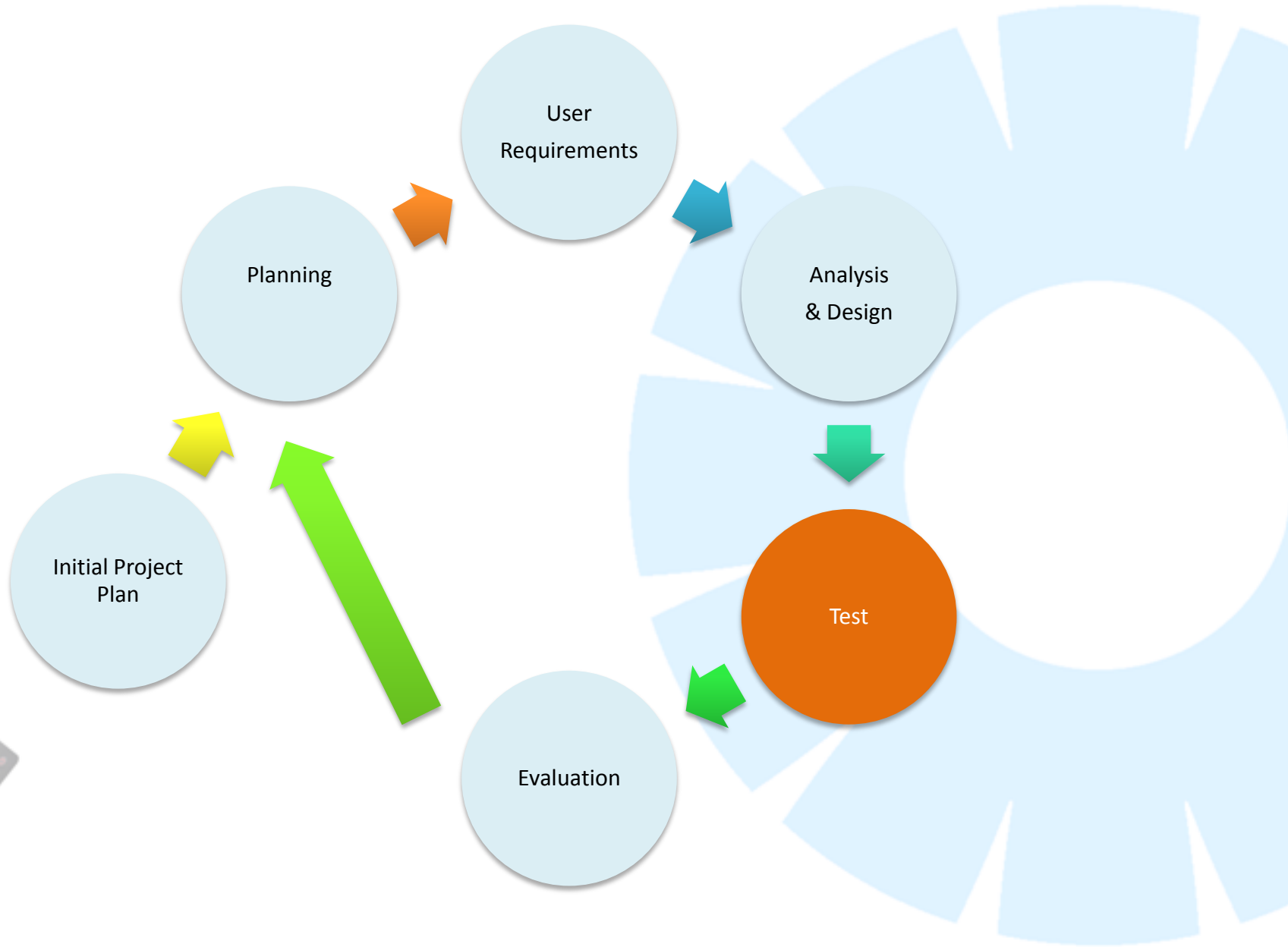
A fatal exception 0E has occurred at 0028:C0011E36 in UXD UMM(01) + 00010E36. The current application will be terminated.

- * Press any key to terminate the current application.
- * Press CTRL+ALT+DEL again to restart your computer. You will lose any unsaved information in all applications.

Press any key to continue _

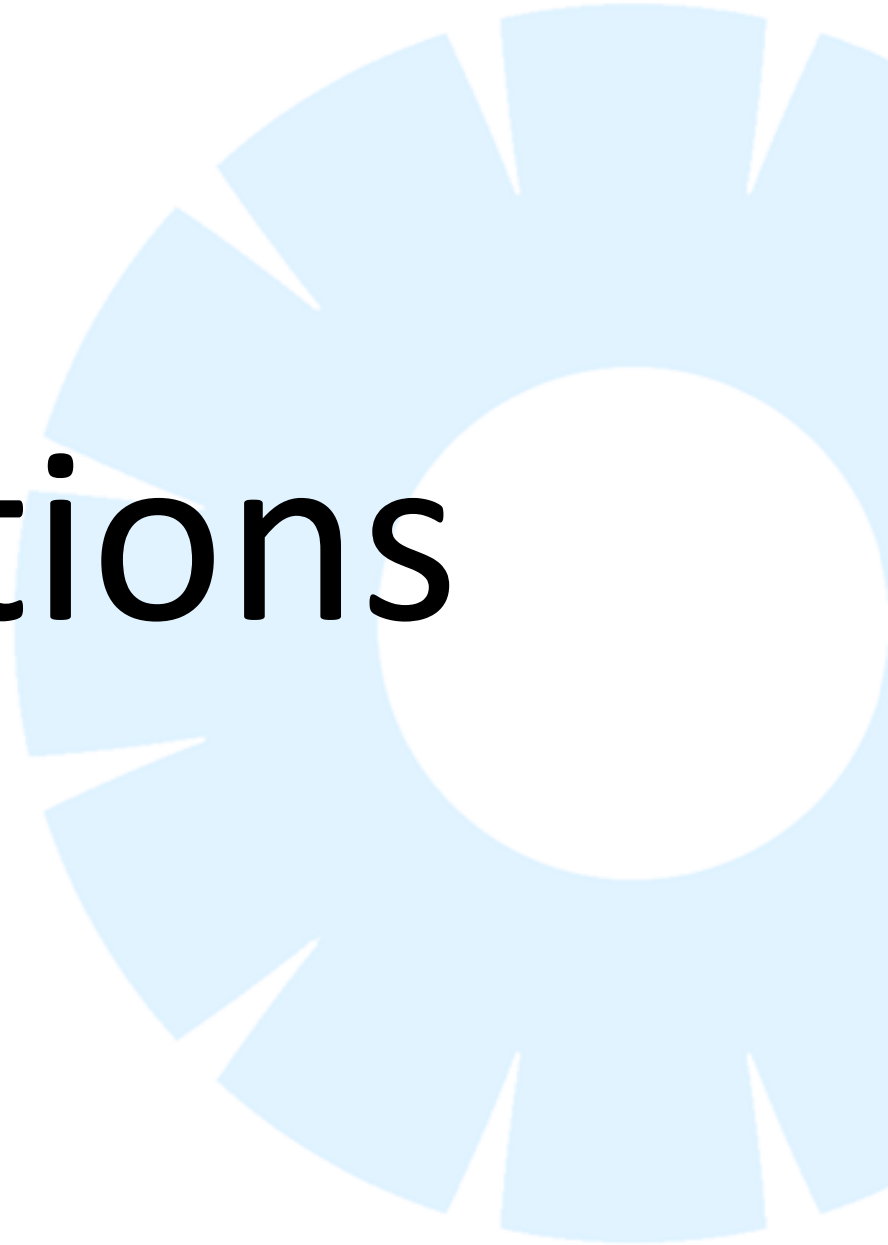


Software Development Cycle



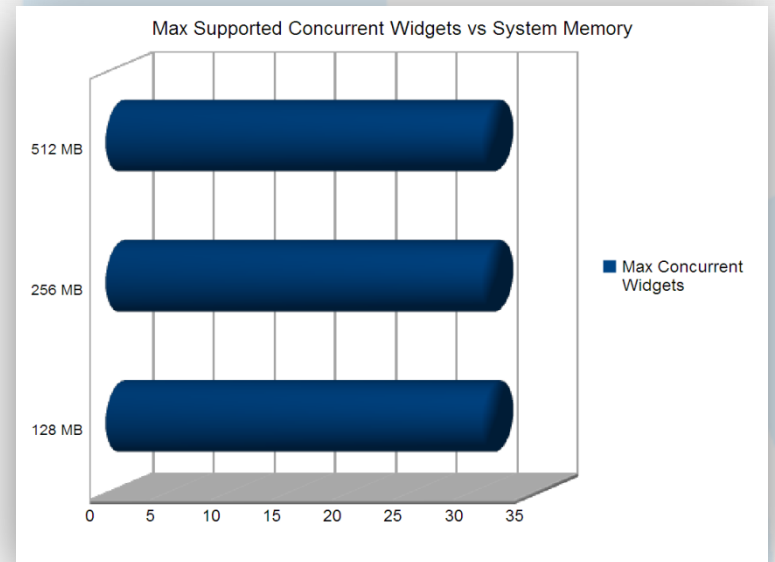
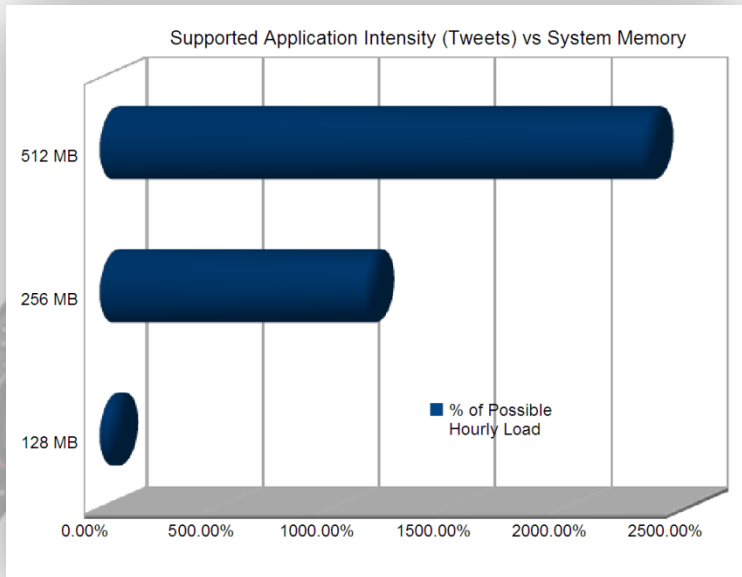
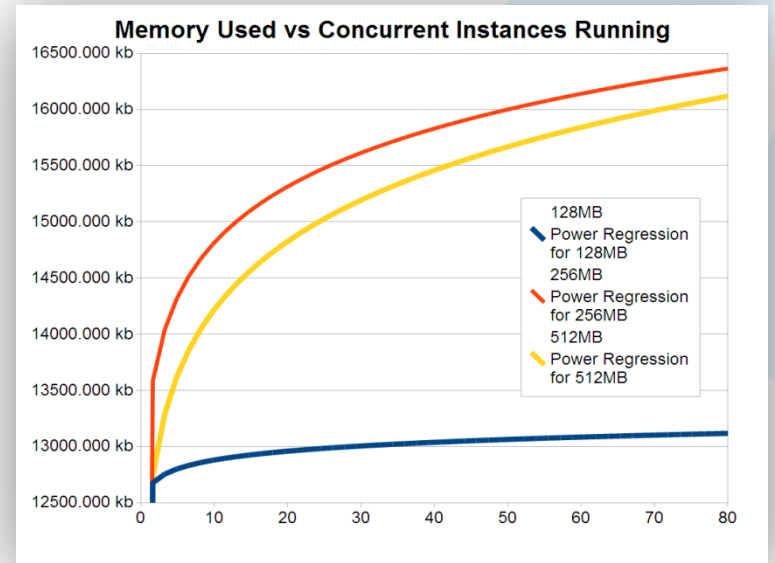
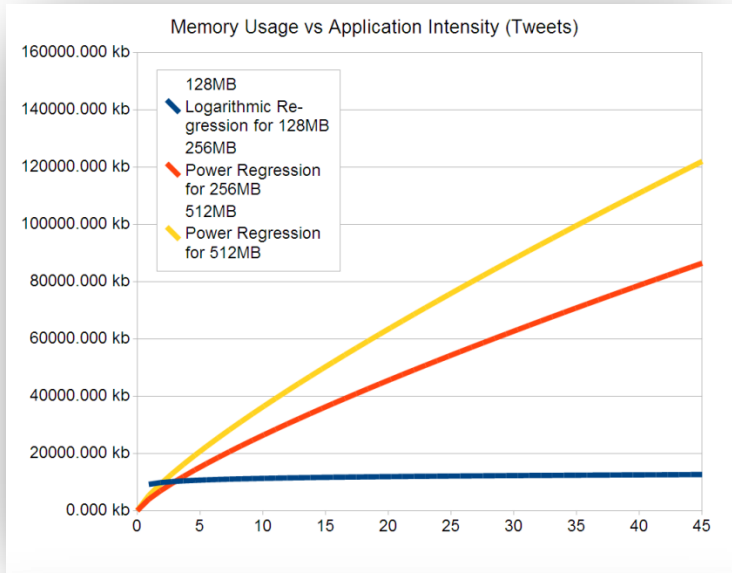


Definitions





Metrics





Software Development Kit/SDK

```
1 package hernals.infra;
2
3 import java.io.*;
4
5 /**
6  * Socket communication thread. Maintains a dual stream tunnel
7  * for simultaneous bidirectional information exchange.
8  */
9
10 class SocketThread extends Thread
11 {
12     private Socket socket;
13     private Server server;
14     private BufferedReader in = null;
15     private PrintWriter out = null;
16     private boolean alive = true;
17     private String clientName;
18
19     /**
20      * Constructor.
21      * @param newSocket socket to maintain
22      * @param newServer server application
23      */
24     public SocketThread(Socket newSocket,
25                         Server newServer)
26     {
27         socket = newSocket;
28         server = newServer;
29     }
30
31     /**
32      * Entry point method for thread process
33      */
34     public void run()
35     {
36         Packet temp;
37         try
38         {
39             // ...
40         }
41         catch (Exception e)
42         {
43             // ...
44         }
45     }
46 }
```





Widget/App



source: yahoo



Tru2Way

<tru2way>



Before



After
<tru2way>

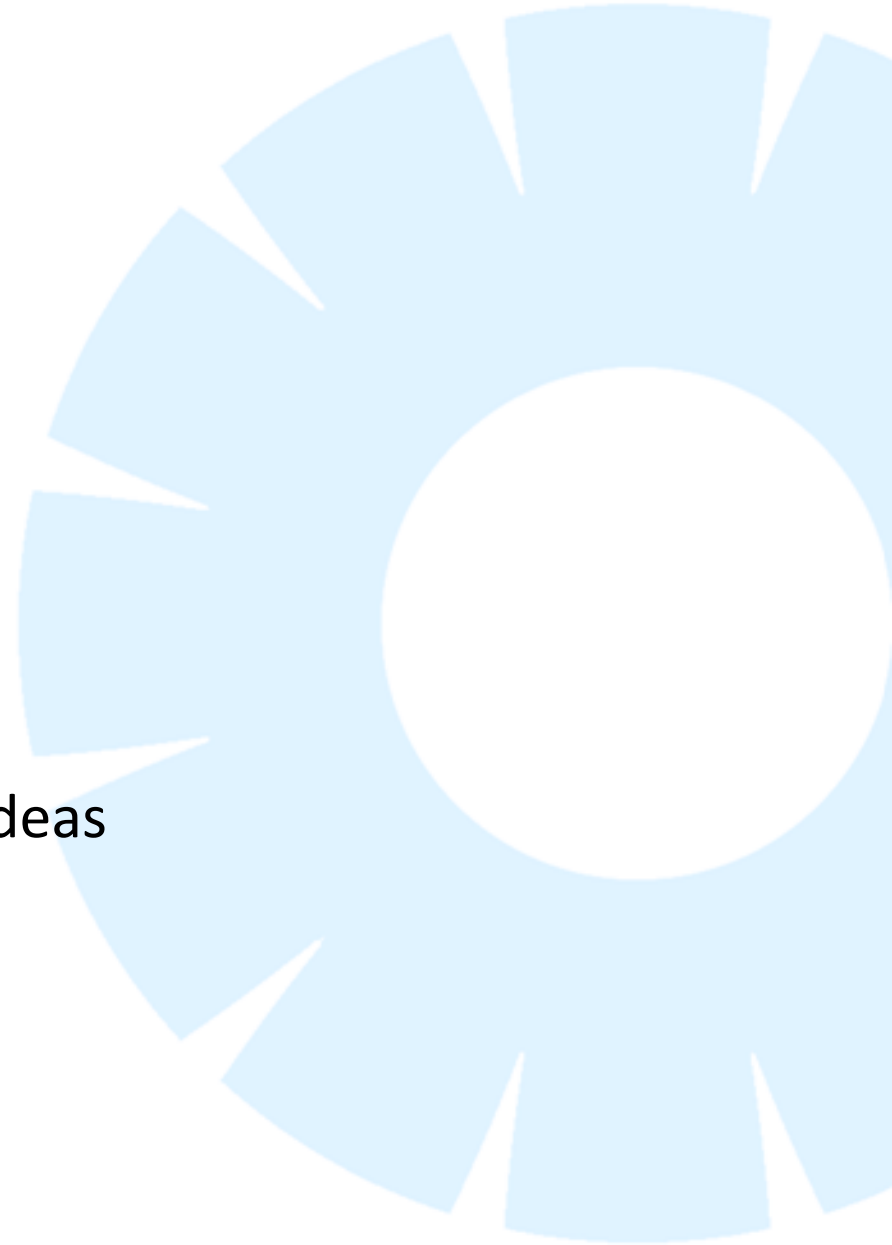




Project Goals

- Primary Goals
 - Identify Metrics to collect
 - Develop Test Widget
 - Test Plan
 - Collect test data

- Secondary Goals
 - New Widget Application Ideas
 - Consumer Usability





Identify test metrics

- Bandwidth
- Memory
- Multitasking





Develop Test Widget

The screenshot shows a window titled "RI Emulator Application" with a menu bar containing "File" and "Help". The main content area displays a Twitter login interface. The interface includes the Twitter logo, two empty input fields for "Username" and "Password", a keyboard overlay, and a "login" button. The keyboard overlay has a yellow highlight on the 'a' key and a blue highlight on the 'p' key. A remote control overlay is positioned on the right side of the window, featuring various buttons such as "MENU", "INFO", "SELECT", "ON DEMAND", "MUTE", "LIST", "LIVE", and a numeric keypad. The remote control is branded with the "tru2way" logo.

INFO RI.UI.OpenGL.common - opengl_init_environment -- called with win -203, width 640, height 480
INFO RI.UI - window_init returning Window ID: -203

Welcome to RI Emulator!



Test Plan

Phase I

- Test robustness of sample widget

Phase II

- Stress test, sample widget
- Determining breaking points

Phase III

- Concurrency/Multitasking test

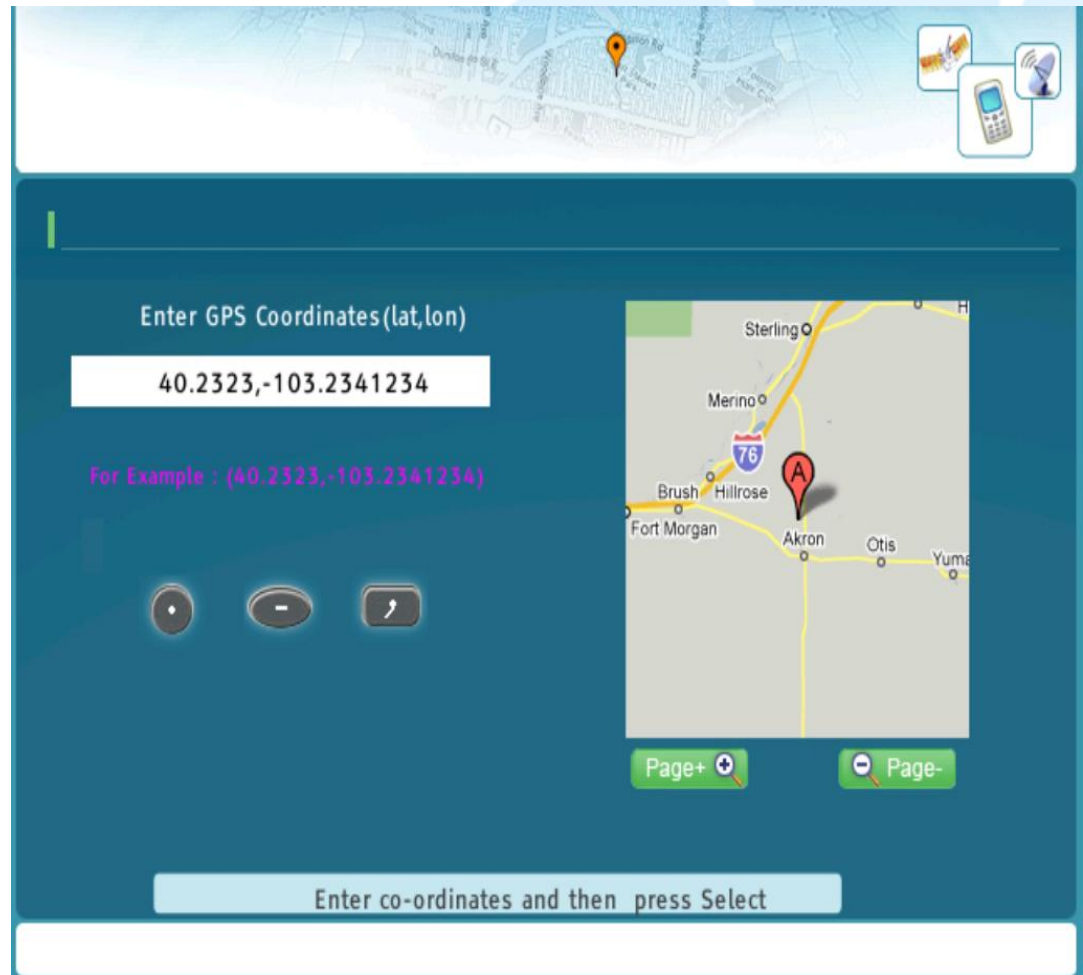
Phase IV

- Combination of all tests



Develop new widget ideas

Use sample Google map application as a reference to develop a package tracking application





Team Structure

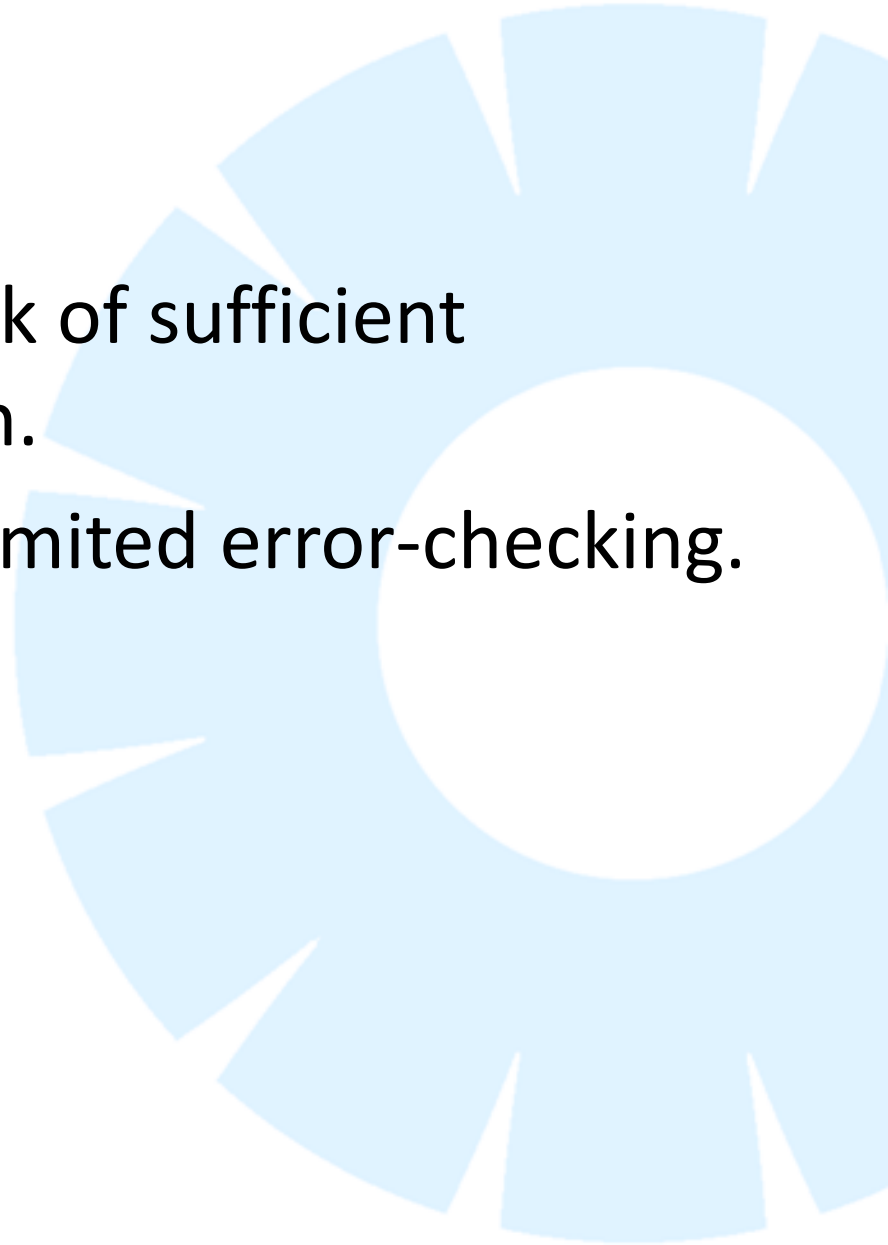
- Programming
- Usability & Testing





Obstacles

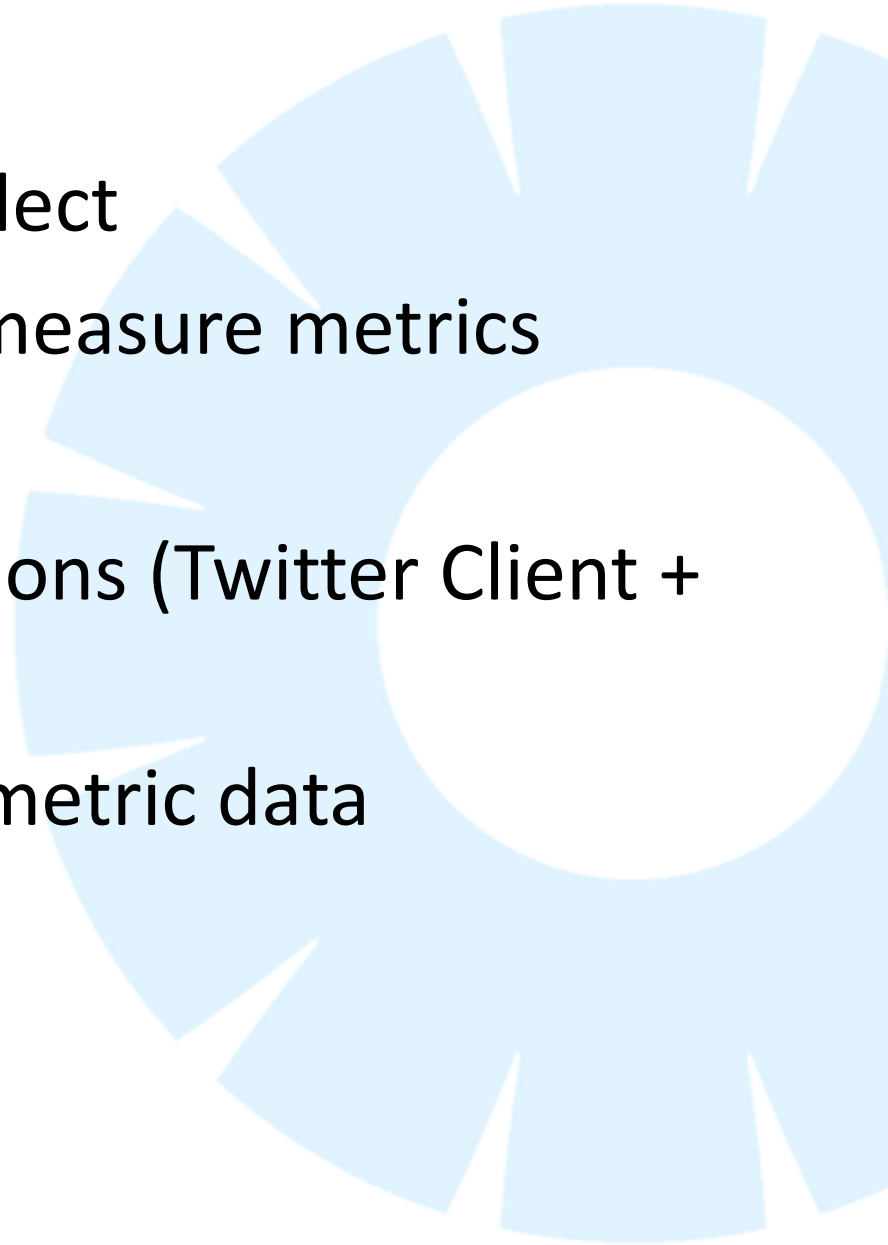
- Usability concerns — lack of sufficient technical documentation.
- Emulator restrictions—limited error-checking.





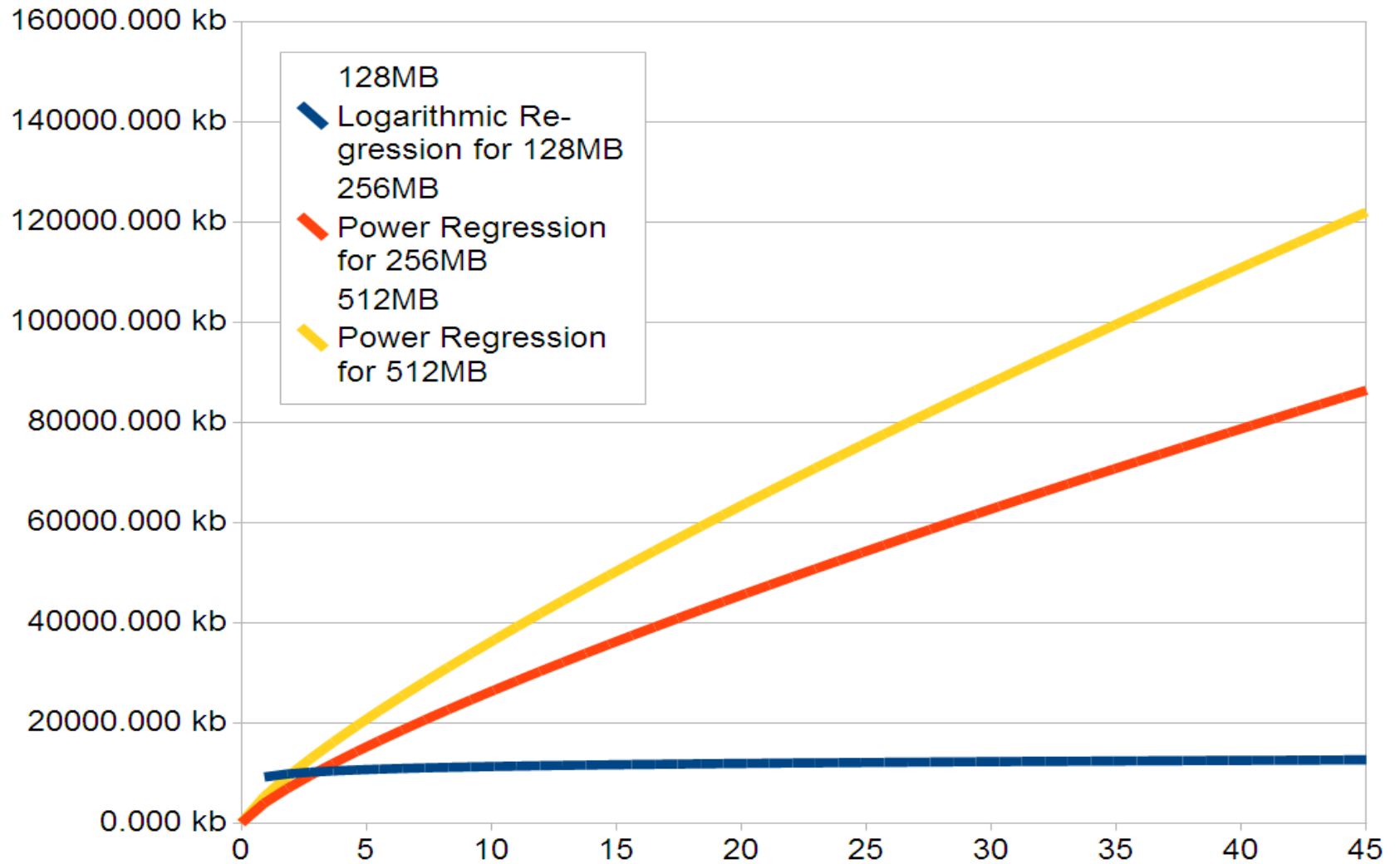
Achievements

- Identified Metrics to Collect
- Developed Test Plan to measure metrics
- Procured adequate SDK
- Developed Test Applications (Twitter Client + App Manager)
- Ran tests and collected metric data



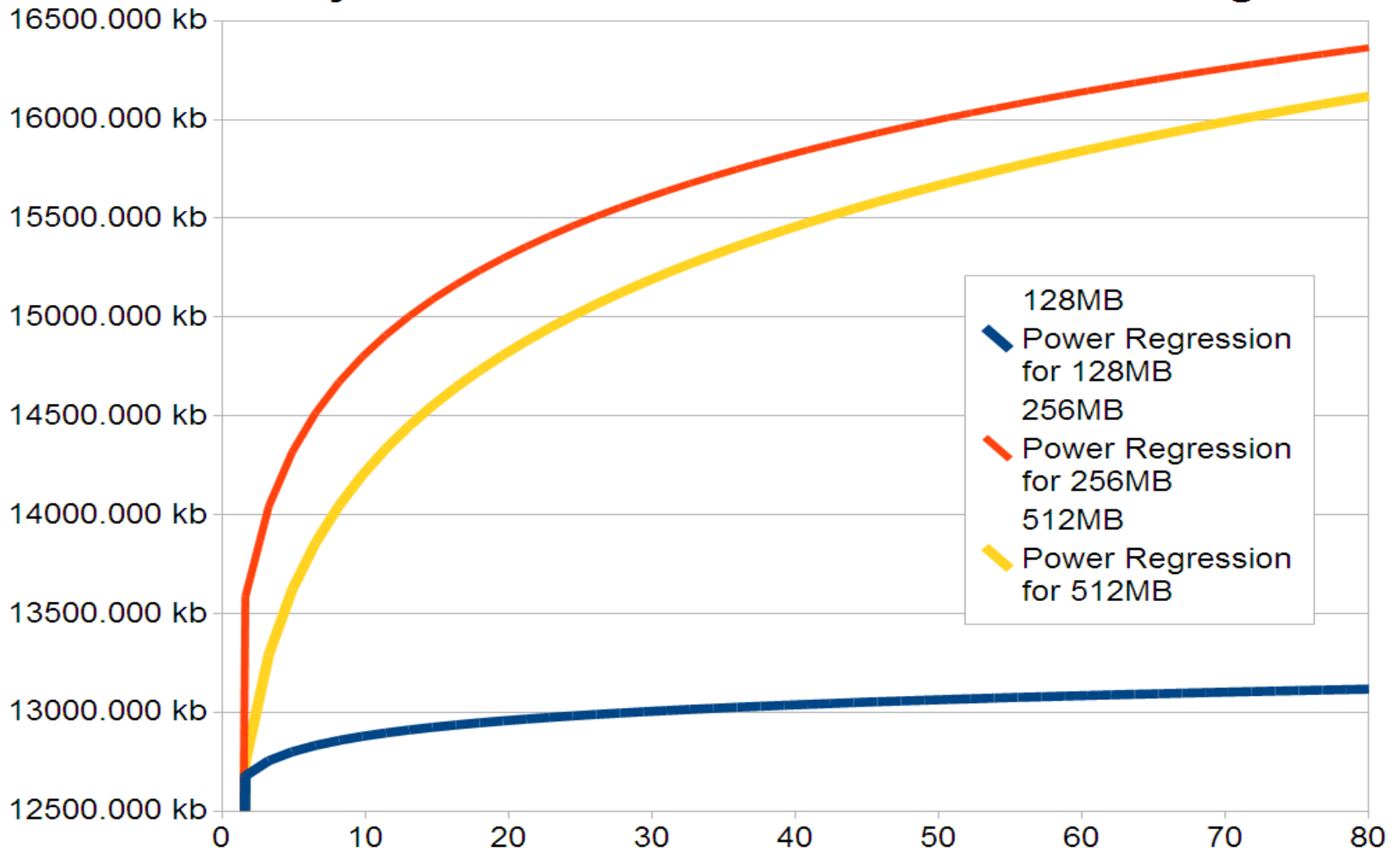


Memory Usage vs Application Intensity (Tweets)



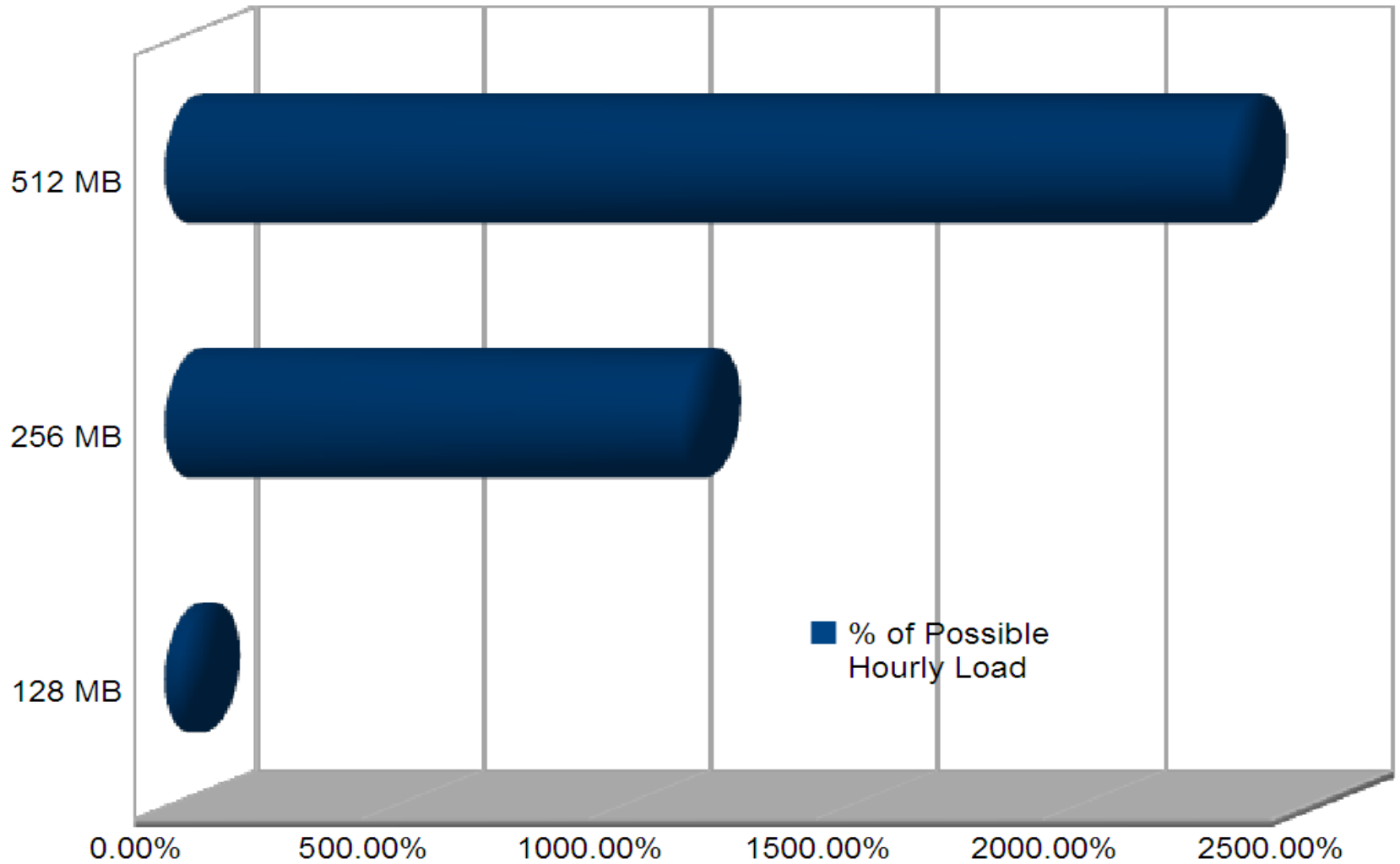


Memory Used vs Concurrent Instances Running



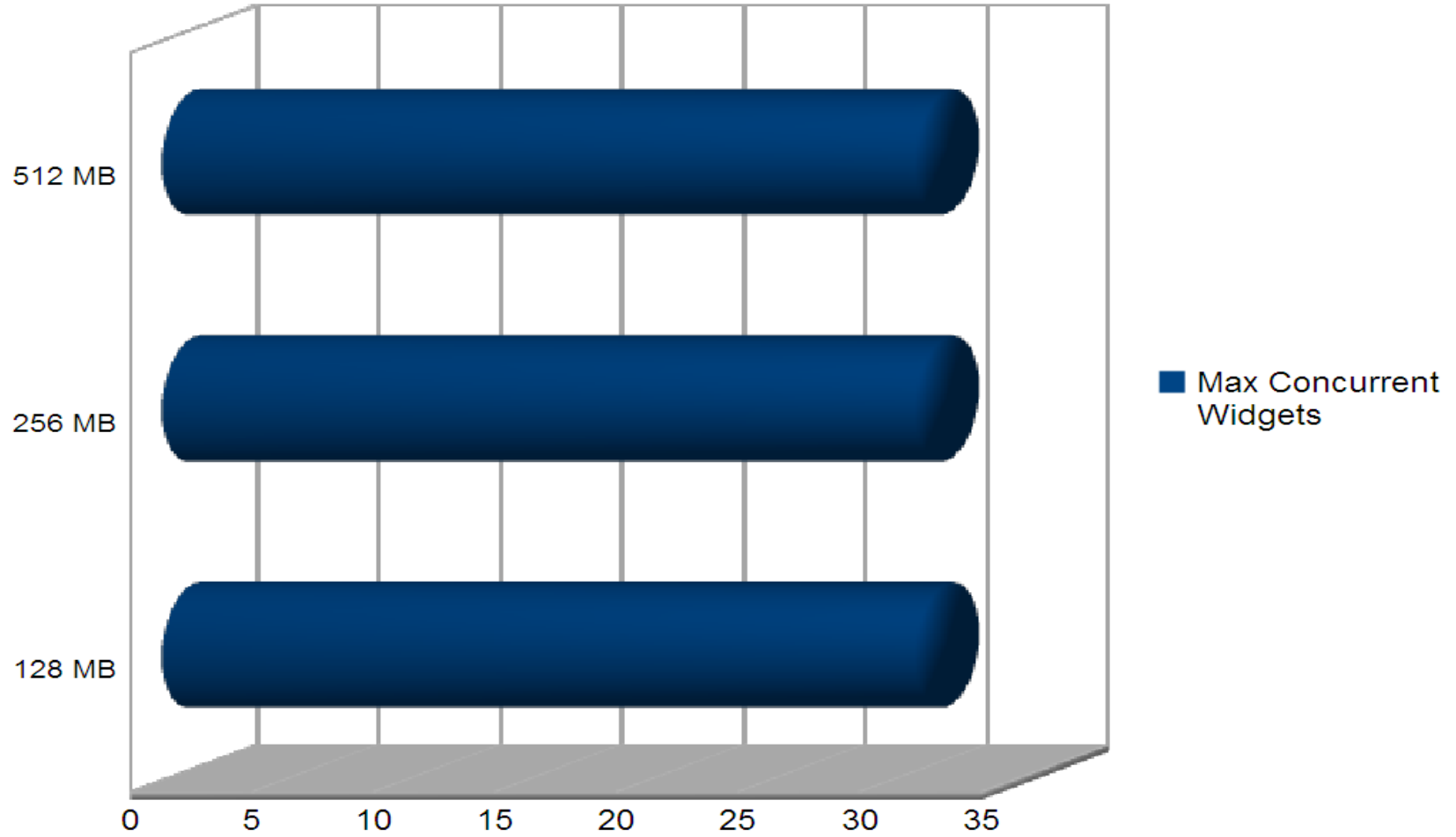


Supported Application Intensity (Tweets) vs System Memory



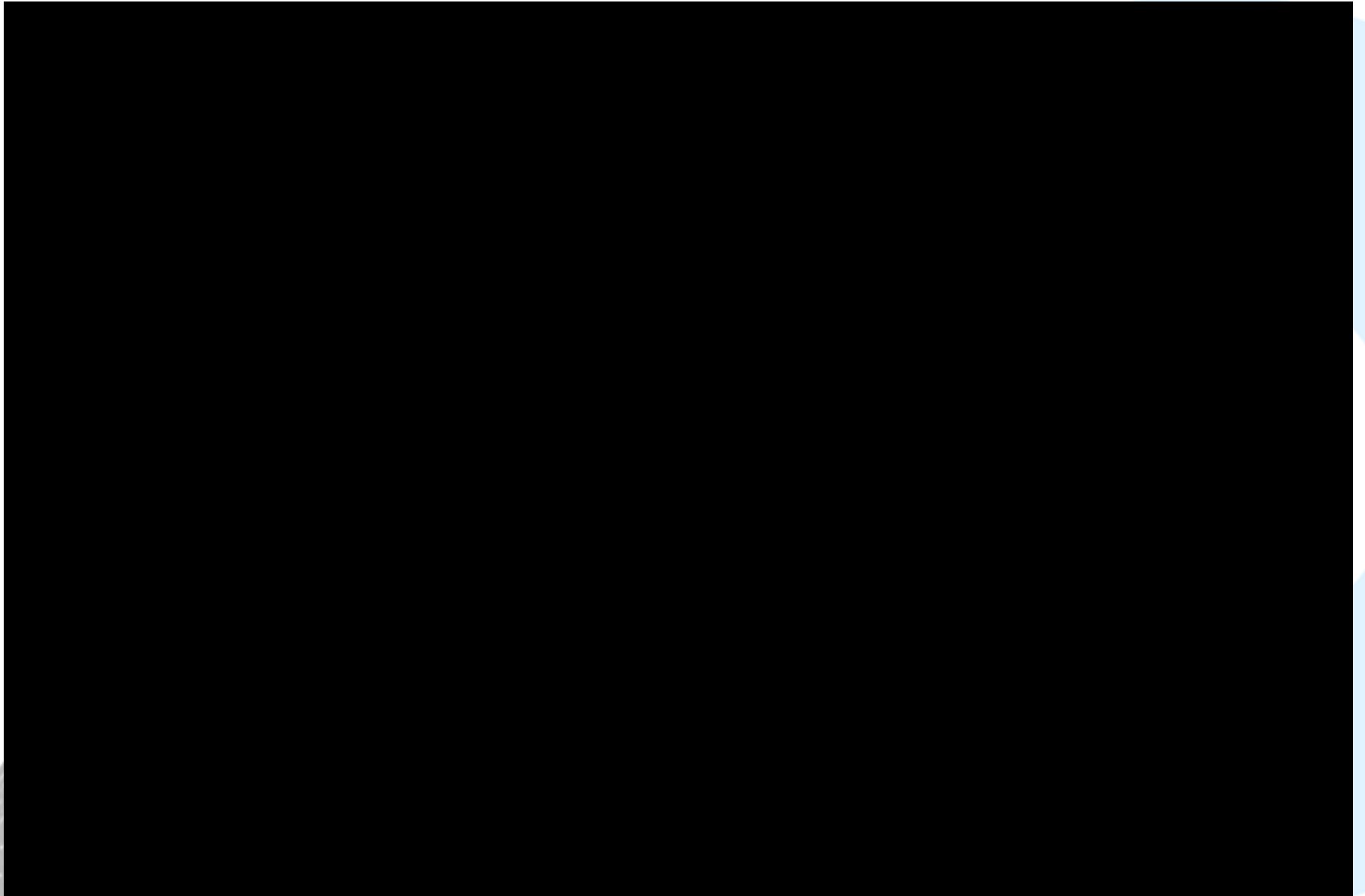


Max Supported Concurrent Widgets vs System Memory





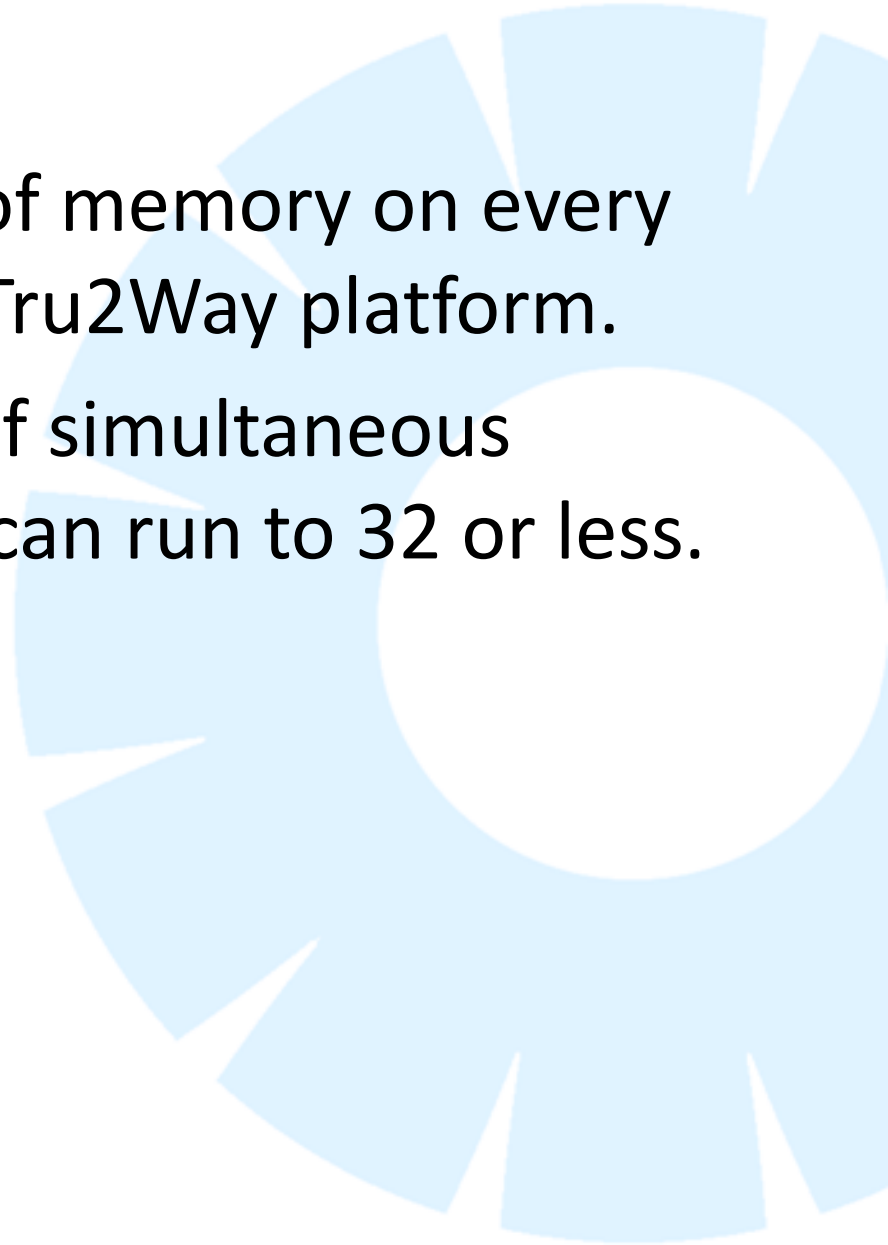
Video of Twitter Application





Recommendations / Conclusion

- Include at least 256MB of memory on every device that will run the Tru2Way platform.
- Limit the total number of simultaneous applications that a user can run to 32 or less.





Questions...

