Comcast Comcast

IPRO 312 Widgets to Enhance the Tru2way Consumer Experience

ILLINOIS INSTITUTE OF TECHNOLOGY

PROBLEM STATEMENT

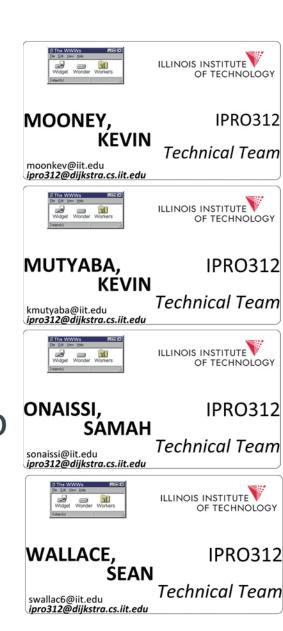
Comcast needs performance and resource data for use with the Tru2Way Platform they intend to deploy on their network to ensure reliable and consistent user experience across multiple hardware platforms.

OBJECTIVE Primary Goals

- Developing widgets
- Identify metrics that affect performance
 e.g., Bandwidth and memory usage
- Secondary Goal
- Ideas for widget applications
 e.g., Facebook, Twitter, Weather,
 Mail Tracker

TEAM STRUCTURE TECHNICAL TEAM

Support for development on the
Tru2way Platform and widget
application was sourced from
various internet sites in addition to
sample documentation from the
Vision Workbench



TESTING TEAM

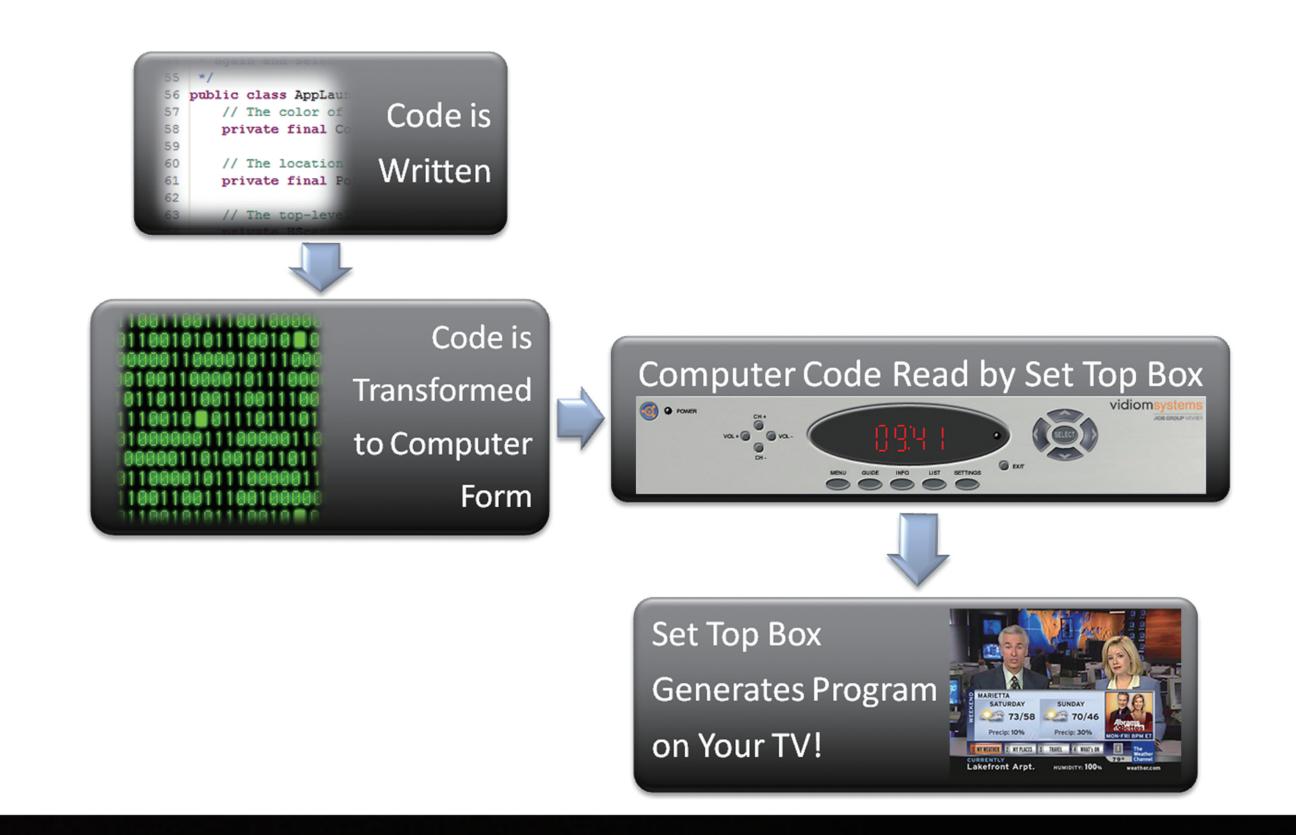
Testing the widget application developed by Technical Team to identify and collect metrics data by using the Vision Workbench Emulator in various test scenarios

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METHODOLOGY

- Programming and Development
 - Assembled teams to independently develop and test varying aspects of the environment and widget applications
 - Used two week iterative development cycles which included requirements gathering, coding, testing and analysis
 - Carried out development using a reference implementation from Cablelabs which later moved to a trial software development kit, Vision Workbench

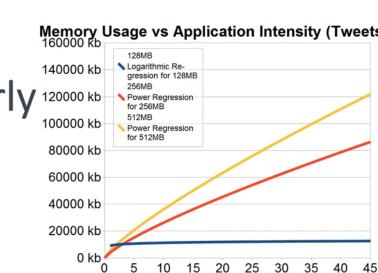
- Testing as a client of popular micro-blogging site, "Twitter"
- Scenario based testing was performed to collect usage data using the following test case scenarios:
- 1. Single running widget application, various datasets (10,20,40,80 tweets... until the program breaks) Used to test the memory & bandwidth use, file size processing ability, and robustness of widget application. Data volume was systematically increased until reference emulator failed.
- 2. Concurrent running widget applications, fixed size dataset (tweets)
 Used specifically to test memory usage and CPU latency multi-tasking scenario
- 3. Concurrent running widget applications, varying size datasets (tweets)
 Used a stress/robustness test for widget platform and emulator. This was a merge of tests 2 & 3
- Platform modifications, compromises during testing
- Changed memory allocation to support test case scenarios
- Maintained consistency of testing variables to generate and retrieve data from a private server



RESULTS

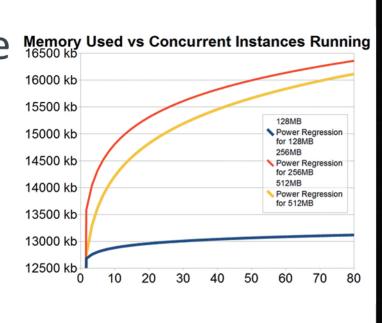
Increase in memory of widget
application's consumption nearly
120000 kb
propotional to the intensity of
tasks given

Memory 1
160000 kb
140000 kb
100000 kb

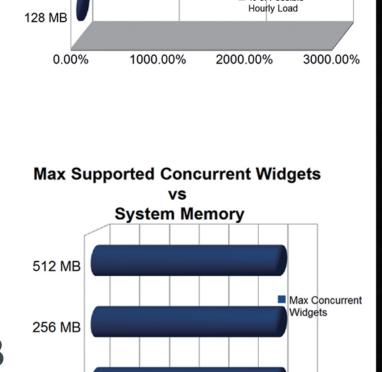


Better performance results were Memory 16500 kb obtained in environments

in which more memory was 14500 kb 13500 kb 13500 kb 13500 kb 13500 kb 13500 kb 13000 kb



- Real-world context:
 limit of 150 tweets/hour
 ruled for benchmark
- 128MB Memory Set only sustained approx. 33% of application's potential
- 256MB & 512MB Memory Set performed 10 and 25 times better than the above
- Therefore, minimum of 256MB memory installed required for new systems



Possible to run over 30 widget applications concurrently

FUTURE WORK

- Continue development of additional applications
- Increase application complexity
- > Test metrics identified by IPRO312
- □ Identify additional metrics, if necessary

