Embracing Ephemerality – Designing Tools with a Disregard for Data

Simon Wallner
Vienna University of Technology
Favoritenstrae 9-11
A-1040 Wien, Austria
me@simonwallner.at
@SimonWallner

Abstract
Ephemeral tools, tools that provide data only in the moment and in real time without further retaining it for later analysis, can be a valuable addition to the testing setup for smaller and larger game productions. As absurd as it sounds to not hold on to as much data from a user test as possible, the use of ephemeral tools can be justified by lower cost, quicker use and a faster turnaround.

This position paper makes a case for ephemerality in tool design, and also presents a first proof-of-concept implementation.

ACM Classification Keywords
K.8.0 [Personal computing]: General – Games

Introduction
Game development is a fast moving process, especially in early stages of production when prototypes are created and ideas and concepts change and evolve quickly. Especially in these situation it can be hard to keep up with the pace and to provide game testing and analysis where it is needed, and results before they are already becoming obsolete.

Ephemerality in this context means that data is not retained for later processing or analysis. The tool’s output
and data analysis is only available at the moment and in real time.

But it is not only these early stages of production where ephemeral tools can be beneficial. Ephemeral tools can be used as a lower-end extension to established testing processes that can be used ad hoc, with very little setup time, and much lower minimum and maximum resource cost (time, knowledge and experience, computational resources, etc.) than many other practices.

By their nature, ephemeral tools are able to keep up with the rapid pace and are able to provide results and insights right in the moment when they are needed, shortening the time between testing and analysing to virtually 0.

Most analysis practices documented in literature are very sophisticated and provide grand solutions to larger scale problems. They solve problems beyond the scope of a simple ad hoc playtest. One of the earlier systems is the TRUE system [4] that merges, correlates and analyses multiple data streams. Other tools focus on data visualisation [7, 8] and spatial analysis [1], player behaviour [3, 10, 5] and more general analytics [6, 2] to just name a few. Metrics and analytics have been sharply on the rise over recent years, and are ubiquitously implemented in most productions.

Embracing Ephemerality
Classical playtesting is an example for an ephemeral practice. Designers and developers sit down with a tester to play some part of a game to observe their reactions, their behaviour, their facial and bodily expressions, their verbal comments, etc. Many developers also take notes during a playtest, but in many conversations and in interviews with developers it turned out that these notes are very rarely reviewed later.

Playtesting is a very widespread and popular testing and analysis methodology that is used almost ubiquitously. In the simplest case, setting up a playtest only takes as much as asking a co-worker if they have a few minutes of time to play through a section of a game. No further assumptions are made, no test setups are planned, no hypotheses are crafted, it is just a matter of pure exploratory analysis based on the tester’s reactions to the game.

Ephemeral tools cannot achieve what other, more sophisticated tools can achieve, but when it comes to cost, and maybe even cost effectiveness, ephemeral tools can proof to be a valuable lower-end extension to established testing and analysis suites.

Cost in this context means the depletable and non-depletable resources needed to use the tool. Depletable resources are the time and person hours it takes to run a test, the infrastructure used, as well as computational and storage resources. Non-depletable resources on the other hand are the knowledge and experience required.

Ephemeral tools ideally require only setup costs that are no higher than the setup cost of other testing practices. The practicalities of running a test are similar in many cases and using ephemeral tools should incur little to no extra cost.

The running cost are by definition limited to the resources needed during the test, because there is not post-test analysis phase. Additionally, the worst case cost, the case where a tool is used that does not generate any useful insight, is also bounded by the same limit. Furthermore, in these worst case situations, the cost can be much lower. A designer can just ignore the tool during a test.
and then occasionally return to it, to see if it generated
useful data in the meantime.

In conclusion, the operational risk of using ephemeral tools
is generally low, set up cost is low, the maximum cost is
strictly bounded, and in the worst case, cost is much lower
than that in most cases. Many ephemeral tools are
probably already in widespread use. It is those little debug
helpers and visualisations, the little informal tools created
to support playtesting, or little status monitors or live
statistics that are already embracing ephemerality.

Case Study: Space Walk
A web-based platform has been implemented as the
technical basis for creating ephemeral tools (see Figure 1).
Space Walk uses networked communication to send and
receive data from games and uses JavaScript and
visualisation libraries, to analyse and visualise the results
in real time. Space Walk uses a simple plugin system for
fast extension and fast deployment of new features and
tools, without the need to maintain individual installs.
The platform is available online1 and it is open source
under the permissive MIT license.

The first plugin, that also served as a proof of concept for
the platform is a simple direct visualisation of game
controller input. there are many times during a playtest
when we cannot exactly see what buttons the players are
pushing, or when the view is simply obstructed. In these
cases this plugin provides a clear ad hoc visualisation of all
the inputs (see Figure 3).

A more elaborated plugin is the Information Flow plugin
that tries to quantify interaction in games by formally
modelling controller input with Markov chains, and
applying information theory to analyse it. Even though
the computational capabilities of the browser platform and
JavaScript are limited, the plugin can train and evaluate
multiple models on-the-fly and also visualise the results
and the models themselves in real time.

Using the described platform and plugins only requires
that data is sent form the game to the platform via a
simple human understandable JSON protocol. Integration
of this data interface in a game probably only takes a few
hundred lines of code, and it should amortize quickly since
the platform can be used for many different tasks like
general telemetry, debug and log output, as well as remote
controlling and parameter tweaking.

Open Source Tools
The creation of this platform is also a statement for the
proliferation of open source tools in game development
and game analysis. Space Walk has sharing built into its
core with its open plugin system. New plugins or updated
versions can be quickly deployed via github with the single
click of a button to encourage and facilitate sharing. The
same infrastructure however can also be used in in-house
deployments and closed environments.

Bridging the Gap
Even though ephemeral tools are a wonderful thing on
their own, the gap to other approaches, of not retaining
data, can be easily bridged in various ways. In a prestudy
we did on routinisation in games using this tool (a poster
is to be presented at CHIPLAY 2015 [9]), we used the
Open Broadcasting Software (OBS)2 to capture and
merge video streams of the game, the player, as well as
tool output in a single video (see Figure 2) that was then
later used in exploratory analysis.

1http://spacewalk.simonwallner.at
2https://obsproject.com
Using this technique allowed us to combine the benefits of both. Having the data available ad hoc during the test, but also having it available afterwards for further analysis.

**Conclusion**

Ephemeral tools and practices can be a practical and logical extension to already established testing and analysis suites. They provide results immediately and in real time, and can be easily and effectively integrated into existing solutions.

**Simon Wallner** is a researcher and game developer currently transitioning into his own indie games company. He is a central figure in the Austrian game development scene, co-founder and secretary of Games Austria, the Association for the Advancement of Game Development in Austria and co-founder and deputy director of the Central European Games Conference that will take place in the historic halls of the University of Vienna on February 17 - 21, 2016, cegconf.com.

**References**


