Passion Initiative - Project Proposal

R²P (RaspberryPi Remote Play)

HackerSchool

December 21, 2016

Version 1.0

Confidential

Project Details

Name: R^{2}P (RaspberryPi Remote Play)

Lead Organization: HackerSchool   **Reporter**: João Guerreiro

Participants: João Guerreiro, Renato Henriques, Joana Hrotkó and João Pinheiro.

Start date: 28/1/2017   **Duration**: 4 months

Description

Thanks to the evolution of streaming technologies, today there are multiple ways to have games running on a computer with potent hardware and being transmitted to a second device or screen. Many of these rely on proprietary hardware/software, such as Steam Link or nVidia Shield. Some open-source implementations of proprietary protocol exist, such as Project Moonlight for the nVidia GameStream protocol, but this still requires that games be running on nVidia hardware.

The purpose of this project is to develop an application to turn the RaspberryPi into a streaming platform, communicating with a Windows machine through the RDP protocol, and with support for the RemoteFX technologies, for better video quality.

To achieve this, we will use the FreeRDP library, an open-source implementation of the RDP protocol for Linux. The application will have a UI to allow users to select which games to stream, and must also support device redirection so that keyboard+mouse/gamepads can be connected to the RaspberryPi and used to control the streamed game.

To improve usability, a server-side application will also be developed (here, server refers to the gaming computer). This application will allow users to pre-select which games will be streamed, and to initiate streaming from the gaming machine (eg, RaspberryPi running a daemon that is always listening for connections from the server, so that users only have to select which game they want from.

Plan

- **First month:** Have a basic RDP client running on the RaspberryPi, with support for applications and device redirection, as a Proof-of-Concept.
- **Second month:** Develop server-side application and UI. Begin testing with basic, low-performance games (2D games, emulators, etc.).
- **Third and Fourth Month:** Fine-tuning performance and playing AAA games.

Sponsorship Requirements:

- **1 RaspberryPi 3 Model B:** The high-end model of raspberry Pi will possibly be necessary, to handle all the incoming graphical data.
- **1 Game Controller:** To properly test gameplay experience (graphic/audio lag, input delay, etc.) of streamed games.