

Fighting against tivoization with the GPLv3

Speech at the course “Il software libero”

Marco Leogrande
`marco.leogrande@polito.it`

May 26, 2011

Presentation overview

- 1 Introduction
- 2 Tivoization
 - Definitions and audience
 - In practice
- 3 Conclusions

A quick recap – What is the GPL?

GNU General Public License (GPL)

- the most widely used **free software** license
- by **Richard Stallman**, *GNU project*
- grants the recipient of a computer program the rights to **run, change, redistribute** and **improve** it
- *“free as in freedom, not as in free beer”*
- **GPLv3** was released on **June 29, 2007**
 - *is this date familiar to you?*



A quick recap – What is the GPL?

GNU General Public License (GPL)

- the most widely used **free software** license
- by **Richard Stallman**, *GNU project*
- grants the recipient of a computer program the rights to **run, change, redistribute** and **improve** it
- “*free as in freedom, not as in free beer*”
- **GPLv3** was released on **June 29, 2007**
 - *is this date familiar to you?*



GPLv3 impact on the world

June 29, 2007 – United States



People crowding for the release of the **GPLv3**

GPLv3 impact on the world

June 29, 2007 – United States



People crowding for the release of the **GPLv3**
People crowding for the release of the **iPhone**, **willing to pay to give away the freedom** that the **GPLv3** grants them

TiVo, by TiVo Inc.

TiVo is a **digital video recorder** with advanced functionalities:

- **electronic** television programming schedule
- find and record shows **matching user criteria**
- film and television show **downloads**
- personal **photo viewing** and **music** offerings

Many people have organized to *hack* the TiVo box to improve the service:

- install additional/larger **hard drives**
- add an **Ethernet card** to the box
- a **web interface** to the recorder (*TiVoWeb*)
- **transfer** video among different TiVo boxes.



What is tivoization?

Definition of **tivoization**:

The practice of creating a system that uses *free software*, but uses **hardware restrictions** to **prevent** users from running **modified versions** of the software on that hardware.

The name was invented by *Richard Stallman* because of the hardware restrictions deployed on the **TiVo**.

Why the **tivoization**?

- **DRM**: Digital Rights (*Restrictions?*) Management
- security
- customer lock-in

It might be good practice if it can be **overridden** (*OLPC, Chrome OS*); a **bad move** otherwise (*as it is usually*).

What is tivoization?

Definition of **tivoization**:

The practice of creating a system that uses *free software*, but uses **hardware restrictions** to **prevent** users from running **modified versions** of the software on that hardware.

The name was invented by *Richard Stallman* because of the hardware restrictions deployed on the **TiVo**.

Why the **tivoization**?

- **DRM**: Digital Rights (*Restrictions?*) Management
- security
- customer lock-in

It might be good practice if it can be **overridden** (*OLPC, Chrome OS*); a **bad move** otherwise (*as it is usually*).

What is tivoization?

Definition of **tivoization**:

The practice of creating a system that uses *free software*, but uses **hardware restrictions** to **prevent** users from running **modified versions** of the software on that hardware.

The name was invented by *Richard Stallman* because of the hardware restrictions deployed on the **TiVo**.

Why the **tivoization**?

- **DRM**: Digital Rights (*Restrictions?*) Management
- security
- customer lock-in

It might be good practice if it can be **overridden** (*OLPC*, *Chrome OS*); a **bad move** otherwise (*as it is usually*).

Who cares about tivoization?

- **Hackers**, or “power users”
 - The hardware is **bought**, not “*licensed*”. I want to **use** it, **peruse** it, even **destroy** it. The vendor takes no harm.
 - I cannot **improve** the system, nor block **unwanted updates**.
 - If the vendor is not trusted (*backdoors?*), the system cannot be **rebuilt** and **redeployed**.
- **Normal** users
 - Imagine a **car** that works only with a brand of **gasoline**. Or with a specific **MP3 player**.
 - If you were **not aware** about it, how would you react?
 - If you were **aware**, would you buy it? And for a **lower price**?
- **Ethical** issues
 - Stop using **for free** what other people have sweat over.
Contribute back to the community.

Who cares about tivoization?

- **Hackers**, or “power users”
 - The hardware is **bought**, not “*licensed*”. I want to **use** it, **peruse** it, even **destroy** it. The vendor takes no harm.
 - I cannot **improve** the system, nor block **unwanted updates**.
 - If the vendor is not trusted (*backdoors?*), the system cannot be **rebuilt** and **redeployed**.
- **Normal** users
 - Imagine a **car** that works only with a brand of **gasoline**. Or with a specific **MP3 player**.
 - If you were **not aware** about it, how would you react?
 - If you were **aware**, would you buy it? And for a **lower price?**
- **Ethical** issues
 - Stop using **for free** what other people have sweat over.
Contribute back to the community.

Who cares about tivoization?

- **Hackers**, or “power users”
 - The hardware is **bought**, not “*licensed*”. I want to **use** it, **peruse** it, even **destroy** it. The vendor takes no harm.
 - I cannot **improve** the system, nor block **unwanted updates**.
 - If the vendor is not trusted (*backdoors?*), the system cannot be **rebuilt** and **redeployed**.
- **Normal** users
 - Imagine a **car** that works only with a brand of **gasoline**. Or with a specific **MP3 player**.
 - If you were **not aware** about it, how would you react?
 - If you were **aware**, would you buy it? And for a **lower price?**
- **Ethical** issues
 - Stop using **for free** what other people have sweat over.
Contribute back to the community.

GPLv3

One of the **explicit goals** of the GPLv3 is to **avoid tivoization**.

*“Installation Information” for a User Product means any **methods, procedures, authorization keys, or other information** required to install and execute **modified versions** of a covered work [...]. The information **must suffice** to ensure that the continued functioning of the modified object code is **in no case prevented or interfered with** solely because modification has been made.*

GNU General Public License, version 3, section 6

An example of GPLv3 violation – Boxee

Boxee Box, *D-Link's* solution to **watch videos** from the Internet on the TV

- Announced as an **“open box”**
 - *“it must be open”*
 - *[D-Link] will make it “hacker friendly”*
 - many other quotes ...
- Contains GPLv3 software (*coreutils, gnupg, ...*)



... but enforces **cryptographic controls** to **block you** from using **modified software** on the Boxee Box.

- D-Link should **remove** from the Boxee the code licensed under the GPLv3
- When customers make **buying decisions**, they should be able to receive enough **information** from the vendor

An example of GPLv3 violation – Boxee

Boxee Box, *D-Link's* solution to **watch videos** from the Internet on the TV

- Announced as an “**open box**”
 - “*it must be open*”
 - [*D-Link*] will make it “*hacker friendly*”
 - many other quotes ...
- Contains GPLv3 software (*coreutils*, *gnupg*, ...)



... but enforces **cryptographic controls** to **block you** from using **modified software** on the Boxee Box.

- D-Link should **remove** from the Boxee the code licensed under the GPLv3
- When customers make **buying decisions**, they should be able to receive enough **information** from the vendor

An example of GPLv3 violation – Boxee

Boxee Box, *D-Link's* solution to **watch videos** from the Internet on the TV

- Announced as an “**open box**”
 - “*it must be open*”
 - [*D-Link*] will make it “*hacker friendly*”
 - many other quotes ...
- Contains GPLv3 software (*coreutils*, *gnupg*, ...)



... but enforces **cryptographic controls** to **block you** from using **modified software** on the Boxee Box.

- D-Link should **remove** from the Boxee the code licensed under the GPLv3
- When customers make **buying decisions**, they should be able to receive enough **information** from the vendor

What if people don't care?

Many devices (smartphones, gaming consoles, ...) employ tivoization, but many people **buy them nevertheless**.

- “**Walled garden**” as tivoization ...
- ... but **jailbreak!**
 - Any DRM scheme will be **cracked**, sooner or later



People do not care about their **freedom**? Or are they willing to give away their freedom (... *and money*) for **entertainment** and **ease of use**?

What if people don't care?

Many devices (smartphones, gaming consoles, ...) employ tivoization, but many people **buy them nevertheless**.

- “**Walled garden**” as tivoization ...
- ... but **jailbreak!**
 - Any DRM scheme will be **cracked**, sooner or later



People do not care about their **freedom**? Or are they willing to give away their freedom (... *and money*) for **entertainment** and **ease of use**?

What if people don't care?

Many devices (smartphones, gaming consoles, ...) employ tivoization, but many people **buy them nevertheless**.

- “**Walled garden**” as tivoization ...
- ... but **jailbreak!**
 - Any DRM scheme will be **cracked**, sooner or later



People do not care about their **freedom**? Or are they willing to give away their freedom (... *and money*) for **entertainment** and **ease of use**?

It's a **tradeoff**. You decide.