Commentor: Anthony Snively
Class of works included: 3,4,5

I am a private developer and user of several computing devices including tablets, smartphones, desktop computer and I have been looking into developing for gaming consoles. Without the ability to jailbreak/root devices the appeal to continue to develop for or use them is greatly diminished.

Comments (Class 3,4,5):
Piracy is always the argument used to attempt to defeat those wishing to have Superuser control of their devices so I will begin with discussing that. This has been shown time and again to be a false point. Google has shown that it is a non-issue, as they have simply set certain services that could be compromised by an uncouth root user to be unavailable. The video streaming service offered through the Android Market does exactly this. Users that are concerned that root access can harm their service are able to do the same if they choose to. The developer of the game Spectral Souls for Android, HYPERDEVBOX STUDIO, has performed a similar task preventing the piracy of their software (not based on root, but rather on detecting legitimate purchases). Also, as stated or shown by many major players in markets most concerned with copyright protection, it is the quality of service offered that determines piracy level and not the level of fighting done against it. Steam, the largest PC gaming distribution system have said this directly while it has been shown by Netflix, Redbox, iTunes, Pandora Internet Radio, Hulu, Crunchyroll and many others. Piracy is the result of users being upset with the quality of product they have essentially been conned into paying for previously (the product does not perform as expected, is poorly made, or is being sold at inappropriate prices) or is from a lack of availability to desiring customers ('fansub anime', console games never brought to the users region). There will always be some percentage of users with pirated content, and punishing legitimate users under the delusion that piracy can be eliminated is dictatorial and outrageous. To reduce piracy we simply need to discourage the sale of overpriced, subpar products that leave users in remorse at having wasted their hard earned money.

Homebrew is by no means a recent concept, and is in fact a large factor in what led us to having the technology we use today. It however, has become dependent on root/jailbreak of many devices. The original desktop computers used by consumers are home were a direct result of homebrew. Steve Jobs and Steve Wozniak, the founders of Apple Computers, were once members of a group known as the Homebrew Computer Club. By taking devices already on the market and finding new, innovative ways to use them together Steve Wozniak moved the tech industry forwards in a major leap that began our modern computing era. This to date is still what Homebrew stands for, although certain organizations try to twist the meaning to infer piracy, and where innovation begins. The Playstation 3 is used by the US military, researchers at the University of Alabama, and the FBI to prosecute pedophiles. They are not using it however for the manufacturers intended uses, but instead they are large organizations doing what would be classified as homebrew if someone smaller were to do it. Both the University of Alabama and the FBI put to use the Linux distribution offered originally by the PS3. The removal of the Linux functionality from the PS3 is in fact what began serious attempts by users to jailbreak the device and regain this functionality.

Comments (Class of works 5):
My comments will be based more directly on the Android operating system's need for Root access as I have the most experience with it, but they do pertain to any smartphone/tablet.

I find great pleasure in opening up more potential in my devices that the original manufacturer had thought to, or for some reasonable was impractical for them to do. For example, with and Android based device being able to adjust the clock frequency (speed) and voltage of the

processor allows me to make my devices both faster and have longer battery lives. The original manufacturer can not afford to do this because every device is slightly different. They must set the power consumption and speed based on what will work on all devices, while most of those devices are capable of much more. For example,the OMAP3 chip used in the Nook Color by Barnes and Noble was originally set to a clock frequency of 800 MHz, while they are readily capable of running at 1200 MHz. Without root access, modifying hardware settings to accomplish this is impossible. This speed increase of 50% is more than enough to make much software that had been unusable run perfectly driving additional sales of both the device and applications for it.

Not only the hardware has room left for optimization, but also the software. Consumer electronics are generally loaded with extensive amounts of unneeded software. On desktop computers, this is easily removed as nobody argues that you should not have Superuser control of those (Administrator on the Windows Platform, Root/Superuser for Linux/Unix/Mac). However, on 'smart devices' it has become common practice for manufacturers to put large amounts of unnecessary software that can not be removed. For example, Motorola pre-loaded the Droid RAZR/Droid RAZR Maxx with several social networking applications including among others Facebook, Twitter, and Flicker. The services related to each of these continuously runs in the background of the device consuming hardware resources and battery life. Removal of these services that most users want at least some of removed nearly doubles the devices battery life. If your car had a hole in the gas tank, you would want to have it repaired immediately and this is effectively the same thing. These services however are installed in the /System folder of the Android file system which can only be modified with Root. Having these files built into the system folder can only be explained by stating that Motorola is not far enough along in development of this software to make it fully modular like users want. Instead, they currently need to take an all or nothing approach, and they don't ask the user which they would prefer. For this example I have discussed mainly the Motorola Blur user interface, but it also reaches much further including nearly every smart device I have encountered.

On Google's Android and Apple's iOS operating systems, it is necessary for users to have Root/jailbreak access in order to be able to backup their legitimately owned software. The game Angry Birds is incredibly popular, however there is no 'sync' feature of any sort available to protect your progress. It is also a long enough game that most users will never completely beat it. When a user either needs to perform a factor reset or switches devices, this means the user must start the game over from the beginning if they would want to continue their playing. Given it is recreational not academic, but this can be compared to the composition of a thesis statement. After spending months writing, would you tell the author they have to start over because they wanted to buy a new computer? No, they simply save the file and move it to the new system then resume working on it. This is only possible through root/jailbreak access. With users experiencing this, I believe that they will grow disgruntled over time and be driven to buy less and less applications due to not being allowed to use it how they would want. Not just the software may be protected with root/jailbreak access, but also the full system. Commonly referred to as a 'Nandroid backup' on the Android platform, users can create a system image that can later be restored. If a user accidentally deletes valuable information, the device is infected by a virus, or an update fails to install deeming the device unusable this is the only way a user can return to the exact state their device was previously in. This is comparable to Time Machine in Mac OSX or System Restore/Backup and Restore in Windows versions which users are heavily encouraged to use. However, with smart devices disallowing root would demonize this effectively making it against policy for users to be proactive and responsible.

Customization of user's devices heavily depends on root access among other features that manufacturers often attempt to restrict. For Windows XP for example, just installing a custom theme that changed the entire feel of the system required administrator control. For the Android operating system this takes the face of theme packs and custom 'ROMs' which allow the

user to adjust the device to their desires. Without the ability to make these adjustments, they sale of devices is greatly impacted as well. This I feel is shown clearly in the large respective decline in the sale of Apple smart devices while Android devices are growing rapidly. This is likely due to the result that Android was originally intended by Google to be highly customizable. This however is being limited by the secondary developers that modify their code before redistributing it. Things as simple as changing the font used by your device requires root/jailbreak of said device.

Original manufacturers can only effectively develop for a device for a certain time frame. If a device failed to meet sales expectations or becomes aged it is dropped from future development. This leaves the owners of those products with a withering device. Hewlett Packard several months again performed a fire sale of their Touchpad product line due to development costs and lack of third party developer support outweighing product sales. This resulted in a flooding of the market with devices that have highly capable hardware very weak support for it. Private developers quickly managed to reverse engineer the device and make it capable of running the Android operating system. They made it part of a project known as Cyanogen Mod, which has taken up the task of keeping even incredibly dated devices regularly updated with enhanced performance and compatibility. Due to this, what would have been wasted money for hundreds of thousands of Americans became a great that has likely led to hundreds of thousands of dollars being spent purchasing applications. Deep level modification of a system like this requires developers to have access to the deep level components of the system which are associated with root/jailbreak access. Allowing users to continue to update devices via secondary means like this permits the user to upgrade devices when they desire to, not when they are forced to.

Thank you very much for your time, I could continue on but more at this point I fear would begin turning into rambling.

Sincerely,
Anthony Snively