

# **The State of Linux Gaming**

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## **Origins of UNIX Gaming**

## Traditional UNIX Gaming

- Mostly console based
- BSD Games Collection (`/usr/games`)
- MUD/MUSH servers
- Cheesy X11 games
- Nethack

## Transition to Modern Gaming

- UNIX traditionally has not been much of a “video” gaming platform
- Workstation-oriented graphics, high-quality but not good for arcade-style gaming
- PC developed a gaming scene due to commodity hardware
- Linux was still in its infancy; Xlib (slow) and SVGALib (bitchy) were the only options
- Doom and Abuse ported with SVGALib and X

## Advent of 3D Accelerators

- Much heavier reliance on driver support
- Programming specs are hard to acquire
- First big step: Daryll Strauss ported Glide (3Dfx) to Linux
- Limited hacks to use Glide for accelerated OpenGL

## Utah GLX

- Proper integration of XFree86 and various 3D accelerators
- Reasonably good performance, but lousy AGP support
- SGI released GLX source code, leading to better compatibility
- Linux became a viable target for games; Loki released Heavy Gear II, Soldier of Fortune, and other Utah GLX oriented games

## Direct Rendering Interface, DRI

- Attempt to overcome intrinsic limitations in Utah GLX's design
- Reached a point of stability about when Loki reached a point of bankruptcy
- Excellent 3D performance on supported hardware
- Requires DRM (Direct Rendering Manager) kernel module for memory allocation

## **The Linux Gaming “Industry”**

## The NVIDIA Menace

- Seems to have a bad case of “not invented here” syndrome
- Xinerama (dual head support) apparently not good enough for them; on their own with TwinView
- Drivers share a codebase with Windows drivers
- Developed in-house by NVIDIA, and reasonably well supported

## The ATI Factor

- It appears that ATI is sick of dealing with Precision Insight (commercial Linux video driver developer) and intends to develop drivers in-house
- ATI does not have a good reputation for driver development, but hopefully something will become of this
- Radeon 8500 is reportedly “schweeeeeeeet”

## Available Games

- Fall into three categories: ports of Windows games (Loki, Tribsoft, Icculus), commercial games with Linux support from original developer (id, Epic, Sunspire), and hobbyist developments (FreeCiv, FreeCraft, Worldforge)
- Porting business is on shaky grounds; IT industry crash didn't help
- Commercial support relies mainly on developer sentiments and off-hours hacking
- Hobbyist development is the future

# Writing Linux Games

## Simple DirectMedia Layer, SDL

- Portable 2D video acceleration abstraction layer
- Pass-through support for OpenGL; still useful in 3D games for input and audio handling
- Sub-APIs for video, audio, input, threading, CD-ROM access, and file IO abstraction
- Core of SDL is simple and tiny, but much additional functionality (image loading, high-level sprite management, etc) is available as add-on libraries
- Strongest following of any multimedia toolkit

## OpenAL

- Portable 3D audio library; a mix of Creative's EAX, OpenGL, and open source
- Was doing quite well when both Loki and Creative were working on it
- However, Loki is unable to continue support, so OpenAL has been stagnating
- Some disagree with AL's design, but I consider it clean and effective

## OpenML

- Corporate-backed portable multimedia library
- Lot of potential, if the corporations can stay tame
- Appears to be a bid to obsolete DirectX; if this happens, it won't be for a while
- Specification freely available