One step ahead - 3D engines with J2ME

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Intention

Help to clear up questions like:

- Where is the future of mobile gaming going?

- What are the prospects for Java & Brew?

- Should we continuosly try to support all handsets?

- Transferring PC games to mobiles, does this ever work?

Do you know bytonic?

A view back to 2003 on the PC

Open Questions:

- can classic PC games be written in java?

- how would the language features work out in practice?

- is it fast enough or even comparable?
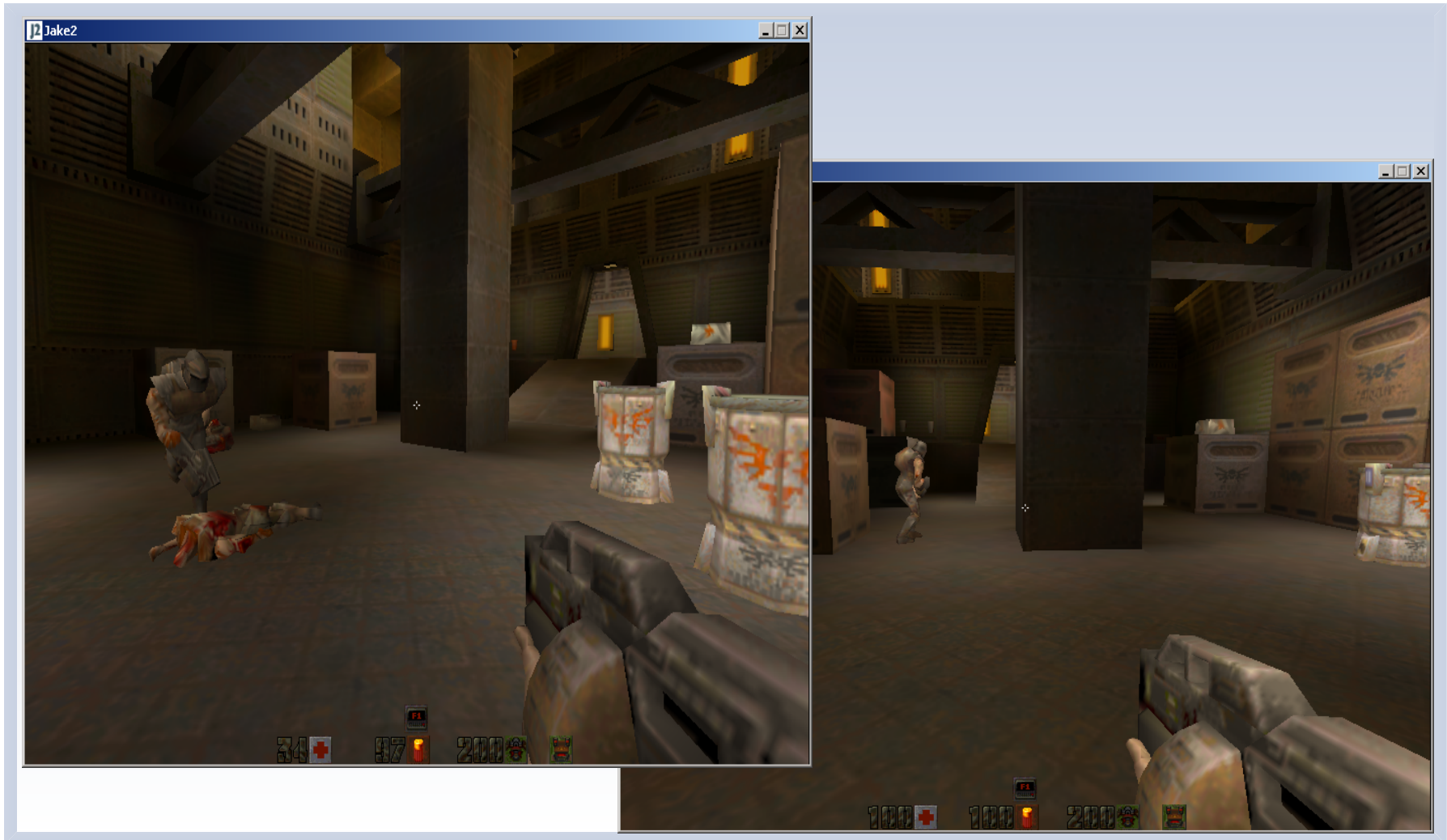
- how about 3D shooters?

Common Suggestion:

- java would be too slow and technically unfeasible

Project Jake2 as proof of concept

- skilled bytonic engineers tried to really answer the questions by just doing it

- port of existing quake2 was choosen

- open source project jake2

- jake2 was under the top 50 of 110000 world wide projects

- General Public License

Demo…

Benchmarks

System	Original C Code	Jake2-0.9.1 JRE1.5 jogl	Jake2-0.9.2 JRE1.5 fastjogl	Jake2-0.9.3 JRE1.5 fastjogl	Jake2-0.9.4 JRE1.5 fastjogl/lwjgl
AMD Athlon XP 2400 Geforce4 MX Windows 2000 800x600 window	245 fps	172 fps	213 fps	241 fps	260/250 fps
AMD Athlon XP 2400 Geforce4 MX Windows 2000 800x600 fullscreen	315 fps	not supported	225 fps	235 fps	250/282 fps
AMD Athlon XP 2400 Geforce4 MX Linux 800x600 window	262 fps	141 fps	212 fps	215 fps	228/240 fps
AMD K6-2 350 Geforce2 MX Windows 2000 800x600 window	56 fps	21 fps	31 fps		

Conclusions

- We could master technical problems on java by proper engineering:
  - memory utilization
  - garbage collector thread
  - speed, real time scheduling
  - hardware binding
- java vm improved much over time
- drivers improved much over time
- 85% to 100% of C engine performance is possible
- One program file for all plattforms (Linux, Mac, Windows)
- **!the limits were in the heads only!**

Conclusions

In 2004 it was absolutely clear for us that 3D engines based on J2ME is the future and would be reality

PC and mobiles, an anlogy:

classic

2D scroll

3D based

PC: 1975

1985

1995

Mobiles:

2000

2003

2005

today most PC titles are 3D based and will be on mobils too

Situation 2006 today

- mobile games are everywhere
- 3D technology hype and demand
- big diversity of devices
  → „porting industry"

J2ME would:

- decrease development effort, because of the high level character of the java language
- decrease porting effort to a minimum
- thus decrease time to market
- increase number of titles to be produced with same investment

J2ME engines

- just a small number tried to move to 3D with J2ME
  → and are „one step ahead"

- german company fishlabs.de made the dream true

- deal with Sony Ericsson

- Success story! Good job!

- fishlabs.de is one of the technology leaders today

- question is now how to compete!

How to make use of 3D for J2ME

buy it

- results in dependencies:
- risc: brand is aquired, but engine license is denied

create it on your own

- probably not easy to compete with 2 years of research
- complexity of game software raises rapidly
- complexity can not easily be mastered by newcomers or small studios

open source as alternative for technology funding?

- Alternative:
commercial open source
→ share technology
→ renaissance of the linux idea transferred from PC to mobile devices

- advantages:
→ reduces risc of investition into research and development
→ free access to bleeding edge technology
→ producers can focus on design, branding and style
→ quality of newcomer titles can be increased
→ product chains can be ensured as the community platform evolves
→ commercial vendors are motivated to move on quickly, as seen on PC
→ enduser gets maximum quality and will increase business and turns into a repeat-customer

bytonics vision

- establish an open source platform
- bring mobile software developers together
- support user / developer community

technology sharing

- bytonic will start as a pioneer the first innovative open source project in the mobile entertainment eco system:

  J2ME 3D engine based on experiences with Jake2

technology sharing

First sponsors:

■ SHC, germany

Systemhaus Chemnitz GmbH

■ BPS, germany

BPS Bildungsportal Sachsen GmbH

■ more to come…

contribute and share!

outlook into the future

- an open source J2ME game platform could be just the beginning
- merge with free operating systemes for mobiles

→ Renaissance of the Linux Idea moved to the mobile business

→ Think of the future possibilities

→ Lets start right now!

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Thank you for your attention!