# Clang/LLVM in FreeBSD

Roman Divacky
rdivacky@FreeBSD.org

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Slovak University of Technology,
Bratislava, Slovakia
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# What is Clang/LLVM

- C/C++/ObjC compiler (even C++11)
- Production quality
- Developer friendly (inside and outside)
- BSDL-like license

# What is Clang/LLVM

- Supports - X86, ARM, PowerPC, Mips, Sparc
- Advanced optimizations (LTO etc.)
- Drop-in replacement for GCC
- Integrated assembler (X86, ARM, Mips, PPC32)
- Actively developed (Apple, Google, Cray, Intel, Amd, Mips ...)

# User experience of clang

- Fast, 10%-30% faster compilation than gcc
- Performance slightly behind but depends on the app
- Friendly warnings and errors
- Correct (booting FreeBSD world/kernel)
- Advanced (library approach, integrated-as, JIT, libclang)
- Great community

# Status of Clang in FreeBSD

- Clang/LLVM 3.0 shipped in 9.0R
- Compiles everything (world and kernel) on amd64 and i386
- ARM needs newer ABI, has booting kernel
- Mips should be usable (untested)
- PowerPC almost there (booting kernel, static apps working)

# Clang/LLVM future

- Native linker (with LTO)
- Vectorization
- More architectures support
- More optimizations

# What happened over the last year

- Greedy register allocator (fixed boot2)
- Mips massively improved
- PPC32 improved
- libc++ ported

# What should happen next year

- Enable clang by default
- Make ports accept clang
- Get a linker
- Testing (by you!)

# Questions?