System Versioning

- Updating userland does not bump the kernel version
- Auditing tools want to know that all security patches have been applied
- Proposal: /usr/share/FreeBSD_Version updated with every patch

Kernel ABI Stability

- Userspace tools should always work in a newer kernel
- This includes things like `ifconfig`
- `sysctls` and `ioctls` should have compatibility versions added if they are broken
- We need a tool to automatically identify ABI breakage

FreeBSD. The Power To Serve

Compatibility Bloat

- Every ABI change (kernel or library) should come with a backwards compatibility shim for legacy code
- This means library / kernel size will always increase
- This is a problem for embedded systems
- All compatibility code should be conditionally compiled
- By default, we only compile in compat code for the last and current major versions.

Symbol Versioning

- Current approach is confusing
- Conflates library version, FreeBSD version and symbol version
- MFCs confuse matters even more (e.g. new symbol in 10-CURRENT, MFC'd to 9.1, then MFC'd to 8.4 - what version should it have?)
- Symbol versions should be the version of the symbol
- New symbols are version 1
- New versions of symbols are version N+1

Uname in Jails

- Running a 9.x jail on a 10.x host should be easy
- Tools like `autoconf` should not be aware that the kernel is 10.x
- Setting per-jail `uname` response should be easy (is already?)
- `uname` should return userspace version by default, kernel version with extra arguments
- Requires userspace version to exist...