

# Desktop Search Technologies

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# Terminology

- Metadata - data about data
- Standard metadata
- Extended metadata

# History - BFS

# Basic Structure

- 64-bit i-node based
- Metadata stored in i-node
- Typed metadata
- Metadata generated by applications or Tracker plugins
- *Practical File System Design: The Be File System*, Dominic Giampaolo

# Indexing

- Indexes stored as folders
- Simple API for creating indexes
- Automatic updating of indexes

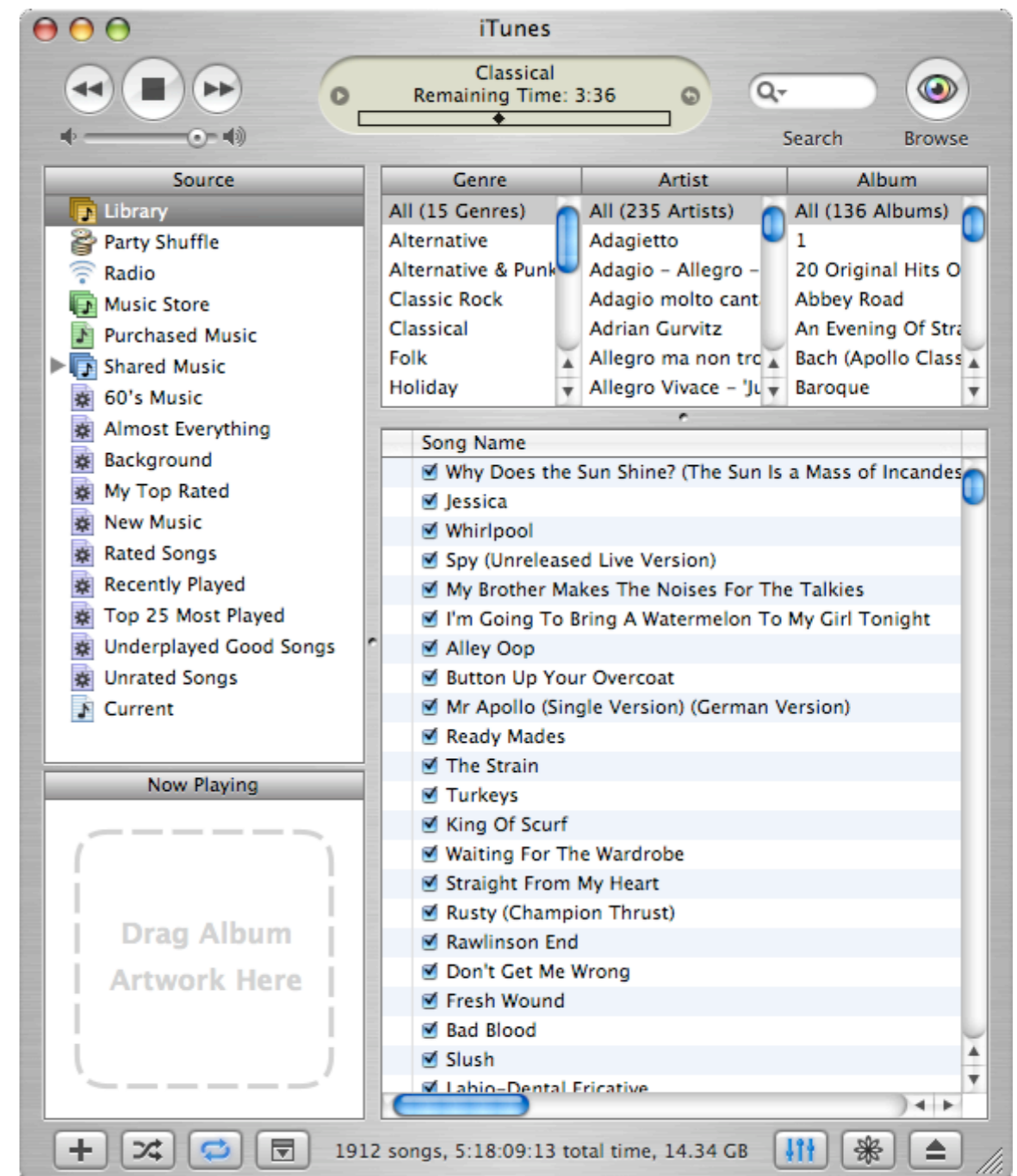
# Google and Friends

- Not tied to operating system
- Use Windows system call to receive notifications of file changes
- Maintain own extended metadata stores in FS
- Metadata created by system

**Apple - Spotlight**

# iTunes - The Prototype

- Indexed metadata from ID3 tags
- Searches saved as smart playlists



# Differences With BFS

- HFS+ Extended Attribute File
- Full text indexing
- Network support
- Background extended metadata extraction

# Spotlight for \*NIX: Challenges

- UFS has no central metadata store
- No POSIX notification mechanism
  - imon / FAM - \*NIX
  - DNOTIFY - Linux
  - KQueue / KEvent - Free/NetBSD
  - SearchFS - Darwin (HFS+ only)

**Questions?**