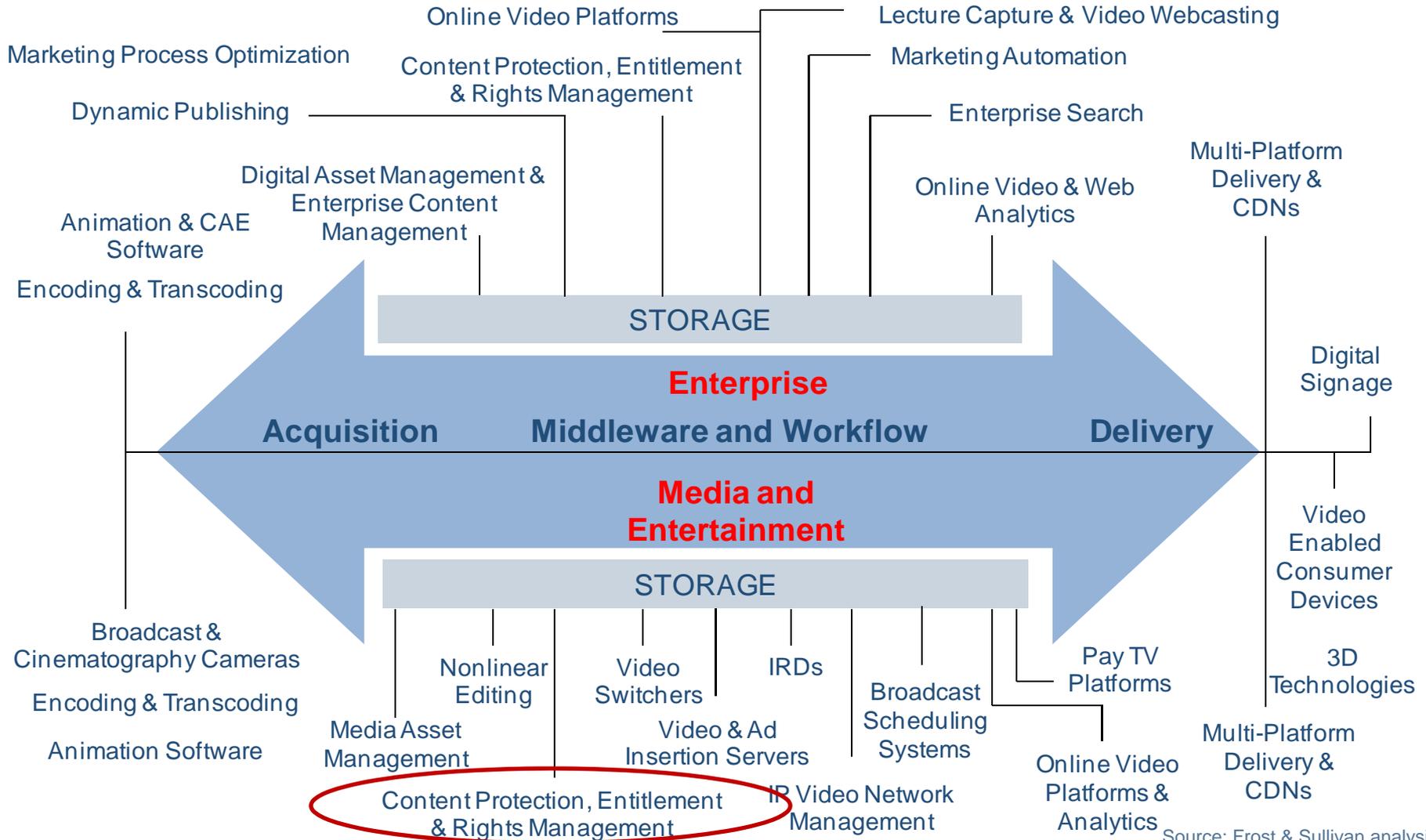


Best Practices In License Management for Embedded Devices – A Customer Perspective

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Covering The Digital Media Value Chain

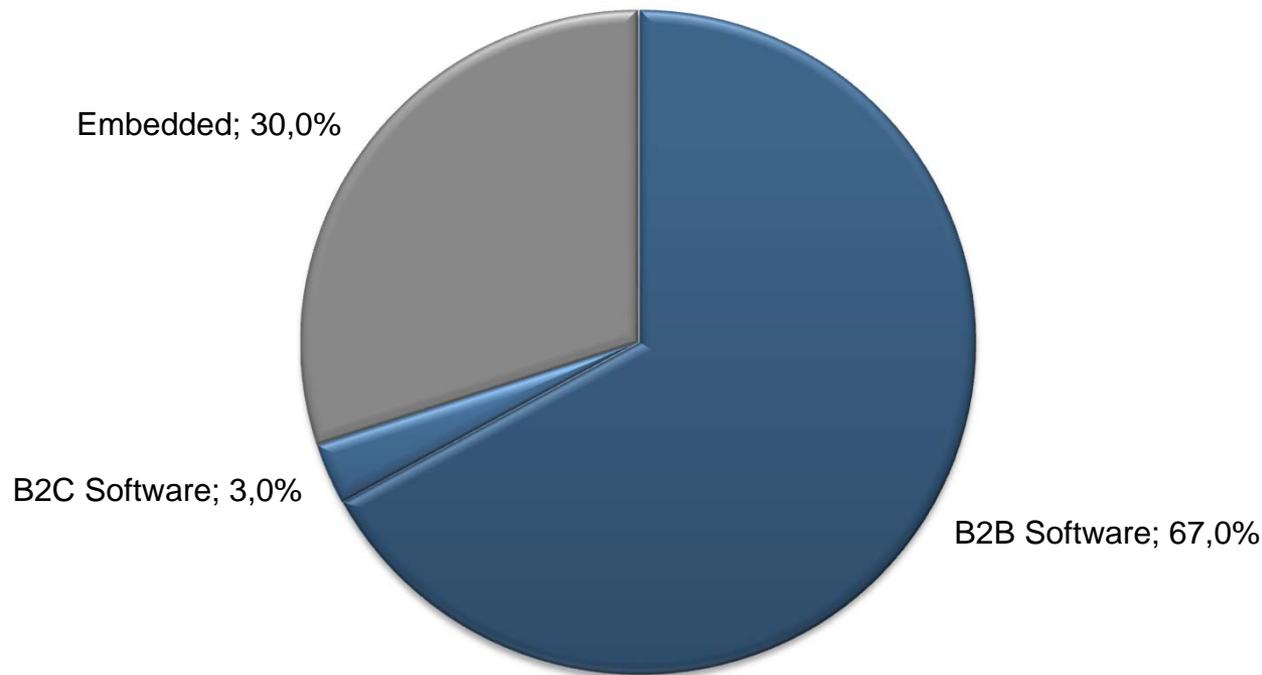


Source: Frost & Sullivan analysis.

Embedded License Management is Small but Growing

Key Takeaway: Embedded device market is several times larger than the B2B software market, but adoption of commercial LM solutions is significantly lower today. Segment is growing fast as software plays growing role in embedded products.

**Revenue Breakdown by Application Type in Percent
Software License Management Market: Global, 2011**



Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

Aspects of License Management in Embedded Products

- SKU management for embedded devices is increasingly software-based. Thus, LM needs are correspondingly becoming more complex. Examples include turning hardware capacity and software features on and off at ship time and in deployment, trial and time-bound licenses, and offline activation.
- Emerging use cases include desktop or cloud software licenses that are derivatives of embedded device licenses. Demand is also growing for advanced use cases like floating licenses and analytics.
- Two other aspects are particularly critical to embedded applications:
- Intellectual property within software is typically a much more critical component for embedded (relative to desktop) because performance tuning matters, hardware is often commodity and therefore risk of counterfeiting is high. This is countered by ensuring the software will not execute unless it is properly activated, and in some cases also by ensuring the software will only execute on authorized hardware.
- Protection against tampering and data theft in embedded devices can also be a very important issue for reasons of piracy, regulatory compliance or protection of trade secrets. Anti-tamper protection is also necessary to ensure that monetization functions and business rule enforcement functions cannot be disabled or bypassed.
- License management layers should ideally provide all three functional aspects – flexible monetization, reliable prevention of counterfeiting and robust protection to ensure the integrity of the software layer is maintained.

Source: Frost & Sullivan analysis.

Key Market Trends in Embedded Software License Management

Market Trends

SKU Management in Software

- License Management needs to keep pace with evolving business models and product architectures
- Done right, LM can make operations and deployment cost-effective and process-efficient

Peak activity between now and 2014

Geographical Expansion = Piracy Exposure

- Keeping software monetized and keeping IP secure is a harder challenge in international markets
- Risks include both counterfeiting and tampering

- Memory footprint, run time cost and performance impact are increasingly non-negotiable
- At the same time, security is also increasingly non-negotiable
- This nudges LM towards being a first-class feature rather than an afterthought

User Experience Around License Management Is High Priority Feature

- Temptation to use home-grown LM is strong given nature of embedded development process.
- Fragmented platforms, multiple business models, cost control pressures, need for security and speed of innovation necessitate a formalized LM strategy

Homegrown LM is not commercially viable for most ISVs

Peak activity 2014 to 2017

Considerations in Choosing an LM System

Seamless

- Enables all business models
- Fits into vendor development environment
- Integrates with sales process and customer management systems
- Does not interfere with end user quality of experience

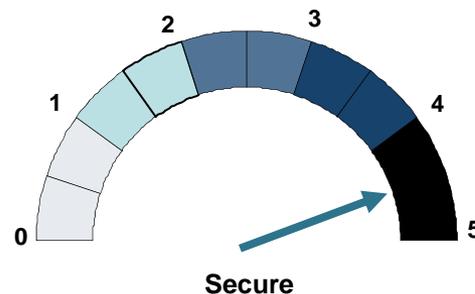
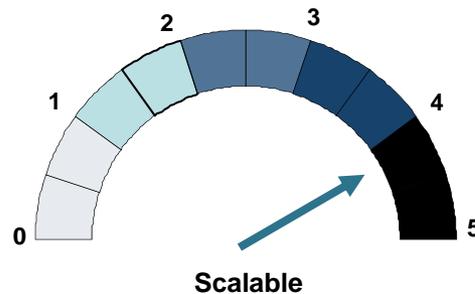
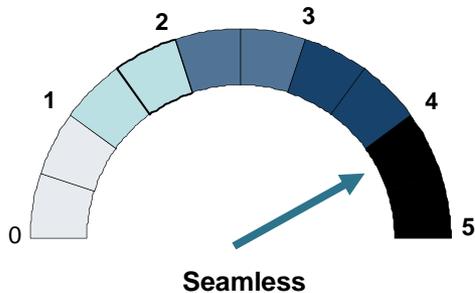
Scalable

- Evolves with software evolution
- Can support growing customer base, even a decade out
- Continuously maintainable, even as developers come and go
- Can be developed and maintained independent of original LM vendor

Secure

- Withstands current levels of hacking technology and can evolve with inevitable hacking intensification
- Protects licensing routines and internal intellectual property
- Provides appropriate balance between cost and risk mitigation
- Can carve an adequate hack-free window of time

Vendor Profile: Wibu-Systems



- Seamless in development and deployment
 - License Central can be quickly personalized, or custom-built for ISV infrastructure/CRM system with support from Wibu-Systems
 - CodeMeter dongles move freely from computer to computer or server to server
 - Dongle-free deployment is an equivalent option
- Scalable in terms of architecture and platforms
 - CodeMeter dongles support number of physical connectivity interfaces
 - Wide range of embedded and server platform support, with extensibility to hybrid (embedded+ on-premise or embedded + cloud) models
 - Wide range of licensing business model support
 - Standardized encryption algorithms
- Company maintains an equivalent ongoing focus on functionality and security
 - Internal innovation driving improved hardware and software locking and security technology
 - External hacker challenges used regularly to test and validate company products

Crafting a License Management Strategy: Key Takeaways

Key takeaways for an embedded software developer, in descending order

Critical

Security and piracy management is as important as entitlement management in crafting a comprehensive license management solution for your products and your business.

Urgent

License management systems, once deployed, are very hard to replace. The process is deeply disruptive and extremely expensive. So choose carefully the first time.

Key

Ensure your chosen solution will scale with your business and evolve with your product over time, and can also keep pace with expansion and evolution of your customers.

Essential

Start with a clear view of prioritized functional requirements and business-appropriate security and cost targets. Then, choose a license management solution that fits.

Basic

Proactively craft a strategy and execute it with cross-team involvement including technical and financial management, marketing, engineering, testing and operations.