

F R O S T & S U L L I V A N



Market  
Engineering

**Global Software License Management Market**  
**Virtualization, Analytics, Hackers and the Cloud Challenge Traditional**  
**License Management Approaches**

**N9FA-70**  
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# Executive Summary

# Executive Summary

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- This study covers market size, trends, competitive landscape, and growth strategies for the global software license management (LM) market. License management technologies are also referred to as entitlement management or software DRM.
- LM enables software publishers and intelligent device vendors to efficiently monetize their products, particularly for enterprise and networked deployments. Three key LM functions are: defining software versions and licensing rules (development); automating license issuance and invoicing (deployment); and ensuring that software is used in accordance with terms of a purchased license (enforcement).
- Client-side enforcement can be done entirely in software or using hardware keys (dongles). Dongle sales continue to constitute a major percentage of the overall market, even though technology improvements are slowing their rate of growth in favor of all-software and cloud-based solutions.
- This market is highly saturated; the top three vendors have nearly 90 percent of the market share. Smaller competitors, however, are gaining maturity and mindshare and are challenging incumbents on pricing, feature set, customer service, and flexibility.
- LM systems were traditionally sold as anti-piracy solutions. Today most vendors position them for keeping honest users honest (as opposed to preventing intentional piracy), even though most products still include anti-tamper protection features.

Source: Frost & Sullivan analysis.

## Executive Summary (continued)















- Three markets are distinct from LM but closely complement it:
  - Compliance Management (CM): used by enterprises to optimize usage of purchased licenses
  - Application Analytics: used to gather and mine application usage patterns for billing and planning
  - Application Hardening: used to prevent tampering of LM functions and thereby control piracy
- Over time, application analytics will become closely integrated with LM systems. CM will remain a separate market and offering, even though vendors like Flexera offer both LM and CM solutions. Application hardening will also remain a separate market, although LM vendors are expected to either renew emphasis on their own hardening features over time or to OEM third-party hardening solutions.
- Device markets such as telecommunications, industrial automation, healthcare, and robotics are shifting from hardware-based designs to next-generation intelligent devices powered by embedded software. Device vendors are adopting LM to efficiently manage product versions and SKUs by using a single hardware form factor and by enabling or disabling features in software. This is the largest segment of the total accessible market for LM, although its revenues currently trail the more established desktop software segment.
- Cloud-based offerings and pay-by-use software licensing models are gaining popularity.
- EMEA is the strongest regional market today and is forecast to maintain its current rate of growth until 2016. NALA and APAC are smaller today but are growing faster, driven by growing publisher revenues, cloud-based deployments, and aggressive global expansion by publishers.
- There are less than ten key vendors, most privately held. Revenue in 2011 was less than \$250 million, with linear growth expected over the forecast period for a CAGR of just under 10 percent.

Source: Frost & Sullivan analysis.


# Executive Summary—Market Engineering Measurements

## Market Overview

*Global Software License Management Market, 2011–2018*

 <b>Market Stage</b>	 <b>Total Market Revenues</b>	 <b>Market Dongle Units/Volume</b>	 <b>Average Price Per Dongle Unit</b>	 <b>Market Size at End of Forecast Period</b>
<p>Growth</p>	<p>\$240.3 M </p> <p>(2011)</p>	<p>3.03 M </p> <p>(2011)</p>	<p>\$29 </p>	<p>\$452.5 M </p> <p>(2011)</p>
 <b>Base Year Market Growth Rate</b>	 <b>7-year Forecast Market Growth Rate</b>	 <b>Customer Price Sensitivity</b>	 <b>Degree of Technical Change</b>	 <b>Market Concentration</b>
<p>8% </p>	<p>9.5% </p> <p>(CAGR)</p>	<p>6 </p> <p>(scale:1 [Low] to 10 [High])</p>	<p>5 </p> <p>(scale:1 [Low] to 10 [High])</p>	<p>87% </p> <p>(percent of market share held by top three companies)</p>

For a tabular version [click here](#).

Decreasing  Stable  Increasing 

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

# Executive Summary—Market Engineering Measurements (continued)

## Competitor Overview




 Number of Competitors*	 Number of Companies that Exited*	 Number of Companies that Entered*	 Dongle Replacement Rate	 Attachment Rate
9  (active market competitors in base year)	0  2011	0  2011	10 Years (average period of unit replacement)	26% (fraction of software market using LM today)

## Total Addressable Market

## Total Addressable Market

 Maximum Attachment Rate	 Total Software Revenues, Global, 2011	 Average Product Development Time	 Average R&D Spend by Product	 Marketing Spend as a Percent of Market Revenue
52% (fraction of software market that is a target for LM use)	>\$250 B  (LM TAM is dependent on size of the software market)	1-2 Years 	\$4 M 	3.5 % 

## Industry Advancement

Decreasing  Stable  Increasing 

\*Companies with revenue of more than \$1 M revenue. Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.



# Executive Summary—CEO's Perspective

- 1 Strong growth opportunities in embedded; cloud is on the horizon
- 2 Growing emphasis on analytics and interest in pay-by-usage models
- 3 Dongle markets are strongest in Europe; software-based solutions dominate in North America
- 4 Transition away from dongles to software- and Web-based enforcement
- 5 End customer experience and operational efficiency are driving ISV's LM strategy, adoption, and transitions



Source: Frost & Sullivan analysis.

# Market Overview

# Market Overview—Definitions

- **Digital Rights Management (DRM):** Software, hardware, or hybrid technologies to bind complex user-specific rights to specific digital assets, such as content or software via a licensing instrument, and enforce them renewably and reliably over time. Frost & Sullivan covers many aspects of DRM, including content DRM (or simply DRM), enterprise rights management (or ERM), and software rights management (or LM).
- **License Management:** Also referred to as entitlement management or software DRM, LM solutions support implementation and enforcement of complex licensing scenarios including floating licenses, demo-to-full version conversion, online and offline enforcement, and handling of virtualization. Advanced features include analytics and secure logging. Most LM solutions no longer claim to prevent piracy, but rather emphasize management of software rights in legitimate customer usage scenarios. An LM system includes back office, server, and client-side components. This report analyzes the organized LM market space. It does not include revenues from LM solutions built in-house by publishers or alternative solutions like activation.
- **Publisher:** The independent software vendor (ISV) or embedded manufacturer (EM) that applies LM to their product software, device, or cloud-based product.
- **Vendor:** A company selling a license management solution.
- **Customer:** The end licensee of the license-managed product (i.e., the ISV's/EM's customer).

Source: Frost & Sullivan analysis.

## Definitions (continued)

- **License:** The specific usage rights that a given user or group of users is granted to a specific application, such as the right to use five concurrent copies of the premium edition of a software title for one year; and the electronic instrument that conveys these rights – whether in readable text or binary format.
- **Floating License:** A use case where all employees of an enterprise can collectively use up to N licenses concurrently—licenses can be checked in and checked out from a server and “float” among users as necessary.
- **ERP:** Enterprise resource planning systems automate the integration of information across enterprise divisions including finance, manufacturing, sales, CRM, and more.
- **CRM:** A customer relationship management system such as Salesforce or SAP. The ability to integrate with CRM systems on the backend to automate invoicing and auditing is a key feature of license management systems.
- **Desktop segment:** LM applied to or related to desktop software applications. This includes B2B and B2C productivity, utility, and enterprise applications. It does NOT include:
  - PC games, which rely on game-specific solutions such as Steam or SecuROM.
  - Applications sold primarily for handheld devices through service or platform specific stores such as Apple’s App Store or Google’s Android Market.
  - Activation or digital delivery that does not include full-fledged LM functionality.

Source: Frost & Sullivan analysis.

## Definitions (continued)

- **B2B:** Business to business software, such as electronic design and automation (EDA) or video processing applications, which are sold to enterprises or SMBs. Of all the classes of desktop software vendors, B2B software vendors are most likely to use third-party LM solutions.
- **B2C:** Business to client software, such as anti-virus or document processing applications, which may be sold to enterprises/SMBs but are targeted toward individual users and intended for mass consumer use. B2C vendors typically build rather than buy LM solutions, or use simple activation technologies.
- **Embedded Segment:** Embedded software is software that runs on dedicated device-based form factors, typically in tightly controlled environments, and typically with low flexibility, low fault tolerance, and low power consumption. Embedded software differs from desktop applications that run on PCs or servers in terms of programming and platform technologies, performance constraints, and execution environments. Devices powered by embedded software are often referred to as intelligent devices. In the embedded segment, LM is used to manage monetization of intelligent devices. This should not be confused with mobile rights management solutions, which are DRM solutions that enforce usage restrictions for content consumed on mobile or handheld devices.
- **Cloud segment:** LM applied to Software as a Service (SaaS) or cloud-based software. An SaaS offering may be standalone or may augment an on-premise desktop application or device license.
- **Software segment:** Revenues from all-software implementations of license management. The use of the term software to describe the software segment of the software LM market should not be confused with the application software, which is the target of protection of software LM systems.
- **Hardware segment:** Revenues from sale of hardware components (i.e., dongles) used to enforce license management.

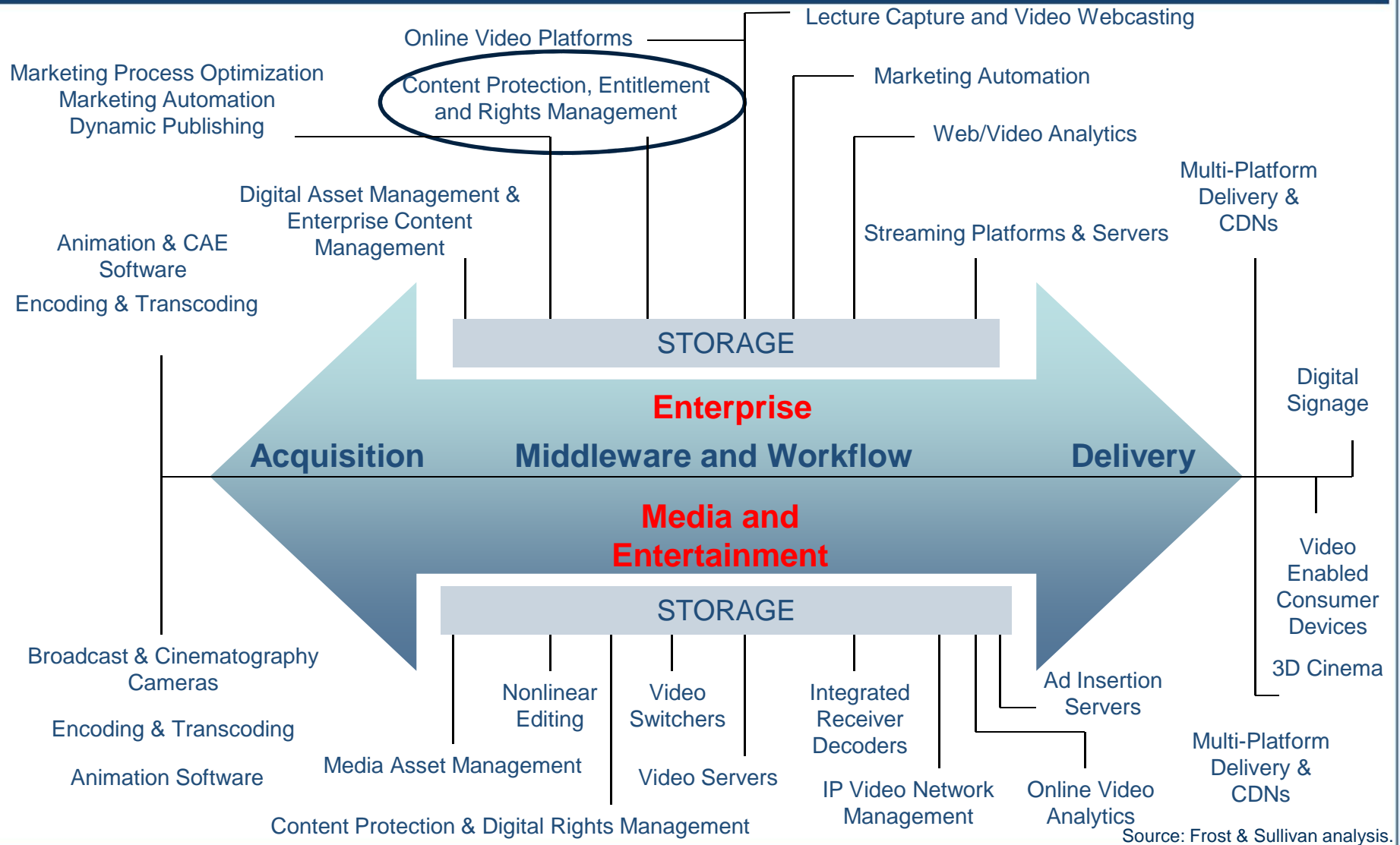
Source: Frost & Sullivan analysis.

## Definitions (continued)

- **Dongles:** A dongle is a hardware device that plugs into a computer or server (usually through USB, although some vendors support multiple other interfaces) and that binds with a copy of software on a particular machine to control unauthorized replication. It is generally harder, but at least more expensive, to replicate a dongle than it is to copy the software it authenticates. In many cases, dongles are used on a central licensing server to lock the module that manages check-in and check-out of floating licenses, and end user nodes are handled with all-software solutions. Dongles today include memory and microprocessor circuitry. Higher-end models include enough memory to serve as external drives from which an application can be directly executed, for additional protection. Simple USB drives are not considered dongles for the purposes of this study.

Source: Frost & Sullivan analysis.

# Software License Management in the Overall Digital Media Value Chain, Global, 2011



# Understanding Software License Management

## **Software is licensed, not sold:**

No doctrine of first sale, no transfer of ownership of the software copy

Usage rights to software, SaaS, or software-powered devices can vary over time or expire

License parameters need to be defined at development, issued for the specific customer/group of users at purchase, and enforced continuously thereafter.

## **Piracy is a significant problem for publishers and is experienced in the following ways:**

Intentional use of hacked applications with defeated or disabled license management

Unintentional use of counterfeit software that appears legitimate

Over-use of software by licensed customers (by volume, time, features, etc.)

80 percent piracy rates are common for B2C titles, rates of more than 60 percent have been reported for popular B2B titles

## **Primary goals of a license management system are to:**

Efficiently define and implement licenses per target product editions and business models

Minimize unauthorized use of software applications

Integrate with back office for automated invoicing, billing, tracking, auditing, and more

## **Alternatives to commercial License Management solutions include:**

In-house (build, as opposed to buy) solutions

No license management solution at all—rely on activation, customer self-reporting, and/or audits

Source: Frost & Sullivan analysis.



# Complementary Markets

**The following markets are complementary to the Software License Management market:**

- **Compliance Management (CM)** is a solution an enterprise customer uses on its premises to ensure that it is in conformance with its software license agreements with various publishers. It is sometimes also referred to as license management but is distinct from our use of the term. CM systems may be standalone or integrated with software asset management systems. Most CM vendors do not sell LM solutions, but some LM vendors such as Flexera offer both CM and LM.
- **Application hardening** is an additional layer of anti-tamper and anti-reverse engineering protection applied to a software application to protect the LM and similar functions against hacking and to protect internal intellectual property against theft and counterfeiting.
- **Application analytics** is the gathering and reporting of various aspects of application usage by customers. In pay-by-use models (on-premise or SaaS), analytics are directly used for billing. In other scenarios, analytics offer intelligence into application usage, facilitate compliance auditing, and can be mined to discover prospects for up-sells.

**Key vendors in complementary markets are discussed here, but revenues from complementary markets are not included as part of this analysis.**

Source: Frost & Sullivan analysis.

# Market Overview—Segmentation

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The LM market is divided into three segments by form factor:

- Hardware-based enforcement, or hardware
- Software-based enforcement, or software
- Enforcement for cloud-based products, or cloud

Slide 19 shows the percent contribution of each segment, by revenue, to the global LM market in 2011

LM customers are divided into three major verticals by type of application being protected:

- B2B application vendors
- B2C application vendors
- Intelligent device and embedded software vendors (embedded)

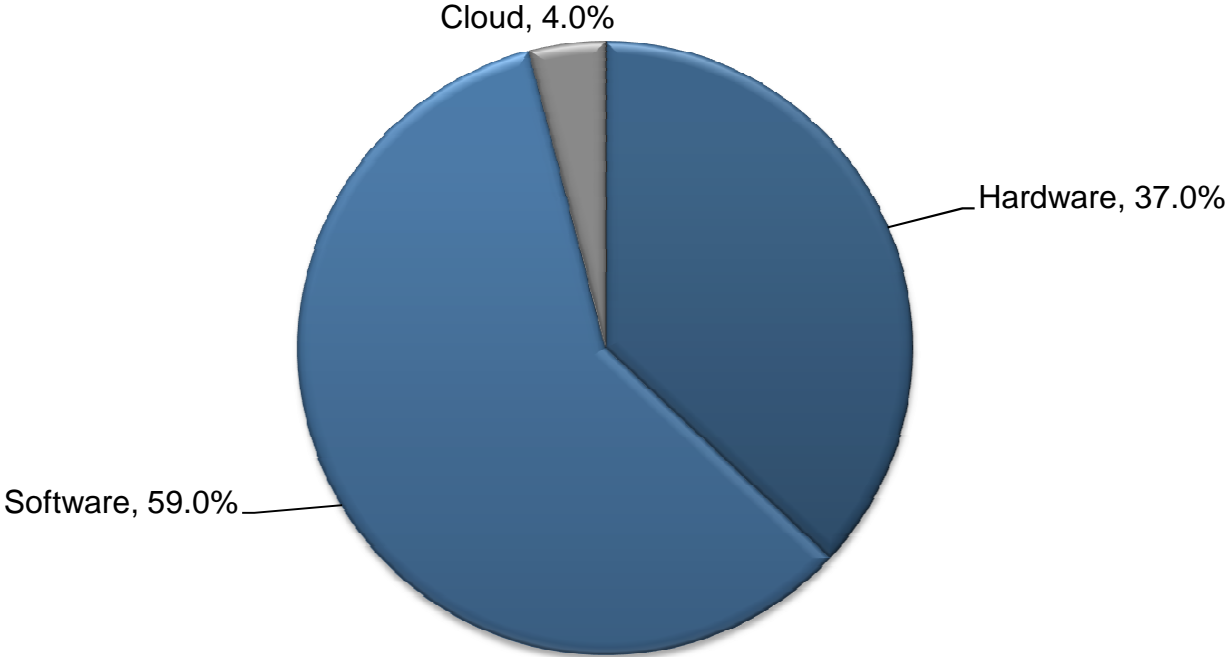
Slide 20 shows the percentage contribution of each vertical, by revenue, to the global LM market in 2011.

Source: Frost & Sullivan analysis.

# Market Overview—Segmentation by Form Factor

**Key Takeaway:** The market is mainly comprised of traditional hardware and software segments, while the newer cloud segment is yet to account for a significant share of revenue.

**Revenue Breakdown by Form Factor in Percent  
Software License Management Market: Global, 2011**

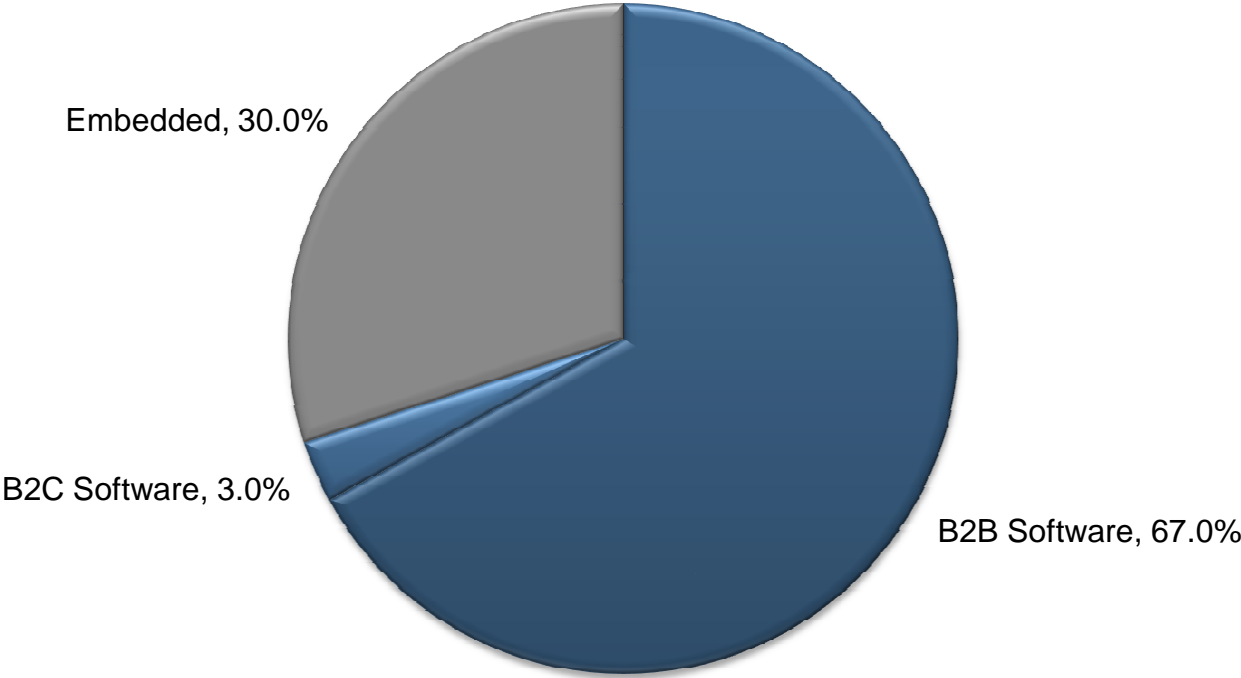


Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

# Market Overview—Segmentation by Application Type

**Key Takeaway:** B2B software is the dominant segment today, followed by embedded. B2C software publishers typically rely on non-LM alternatives for monetization.

**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.

# Market Overview—Market Penetration

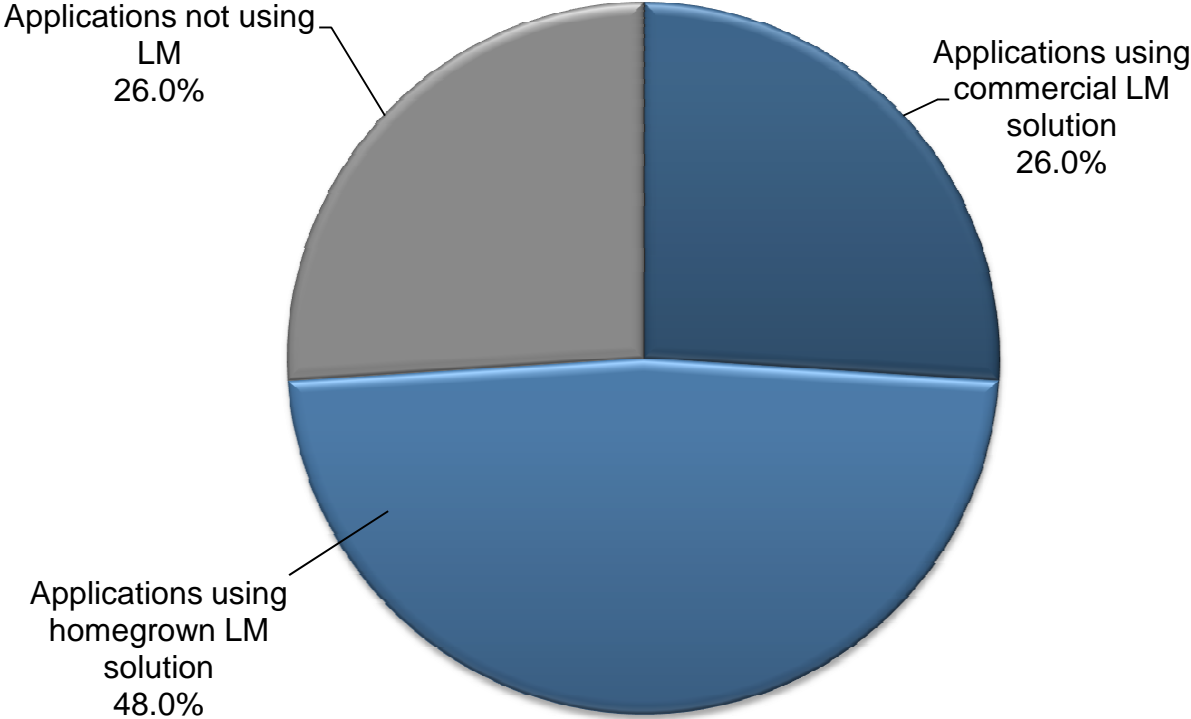
- Software publishers have three options to monetize their software:
  - A commercial LM solution. This is the organized LM sector, and the focus of our study.
  - A homegrown LM solution. This is the disorganized LM sector and typically very large in size.
  - Something other than an LM solution such as auditing, security through sales channels like Digital River or handheld app stores, physical anti-copy protection, and others.
- For the desktop segment in particular, shown on the next slide:
  - The segment is diverse in terms of vendor sizes, customer demographics, application functionality, business models, and sales channels.
  - 26 percent of desktop applications, by revenue, rely on organized LM solutions for their DRM needs
  - Nearly half, by revenue, rely on homegrown solutions for their DRM needs.
- For the LM market overall:
  - The disorganized sector using homegrown LM is the largest growth opportunity for vendors.
  - Penetration of the organized sector is similar or lower for embedded software compared to desktop software, and is lower for cloud as compared to on-premise deployments.
  - As such, while LM technology is approaching maturity, the market remains in the growth stage.

Source: Frost & Sullivan analysis.

# Market Overview—Market Penetration (continued)

**Key Takeaway:** Despite maturity of technology, commercial LM solutions are only used to protect about a quarter of desktop software applications, by revenue.

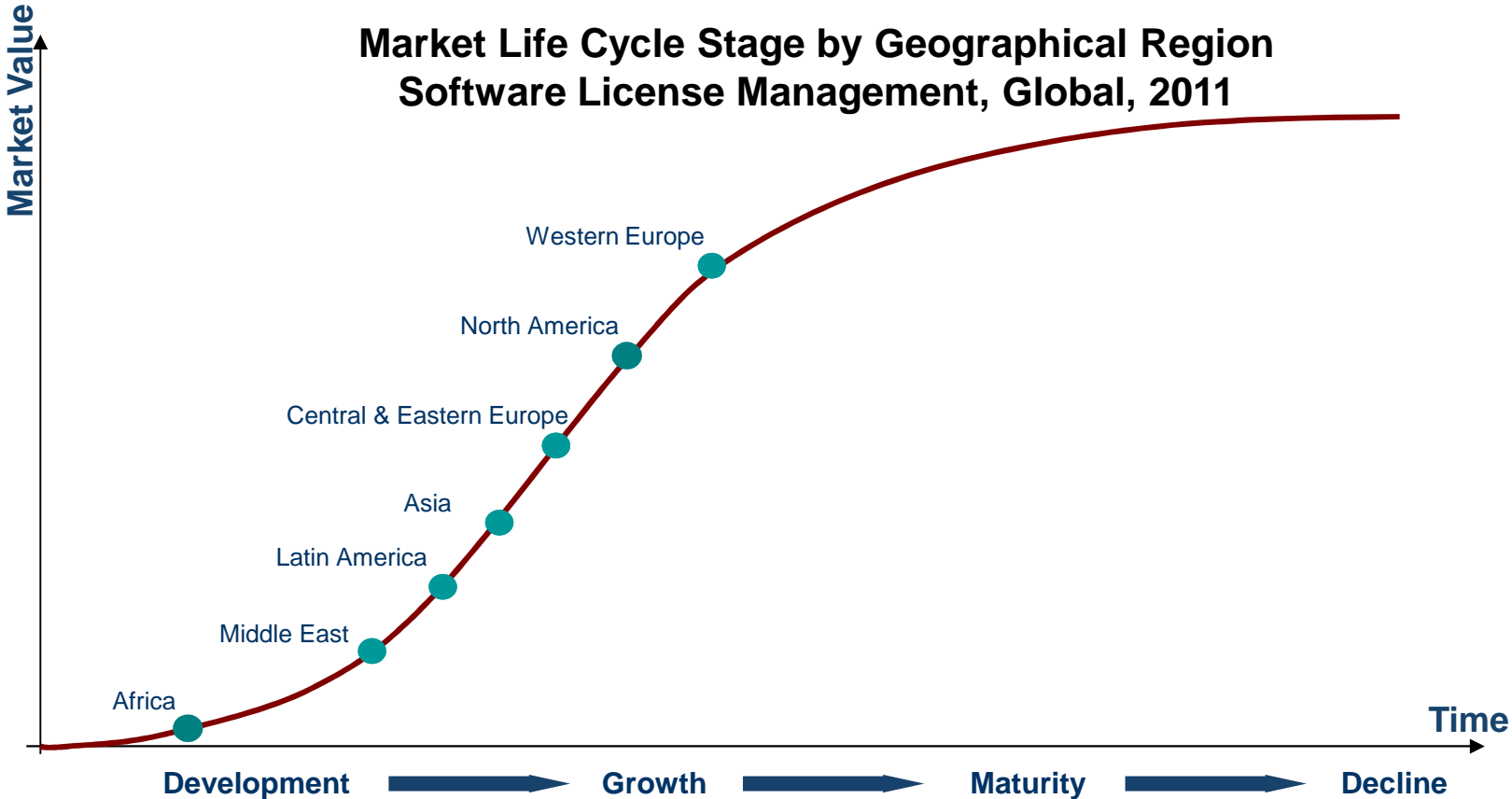
**Percentage of On-Premise Desktop Software Applications by Revenue Using Software License Management, Global, 2011**



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

# Regional Market Life Cycle Analysis

**Key Takeaway:** Western Europe is the most mature market today, while North America and Central/Eastern Europe are in earlier stages of growth.



Source: Frost & Sullivan analysis.

# Regional Market Life Cycle Analysis

- Overall, the license management market is in a state of growth.
- Western Europe is the leading region for the LM market by revenues, on the strength of established vendor presence and high dongle adoption. It is approaching maturity given current levels of saturation and a reduced rate of ongoing software innovation.
- North America lags in revenues and market maturity today, but it has a strong desktop software segment and continues to see growth and innovation, particularly in the embedded segment and increasingly in the cloud.
- Publishers in Central and Eastern Europe are gaining maturity and expanding globally, resulting in growing demand for LM solutions.
- Asia is a mixed market. Countries like China are seeing rapid growth in demand for LM, particularly for hardware enforcement, while other countries like India remain major consumers of software, with little demand from publishers for LM solutions. Overall, Asia is in the stage of early growth, as is Latin America.
- With the exception of Israel, the Middle East is a consumer of software rather than a major publisher. Accordingly, demand for LM has yet to reach critical mass. Similarly, Africa has yet to become a significant market for LM technology.

Source: Frost & Sullivan analysis.



# Market Overview—Key Questions This Study Will Answer

Is the market growing, how long will it continue to grow, and at what rate?

Are the existing competitors structured correctly to meet customer needs? Are the products/services offered today meeting customer needs, or is there additional development needed?

Is this an industry or a market? Will these companies/products/services continue to exist or will they get acquired by other companies? Will the products/services become features in other markets?

How will the structure of the market change with time? Is it ripe for acquisitions?

Where are the long-term growth opportunities for this market? What disruptive technologies and trends are on the horizon?

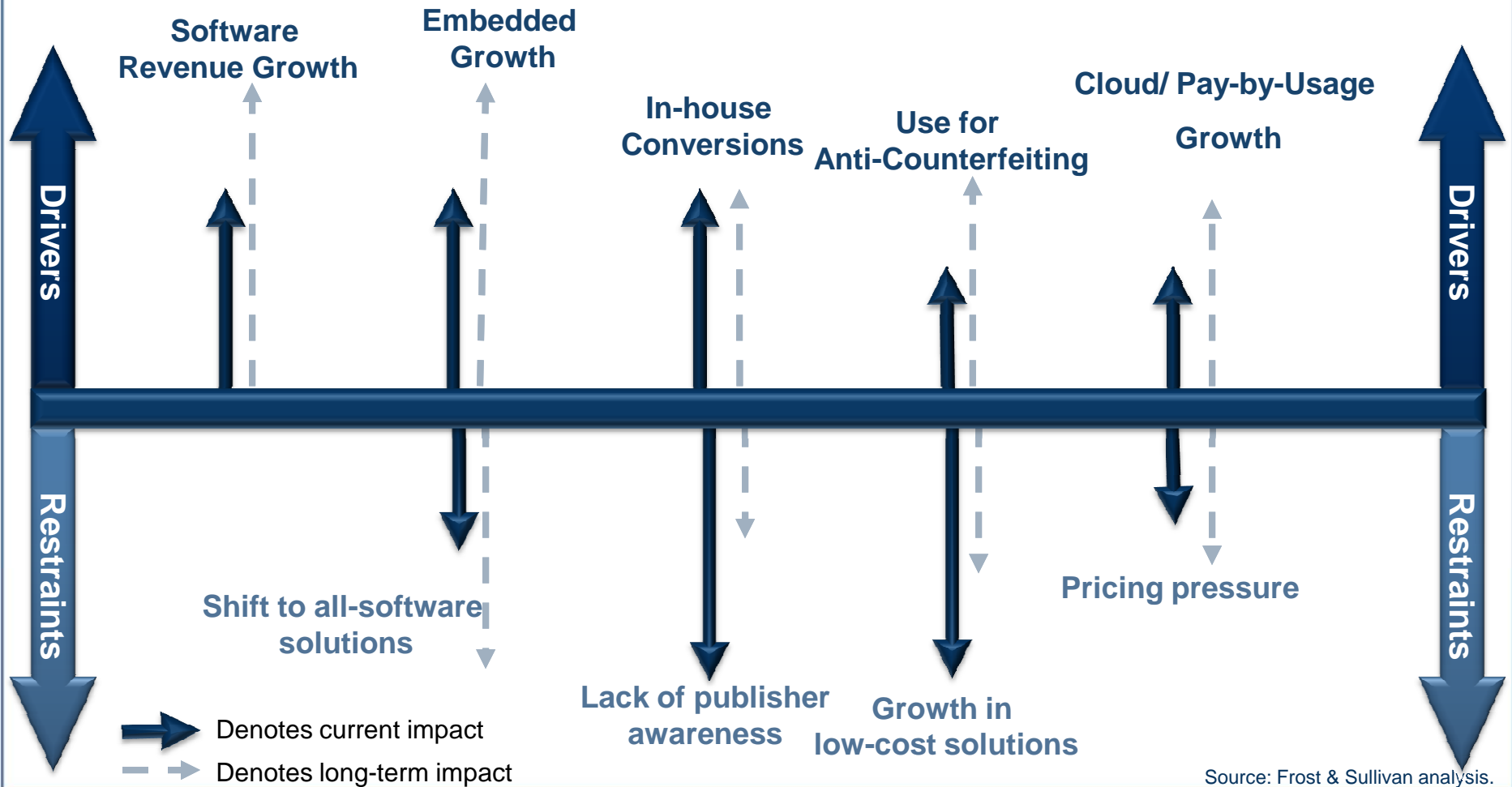
How are market needs and customer demographics changing, and how must vendors adapt to these in order to retain and grow market position?

Source: Frost & Sullivan analysis.

## External Challenges: Drivers and Restraints— Total Market

# Drivers and Restraints

## Software License Management Market: Key Market Drivers and Restraints Global, 2011–2018



Source: Frost & Sullivan analysis.

# Drivers—Impact and Duration

Drivers	1–2 Years	3–4 Years	5–7 Years
Expected consistent growth in licensed <b>software revenues</b> reflect in revenue growth for the software LM market.	M	H	H
Growing adoption of LM to monetize <b>embedded/intelligent devices</b> grows market revenues.	M	H	H
Increasing capture of the disorganized <b>in-house segment</b> by commercial LM vendors results in growth of the license management market.	M	M	M
Publishers increase reliance on license management as part of <b>anti-counterfeiting</b> initiatives, driving growth in LM revenue.	L	M	M
Increased adoption of full-fledged license management in <b>cloud and pay-by-usage</b> models contributes to overall market growth.	L	L	M

Impact Ratings: H = High, M = Medium, L = Low

Source: Frost & Sullivan analysis.

# Drivers Explained

## **Expected consistent growth in licensed software revenues reflect in revenue growth for the software LM market.**

- Enterprise software sales are surging in 2011, on the strength of economic recovery and the growing use of software to enhance productivity, maximize automation, and control operating costs across all types of businesses. Burgeoning emerging markets and recovering major markets are consuming growing volumes of higher-end B2B software like CAD/CAM, EDA, and software for applications such as digital media processing. These types of software typically leverage LM solutions, directly inducing growth for the LM market over the forecast period.
- Software-based LM solutions are typically priced as a sliding-scale percentage of revenue that publishers realize from protected products. As global software revenues grow, license management revenues grow correspondingly, although at a slower rate because LM pricing drops to smaller fractions of increasingly large revenues.
- Although software enforcement is growing faster than hardware (dongles), dongle sales accounted for nearly 40 percent of the LM market in 2011 and will continue to be a significant fraction of the market for the forecast period. Dongle requirements grow as the number of software licensees increases, in turn contributing to growing revenues.

Source: Frost & Sullivan analysis.

# Drivers Explained

## **Growing adoption of LM to monetize embedded/ intelligent devices grows market revenues.**

- Device vendors are simplifying stock keeping unit (SKU) management and upgrades by shipping identical devices with features turned on or disabled via license management. This significantly reduces operating cost while easily enabling upgrades in the field.
- As growing numbers of embedded software and intelligent device vendors see the value and return on investment (RoI) offered by LM technologies, this segment is seeing strong interest and continued growth.
- Major verticals including telecommunications, healthcare, industrial automation, and robotics make this an extremely large potential segment.
- The impact of this driver is medium in the short term, then rises to and remains high for the rest of the forecast period.

Source: Frost & Sullivan analysis.

# Drivers Explained

## **Increasing capture of the disorganized in-house segment by commercial LM vendors results in growth of the license management market.**

As shown earlier, nearly three-fourths of the market is disorganized, using homegrown systems or alternative measures instead of commercial LM. However, these publishers are increasingly transitioning to commercial solutions for the reasons outlined below:

- Publishers consolidating through M&A inherit a mess of homegrown systems that is expensive to maintain and support. Benefits of adopting a uniform LM solution include operational savings, business process streamlining, reduced burden from technical support, and reduced reliance on historical experience for developers to maintain/grow LM features.
- As publishers mature and require advanced licensing models—such as floating licenses, support for virtualization, Internet-based activation, online/offline monitoring, strong node locking, handling of firewalls, application analytics, and cross-device/cross-platform support—commercial LM systems offer richer feature sets with more stability. They also offer far more economy and scale than homegrown systems, with much lower time to market and cost.
- Homegrown systems are typically developer-focused, often lacking automated auditing features or integration with CRM, ERP, and billing and marketing automation systems. Marketing and compliance organizations benefit from such features, and are increasingly driving publishers to adopt formal LM systems.
- Most enterprise IT organizations include monitoring and optimization systems for leading LM vendors. Demand from such customers drives publishers to adopt these LM solutions.

*continued on next slide*

Source: Frost & Sullivan analysis.

## Drivers Explained (continued)

- Markets like Asia and China are the fastest-growing segments for B2B software. They are also less mature in enforcing IP rights and more prone to under-licensing. LM solutions are increasingly adopted to secure revenue as publishers expand worldwide.

However, the transition is slow, because:

- Large enterprise software vendors such as IBM build their own LM solutions, while others do not use LM at all, relying instead on manual reporting and auditing.
- Large B2B/B2C vendors like Microsoft and Adobe use their own homegrown solutions. The industry contends that fully eliminating piracy is a double-edged sword because widespread reach of a software title, whether legitimate or otherwise, acts as a viral marketing tool and builds mindshare and familiarity with potential user bases. Elimination of piracy (even if it were possible) would never result in 100 percent recovery of revenue (5–10 percent recovery is the industry norm) and may in fact open doors for competing offerings to gain mindshare instead. Many of these vendors control piracy by working with local law enforcement and focusing heavily on anti-counterfeiting measures such as holographic logos and online software validation to identify and deter sales of counterfeit copies.
- Technical support is another key consideration for publishers of high-volume, low-cost titles, because a single service call can erase profits from the sale. Complete control over the licensing and activation process minimizes the likelihood of customer hiccups and external dependencies around activation, driving tier-I vendors to build them in-house.

Considering all factors, this driver has consistent medium impact over the forecast period.

Source: Frost & Sullivan analysis.



# Drivers Explained

## **Publishers increase reliance on license management as part of anti-counterfeiting initiatives, driving growth in LM revenue.**

- While estimates vary between 10 and 40 percent, clearly a significant percentage of piracy is attributed to counterfeit software, where customers believe they have a genuine software license but it is in fact a counterfeited edition—sold via auction, distributed online or packaged by professional pirates. Counterfeiting is a growing problem for both publishers and their customers.
- Competitors using cheaper pirated or counterfeit versions of applications—particularly high-end modeling, simulation and digital media applications—can offer competing services or end products at much lower price points than legitimate customers of these applications. Established customers in major markets are therefore driving publishers to adopt strong anti-piracy and anti-counterfeiting strategies as a way of protecting their (the customer's) business, price point and value proposition.
- Markets like China, Southeast Asia, and Eastern Europe are not only the most rapidly growing markets for most publishers but also pose the greatest risk of reverse engineering and counterfeiting because of high price sensitivity, easy availability of counterfeit software, lax law enforcement, and a culture generally permissive of piracy. Publishers based in major and emerging markets alike are integrating LM (often with dongles), to secure IP and revenue as piracy-prone regions become a significant revenue opportunity.

Source: Frost & Sullivan analysis.

# Drivers Explained

## **Increased adoption of full-fledged license management in cloud and pay-by-usage models contributes to overall market growth.**

- Publishers are extending existing on-premise software products into the cloud, to serve as standalone offerings; complementary offerings— e.g. for peak offloading; or as complementary offerings to on-premise licenses - such as feature-limited viewers with enterprise-wide access to complement a design or simulation application, or an online dashboard to complement a telecommunications device purchase. B2B and B2C publishers both see strong revenue opportunities in the cloud as bandwidths rise, cloud computing infrastructure matures, handheld devices are adopted in enterprises and customers look to control capital and operating expenses.
- On-premise software vendors expanding into the cloud are relying on their LM providers to provide fundamental features such as authentication, feature management, usage tracking and billing integration, and to enable hybrid scenarios where on-premise licenses are augmented with cloud-based offerings.
- Adopting on-premise solutions to the cloud is tricky and complex. Cloud-specific LM offerings aim to simplify this process, and provide back office experiences consistent with on-premise licensing deployment. The cloud opportunity is currently in its early days, but will see increasing growth over time.

Source: Frost & Sullivan analysis.

# Restraints—Impact and Duration

Restraints	1–2 Years	3–4 Years	5–7 Years
Higher adoption of <b>software-based LM</b> reduces demand for dongles, impacting total growth of the LM market.	L	M	H
Lack of <b>publisher awareness</b> about commercial LM options restrains adoption and growth.	H	M	L
Emerging, <b>lower cost solutions</b> are accepted by customers and embraced by publishers, thereby restraining overall market revenue growth.	L	M	H
Increasing competition creates downward <b>pricing pressure</b> and decreasing revenues.	L	M	M

Impact Ratings: H = High, M = Medium, L = Low

Source: Frost & Sullivan analysis.

# Restraints Explained

## **Higher adoption of software-based LM reduces demand for dongles, impacting total growth of the LM market.**

- Dongles are used in some capacity in many license management installations today. Hardware enforcement is perceived to provide stronger anti-piracy protection than all-software enforcement, a key customer requirement particularly for high-value software. Dongles sales accounted for nearly 40 percent by revenue of the Global LM market in 2011.
- Dongles are expensive in terms of initial cost, management overhead and replacement cost. Significant disruption occurs when a dongle is damaged or lost. As hacking techniques evolve, the security differentiation of dongles over maturing software alternatives such as machine fingerprinting, cloud-based authentication and CPU-intrinsic security anchors is decreasing. As a result, their drawbacks are increasingly onerous to publishers and customers alike, and they are gradually losing market share to all-software solutions.
- For the same volume, a software-based LM solution on average costs 10–25 percent less than a dongle-based deployment.
- Overall, impact of this restraint grows from low to high over the forecast period.

Source: Frost & Sullivan analysis.

# Restraints Explained

## **Lack of publisher awareness about commercial LM options restrains adoption and growth.**

- Most LM vendors consider lack of awareness about their solutions, particularly among small and medium software publishers and embedded product vendors overall, as a significant restraint to adoption and growth.
- Lack of awareness of options and RoI value proposition—or misplaced concerns about expense, complexity, or long term lock-in—all factor into decisions that B2B publishers and device vendors make to build homegrown solutions or adopt alternatives to full-fledged LM solutions. Many prospects also hold the view that since piracy is inevitable, there is no value in adopting an external LM solution.
- Often ownership for LM strategy and deployment is not clear within an organization. As a result, there is insufficient advocacy within the organization for adoption of a commercial LM solution.
- The impact of this restraint is currently high, but it is expected to diminish to low over the forecast period as adoption continues to grow, marketing efforts increase customer base awareness, and publishers and device vendors adopt integration of license management in applications as an operational best practice.

Source: Frost & Sullivan analysis.

# Restraints Explained

**Emerging, lower cost solutions are accepted by customers and embraced by publishers, thereby restraining overall market revenue growth.**

- The LM market is dominated by two leading vendors—SafeNet for hardware-based solutions (including recently acquired Aladdin) and Flexera (formerly Macrovision) for software-based solutions. Increasingly, they are challenged by vendors like Wibu, Reprise, and Agilis which compete (among other aspects) on price, with lower upfront license rates, maintenance rates, and fees for professional service and support.
- As emerging solutions mature to match leading solutions on features, benefits, interoperability, and reliability, barriers to entry are becoming surmountable with both publishers and their customers. At the same time, publishers are striving to control operating expenses in order to grow profits in challenging economic times.
- As a result, newer solutions are actively considered for new titles. Publishers are also increasingly looking into swapping them for existing/older titles. This transition is currently gradual, but is expected to continue to gain momentum over time.
- This restraint has low impact in the near term, rising to high toward the end of the forecast period.

Source: Frost & Sullivan analysis.

# Restraints Explained

## **Increasing competition creates downward pricing pressure and decreasing revenues.**

- As discussed earlier, the LM market is dominated by two leading vendors, SafeNet and Flexera. To date, dominant vendors have seen low customer flip rates because of their industry-leading solutions and strong barrier to exit for existing customers. There is considerable complexity to switching LM systems on older, established titles—particularly for larger publishers, or for plug-in platforms where the application and all plug-ins converge on a single LM solution to optimize customer experience. As a result, leading vendors are able to maintain premium price points today.
- However, as discussed in the previous restraint, incumbents are seeing growing competition from emerging vendors, which compete on price among other factors. We expect this to create downward pricing pressure for all vendors. While this trend will undoubtedly facilitate increase in customer base, it will likely restrain revenue growth rates over the forecast period.
- This restraint has low impact in the near term, rising to medium in 2014 and for the rest of the forecast period.

Source: Frost & Sullivan analysis.

# Forecasts, Trends, and Regional Breakdowns Total Market



# Market Engineering Measurements

## Market Overview: Software License Management Market: Global, 2011

MEASUREMENT NAME	MEASUREMENT	TREND
Market Stage (Nascent, Growth, Mature)	Growth	—
Market Revenue (2011)	\$240.3 M	▲
Market Units, Dongles (2011)	3.03 M	▲
Average Price Per Dongle	\$29	▲
Market Size at End of Forecast Period (2018)	\$452.5 M	▲
Base Year Market Growth Rate	8%	▲
Compound Annual Growth Rate (CAGR), 2011-2018	9.5%	▲
Customer Price Sensitivity (scale of 1 to 10, Low to High)	6	▲
Degree of Technical Change (scale of 1 to 10, Low to High)	5	●
Market Concentration (% of base year market controlled by top three competitors)	87%	▼

TREND	Decreasing ▼	Stable ●	Increasing ▲
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Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

# Market Engineering Measurements (continued)

## Competitor Overview

MEASUREMENT NAME	MEASUREMENT	TREND
Number of Competitors (active market competitors in base year)	9	●
Number of Companies that Exited in Base Year*	0	▲
Number of Companies that Entered in Base Year*	0	▲

## Total Addressable Market

Replacement Rate (average period of dongle replacement)	10 Years	●
Attachment Rate (percentage of desktop software market penetration)	26%	▲
Maximum Attachment Rate (maximum potential desktop software market penetration)	52%	●
Base Year Total Desktop Software Market Size	>\$250 B	▲

TREND	Decreasing ▼	Stable ●	Increasing ▲
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\* Companies with more than \$1 M revenue.

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

# Market Engineering Measurements (continued)

## Industry Advancement

MEASUREMENT NAME	MEASUREMENT	TREND
Average Product Development Time	1–2 Years	▼
Average R&D Spent by Product	\$4 M	●
Marketing Spend as a Percent of Market Revenue	3.5%	●

TREND	Decreasing	Stable	Increasing
	▼	●	▲

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

# Forecast Assumptions

## **The following are some of the key assumptions used for Frost & Sullivan's forecasts for the software license management market:**

- Global economic growth and consumer confidence will not fall substantially below the current reduced expectations.
- Adoption of license management in embedded applications will continue to grow steadily, and uptake of LM for SaaS will occur according to our expectations.
- Frost & Sullivan's application software growth forecasts will be accurate.
- The market will not see any disruptive new innovations occur in hardware-based or software-based protection technologies, in hacking technologies, or in application delivery and execution models that in turn cause a significant shift in offerings, adoption and price points.

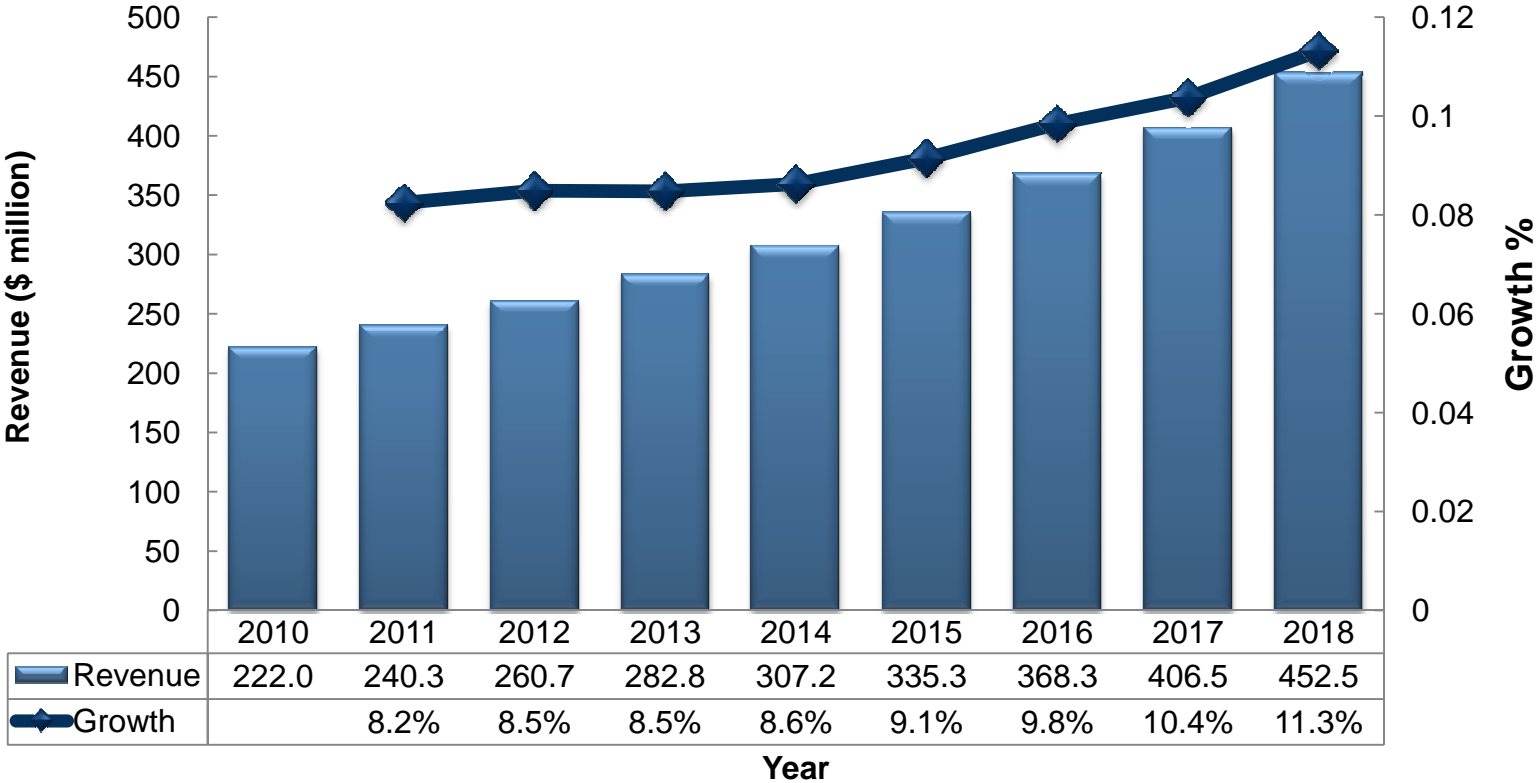
The LM market is globally distributed. Future growth estimates might be impacted by downside risks such as continued weak national economies, unforeseen currency fluctuations, or lower than expected uptake of LM solutions. Upside risks include accelerated improvement in global macro-economic conditions that drive software sales higher than expected, ability by major vendors to maintain their market positions and price points, and resilience of dongle-based solutions against software-based solutions and cloud-based offerings.

Source: Frost & Sullivan analysis.

# Software License Management Market Revenue Forecast

**Key Takeaway: Software fuels sustained growth, embedded will drive upswing**

**Software License Management Market Revenue Forecast**  
**Global, 2010–2018**  
**CAGR (2011–2018) = 9.5%**

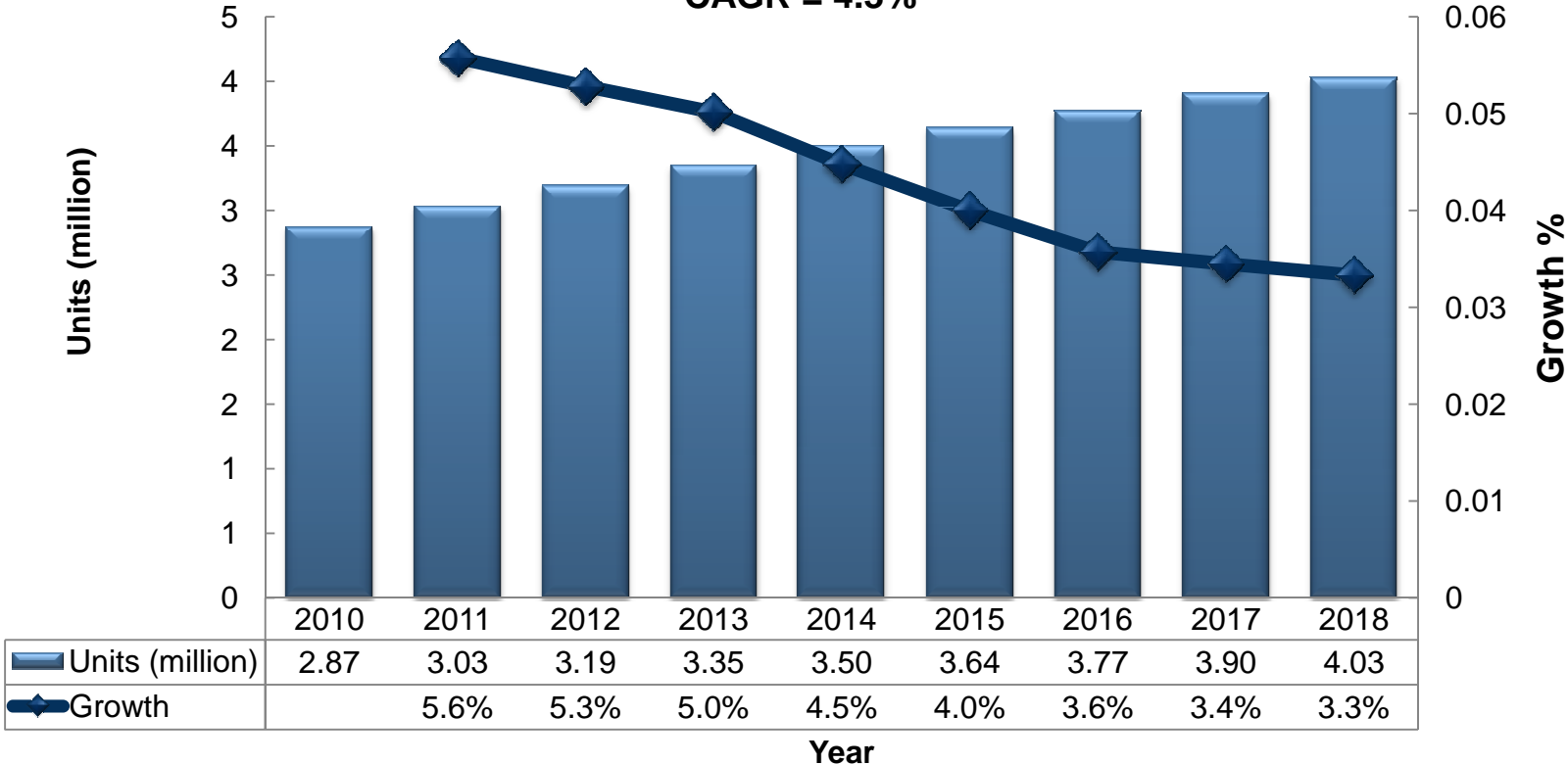


Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

# Software License Management Market Dongle Unit Forecast

**Key Takeaway: Revenues grow steadily, but rate of growth declines over forecast period.**

**Software License Management Market Dongle Unit Forecast  
Global, 2010–2018  
CAGR = 4.3%**

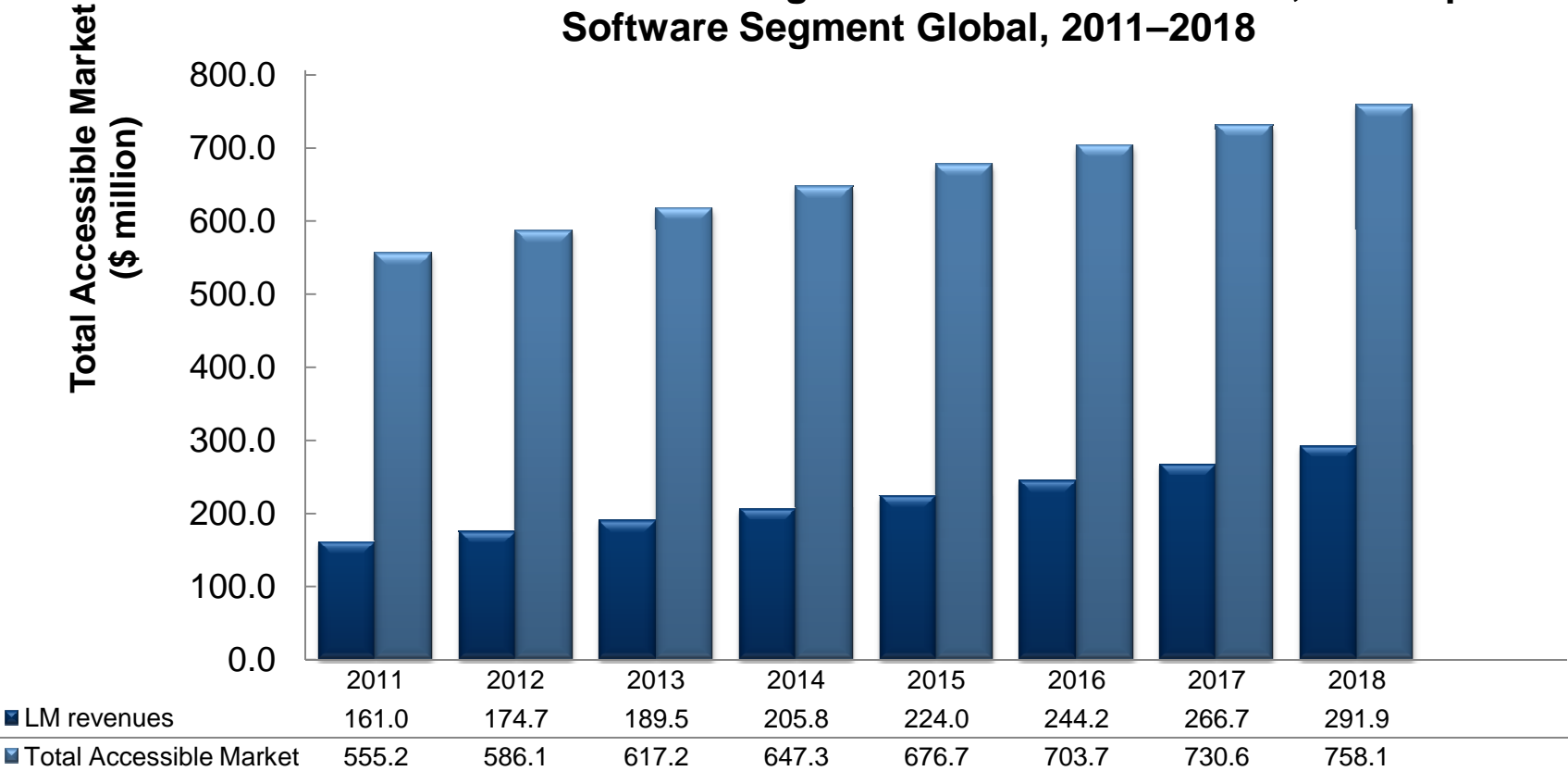


Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

# Market Penetration Forecast, Desktop Software Segment

**Key Takeaway: Desktop software segment penetration rises steadily from 29.0% in 2011 to 38.5% in 2018**

**Software License Management Market Penetration, Desktop Software Segment Global, 2011–2018**



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

# Revenue Forecast Discussion

- The market has held steady, despite the economic downturn of the past two years, and is now seeing higher growth as the market recovers for publishers and their customers.
- Baseline growth is fueled by the desktop application segment, which is the dominant segment for this market and which is expected to see steady rise in revenue and increasing global expansion over the forecast period. Additional growth, and the upswing in growth rate in the latter part of the forecast period, comes from the embedded vertical, as discussed in the drivers chapter. Frost & Sullivan expects the early promise of this segment to grow into mainstream adoption over the forecast period, in the long term potentially overtaking desktop applications as the primary segment for the LM market.
- The software LM market is segmented into software-based enforcement (software), hardware-based enforcement (hardware), and cloud. The software segment of the LM market should not be confused with the total software license management market. Also, for purposes of discussion and forecasting in this report, because the cloud segment is yet very small, its revenues are combined with the software segment.
- Both software and hardware sales see growth over the forecast period, as discussed in the drivers and restraints sections, although software (including cloud) will grow faster than hardware, and hardware sales as a percentage of the overall market will steadily decline over the forecast period.
- Overall the market is in a state of growth, driven by continued evolution of technology and business models for LM vendors and publishers alike, as well as growing penetration within the total market and increasing publisher awareness.

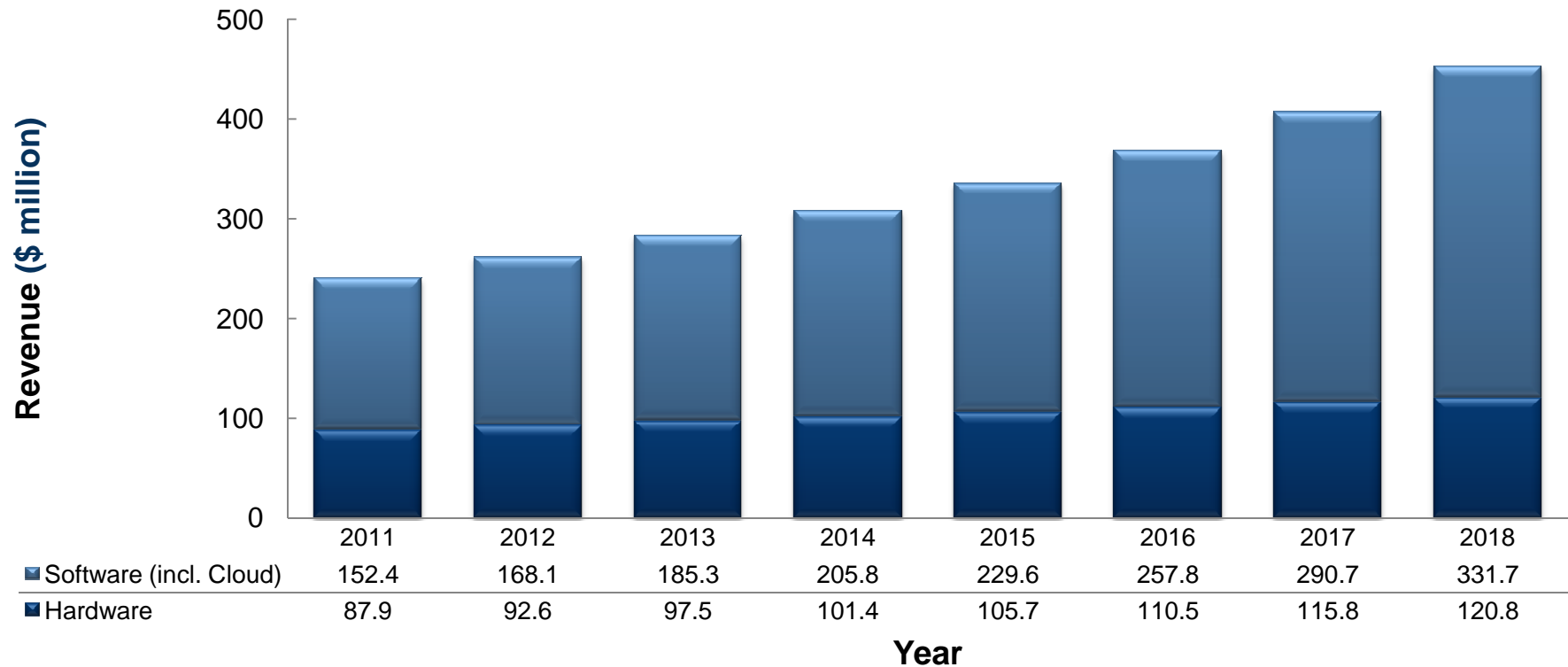
Source: Frost & Sullivan analysis.



# Market Forecast by Form Factor

**Key Takeaway: Software-based solutions will grow faster than hardware over the forecast period**

**Software License Management Market Revenue Forecast by Form Factor, Global, 2011–2018**



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

# Pricing Structure and Trends

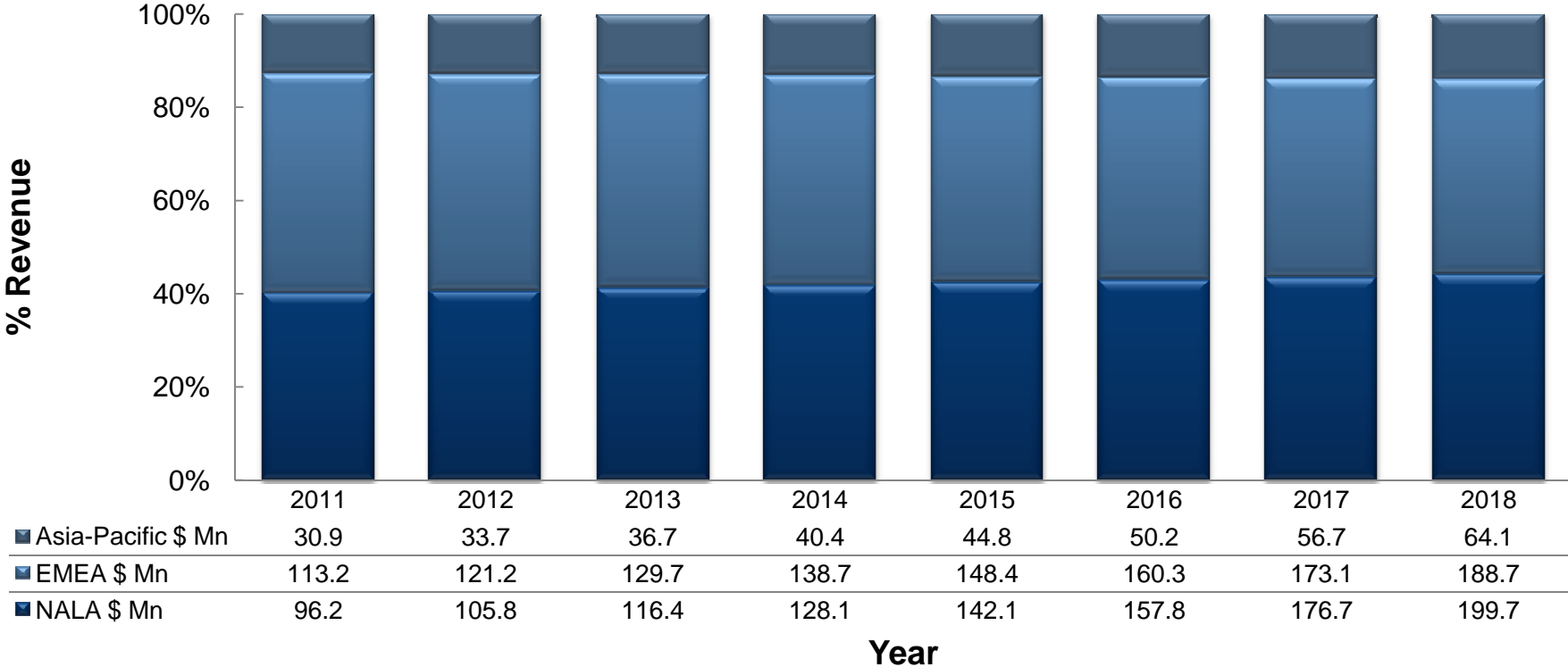
- License Management systems are typically sold in components as follows:
  - SDK for development: Typically a flat fee of less than \$10,000 and expected to hold steady.
  - A back office licensing server: Typically sold in both on-premise (at the publisher) or hosted (at the LM vendor) versions on an annual fee or load-dependent basis. These prices vary widely, and are sometimes combined with annual license fees discussed below. Back-office integration modules, such as those for CRM systems like Salesforce.com , are typically sold separately.
  - Dongles: Typically sold on a per-unit basis to the publisher, end customer, or both. List price for single units varies from \$15 to more than \$60, not including shipping charges. Suppliers typically offer substantial volume discounts. Base unit prices are gradually decreasing, while new, higher-end models continue to command premium price.
  - All-software implementations are sold for annual license fees with recurring maintenance fees. These fees are a fraction of publisher revenue, typically between 0.3 percent and 1 percent, and are gradually decreasing.
- Professional services are typically charged on an hourly basis.
- Software is typically sold directly. Dongles are typically sold through direct sales in home markets and major markets and through resellers in the rest of the Global.
- Back-office integration is typically done by systems integrators or through professional services offered by the LM vendor.

Source: Frost & Sullivan analysis.

# Percent Revenue Forecast by Region

**Key Takeaway: EMEA losing ground to NA; APAC gains momentum over time**

**Software License Management Market,  
Percent Revenue Forecast by Region, 2011–2018**



Note: revenues are allocated to the headquarters of the publisher, not to the regions in which license-managed software titles are sold or served. All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

# Revenue Forecast by Region

## Software License Management Market: Revenue Forecast by Region, 2011-2018

Year	NALA (\$ million)	EMEA (\$ million)	Asia-Pacific (\$ million)
2011	96.2	113.2	30.9
2012	105.8	121.2	33.7
2013	116.4	129.7	36.7
2014	128.1	138.7	40.4
2015	142.1	148.4	44.8
2016	157.8	160.3	50.2
2017	176.7	173.1	56.7
2018	199.7	188.7	64.1
<b>CAGR</b>	<b>11.0%</b>	<b>7.6%</b>	<b>11.0%</b>

Key:

NALA: North America-Latin America

EMEA: Europe-Middle East-Africa

Source: Frost & Sullivan analysis.

# Global Revenue Forecast Discussion

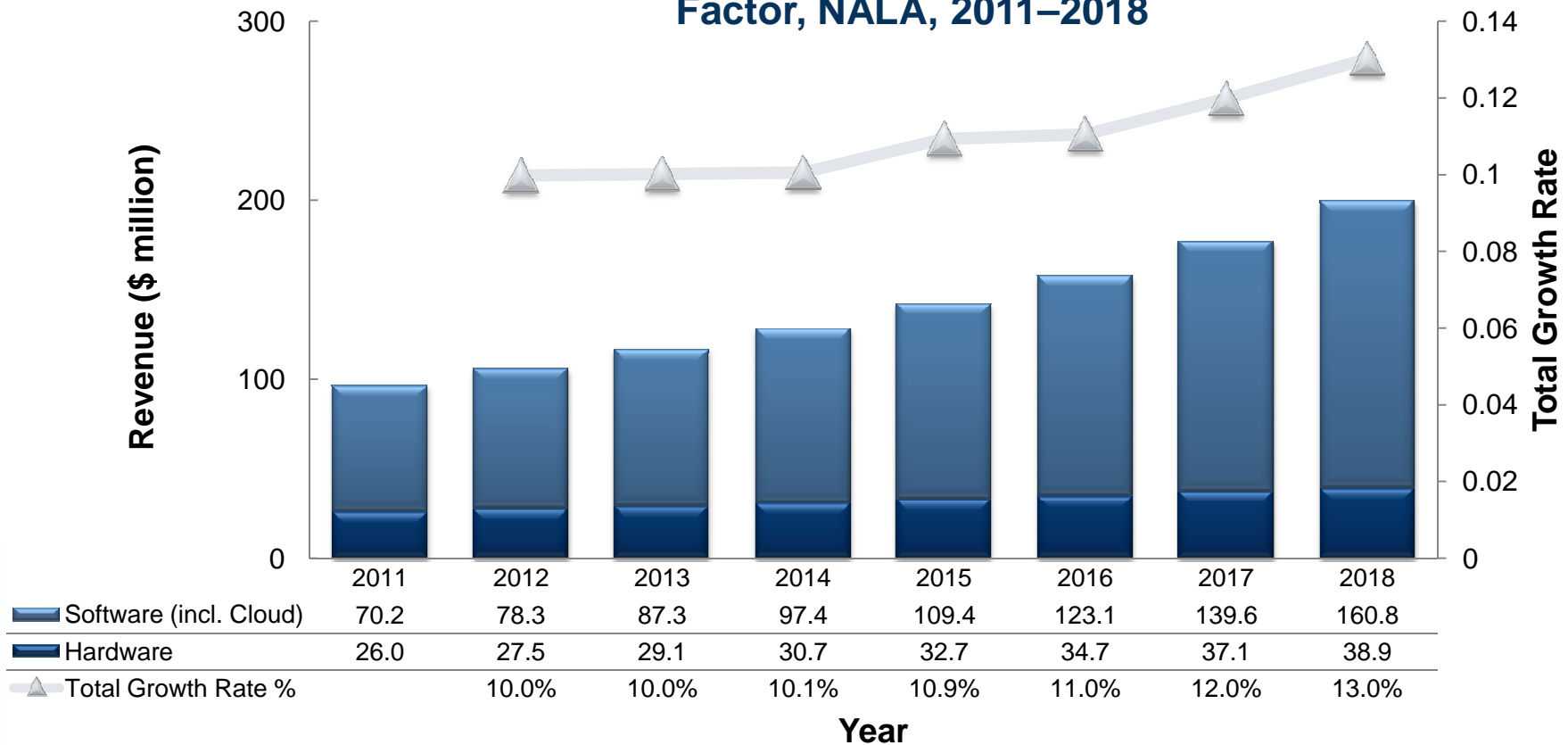
- Atypical of a DRM market, EMEA—Europe, in particular—is currently the leading geographical region, ahead of North America and far ahead of other regions worldwide. This correlates with EMEA being the largest market for dongles in terms of unit sales. NALA is the larger software consumer, but relies more significantly on all-software or software-dominant implementations of license management, with Flexera being a dominant vendor.
- NALA—particularly North America—is forecast to grow fastest overall, on the strength of an invigorated high-end software market, rapid global expansion, and growing rates of conversion from in-house to commercial license management solutions. North America is also taking the lead in cloud-based offerings, an emerging vertical for this market, and is home to some of the largest embedded device vendors worldwide. Most emerging LM vendors are based in the USA, provide all-software solutions, and target North American prospects first through direct sales, not only winning some vendor conversions but also carving out new sales from companies that have used in-house solutions.
- Asia Pacific currently comprises the smallest share of this market. However, indigenous publishers—particularly in China—are increasingly adopting license management, often with dongles, to protect their intellectual property and revenues in their home territory regions, which offer little legal redress against piracy and have very high piracy/counterfeiting rates. SafeNet and Wibu in particular have made strong sales investments in this region. This region will likely be the fastest growing market in terms of annual growth rates from 2016 to 2018.

Source: Frost & Sullivan analysis.

# NALA Market Revenue Forecast by Form Factor

**Key Takeaway:** LM revenues in NALA will see rising growth over the forecast period; software revenues will continue to significantly outpace hardware revenues.

## Software License Management Market Revenue Forecast by Form Factor, NALA, 2011–2018

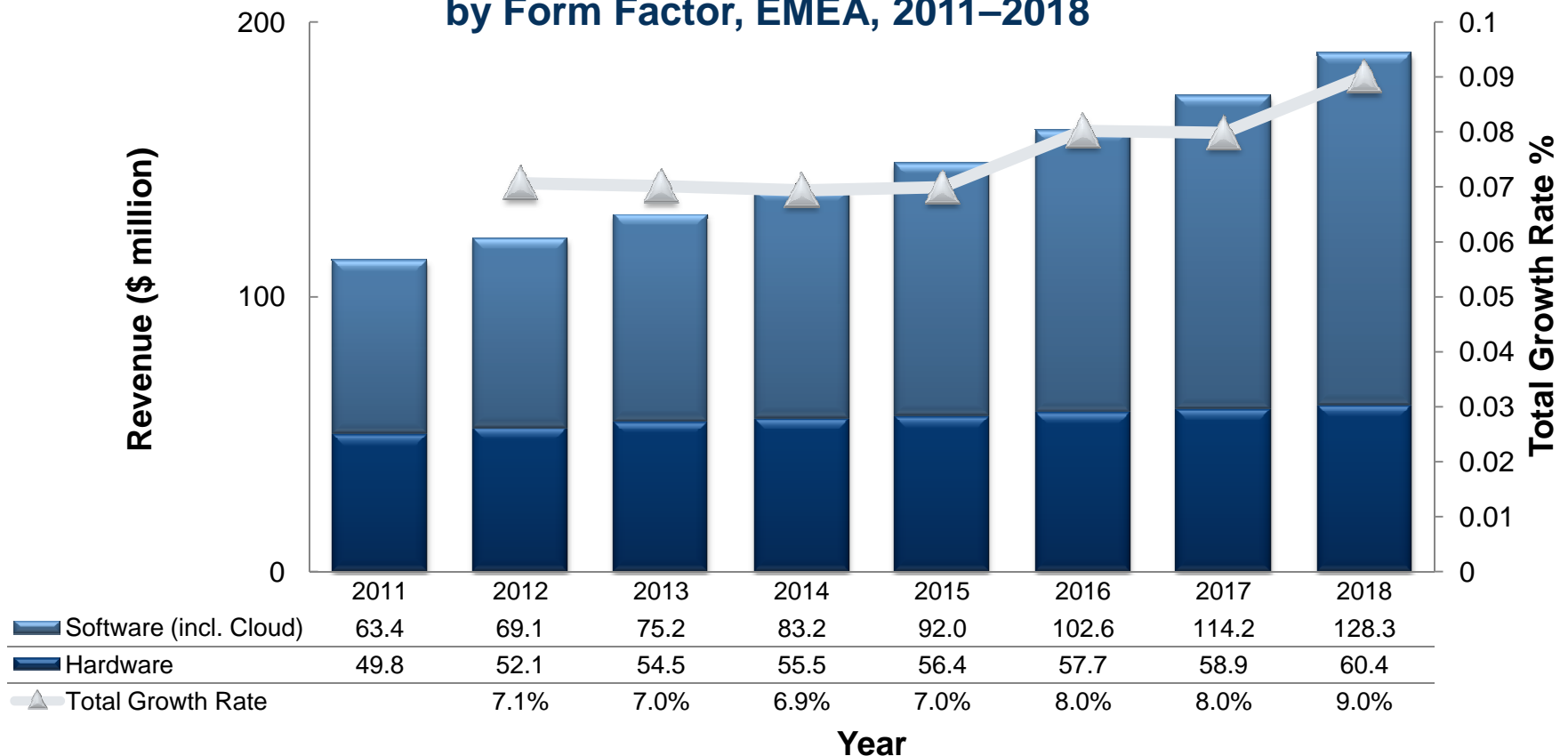


Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

# EMEA Market Revenue Forecast by Form Factor

**Key Takeaway:** EMEA will see gradually rising growth over the forecast period; software revenues will grow faster than sales of hardware.

**Software License Management Market Revenue Forecast by Form Factor, EMEA, 2011–2018**

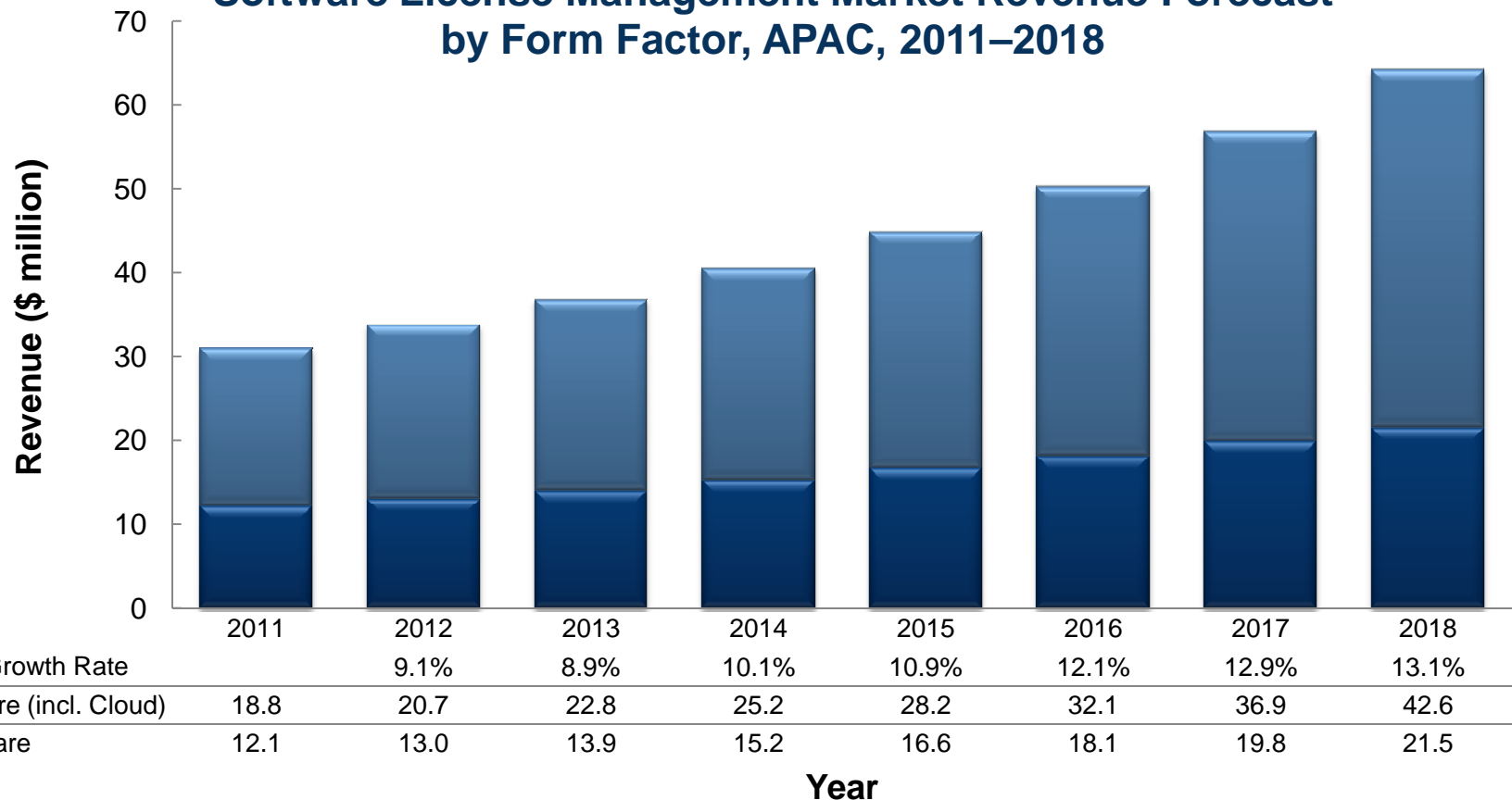


Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.

# APAC Market Revenue Forecast by Form Factor

**Key Takeaway:** APAC will see growing revenues over the forecast period from growth in sales of both hardware and software.

## Software License Management Market Revenue Forecast by Form Factor, APAC, 2011–2018



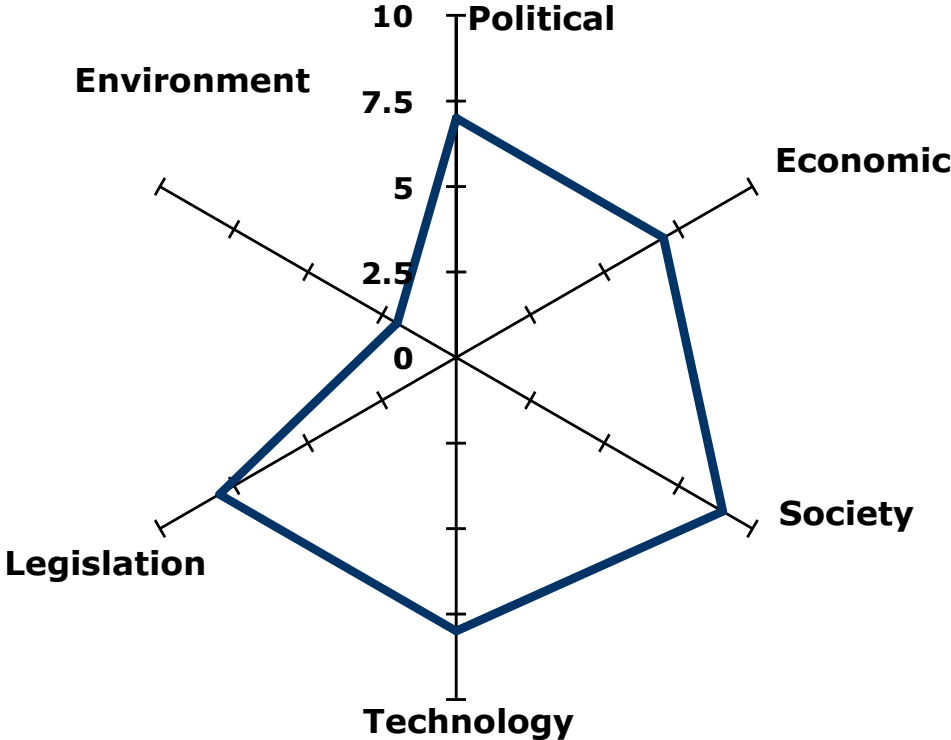
Note: All figures are rounded. The base year is 2011. Source: Frost & Sullivan analysis.



# Market and Technical Trends

# Software License Management Market—PESTLE Analysis

**Key Takeaway: Piracy, and hence license management, is most sensitive to society factors, with significant influence from political and legislative factors and high technology dependency.**



Source: Frost & Sullivan analysis.

# Software License Management Market—PESTLE Analysis (continued)

Factor	Dependency
Environment	<p>The LM market in particular is not resource-intensive, so it has little incentive on this front. A few vendors like Agilis are communicating their efforts to minimize their carbon footprints. On the other hand, enterprise IT divisions are largely committed to greener data centers and operations, driving trends like virtualization that impact how software is consumed, with which LM vendors need to keep pace.</p>
Legislation	<p>IP, anti-piracy, and copy protection laws vary widely across countries. Where anti-tamper laws such as DMCA protect LM systems against hacking, they are more successful in securing revenue and preventing piracy. High-volume B2C vendors rely heavily on cooperation with local law enforcement, and less on technological measures like LM, to control distribution of counterfeit software.</p>
Technology	<p>Application analytics and usage-based product licensing are major trends in desktop software licensing. LM for cloud-based offerings is an emerging area. There is growing innovation in the embedded area, including emphasis on enabling hybrid software-appliance licensing models.</p>

Source: Frost & Sullivan analysis.

# Software License Management Market—PESTLE Analysis (continued)

Factor	Dependency
Political	Political will to protect copyright in a country through legislation and effective law enforcement inversely affect demand for (and effectiveness of) LM solutions. Publishers craft license management strategies differently between major markets with lower piracy rates and emerging/ growing markets that tend to have higher rates of unauthorized use and less effective avenues of legal redress. Separately, countries with strong political support for globalization see growing international software sales and revenues, in turn driving LM growth.
Economic	The software market has rebounded in 2010, boding well for the LM market as well. However, cost control by publishers is pushing prices downward and driving growth of economical all-software solutions versus expensive dongles.
Society	In societies where IP awareness is low or piracy is inherently condoned, there is greater dependency on license management systems, often with dongles, app hardening, or both, to protect revenue. Where societies are respectful of copyright, LM solutions predominantly need to keep honest users honest and help detect counterfeit products.

Source: Frost & Sullivan analysis.

# Technical Trends in Desktop Application Anti-Piracy

- For LM systems, arms race conditions with hackers are not as fervent as with content or gaming DRM, but security still remains a key feature and differentiating factor. Following a rash of hacks in the mid-1990s and early 2000s, Flexera revamped its security architecture considerably. SafeNet, on the strength of its market share, continues to be the most targeted dongle manufacturer, with emulators and cracking services easily found on the Internet.
- Generally LM vendors are evolving their value proposition away from anti-piracy toward entitlement management. They continue to include security components in their offerings but increasingly leave high-grade protection to application hardening vendors like Arxan and Metaforic, complemented by tracking and analytics vendors like Vi Labs and Preemptive. This is a growing gap in fulfilling market need, because publishers want to rely on a single comprehensive solution to manage entitlements as well as manage piracy and counterfeiting. A notable exception to this trend is Wibu, which regularly holds hacking contests for its dongles and actively augments security of its products. For example, applications can now be executed directly from the secure dongle and never be fully installed on the end-user machine.
- Dongles are evolving in terms of memory and processing power. In terms of interfaces, most dongles including SafeNet support USB, while Wibu also supports parallel ports, PCMCIA, SD, CF and more. Beyond dongles, technology evolution now allows roots of trust built into newer Intel and ARM chips and software-based node locking to serve as authentication tokens.

Source: Frost & Sullivan analysis.

# Other Market Trends for Desktop Applications Segment

- Evolving platforms:
  - 64-bit application/server support is ubiquitous. Most vendors only support C/C++ applications; Java and .NET are typically not supported in on-premise scenarios. Companies continue to expand their support for virtualized execution environments.
  - Server and application/client support is extending beyond Windows, Unix, and Linux to Android, MacOS, iOS, and proprietary operating systems.
  - Handheld devices are everywhere in the enterprise, and LM solutions must enable coordination of licenses across traditional in-network workstations and roaming employees.
- Emerging Use Cases:
  - Customers install on-premise applications in the cloud, allowing software to be cloned and potentially resulting in license over-use. LM vendors are augmenting their solutions to manage this. For example, SafeNet has a comprehensive cloud-based offering and Flexera supports secure migration of on-premise apps to the Amazon EC2 cloud.
  - Using a single application binary (and single LM API) to support a variety of deployment scenarios including dongle/software, analytics on/off, and connected/offline activation, rather than specialized or one-off solutions..
- Analytics:
  - Vendors are increasingly supporting the gathering and secure reporting of usage statistics to inform product management/marketing and the compliance team, or pay-by-use billing.

Source: Frost & Sullivan analysis.

# Role of License Management in Embedded Applications

- Traditional device vendors are moving toward rich software-enabled products for several reasons, including: growing popularity of virtual appliances, device-centric functions shifting to the cloud, hardware becoming commoditized, and CPUs becoming smaller, faster, and more power-efficient. As a result, embedded software is increasingly used to provide rich features in appliances and intelligent devices.
- Appliances are typically priced differently depending on RAM memory, video resolution, CPU speed/parallelization, and more. However, device hardware is now commoditized, so manufacturing cost across product editions is equivalent. Device vendors are simplifying SKU management and upgrades by shipping identical devices with features turned on or disabled via LM. This significantly reduces operating cost while easily enabling scenarios like in-field upgrades. In effect, embedded vendors see LM as an operations optimization tool, with clear RoI.
- Devices have tighter constraints on memory footprint, performance overhead, connectivity bandwidth and availability, and availability/error handling. They also have different platform and feature requirements. Solutions built primarily for desktop applications must be adapted and fine-tuned to perform well in this segment.

Source: Frost & Sullivan analysis.

# Role of License Management in Cloud Offerings

- Cloud applications are typically Java or .NET applications that run at a centralized server resource and are accessed in an authenticated and metered manner over the Internet. They can be deployed on public clouds like Amazon, Azure, or Force.com, or on private clouds.
- LM for cloud-based offerings solves the following pressure points for the marketplace:
  - To date, access is mainly controlled through login authentication. However, login credentials can be shared. Separately, cloud execution enables on-premise apps to be used more widely without a higher number of purchased licenses, in effect leading to customer non-compliance.
  - New feature rollout can be complex where homegrown systems are used to meter usage, authenticate users, and generate invoices. Many SaaS vendors today suffer from multi-month roll out delays because as new features are integrated manually with analytics and access management, operations must touch many areas of deployed infrastructure. Separation of monetization functions from core feature development offers clear benefits to publishers, akin to the faster release times and cost savings that commercial LM offers over in-house solutions.
- Hybrid delivery models—where on-premise software, an embedded device, or a virtualized appliance is complemented with an SaaS component—are growing. SaaS privileges are often derived from the underlying product license; this needs to be enforced by LM.
- Vendors including SafeNet, Flexera, Reprise, and Agilis support pay-by-use and cloud-based architectures to varying degrees. SafeNet has the newest, but most comprehensive, support for use cases and business models.

Source: Frost & Sullivan analysis.



# Demand Analysis

# Publisher Requirements from LM Solutions/ LM Vendors

Publishers require their license management solutions to offer the following features:

- Support all existing and upcoming business models and licensing scenarios, including floating licenses, virtualization, offline activation, and dynamic upgrades in a reliable and scalable manner, among others.
- Facilitate development, deployment, upgrading, and enforcement of LM policies without undue impact on existing business process and infrastructure. Solutions should be quick and easy to integrate, configure, and maintain, with minimal impact on development process, distribution process, or application performance.
- Easily integrate with back office, CRM, ERP, marketing automation, compliance, and other relevant systems.
- Provide “adequate” security against piracy (as defined by the publisher) while monetizing legitimate use cases. Logs must be secure against tampering, particularly when they are used for auditing and billing purposes. Dongles are expected to be secure against spoofing, emulation, or unauthorized replication. LM enforcement is expected to be secure against tampering or disabling.
- Provide timely technical support and responsive maintenance for application integration and customer deployment; accurately and quickly fulfill hardware orders.

Source: Frost & Sullivan analysis.

# Customer Requirements from Publishers/LM Solutions

- Publishers can no longer dictate licensing terms and technologies to customers. Increasing competition from SaaS alternatives and the economic climate in general is shifting more power into customers' hands, and customer experience is more critical than ever.
- Customers prefer LM to be as automated, seamless, and transparent as possible. The LM solution cannot disrupt workflows, interfere with performance, or impose undue changes in how a user interacts with the application. LM solutions should interoperate with enterprise security systems such as firewalls and data leakage prevention systems.
- Software must remain accessible during periods of network outages, if systems are down, if hardware is lost/damaged, or during other unforeseen conditions.
- The solution must work in virtualized or distributed environments, support newer clients (e.g., handheld devices) where applicable, and support the desktop and server platforms in use by the customer. Customers prefer the ability to reallocate licenses across different divisions or global offices.
- The solution must integrate, where applicable, with CM or software asset management (SAM) solutions.
- Customers prefer, and often require, systems that are transparent. For example, enterprises require a way to review all data in usage logs returned to the publisher (ideally at no extra cost) and/or require the ability to turn reporting off.

Source: Frost & Sullivan analysis.

# Countering Counterfeiting

- Counterfeit software is a copy of an application that appears legitimate but is in fact pirated. In contrast to piracy, which is willful, counterfeit software consumers believe they are using legitimate titles. Different types of software publishers have differing tolerances to piracy and counterfeiting as well as differing approaches to manage them.
- Large B2C vendors typically use simple business models, where one license corresponds to one user, although OEMs and enterprises frequently purchase such licenses in bulk. Accordingly, they use low-overhead activation solutions that minimize development, deployment, and IT and customer support overhead, and rely heavily on customs, local law enforcement, and application tracking to control counterfeiting and piracy.
- Vendors of very high-end B2B software such as scientific, design/simulation, and engineering software packages are less sensitive to counterfeiting because the application is complex to understand and replicate, has limited clientele because of the expertise required to use it, and is used in highly critical processes where companies will not generally run the risk of using counterfeit or pirated software. These vendors typically rely on LM solutions to manage floating licenses and other complex usage scenarios, but they focus on keeping honest users honest.

Source: Frost & Sullivan analysis.

## Countering Counterfeiting (continued)

- Vendors of mid-market B2B solutions are most sensitive to counterfeiting and piracy, for two reasons. One, emerging markets are a key growth area for them, so they must strategically balance the desire to grow revenues with the risk of piracy. Two, customers of these publishers are seeing growing competition and price undercutting from competitors in emerging/emerged markets. Global competitors using underpriced or free pirated software can afford to undercut honest licensees in major markets, without affecting their profit margin. As a result, customers are pushing their software publishers to adopt stronger anti-piracy and anti-counterfeiting measures. Mid-market publishers rely primarily on LM, typically using dongle-based solutions but increasingly through a combination of application hardening and software-based enforcement. These vendors are also most likely to move to hybrid cloud/on-premise and pure cloud-based offerings.
- Embedded software and intelligent device vendors are highly sensitive to counterfeiting given the commodity nature of the underlying hardware and the premium differentiating features of the software. While ASIC/FPGA\* based devices are naturally more resistant to counterfeiting, for software-driven products vendors typically rely on dongles or application hardening to protect against counterfeiting. They also leverage LM solutions to turn features on and off in various editions of a given product and provide analytics.

*\*Application-Specific Integrated Circuit (ASIC) and Field Programmable Gate Array (FPGA)*

Source: Frost & Sullivan analysis.

# Emerging Business Models—LM Vendors Must Keep Pace

- Customers want the economy of pay-by-use models but prefer the predictability of upfront licenses. Early-mover publishers are offering hybrid models that track usage, allowing companies to make intelligent decisions about which option to choose (and potentially even upgrade) when a renewal comes due.
- Customers are increasingly looking to SaaS/cloud as a way to save on operating expenses and licensing fees. Services can be hosted in the public cloud, on-premise at the vendor facility, or in a private cloud. Customer concerns include data security, speed and reliability. Publisher concerns include speed of integration, prevention of on-premise sales cannibalization, and integration with customer management and billing systems.
- Hybrid product-SaaS licenses are emerging in verticals like telecommunication, healthcare, and simulation, where virtualized or real appliances are complemented with cloud-based offerings. However, licensing privileges to the cloud offering are derived from the basic appliance or software license.
- LM vendors must effectively implement these new models and must in many cases push them to publishers, rather than wait for pull, to maintain and grow market share.

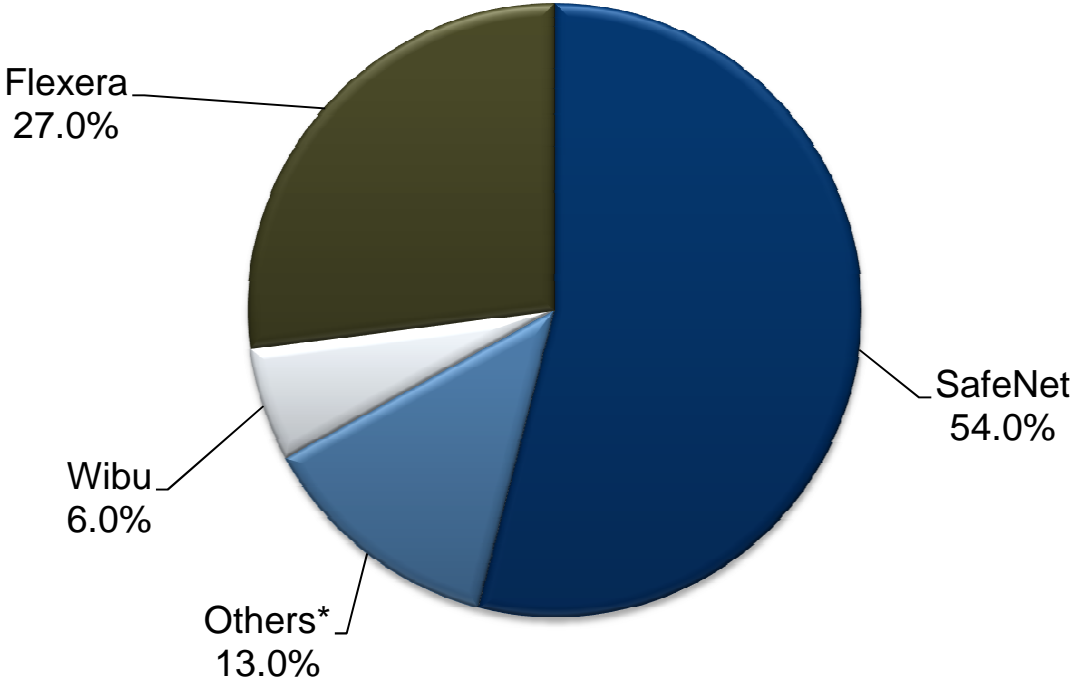
Source: Frost & Sullivan analysis.

# Market Share and Competitive Analysis

# Competitive Analysis—Market Share, Global

**Key Takeaway: SafeNet continues to dominate the market, on strength of hardware sales and its merger with Aladdin Knowledge Systems.**

**Percent of Sales**  
Software License Management Market: Global, 2011



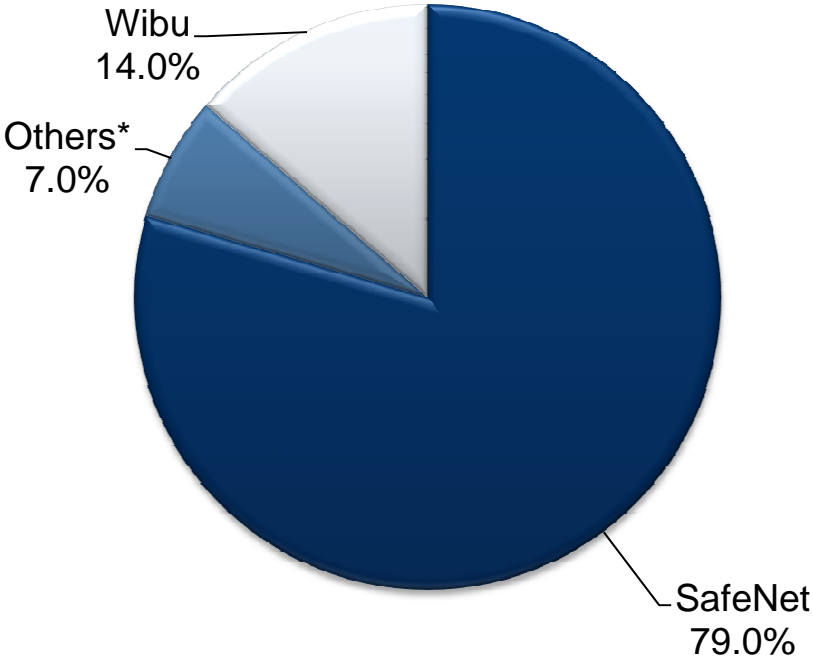
Note: Revenues from dongle sales are attributed to the original manufacturer/vendor, not to the reseller, in all market share analysis slides.  
\* A list of "Other" companies is provided in the next two slides. Note: All figures are rounded. Source: Frost & Sullivan analysis.



# Competitive Analysis—Hardware Segment Market Share

**Key Takeaway: The hardware segment of the LM market is highly saturated with only two major participants, although there are many niche vendors.**

**Percent of Sales**  
Hardware Segment, Software License Management Market: Global, 2011



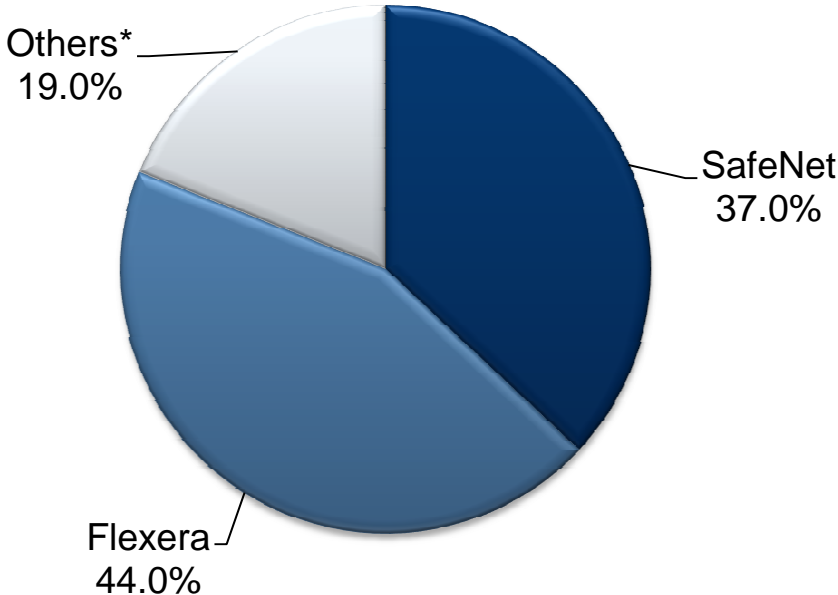
\*Others include Hardlock, Matrixlock, Microcosm, Pace, Secutech, and SQ-Lock

Note: All figures are rounded. Source: Frost & Sullivan analysis.

# Competitive Analysis— Software-Enforced Segment Market Share

**Key Takeaway: Flexera leads the software-enforced segment of the LM market, although it ranks second for market share in the total LM market.**

**Percent of Sales**  
Software Segment, Software License Management Market: Global, 2011



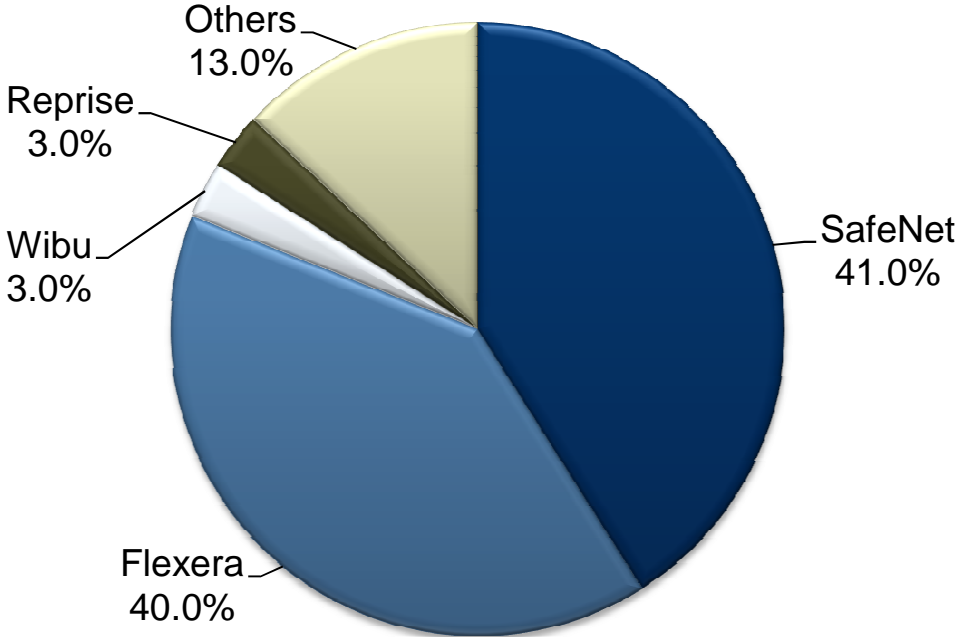
\*Others includes Agilis, Inishtech, ModusLink OCS, Nalpeiron and Reprise

Note: All figures are rounded. Source: Frost & Sullivan analysis.

# Competitive Analysis—Market Share, North America

**Key Takeaway: North America is a more fragmented market, although SafeNet and Flexera still dominate with nearly even market shares.**

**Percent of Sales**  
Software License Management Market: North America, 2011

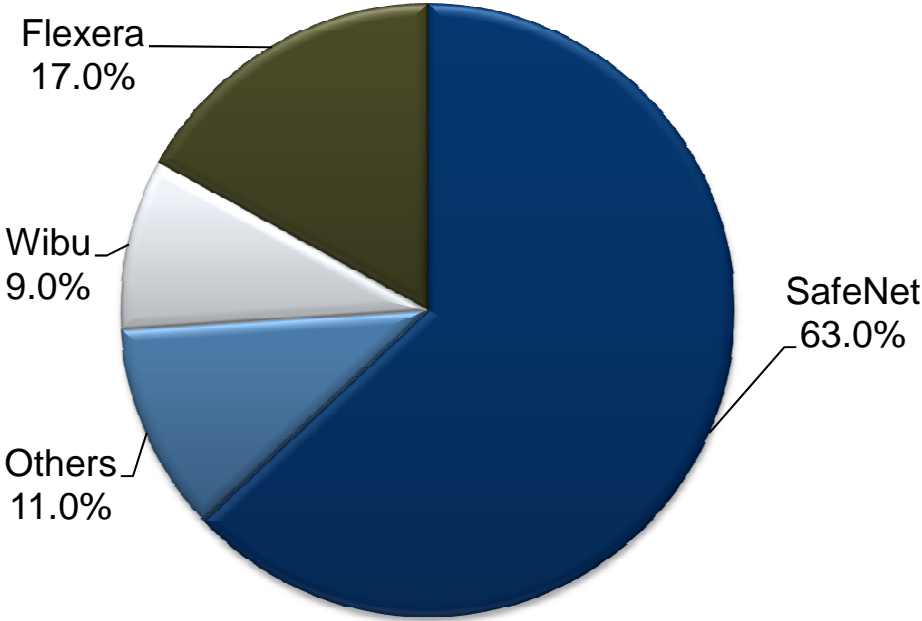


Note: All figures are rounded. Source: Frost & Sullivan analysis.

# Competitive Analysis—Market Share, Europe

**Key Takeaway: Europe is a very strong market for SafeNet and Wibu alike; Flexera is still working to build market share equivalent to that in North America.**

**Percent of Sales**  
Software License Management Market: Europe, 2011



Note: All figures are rounded. Source: Frost & Sullivan analysis.

# Market Share Analysis

- #1: SafeNet (including Aladdin Knowledge Systems and Rainbow Technologies) is a large company with diverse enterprise data security offerings. Through its Sentinel product line, it boasts a dominant leadership position in the total LM market. SafeNet boasts particularly strong leadership positions in the hardware (dongle) segment, in the embedded vertical, and in the European region. It also has a strong sales presence in the fast-growing APAC region. Challenges include the diminishing popularity of dongle-based approaches, strong competition from Flexera, rising competition from Wibu, and maintaining customer satisfaction as it diversifies its business. The company continues to innovate and has the benefit of synergies with its core enterprise security offerings. Overall, it is well positioned for continued leadership in this market.
- #2: Flexera (formerly Acresto, spun out of Macrovision/Rovi) leads the software enforcement segment, has a strong position in North America, and dominates the high-end desktop software segment, particularly verticals such as EDA, GIS, and PLM. In addition to FlexNet Publisher (FNP) for LM, Flexera also offers compliance management solutions and the ubiquitous InstallShield. Customer loyalty is high because of its close integration with complex applications, as well as support for its licensing system by end-customer IT infrastructure and compliance management systems. Through acquisitions, Flexera is building out cloud and analytics features. It also supports embedded applications to some extent but has yet to build major market share. It is challenged by dominant SafeNet on one hand and small but growing competitors like Reprise on the other.

Source: Frost & Sullivan analysis.

## Market Share Analysis (continued)

- #3: Wibu has its strengths in dongle-based license management, with the broadest, most hardened, and most versatile range of dongle products. The company emphasizes customer support and speed of order fulfillment. Headquartered in Germany, its primary market is Europe. It entered the North American market in 2009, and has seen steady growth in sales since then. The company is focused on growing sales within dongle-based use cases but is also developing software-based solutions for broader applicability. Frost & Sullivan expects Wibu to gradually gain significant market share over the forecast period.
- Other notable vendors include:
  - Agilis, which provides software-based LM solutions for desktop software and embedded products in user/machine bound and virtualized scenarios and also provides LM for cloud-based architectures. Its product suite supports a wide range of application/server platforms, as well as a wide range of usage scenarios, licensing models, and connectivity conditions.
  - Reprise was founded by the developers of Globetrotter, the foundation of FlexNet Publisher. Reprise License Manager provides software-based entitlement management for desktop applications, partnering with application hardening vendors to provide anti-tamper protection to publishers. RLM is differentiated from other LM offerings on simplicity, transparency, and value. Pay-by-usage models are supported on-premise and in-cloud. Currently still small, Reprise saw high double-digit growth in 2010 and continues to see growing momentum.

Source: Frost & Sullivan analysis.

## Market Share Analysis (continued)

- Other Vendors (continued)
  - Moduslink is the only publicly held vendor in the software DRM market today, although SafeNet is poised for an IPO in 2012. Moduslink's OCS division, which provides license management solutions, was historically a separate business unit but is the only major vendor to have seen significantly declining sales. With no new product announcements and low marketing momentum, the company is expected to continue to lose market share and likely exit this market within the forecast period.
  - Inishtech provides cloud-based solutions, primarily for .NET applications. Microsoft spun off its MSLP technology to Inishtech in 2009 for ongoing commercialization and development.
  - Pace offers dongle-based LM solutions, and dominates the niche of professional audio processing applications. A single Pace dongle can hold multiple licenses from different ISVs, and select vendors offer zero-downtime protection, for an additional fee, that allows customers to continue to use software protected by a damaged or lost dongle until a replacement can be acquired. Over time, we expect Pace to gradually lose market share, given its lack of product evolution and diminishing relevance of the dongle-based approach.

Source: Frost & Sullivan analysis.

# Competitive Environment

## Software License Management Market: Competitive Structure, Global, 2011

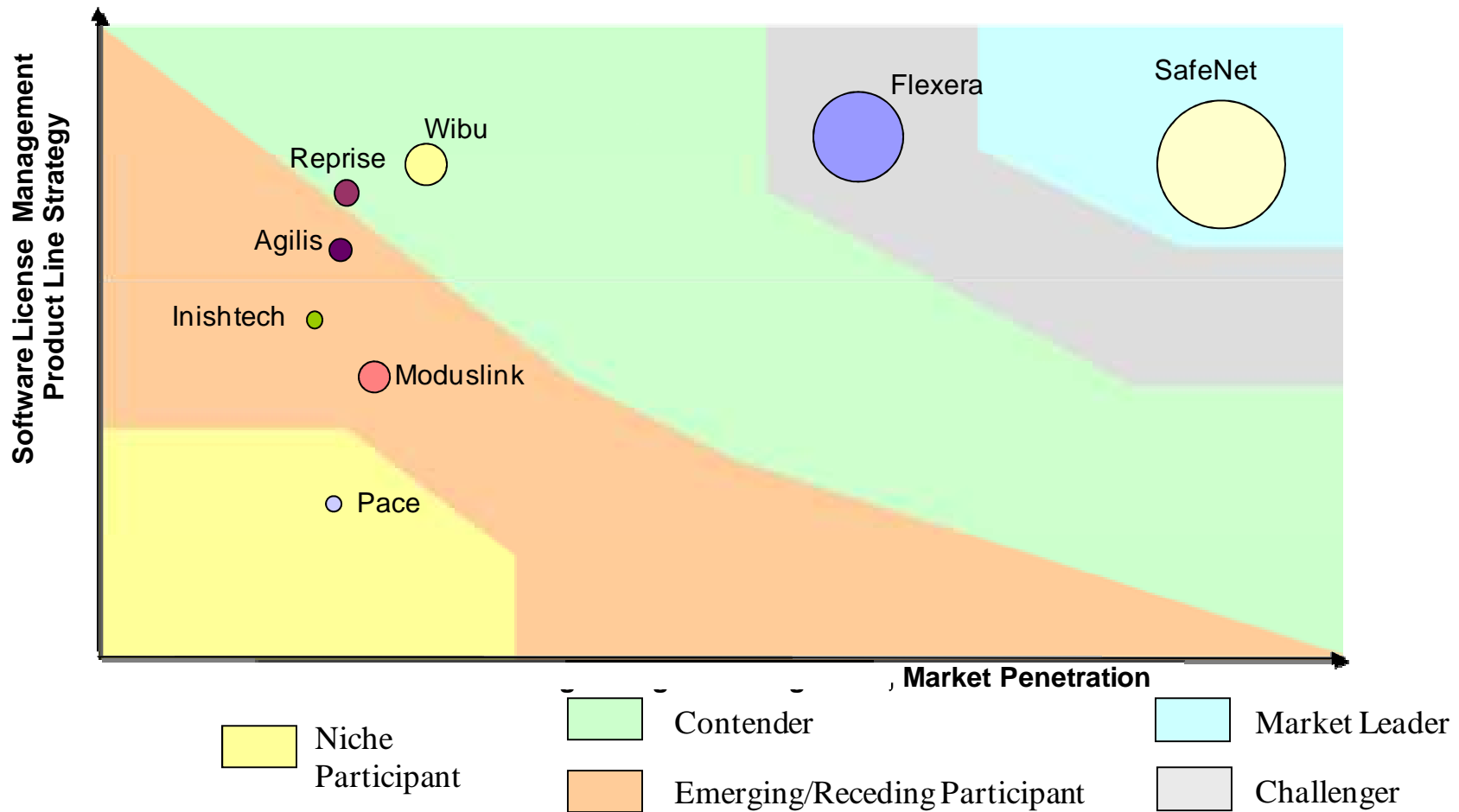
<b>Number of Companies in the Market</b>	9 with revenues greater than \$1M, 8 are privately held
<b>Competitive Factors</b>	Cost, performance, support, technology, reliability, scalability, support for target business models, support by customer IT organization
<b>Key End-user Groups</b>	Desktop application software, embedded software & intelligent devices, and cloud-based applications
<b>Major Market Participants</b>	SafeNet, Flexera Software, Wibu Systems
<b>Market Share of Top 3 Competitors</b>	87.0%
<b>Other Notable Market Participants</b>	Agilis, InishTech, Moduslink, Nalpeiron, Pace, Reprise, SecuTech, and others
<b>Distribution Structure</b>	Mostly direct. A few dongle vendors rely on distributors for global sales.
<b>Notable Acquisitions and Mergers</b>	<ul style="list-style-type: none"> <li>• SafeNet acquired Aladdin in 2009 and filed for a potential IPO in 2011.</li> <li>• Flexera (was Acrezzo) was a spin-off of Macrovision (Rovi) in 2009 to Thoma Bravo. Teachers' Private Capital acquired majority stake in 2011.</li> <li>• Acrezzo acquired Linkware in 2008 (analytics) and Intraware in 2009 (SaaS).</li> <li>• Syncrosoft was acquired in 2008 by Steinberg, now labeled eLicensor.</li> </ul>

Source: Frost & Sullivan analysis.



# Competitive Landscape Analysis

## Competitive Landscape Analysis Software License Management Market, Global, 2011



# Top Competitors

Company	Strengths	Weaknesses	Opportunities	Threats
SafeNet	Dominates dongles and embedded; compelling offering in cloud. Strong presence in rapidly growing Asian region.	Challenges with customer satisfaction. History of dongle cracks weakens trust in brand.	Growing embedded, emerging cloud, and energized APAC markets; application analytics; cloud synergies with single-sign-on enterprise offering.	Competition from Flexera and Wibu in North America; declining growth in dongle-based approach.
Flexera	De-facto standard in large verticals like EDA (electronic design automation). Software enforcement with dongle-agnostic approach. Cloud, analytics and embedded initiatives.	High price point, challenges with customer satisfaction, feature agility, and aging desktop application platform.	Continued growth and global expansion in desktop applications; potential in cloud protection and the embedded/ intelligent-device segment.	Flexera is most challenged by emergence of newer, more agile, and less expensive solutions like Reprise and Agilis.
Wibu	Versatile, secure dongle product. Well-formed global reseller network. Strong focus on customer satisfaction and support.	Server and back-office components need additional build-out to compete effectively with current market leaders. Lacks robust software-only offering.	Recent entry into North American market offers promising growth opportunity.	Software-only product (without dongle) is in early stages. Business largely comprises dongle sales, which are seeing slowing growth.

Source: Frost & Sullivan analysis.

# Directory of Products—Selected Vendors

Company	Primary Products
Agilis Software	EasyLicensor, Orion, Acropolis
Flexera Software	FlexNet Publisher
InishTech	SLPS
Moduslink	OCS
Nalpeiron	NLS
Pace Anti-Piracy	iLok
Reprise Software	Reprise License Manager
SafeNet	Sentinel (RMS, EMS, HASP, Cloud)
SecuTech	UniKey (Standard, Pro, Time, Drive)
Wibu Systems	CodeMeter, WibuKey

Source: Frost & Sullivan analysis.

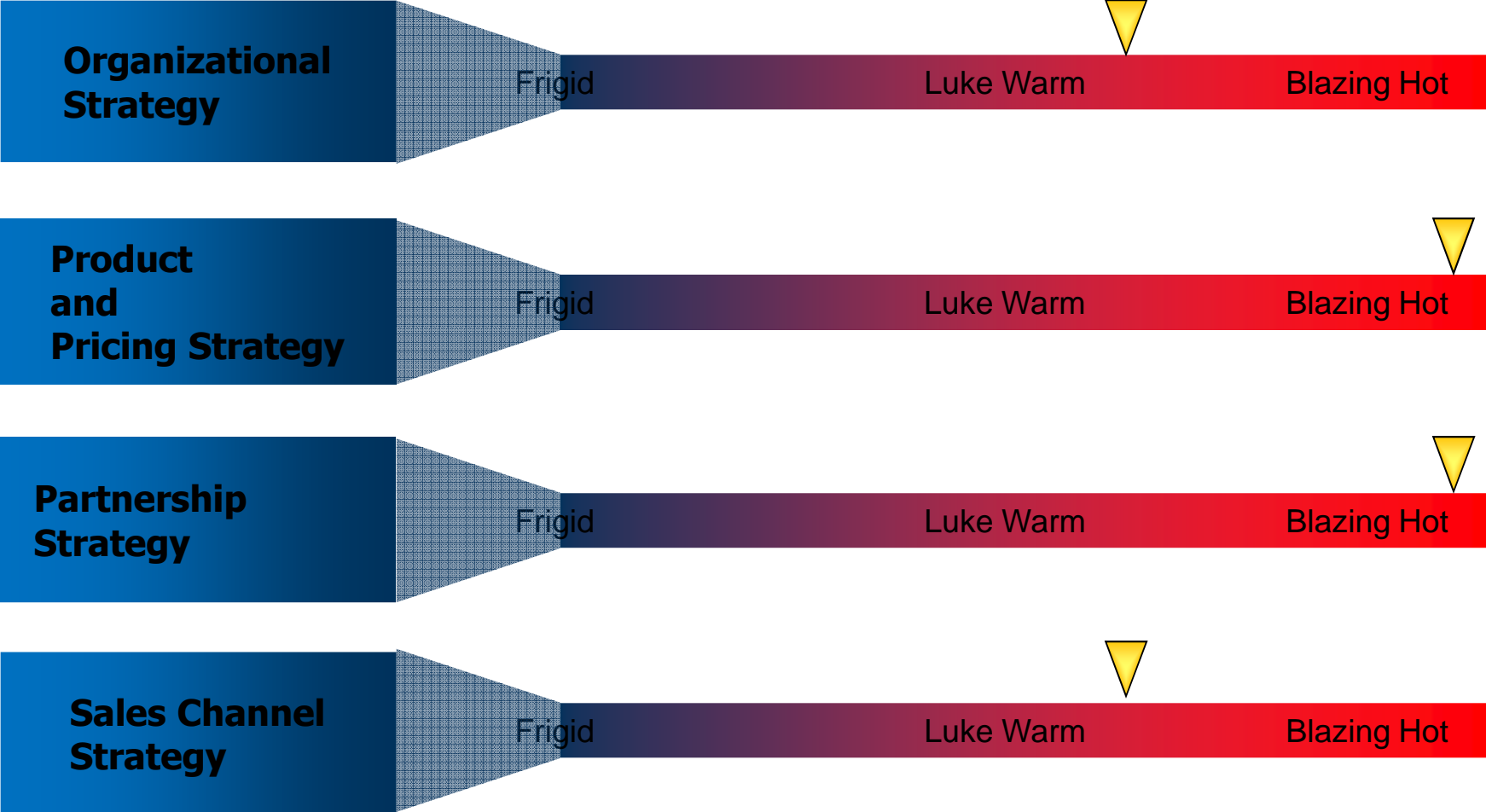
# Hot Company Watchlist

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- The following companies have been identified through this analysis as having tremendous potential for growth over the next 12 months because of their current deployed initiatives.
- These companies have been put on the Hot Company Watchlist by virtue of strategies initiated by them over the past 12 months, which have put these companies in a good position to strengthen their market position significantly over the next year.
- The proper execution of initiated strategies are expected to have the potential to propel these companies toward significant growth in the near future.

Source: Frost & Sullivan analysis.

# Hot Company Watchlist- Reprise



Source: Frost & Sullivan analysis.

# Reprise: Customer-Centric Entrepreneurship

- Reprise's RLM offering is differentiated from leading solutions through modern design, customer service, agility, and simplified pricing structure with no additional fees for volume usage. Publishers cite extremely high satisfaction with product, support, and value for money.
- RLM's basic edition is ideal for smaller SMBs offering software at high per-seat license prices, which is not a key customer demographic for leading vendors. The full edition can meet the complex needs of the largest ISVs and competes directly with mainstream products. Today, RLM sees strongest adoption by customers less rigidly locked into their current commercial or homegrown solutions. For complex titles or large organizations, switching LM providers remains a challenge—one that Reprise is slowly but surely expected to overcome.
- RLM has a strong focus on ease of use, providing features such as transparent yet secure logs and translocation of licenses for globally distributed enterprises for better end-licensee experience.
- Reprise further differentiates on agile customer support and lower total cost of ownership.
- In contrast to leading vendors, Reprise's unique strategy is to focus product features only on entitlement management—that is, only on enforcing business rules in honest usage scenarios—and partnering with external vendors to supply application hardening where required by publishers.

Source: Frost & Sullivan analysis.

## Reprise (continued)

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- Customers span verticals including design and simulation, film special effects (both base applications and plug-ins), studios, and scientific and exploration software. As features are built out, the product gains enterprise-grade stability and achieves compatibility with the installed base of Flexera compliance management. Reprise is poised to cross the chasm and move toward mainstream growth.
- Reprise is still small in terms of revenue and team size, but it has won a critical mass of customers in major markets and saw high double-digit growth in 2010. Frost & Sullivan expects it to continue this momentum through 2011.

Source: Frost & Sullivan analysis.

# Hot Company Watchlist- Wibu Systems



Source: Frost & Sullivan analysis.



# Wibu Systems: Blending Security with Usability

- Wibu Systems' robust CodeMeter dongle product, global sales infrastructure, strong partnership strategy, and emphasis on customer satisfaction have driven energetic growth, positioning it for continued success and growth in the software license management market.
- Wibu is a leading provider of dongles for software license management. It ranks third in the total license management market and second in the hardware-enforcement segment. Beyond LM, Wibu also provides security for gaming kiosks and digital content (audio, video, and communication data) encryption.
- The company's growth rates in 2010 and 2011 were more than twice those of the software license management market based on excellence in product line, go to market strategy, and partnership strategy.
- The company has a strong presence in Europe, although it only entered the North American market in earnest in 2009. The company is headquartered in Germany, with subsidiaries in China and the US and resellers worldwide. Wibu's "co-opetitor" Flexera Software is a major reseller of its WibuKey dongle.
- A diverse clientele across automotive, industrial automation, healthcare, CAD/CAM (computer-aided design/computer-aided manufacturing), and multimedia verticals positions the company well to capitalize on growth opportunities in the desktop and embedded sectors of the software LM market. Wibu also provides LM for cloud-based and virtualized deployments.

Source: Frost & Sullivan analysis.

## Wibu Systems (continued)

- Wibu's CodeMeter dongle supersedes the older WibuKey and is a unique offering on several fronts:
  - In contrast to other market vendors, Wibu emphasizes and constantly upgrades the security features of its products – for example through periodic hacking challenges.
  - Unique in having multiple interface types—not just USB, but also parallel ports, PCMCIA, SD, CF, and more. This is an important differentiator for embedded applications and for customers running newer hardware such as Hewlett Packard or IBM blade servers, which do not support multiple USB ports. Plus, multiple Wibu and third-party licenses can reside on the same dongle.
  - The CodeMeter dongle is one of a few models on the market offering enough memory to deliver and/or run an entire application, offering additional robustness for counterfeit-sensitive applications.
  - When a customer loses or damages a dongle, the customer does not irretrievably lose licenses.
  - Publishers can request customized branding and engraving of dongles at reasonable up-charge.
- The company is overcoming several challenges as it seeks continued growth worldwide, notably:
  - Wibu is still relatively unknown outside its home market of Western Europe. It entered the North American market in earnest in 2009 (via Wibu-USA) and is now seeing growing brand awareness.
  - Wibu faces significant competition from SafeNet, the dominant vendor in this space, but it is carving out competitive advantage through strong sales infrastructure, high levels of customer service, and product innovation—including a continued emphasis on dongle security and flexibility of usage.
  - Dongles in general are falling out of favor as publishers seek less intrusive enforcement methods, particularly in North America. To combat this, Wibu is building out software activation features on one hand, and, on the other hand, is strategically targeting customers in desktop and embedded segments who demand robust tamper-resistance for high-value products.

*Source: Frost & Sullivan analysis.*

# Complementary Technologies and Vendors

# Overview

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Several technologies are used in conjunction with license management to better realize the end goal of software monetization and prevention of piracy. These include:

- Application Analytics
- Application Hardening
- Compliance Management

**This section provides an overview of these technologies and key vendors, although market sizing and complete analysis is beyond the scope of this report.**

Source: Frost & Sullivan analysis.

# Application Analytics

- **WHAT:** Measuring how, where, and by whom software (desktop, cloud, or embedded) is used and securely reporting this back to the publisher for further data mining and analysis.
- **WHY:** Pay-by-usage models critically rely on analytics data for billing. Analytics also offer insight into feature usage, identify customer profiles and targets for potential up sells, and provide input to license audit/anti-piracy teams.
- **WHO:** Application analytics is a large market. In the specific context of LM:
  - Preemptive and V.i. Labs (both originally application hardening vendors) now focus on application tracking and analytics. V.i. Labs gathers data on how unlicensed desktop applications are made available and where overuse is occurring. Publishers' compliance teams can leverage this intelligence to recover revenue; development teams can use knowledge to refine anti-piracy strategy. PreEmptive's Runtime Intelligent Service provides application analytics for mobile, cloud, and on-premise applications written in .NET or Java.
  - Major LM vendors also provide some form of application analytics.

Source: Frost & Sullivan analysis.

# Application Hardening

- **WHAT:** Protecting software (embedded, desktop, mobile) against reverse engineering, tampering, and hacking through app-internal measures (obfuscation, encryption, anti-debugging).
- **WHY:** Most LM solutions are not designed for high resistance against hacking. App hardening is used to protect LM modules against disabling/bypassing, protect IP within the application against theft or counterfeiting, and reinforce dongle-application interfaces.
- **WHO:**
  - Arxan Technologies (USA), Metaforic (UK), and WhiteCryption (Latvia) provide professional-grade application hardening. Arxan's GuardIT and EnsureIT provide binary-level hardening of desktop, embedded and .NET/Java applications, complemented by TransformIT for white-box cryptography. Arxan has announced partnerships with Flexera and Reprise for integrated LM hardening. Metaforic provides MetaFortress for desktop/embedded application hardening and Metasure for secure clocking and key hiding, which are compatible with leading LM solutions. WhiteCryption offers MC-FACT for application hardening and key protection, acquired through its purchase of Syncrosoft (whose dongle business was earlier acquired by Steinberg) in 2010.
  - Cloakware (acquired by Irdeto): no longer serves the application hardening market; it is now focused on digital media applications and content DRM/conditional access hardening.
  - Numerous vendors of free or low-cost encryption wrappers and .NET/Java obfuscators. PreEmptive offers free as well as premium obfuscator products.

Source: Frost & Sullivan analysis.

# Compliance Management

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- **WHAT:**

- Systems that IT organizations of end-customers deploy to measure, manage and optimize their purchased software licenses. These systems are mostly aware of the underlying LM solutions in the software they manage.

- **WHY:**

- Identifying under-used software titles saves money.
- Ensuring no over-use of software titles prevents penalties.
- Optimizing use of available licenses provides additional savings.

- **WHO:**

- Software Asset Management companies, such as IBM, CA, and Scalable.
- Flexera has a strong compliance business supporting FlexNet as well as homegrown solutions from Adobe, IBM, Microsoft, SAP, and Symantec.

Source: Frost & Sullivan analysis.

# The Last Word



# The Last Word—Three Big Predictions

**1**

Embedded will overtake desktop software as the largest vertical in the license management market by 2018.

**2**

Acquisitions or additional IPOs are likely as vendors vie to gain market share in a SafeNet-dominant landscape, and new vendors will emerge over the forecast period.

**3**

Application analytics will become a key differentiator for license management solutions.

Source: Frost & Sullivan analysis.

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# Appendix

# Market Engineering Methodology

One of Frost & Sullivan’s core deliverables is its Market Engineering studies. They are based on our proprietary Market Engineering Methodology. This approach, developed across the 50 years of experience assessing global markets, applies engineering rigor to the often-nebulous art of market forecasting and interpretation.

A detailed description of the methodology can be found [here](#).



Source: Frost & Sullivan research.

# Data Gathering

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- Interviews were conducted with:
  - Top-five vendors and select additional vendors
  - Customers, thought leaders, and industry experts
- Additional sources of information include:
  - Complementary research from Frost & Sullivan
  - Public reports such as those from the Business Software Alliance (BSA) and various government/international trade organizations
  - Current and historical annual reports for vendors that are, or were, publicly held

Source: Frost & Sullivan research.

## Learn More—Next Steps

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- Review discussions or start a new topic on the public “Ask An Analyst” forum on LinkedIn
- Leverage analyst inquiry hours for deeper insight into specific questions or issues
- Arrange a Growth Workshop
- Follow the digital media blog at [www.frost.com](http://www.frost.com)

Source: Frost & Sullivan research.

# Table of Acronyms Used

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APAC	Asia Pacific region
CAD/CAM	Computer-aided design/Computer-aided manufacturing
DRM	Digital Rights Management
EDA	Electronic Design Automation
EMEA	Europe, Middle East, Africa
GIS	Geographic Information Systems
LM	License Management, equivalent to Software DRM
NA	North America
NALA	North America and Latin America
PLM	Product Lifecycle Management
SDK	Software Development Kit
SaaS	Software as a Service (synonymous with Cloud)
SSO	Single Sign-On

Source: Frost & Sullivan research.